west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

May 27, 2015

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101833, issued to NOBLE ENERGY, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: MND 1 LHS
Farm Name: CONSOLIDATION COAL COMPA
API Well Number: 47-5101833
Permit Type: Horizontal 6A Well
Date Issued: 05/27/2015

Promoting a healthy environment.

API Number: 5101833

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.

2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.

3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.

4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.

5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations,* 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.

6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.

7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.

8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

WW-6B
(12/14)

API NO. 47- 051 - 01833
OPERATOR WELL NO. MND 1 LHS
Well Pad Name: MND 1

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Noble Energy, Inc.	494501907	Marshall	Clay	Powhatan Point
	Operator ID	County	District	Quadrangle

2) Operator's Well Number: MND 1 LHS Well Pad Name: MND 1

3) Farm Name/Surface Owner: Murray Energy Corporation (formerly Consol) Public Road Access: County Highway 88/8

4) Elevation, current ground: 1150.37' Elevation, proposed post-construction: 1152.08'

5) Well Type (a) Gas ☑ Oil ☐ Underground Storage ☐
Other ☐
(b)If Gas Shallow ☑ Deep ☐
Horizontal ☑

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Marcellus 6315 - 6370' / 55' Thick / 4204 psi

8) Proposed Total Vertical Depth: 6,360'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 13,010'

11) Proposed Horizontal Leg Length: 5850'

12) Approximate Fresh Water Strata Depths: 521', 801', 898', 947'

13) Method to Determine Fresh Water Depths: nearest offset well

14) Approximate Saltwater Depths: None

15) Approximate Coal Seam Depths: 687'-697'

16) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated, drilling in pillar-mine maps attached

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes ☑ No ☐

(a) If Yes, provide Mine Info:
Name: Wells are located in abandoned area of Mc Elroy Mine
Depth: 692' to seam base
Seam: Pittsburgh #8
Owner: Consol Mining Company, LLC

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WV Dept. of Environmental Protection

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API NO. 47- 051 -
OPERATOR WELL NO. MND 1 LHS
Well Pad Name: MND 1

18) **CASING AND TUBING PROGRAM**

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	LS	94	40' minimum or to next competent formation, but no deeper than 1st freshwater	40' minimum or to next competent formation, but no deeper than 1st freshwater	CTS
Fresh Water	13 3/8 "	New	J-55	54.5	1097' or to next competent formation no deeper than elevation	1097' or to next competent formation no deeper than elevation	CTS 30% excess Yield =1.18
Coal	"	"	"	"			
Intermediate	9 5/8"	New	J-55	36.0	2437' or 250' below the fifth sand	2437' or 250' below the fifth sand	CTS 20% excess Yield = 1.18
Production	5 1/2"	New	P-110	20.0	13,010'	13,010'	10% excess Yield = 1.27 TOC=200' above 9.625 shoe
Tubing							
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Max. Associated Surface Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	26"	0.438			Type III	CTS
Fresh Water	13 3/8 "	17.5"	0.380	2730	1200	Class A	30% excess Yield =1.18
Coal	"	"	"	"	"		
Intermediate	9 5/8"	12.38	0.325	3520		Class A	20% excess Yield =1.18 to surface
Production	5 1/2"	8.75"-8.5"	0.361	12,640		Class A	10% excess Yield = 1.27 TOC=200' above 9.625" shoe
Tubing							
Liners							

2/25/15

PACKERS

Kind:				
Sizes:				
Depths Set:				

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4705101833

WW-6B
(12/14)

API NO. 47- 051 -
OPERATOR WELL NO. MND 1 LHS
Well Pad Name: MND 1

4705101833

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill the vertical depth to the Marcellus at an estimated total vertical depth of approximately 6360 feet. Drill Horizontal leg - stimulate and produce the Marcellus Formation. Set the 13 3/8 to 1097' due to formation issues, but not deeper than elevation. Should we encounter a unanticipated void we will install a minimum of 20' of casing below the void but not more than 100' below the void, set a basket and grout to surface.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water, and chemicals. our maximum pressure is not to exceed 10,000 lbs. Please refer to attached list.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 9.0

22) Area to be disturbed for well pad only, less access road (acres): 7.6

23) Describe centralizer placement for each casing string:

No centralizers will be used with conductor casing. Surface casing will have bow spring centralizers on the first 2 joints then every 3 joints to 100' from surface. Intermediate casing will have bow spring centralizers every 3rd joint to 100' from surface. Production string will have a rigid bow spring every third joint from KOP to TOC. Rigid bow spring every joint to KOP.

24) Describe all cement additives associated with each cement type:

Conductor- Type III CTS *Surface and Coal - 15.6 ppg Class A (CCAC), 0.25 lbs/sk Lost Circ 30% excess Yield=1.18 to surface. Intermediate 15.6 ppg Class A +0.25% bwoc cellophane flakes (CLC-CPF) 30% Excess Yield = 1.18 to surface. Production 14.6ppg 65/35 Class A /POZ +0.5% fluid loss additive, +/-0.3% retarder, +/-0.6% dispersant, +/-0.2% anti-foam, +/-0.1% anti-settling, 10 % excess yield=1.27 TOC>=200' above 9.625" shoe.

25) Proposed borehole conditioning procedures:

Conductor - The hole is drilled w/ air and casing is run in air. Apart from insuring the hole is clean via air circulation at TD, there are no other conditioning procedures. Fresh Water/Surface -The hole is drilled w/air and casing is run in air. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement. Intermediate - Once surface casing is set and cemented Intermediate hole is drilled either on air or SOBM and flow w/ KCl water once filled w/ KCl water once drilled to TD. The well is conditioned with KCl circulation prior to running casing. Once casing is at setting depth, the well is circulated a minimum of one hole volume prior to pumping cement. Production - The hole is drilled with synthetic oil base mud and once at TD the hole is circulated at maximum allowable drilling pump rate for at least 6X bottoms up. Once on bottom with casing, circulate a minimum of one hole volume prior to pumping cement.

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MAR 16 2015

*Note: Attach additional sheets as needed.

Fresh Water Protetcion String:		Cement Additives	
Allied Material Name	Additive (Material) Type	Additive (Material) Description	CAS #
CCAC (Class A Common)	Base Cement	Grey powder	65997-15-1
CA-100	Accelerator	White, flake	10043-52-4 7447-40-7 7732-18-5 7647-14-5
CLC-CPF (Cellophane Flakes)	Lost Circulation Aid	White and colored flake	Non-Hazardous

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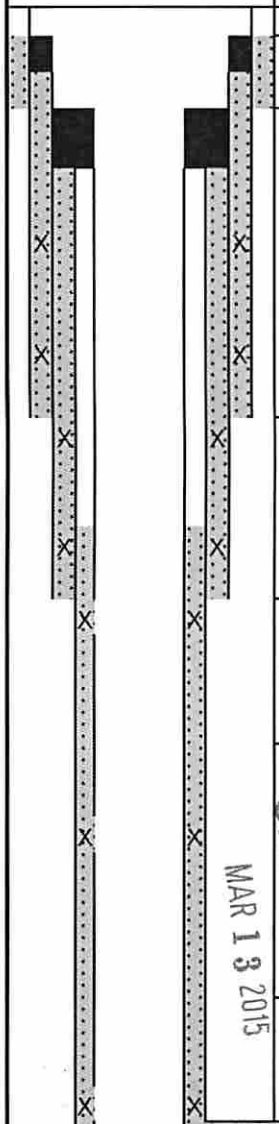
MAY 22 2015

WV Department of
Environmental Protection

DRILLING WELL PLAN

MND-01L HS
Marcellus Shale Horizontal
Marshall County, WV

		MND-01L SHL	494153.71N 1642180.36E
Ground Elevation	1152'	MND-01L LP	494299.38N 1641388.46E
Azm	325	MND-01L BHL	499091.35N 1638033.08E



HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS
26	20" 94#	Conductor	40	40	AIR	Type III Surface to TD	N/A	Ensure the hole is clean at TD.	Conductor casing = 0.438" wall thickness
17 1/2	13-3/8" 54.5# J-55 BTC	FW Shows	521	521	Air or Fresh Water Based Mud	15.6 ppg Class A, 0.25 lb/sk Lost Circ 30% Excess Yield = 1.18 To Surface	Bow Spring on first 2 joints then every third joint to 100' form surface	Fill with <3% KCl water once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	Surface casing = 0.380" wall thickness Burst=2730 psi
		Pittsburgh Coal	687	697					
		Surface Casing	1097	1097					
12 3/8	9-5/8" 36# J-55 LTC	1st Salt Sand	1731	1778	Air or 8.0 SOBM	15.6ppg Class A +0.25% bwoc cellophane flakes 30% Excess Yield=1.18 To Surface	Bow spring centralizers every third joint to 100' feet from surface.	Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.352" wall thickness Burst=3520 psi
		Big Lime	1908	2024					
		Big Injun	2024	2137					
		Price Formation	2137	2652					
		Int. Casing	2437	2437					
8.75" Vertical	5-1/2" 20# HCP-110 TXP BTC	Speechley	3439	3485	Air or 8.0 SOBM	14.6ppg 65/35 Class A/Poz +/-0.5% fluid Loss additive, +/-0.3% retarder, +/-0.6% dispersant, +/-0.2% antifoam, +/- 0.1% antisettling 10% Excess Yield=1.27 TOC >= 200' above 9.625" shoe	Rigid Bow Spring every third joint from KOP to TOC	Once at TD, circulate at max allowable pump rate for at least 6x bottoms up. Once on bottom with casing, circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.361" wall thickness Burst=12640 psi Note:Actual centralizer schedules may be changed due to hole conditions
		Java	4990	5085					
		Pipe Creek	5085	5172					
		Angola	5172	5754					
8.75" Curve		Rheinstreet	5754	6075	12.0ppg-12.5ppg SOBM		Rigid Bow Spring every joint to KOP		
		Cashaqua	6075	6147					
		Middlesex	6147	6170					
		West River	6170	6231					
		Burkett	6231	6256					
		Tully Limestone	6256	6280					
		Hamilton	6280	6315					
8.75" - 8.5" Lateral		Marcellus	6315	6370	12.0ppg-12.5ppg SOBM				
		TD	13010	6360					
		Onondaga	6370						

LP @ 7160' TVD / 1641388.46'

8.75 / 8.5 Hole - Cemented Long String
5-1/2" 20# HCP-110 TXP BTC

+/-5850' ft Lateral

TD @ +/-6360' TVD
+/-13010' MD

X=centralizers

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MAR 13 2015

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WW-9
(2/15)

API Number 47 - 051 - _____
Operator's Well No. MND 1 LHS

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

4705101833

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Noble Energy Inc. OP Code 494501907

Watershed (HUC 10) Short Creek - Ohio River (Huc 10) Quadrangle Powhatan Point

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes ☑ No ☐

Will a pit be used? Yes ☐ No ☑

If so, please describe anticipated pit waste: _____

Will a synthetic liner be used in the pit? Yes ☐ No ☑ If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

_____ Land Application
■ Underground Injection (UIC Permit Number See attached sheet)
■ Reuse (at API Number TBD - Next anticipated well)
■ Off Site Disposal (Supply form WW-9 for disposal location)
_____ Other (Explain _____

Will closed loop system be used? If so, describe: Yes

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air thru coal string, then SOBM

-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used in drilling medium? Calcium Chloride Powder, Carbo Tec, Carbo Gel2, Carbo Tec S, Ecco-Block, Lime, MIL-Carb TM, Mil-Clean, Mil-Seal, Next base eC, Next Drill, Next Hold, Next Mul, Omni Cote, Mil Bar, Next Mul HT, Soda Ash, Potassium Chloride

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfills

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) _____

-Landfill or offsite name/permit number? Please see attached

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature Dee Swiger

Company Official (Typed Name) Dee Swiger

Company Official Title Regulatory Analyst III

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Subscribed and sworn before me this 25th day of February, 2015

Regina Logue Notary Public

My commission expires 07/07/2018

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Regina Logue, Notary Public
New Sewickley Twp., Beaver County
My Commission Expires July 7, 2018
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Form WW-9

Operator's Well No. MND 1 LHS

Noble Energy Inc.

Proposed Revegetation Treatment: Acres Disturbed 9.0 Prevegetation pH _____

Lime 2 to 3 Tons/acre or to correct to pH 6.0

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch Hay or straw at 2 Tons/acre

4705101833

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5
**See site plans for full list		**See site plans for full list	

Attach:
Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: James Nicholson

Comments: Pre Seed and mulch all cut area, maintain all E & S during operation.

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MAR 13 2015

Title: Oil + Gas Inspector Date: 2/25/15

Field Reviewed? (✓) Yes ( ) No

Cuttings Disposal/Site Water

Cuttings –Haul off Company:

4705101833

Eap Industries, Inc. DOT # 0876278
1575 Smith Two State Rd. Atlasburg, PA 15004
1-888-294-5227

Waste Management
200 Rangos Lane
Washington, PA 15301
724-222-3272

Environmental Coordination Services & Recycling (ECS&R)
3237 US Highway 19
Cochranton, PA 16314
814-425-7773

Disposal Locations:

Apex Environnemental, LLC Permit # 06-08438
11 County Road 78
Amsterdam, OH 43903
740-543-4389

Westmoreland Waste, LLC Permit # 100277
111 Conner Lane
Belle Vernon, PA 15012
724-929-7694

Sycamore Landfill Inc. Permit #R30-079001 05-2010
4301 Sycamore Ridge Road
Hurricane, WV 25526
304-562-2611

Max Environnemental Technologies, Inc. facility Permit # PAD004835146 / 301071
233 Max Lane
Yukon, PA 25968
724-722-3500

Max Environnemental Technologies, Inc. Facility Permit # PAD05087072 / 301359
200 Max Drive
Bulger, PA 15019
724-796-1571

Waste Management Kelly Run Permit # 100663
1901 Park Side Drive
Elizabeth, PA 15037

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MAR 13 2015

Waste Management South Hills (Arnoni) Permit # 100592
3100 Hill Road
Library, PA 15129 724-348-7013

Waste Management Arden Permit # 100172
200 Rangos Lane
Washington, PA 15301
724-222-3272

Waste Management Meadowfill Permit # 1032
1488 Dawson Drive
Bridgeport, WV 26330

Brooke County Landfill Permit # SWF-103-97 / WV 0109029
Rd 2 Box 410
Colliers, WV 26035
304-748-0014

Wetzel County Landfill Permit # SWF-1021-97 / WV 0109185
Rt 1 Box 156A
New Martinsville, WV 26035
304-455-3800

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Energy Solutions, LLC Permit # UT 2300249
423 West 300 South
Suite 200
Salt Lake City, UT 84101

Energy Solutions Services, Inc. Permit # R-73006-L24
1560 Bear Creek Road
Oak Ridge, TN 37830

Water Haul off Companies:

Dynamic Structures, Clear Creek DOT # 720485
3790 State Route 7
New Waterford, OH 44445
330-892-0164

Disposal Locations:

Solidification
Waste Management, Arden Landfill Permit # 100172
200 Rangos Lane
Washington, PA 15301
724-225-1589

Solidification/Incineration
Soil Remediation, Inc. Permit # 02-20753
6065 Arrel-Smith Road
Lowelville, OH 44436
330-536-6825

Adams #1
Permit # 34-031-2-7177
23986 Airport Road
Coshocton, OH 43812
740-575-4484

Adams #2
Permit # 34-031-2-7178
740-575-4484

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MAR 13 2015

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noble energy

Site Safety Plan

Noble Energy, Inc.

MND 1 Well Pad

1100 Kansas Ridge Rd

Moundsville, WV

February 2015: Version 1

LHS

For Submission to

West Virginia Department of Environmental Protection, Office of Oil and Gas

Noble Energy, Inc.
Appalachia Offices
1000 Noble Energy Drive
Canonsburg, PA 15317-9504

2/25/15

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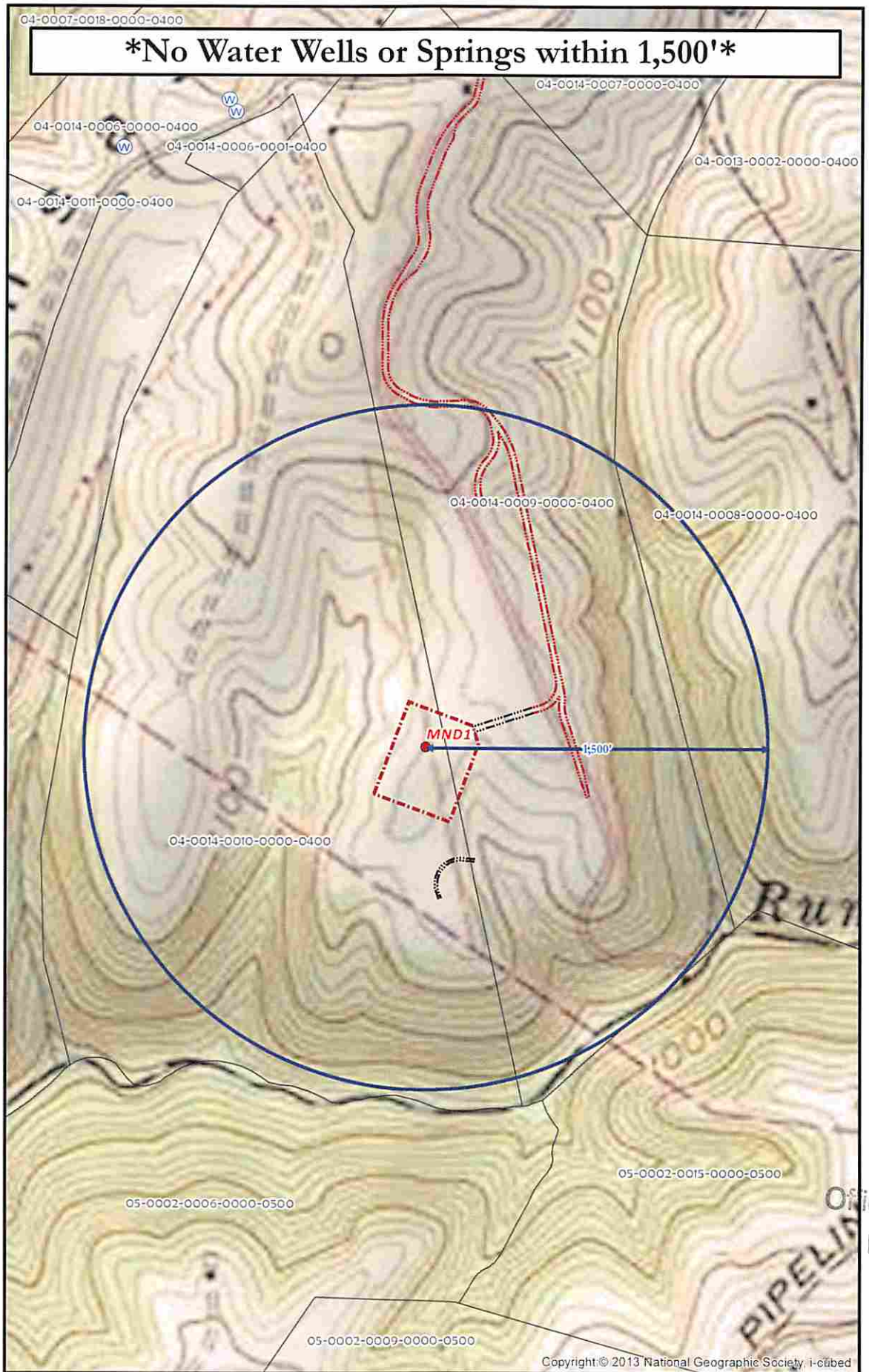

MND 1 SITE SAFETY PLAN
- WATER WELL PURVEYORS -

Well Pad
Water Well
Noble Access Road
Well Pad Boundary
Water Wells Buffer
Parcels
Counties
States
Pinnacle Compressor Access

0 250 500 1,000 Feet
1 Inch = 500 Feet

Projection: NAD 1927 StatePlane West Virginia North FIPS 4701
Units: Foot US

Disclaimer: All data is licensed for use by Noble Energy Inc. use only.

noble energy

Date: 8/5/2014
Author: ChristopherGlover

6/6

Document Path: G:\Canonsburg\GIS\Projects\District_30\Appalachia\MXDs\EHSA\Permitting\Moundsville\MND1\D30_PA_WV_6_MND1_Water_Wells.mxd

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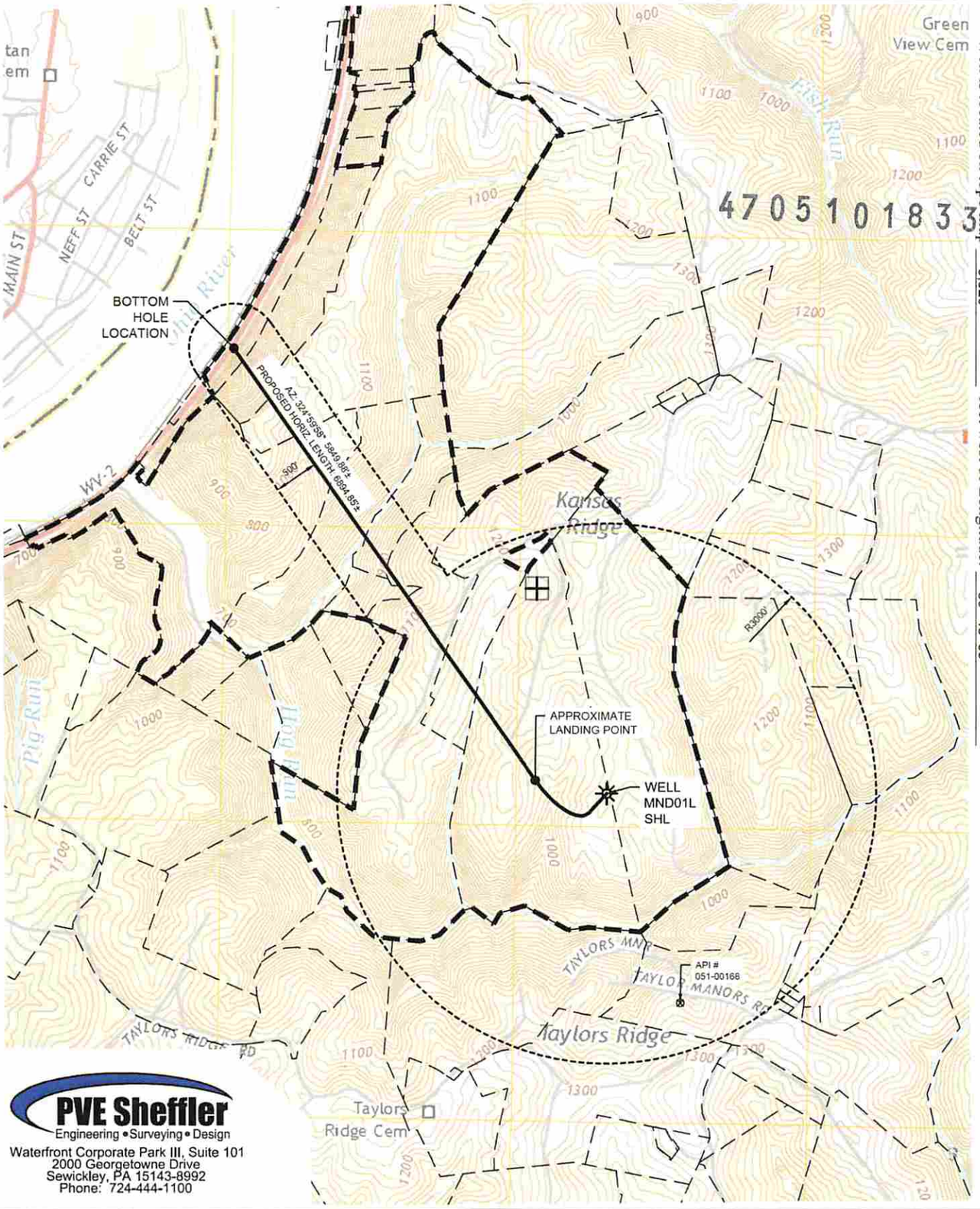
Well is located on topo map 9168 feet south of Latitude: 39° 52' 30"

Well is located on topo map 6,820 feet west of Longitude: 80° 45' 00"



PVE Sheffler
Engineering • Surveying • Design
Waterfront Corporate Park III, Suite 101
2000 Georgetowne Drive
Sewickley, PA 15143-8992
Phone: 724-444-1100

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

DATE: FEBRUARY 13, 2015

OPERATOR'S WELL #: MND 01 LHS

API WELL # 47 (STATE) 051 (COUNTY) 01833 (PERMIT)

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MAR 13 2015

Well Type: ☐ Oil ☐ Waste Disposal ☒ Production ☐ Deep
☒ Gas ☐ Liquid Injection ☐ Storage ☒ Shallow

WATERSHED: SHORT CREEK-OHIO RIVER ELEVATION: 1150.37'

COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: POWHATAN POINT, W. VA./OHIO

SURFACE OWNER: CONSOLIDATION COAL COMPANY/ MURRAY ENERGY ACREAGE: 126.99

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY, LLC, ET AL. ACREAGE: 126.99

DRILL ☒ CONVERT ☐ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☐
PLUG OFF OLD FORMATION ☐ PERFORATE NEW FORMATION ☐ PLUG AND ABANDON ☐
CLEAN OUT & REPLUG ☐ OTHER CHANGE ☐ (SPECIFY)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,360' ± TMD: 12,689'±

WELL OPERATOR: NOBLE ENERGY, INC. DESIGNATED AGENT: STEVEN M. GREEN

Address: 1000 NOBLE ENERGY DRIVE Address: 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 590

City CANNONSBURG State PA Zip Code 15317 City CHARLESTON State WV Zip Code 25301

SURFACE HOLE LOCATION (SHL)

UTM 17 – NAD83
N: 4411114.716
E: 519309.461
NAD27, WV NORTH
N: 494153.710
E: 1642180.360
LAT/LON DATUM–NAD83
LAT: 39.849833
LON: –80.774281

APPROX. LANDING POINT

UTM 17 – NAD83
N: 4411155.059
E: 519067.460
NAD27, WV NORTH
N: 494299.380
E: 1641388.460
LAT/LON DATUM–NAD83
LAT: 39.850202
LON: –80.777109

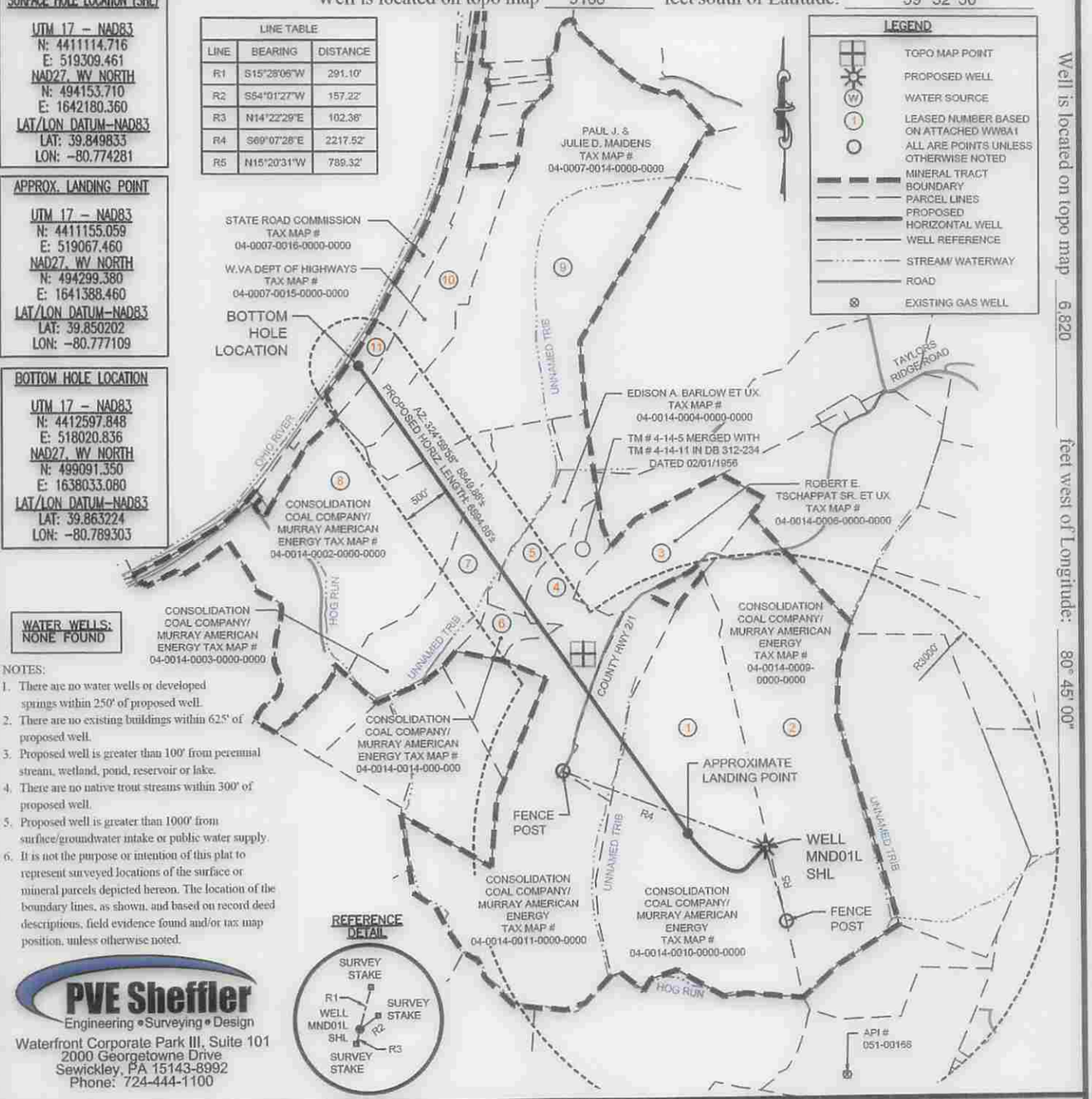
BOTTOM HOLE LOCATION

UTM 17 – NAD83
N: 4412597.848
E: 518020.836
NAD27, WV NORTH
N: 499091.350
E: 1638033.080
LAT/LON DATUM–NAD83
LAT: 39.863224
LON: –80.789303

Well is located on topo map 9168 feet south of Latitude: 39° 52' 30"

Well is located on topo map 6,820 feet west of Longitude: 80° 45' 00"

LINE TABLE		
LINE	BEARING	DISTANCE
R1	S15°28'06"W	291.10'
R2	S54°01'27"W	157.22'
R3	N14°22'29"E	102.38'
R4	S69°07'28"E	2217.52'
R5	N15°20'31"W	789.32'



WATER WELLS: NONE FOUND

NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. There are no existing buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, and based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

PVE Sheffler
Engineering • Surveying • Design
Waterfront Corporate Park III, Suite 101
2000 Georgetowne Drive
Sewickley, PA 15143-8992
Phone: 724-444-1100

FILE #: MND 01 LHS

DRAWING #: MND 01 LHS

SCALE: 1"=1500'

MINIMUM DEGREE OF ACCURACY: 1/2500

PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT H 138: 638.58'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

SIGNED:

R.P.E.: 18766 L.L.S.: P.S. NO.

JAMES MICHAEL VENTURE REGISTERED 18766 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

DATE: FEBRUARY 12, 2015 - REV FEBRUARY 24, 2015

OPERATOR'S WELL #: MND 01 LHS

API WELL # 47 (STATE) 051 (COUNTY) D1833 H6A (PERMIT)

Well Type: [ ] Oil [ ] Waste Disposal [X] Production [ ] Deep
[X] Gas [ ] Liquid Injection [ ] Storage [X] Shallow

WATERSHED: SHORT CREEK-OHIO RIVER
ELEVATION: 1150.37'

COUNTY/DISTRICT: MARSHALL / CLAY
QUADRANGLE: POWHATAN POINT, W. VA./OHIO

SURFACE OWNER: CONSOLIDATION COAL COMPANY/ MURRAY ENERGY
ACREAGE: 126.99

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY, LLC, ET AL.
ACREAGE: 126.99

DRILL [X] CONVERT [ ] DRILL DEEPER [ ] REDRILL [ ] FRACTURE OR STIMULATE [ ]
PLUG OFF OLD FORMATION [ ] PERFORATE NEW FORMATION [ ] PLUG AND ABANDON [ ]
CLEAN OUT & REPLUG [ ] OTHER CHANGE [ ] (SPECIFY)

TARGET FORMATION: MARCELLUS
ESTIMATED DEPTH: TVD: 6,360' ± TMD: 13,010'±

WELL OPERATOR: NOBLE ENERGY, INC.
DESIGNATED AGENT: JESSICA ALSOP

Address: 1000 NOBLE ENERGY DRIVE
Address: 301 GOLDEN EAGLE DRIVE

City CANNONSBURG State PA Zip Code 15317
City MORGANTOWN State WV Zip Code 26508

WW-6A1
(5/13)

Operator's Well No. MND 01 LHS

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

(1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;

(2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
1.) 623175	Consolidation Coal Company, et al	CNX Gas Company, LLC	100% Fee Mineral	646-493
	CNX Gas Company, LLC	Noble Energy, Inc.	50% Fee Mineral	752-66
2.) 623177	Consolidation Coal Company, et al	CNX Gas Company, LLC	100% Fee Mineral	646-493
	CNX Gas Company, LLC	Noble Energy, Inc.	50% Fee Mineral	752-66

Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: NOBLE ENERGY, INC.
By:
Its: SENIOR OPERATIONS LANDMAN

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Office of Oil & Gas
MAR 13 2015

MND 01 LHS

ITEM NO.	LEASE NO.	LESSOR/ASSIGNOR	LESSEE/ASSIGNEE	ROYALTY	BOOK/PAGE
3) 4-14-6	Q083948001-000	Robert E. Tschappat, Sr., et ux	AB Resources, LLC	16%	692-463
		AB Resources, LLC	Chief & Radler		24-382 & 24-490
		AB Resources, LLC	NPAR, LLC		25-484
		Chief & Radler/NPAR, LLC	Chevron USA, Inc.		25-1 & 756-332
		Chevron USA, Inc.	CNX Gas Company, LLC (50%) Noble Energy, Inc. (50%)		31-59
4) 4-14-11	623176	Consolidation Coal Company, et al	CNX Gas Company, LLC	Fee	646-493
		CNX Gas Company, LLC	CNX Gas Company, LLC (50%) Noble Energy, Inc. (50%)		752-66
5) 4-14-4		Estate of Nellie Ramser Dowler, et al	Noble Energy, Inc.	18%	859-304
	Q075617006	Paul M. Karnell, II, et ux	Noble Energy, Inc.	15%	812-235
	Q075617007	Robin Knowlton, single	Noble Energy, Inc.	15%	813-240
	Q075617003	Sandra Borkowski, single	Noble Energy, Inc.	15%	797-428
		Joyce Ann Donald, et vir	Noble Energy, Inc.	15%	797-434
		Dick Tracey, et ux	Noble Energy, Inc.	15%	797-437
		William H. Karnell, et ux	Noble Energy, Inc.	15%	806-360
		Jennifer L. Duymich, et vir	Noble Energy, Inc.	15%	803-606
		Tracy Clarke, et vir	Noble Energy, Inc.	15%	813-242
		Lee Patterson, et ux	Noble Energy, Inc.	15%	816-164
6) 4-14-14	623217	Consolidation Coal Company, et al	CNX Gas Company, LLC	Fee	646-493
		CNX Gas Company, LLC	CNX Gas Company, LLC (50%) Noble Energy, Inc. (50%)		752-66
4-14-3	623218	Consolidation Coal Company, et al	CNX Gas Company, LLC	Fee	646-493
		CNX Gas Company, LLC	CNX Gas Company, LLC (50%) Noble Energy, Inc. (50%)		752-66
8) 4-14-2	215781000	Consolidation Coal Company, et al	CNX Gas Company, LLC	Fee	646-493
		CNX Gas Company, LLC	CNX Gas Company, LLC (50%) Noble Energy, Inc. (50%)		752-66

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Office of Oil & Gas
MAR 13 2015

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MND 01 LHS

9) 4-7-14	Q082524000-000	Paul J. Maidens, et ux	Noble Energy, Inc.	19%	826-90
10) 4-7-15	Q080080000	Nlya J. Bell, widow	Noble Energy, Inc.	16%	813-251
11) 4-7-16	Q085369000	Nyla J. Bell, widow	Noble Energy, Inc.	16%	839-568

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MAR 13 2015

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BOOK 0752 PAGE 0066

STEPTOE & JOHNSON PLLC LISA LOVEJOY
P O BOX 1588
CHARLESTON, WV 25326-1588

RETURN TO: Lisa Lovejoy
Energy Department
Steptoe & Johnson PLLC
P.O. Box 1588
Charleston, WV 25326-1588

Jan Pest
MARSHALL County 10:22:36 AM
Instrument No 1314757
Date Recorded 12/05/2011
Document Type DEED
Pages Recorded 28
Book-Page 752-66
Recording Fee $34.00
Transfer Tax $144,084.60
Additional $27.00

MINERAL INTEREST DEED

This MINERAL INTEREST DEED (this "*Deed*") is from CNX GAS COMPANY LLC, a Virginia limited liability company ("*Grantor*"), whose address is 1000 CONSOL Energy Drive, Canonsburg, PA 15317, to NOBLE ENERGY, INC., a Delaware corporation ("*Grantee*"), whose address is 100 Glenborough Drive, Suite 100, Houston, Texas 77067, and is effective as of 7:00 a.m. (Central Time) on July 1, 2011 (the "*Effective Time*").

RECITALS

WHEREAS, Grantor desires to grant and convey to Grantee, and Grantee desires to receive from Grantor, an undivided 50% of Grantor's right, title and interest in the assets and properties described below in accordance with this Deed and the Acquisition Agreement (defined below).

NOW, THEREFORE, for and in consideration of the mutual promises contained herein and in the Acquisition Agreement, the benefits to be derived by each party hereunder and under the Acquisition Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Grantor and Grantee agree as follows:

ARTICLE I
DEFINED TERMS

1.1 Definitions. Capitalized terms used herein and not otherwise defined in Section 3.4 or throughout the Deed shall have the meanings given such terms in the Asset Acquisition Agreement, dated as of August 17, 2011, as amended, by and between Grantor and Grantee (the "*Acquisition Agreement*").

ARTICLE II
GRANT OF CONVEYED INTERESTS

2.1 Deed. Subject to the terms and conditions of this Deed, Grantor does hereby GRANT, CONVEY and TRANSFER to Grantee, and Grantee agrees to acquire, the following interests and properties (less and except for the Excluded Assets, such interests and properties described in subsections (a) and (b) of this Section 2.1, collectively, the "*Conveyed Interests*"):

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WV Department of
Environmental Protection

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BOOK 0752 PAGE 0067

(a) an undivided 50% of all of Grantor's right, title and interest in and to the following assets and properties:

(i) the oil and gas and mineral fee interests more particularly described in Exhibit A, insofar and only insofar as such oil and gas and mineral fee interests cover depths within the Marcellus Formation (such 50% of Grantor's interest in such oil and gas and mineral fee interests as so limited, collectively, the "*Mineral Interests*");

(ii) all oil and gas wells drilled on the Mineral Interests or the Units insofar and only insofar as such wells are producing from, or have been drilled to produce from, those depths within the Marcellus Formation, including the oil and gas wells listed on Exhibit B (to the extent drilled on the Mineral Interests or Units and producing from or drilled to produce from such formation) (such 50% of Grantor's interest in such wells as so limited, the "*Marcellus Wells*"), and all fresh water wells, injection wells, salt water disposal wells and other wells of every nature and kind located on the Mineral Interests or the Units, in each case, to the extent that they are primarily used in connection with the Marcellus Wells, the Mineral Interests or the Units (such 50% of Grantor's interest in such wells as so limited, collectively with the Marcellus Wells, the "*Wells*");

(iii) all interests in pools or units which include all or a part of any Mineral Interests insofar and only insofar as such pools or units cover depths within the Marcellus Formation and pertain to the Mineral Interests (such 50% of Grantor's interest in such pools and units as so limited, the "*Units*");

(iv) to the extent they may be assigned (after exercising commercially reasonable efforts to obtain any and all relevant consents), all permits, licenses, servitudes, easements, rights-of-way, surface use agreements, water access and water use agreements and other similar surface use or water rights, in each case, to the extent primarily used in connection with the ownership or operation of the Mineral Interests, Units and Wells, including those set forth in Exhibit C (such 50% of Grantor's interest in the foregoing, collectively, the "*Rights-Of-Way*" and the Mineral Interests, Units, Wells and Rights-Of-Way being collectively referred to hereinafter as the "*Properties*");

(v) all equipment, machinery, fixtures and other personal property, operational or nonoperational in each case, to the extent primarily used in connection with the Properties or the other Conveyed Interests, including well equipment, casing, tubing, pumps, motors, machinery, platforms, rods, tanks, boilers, fixtures, manifolds, structures, materials and other items primarily used or held for use in the operation of the Properties (such 50% of Grantor's interest in such properties, the "*Personal Property*"); and

(vi) all Hydrocarbons produced from or allocated to the Mineral Interests, Marcellus Wells or Units on and after the Effective Time; and

4705101833

(b) all of Grantor's right, title and interest in and to the following assets and properties to the extent, and only to the extent, that such assets and properties relate to the interests described in Section 2.1(a):

(i) to the extent assignable, all Applicable Contracts and all rights thereunder;

(ii) all Well Imbalances relating to the Conveyed Interests;

(iii) copies (in digital form, if available) of the following, to the extent (A) in Grantor's or its Affiliates' possession or (B) to which Grantor has the right but are in the possession of a Third Party: (1) land and title records (including abstracts of title, title opinions (including title opinions that cover both the Marcellus Formation and other formations) and title curative documents), (2) contract files, (3) correspondence, (4) maps, operations, environmental, production and accounting records, (5) facility and engineering/well files, (6) division order files (including division and interest statements), (7) engineering and/or production files, (8) environmental files, (9) permitting files and (10) geological data, but excluding any of the foregoing items that are primarily used in connection with the ownership or operation of the Excluded Assets; and

(iv) to the extent assignable without payment of fees or other penalties, unless Grantor agrees to and does pay such fees and penalties, the geophysical data and other seismic and related technical data and information listed on Schedule 2.1 to the Acquisition Agreement.

2.2 Easement. Subject to the terms and conditions of this Deed, Grantor does hereby assign, transfer and convey to Grantee a non-exclusive subsurface well bore easement through Grantor's Shallow Depths for the purposes of accessing, exploring, developing and producing Hydrocarbons from the Marcellus Formation to the extent relating to the Conveyed Interests provided that such easement shall not permit the production of Hydrocarbons from the Shallow Depths or perforations, open hole completions, fracture operations or other stimulation operations in the Shallow Depths (the "***Subsurface Access Easement***").

TO HAVE AND TO HOLD the Conveyed Interests and the Subsurface Access Easement unto Grantee, its successors and assigns, forever, subject, however, to all the terms and conditions of this Deed, including, without limitation, Article III.

2.3 Excluded Assets and Reservation. The Conveyed Interests and the Subsurface Access Easement shall not include, and Grantor hereby reserves and retains, the Excluded Assets. Additionally, the Conveyed Interests covered by this Deed shall not include any of the Leases any of the assets covered by the Assignment, to the extent said Leases and assets are assigned to Grantee by the Assignment. Grantor and Grantee acknowledge and agree that the

4705101833

BOOK 752 PAGE 0069

Assignment and this Deed (including all recorded counterparts thereof) are intended to COLLECTIVELY convey to Grantee the "Conveyed Interests" as described in the Acquisition Agreement. Grantor and Grantee acknowledge and agree that the Assignment and this Deed are not intended to effect multiple conveyances of the same properties or interests in such properties.

ARTICLE III
SPECIAL WARRANTY; DISCLAIMERS; CERTAIN DEFINITIONS

3.1 Special Warranty. Grantor hereby binds itself, its successors and assigns subject, however, to the Permitted Encumbrances, to warrant and forever defend all and singular title to the Marcellus Wells and Mineral Interests and the Subsurface Access Easement from and after April 30, 2010 to the date hereof for claims arising by, through or under Grantor, but not otherwise.

3.2 Subrogation. Grantor hereby assigns to Grantee all rights, claims and causes of action under title warranties given or made by Grantor's predecessors in interest (other than any Affiliates of Grantor) with respect to the Conveyed Interests, and Grantee is specifically subrogated to all rights which Grantor may have against such predecessors in interest with respect to the Conveyed Interests, to the extent Grantor may legally transfer such rights and grant such subrogation.

3.3 Disclaimers and Subrogation of Warranties and Representations.

(a) EXCEPT AS AND TO THE LIMITED EXTENT EXPRESSLY SET FORTH IN SECTION 3.1 OF THIS DEED AND IN ARTICLE VII OF THE ACQUISITION AGREEMENT, (I) GRANTOR MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS, STATUTORY OR IMPLIED, AND (II) GRANTOR EXPRESSLY DISCLAIMS ALL LIABILITY AND RESPONSIBILITY FOR ANY REPRESENTATION, WARRANTY, STATEMENT OR INFORMATION MADE OR COMMUNICATED (ORALLY OR IN WRITING) TO GRANTEE OR ANY OF ITS AFFILIATES, EMPLOYEES, AGENTS, CONSULTANTS OR REPRESENTATIVES (INCLUDING ANY OPINION, INFORMATION, PROJECTION OR ADVICE THAT MAY HAVE BEEN PROVIDED TO GRANTEE BY A MEMBER OF THE GRANTOR INDEMNIFIED PARTIES).

(b) EXCEPT AS AND TO THE LIMITED EXTENT EXPRESSLY SET FORTH IN SECTION 3.1 OF THIS DEED AND ARTICLE VII OF THE ACQUISITION AGREEMENT, AND WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, GRANTOR EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY, EXPRESS, STATUTORY OR IMPLIED, BY ANY MEMBER OF THE GRANTOR INDEMNIFIED PARTIES, AS TO (I) TITLE TO ANY OF THE CONVEYED INTERESTS AND THE SUBSURFACE ACCESS EASEMENT, (II) THE CONTENTS, CHARACTER OR NATURE OF ANY REPORT OF ANY PETROLEUM ENGINEERING CONSULTANT, OR

ANY ENGINEERING, GEOLOGICAL OR SEISMIC DATA OR INTERPRETATION RELATING TO THE CONVEYED INTERESTS, (III) THE QUANTITY, QUALITY OR RECOVERABILITY OF HYDROCARBONS IN OR FROM THE CONVEYED INTERESTS, (IV) ANY ESTIMATES OF THE VALUE OF THE CONVEYED INTERESTS OR FUTURE REVENUES GENERATED BY THE CONVEYED INTERESTS, (V) THE PRODUCTION OF HYDROCARBONS FROM THE CONVEYED INTERESTS, (VI) THE MAINTENANCE, REPAIR, CONDITION, QUALITY, SUITABILITY, DESIGN OR MARKETABILITY OF THE CONVEYED INTERESTS, (VII) THE CONTENT, CHARACTER OR NATURE OF ANY INFORMATION MEMORANDUM, REPORTS, BROCHURES, CHARTS OR STATEMENTS PREPARED BY GRANTOR OR THIRD PARTIES WITH RESPECT TO THE CONVEYED INTERESTS, (VIII) ANY OTHER MATERIALS OR INFORMATION THAT MAY HAVE BEEN MADE AVAILABLE TO GRANTEE OR ITS AFFILIATES, OR ITS OR THEIR EMPLOYEES, AGENTS, CONSULTANTS, REPRESENTATIVES OR ADVISORS IN CONNECTION WITH THE TRANSACTIONS CONTEMPLATED BY THIS DEED OR ANY DISCUSSION OR PRESENTATION RELATING THERETO, AND (IX) ANY IMPLIED OR EXPRESS WARRANTY OF FREEDOM FROM PATENT OR TRADEMARK INFRINGEMENT. EXCEPT AS AND TO THE LIMITED EXTENT EXPRESSLY REPRESENTED OTHERWISE IN SECTION 3.1 OF THIS DEED OR ARTICLE VII OF THE ACQUISITION AGREEMENT, GRANTOR FURTHER DISCLAIMS ANY REPRESENTATION OR WARRANTY, EXPRESS, STATUTORY OR IMPLIED, OF MERCHANTABILITY, FREEDOM FROM LATENT VICES OR DEFECTS, FITNESS FOR A PARTICULAR PURPOSE OR CONFORMITY TO MODELS OR SAMPLES OF MATERIALS OF ANY CONVEYED INTERESTS AND THE SUBSURFACE ACCESS EASEMENT, IT BEING EXPRESSLY UNDERSTOOD AND AGREED BY GRANTOR AND GRANTEE THAT GRANTEE SHALL BE DEEMED TO BE OBTAINING THE CONVEYED INTERESTS AND THE SUBSURFACE ACCESS EASEMENT IN THEIR PRESENT STATUS, CONDITION AND STATE OF REPAIR, "AS IS" AND "WHERE IS" WITH ALL FAULTS OR DEFECTS (KNOWN OR UNKNOWN, LATENT, DISCOVERABLE OR UNDISCOVERABLE), AND THAT GRANTEE, SUBJECT TO ITS RIGHTS UNDER ARTICLE V OF THE ACQUISITION AGREEMENT, HAS MADE OR CAUSED TO BE MADE SUCH INSPECTIONS AS GRANTEE DEEMS APPROPRIATE.

(c) EXCEPT AS AND TO THE LIMITED EXTENT EXPRESSLY SET FORTH IN SECTION 7.19 OF THE ACQUISITION AGREEMENT AND WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, GRANTOR MAKES NO REPRESENTATION OR WARRANTY REGARDING ANY MATTER OR CIRCUMSTANCE RELATING TO ENVIRONMENTAL LAWS, THE RELEASE OF MATERIALS INTO THE ENVIRONMENT OR THE PROTECTION OF HUMAN HEALTH, SAFETY, NATURAL RESOURCES OR THE ENVIRONMENT, OR ANY OTHER ENVIRONMENTAL CONDITION OF THE CONVEYED INTERESTS, AND NOTHING IN THIS DEED OR OTHERWISE SHALL BE CONSTRUED AS SUCH A REPRESENTATION

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BOOK 0752 PAGE 0071

OR WARRANTY, AND SUBJECT TO GRANTEE'S RIGHTS UNDER SECTIONS 6.1 AND 7.19 OF THE ACQUISITION AGREEMENT, GRANTEE SHALL BE DEEMED TO BE TAKING THE CONVEYED INTERESTS AND THE SUBSURFACE ACCESS EASEMENT "AS IS" AND "WHERE IS" WITH ALL FAULTS FOR PURPOSES OF THEIR ENVIRONMENTAL CONDITION AND THAT GRANTEE, SUBJECT TO ITS RIGHTS UNDER ARTICLE VI OF THE ACQUISITION AGREEMENT, HAS MADE OR CAUSED TO BE MADE SUCH ENVIRONMENTAL INSPECTIONS AS GRANTEE DEEMS APPROPRIATE.

(d) GRANTOR AND GRANTEE AGREE THAT, TO THE EXTENT REQUIRED BY APPLICABLE LAW TO BE EFFECTIVE, THE DISCLAIMERS OF CERTAIN REPRESENTATIONS AND WARRANTIES CONTAINED IN THIS SECTION 3.3 ARE "CONSPICUOUS" DISCLAIMERS FOR THE PURPOSE OF ANY APPLICABLE LAW.

3.4 Certain Definitions. The following terms, as used herein, have the meanings set forth below:

"*Additional Interests*" means those additional oil and gas leases and oil and gas and mineral fee interests acquired by Grantor and/or its Affiliates in the Development Area from and after April 29, 2011, other than those Mineral Interests or Leases (or interests therein) acquired by Grantor from its Affiliates.

"*Affiliate*" means, with respect to any Person, any other Person that directly, or indirectly through one or more intermediaries, Controls or is Controlled by, or is under common Control with, such Person.

"*Antero ORRI*" means those certain royalty and overriding royalty payments due from Antero Resources Appalachian Corporation to CNX Gas Company LLC, under those certain Partial Assignment of Oil and Gas Leases dated September 29, 2008, effective September 30, 2008 and other instruments delivered pursuant to that Amended and Restated Farmout Acquisition Agreement dated September 23, 2008 by and among Dominion Exploration & Production, Inc., Dominion Appalachian Development LLC and Dominion Transmission Inc., predecessors to CNX Gas Company LLC, collectively as farmor, and Antero Resources Appalachian Corporation, as farmee.

"*Applicable Contracts*" means all Contracts to which Grantor is a party by which any Conveyed Interest is bound and that will be binding on Grantee after the Closing, including farmin and farmout agreements; bottomhole agreements; crude oil, condensate and natural gas purchase and sale, gathering, transportation and marketing agreements; hydrocarbon storage agreements; acreage contribution agreements; operating agreements; balancing agreements; pooling declarations or agreements; unitization agreements; processing agreements; crossing

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agreements; saltwater disposal agreements; facilities or equipment leases; letters of objection; production handling agreements and other similar contracts and agreements, held by Grantor and relating to the Conveyed Interests.

"***Assignment***" means that certain Assignment and Bill of Sale between Grantor and Grantee dated effective as of the Effective Time, including all recorded counterparts thereof.

"***Closing***" means the closing of the transfer by Grantor of the Conveyed Interests to Grantee pursuant to the Acquisition Agreement.

"***Contract***" means any written or oral contract, agreement, lease, mortgage, franchise, license agreement, purchase order, binding bid, commitment or any Applicable Contract that is an indenture, mortgage; loan, credit or sale-leaseback, guaranty of any obligation, bonds, letters of credit or similar financial contract or any other legally binding arrangement, including farmin and farmout agreements, participation, exploration and joint development agreements, crude oil, condensate and natural gas purchase and sale, gathering, transportation and marketing agreements, acreage contribution agreements, operating agreements, balancing agreements, unitization agreements, processing agreements, hydrocarbon balancing agreements, hydrocarbon storage agreements, facilities or equipment leases, platform use and platform sharing agreements, production handling agreements and other similar Contracts, but excluding, however, any Lease, deed, easement, right-of-way, permit or other instrument (other than acquisition or similar sales or purchase agreements) creating or evidencing an interest in the Conveyed Interests or any real or immovable property related to or used in connection with the operations of any Conveyed Interests.

"***Control***" (including the terms "***Controlling***," "***Controlled by***" and "***under common Control with***") means the possession, direct or indirect, of the power to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting shares, by contract or otherwise.

"***Development Agreement***" means that certain Joint Development Agreement by and between Grantor and Grantee dated as of even date herewith, as provided for in the Acquisition Agreement.

"***Development Area***" has the meaning set forth in the Development Agreement.

"***Encumbrance***" means any lien, mortgage, security interest, defect, irregularity, pledge, charge or encumbrance.

"***Environmental Laws***" means all applicable federal, state and local Laws in effect as of the date of this Deed, including common law, relating to the protection of the public health, welfare and the environment, including those Laws relating to the storage, handling and use of

chemicals and other Hazardous Substances and those relating to the generation, processing, treatment, storage, transportation, disposal or other management thereof. The term "***Environmental Laws***" does not include good or desirable operating practices or standards that may be employed or adopted by other oil and gas well operators or recommended by a Governmental Authority.

"***Excluded Assets***" has the meaning set forth on Exhibit D.

"***Governmental Authority***" means any federal, state, local, municipal, tribal or other government; any governmental, regulatory or administrative agency, commission, body or other authority exercising or entitled to exercise any administrative, executive, judicial, legislative, belief, regulatory or taxing authority or power; and any court or governmental tribunal, including any tribal authority having or asserting jurisdiction.

"***Hazardous Substances***" means any pollutants, contaminants, toxic or hazardous or extremely hazardous substances, materials, wastes, constituents, compounds or chemicals that are regulated by, or may form the basis of liability under, any Environmental Laws, including naturally occurring radioactive materials and other substances referenced in Section 6.2 of the Acquisition Agreement.

"***Hedge Contract***" means any Contract to which Grantor or any of its Affiliates is a party with respect to any swap, forward, future or derivative transaction or option or similar agreement, whether exchange traded, "over-the-counter" or otherwise, involving, or settled by reference to, one or more rates, currencies, commodities, equity or debt instruments or securities, or economic, financial or pricing indices or measures of economic, financial or pricing risk or value or any similar transaction or any combination of these transactions.

"***Hydrocarbons***" means oil and gas and other hydrocarbons (including condensate) produced or processed in association therewith (whether or not such item is in liquid or gaseous form), or any combination thereof, and any minerals produced in association therewith.

"***Imbalances***" means all Well Imbalances and Pipeline Imbalances.

"***Interim Period***" means that period of time commencing with the Effective Time and ending immediately prior to Closing.

"***Law***" means any applicable statute, law, rule, regulation, ordinance, order, code, ruling, writ, injunction, decree or other official act of or by any Governmental Authority.

"***Lease***" means those certain oil, gas and/or mineral leases assigned by Grantor to Grantee pursuant to the Assignment.

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BOOK0752 PAGE0074

"*Marcellus Formation*" means, (a) in central Pennsylvania, specifically from the stratigraphic equivalent of the top of the Burkett in the DeArmitt #1 (API 37-129-27246) and 7000'MD through to the stratigraphic equivalent of the top of the Onondaga at 7530'MD; (b) in southwest Pennsylvania, specifically from the stratigraphic equivalent of the top of the Burkett in the GH-10C-CV (API 37-059-25397) at 7600'MD through to the stratigraphic equivalent of the top of the Onondaga at 7900'MD; and (c) in West Virginia, specifically from the stratigraphic equivalent of the top of the Burkett in the DEPI #14815 (API 47-001-02850) at 7350'MD through to the stratigraphic equivalent of the top of the Onondaga at 7710'MD, each of which is also shown in the logs attached to the Acquisition Agreement as Exhibit A-1.

"*Oil and Gas Assets*" mean the Conveyed Interests and, to the extent pertaining to the Marcellus Formation and operations relating thereto, the interests which are retained by Grantor in the properties and assets underlying the Conveyed Interests.

"*Overhead Costs*" means, with respect to those Conveyed Interests that are operated by Grantor and are burdened by an existing joint operating agreement covering such Conveyed Interests, the amount representing the overhead or general and administrative fee that is charged to other working interest owners with interests in the related Conveyed Interests as set forth in the lease operating expenses statement, which amount is attributable to the Conveyed Interests during the Interim Period.

"*Person*" means any individual, corporation, company, partnership, limited partnership, limited liability company, trust, estate, Governmental Authority or any other entity.

"*Pipeline Imbalance*" means any marketing imbalance between the quantity of Hydrocarbons attributable to the Oil and Gas Assets required to be delivered by Grantor under any Contract relating to the purchase and sale, gathering, transportation, storage, processing (including any production handling and processing at a separation facility) or marketing of Hydrocarbons and the quantity of Hydrocarbons attributable to the Oil and Gas Assets actually delivered by Grantor pursuant to the relevant Contract, together with any appurtenant rights and obligations concerning production balancing at the delivery point into the relevant sale, gathering, transportation, storage or processing facility.

"*Retained Interest*" means all of Grantor's rights in and to the oil and gas and mineral fee interests described in Exhibit A, insofar and only insofar as such oil and gas and mineral fee interests cover depths and formations outside of the Marcellus Formation, including the non-exclusive right to use the surface and install pipelines and gathering systems in connection with the ownership or operation of such interests with respect to such depths and formations, and all wells to the extent associated therewith.

"*SCADA Equipment*" means all SCADA and similar control equipment and network communication towers.

4705101833

BOOK 0752 PAGE 0075

"*Shallow Depths*" means all of Grantor's rights in and to oil and gas and mineral fee interests described in Exhibit A, insofar and only insofar as such oil and gas and mineral fee interests cover depths and formations above the top of the Marcellus Formation.

"*Third Party*" means any Person other than Grantor and Grantee or an Affiliate of Grantor or Grantee.

"*Well Imbalance*" means any imbalance at the wellhead between the amount of Hydrocarbons produced from a Marcellus Well and allocable to the interests of Grantor therein and the shares of production from the relevant Marcellus Well to which Grantor is entitled, together with any appurtenant rights and obligations concerning future in kind and/or cash balancing at the wellhead.

ARTICLE IV
ASSUMED OBLIGATIONS

Without limiting Grantee's rights to indemnity under Article XIII of the Acquisition Agreement, any Title Indemnity Agreement, any Environmental Indemnity Agreement or under the special warranty of title in Section 3.1, and subject to the other limitations set forth in the Acquisition Agreement, effective as of the date of this Deed, Grantee hereby assumes and agrees to fulfill, perform, pay and discharge (or cause to be fulfilled, performed, paid or discharged) all of the Assumed Obligations.

ARTICLE V
MISCELLANEOUS

5.1 Separate Deeds. Where separate deeds and assignments of the Conveyed Interests and the Subsurface Access Easement have been or will be executed for filing in other recording jurisdictions or counties or for filing with, and approval by, applicable Governmental Authorities, any such separate deeds and assignments (a) shall evidence this Deed and the grant of the applicable Conveyed Interests and the Subsurface Access Easement herein made and shall not constitute any additional grant of any of the Conveyed Interests, the Subsurface Access Easement or interests in the properties covered hereby or thereby; (b) are not intended to modify, and shall not modify, any of the terms, covenants and conditions or limitations on warranties set forth in this Deed or the Acquisition Agreement and are not intended to create, and shall not create, any representations, warranties or additional covenants of or by Grantor to Grantee; and (c) shall be deemed to contain all of the terms and provisions of this Deed, as fully and to all intents and purposes as though the same were set forth at length in such separate deeds.

5.2 Deed Subject to Acquisition Agreement. This Deed is expressly subject to the terms and conditions of the Acquisition Agreement, including with respect to the interests conveyed hereby. If there is a conflict between the terms of this Deed and the Acquisition

4705101833

BOOK 0752 PAGE 0076

Agreement, the terms of the Acquisition Agreement shall control. This Deed is not intended by Grantor or Grantee to be a quitclaim.

5.3 Governing Law; Jurisdiction; Venue; Jury Waiver. EXCEPT TO THE EXTENT THE LAWS OF ANOTHER JURISDICTION WILL, UNDER CONFLICT OF LAWS PRINCIPLES, GOVERN TRANSFERS OF THE CONVEYED INTERESTS OR THE SUBSURFACE ACCESS EASEMENT LOCATED IN SUCH OTHER JURISDICTION, THIS DEED AND THE LEGAL RELATIONS AMONG GRANTOR AND GRANTEE SHALL BE GOVERNED AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS. EACH OF GRANTOR AND GRANTEE CONSENT TO THE EXERCISE OF JURISDICTION IN PERSONAM BY THE UNITED STATES FEDERAL DISTRICT COURTS LOCATED IN THE STATE OF PENNSYLVANIA FOR ANY ACTION ARISING OUT OF THIS DEED OR ANY TRANSACTION CONTEMPLATED HEREBY. ALL ACTIONS OR PROCEEDINGS WITH RESPECT TO, ARISING DIRECTLY OR INDIRECTLY IN CONNECTION WITH, OUT OF, RELATED TO, OR FROM THIS DEED OR ANY TRANSACTION CONTEMPLATED HEREBY SHALL BE EXCLUSIVELY LITIGATED IN THE UNITED STATES FEDERAL DISTRICT COURTS HAVING SITES IN PITTSBURGH, PENNSYLVANIA (AND ALL APPELLATE COURTS HAVING JURISDICTION THEREOVER). EACH OF GRANTOR AND GRANTEE WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY ACTION, SUIT OR PROCEEDING ARISING OUT OF OR RELATING TO THIS DEED OR ANY TRANSACTION CONTEMPLATED HEREBY.

5.4 Successors and Assigns. This Deed shall bind and inure to the benefit of the parties hereto and their respective successors and assigns.

5.5 Counterparts. This Deed may be executed in any number of counterparts, and each such counterpart hereof shall be deemed to be an original instrument, but all of such counterparts shall constitute for all purposes one agreement. To facilitate recordation, there are omitted from the Exhibits to this Deed in certain counterparts descriptions of the Conveyed Interests and/or the Subsurface Access Easement located in recording jurisdictions other than the jurisdiction in which the counterpart is to be filed or recorded.

5.6 DECLARATION OF CONSIDERATION OR VALUE. Grantor hereby declares that the total consideration paid for that portion of the Mineral Interests hereby conveyed that is (a) real property and (b) subject to the West Virginia excise tax on the privilege of transferring real property is $32,746,391.01.

5.7 CERTIFICATION OF EXEMPTION FROM WITHHOLDING. The undersigned Grantor hereby certifies, under penalty of perjury, that it is a Virginia limited liability company authorized to do business in the State of West Virginia, and is therefore

4705101833

BOOK 0752 PAGE 0077

exempt from state income tax withholding requirements imposed by West Virginia Code Chapter 11, Article 21, Section 71b.

[*Signature pages follow*]

4705101833

BK0752 PG0078

IN WITNESS WHEREOF, this Deed has been executed by the parties hereto as of September 23, 2011, but is effective for all purposes as of the Effective Time.

GRANTOR:

CNX GAS COMPANY LLC

By: _____

Stephen W. Johnson
Vice President and Secretary

GRANTEE:

NOBLE ENERGY, INC.

By: _____

Shawn E. Conner
Vice President

4705101833

BOOK 0752 PAGE 0079

ACKNOWLEDGMENTS

STATE OF TEXAS,
COUNTY OF HARRIS, TO-WIT:

I, the undersigned, a notary public of the said county, do hereby certify that on this 29 day of September 2011, before me personally appeared Stephen W. Johnson, who acknowledged himself to be the Vice President and Secretary of CNX GAS COMPANY LLC, and that he as such officer, being so authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the company by himself as said officer.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Notary Public

My commission expires: 4-12-2012.
(Notarial Seal)

LATARSHA S. STERLING
NOTARY PUBLIC
STATE OF TEXAS
COMM. EXPIRES 04-12-2012

STATE OF TEXAS,
COUNTY OF HARRIS, TO-WIT:

I, the undersigned, a notary public of the said county, do hereby certify that on this 29 day of September 2011, before me personally appeared Shawn E. Conner, who acknowledged himself to be the Vice President of NOBLE ENERGY, INC., and that he as such officer, being so authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the company by himself as said officer.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Notary Public

My commission expires: 5-1-13.
(Notarial Seal)

STEPHANIE PINA
Notary Public, State of Texas
My Commission Expires
May 01, 2013

This document was prepared by:
C. Randall King, Esq., Porter & Hedges LLP, 1000 Main Street, 36th Floor, Houston, Texas 77002

4705101833

BOOK 0752 PAGE 0083

EXHIBIT A
MINERAL INTERESTS
Marshall County, WV

Reference #	Grantor	Deed Date	Book	Page	Instrument #	Tax ID	District	County
623175	Ritchea, Alvey & Olive B	2/1/1956	312	268		40014001000000400	Franklin	Marshall
623176	Sims, Clara J; Sims, Roy B	2/1/1956	312	234		40014001100000400	Franklin	Marshall
623177	Jones, Ruble & Wilma	1/31/1956	312	332		40014000900000400	Franklin	Marshall
623217	Doty, Harry E	4/19/1956	313	330		40014001400000400	Franklin	Marshall
623218	Bottome, Paul E & Marguerite D	5/2/1956	314	385		40014000300000400	Franklin	Marshall
623235	Hubbs, Kermit Reed	4/9/1968	397	420		40007000500010400	Franklin	Marshall
623236	Utter, James & Mary	4/10/1968	397	436		40005007500010400	Franklin	Marshall
623237	Doty, Parker L	8/3/1968	399	503		04000700120000400	Franklin	Marshall
623238	Doty, Lucy E	11/9/1968	403	331		04000700130000400, 04000700190000400	Franklin	Marshall
623344	Brown, John J & Margarrett; Brown, John Jr	12/5/1955	311	123		50001000200000500	Franklin	Marshall
623346	Wilson, Albert M & Effie	1/20/1956	311	411		50001001000000500	Franklin	Marshall
623347	Meeker, Lloyd Jr & Jo Ann	1/5/1956	311	404		5-1-16	Franklin	Marshall
623348	Goodrich, Robert A & Norma Jea	1/7/1956	311	406		5-1-16	Franklin	Marshall
623349	Goodrich, Clarence E & Elsie	1/7/1956	311	400		50001001600000500	Franklin	Marshall
623351	Knox, Vernon & Dessie	1/25/1956	312	6		50001000300000500	Franklin	Marshall
623352	Eller, Barrell & Florence	1/23/1956	312	55		25-05-0002-0005-0000-0000, 5-2-5	Franklin	Marshall
623353	Rine, James C & Clarice E	1/25/1956	312	127		05000100007000009500, 5-2-3	Franklin	Marshall
623354	Smith, Jerry O & Hazel	1/25/1956	312	181		05000100007000009500, 5-2-4	Franklin	Marshall

4705101833

BOOK 0752 PAGE 0091

EXHIBIT D

EXCLUDED ASSETS

For purposes of this Deed, "*Excluded Assets*" means:

(a) all of Grantor's corporate minute books and corporate financial records that relate to Grantor's business generally (including the ownership and operation of the Conveyed Interests);

(b) all trade credits, all accounts, receivables and all other proceeds, income or revenues attributable to the Conveyed Interests with respect to any period of time prior to the Effective Time;

(c) all claims and causes of action of Grantor arising under or with respect to any Contracts that are attributable to periods of time prior to the Effective Time (including claims for adjustments or refunds);

(d) subject to Section 5.4 of the Acquisition Agreement, all rights and interests of Grantor (i) under any policy or agreement of insurance or indemnity, (ii) under any bond or (iii) to any insurance or condemnation proceeds or awards arising, in each case, from acts, omissions or events, or damage to or destruction of property;

(e) all Hydrocarbons produced and sold from the Properties with respect to all periods prior to the Effective Time, other than those Hydrocarbons attributable to the Conveyed Interests and in storage or existing in stock tanks, pipelines or plants (including inventory) as of the Effective Time;

(f) all claims of Grantor for refunds of or loss carry forwards with respect to (i) Asset Taxes attributable to any period, or portion thereof, prior to the Effective Time, (ii) income or franchise Taxes or (iii) any Taxes attributable to the Excluded Assets;

(g) all offices (including any owned or leased real or immovable property relating thereto) and personal computers and associated peripherals and all radio and telephone equipment and licenses relating thereto;

(h) all of Grantor's proprietary computer software, patents, trade secrets, copyrights, names, trademarks, logos and other intellectual property;

(i) all servitudes, easements, rights-of-way, surface fee interests, surface leases and other surface use agreements not primarily used or held for use in connection with the ownership or operation of the Properties or the Personal Property;

4705101833

BOOK 0752 PAGE 0092

(j) all documents and instruments of Grantor that may be protected by an attorney-client privilege;

(k) all data and Contracts that cannot be disclosed to Grantee as a result of confidentiality arrangements under agreements with Third Parties;

(l) all audit rights arising under any of the Applicable Contracts or otherwise with respect to any period prior to the Effective Time or to any of the Excluded Assets, except for any Imbalances assumed by Grantee;

(m) all geophysical and other seismic and related technical data and information relating to the Properties or other Conveyed Interests to the extent that such geophysical and other seismic and related technical data and information is not transferable without payment of a fee or other penalty (unless Grantee agrees to, and does, pay such fees and penalties) or not otherwise set forth in Schedule 2.1 to the Acquisition Agreement;

(n) documents prepared or received by Grantor or its Affiliates with respect to (i) lists of prospective purchasers for such transactions compiled by Grantor or its Affiliates, (ii) bids submitted by other prospective purchasers of the Conveyed Interests or any other interest in the Properties, (iii) analyses by Grantor or its Affiliates of any bids submitted by any prospective purchaser, (iv) correspondence between or among Grantor or its Affiliates or their respective representatives, and any prospective purchaser other than Grantee and (v) correspondence between Grantor or its Affiliates or any of their respective representatives with respect to any of the bids, the prospective purchasers, or the transactions contemplated in this Agreement;

(o) all trucks, cars and drilling/workover rigs utilized by Grantor or its Affiliates in connection with the ownership or operation of the Conveyed Interests;

(p) all Hedge Contracts;

(q) all proceeds and amounts held in suspense as of Closing that are attributable to the Hydrocarbons produced from the Properties;

(r) Overhead Costs payable to Grantor or any Affiliate of Grantor as an Operator of the Conveyed Interests attributable to the period between the Effective Time and the Closing Date;

(s) files and records attributable to the Conveyed Interests that are maintained by Grantor that are not primarily used or held for use in connection with the operatorship or ownership of the Conveyed Interests;

(t) any Conveyed Interests described in *Section 2.1(b)* that are not assignable;

(u) any Retained Interest;

4705101833

BOOK 0752 PAGE 0093

(v) all Existing Gathering Assets;

(w) the Antero ORRI;

(x) all rights to coal and substances mined in connection therewith;

(y) any Additional Interests acquired by Grantor during the Interim Period in the Development Area with respect to which Grantee elects not to acquire its participating share pursuant to the terms of the Development Agreement;

(z) all water rights;

(aa) the Downstream Contracts, the NJR Contracts and the Peoples Contract;

(bb) all Contracts which are held or to be held by Grantor in its capacity as operator of the Development Area set forth on Exhibit A-2 to the Development Agreement, including drilling Contracts and services Contracts;

(cc) all Pipeline Imbalances; and

(dd) all SCADA Equipment and Federal Communication Commission licenses.

EXHIBIT D-3

STATE OF WEST VIRGINIA, MARSHALL COUNTY, SCT.:

I, JAN PEST, Clerk of the County Commission of said County, do hereby certify that the annexed writing, bearing date on the 28th day of September, 2011, was presented for and by me, admitted to record in my office upon the above certificate as to the parties therein named this 5th day of December, 2011 at 10:22 o'clock A M.

TESTE: Jan Pest Clerk.

GPS SM 10-11

4705101833

MEMORANDUM OF LEASE

This **MEMORANDUM OF LEASE**, dated this 6th day of March, 2015 is utilized to indicate the existence of a PAID-UP OIL AND GAS LEASE (hereinafter, "Lease") of even date herewith, by and between **Roger Weese, Special Commissioner on behalf of Nellie Ramser Dowler, Frieda Barbara Ramser, John Benedict "Otto" Ramser, Edwin Moritz Ramser, Violet Elizabeth Riggs, William P. Hornbrook, Henry Clinton Barlow, and George W. McMurry and their unknown heirs or assigns, (hereinafter, "Lessor" whether one or more),** and **NOBLE ENERGY, INC.**, a Delaware corporation, whose address is at 1000 Noble Energy Drive, Canonsburg, Pennsylvania 15317, (hereinafter, "Lessee").

Lessor did **LEASE, LET, GRANT, and DEMISE** exclusively unto Lessee, its successors and/or assigns, the rights to explore, develop, produce, and market oil and/or gas and all constituent products, including methane gas present in or associated with any coal seam, from the premises described below, subject to the provisions contained in the Lease including, but not limited to the following:

1. PRIMARY TERM: The primary term of the Lease is for a period of five (5) years commencing on the date immediately set forth above, and for so long thereafter as oil, gas, or other substances covered by the Lease are capable of being produced in paying quantities from the Leased Premises or from lands pooled therewith, or the Lease is otherwise maintained or prolonged pursuant to the provisions contained in the Lease, including an extension of term contained therein. Lessee may extend the primary term of the Lease for an additional five (5) years after the end of the primary term, thereby continuing the term of the Lease to the end of the "extended" primary term.

2. DESCRIPTION / LEASED PREMISES: All those certain tracts of land situate in the District of Clay, County of Marshall, State of West Virginia, identified as Parcel 4 on Tax Map 14 in Clay District, Marshall County, said land being stipulated to contain for the purpose of calculating payments, twenty and one-tenth (20.10) acres, more or less ("Leased Premises").

This Memorandum of Lease has been executed for the purpose of providing notice of the existence of the Lease and shall not be considered in any way a modification or alteration of the Lease.

LESSOR

WITNESS:

_____

Printed Name_____

Roger T Weese

Printed Name: Roger Weese, Special Commissioner, on behalf of Nellie Ramser Dowler, Frieda Barbara Ramser, John Benedict "Otto" Ramser, Edwin Moritz Ramser, Violet Elizabeth Riggs, William P. Hornbrook, Henry Clinton Barlow, and George W. McMurry and their unknown heirs or assigns

Address: 621 Third St
New Martinsville, WV 26155

Received
Office of Oil & Gas
MAR 13 2015

4705101833

WITNESS:

LESSEE

NOBLE ENERGY, INC.

By: _____

MARK A. ACREE, Attorney-In-Fact

_____

Printed Name: _____

Received
Office of Oil & Gas
MAR 13 2015

4705101833

ACKNOWLEDGMENT

STATE OF WEST VIRGINIA §
§
COUNTY OF MARSHALL §

On this 10 day of March, 2015, before me, the undersigned officer, personally appeared **ROGER R. WEESE**, Special Commissioner on behalf of Nellie Ramser Dowler, Frieda Barbara Ramser, John Benedict "Otto") Ramser, Edwin Moritz Ramser, Violet Elizabeth Riggs, William P. Hornbrook, Henry Clinton Barlow, and George W. McMurray, personally known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same for the purposes therein contained and on behalf of said named parties.

In witness thereof, I hereunto set my hand and affixed my official seal.

MY COMMISSION EXPIRES: Feb 24, 2023

Marjorie Kubancik
Notary Public

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
MARJORIE KUBANCIK
Marshall County Circuit Clerk
Marshall County Court House
Moundsville, West Virginia 26041
My Commission Expires February 24, 2023

CORPORATE ACKNOWLEDGMENT

COMMONWEALTH OF PENNSYLVANIA §
§
COUNTY OF WASHINGTON §

On this 4th day of March, 2015, before me, the undersigned officer, personally appeared **MARK A. ACREE**, as Attorney-in-Fact for **NOBLE ENERGY, INC.**, a Delaware corporation, personally known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same for the purposes therein contained and on behalf of said corporation.

In witness thereof, I hereunto set my hand and affixed my official seal.

MY COMMISSION EXPIRES:

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Jill A. Morrow, Notary Public
Cecil Twp., Washington County
My Commission Expires Jan. 9, 2017
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Jill A. Morrow
Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Jill A. Morrow, Notary Public
Cecil Twp., Washington County
My Commission Expires Jan. 9, 2017
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

PREPARED BY / UPON RECORDATION, RETURN TO:
Land Department
NOBLE ENERGY, INC.
1000 Noble Energy Drive
Canonsburg, PA 15317

Received
Office of Oil & Gas
MAR 13 2015

noble energy

4705101833

Office of Oil & Gas
601 57th street, SE
Charleston, WV 25304-2345

Re: *Drilling Under Roads*

To Whom It May Concern:

Noble Energy, Inc. has the right to drill, stimulate and produce wells that are drilled under the County and State Roads as designated on the plats.

Should you have any questions or desire additional information, please do not hesitate to contact me at dswiger@nobleenergyinc.com or 724-820-3061.

Sincerely,

Dee Swiger
Regulatory Analyst III

DS/

Enclosures:

Received
Office of Oil & Gas
MAR 13 2015

WW-6AC
(1/12)

4705101833

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION

Date of Notice Certification: 3/2/15

API No. 47- 051 -
Operator's Well No. MND 1 LHS
Well Pad Name: MND 1

Notice has been given:
Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State:	West Virginia	UTM NAD 83	Easting:	519309.461
County:	Marshall		Northing:	4411114.718
District:	Clay	Public Road Access:		County Highway 88/8
Quadrangle:	Powhatan Point	Generally used farm name:		Consol (Now owned by Murray American Energy DBA Consolidation Coal)
Watershed:	Short Creek - Ohio River (Huc 10)			

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: *PLEASE CHECK ALL THAT APPLY	OOG OFFICE USE ONLY
☐ 1. NOTICE OF SEISMIC ACTIVITY or ☒ NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED	☑ RECEIVED/ NOT REQUIRED
☒ 2. NOTICE OF ENTRY FOR PLAT SURVEY or ☐ NO PLAT SURVEY WAS CONDUCTED	☑ RECEIVED
☐ 3. NOTICE OF INTENT TO DRILL or ☒ NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or ☒ WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)	☑ RECEIVED/ NOT REQUIRED
☒ 4. NOTICE OF PLANNED OPERATION	☑ RECEIVED
☒ 5. PUBLIC NOTICE	☑ RECEIVED
☒ 6. NOTICE OF APPLICATION	☑ RECEIVED

Required Attachments:
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

Received
Office of Oil & Gas
MAR 19 2015

WW-6AC
(1/12)

4705101833

Certification of Notice is hereby given:

THEREFORE, I Dee Swiger, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	Noble Energy Inc.	Address:	1000 Noble Energy Drive
By:	Dee Swiger		Canonsburg, PA 15317
Its:	Regulatory Analyst III	Facsimile:	724-416-5248
Telephone:	724-820-3061	Email:	dee.swiger@nblenergy.com

NOTARY SEAL
COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Regina Logue, Notary Public
New Sewickley Twp., Beaver County
My Commission Expires July 7, 2018
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Subscribed and sworn before me this 25th day of February.

Regina Logue Notary Public

My Commission Expires 07/07/2018

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

Received
Office of Oil & Gas
MAR 13 2015

WW-6A
(9-13)

API NO. 47- 051 - _____
OPERATOR WELL NO. MND 1 LHS
Well Pad Name: MND 1

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 3/2/15 **Date Permit Application Filed:** 3/10/15

Notice of:

4705101833

☑ PERMIT FOR ANY WELL WORK

☐ CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

☐ PERSONAL SERVICE

☐ REGISTERED MAIL

☑ METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

☑ Application Notice ☑ WSSP Notice ☑ E&S Plan Notice ☑ Well Plat Notice is hereby provided to:

☑ SURFACE OWNER(s)
Name: Murray Energy Corporation / Jason Witt
Address: 46226 National Road
Saint Clairsville, OH 43950
Name: _____
Address: _____

☑ SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: Wendell B. & Caroyln S. Rine
Address: 918 Kansas Ridge Lane
Moundsville, WV 26041
Name: _____
Address: _____

☐ SURFACE OWNER(s) (Impoundments or Pits)
Name: _____
Address: _____

☑ COAL OWNER OR LESSEE
Name: Consol Mining Company / Ryan Arp
Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

☑ COAL OPERATOR
Name: Consolidation Coal Company (Alex O'Neill)
Address: 46226 National Road
Saint Clairsville, OH 43950

☐ SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: No water purveyors with in 1500'
Address: _____

Received
Office of Oil & Gas
MAR 18 2015

☐ OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: _____
Address: _____

*Please attach additional forms if necessary

WW-6A
(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. MND 1 LHS
Well Pad Name: MND 1

Notice is hereby given:
Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

4705101833

This Notice Shall Include:
Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Location Restrictions
Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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Office of Oil & Gas
MAR 18 2015

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

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Water Well Testing:
Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:
Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:
Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

Received
Office of Oil & Gas
MAR 13 2015

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

WW-6A
(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. MND 1 LHS
Well Pad Name: MND 1

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

(1) The proposed well work will constitute a hazard to the safety of persons;
(2) The plan for soil erosion and sediment control is not adequate or effective;
(3) Damage would occur to publicly owned lands or resources; or
(4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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Received
Office of Oil & Gas
MAR 13 2015

WW-6A
(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. MND 1 LHS
Well Pad Name: MND 1

Notice is hereby given by:

Well Operator: Noble Energy, Inc.
Telephone: 724-820-3061
Email: dee.swiger@nblenergy.com

Address: 1000 Noble Energy Drive
Canonsburg, PA 15317
Facsimile: 724-416-5248

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Regina Logue, Notary Public
New Sewickley Twp., Beaver County
My Commission Expires July 7, 2018
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Subscribed and sworn before me this 25th day of Feb., 2015.

Regina Logue Notary Public

My Commission Expires 07/07/2018

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MAR 13 2015

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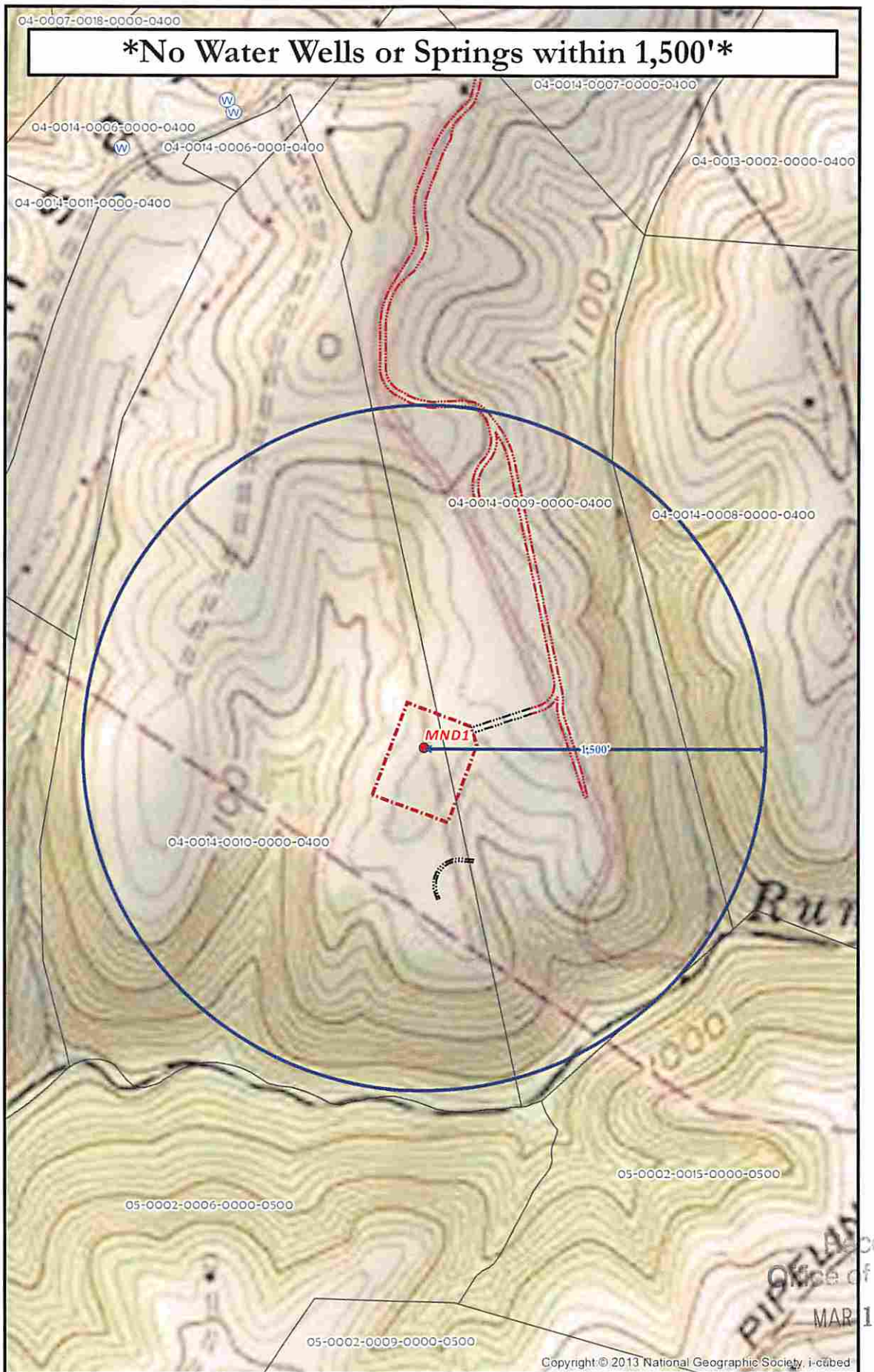

MND 1 SITE SAFETY PLAN
- WATER WELL PURVEYORS -

0 250 500 1,000 Feet

1 Inch = 500 Feet

Projection: NAD 1927 StatePlane West Virginia North FIPS 4701
Units: Foot US

Disclaimer: All data is licensed for use by Noble Energy Inc. use only.

noble energy

Date: 8/5/2014

Author: ChristopherGlover

6/6

Document Path: G:\Canonsburg\GIS\Projects\District_30\Appalachia\MKDs\EHSR\Permitting\Moundsville\MND1\D30_PA_WV_6_MND1_Water_Wells.mxd

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MAR 13 2015

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WW-6A3
(1/12)

Operator Well No. MND 1

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF ENTRY FOR PLAT SURVEY

Notice Time Requirement: Notice shall be provided at least **SEVEN (7)** days but no more than **FORTY-FIVE (45)** days prior to entry
Date of Notice: 6/20/2014 **Date of Planned Entry:** 06/27/2014

Delivery method pursuant to West Virginia Code § 22-6A-10a

☐ PERSONAL SERVICE ☐ REGISTERED MAIL ☒ METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

Notice is hereby provided to:

☒ SURFACE OWNER(s)
Name: Murray Energy Corporation / Jason Witt
Address: 46226 National Road
Saint Clairsville, OH 43950
Name:
Address:
Name:
Address:

☒ COAL OWNER OR LESSEE
Name: Consol Mining Company / Ryan Arp
Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

☒ MINERAL OWNER(s)
Name: CNX Gas Company, LLC
Address: 1000 Consol Energy Drive
Canonsburg, PA 15317
*please attach additional forms if necessary

Notice is hereby given:
Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

State:	West Virginia	Approx. Latitude & Longitude:	N 39.849832 W 80.774225
County:	Marshall	Public Road Access:	Co. Hwy 88/8
District:	Clay	Watershed:	Short Creek - Ohio River (Huc -10)
Quadrangle:	Powhattan Point	Generally used farm name:	

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

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MAR 13

Notice is hereby given by:

Well Operator:	Noble Energy, Inc.	Address:	333 Technology Drive Suite 116
Telephone:	724-820-3061		Canonsburg, PA 15317
Email:	dswiger@nobleenergyinc.com	Facsimile:	724-743-0050

Oil and Gas Privacy Notice:
The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

WW-6A5
(1/12)

Operator Well No. MND 1 LHS

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF PLANNED OPERATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**
Date of Notice: 3/2/15 **Date Permit Application Filed:** 3/10/15

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

4705101833

☒ CERTIFIED MAIL RETURN RECEIPT REQUESTED ☐ HAND DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):

Name: Murray Energy Corporation / Jason Witt
Address: 46226 National Road
Saint Clairsville, OH 43950

Name: Wendell B. & Caroyln S. Rine
Address: 918 Kansas Ridge Lane
Moundsville, WV 26041

Notice is hereby given:
Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: West Virginia
County: Marshall
District: Clay
Quadrangle: Powhatan Point
Watershed: Short Creek - Ohio River (Huc 10)

UTM NAD 83 Easting: 519309.461
Northing: 4411114.718
Public Road Access: County Highway 88/8
Generally used farm name: Consol (Now owned by Murray American Energy DBA Consolidation Coal)

This Notice Shall Include:
Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1)A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: Noble Energy Inc.
Telephone: 724-820-3061
Email: dee.swiger@nblenergy.com

Address: 1000 Noble Energy Drive
Canonsburg, PA 15317
Facsimile: 724-416-5248

Oil and Gas Privacy Notice:
The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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MAR 13 2015

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WW-6AW
(1-12)

API NO. _____
OPERATOR WELL NO. MND1 LHS
Well Pad Name: MND1

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

VOLUNTARY STATEMENT OF NO OBJECTION

Instructions to Persons Named on Page WW-6A
The well operator named on page WW-6A is applying for a permit from the State of West Virginia to conduct oil or gas well work. Well work permits are valid for twenty-four (24) months. Please contact the listed well operator and the Office of Oil and Gas if you do not own any interest in the listed surface tract.

Comment and Waiver Provisions
Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary.

Pursuant to West Virginia Code § 22-6A-8(b) No permit may be issued less than thirty days after the filing date of the application for any well work except plugging or replugging; and no permit for plugging or replugging may be issued less than five days after the filing date of the application except a permit for plugging or replugging a dry hole: *Provided,* That if the applicant certifies that all persons entitled to notice of the application under the provisions of subsection (b), section ten of this article have been served in person or by certified mail, return receipt requested, with a copy of the well work application, including the erosion and sediment control plan, if required, and the well plat, and further files written statements of no objection by all such persons, the secretary may issue the well work permit at any time.

VOLUNTARY STATEMENT OF NO OBJECTION

I, Alex O'Neill, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

State:	West Virginia	WVSPN NAD 27	Easting:	1,642,180.358
County:	Marshall		Northing:	494,153.712
District:	Clay	Public Road Access:		Taylors Ridge Road
Quadrangle:	POWHATAN POINT	Generally used farm name:		CONSOLIDATION COAL CO.
Watershed:	Ohio River			

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials, **provided that NOBLE ENERGY, INC. drills the well on WV North NAD27 coordinates of North 494,153.712, East 1,642,180.358 in accordance with the Agreement between Consolidation Coal Company, Murray American Energy, Inc. and NOBLE ENERGY, INC. dated July 25, 2014.**

*Please check the box that applies

- ☐ SURFACE OWNER
- ☐ SURFACE OWNER (Road and/or Other Disturbance)
- ☐ SURFACE OWNER (Impoundments/Pits)
- ☐ COAL OWNER OR LESSEE
- ☒ COAL OPERATOR
- ☐ WATER PURVEYOR
- ☐ OPERATOR OF ANY NATURAL GAS STORAGE FIELD

FOR EXECUTION BY A NATURAL PERSON

Signature: _____
Print Name: _____
Date: _____

FOR EXECUTION BY A CORPORATION, ETC.

Company: CONSOLIDATION COAL CO.
By: Alex O'Neill
Its: Coal, Oil & Gas Relations Manager
Signature: _____
Date: 7/30/2014

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4705101833

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin
Governor

Paul A. Mattox, Jr., P. E.
Secretary of Transportation/
Commissioner of Highways

September 24, 2014

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the MND-1 Well Pad, Marshall County

Dear Mr. Martin,

The West Virginia Division of Highways has issued Permit #06-2014-0611 for the subject site to Noble Energy, Inc. for access to the State Road for the well site located off of Marshall County Route 88/8 SLS.

The operator has signed an OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton

Gary K. Clayton P.E.
Regional Maintenance Engineer
Central Office Oil &Gas Coordinator

Cc: James L. McCune
Noble Energy, Inc.
CH, OM, D-6
File

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**
Fresh Water	Operator				100.00%
HYDROCHLORIC ACID 5-10%	Halliburton		Hydrochloric acid	7647-01-0	10.00%
SAND - COMMON WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%
BE-9	Halliburton	Biocide	Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00%
Scalechek® LP-65 Scale Inhibitor	Halliburton	Scale Inhibitor	Ammonium chloride	12125-02-9	10.00%
LGC-36 UC	Halliburton	Liquid Gel Concentrate	Guar gum	9000-30-0	60.00%
			Naphtha, hydrotreated heavy	64742-48-9	60.00%
LCA-1	Halliburton	Solvent	Paraffinic solvent	Confidential Business Information	100.00%
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor	Methanol	67-56-1	60.00%
			Propargyl alcohol	107-19-7	10.00%
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%
			Acetic anhydride	108-24-7	100.00%
LoSurf-300D	Halliburton	Non-ionic Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%
			Ethanol	64-17-5	60.00%
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%
			Naphthalene	91-20-3	5.00%
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00%
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00%
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00%

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and

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NOBLE ENERGY, INC.

noble energy

CONSTRUCTION PLANS FOR THE

MND 01 WELL PAD AND ACCESS ROAD

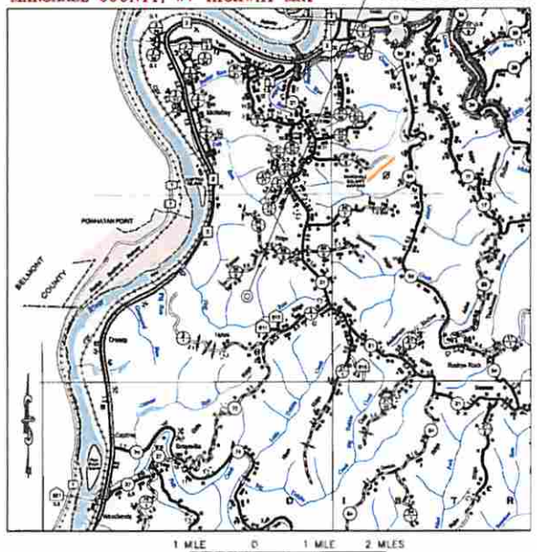
MARSHALL COUNTY, WV

JUNE 24, 2014

API# 5101768

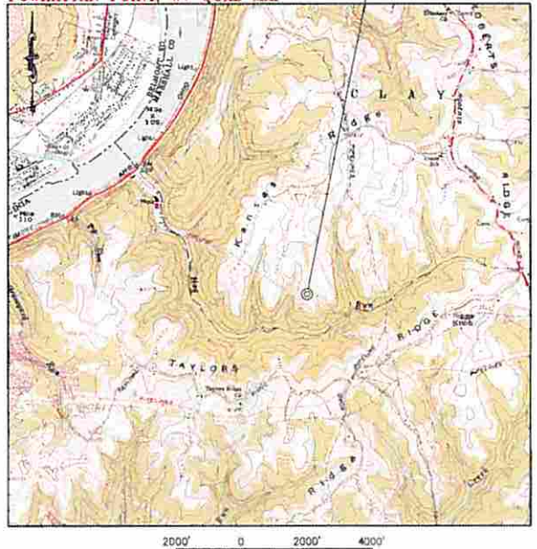
Received
Office of Oil & Gas
MAR 13 2015

MARSHALL COUNTY, WV HIGHWAY MAP — PROJECT LOCATION



HIGHWAY MAP SCALE

POWHATTAN POINT, WV QUAD MAP — PROJECT LOCATION



VICINITY MAP SCALE

SHEET INDEX

SHEET	DESCRIPTION
1	TITLE SHEET
2	GENERAL NOTES
3	QUANTITY SUMMARY
4	TYPICAL SECTIONS
5	OVERALL GEOMETRIC LAYOUT
6	WELL PAD GEOMETRIC LAYOUT
7	EXISTING CONDITIONS
8	OVERALL SITE PLAN
9	WELL PAD PLAN
10	WELL PAD PROFILE
11 - 17	WELL PAD SECTIONS
18	ACCESS ROAD PLAN AND PROFILE
19	ACCESS ROAD SECTIONS
20	EXISTING ACCESS ROAD PLAN AND PROFILE
21	EXISTING ACCESS ROAD RELOCATION SECTIONS
22	RECLAMATION PLAN
23 - 26	DETAILS
27 - 29	PINECONE ACCESS ROAD PLAN AND PROFILE

MND 01 BOREHOLE COORDINATES

Well Number	WV83-N Latitude	WV83-N Longitude	WV27-N Northing	WV27-N Easting	WV83-N Northing	WV83-N Easting	UTM 83-17 Northing	UTM 83-17 Easting
1	N 39.850009°	W 80.774286°	494217.968 ft	1642179.943 ft	494254.211 ft	1610742.874 ft	4411134.292 m	519309.008 m
2	N 39.849970°	W 80.774304°	494203.928 ft	1642174.665 ft	494240.170 ft	1610737.596 ft	4411129.988 m	519307.471 m
3	N 39.849932°	W 80.774322°	494189.877 ft	1642169.387 ft	494226.129 ft	1610732.317 ft	4411125.683 m	519305.934 m
4	N 39.849893°	W 80.774340°	494175.847 ft	1642164.108 ft	494212.089 ft	1610727.037 ft	4411121.379 m	519304.398 m
5	N 39.849854°	W 80.774358°	494161.807 ft	1642158.830 ft	494198.049 ft	1610721.759 ft	4411117.075 m	519302.861 m
6	N 39.849815°	W 80.774376°	494147.766 ft	1642153.552 ft	494184.008 ft	1610716.481 ft	4411112.770 m	519301.324 m
7	N 39.849988°	W 80.774209°	494209.874 ft	1642201.472 ft	494246.116 ft	1610764.403 ft	4411131.936 m	519315.608 m
8	N 39.849949°	W 80.774227°	494195.834 ft	1642196.193 ft	494232.077 ft	1610759.123 ft	4411127.631 m	519314.071 m
9	N 39.849910°	W 80.774245°	494181.793 ft	1642190.915 ft	494218.035 ft	1610753.845 ft	4411123.327 m	519312.534 m
10	N 39.849872°	W 80.774269°	494167.753 ft	1642185.637 ft	494203.996 ft	1610748.567 ft	4411119.023 m	519310.998 m
11	N 39.849833°	W 80.774281°	494153.712 ft	1642180.358 ft	494189.954 ft	1610743.288 ft	4411114.718 m	519309.461 m
12	N 39.849794°	W 80.774299°	494139.672 ft	1642175.080 ft	494175.915 ft	1610738.009 ft	4411110.414 m	519307.924 m

MND 01 DISTURBANCE SUMMARY

Property Owner (Tax Map / Parcel)	Access Road Disturbance	Well Pad Disturbance	Total Disturbance
Forested			
Consolidation Coal Company (4-14/9)	0.09	1.87	1.96
Consolidation Coal Company (4-14/10)	0.44	2.01	2.45
Total Forested Disturbance	0.53	3.88	4.41
Non-Forested			
Consolidation Coal Company (4-14/9)	0.91	0.92	1.82
Consolidation Coal Company (4-14/10)	1.21	1.67	2.88
Total Non-Forested Disturbance	2.12	2.59	4.70
Total			
MND 01 Total Disturbance	2.64	6.47	9.11

Electronic version of plans can be viewed at: Q\OIL GAS\SAY FILES\REVIEWS

WELL PAD CENTER
Latitude = N 39.849832°
Longitude = W 80.774125°
WV27-N Northing = 494153.118 ft
WV27-N Easting = 1642196.160 ft
WV83-N Northing = 494189.3604 ft
WV83-N Easting = 1610759.0900 ft
UTM 83-17 Northing = 4411114.618 m
UTM 83-17 Easting = 519314.278 m

EXISTING ACCESS ROAD BEGINNING
Latitude = N 39.858204°
Longitude = W 80.773561°
WV27-N Northing = 497199.673 ft
WV27-N Easting = 1642425.560 ft
WV83-N Northing = 497235.9212 ft
WV83-N Easting = 1610988.5402 ft
UTM 83-17 Northing = 4412043.930 m
UTM 83-17 Easting = 519368.671 m

ROBERT R. MILNE
REGISTERED
14177
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
10/3/14

- [x] APPROVED FOR PERMITS — DATE: 2014/06/24 — BY: RM
- [ ] APPROVED FOR BIDS — DATE: _____ — BY: _____
- [ ] APPROVED FOR CONSTRUCTION — DATE: _____ — BY: _____

REVISION NUMBER	REVISED SHEETS	BY	DATE	DESCRIPTION
1	1-3, 5-22, & 26-29	BM	10/03/2014	ADDRESSED WVDEP OOG PERMIT COMMENTS

APPROVED
WVDEP OOG
10/22/2014

THRASHER

THE THRASHER GROUP, INC.
600 WHITE OAKS BOULEVARD – BRIDGEPORT, WV 26330
PHONE (304) 624-4108 • FAX (304) 624-7831

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GENERAL NOTES

1. THE GOVERNING SPECIFICATIONS FOR THIS PROJECT ARE THE THRASHER SPECIFICATIONS THAT ARE INCLUDED WITHIN THESE PLANS. ANY ITEMS NOT COVERED IN THE THRASHER SPECIFICATIONS SHALL BE COVERED BY THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS STANDARD SPECIFICATIONS, ROADS AND BRIDGES, ADOPTED 2010 AMENDED BY THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, SUPPLEMENTAL SPECIFICATIONS, LATEST EDITION AND THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, STANDARD DETAILS BOOKS, VOLUME I, DATED JANUARY 1, 2000 AND VOLUME II, DATED JANUARY 1, 1994. (WVDOH SPECIFICATIONS SHALL BE USED FOR TECHNICAL ASSISTANCE ONLY.)
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A VALID WEST VIRGINIA CONTRACTOR'S LICENSE AND PAYING ALL APPLICABLE STATE AND LOCAL TAXES.
3. THE CONSTRUCTION DRAWINGS REPRESENT THE PROPOSED LINES, GRADES, AND APPURTENANCES TO ACCOMPLISH THE INTENT OF THE SCOPE OF WORK. CERTAIN INCIDENTAL ITEMS TO COMPLETE THE SCOPE OF WORK MAY NOT BE SHOWN.
4. ALL WORK PERFORMED AND ALL MATERIAL FURNISHED SHALL CONFORM TO THE LINES, GRADES, CROSS SECTIONS, DIMENSIONS, AND MATERIAL REQUIREMENTS SHOWN ON THE CONSTRUCTION DRAWINGS. THE CONSTRUCTION DRAWINGS SHOW THE CONSTRUCTION LINES, GRADES, DEPTHS AND DIMENSIONS ON WHICH ESTIMATED QUANTITIES ARE BASED. THE CONSTRUCTION LINES, GRADES, DEPTHS AND DIMENSIONS ARE SUBJECT TO VARIATION NECESSARY TO OBTAIN SUBGRADE AND/OR FINAL GRADE SATISFACTORY TO THE ENGINEER.
5. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL PLAN AND ELEVATION DIMENSIONS OF THE VARIOUS WORK ITEMS ON THIS PROJECT.
6. THE BASE MAPPING FOR THIS PROJECT IS BASED ON AERIAL PHOTOGRAPHY FROM APRIL 2013 PROVIDED IN DECEMBER 2013 BY BLUE MOUNTAIN INC. THE DATUM IS WEST VIRGINIA STATE PLANE, NAD-83 DATUM, NORTH ZONE, US FOOT. PROJECT CONTROL HAS BEEN ESTABLISHED BY THRASHER.
7. THE CONTRACTOR SHALL PROVIDE ALL REASONABLE FACILITIES AND FURNISH THE OPERATOR, THROUGH THE ENGINEER, THE INFORMATION, ASSISTANCE, AND SAMPLES REQUIRED BY THE ENGINEER FOR PROPER MONITORING AND TESTING OF MATERIALS AND WORKMANSHIP.
8. THE CONTRACTOR SHALL HAVE ON THE SITE AT ALL TIMES A COMPETENT SUPERINTENDENT CAPABLE OF READING AND UNDERSTANDING THE CONSTRUCTION DOCUMENTS AND THOROUGHLY EXPERIENCED IN THE TYPE OF WORK BEING PERFORMED, AND SHALL BE ABLE TO COORDINATE WITH THE ENGINEER.
9. CLEARING SHALL BE COMPLETED IN ACCORDANCE WITH WVDOH SPECIFICATIONS. CLEARING IS DEFINED AS THE REMOVAL OF TREES, BRUSH, DOWN TIMBER, ROTTEN WOOD, RUBBISH, AND OTHER VEGETATION, AND OBJECTIONABLE MATERIALS AT OR ABOVE ORIGINAL GROUND ELEVATION NOT DESIGNATED TO BE RETAINED. CLEARING ALSO INCLUDES REMOVAL OF FENCES, POSTS, SIGNS, AND DEMOLITION OR REMOVAL OF OTHER OBSTRUCTIONS INTERFERING WITH THE PROPOSED WORK.
10. GRUBBING SHALL BE COMPLETED IN ACCORDANCE WITH WVDOH SPECIFICATIONS. REMOVE ALL STUMPS AND ROOTS WITHIN THE CLEARED AREA UNLESS OTHERWISE APPROVED BY THE ENGINEER. GRUBBING IS DEFINED AS THE REMOVAL FROM BELOW THE ORIGINAL GROUND ELEVATION OF STUMPS, ROOTS, STUBS, BRUSH, ORGANIC MATERIALS AND DEBRIS AS WELL AS CONCRETE AND BRICK, AND OTHER OBSTRUCTIONS INTERFERING WITH THE PROPOSED WORK.
11. DO NOT DEPOSIT OR BURY ON THE SITE DEBRIS RESULTING FROM THE CLEARING AND GRUBBING. TREES, LOGS, BRANCHES, STUMPS, AND OTHER DEBRIS RESULTING FROM CLEARING AND GRUBBING OPERATIONS SHALL NOT BE USED IN STRUCTURAL FILL.
12. STRIP TOPSOIL TO WHATEVER DEPTH IT MAY OCCUR FROM AREAS TO BE EXCAVATED, FILLED, OR GRADED IN A MANNER TO PREVENT INTERMIXING WITH UNDERLYING SUBSOIL OR WASTE MATERIALS. STOCKPILE TOPSOIL AS SHOWN ON THE PLANS FOR USE IN FINISH GRADING, SEEDING, AND LANDSCAPING. TOPSOIL REMOVAL VOLUMES FOR THIS PROJECT WERE CALCULATED USING AN ASSUMED THICKNESS OF TWELVE (12) INCHES. STOCKPILE AWAY FROM EDGE OF EXCAVATIONS WITHOUT INTERMIXING WITH SUBSOIL. GRADE AND SHAPE STOCKPILES TO DRAIN SURFACE WATER. PROTECT TOPSOIL STOCKPILES USING EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
13. ALL EARTHWORK SHALL FOLLOW THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.
14. SUITABLE SOIL MATERIALS ARE THOSE COMPLYING WITH WVDOH STANDARD SPECIFICATIONS.
15. ON-SITE MATERIAL FOR USE AS FILL SHALL CONSIST OF EXCAVATED SOIL FROM OTHER PORTIONS OF THE SITE. THE CONTRACTOR SHALL USE THE ON-SITE SOIL JUDICIOUSLY TO FACILITATE THE CONSTRUCTION SCHEDULE INCLUDING THE USE OF THE MOST READILY COMPACTABLE SOIL FOR FILL. TOPSOIL SHALL NOT BE UTILIZED AS ENGINEERED FILL. EXCAVATED MATERIAL CONTAINING ROCK, STONE OR MASONRY DEBRIS SMALLER THAN SIX INCHES IN ITS LARGEST DIMENSION, MAY BE MIXED WITH SUITABLE MATERIAL AND UTILIZED.
16. NO MATERIAL GREATER THAN SIX INCHES IN ITS LARGEST DIMENSION MAY BE UTILIZED INSIDE FILLING OPERATIONS.
17. STOCKPILE EXCAVATED MATERIALS CLASSIFIED AS SATISFACTORY SOIL MATERIAL AS SHOWN ON THE PLANS. GRADE AND SHAPE THE STOCKPILES FOR PROPER DRAINAGE. PROTECT THE STOCKPILES USING EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
18. EXCAVATE UNSUITABLE SOIL MATERIALS ENCOUNTERED THAT EXTEND BELOW THE REQUIRED ELEVATIONS, TO THE ADDITIONAL DEPTH DIRECTED BY THE ENGINEER IN ACCORDANCE WITH WVDOH STANDARD SPECIFICATIONS.
19. FILL SHALL BE PLACED IN LIFTS OF MAXIMUM LOOSE DEPTH OF 8 INCHES. THE MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DRY DENSITY AT MOISTURE CONTENT WITHIN PLUS OR MINUS TWO PERCENT (±2%) OF THE OPTIMUM AS DETERMINED BY ASTM D1557. IF FILL FAILS COMPACTION TESTING, THE CONTRACTOR SHALL REWORK (RE-COMPACT, WATER AND RE-COMPACT, EXCAVATE AND DRY, ETC.) THE MATERIAL TO ACHIEVE THE SPECIFIED COMPACTION. THE CONTRACTOR MAY BE REQUIRED BY THE ENGINEER TO EXCAVATE FILL AND REPLACE WITH MATERIALS CAPABLE OF MEETING THE COMPACTION SPECIFICATIONS.
20. WHERE THE SUBGRADE OR LAYER OF SOIL MATERIAL MUST BE MOISTURE CONDITIONED BEFORE COMPACTION, UNIFORMLY APPLY WATER TO THE SURFACE OF THE SUBGRADE OR LAYER OF SOIL MATERIAL TO PREVENT FREE WATER APPEARING ON THE SURFACE DURING OR SUBSEQUENT TO COMPACTION OPERATIONS.
21. REMOVE AND REPLACE, OR SCARIFY AND AIR DRY, SOIL MATERIAL THAT IS TOO WET TO PERMIT COMPACTION TO SPECIFIED DENSITY. SOIL MATERIAL THAT HAS BEEN REMOVED BECAUSE IT IS TOO WET TO PERMIT COMPACTION MAY BE STOCKPILED OR SPREAD AND ALLOWED TO DRY. ASSIST DRYING BY DISKING, HARROWING OR PULVERIZING, UNTIL THE MOISTURE CONTENT IS REDUCED TO A SATISFACTORY VALUE, AS DETERMINED BY MOISTURE-DENSITY RELATION TESTS.
22. COMPACTOR FOR MASS EARTHWORK SHALL BE MINIMUM TEN TON STATIC DRUM WEIGHT VIBRATORY ROLLER OR TEN TON WEIGHT SHEEPSFOOT COMPACTOR AS APPROPRIATE FOR THE TYPE OF SOIL MATERIAL AT THE SITE OR OTHER COMPACTOR APPROVED BY THE ENGINEER.
23. IN AREAS TO RECEIVE FILL AND AT THE FINAL CUT SUBGRADE, PROOF ROLL AND COMPACT THE EXPOSED GROUND SURFACE FOLLOWING CLEARING AND GRUBBING AND ANY REQUIRED EXCAVATION WITH A MINIMUM OF FOUR PASSES OF AN APPROVED COMPACTOR. PROOF ROLLING SHALL BE UNDER THE OBSERVATION OF THE ENGINEER AS DESCRIBED HEREIN. IMMEDIATELY FOLLOWING THE COMPLETION OF EXCAVATION TO PROPOSED SUBGRADES IN CUT AREAS, PROOF ROLLING SHALL BE PERFORMED AS SPECIFIED. ANY AREAS WHICH DEFLECT, RUT, OR PUMP UNDER THE LOADED DUMP TRUCK SHALL BE UNDERCUT AND REPLACED WITH COMPACTED FILL MATERIAL OR STONE BASE COURSE AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OPERATOR.
24. PROOF ROLLING SHALL BE DONE WITH ONE PASS OF A FULLY LOADED TANDEM DUMP TRUCK EQUAL TO OR EXCEEDING 50,000-LB OR OTHER CONSTRUCTION EQUIPMENT IF APPROVED BY THE ENGINEER. PROOF ROLLING METHODS SHALL BE AS FOLLOWS:
    - 24.1. AFTER THE SUBGRADE HAS BEEN COMPLETED THE SUBGRADE SHALL THEN BE PROOF ROLLED. THE COVERAGE AREAS AND METHODS SHALL BE IDENTIFIED BY THE ENGINEER.
    - 24.2. THE EQUIPMENT SHALL BE OPERATED AT A SPEED THAT THE ENGINEER CAN COMFORTABLY AND SLOWLY WALK ALONG SIDE THE EQUIPMENT.
    - 24.3. IF IT BECOMES NECESSARY TO TAKE CORRECTIVE ACTION, SUCH AS BUT NOT LIMITED TO UNDERDRAIN INSTALLATION, UNDERCUT AND BACKFILL OF AN UNSUITABLE MATERIAL, AND AERATION OF EXCESSIVELY WET MATERIAL IN AREAS THAT HAVE BEEN PROOF ROLLED. THESE AREAS SHALL BE PROOF ROLLED AGAIN FOLLOWING THE COMPLETION OF THE NECESSARY CORRECTIONS. IF THE CORRECTIONS ARE NECESSARY DUE TO THE NEGLIGENCE OF THE CONTRACTOR, THE CORRECTIVE WORK AND ADDITIONAL PROOF ROLLING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE OPERATOR.
25. THE CONTRACTOR SHALL LOCATE AND PROTECT EXISTING UTILITIES AND FACILITIES FROM DAMAGE BY EQUIPMENT OR PERSONNEL. THE CONTRACTOR SHALL CONTACT ALL UTILITY AND FACILITY AGENCIES FOR FIELD MARKING PRIOR TO BEGINNING CONSTRUCTION. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR IT'S REPRESENTATIVE. THE EXISTING UTILITY INFORMATION IS THE BEST AVAILABLE AND MAY NOT BE COMPLETELY ACCURATE OR REPRESENTATIVE OF ACTUAL CONDITIONS. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND/OR OWNER IN WRITING, OF ANY EXISTING DAMAGED UTILITIES PRIOR TO BEGINNING CONSTRUCTION. ANY UTILITIES OR FACILITIES DAMAGED DURING THE PROJECT BY THE CONTRACTOR OR EQUIPMENT SHALL BE PROMPTLY REPAIRED AT THE CONTRACTOR'S EXPENSE. HAND DIGGING TO PROTECT UTILITIES FROM DAMAGE SHOULD BE ANTICIPATED.
26. ALL DISTURBED AREAS, INCLUDING THE CONTRACTORS STAGING AREA, HAUL ROUTES, GRADING LIMITS, ETC. SHALL BE RESTORED TO A SMOOTH LINE AND GRADE WITH POSITIVE DRAINAGE. THE CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS. THERE WILL BE NO MEASUREMENT FOR PAYMENT OF SEEDING AND MULCHING REQUIRED OUTSIDE THE GRADING LIMITS.
27. THE CONTRACTOR SHALL PROVIDE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND OTHER ACTIONS AS REQUIRED BY LOCAL AND STATE REGULATIONS OR REQUESTED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING OR MODIFYING EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ORDER TO PREVENT EROSION. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH "WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL", AVAILABLE AT: http://www.dep.wv.gov/oil-and-gas/Documents/Erosion%20Manual%2004.pdf
28. EVERY LOCATION WHERE COMPOST FILTER SOCK IS PROPOSED TO BE INSTALLED, THE CONTRACTOR MAY INSTALL SUPER (REINFORCED) SILT FENCE AS AN APPROVED EQUAL. THE COMPARABLE SUPER (REINFORCED) SILT FENCE SHALL BE DETERMINED IN THE FIELD AND SHALL BE BASED ON THE MAXIMUM SLOPE LENGTH ABOVE THE SUPER (REINFORCED) SILT FENCE. ADDITIONAL ROWS OF SUPER (REINFORCED) SILT FENCE MAY BE NECESSARY COMPARED TO THE COMPOST FILTER SOCK. (1)

EROSION & SEDIMENT CONTROL NOTES

CONSTRUCTION NOTES

1. CONTRACTOR SHALL INSTALL STABILIZED CONSTRUCTION ENTRANCE AND MAINTAIN FOR THE LIFE OF THE PROJECT.
2. CONTRACTOR SHALL INSTALL ALL REQUIRED SUPER SILT FENCE, SILT FENCE, AND/OR COMPOST FILTER SOCK BARRIERS AS SHOWN ON THE PLANS AND AS DIRECTED. ALL SUPER SILT FENCE, SILT FENCE, AND COMPOST FILTER SOCKS ARE TO BE INSTALLED PARALLEL TO THE EXISTING CONTOURS.
3. CONTRACTOR SHALL CONSTRUCT OUTLET PROTECTION PRIOR TO THE INSTALLATION OF THE ADJACENT CULVERT OR CONSTRUCTION OF THE DITCH.
4. AS DITCHES ARE CONSTRUCTED, INSTALL ROCK CHECK DAMS.
5. STRIP AND STOCKPILE TOPSOIL AS SHOWN ON THE PLANS.
6. CONTRACTOR SHALL IMMEDIATELY STABILIZE ALL EMBANKMENTS UPON COMPLETION.
7. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE WVDEP OFFICE OF OIL AND GAS "WV E&S CONTROL FIELD MANUAL".

MAINTENANCE AND INSPECTION NOTES

1. CONTRACTOR SHALL CLEAN OUT SEDIMENT BEHIND THE SUPER SILT FENCE, SILT FENCE, AND/OR COMPOST FILTER SOCKS ONCE IT IS ONE HALF OF THE HEIGHT OF THE FENCE AND/OR SOCK. THE SEDIMENT SHALL BE INCORPORATED INTO THE FILL WITHIN THE DISTURBED AREA.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED, AT MINIMUM, ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER ANY STORM EVENT GREATER THAN 0.5-INCHES PER 24-HOUR PERIOD. ANY REQUIRED REPAIRS OR MAINTENANCE SHALL BE MADE IMMEDIATELY.

Received
Office of Oil & Gas
MAR 13 2014

SEEDING AND MULCHING

1. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS PERMANENTLY CEASED.
2. WHERE THE INITIATION OF STABILIZATION MEASURES WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS CONDITIONS ALLOW.
3. WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 14 DAYS FROM WHEN ACTIVITIES CEASED, (E.G., THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY HALTED IS LESS THAN 14 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE SEVENTH DAY AFTER CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED.
4. SEEDBED PREPARATION: AREAS TO BE SEEDED SHALL BE FREE OF ROCKS AND STONES, DISKED TO A DEPTH OF 4-IN TO 6-IN, AND SMOOTHLY GRADED.
5. SEEDING METHOD: SEED MAY BE BROADCAST BY HYDROSEEDER OR MANUALLY AS FOLLOWS: BY HAND WITH A CYCLONE SEEDER, OR FERTILIZER SPREADER. IF A MANUAL METHOD IS USED, DIVIDE THE SEED INTO TWO LOTS AND BROADCAST THE SECOND PERPENDICULAR TO THE FIRST.
6. TOPSOIL SHALL BE REDISTRIBUTED ON ALL DISTURBED AREAS TO BE STABILIZED PRIOR TO SEEDING.
7. AREAS WHERE THE SEED HAS FAILED TO GERMINATE ADEQUATELY (UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70%) WITHIN 30 DAYS AFTER SEEDING AND MULCHING MUST BE RE-SEEDED IMMEDIATELY, OR AS SOON AS WEATHER CONDITIONS ALLOW.
8. TEMPORARY AND PERMANENT SEED MIXTURES SHALL BE FOSTER SUPPLY PREMIUM MEADOW MIX (OR APPROVED EQUAL).

FOSTER SUPPLY PREMIUM MEADOW MIX (% BY WEIGHT)

- 43% HAYMATE XL ORCHARDGRASS
- 16% GULF ANNUAL RYEGRASS
- 15% CLIMAX TIMOTHY
- 15% ARCTIC GREEN PERENNIAL RYEGRASS
- 8% MEDIUM RED CLOVER
- 3% INERT MATTER AND CROP SEED

9. SEED APPLICATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS.
10. MULCH SHALL BE APPLIED AT A RATE OF 3-4 TONS PER ACRE.
11. LIME APPLICATION RATES
    - 11.1. WHEN A SOIL TEST REQUIRES LIME APPLICATION OF MORE THAN 4 TONS PER ACRE, THE LIME MUST BE MIXED INTO THE TOP SIX (6) INCHES OF SOIL.
    - 11.2. MINIMUM 6 TONS PER ACRE AT 100% EFFECTIVE NEUTRALIZING VALUE (% ENV), UNLESS THE SOIL TEST DETERMINES A LESSER AMOUNT IS NEEDED. TO DETERMINE THE ACTUAL AMOUNT OF REGULAR LIME TO APPLY, DIVIDE THE AMOUNT CALLED FOR BY THE SOIL TEST BY THE % ENV FOR THE PRODUCT USED. FOR EXAMPLE, IF 6 TONS PER ACRE IS NEEDED AND THE % ENV FOR THE LIME USED IS 88%, DIVIDE 6 BY 0.88 RESULTING IN 6.8 TONS NEEDING TO BE APPLIED.
    - 11.3. FOR DOLOMITIC LIME, WHICH HAS A SIGNIFICANT AMOUNT OF MAGNESIUM IN IT, DIVIDE THE AMOUNT CALLED FOR BY THE SOIL TEST BY THE % CALCIUM CARBONATE EQUIVALENT (% CCE) LISTED FOR THE PRODUCT INSTEAD OF THE % ENV. THE % CCE MAY BE ABOVE 100% WHICH ACCOUNTS FOR THE FACT THAT MAGNESIUM HAS A GREATER EFFECT PER POUND THAN THE CALCIUM IN REGULAR LIME.
12. FERTILIZATION RATES
    - 12.1. IF TOP DRESSED APPLY 10-20-20 AT 600 POUNDS/ACRE
    - 12.2. IF INCORPORATED APPLY 10-20-20 AT 1,000 POUNDS/ACRE
    - 12.3. UNLESS THE SOIL TEST DETERMINES THAT THE RATE CAN BE LESS THAN THESE MINIMUMS.

CONTACTS

MISS UTILITY
1-800-245-4848
http://www.wv811.com

WEST VIRGINIA DIVISION OF HIGHWAYS
DISTRICT SIX
1 DOT DRIVE
MOUNDSVILLE, WV 26041-1605
304-843-4000

THE THRASHER GROUP, INC.
ROBERT R. MILNE, P.E.,
PROJECT MANAGER
rmilne@thrashereng.com

NATIONAL RESPONSE CENTER FOR REPORTING CHEMICAL OR OIL SPILLS
1-800-424-8802

STATE EMERGENCY SPILL NOTIFICATION
1-800-642-3074

AMBULANCE, FIRE, LAW ENFORCEMENT
911

INITIAL SITE CONSTRUCTION SEQUENCE OF EVENTS

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AND MAINTAIN FOR THE LIFE OF THE PROJECT OR UNTIL THERE IS 70% GROWTH ESTABLISHED OVER THE ENTIRE PROJECT AREA.
2. CLEAR AND GRUB SITE TO THE EXTENT NECESSARY TO COMPLETE THE PROJECT WITHIN THE LIMITS OF DISTURBANCE.
3. REMOVE AND STOCKPILE TOPSOIL AS SHOWN ON THE PLANS.
4. SEED AND MULCH TOPSOIL STOCKPILES.
5. PERFORM GRADING OPERATIONS FOR THE ACCESS ROADS AND WELL PAD.
6. RE-DISTRIBUTE TOPSOIL THEN SEED AND MULCH ALL DISTURBED AREAS.
7. REMOVE TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AFTER 70% GROWTH HAS BEEN ESTABLISHED OVER THE ENTIRE PROJECT AREA.
8. COMPLETE FINAL PROJECT CLEAN UP.

SITE RECLAMATION SEQUENCE OF EVENTS

1. PRIOR TO SITE RECLAMATION, INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AND MAINTAIN FOR THE LIFE OF THE PROJECT OR UNTIL THERE IS 70% GROWTH ESTABLISHED OVER THE ENTIRE PROJECT AREA.
2. REMOVE AND STOCKPILE TOPSOIL TO THE EXTENT NECESSARY TO COMPLETE THE RECLAMATION.
3. SEED AND MULCH TOPSOIL STOCKPILES.
4. PERFORM GRADING TO RECLAIM SITE AS PER THE RECLAMATION PLAN AND IN ACCORDANCE WITH THE EARTHWORK SPECIFICATIONS IN THE GENERAL NOTES.
5. RE-DISTRIBUTE TOPSOIL THEN SEED AND MULCH ALL DISTURBED AREAS.
6. REMOVE TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AFTER 70% GROWTH HAS BEEN ESTABLISHED OVER THE ENTIRE PROJECT AREA.
7. COMPLETE FINAL PROJECT CLEAN UP.

APPROVED
WVDEP OOG
10/22/2014

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THRASHER
THE THRASHER GROUP, INC.
600 WHITE OAKS BOULEVARD, BRIDGEPORT, WV 26330
PHONE (304) 624-4108 FAX (304) 624-7831

PHASE No.
CONTRACT No.
PROJECT No. 1-01-030-2460

NOBLE ENERGY, INC.
CONSTRUCTION PLANS FOR THE
MND 01 WELL PAD AND ACCESS ROAD
MARSHALL COUNTY, WV
GENERAL NOTES

SHEET No. 2

LAYOUT TAB: 02-Gen-Notes
CAD FILE: R:\030-2460 Noble MND1 Well Pad\Drawing\2460-Gen-Notes-Details.dwg
PLOT DATE/TIME: 10/3/2014 7:24 AM

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MAR 13 2015

SITE CONSTRUCTION QUANTITY SUMMARY

ITEM NUMBER	DESCRIPTION	UNIT	QUANTITY
1	TOTAL LIMIT OF DISTURBANCE	AC	9.11
2	TOTAL FORESTED CLEARING AND GRUBBING	AC	4.41
3	TOTAL NON-FORESTED CLEARING AND GRUBBING	AC	4.70
4	TOTAL EARTHWORK	CY	56,350
5	TOPSOIL REMOVAL (ASSUMED 12-IN THICKNESS)	CY	10,125
6	SOIL KEYWAY (EXCAVATION AND PLACEMENT)	CY	5,825
7 *	UNDERDRAIN CONTAINMENT TRENCH	LF	1,380
8 *	UNDERDRAIN SUMP	EA	5
9	UNDERDRAIN SUMP OUTLET PIPE	LF	335
10	CRUSHED AGGREGATE BASE COURSE, AASHTO NO. 1 - WELL PAD ONLY	TN	6,575
11	CRUSHED AGGREGATE BASE COURSE, AASHTO NO. 1 - ACCESS ROAD ONLY	TN	365
12	CRUSHED AGGREGATE BASE COURSE, AASHTO NO. 1 - EXISTING ROAD RELOCATION ONLY	TN	390
13	CRUSHED AGGREGATE BASE COURSE, 1.5-IN MINUS - WELL PAD ONLY	TN	1,645
14	CRUSHED AGGREGATE BASE COURSE, 1.5-IN MINUS - ACCESS ROAD ONLY	TN	95
15	CRUSHED AGGREGATE BASE COURSE, 1.5-IN MINUS - EXISTING ROAD RELOCATION ONLY	TN	100
	TYPE 1 GUARDRAIL, CLASS II	LF	525
16	EROSION CONTROL SLOPE MATTING	SY	18,620
17	EROSION CONTROL MATTING LINED DITCH	LF	555
18	ROCK LINED DITCH	LF	1,270
19	ROCK CHECK DAM	EA	44
20	STONE OUTLET PROTECTION	EA	4
	18-IN HDPE CULVERT	LF	70
21	COMPOST FILTER SOCK, 8-IN	LF	1,900
22	COMPOST FILTER SOCK, 24-IN	LF	1,375
23	STABILIZED CONSTRUCTION ENTRANCE	EA	1
24	SEEDING AND MULCHING	AC	5.90

* ITEMS #7 AND #8 PAY ITEMS SHALL INCLUDE ALL INCIDENTAL ITEMS NECESSARY TO INSTALL OR CONSTRUCT THE ITEM IN ACCORDANCE WITH THE APPLICABLE DETAILS CONTAINED WITHIN THESE PLANS.

SITE CONSTRUCTION EARTHWORK SUMMARY

CUT (SWELL) FACTOR	**110%**
FILL (SHRINK) FACTOR	**100%**
TOTAL CUT	**56,350 CY**
TOTAL FILL	**46,225 CY**
NET CUT	**10,125 CY**
TOTAL TOPSOIL STOCKPILE	**10,125 CY**

SITE RECLAMATION QUANTITY SUMMARY

ITEM NUMBER	DESCRIPTION	UNIT	QUANTITY
1	TOTAL LIMIT OF DISTURBANCE	AC	9.11
2	TOTAL EARTHWORK	CY	10,180
3	ROCK LINED DITCH	LF	330
4	ROCK CHECK DAM	EA	19
5	STONE OUTLET PROTECTION	EA	2
6	COMPOST FILTER SOCK, 24-IN	LF	575
7	STABILIZED CONSTRUCTION ENTRANCE	EA	1
8	SEEDING AND MULCHING	AC	2.40

SITE RECLAMATION EARTHWORK SUMMARY

CUT (SWELL) FACTOR	**100%**
FILL (SHRINK) FACTOR	**100%**
BERM AND STOCKPILE CUT	**10,180 CY**
BERM AND STOCKPILE FILL	**0 CY**
TOTAL CUT	**10,180 CY**
TOTAL WASTE	**10,180 CY**

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THRASHER
THE THRASHER GROUP, INC.
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PHASE No.
CONTRACT No.
PROJECT No. 1-01-030-2460

NOBLE ENERGY, INC.
CONSTRUCTION PLANS FOR THE
MND 01 WELL PAD AND ACCESS ROAD
MARSHALL COUNTY, WV
QUANTITY SUMMARY

SHEET No. 3

LAYOUT TAB: 03-Qty-Sum
CAD FILE: R:\035-2460 Noble MND1 Well Pad\Drawing\2460-Con-Notes-Details.dwg PLOT DATE/TIME: 10/3/2014 7:24 AM

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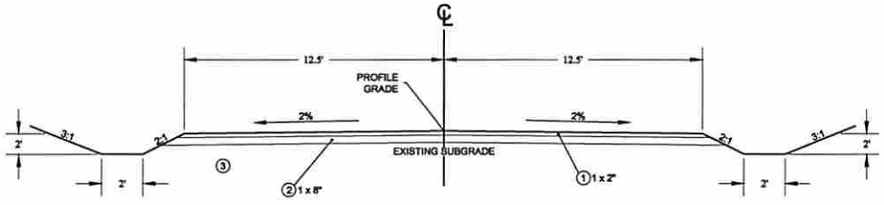
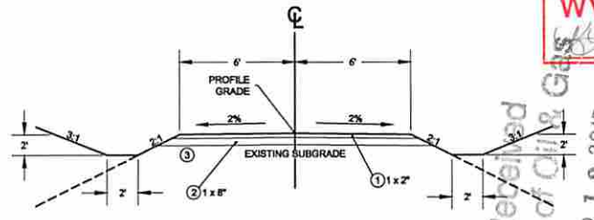
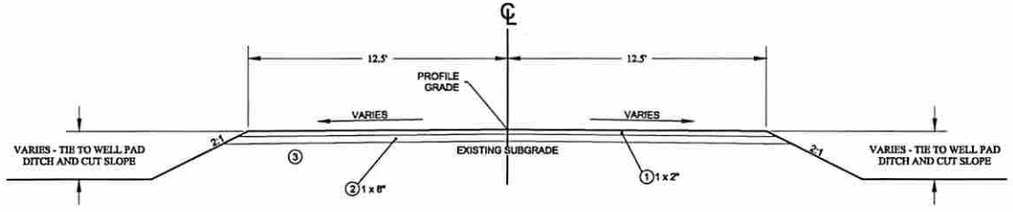
MAR 13 2015



ACCESS ROAD WITH 2% CROWN AND 3:1 CUTS
STA 100+12 - 102+65



EXISTING ACCESS ROAD RELOCATION
STA 200+00 - 203+00



ACCESS ROAD AT WELL PAD TIE-IN
STA 102+65 - 102+87

LEGEND

1. AGGREGATE BASE COURSE, 1.5-IN MINUS (OR APPROVED EQUAL)
2. AGGREGATE BASE COURSE, AASHTO NO. 1 (OR APPROVED EQUAL)
3. COMPACTED SUBGRADE (EXISTING GROUND)

NOTES

1. SEE PLANS FOR SPECIFIC CUT AND FILL SLOPES.
2. TIE TO EXISTING ACCESS ROAD AT STATION 100+12.
3. ALL DITCHES SHALL BE VEGETATED OR ROCK-LINED BASED ON DITCH SLOPE OR AS SHOWN ON THESE PLANS.

ACCESS ROAD TYPICAL SECTIONS
NOT TO SCALE

FINISH GRADE
1 1 x 2"
2 1 x 8"
3

LEGEND

1. AGGREGATE BASE COURSE, 1.5-IN MINUS (OR APPROVED EQUAL)
2. AGGREGATE BASE COURSE, AASHTO NO. 1 (OR APPROVED EQUAL)
3. COMPACTED SUBGRADE (EXISTING GROUND)

NOTE:
1. FINISH GRADE OF WELL PAD CONTAINMENT AREA SHALL BE HORIZONTAL.

WELL PAD TYPICAL SECTION
NOT TO SCALE

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PROJECT No.	1-01-030-2460

NOBLE ENERGY, INC.
CONSTRUCTION PLANS FOR THE
MND 01 WELL PAD AND ACCESS ROAD
MARSHALL COUNTY, WV
TYPICAL SECTIONS

SHEET No.
4

LAYOUT TAB: 04-Typ-Secs
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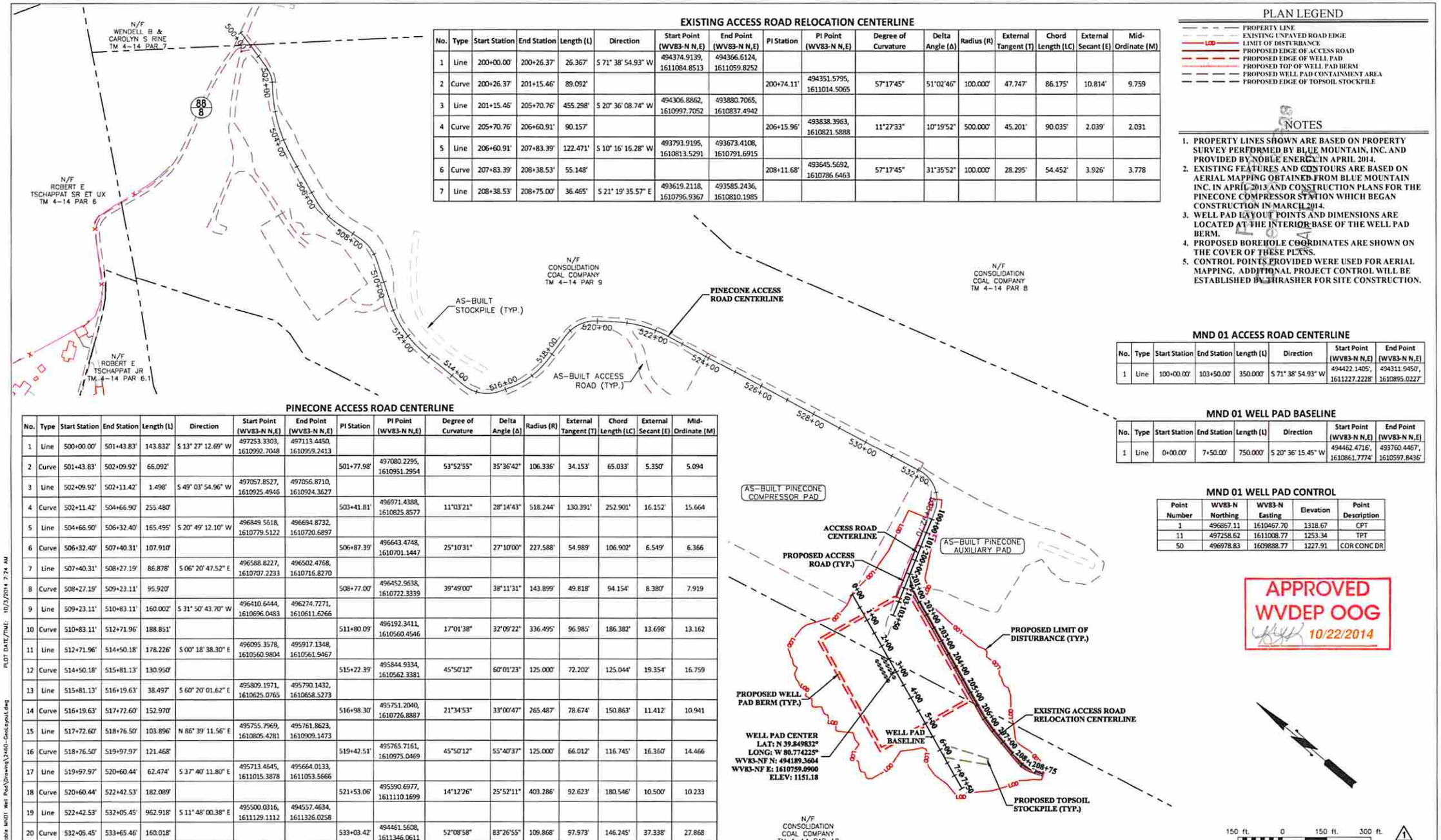

EXISTING ACCESS ROAD RELOCATION CENTERLINE

No.	Type	Start Station	End Station	Length (L)	Direction	Start Point (WV83-N N,E)	End Point (WV83-N N,E)	PI Station	PI Point (WV83-N N,E)	Degree of Curvature	Delta Angle (Δ)	Radius (R)	External Tangent (T)	Chord Length (LC)	External Secant (E)	Mid-Ordinate (M)
1	Line	200+00.00'	200+26.37'	26.367'	S 71° 38' 54.93" W	494374.9139, 1611084.8513	494366.6124, 1611059.8252									
2	Curve	200+26.37'	201+15.46'	89.092'				200+74.11'	494351.5795, 1611014.5065	57°17'45"	51°02'46"	100.000'	47.747'	86.175'	10.814'	9.759
3	Line	201+15.46'	205+70.76'	455.298'	S 20° 36' 08.74" W	494306.8862, 1610997.7052	493880.7065, 1610837.4942									
4	Curve	205+70.76'	206+60.91'	90.157'				206+15.96'	493838.3963, 1610821.5888	11°27'33"	10°19'52"	500.000'	45.201'	90.035'	2.039'	2.031
5	Line	206+60.91'	207+83.39'	122.471'	S 10° 16' 16.28" W	493793.9195, 1610813.5291	493673.4108, 1610791.6915									
6	Curve	207+83.39'	208+38.53'	55.148'				208+11.68'	493645.5692, 1610786.6463	57°17'45"	31°35'52"	100.000'	28.295'	54.452'	3.926'	3.778
7	Line	208+38.53'	208+75.00'	36.465'	S 21° 19' 35.57" E	493619.2118, 1610796.9367	493585.2436, 1610810.1985									

PLAN LEGEND

- PROPERTY LINE
- EXISTING UNPAVED ROAD EDGE
- LOD LIMIT OF DISTURBANCE
- PROPOSED EDGE OF ACCESS ROAD
- PROPOSED EDGE OF WELL PAD
- PROPOSED TOP OF WELL PAD BERM
- PROPOSED WELL PAD CONTAINMENT AREA
- PROPOSED EDGE OF TOPSOIL STOCKPILE

NOTES

1. PROPERTY LINES SHOWN ARE BASED ON PROPERTY SURVEY PERFORMED BY BLUE MOUNTAIN, INC. AND PROVIDED BY NOBLE ENERGY IN APRIL 2014.
2. EXISTING FEATURES AND CONTOURS ARE BASED ON AERIAL MAPPING OBTAINED FROM BLUE MOUNTAIN INC. IN APRIL 2013 AND CONSTRUCTION PLANS FOR THE PINECONE COMPRESSOR STATION WHICH BEGAN CONSTRUCTION IN MARCH 2014.
3. WELL PAD LAYOUT POINTS AND DIMENSIONS ARE LOCATED AT THE INTERIOR BASE OF THE WELL PAD BERM.
4. PROPOSED BOREHOLE COORDINATES ARE SHOWN ON THE COVER OF THESE PLANS.
5. CONTROL POINTS PROVIDED WERE USED FOR AERIAL MAPPING. ADDITIONAL PROJECT CONTROL WILL BE ESTABLISHED BY THRASHER FOR SITE CONSTRUCTION.

MND 01 ACCESS ROAD CENTERLINE

No.	Type	Start Station	End Station	Length (L)	Direction	Start Point (WV83-N N,E)	End Point (WV83-N N,E)
1	Line	100+00.00'	103+50.00'	350.000'	S 71° 38' 54.93" W	494422.1405', 1611227.2228'	494311.9450', 1610895.0227'

MND 01 WELL PAD BASELINE

No.	Type	Start Station	End Station	Length (L)	Direction	Start Point (WV83-N N,E)	End Point (WV83-N N,E)
1	Line	0+00.00'	7+50.00'	750.000'	S 20° 36' 15.45" W	494462.4716', 1610861.7774'	493760.4467', 1610597.8436'

MND 01 WELL PAD CONTROL

Point Number	WV83-N Northing	WV83-N Easting	Elevation	Point Description
1	496867.11	1610467.70	1318.67	CPT
11	497258.62	1611008.77	1253.34	TPT
50	496978.83	1609888.77	1227.91	COR CONC DR

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10/22/2014

PINECONE ACCESS ROAD CENTERLINE

No.	Type	Start Station	End Station	Length (L)	Direction	Start Point (WV83-N N,E)	End Point (WV83-N N,E)	PI Station	PI Point (WV83-N N,E)	Degree of Curvature	Delta Angle (Δ)	Radius (R)	External Tangent (T)	Chord Length (LC)	External Secant (E)	Mid-Ordinate (M)
1	Line	500+00.00'	501+43.83'	143.832'	S 13° 27' 12.69" W	497253.3303, 1610992.7048	497113.4450, 1610959.2413									
2	Curve	501+43.83'	502+09.92'	66.092'				501+77.98'	497080.2295, 1610951.2954	53°52'55"	35°36'42"	106.336'	34.153'	65.033'	5.350'	5.094
3	Line	502+09.92'	502+11.42'	1.498'	S 49° 03' 54.96" W	497057.8527, 1610925.4946	497056.8710, 1610924.3627									
4	Curve	502+11.42'	504+66.90'	255.480'				503+41.81'	496971.4388, 1610825.8577	11°03'21"	28°14'43"	518.244'	130.391'	252.901'	16.152'	15.664
5	Line	504+66.90'	506+32.40'	165.495'	S 20° 49' 12.10" W	496849.5618, 1610779.5122	496694.8732, 1610720.6897									
6	Curve	506+32.40'	507+40.31'	107.910'				506+87.39'	496643.4748, 1610701.1447	25°10'31"	27°10'00"	227.588'	54.989'	106.902'	6.549'	6.366
7	Line	507+40.31'	508+27.19'	86.878'	S 06° 20' 47.52" E	496588.8227, 1610707.2233	496502.4768, 1610716.8270									
8	Curve	508+27.19'	509+23.11'	95.920'				508+77.00'	496452.9638, 1610722.3339	39°49'00"	38°11'31"	143.899'	49.818'	94.154'	8.380'	7.919
9	Line	509+23.11'	510+83.11'	160.002'	S 31° 50' 43.70" W	496410.6444, 1610696.0483	496274.7271, 1610611.6266									
10	Curve	510+83.11'	512+71.96'	188.851'				511+80.09'	496192.3411, 1610560.4546	17°01'38"	32°09'22"	336.495'	96.985'	186.382'	13.698'	13.162
11	Line	512+71.96'	514+50.18'	178.226'	S 00° 18' 38.30" E	496095.3578, 1610560.9804	495917.1348, 1610561.9467									
12	Curve	514+50.18'	515+81.13'	130.950'				515+22.39'	495844.9334, 1610562.3381	45°50'12"	60°01'23"	125.000'	72.202'	125.044'	19.354'	16.759
13	Line	515+81.13'	516+19.63'	38.497'	S 60° 20' 01.62" E	495809.1971, 1610625.0765	495790.1432, 1610658.5273									
14	Curve	516+19.63'	517+72.60'	152.970'				516+98.30'	495751.2040, 1610726.8887	21°34'53"	33°00'47"	265.487'	78.674'	150.863'	11.412'	10.941
15	Line	517+72.60'	518+76.50'	103.896'	N 86° 39' 11.56" E	495755.7969, 1610805.4281	495761.8623, 1610909.1473									
16	Curve	518+76.50'	519+97.97'	121.468'				519+42.51'	495765.7161, 1610975.0469	45°50'12"	55°40'37"	125.000'	66.012'	116.745'	16.360'	14.466
17	Line	519+97.97'	520+60.44'	62.474'	S 37° 40' 11.80" E	495713.4645, 1611015.3878	495664.0133, 1611053.5666									
18	Curve	520+60.44'	522+42.53'	182.089'				521+53.06'	495590.6977, 1611110.1699	14°12'26"	25°52'11"	403.286'	92.623'	180.546'	10.500'	10.233
19	Line	522+42.53'	532+05.45'	962.918'	S 11° 48' 00.38" E	495500.0316, 1611129.1112	494557.4634, 1611326.0258									
20	Curve	532+05.45'	533+65.46'	160.018'				533+03.42'	494461.5608, 1611346.0611	52°08'58"	83°26'55"	109.868'	97.973'	146.245'	37.338'	27.868
21	Line	533+65.46'	533+92.70'	27.233'	S 71° 38' 54.93" W	494430.7146, 1611253.0706	494422.1405, 1611227.2228									

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FIELD BOOK No.:

THRASHER
THE THRASHER GROUP, INC.
600 WHITE OAKS BOULEVARD, BRIDGEPORT, WV 26330
PHONE (304) 624-4108 FAX (304) 624-7831

PHASE No.
CONTRACT No.
PROJECT No. 1-01-030-2460

NOBLE ENERGY, INC.
CONSTRUCTION PLANS FOR THE
MND 01 WELL PAD AND ACCESS ROAD
MARSHALL COUNTY, WV
OVERALL GEOMETRIC LAYOUT

SHEET No. 5

LAYOUT TAB: 05-SitePlan
CAD FILE: X:\030-2460 Noble MND1 Well Pad\Drawing\2460-Geol.cpyut.dwg
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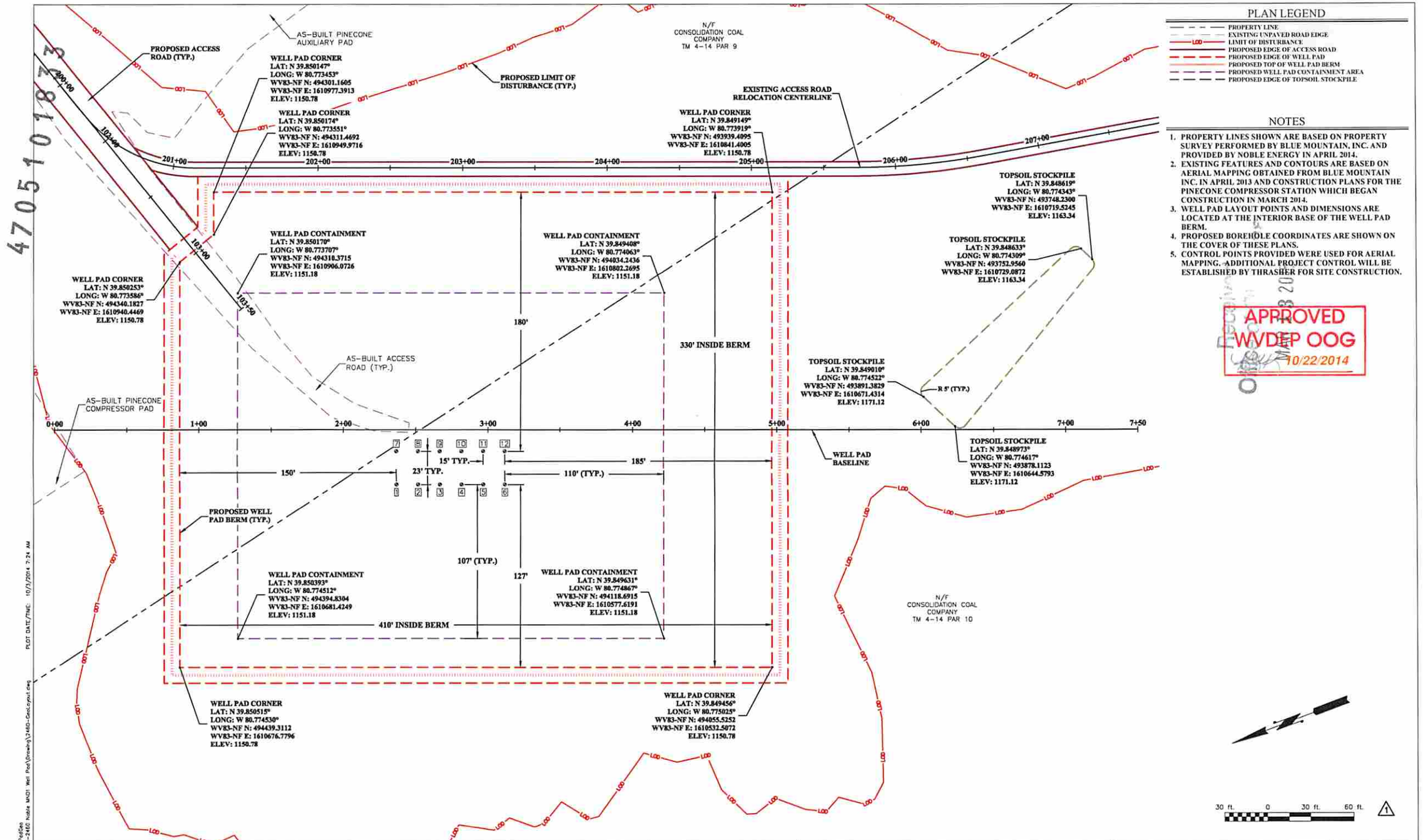

PLAN LEGEND

- PROPERTY LINE
- EXISTING UNPAVED ROAD EDGE
- LOD — LIMIT OF DISTURBANCE
- PROPOSED EDGE OF ACCESS ROAD
- PROPOSED EDGE OF WELL PAD
- PROPOSED TOP OF WELL PAD BERM
- PROPOSED WELL PAD CONTAINMENT AREA
- PROPOSED EDGE OF TOPSOIL STOCKPILE

NOTES

1. PROPERTY LINES SHOWN ARE BASED ON PROPERTY SURVEY PERFORMED BY BLUE MOUNTAIN, INC. AND PROVIDED BY NOBLE ENERGY IN APRIL 2014.
2. EXISTING FEATURES AND CONTOURS ARE BASED ON AERIAL MAPPING OBTAINED FROM BLUE MOUNTAIN INC. IN APRIL 2013 AND CONSTRUCTION PLANS FOR THE PINECONE COMPRESSOR STATION WHICH BEGAN CONSTRUCTION IN MARCH 2014.
3. WELL PAD LAYOUT POINTS AND DIMENSIONS ARE LOCATED AT THE INTERIOR BASE OF THE WELL PAD BERM.
4. PROPOSED BOREHOLE COORDINATES ARE SHOWN ON THE COVER OF THESE PLANS.
5. CONTROL POINTS PROVIDED WERE USED FOR AERIAL MAPPING. ADDITIONAL PROJECT CONTROL WILL BE ESTABLISHED BY THRASHER FOR SITE CONSTRUCTION.

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PHASE No.	
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PROJECT No.	1-01-030-2460

NOBLE ENERGY, INC.
CONSTRUCTION PLANS FOR THE
MND 01 WELL PAD AND ACCESS ROAD
MARSHALL COUNTY, WV
WELL PAD GEOMETRIC LAYOUT

SHEET No. 6

LAYOUT TAB: 06-PadDes
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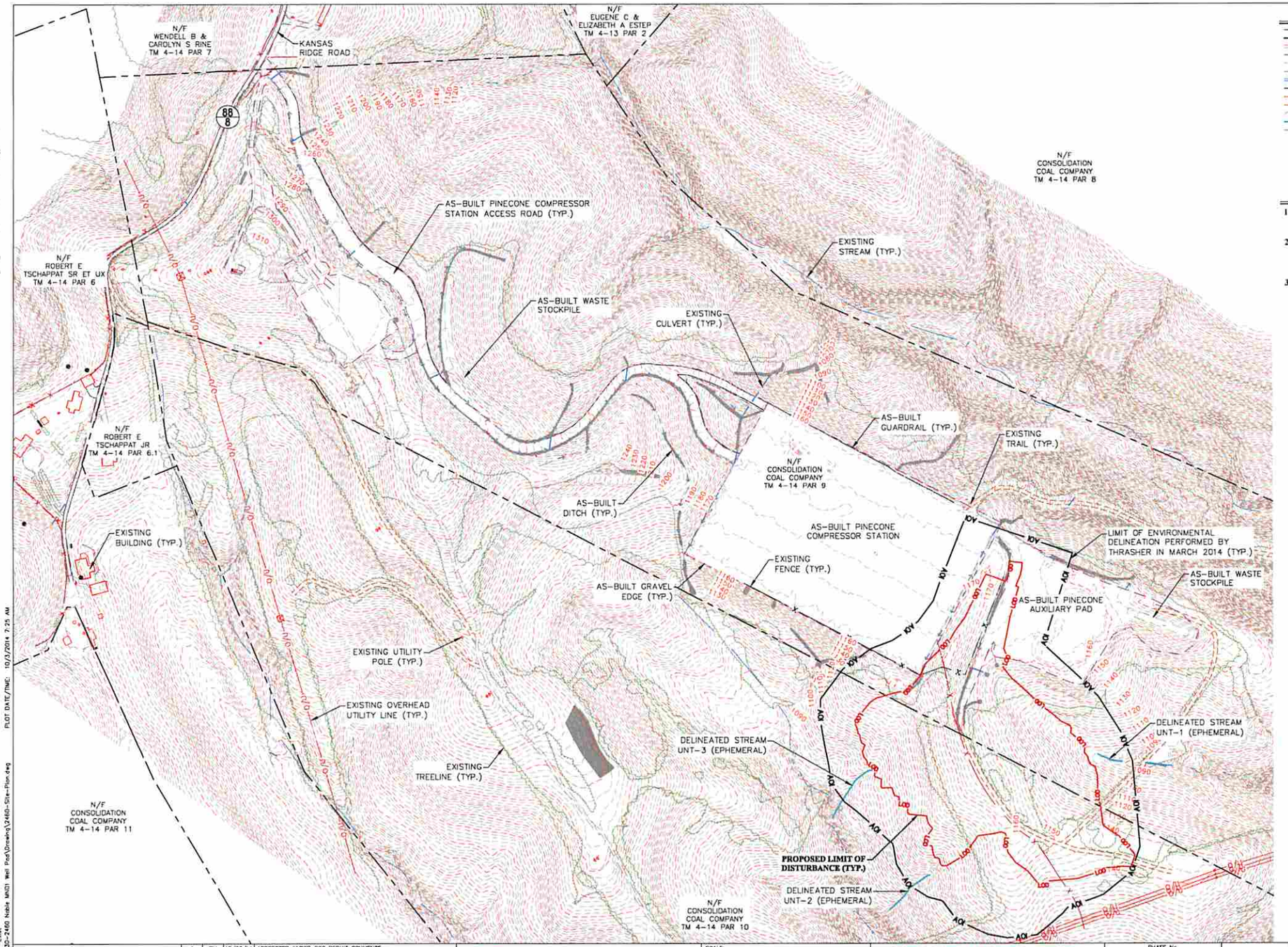

PLAN LEGEND

- PROPERTY LINE
- LIMIT OF ENVIRONMENTAL DELINEATION BY THRASHER
- EXISTING CONTOURS
- EXISTING PAVED ROAD EDGE
- EXISTING UNPAVED ROAD EDGE
- EXISTING TRAIL EDGE
- EXISTING CULVERT
- EXISTING BUILDING
- EXISTING FENCE
- EXISTING OVERHEAD UTILITY LINE AND POLE
- EXISTING TREE LINE
- EXISTING DELINEATED STREAM - EPHEMERAL
- EXISTING STREAM
- LIMIT OF DISTURBANCE

NOTES

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2. EXISTING FEATURES AND CONTOURS ARE BASED ON AERIAL MAPPING OBTAINED FROM BLUE MOUNTAIN INC. IN APRIL 2013 AND AS-BUILT SURVEY OF THE PINECONE COMPRESSOR STATION IN AUGUST 2014.
3. ENVIRONMENTAL FEATURES DELINEATED BY THRASHER IN MARCH 2014.

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NOBLE ENERGY, INC.
CONSTRUCTION PLANS FOR THE
MND 01 WELL PAD AND ACCESS ROAD
MARSHALL COUNTY, WV
EXISTING CONDITIONS

SHEET No. 7

LAYOUT TAB: 07-Exist
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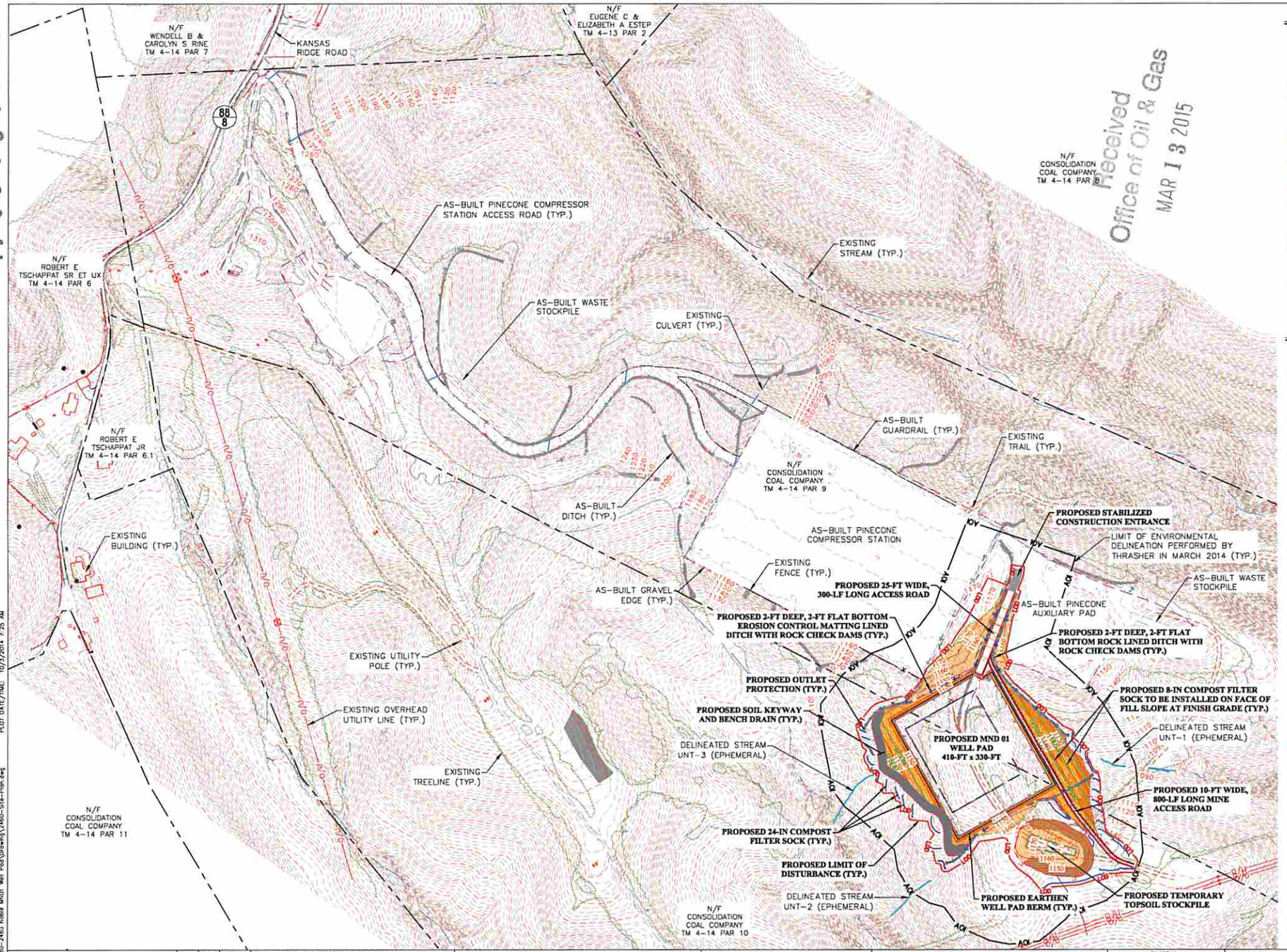

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PLAN LEGEND

- PROPERTY LINE
- AOI — LIMIT OF ENVIRONMENTAL DELINEATION BY THRASHER
- EXISTING CONTOURS
- EXISTING PAVED ROAD EDGE
- EXISTING UNPAVED ROAD EDGE
- EXISTING TRAIL EDGE
- EXISTING CULVERT
- EXISTING BUILDING
- EXISTING FENCE
- O/U — EXISTING OVERHEAD UTILITY LINE AND POLE
- EXISTING TREE LINE
- EXISTING DELINEATED STREAM - EPHEMERAL
- EXISTING STREAM
- LOD — LIMIT OF DISTURBANCE
- PROPOSED 8-IN COMPOST FILTER SOCK
- PROPOSED 24-IN COMPOST FILTER SOCK
- PROPOSED CONTOURS
- PROPOSED SOIL KEYWAY - SEE DETAIL
- PROPOSED CUT LIMIT
- PROPOSED FILL LIMIT
- PROPOSED EROSION CONTROL MATTING LINED DITCH
- PROPOSED ROCK LINED DITCH
- PROPOSED ROCK CHECK DAM
- PROPOSED OUTLET PROTECTION
- PROPOSED EDGE OF ACCESS ROAD
- PROPOSED EDGE OF WELL PAD
- PROPOSED TOP OF WELL PAD BERM
- PROPOSED MOUNTABLE WELL PAD BERM
- PROPOSED WELL PAD CONTAINMENT TRENCH
- PROPOSED WELL PAD SUMP AND OUTLET PIPE
- PROPOSED EDGE OF TOPSOIL STOCKPILE

NOTES

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3. ENVIRONMENTAL FEATURES DELINEATED BY THRASHER IN MARCH 2014.
4. ALL CUT SLOPES ARE 3H:1V. ALL STRUCTURE FILL SLOPES ARE 2H:1V. TOPSOIL STOCKPILE FILL SLOPES ARE 3H:1V.
5. CONTRACTOR SHALL INSTALL EROSION CONTROL MATTING ON ALL CONSTRUCTED SLOPES.

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LAYOUT TAB: 08-Overall
CAD FILE: R:\08-2460 Noble MND1 Well Pad\Drawing\2460-Site-Plan.dwg
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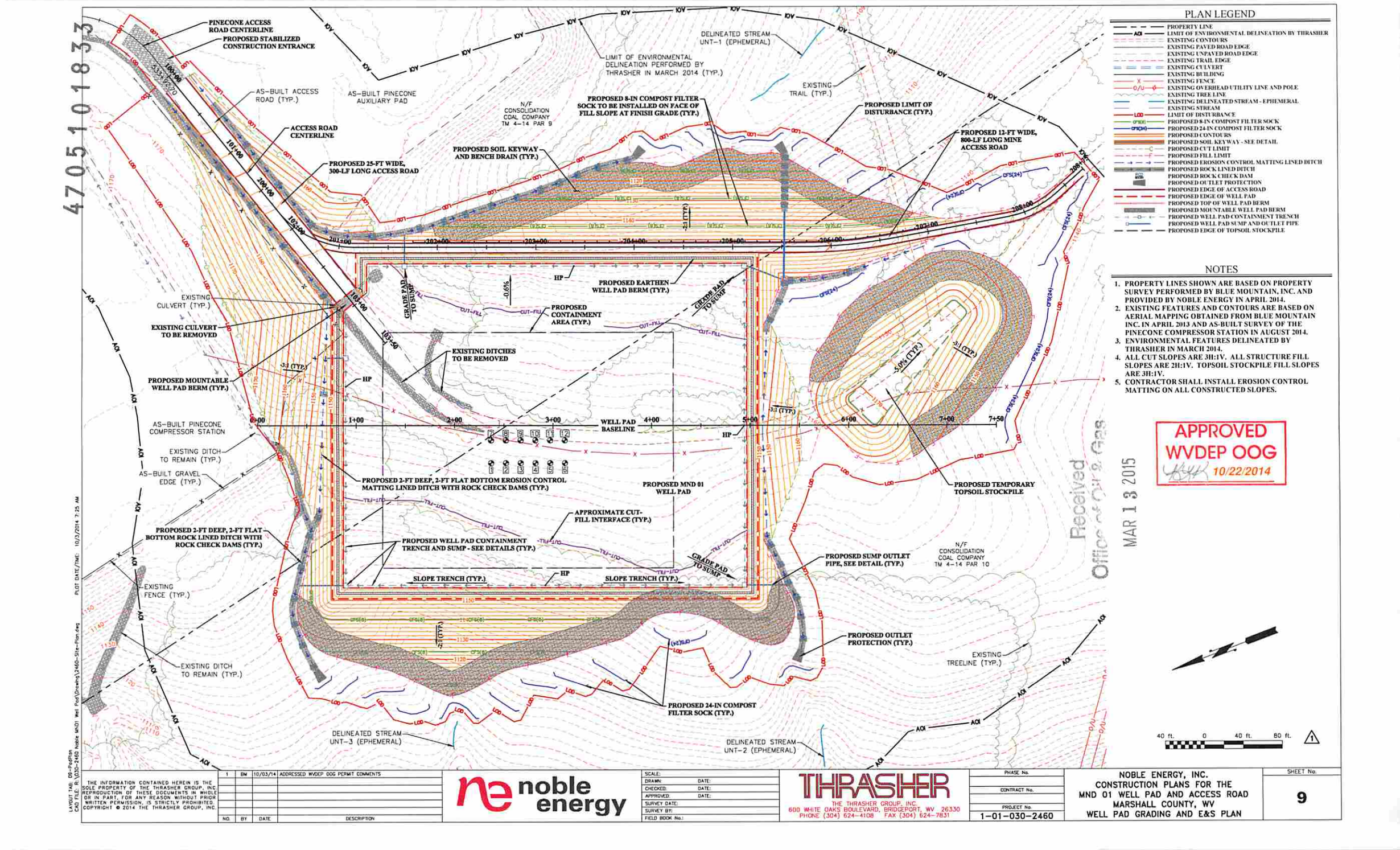
PHONE (304) 624-4108 FAX (304) 624-7831

PHASE No.
CONTRACT No.
PROJECT No. 1-01-030-2460

NOBLE ENERGY, INC.
CONSTRUCTION PLANS FOR THE
MND 01 WELL PAD AND ACCESS ROAD
MARSHALL COUNTY, WV
OVERALL SITE PLAN

SHEET No. 8



PLAN LEGEND

- PROPERTY LINE
- LIMIT OF ENVIRONMENTAL DELINEATION BY THRASHER
- EXISTING CONTOURS
- EXISTING PAVED ROAD EDGE
- EXISTING UNPAVED ROAD EDGE
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- EXISTING BUILDING
- EXISTING FENCE
- EXISTING OVERHEAD UTILITY LINE AND POLE
- EXISTING TREE LINE
- EXISTING DELINEATED STREAM - EPHEMERAL
- EXISTING STREAM
- LIMIT OF DISTURBANCE
- PROPOSED 8-IN COMPOST FILTER SOCK
- PROPOSED 24-IN COMPOST FILTER SOCK
- PROPOSED CONTOURS
- PROPOSED SOIL KEYWAY - SEE DETAIL
- PROPOSED CUT LIMIT
- PROPOSED FILL LIMIT
- PROPOSED EROSION CONTROL MATTING LINED DITCH
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- PROPOSED ROCK CHECK DAM
- PROPOSED OUTLET PROTECTION
- PROPOSED EDGE OF ACCESS ROAD
- PROPOSED EDGE OF WELL PAD
- PROPOSED TOP OF WELL PAD BERM
- PROPOSED MOUNTABLE WELL PAD BERM
- PROPOSED WELL PAD CONTAINMENT TRENCH
- PROPOSED WELL PAD SUMP AND OUTLET PIPE
- PROPOSED EDGE OF TOPSOIL STOCKPILE

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PHASE No.	
CONTRACT No.	
PROJECT No.	1-01-030-2460

NOBLE ENERGY, INC.
CONSTRUCTION PLANS FOR THE
MND 01 WELL PAD AND ACCESS ROAD
MARSHALL COUNTY, WV
WELL PAD GRADING AND E&S PLAN

SHEET No. 9

LAYOUT TAB: 05-PadPlan
CAD FILE: R:\030-2460 Noble MND1 Well Pad\Drawings\2460-Site-Plan.dwg
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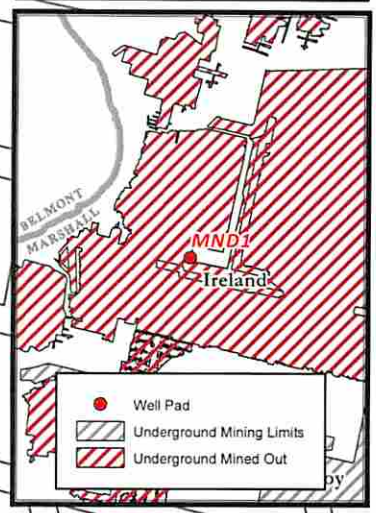
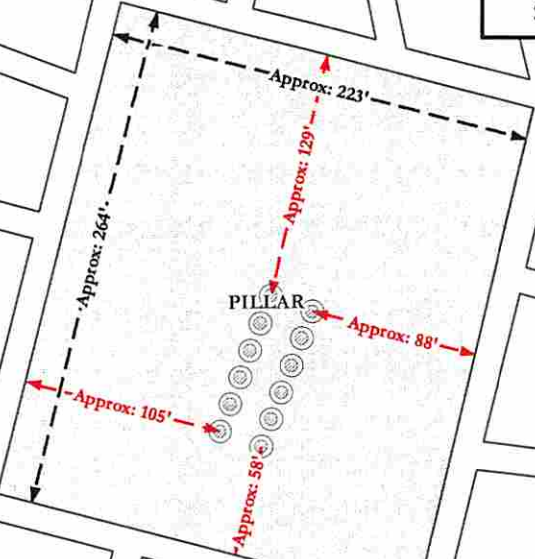
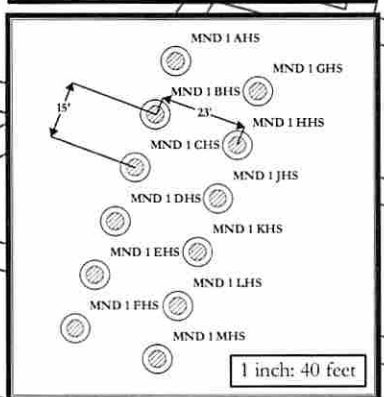
IRELAND MINE
CONSOL WEST VIRGINIA COAL CO.



Depth To Pittsburgh Coal Seam Base = 692 Feet



MND 1 SURFACE LOCATION @ 15 FT SPACING



Note:
- Mine data courtesy of WV Department of Environmental Protection and Consol Coal Co.
- Coal seam data courtesy of WV Division of Natural Resources.

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MND 1 SITE SAFETY PLAN
- WELLHEAD TOPHOLE LOCATION -

Surface Hole Locations
Mine Polyline
Total Pillar Length
Wall to Wall Length
Target Coal Pillar

0 40 80 160 Feet
1 Inch = 80 Feet
Projection: NAD 1927 StatePlane West Virginia North FIPS 4701
Units: Foot US

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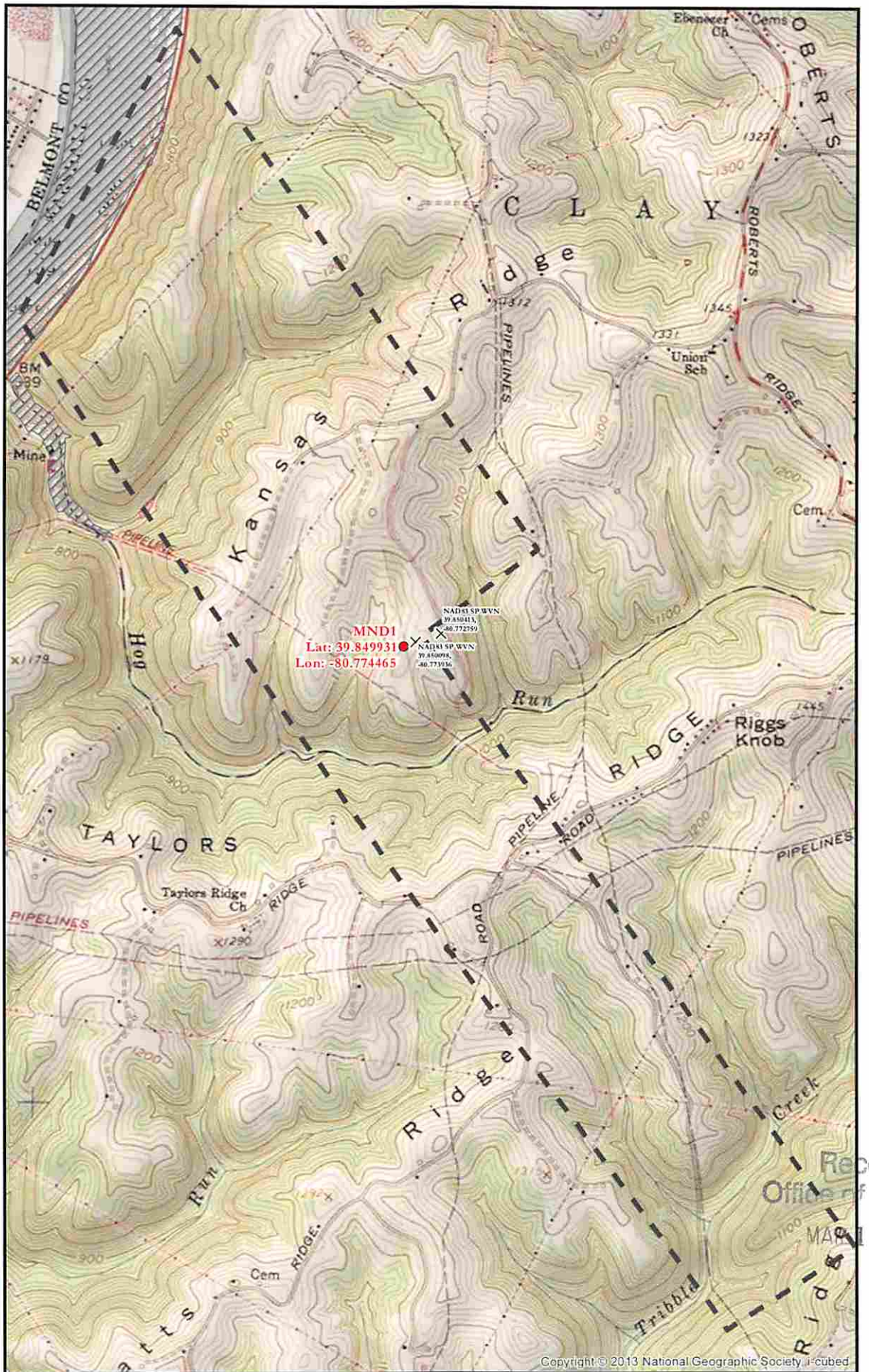
Date: 7/8/2014
Author: ChristopherGlover

Document Path: G:\Canonsburg\GIS\Projects\District_3\Appalachia\MXDs\EHSR\Permitting\Moundsville\MND1\030_PA_WV_5_MND1_Topholе_Mine_Locations_Portrait.mxd



MND 1 SITE SAFETY PLAN

- FLOODPLAIN ZONES -

Access Road Intersection
Proposed Access Road
Proposed Unit
Floodplain
Well Pad
Counties
States

0 750 1,500 3,000 Feet

1 Inch = 1,500 Feet

Projection: NAD 1927 StatePlane West Virginia North FIPS 4701
Units: Foot US

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Date: 7/7/2014

Author: ChristopherGlover

2 / 6

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