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

August 05, 2014

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-8510110, 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: PEN 20 CHS
Farm Name: COKELEY, LAWRENCE & ANGEI
API Well Number: 47-8510110
Permit Type: Horizontal 6A Well
Date Issued: 08/05/2014

API Number:
4708510110

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. The Office of Oil and Gas has approved your permit application, which includes your addendum. Please be advised that the addendum is part of the terms of the well work permit, and will be enforced as such. The Office of Oil and Gas must receive a copy of all data collected, and submitted in a timely fashion, but no later than the WR35 submittal.

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

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

PERMIT CONDITIONS

8. 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.

9. 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.

10. 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
(9/13)

4708510110

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

1) Well Operator: Noble Energy, Inc.

Operator ID	County	District	Quadrangle
494501907	085-Ritchie	Clay (1)	Ellenboro (337)

2) Operator's Well Number: PEN 20 CHS Well Pad Name: PEN 20

3) Farm Name/Surface Owner: Lawrence B. and Angela Cokeley Public Road Access: Bonds Creek

4) Elevation, current ground: 1081 Elevation, proposed post-construction: 1028.7

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 6178 - 6239 / 61' Thick / 4118 psi

8) Proposed Total Vertical Depth: 6220'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 14921'

11) Proposed Horizontal Leg Length: 8132'

12) Approximate Fresh Water Strata Depths: 398'

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

14) Approximate Saltwater Depths: 1244'

15) Approximate Coal Seam Depths: none

16) Approximate Depth to Possible Void (coal mine, karst, other): none

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: ____
Depth: ____
Seam: ____
Owner: ____

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18) **CASING AND TUBING PROGRAM**

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	20"	New	LS	94	40'	40'	GTS
Fresh Water	13 3/8"	New	J-55	54.5	550'	550'	15.6 ppg Type 1 40% excess Yield = 1.18
Coal		New					
Intermediate	9 5/8"	New	HCK-55	36.0	5229'	5229'	15.6 ppg Class A tail slurry CTS
Production	5 1/2"	New	HCP-110	20.0	14921'	14921'	14.6 ppg Class A tail slurry to inside intermediate casing
Tubing							
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	26"	0.25		GTS	GTS
Fresh Water	13 3/8"	17.5"	.380	2730	Type 1	15.6 ppg Type 1 40% excess Yield = 1.18
Coal						
Intermediate	9 5/8"	12.25"	.352	3520	Class A	50 bbls 10 ppg spacer, 12.0 ppg lead slurry, (800') of 15.6 ppg Class A tail slurry cemented to surface.
Production	5 1/2"	8.75"	.361	12,640	Class A	lead slurry to 2000' to recover SOSM, 14.6 ppg Class A tail slurry to inside intermediate casing
Tubing						
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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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 6220 feet. Drill Horizontal leg - stimulate and produce the Marcellus Formation. Should we encounter a unanticipated void we will install a minimum of 20' of casing below the void but not more than 50' 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. Please see attached list.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 18.9

22) Area to be disturbed for well pad only, less access road (acres): 7.0

23) Describe centralizer placement for each casing string:

Conductor - No centralizers used. Fresh Water/Surface - Bow spring centralizers every three joints to surface. Intermediate - Bow Springs centralizers every joint to KOP, one every third joint from KOP to Surface. Production - Rigid bow springs every third joint from KOP to TOC, rigid bow springs every joint to KOP.

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

See attached sheets - Conductor - Grout to Surface. Fresh Water - 15.6 Type 1+ 2% CaCl,0.25# lost Circ. 40%excess yield =1.18. Intermediate- 50 bbls 10 ppg spacer, 12.0 ppg lead slurry, (800') of 15.6 ppg Class A tail slurry cemented to surface. 120 bbls spacer with density and rheology hieirarchy lead slurry to 2000' to recover SOBM, 14.8 ppg Class A tail slurry to inside intermediate casing.

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 -The hole is drilled w/air and casing is run in air. Once casing is on bottom, the hole is filled w/ KCl water and a minimum of one hole volume is circulated prior to pumping cement. Coal - The hole is drilled w/air and casing is run in air. Once casing is at setting depth, the hole is filled w/ KCl water and a minimum of one hole volume is circulated prior to pumping cement. Intermediate - Once surface casing is set and cemented Intermediate hole is drilled either on air or SOBM and filled 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.

*Note: Attach additional sheets as needed.

Noble Energy Addendum

Pennsboro PEN-20 site proposed well procedures

- Intermediate casing has been revised to extend below the Alexander.
- The two Marcellus wells operated by Antero will be plugged prior to any fracing operations.
- Operators of all offset wells will be contacted for monitoring as per tables below:

Offset Deep Wells (Alexander or deeper):

API	TD	Lease	Current Operator	TVD_SS	Formation
4708505459	5500	Homer Hammett 1	TRIAD HUNTER LLC	-4470	Rhinestreet Sh
4708505457	5504	Herschel Pifer 1	PETRO MARK INC	-4484	Rhinestreet Sh
4708507977	5453	John A Smith 9	PARDEE EXPLORATION CO	-4391	Alexander
4708509636	6072	Russell E Fox Sr	ANTERO RESOURCES	-5256	Marcellus Sh
4708509672	6300	Russell Fox Sr	ANTERO RESOURCES	-5238	Marcellus Sh
4707301462	5477	PEIPHER H ET AL	PETRO MARK INC	-4517	Rhinestreet Sh

- Noble will contact these operators prior to fracturing, offer to assess the surface pressure handling capabilities of their equipment and offer recommendation for upgrading prior to fracing operations commence.
- Noble will continuously keep the above offset well operators appraised about the proximity and progress in fracing the horizontal Marcellus wells underlying their deep vertical wells.
- Noble will offer to monitor the above wells during fracing operations within 500' of the vertical well location and notify all appropriate vested parties in the event of a watered out or anomalously high pressure detected.

Description of Monitoring

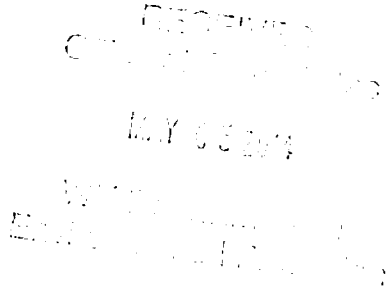
Pressure transducers, and/or visual monitoring of existing pressure gauges, shall be conducted no less frequently than once every four hours while fracing operations are being conducted within 500' of the vertical well in question. For the deepest wells in the Rhinestreet and Marcellus we may recommend shutting in the wells for pressure monitoring.

- Well communication will likely be in one of two forms: a) a higher than expected pressure is found at an offset well, or b) the offset well is watered out and indicates a zero pressure. Anything more than 100 psi above expected pressures or at 0 psi would be considered an event.
- Our fracturing treatments will be designed to reach close to 90 bpm, use a slick water formulation. Typically our sand volumes will be between 250,000 and 600,000 pounds of sand per stage.
- The plan is to fracture all of the laterals prior to flowback procedures. However, in the event of an event, we will cease pumping that frac stage and continue with the following stage until that lateral is fully stimulated. If we see high pressure in excess of 500 psi above normal flowing

tubing pressure in any monitored well, we will immediately cease fracing operations and flow back the stimulated lateral to alleviate pressure seen in the offset well prior to commencing operations again.

Contingency:

1) Offset wells watering out – We are recommending that an affected offset operator wait for Noble to complete operations on that particular lateral including flowback to alleviate potential pressure surges before any offset operator intervenes to swab the affected well and bring it back on production



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AWS Cement Additives- Noble Energy

	Product Name	Product Use	Chemical Name	CAS Number
Surface & Intermediate	Calcium Chloride Flake	Cement Accelerator	Calcium Chloride Potassium Chloride Water Sodium Chloride	10043-52-4 7447-40-7 7732-18-5 7647-14-5
	C-41L	De-foamer	Methyl Alcohol Tributyl Phosphate	67-56-1 126-73-8
	Pol-E-Flake	LCM	Polyester	Non-Hazardous
Spacer	Bentonite Gel	Viscosifier	Crystalline Silica, Quartz	14808-60-7
	Baro-Seal	LCM	Mixture	Non-Hazardous
	Pol-E-Flake	LCM	Polyester	Non-Hazardous

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Kick Off Plug

Product Name	Product's Purpose	Chemical Ingredients	CAS Number
DCP-AC2	Accelerator	Calcium Oxide	1305-78-8
DCP-FR2	Friction Reducer	No hazardous components.	N/A
DCP-RT1	Retarder	No hazardous components.	N/A
SPACER			
Dynaflush 2W	Viscosity	No hazardous components.	N/A
DCP-GL1	Suspension Agent	Welan Gum	96949-22-3
DAP-401	Mutual Solvent	Ethoxylated alcohols	Trade Secret
		Alkoxylated terpene	Trade Secret
		Polyethylene glycol	25322-68-3

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Production Cement

Product Name	Product's Purpose	Chemical Ingredients	CAS Number
DCP-EX1	Extender	Sodium metasilicate, anhydrous	6834-92-0
DCP-EX2	Extender	Silicon dioxide Iron Oxide Silicon Carbide Aluminum Oxide Calcium Oxide Magnesium Oxide Silicon dioxide	69012-64-2 1309-37-1 409-21-2 1344-28-1 1305-78-8 1309-48-4 14808-60-7
DCP-FL1	Fluid Loss Agent	No hazardous components.	N/A
DCP-FR2	Friction Reducer	No hazardous components.	N/A
DCP-RT3	Retarder	No hazardous components.	N/A
SPACER			
Dynaflush 2W	Viscosity	No hazardous components.	N/A
DCP-GL1	Suspension Agent	Welan Gum	96949-22-3
DAP-401	Mutual Solvent	Ethoxylated alcohols Alkoxylated terpene Polyethylene glycol	Trade Secret Trade Secret 25322-68-3
Barite	Weighting Agent	Inorganic barium salt	7727-43-7

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Charleston, WV 25304
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Earl Ray Tomblin, Governor
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dep.wv.gov

October 31, 2013

Schlumberger
Attn: Daniel L. Sikorski
4600 J Barry Court
Suite 200
Canonsburg, PA 15317

RE: Cement Variance Request

Dear Sir:

This agency has approved a variance request for the cement blend listed below to be used on surface and coal protection casing only. The variance cannot be used without an oil and gas operator requesting its use on a permit application and approved by this agency:

- 2% Accelerator (S001)
- 0.2% Antifoam (D046)
- 0.125 lb/sk Polyester Flake (D0130)

If you have any questions regarding this matter feel free to contact me at 304-926-0499, ext. 1653.

Sincerely,

James Peterson
Environmental Resources Analyst

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MAY 05 2014
WV Department of
Environmental Protection

4708510110

noble energy

PENS-20C WELLBORE DIAGRAM

Marcellus Shale Horizontal
Ritchie County, WV
Ground Elevation 1029'

		PENS-20C SHL (Lat/Long)	(305248.49N, 1568235.05E) (NAD 27)
Ground Elevation	1029'	PENS-20C LP (Lat/Long)	(305713.47N, 1569879.97E) (NAD 27)
Azm	140°	PENS-20C BHL (Lat/Long)	(299484.29N, 1575106.87E) (NAD 27)

HOLE	CASING	GEOLOGY	TVD Top	TVD Bottom	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS
26"	20" 52#				AIR	Grouted to surface	N/A	Ensure the hole is clean at TD.	Stabilize surface fill/soil. Conductor casing = 0.25" wall thickness
		Conductor		**40**					
17.5"	13-3/8" 54.5# J-55 BTC				AIR	15.6 ppg Type 1 + 2% CaCl, 0.25# Lost Circ 40% Excess Yield = 1.18	Bow Spring every 3 joints to surface	Fill with KCl water once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	Protect freshwater. Surface casing = 0.380" thick. Burst=2730 psi
		Surface Casing		**550**					
12.25"	9-5/8" 36# HCK-55 BTC	Maxton Sand	1670.5	1739.5	SOBM 8.0 - 8.5 ppg	50 bbls 10 ppg spacer, 12.0 ppg lead slurry, (800') of 15.6 ppg Class A tail slurry cemented to surface.	Bow Spring centralizers on every joint to KOP, one every third joint from KOP to 100' from surface	Once at TD, circulate at least 2x bottoms up. Once casing is at setting depth, circulate a minimum of one hole volume pripr to pumping cement	Casing to be ran below the Alexander. Intermediate casing = 0.352" wall thickness Burst=3520 psi, Collapse 2980 psi
		Big Lime	1870.5	2342					
		Big Injun	1930.5	2477.5					
		Weir Sand	2349	2383.5					
		Gordon Sand	2652	2658					
		5th Sand	2853.5	2865.5					
		Warren Sand	3440.5	3503.5					
		Benson	4852	4914					
		Alexander	5064	5129					
		Intermediate Casing	**5229 TVD**						
8.75/8.5"	5-1/2" 20# HCP-110 TXP BTC	Rhinestreet	5641	5974	SOBM 12.5- 13.0 ppg	120 bbls spacer with density and rheology heirarchy, lead slurry to 2000' to recover SOBM, 14.8 ppg Class A tail slurry to inside intermediate casing	Rigid Bow Spring every third joint from KOP to TOC Rigid Bow Spring every joint to KOP	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
		Marcellus	6178	6239					
		TD	**14921**						

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

WW-9
(9/13)

API Number 47 - 085 -
Operator's Well No. PEN 20 CHS
4708510110

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Noble Energy, Inc. OP Code 494501907

Watershed (HUC 10) North Fork Hughs River / Bonds Creek Quadrangle Ellenboro

Elevation 1081 County 085-Ritchie District Clay

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: closed loop-no utilization of a pit

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)
■ Reuse (at API Number at 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. Airwater based mud through intermediate string then SOBM

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

Additives to be used in drilling medium? Please see attached sheet

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 sheet

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

Company Official (Typed Name) Dee Swiger / Jess Leska

Company Official Title Regulatory Analyst III

Official Seal
Notary Public
State of West Virginia
Dolores J Swiger
235 Cottage Avenue
Weston WV 26452
My Comm. Exp. 9-19-23

Subscribed and sworn before me this 5 day of March, 20 14

Notary Public

My commission expires 9. 19. 2023

Form WW-9

Operator's Well No. PEN 20 CHS 4708510110

Noble Energy, Inc.

Proposed Revegetation Treatment: Acres Disturbed 18.9 Prevegetation pH 6.0

Lime 2-3 Tons/acre or to correct to pH _____

Fertilizer type 10-10-20 or equal

Fertilizer amount 500 lbs/acre

Mulch Hay or Straw at 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5

**alternative seed mixtures are shown on the Site Design.

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: [signature]

Comments: Pressed & Mulch all cut area

Title: Oil and Gas Inspector Date: 2-20-15

Field Reviewed? (✓) Yes ( ) No

47085101 10

Site Water/Cuttings Disposal

Cuttings

Haul off Company:

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

Disposal Locations:

Apex Environmental, 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 (Allied Waste) R30-07900105-2010
4301 Sycamore Ridge Road
Hurricane, WV 25526
304-562-2611

MAX Environmental Technologies, Inc. facility
233 Max Lane
Yukon, PA 25698
724-722-3500

Water

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

Disposal Location:

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

4708510110

Site Safety Plan

Noble Energy, Inc.

PEN20 Well Pad

Ritchie County, WV

February 2014: Version 1

For Submission to
West Virginia Department of Environmental Protection,
Office of Oil and Gas

DLL
2-20-14

Noble Energy, Inc
Appalachia Offices
333 Technology Drive, Suite 116
Canonsburg, PA 15317-9504

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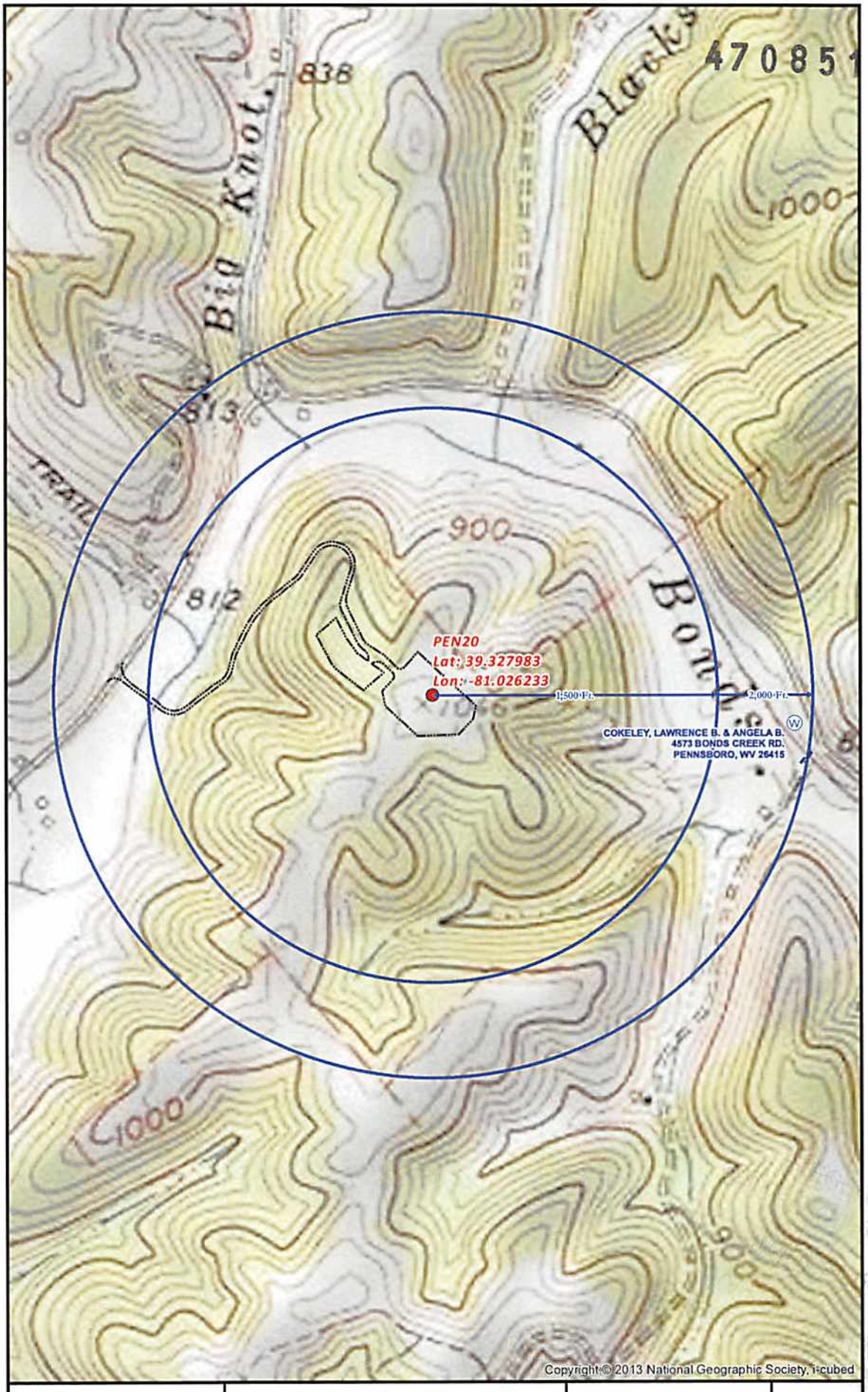

PEN20 SITE SAFETY PLAN

- WATER WELL PURVEYORS -

Well Pad
Spring
Water Well
Bridge
Proposed Road
Water Wells Buffer
Parcels

0 300 600 1,200 Feet

1 Inch = 600 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: 2/19/2014

Author: ChristopherGlover

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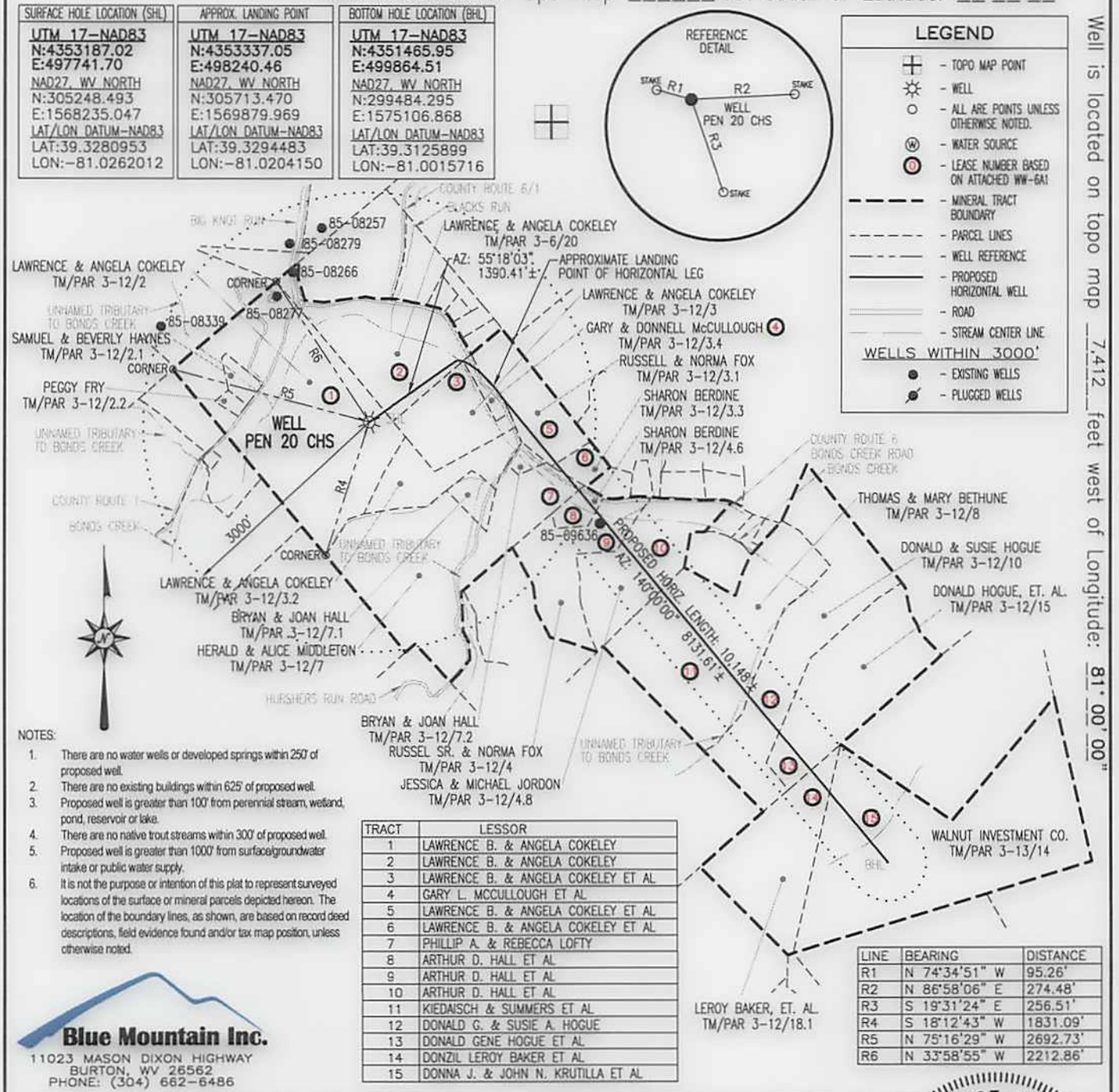
Document Path: G:\Denver\GIS-Denver\Projects\District_30\Appalachia\MXDs\EHS\Permitting\Pennsboro\PEN20\SSPLD30_PA_WV_6_PEN20_Water_Wells.mxd

Well is located on topo map 1,908 feet south of Latitude: 39 ° 20 ' 00 "

Well is located on topo map 7,412 feet west of Longitude: 81 ° 00 ' 00 "

SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT	BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83	UTM 17-NAD83	UTM 17-NAD83
N:4353187.02	N:4353337.05	N:4351465.95
E:497741.70	E:498240.46	E:499864.51
NAD27, WV NORTH	NAD27, WV NORTH	NAD27, WV NORTH
N:305248.493	N:305713.470	N:299484.295
E:1568235.047	E:1569879.969	E:1575106.868
LAT/LON DATUM-NAD83	LAT/LON DATUM-NAD83	LAT/LON DATUM-NAD83
LAT:39.3280953	LAT:39.3294483	LAT:39.3125899
LON:-81.0262012	LON:-81.0204150	LON:-81.0015716



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, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

TRACT	LESSOR
1	LAWRENCE B. & ANGELA COKELEY
2	LAWRENCE B. & ANGELA COKELEY
3	LAWRENCE B. & ANGELA COKELEY ET AL
4	GARY L. MCCULLOUGH ET AL
5	LAWRENCE B. & ANGELA COKELEY ET AL
6	LAWRENCE B. & ANGELA COKELEY ET AL
7	PHILLIP A. & REBECCA LOFTY
8	ARTHUR D. HALL ET AL
9	ARTHUR D. HALL ET AL
10	ARTHUR D. HALL ET AL
11	KIEDAISCH & SUMMERS ET AL
12	DONALD G. & SUSIE A. HOGUE
13	DONALD GENE HOGUE ET AL
14	DONZIL LEROY BAKER ET AL
15	DONNA J. & JOHN N. KRUTILLA ET AL

LINE	BEARING	DISTANCE
R1	N 74°34'51" W	95.26'
R2	N 86°58'06" E	274.48'
R3	S 19°31'24" E	256.51'
R4	S 18°12'43" W	1831.09'
R5	N 75°16'29" W	2692.73'
R6	N 33°58'55" W	2212.86'

Blue Mountain Inc.
11023 MASON DIXON HIGHWAY
BURTON, WV 26562
PHONE: (304) 662-6486

FILE #: PEN 20 CHS

DRAWING #: PEN 20 CHS

SCALE: 1" = 2000'

MINIMUM DEGREE OF ACCURACY: 1/2500

PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

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: [signature]

R.P.E.: _____ L.L.S.: P.S. No. 2000

GEORGE D. SIX LICENSED No. 2000 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

DATE: JULY 28, 2014

OPERATOR'S WELL #: PEN 20 CHS

API WELL #: 47 (STATE) 85 (COUNTY) 10110 HGA (PERMIT)

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

WATERSHED: NORTH FORK HUGHES RIVER ELEVATION: 1081'±

COUNTY/DISTRICT: RITCHIE / CLAY QUADRANGLE: ELLENBORO, WV 7.5'

SURFACE OWNER: LAWRENCE & ANGELA COKELEY ACREAGE: 126.17±

OIL & GAS ROYALTY OWNER: LAWRENCE B. & ANGELA COKELEY ACREAGE: 849.317±

DRILL [X] CONVERT [ ] DRILL DEEPER [ ] REDRILL [ ] FRACTURE OR STIMULATE [ ]

PLUG OFF OLD FORMATION [ ] PERFORATE NEW FORMATION [ ] PLUG & ABANDON [ ]

CLEAN OUT & REPLUG [ ] OTHER CHANGE [ ] (SPECIFY): _____

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,220'± TMD: 14,921'±

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

Address 333 TECHNOLOGY DRIVE, SUITE 116 Address 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 590

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