



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 26, 2014

WELL WORK PERMIT

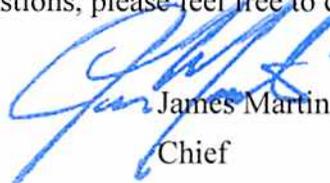
Horizontal 6A Well

This permit, API Well Number: 47-9502193, 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: SHR3AHS
Farm Name: NOBLE ENERGY, INC.
API Well Number: 47-9502193
Permit Type: Horizontal 6A Well
Date Issued: 08/26/2014

Promoting a healthy environment.

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.

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

1) Well Operator: Noble Energy, Inc.

<u>494501907</u>	<u>095-Tyler</u>	<u>Centerville</u>	<u>Shirley</u>
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Operator ID County District Quadrangle

2) Operator's Well Number: SHR 3 AHS Well Pad Name: SHR 3

3) Farm Name/Surface Owner: Noble Energy, Inc. Public Road Access: County Rt. 18

4) Elevation, current ground: 751' Elevation, proposed post-construction: 754'

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

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Marcellus 6305 - 6369' / 64' Thick / 4240 psi

8) Proposed Total Vertical Depth: 6,359'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16,668'

11) Proposed Horizontal Leg Length: 9602'

12) Approximate Fresh Water Strata Depths: 64',94',342'

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: NA
Depth: _____
Seam: _____
Owner: _____

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18)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill-up (Cu. Ft.)</u>
Conductor	20"	New	LS	94	40'	40'	CTS
Fresh Water	13 3/8"	New	J-55	54.5	437'	437'	CTS 30% excess Yield = 1.18
Coal		New					
Intermediate	9 5/8"	New	J-55	36.0	2164' or 250' below the fifth sand	2164 or 250' below the fifth sand	CTS 20% excess Yield = 1.19
Production	5 1/2"	New	P-110	20.0	16,668'	16,668'	10% excess Yield = 1.27 TOC=200' above 9.625" shoe
Tubing							
Liners							

<u>TYPE</u>	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	20"	24"	0.438	2730	Stabilize to surface with fill/soil	to surface
Fresh Water	13 3/8"	17.5"	0.380	2730	Type 1	30% excess Yield = 1.18
Coal						
Intermediate	9 5/8"	12.38"	.352	3520	Class A	20% excess Yield = 1.19 to surface
Production	5 1/2"	8.75" - 8.5"	.361	12,640	Class A	10% excess Yield = 1.27 TOC=200' above 9.625" shoe
Tubing						
Liners						

Michael A. Doff
6/11/14

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 6359 feet. Drill Horizontal leg - stimulate and be capable of producing from the Benson to 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 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): 8.43

22) Area to be disturbed for well pad only, less access road (acres): 8.0

23) Describe centralizer placement for each casing string:

Conductor - No centralizers used. Fresh Water/Surface - Bow spring centralizers on first two joints then every third joint to 100' from surface. Intermediate - Bow Springs centralizers every third joint to 100' from 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 - 1.15% CaCl. Fresh Water - 15.6 ppg Type 1 cement with flake and +2% CaCl, 0.25# lost circ., 30% excess yield = 1.18. Intermediate- 15.6 ppg Class A +0.4% Ret, 0.15% Disp, 0.2% Anti Foam, 0.125# sk Lost circ. 20% Excess Yield = 1.19 To Surface. Production - 14.8 ppg Class A 25:75:0 System +2.6% cement extender, 0.7 Fluid Loss additive, 0.45% high temp retarder, 0.2% fiction reducer 10% excess Yield = 1.27 TOC >= 200' above 9.625" shoe. See attached approved variance from WV DEP.

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 SOBMs 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.

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*Note: Attach additional sheets as needed.



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Charleston, WV 25304
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Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
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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AWS Cement Additives- Noble Energy

	Product Name	Product Use	Chemical Name	CAS Number
Surface & Intermediate	Calcium Chloride Flake	Cement Accelerator	Calcium Chloride	10043-52-4
			Potassium Chloride	7447-40-7
			Water	7732-18-5
			Sodium Chloride	7647-14-5
	C-41L	De-foamer	Methyl Alcohol	67-56-1
			Tributyl Phosphate	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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Office of Oil and Gas
WV Dept. of Environmental Protection

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 Alkoxylated terpene Polyethylene glycol	Trade Secret Trade Secret 25322-68-3

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Office of Oil and Gas
WV Dept. of Environmental Protection

	Product Name	Product's Purpose	Chemical Ingredients	CAS Number
Production Cement	DCP-EX1	Extender	Sodium metasilicate, anhydrous	6834-92-0
	DCP-EX2	Extender	Silicon dioxide	69012-64-2
			Iron Oxide	1309-37-1
			Silicon Carbide	409-21-2
			Aluminum Oxide	1344-28-1
			Calcium Oxide	1305-78-8
			Magnesium Oxide	1309-48-4
			Silicon dioxide	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	Trade Secret	
		Alkoxyated terpene	Trade Secret	
		Polyethylene glycol	25322-68-3	
Barite	Weighting Agent	Inorganic barium salt	7727-43-7	

Production Cement

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95-02193



DRILLING WELL PLAN
SHR-3A-HS (Marcellus HZ)
Macellus Shale Horizontal
Tyler County, WV

Ground Elevation		751'		SHR-3A SHL (Lat/Long)				(335743.45N, 1623298.04E) (NAD27)			
Azm		160°		SHR-3A LP (Lat/Long)				(335433.46N, 1622019.11E) (NAD27)			
WELLBORE DIAGRAM		160°		SHR-3A BHL (Lat/Long)				(326411.5N, 1625302.84E) (NAD27)			
WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	Top	Base	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS	
	24	20" 94#	Conductor	40	40	AIR	To Surface	N/A	Ensure the hole is clean at TD.	Stabilize surface fill/soil. Conductor casing = 0.438" wall thickness Burst=2730psi	
	17 1/2	13-3/8" 54.5# J-55 BTC				AIR	15.6 ppg Type 1 + 2% CaCl, 0.25# Lost Circ 30% Excess Yield = 1.18	Bow Spring on first 2 joints then every third joint to 100' form 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.	Intermediate casing = 0.380" wall thickness Burst=2730 psi	
			Int. Casing	437	437						
	12 3/8	9-5/8" 36# J-55 LTC	Big Lime	1839	1910	AIR	15.6ppg Class A +0.4% Ret, 0.15% Disp, 0.2% AntiFoam, 0.125#/sk Lost Circ 20% Excess Yield=1.19 To Surface	Bow spring centralizers every third joint to 100' feet from 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.	Casing to be ran 250' below the 5th Sand. Intermediate casing = 0.352" wall thickness Burst=3520 psi	
			Big Injun	1910	1964						
			Int. Casing	2164	2164						
	8.75" Vertical	5-1/2" 20# HCP-110 TXP BTC	Warren Sand	3227	3273	8.0ppg - 9.0ppg SOBM	14.8ppg Class A 25:75:0 System +2.6% Cement extender, 0.7% Fluid Loss additive, 0.45% high temp retarder, 0.2% friction reducer	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	
	8.75" Curve		Benson	4795	4839	12.0ppg-12.5ppg SOBM					
			Alexander	5039	5097						
Tully Limestone			6285	6288							
8.75" - 8.5" Lateral	Hamilton		6288	6305	12.0ppg-12.5ppg SOBM						
	Marcellus	6305	6369								
	TD	16668	6359								
	Onondaga	6369	6376		10% Excess Yield=1.27	Rigid Bow Spring every joint to KOP					
						TOC >= 200' above 9.625" shoe					

LP @ 6359' TVD / 7066' MD

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

+/-9602' ft Lateral

TD @ +/-6359' TVD
 +/-16668' MD

X=centralizers

WV Dept. of Environmental Protection
 Office of Oil and Gas

JUN 16 2014
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95-02193

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) Headwaters Middle Island Creek Quadrangle Shirley

Elevation 751' County 095-Tyler District Centerville

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. Air/water based mud through intermediate string then SOB

-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.

-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

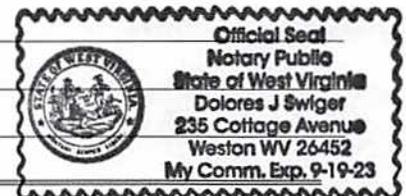
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations 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 [Signature]
Company Official (Typed Name) Dee Swiger/Kim Ward
Company Official Title Regulatory Analyst III

JUN 16 2014

Office of Oil and Gas
WV Dept. of Environmental Protection



Subscribed and sworn before me this 11 day of June, 2014

Notary Public

My commission expires 09/19/2023

95-02193

Form WW-9

Operator's Well No. SHR 3 AHS

Noble Energy, Inc.

Proposed Revegetation Treatment: Acres Disturbed 8.43 Prevegetation pH 6.0

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

Fertilizer type 10-20-20 or equal

Fertilizer amount 500 lbs/acre

Mulch Hay or Straw at 2 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5

Seed Type	lbs/acre
Tall Fescue	40
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: Michael D. Hoff

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

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Office of Oil and Gas
WV Dept. of Environmental Protection

Title: Oil and Gas Inspector

Date: 6/11/14

Field Reviewed? () Yes () No

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

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Office of Oil and Gas
WV Dept. of Environmental Protection



Site Safety Plan

**Noble Energy, Inc.
SHR 3 Well Pad
9777 Middle Island Rd
Alma, WV**

June 2014: Version 1

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

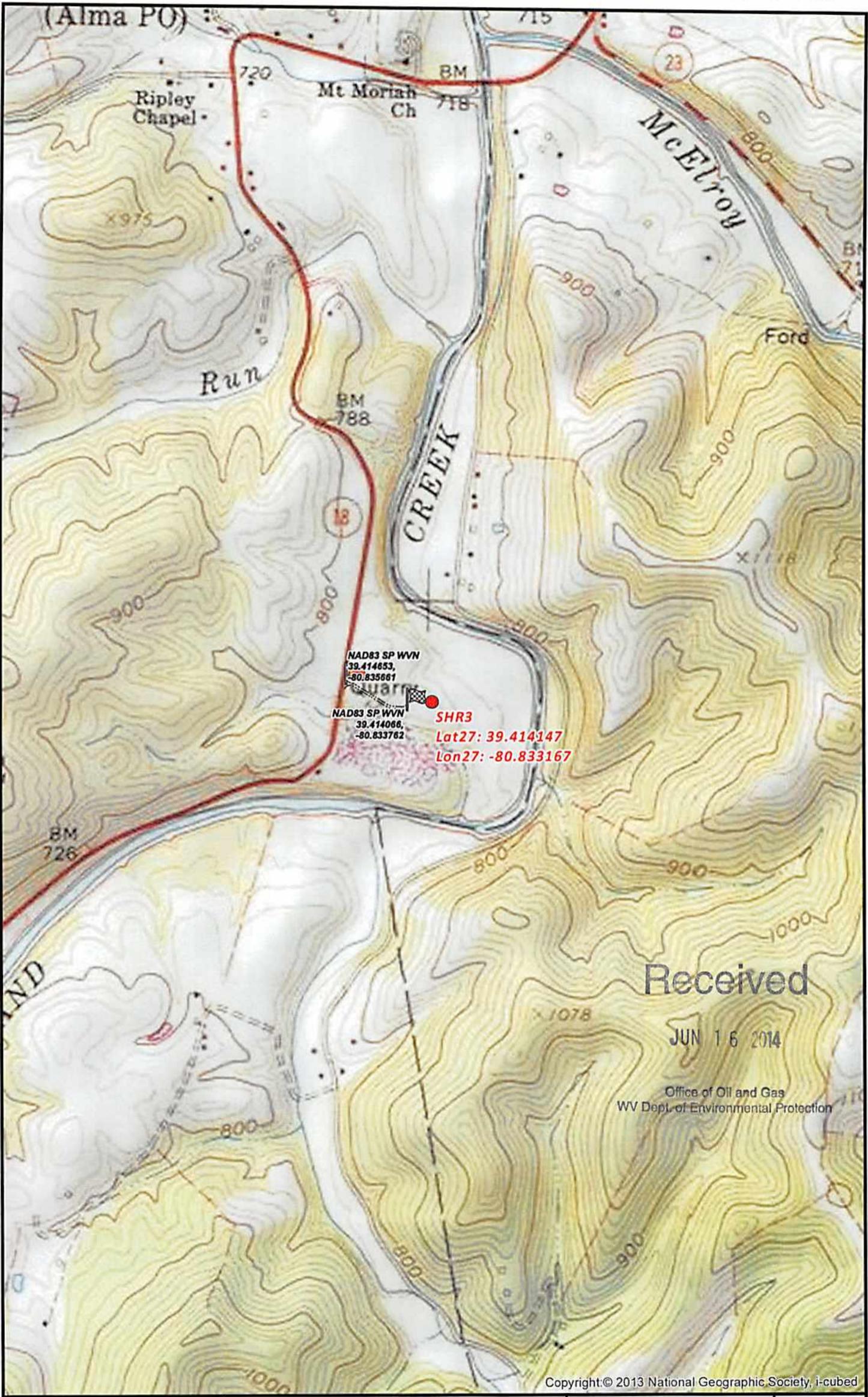
*Michael A. Daff
6/11/14*

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

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Office of Oil and Gas
WV Dept. of Environmental Protection



NAD83 SP WVN
39.414653,
-80.833661
NAD83 SP WVN
39.414066,
-80.833762
SHR3
Lat27: 39.414147
Lon27: -80.833167

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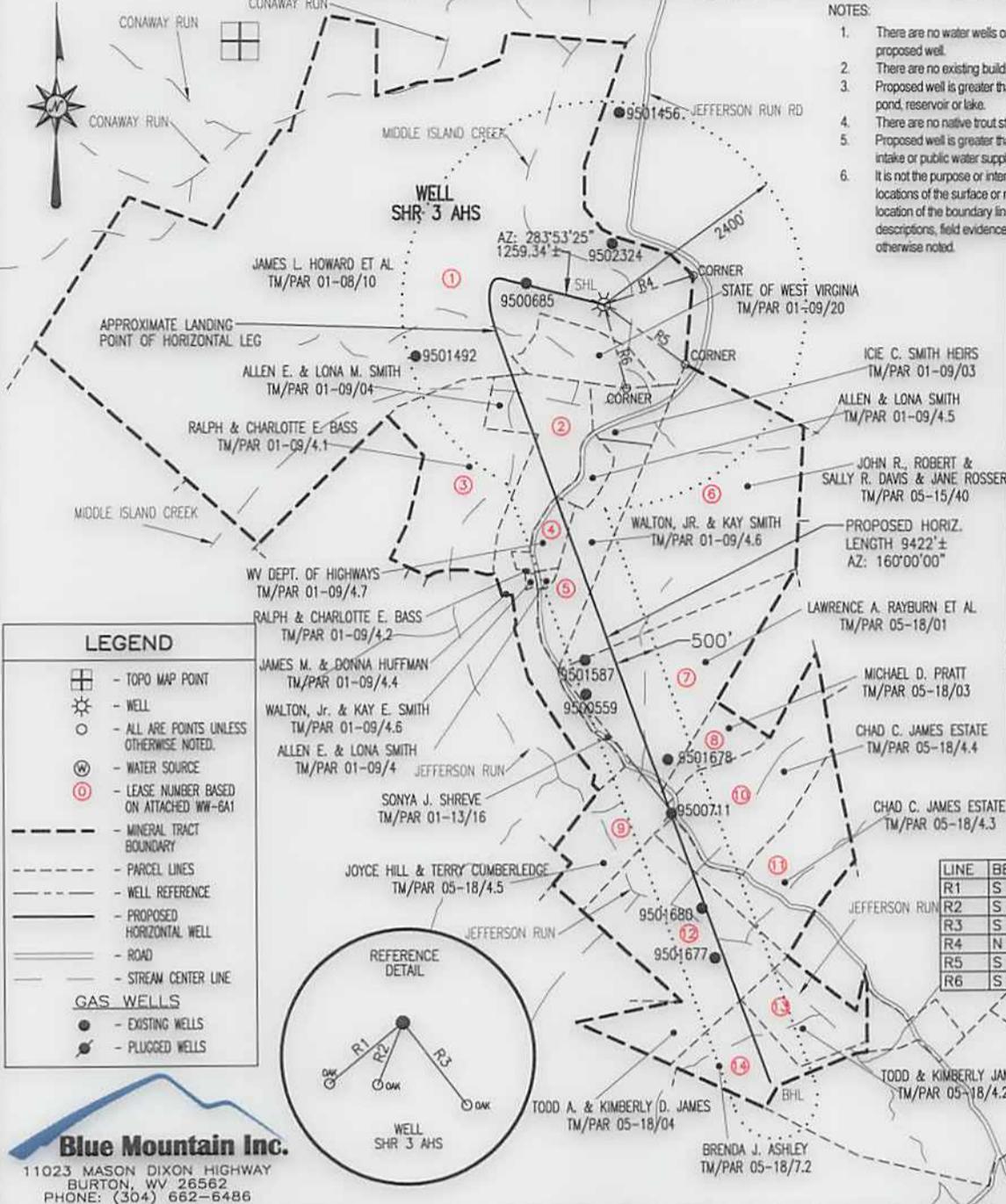
<p>SHR3 SITE SAFETY PLAN - SITE WELL LOCATION -</p>	<p>0 500 1,000 2,000 Feet 1 Inch = 1,000 Feet</p>	<p>*SHR3 911 Address* 9777 Middle Island Rd, Alma, WV 26320</p>	<p>Date: 6/6/2014</p>
<p> Site Entrance Well Pad Center Well Pad Entrance Proposed Access Road Counties States </p>	<p>Projection: NAD 1927 StatePlane West Virginia North FIPS 4701 Units: Foot US **Disclaimer: All data is licensed for use by Noble Energy Inc. use only.**</p>	<p> noble energy</p>	<p>Author: Christopher Glover </p>

Well is located on topo map 892 feet south of Latitude: 39° 25' 00"

Well is located on topo map 11.726 feet west of Longitude: 80° 47' 30"

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.



SURFACE HOLE LOCATION (SHL)

UTM 17-NAD83
 N:4362757.713
 E:514361.435
 NAD27, WV NORTH
 N:335743.45
 E:1623298.04
 LAT/LON DATUM-NAD83
 LAT:39.4142192
 LON:-80.8331694

APPROX. LANDING POINT

UTM 17-NAD83
 N:4362656.90
 E:513973.50
 NAD27, WV NORTH
 N:335433.46
 E:1622019.11
 LAT/LON DATUM-NAD83
 LAT:39.4133160
 LON:-80.8376793

BOTTOM HOLE LOCATION (BHL)

UTM 17-NAD83
 N:4359976.04
 E:515000.23
 NAD27, WV NORTH
 N:326579.912
 E:1625241.540
 LAT/LON DATUM-NAD83
 LAT:39.389142
 LON:-80.825814

LINE	BEARING	DISTANCE
R1	S 50°30'19" W	187.88'
R2	S 22°15'41" W	132.55'
R3	S 37°33'28" E	206.62'
R4	N 72°14'51" E	1112.74'
R5	S 54°13'42" E	1194.27'
R6	S 15°17'15" E	1013.84'

LEGEND

- TOPO MAP POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED.
- WATER SOURCE
- LEASE NUMBER BASED ON ATTACHED WW-6A1
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- ROAD
- STREAM CENTER LINE

GAS WELLS

- EXISTING WELLS
- PLUGGED WELLS

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

FILE #: SHR 3 AHS
 DRAWING #: SHR 3 AHS
 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: JUNE 10, 2014
 OPERATOR'S WELL #: SHR 3 AHS
 API WELL #: 47 95 0219346A
 STATE COUNTY PERMIT

WELL TYPE: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: HEADWATERS MIDDLE ISLAND CREEK ELEVATION: 751±
 COUNTY/DISTRICT: TYLER / CENTERVILLE QUADRANGLE: SHIRLEY, WV 7.5'
 SURFACE OWNER: Noble Energy, Inc. ACREAGE: 542.81±
 OIL & GAS ROYALTY OWNER: SEE ATTACHED WW-6A1 ACREAGE: 1199.307±

DRILL 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: 6,359± TMD: 16,489±
 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