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**west virginia** department of environmental protection

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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

November 17, 2014

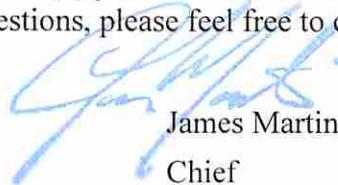
**WELL WORK PERMIT**  
**Horizontal 6A Well**

This permit, API Well Number: 47-1706586, 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: OXF97 HHS  
Farm Name: HAESSLY LAND & TIMBER LLC.  
**API Well Number: 47-1706586**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 11/17/2014

**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

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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](mailto: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

8 526

1) Well Operator: Noble Energy, Inc. 494501907 017-Doddridge West Union Oxford  
Operator ID County District Quadrangle

2) Operator's Well Number: OXF 97 HHS Well Pad Name: OXF97

3) Farm Name/Surface Owner: Haessly Land and Timber, LLC & Katheryn Walters Public Road Access: County Route 23/2

4) Elevation, current ground: 1360 Elevation, proposed post-construction: 1335'

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 6858 - 6913' / 55' Thick / 4563 psi

8) Proposed Total Vertical Depth: 6,903'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20,746'

11) Proposed Horizontal Leg Length: 13,500'

12) Approximate Fresh Water Strata Depths: 266', 503', 810'

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

14) Approximate Saltwater Depths: None

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

4701706586

<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	860'	860'	CTS 30% excess Yield = 1.18
Coal		New					
Intermediate	9 5/8"	New	J-55	36.0	2962'	2962'	CTS 20% excess Yield = 1.19
Production	5 1/2"	New	HCP-110	20.0	20,746'	20,746'	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		CTS
Fresh Water	13 3/8"	17.5"	.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"	.361	12,640	Class A	10% excess Yield = 1.27 TOC=200' above 9.625" shoe
Tubing						
Liners						

PACKERS

*DCN  
4-3-2013*

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 6903 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 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): 33.02

22) Area to be disturbed for well pad only, less access road (acres): 15.28

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 - Class A Portland cement with flake and 1.15% CaCl<sub>2</sub>, 30% excess yield = 1.18. Intermediate- 15.6 ppg Type 1 +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% AntiFoam, 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 % friction reducer 10% excess Yield 1.27 TOC >= 200' above 9.625" shoe. See attached approved variance from WV DEP.

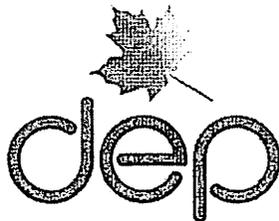
25) Proposed borehole conditioning procedures:

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

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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Office of Oil and Gas  
WV Dept. of Environmental Protection

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

Division of Oil and Gas  
 WV Dept. of Environmental Protection

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	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	

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Created from Prod Reg



**DRILLING WELL PLAN**  
**OXFD-97H-HS (Marcellus HZ)**  
**Macellus Shale Horizontal**  
**Doddridge, WV**

		<b>OXFD-97H SHL (Lat/Long)</b>		<b>(269597.93N, 1630676.79E) (NAD27)</b>	
<b>Ground Elevation</b>	<b>1335'</b>		<b>OXFD-97H LP (Lat/Long)</b>		<b>(270014.6N, 1630539.48E) (NAD27)</b>
<b>Azm</b>	<b>335.49°</b>		<b>OXFD-97H BHL (Lat/Long)</b>		<b>(282297.64N, 1624939.19E) (NAD27)</b>

WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	MD	TVD	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS	
	24	20" 94#	Conductor		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		860						
	12 3/8	9-5/8" 36# J-55 LTC	Maxton		2214	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 (Grnbr)		2317						
			Weir		2554						
			Berea Ss		2792						
			Int. Casing		2962						
	8.75" Vertical	5-1/2" 20# HCP-110 TXP BTC	Bayard		2996	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	
			Speechley		3617						
			Riley		4699						
	8.75" Curve		Benson		5229	12.0ppg-12.5ppg SOBM		10% Excess Yield=1.27			Rigid Bow Spring every joint to KOP
			Alexander		5473						
			Tully Ls		6831						
	8.75" - 8.5" Lateral		Hamilton		6850	12.0ppg-12.5ppg SOBM		TOC >= 200' above 9.625" shoe			
Marcellus				6858							
TD			20746	6903							
	Onondaga			6924							

LP @ 6903' TVD / 7246' MD      8.75 / 8.5 Hole - Cemented Long String 5-1/2" 20# HCP-110 TXP BTC      +/-13500' ft Lateral      TD @ +/-6903' TVD +/-20746' MD

X=centralizers

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WV Dept. of Environmental Protection

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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 Oxford

Elevation 1360' County 017-Doddridge District West Union

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 SOBM

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

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

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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

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WV Dept. of Environmental Protection

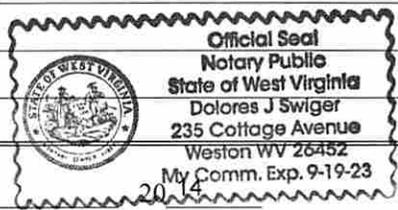
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations 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) Kim Ward / Dee Swiger

Company Official Title Regulatory Analyst III



Subscribed and sworn before me this 29 day of July

[Signature]

Notary Public

**Noble Energy, Inc.**

Proposed Revegetation Treatment: Acres Disturbed 33.02 Prevegetation pH 6.0

Lime 2-3 Tons/acre or to correct to pH \_\_\_\_\_  
10-20-20 or equal

Fertilizer type \_\_\_\_\_

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: *Douglas A. ...*

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: 4-3-2014

Field Reviewed?  Yes

No

4701706586

## Cuttings Disposal/Site Water

### Cuttings –Haul off Company:

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  
Cochranon, 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

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

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Office of Oil and Gas  
WV Dept. of Environmental Protection

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

**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

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WV Dept. of Environmental Protection

4701706586



# Site Safety Plan

**Noble Energy, Inc.**

**OXF97 Well Pad**

**Doddridge County, WV**

**APRIL 2014: Version 1**

*965 Waco Rd*

*HHS*

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

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

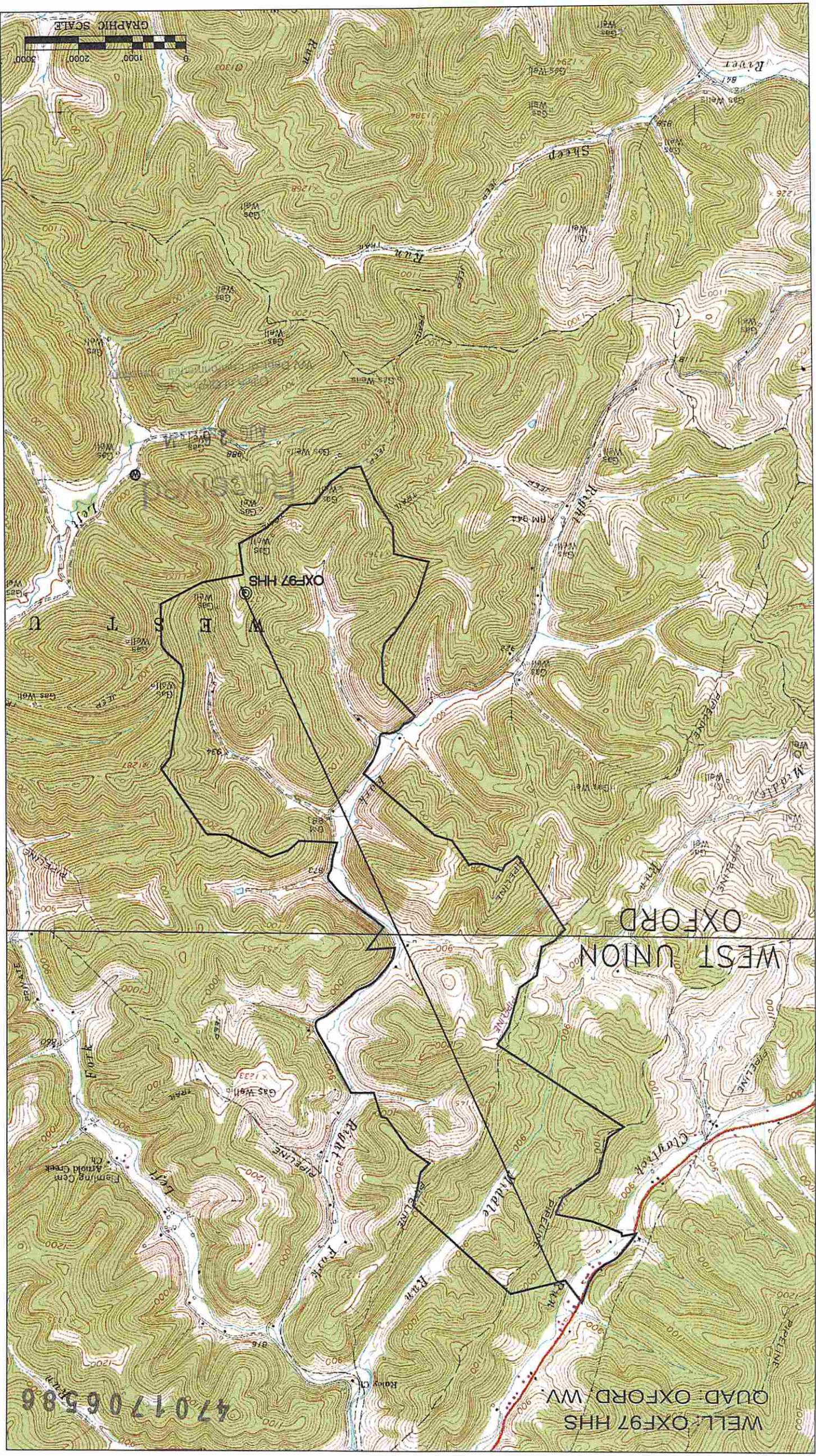
*Douglas Newlin  
4-3-2014*

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WV Dept. of Environmental Protection

GRAPHIC SCALE



OXF97 HHS

OXFORD

WEST UNION

WELL OXF97 HHS

QUAD OXFORD, WV

4701706586

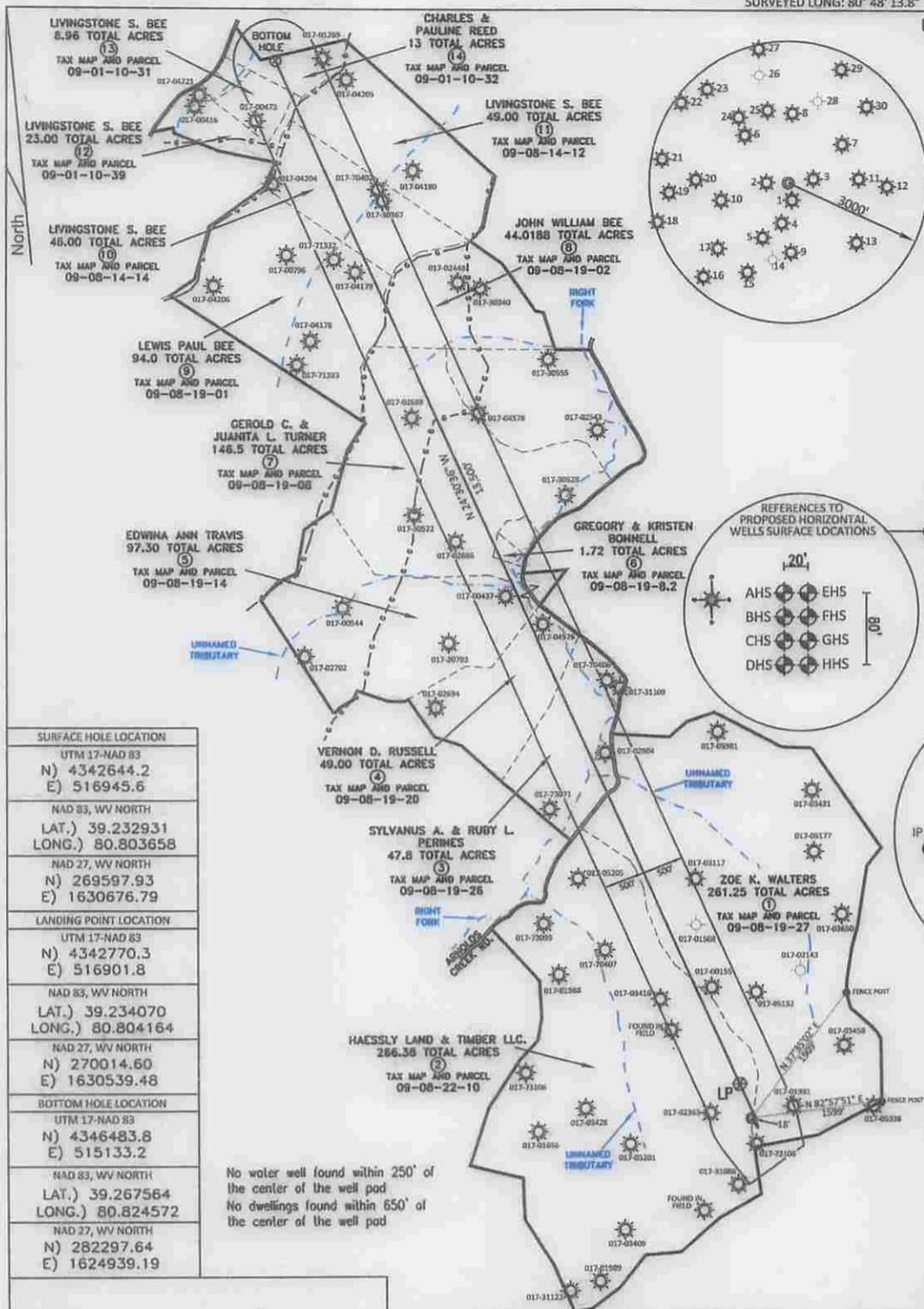
SURFACE HOLE DEC. LONG: 80.803831  
SURVEYED LONG: 80° 48' 13.8"

3,430'

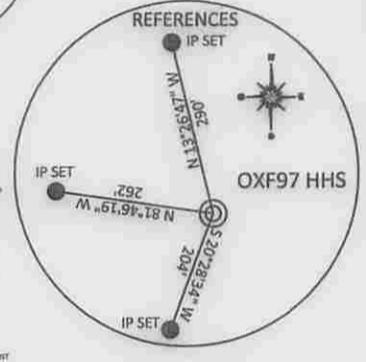
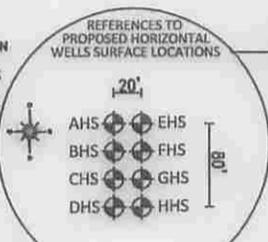
Latitude: 39° 15' 00" (NAD 27)

Longitude: 80° 47' 30" (NAD 27)

SURFACE HOLE DEC. LAT: 39.252887  
SURVEYED LAT: 39° 15' 58.3"



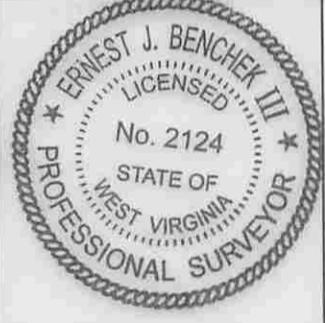
- WELL REFERENCE  
(API#, DISTANCE TO WELL HEAD)
- 017-73108 - S 11°13'55" E 312'
  - 017-02363 - N 82°20'19" W 499'
  - 017-01931 - N 74°06'03" E 537'
  - 017-31086 - S 11°00'02" W 810'
  - FOUND IN FIELD - S 27°28'10" W 1246'
  - FOUND IN FIELD - N 42°22'35" W 1438'
  - 017-03458 - N 52°16'09" E 1435'
  - 017-05152 - N 02°29'35" E 1528'
  - 017-03955 - S 01°46'17" E 1423'
  - 017-05201 - S 78°08'01" W 1500'
  - 017-05938 - N 84°33'36" E 1496'
  - 017-73086
  - 017-30895
  - 017-00085
  - 017-73107
  - 017-01989
  - 017-03409
  - 017-05144
  - 017-01856
  - 017-03428
  - 017-73106
  - 017-01988
  - 017-70407
  - 017-03416
  - 017-00155
  - 017-01568
  - 017-03117
  - 017-02143
  - 017-03650
  - 017-02143



SURFACE HOLE LOCATION	
UTM 17-NAD 83	
N) 4342644.2	
E) 516945.6	
NAD 83, WV NORTH	
LAT.) 39.232931	
LONG.) 80.803658	
NAD 27, WV NORTH	
N) 269597.93	
E) 1630676.79	
LANDING POINT LOCATION	
UTM 17-NAD 83	
N) 4342770.3	
E) 516901.8	
NAD 83, WV NORTH	
LAT.) 39.234070	
LONG.) 80.804164	
NAD 27, WV NORTH	
N) 270014.60	
E) 1630539.48	
BOTTOM HOLE LOCATION	
UTM 17-NAD 83	
N) 4346483.8	
E) 515133.2	
NAD 83, WV NORTH	
LAT.) 39.267564	
LONG.) 80.824572	
NAD 27, WV NORTH	
N) 282297.64	
E) 1624939.19	

No water well found within 250' of the center of the well pad  
No dwellings found within 650' of the center of the well pad

REFERENCE NOTES  
Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records Doddridge County, West Virginia MAY 2013  
State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS  
Drafted by: E.A.M.



FILE #: NOB 009  
DRAWING #: 2354  
SCALE: PLAT - 1" = 2000'  
TICK MARK - 1" = 2000'  
MINIMUM DEGREE OF ACCURACY: 1/200  
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

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]*  
L.L.S. #2124 : Ernest J. Benchek III

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

DATE: JULY 31, 2014  
OPERATOR'S WELL #: OXF97 HHS  
API WELL #: 47 17 STATE COUNTY PERMIT 06586 H6A  
WELL Type:  Oil  Waste Diposal  Production  Deep  Gas  Liquid Injection  Storage  Shallow  
WATERSHED: HEADWATERS MIDDLE ISLAND CREEK ELEVATION: 1,360'  
COUNTY/DISTRICT: DODDRIDGE / WEST UNION QUADRANGLE: OXFORD WV.  
SURFACE OWNER: HAESSLY LAND & TIMBER LLC. ACREAGE: 266.38 +/-  
OIL & GAS ROYALTY OWNER: ROBERT J. HAUGHT ET AL ACREAGE: 1,147.93 +/-  
LEASE NUMBERS: \_\_\_\_\_  
DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY): \_\_\_\_\_  
TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,903' TMD: 20,746'  
WELL OPERATOR: NOBLE ENERGY, INC. DESIGNATED AGENT: STEVEN M. GREEN  
ADDRESS: 333 TECHNOLOGY DRIVE SUITE 116 ADDRESS: 500 VIRGINIA STREET EAST  
CITY: CANONSBURG STATE: PA ZIP CODE: 15317 CITY: CHARLESTON STATE: WV ZIP CODE: 25301