



**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

October 31, 2014

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-5101768, 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 BHS  
Farm Name: MURRAY ENERGY CORPORATIC  
**API Well Number: 47-5101768**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 10/31/2014

**Promoting a healthy environment.**

**10/31/2014**

## 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 within 30 days of commencement of drilling.



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

4705101768  
51 2 558

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

2) Operator's Well Number: MND 1 BHS 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: 1152.08 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 at 6315'-6370' and 55' in thickness. Anticipated pressure at 4204 psi.

8) Proposed Total Vertical Depth: 6360'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 15,774'

11) Proposed Horizontal Leg Length: 8274'

12) Approximate Fresh Water Strata Depths: 521'

13) Method to Determine Fresh Water Depths: Offset well data

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 McElroy Mine  
Depth: 692' to seam base  
Seam: Pittsburgh #8  
Owner: Consol Mining Company, LLC

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18)

**CASING AND TUBING PROGRAM**      **4705101768**

<b>TYPE</b>	<b>Size</b>	<b>New or Used</b>	<b>Grade</b>	<b>Weight per ft. (lb/ft)</b>	<b>FOOTAGE: For Drilling</b>	<b>INTERVALS: Left in Well</b>	<b>CEMENT: Fill-up (Cu. Ft.)</b>
Conductor	30"	New	LS	117#	40'	40'	GTS
Fresh Water	20"	New	LS	94#	575'	575'	CTS
Coal	13 3/8"	New	J-55	54.5	1097'	1097'	CTS
Intermediate	9 5/8"	New	J-55	36#	2437'	2437'	CTS
Production	5 1/2"	New	P110	20#	15774'	15774'	TOC 200' above 9625 casing shoe
Tubing							
Liners							

*JIN 8/13/14*

<b>TYPE</b>	<b>Size</b>	<b>Wellbore Diameter</b>	<b>Wall Thickness</b>	<b>Burst Pressure</b>	<b>Cement Type</b>	<b>Cement Yield (cu. ft./k)</b>
Conductor	30"	36"	0.375		GTS	GTS
Fresh Water	20"	26"	0.438	2730	Type 1	1.18
Coal	13 3/8"	17 1/2"	0.380	2730	Type 1	1.18
Intermediate	9 5/8"	12 3/8"	0.352	3520	Class A	1.19
Production	5 1/2"	8 3/4" & 8 1/2"	0.361	12,640	Class A	1.27
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 6360 feet. Drill Horizontal leg - stimulate and produce the Marcellus Formation. If we should encounter an unanticipated void we will install casing at a minimum of 20' 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. See attached list. Maximum pressure not to exceed 10,000 lb.

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 every 3 joints to surface. First Intermediate casing will have bow spring centralizers on first 2 joints then every third joint to 100' from surface. Second Intermediate will have bow spring centralizers every three joints to 100' from surface. Production string will have a rigid bow spring every third joint to KOP to TOC. Rigid bow spring every joint to KOP.

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

Conductor- GTS \*Surface and Coal (Intermediate)- 15.6 ppg Type 1+2% CaCl 2%, 0.25# Lost Circ 30% Excess Yield =1.18. Intermediate 15.6 ppg Class A +0.4 % Ret, 0.15% Disp, 0.2% Antifoam and 0.125#/sk Loss Circ. Yield = 1.19 to surface. Production 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, 10 % excess yield=1.27 TOC >=200' above 9.625" shoe.  
\*Surface and Coal string WVDEP approved variance attached.

25) Proposed borehole conditioning procedures:

Conductor-The hole is drilled w/air and casing is run on air. Apart from insuring the hole is clean via air circulation at TD, there are no other conditioning procedures. Surface-The hole is drilled w/air and casing is run on air. 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. Coal-The hole is drilled and cased w/air or on Freshwater based mud. 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 with KCl water once drilled to TD. Production-The hole is drilled with SOBM and once to TD, circulated at maximum allowable pump rate for at least 6x bottoms up on bottom with casing, circulate a minimum of one hole volume prior to pumping cement.

\*Note: Attach additional sheets as needed.

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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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**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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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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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 Alkoxyated terpene Polyethylene glycol	Trade Secret Trade Secret 25322-68-3
Barite	Weighting Agent	Inorganic barium salt	7727-43-7

Production Cement

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**DRILLING WELL PLAN**  
**MND-1B-HS (Marcellus HZ)**  
**Macellus Shale Horizontal**  
**Marshall County, WV**

Ground Elevation		1152'		MND-1B SHL (Lat/Long)				(494203.93N, 1642174.67E) (NAD27)			
Azimuth		325°		MND-1B LP (Lat/Long)				(495358.65N, 1642844.14E) (NAD27)			
WELLBORE DIAGRAM		325°		MND-1B BHL (Lat/Long)				(500876.79N, 1638980.3E) (NAD27)			
WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	TOP	BOTTOM	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS	
	36	30" 117#	Conductor	40	40	AIR	To Surface	N/A	Ensure the hole is clean at TD.	Stabilize surface fill/soil. Conductor casing = 0.375" wall thickness	
	26	20" 94#	Surface Casing	575	575	AIR	15.6 ppg Type 1 + 2% CaCl, 0.25# Lost Circ 30% Excess Yield = 1.18	Centralized 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.	Surface casing = 0.438" wall thickness Burst=2730 psi	
	17 1/2	13-3/8" 54.5# J-55 BTC	Pittsburgh Coal	687	697	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' 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.	Intermediate casing = 0.380" wall thickness Burst=2730 psi	
	12 3/8	9-5/8" 36# J-55 LTC	Big Lime	1908	2024	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	2024	2137						
			Price Formation	2137	2652						
			Int. Casing	2437	2437						
	8.75" Vertical	5-1/2" 20# HCP-110 TXP BTC	Speechley	3439	3485	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 six 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						
	8.75" Curve		Angola	5172	5754	12.0ppg-12.5ppg SOBM		10% Excess Yield=1.27 TOC >= 200' above 9.625" shoe			Rigid Bow Spring every joint to KOP
			Rheinstreet	5754	6075						
			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	15774	6360								
	Onondaga	6370									

LP @ 6360' TVD / 7500' MD

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

+/-8274' ft Lateral

TD @ +/-6360' TVD  
 +/-15774' MD

X=centralizers

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

Elevation 1152.08' Post Construction County Marshall 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 pit will be utilized

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 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 SOBMs

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

Additives to be used in drilling medium? Please see attached

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

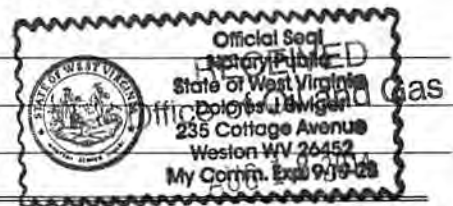
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations 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 13 day of August

, 20 14 WV Department of Environmental Protection  
Notary Public 10/31/2014

# Noble Energy, Inc.

Proposed Revegetation Treatment: Acres Disturbed 9.0 Prevegetation pH \_\_\_\_\_

Lime <sup>2 to 3</sup> \_\_\_\_\_ Tons/acre or to correct to pH 6.0

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch <sup>Hay or straw at 2</sup> \_\_\_\_\_ 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

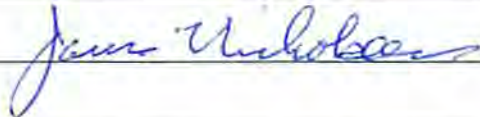
\*\*See site plans for full list

\*\*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: Jim Nicholson



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

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Title: Oil + Gas Inspector

Date: 8/12/2014 WV Department of Environmental Protection

Field Reviewed?  Yes  No

10/31/2014

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## 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  
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

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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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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# Site Safety Plan

**Noble Energy, Inc.**

**MND 1 Well Pad**

BHS

*JK*  
8/12/14

**August 2014: Version 1**

**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

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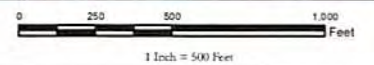
04-0007-0018-0000-0400

**\*No Water Wells or Springs within 1,500'\***

04-0014-0007-0000-0400 47 05 10 17 68



**MND 1 SITE SAFETY PLAN**  
- WATER WELL PURVEYORS -



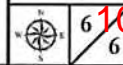
Date: 8/5/2014

Author: Christopher Glover

- Well Foot
- Noble Access Road
- Well Foot Boundary
- Water Well Buffer
- Parcel
- Comber
- Stream

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.\*\***

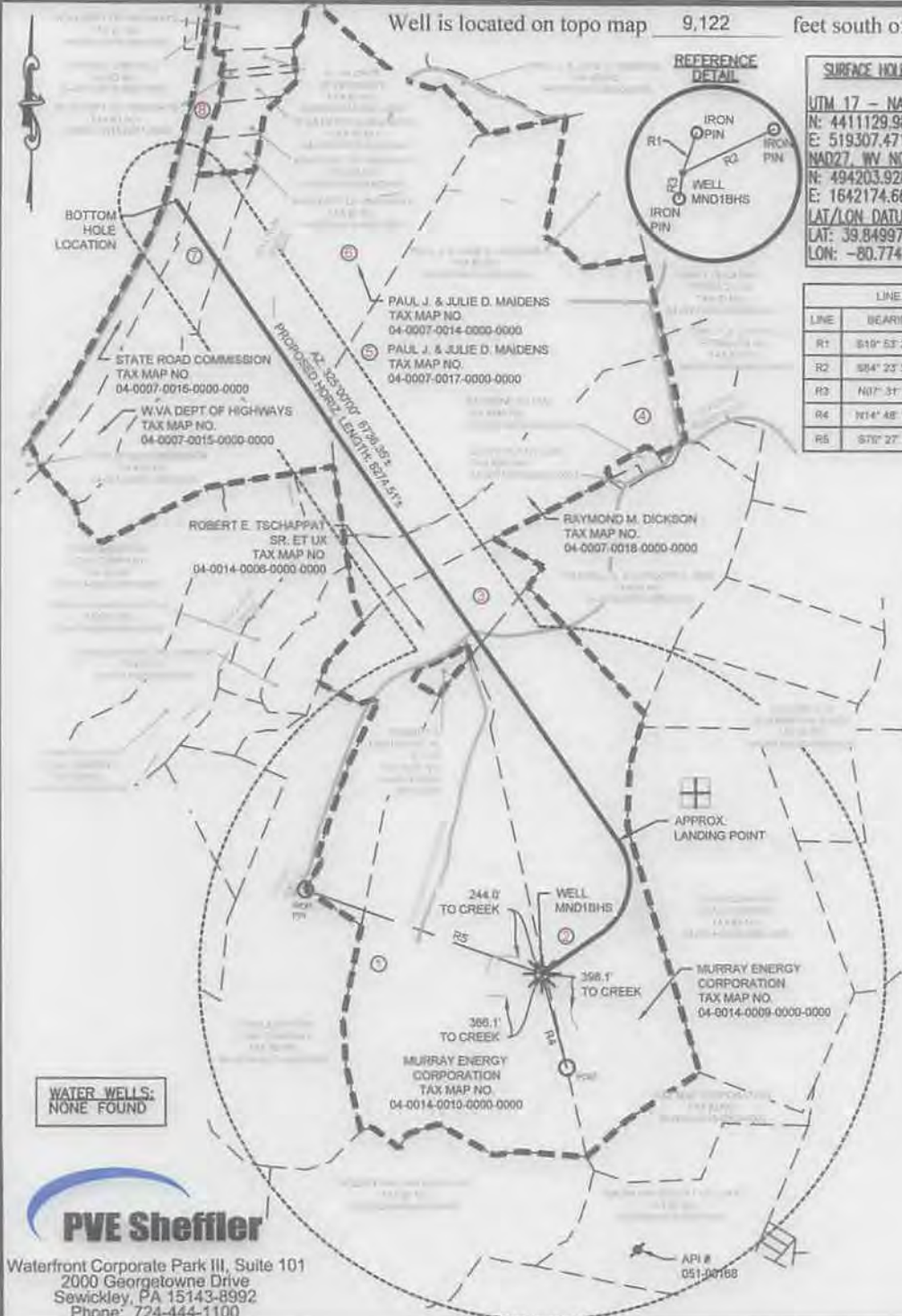


10/31/2014



Well is located on topo map 9,122 feet south of Latitude: 39° 52' 30"

Well is located on topo map 6,821 feet west of Longitude: 80° 45' 00"



REFERENCE DETAIL



SURFACE HOLE LOCATION (SH)

UTM 17 - NAD83  
 N: 4411129.988  
 E: 519307.471  
 NAD27, WV NORTH  
 N: 494203.928  
 E: 1642174.665  
 LAT/LON DATUM-NAD83  
 LAT: 39.849970  
 LON: -80.774304

APPROX. LANDING POINT

UTM 17 - NAD83  
 N: 4411485.187  
 E: 519505.560  
 NAD27, WV NORTH  
 N: 495358.646  
 E: 1642844.141  
 LAT/LON DATUM-NAD83  
 LAT: 39.853166  
 LON: -80.771978

LINE TABLE

LINE	BEARING	DISTANCE
R1	S10° 53' 22"W	244.95'
R2	S84° 23' 57"W	587.25'
R3	N07° 31' 11"E	150.97'
R4	N14° 48' 16"W	839.24'
R5	S70° 27' 18"E	2193.13'

BOTTOM HOLE LOCATION

UTM 17 - NAD83  
 N: 4413146.614  
 E: 518300.334  
 NAD27, WV NORTH  
 N: 500876.786  
 E: 1638980.298  
 LAT/LON DATUM-NAD83  
 LAT: 39.868162  
 LON: -80.786020

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.

LEGEND

- TOPO MAP POINT
- WELL
- WATER SOURCE
- LEASED NUMBER BASED ON ATTACHED WWA-1
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM/WATERWAY
- ROAD

**WELLS WITHIN 3000'**

- PLUGGED WELL

WATER WELLS:  
NONE FOUND



Waterfront Corporate Park III, Suite 101  
 2000 Georgetowne Drive  
 Sewickley, PA 15143-8992  
 Phone: 724-444-1100

FILE #: MND 1 BHS  
 DRAWING #: MND 1 BHS  
 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: Charles Douglas Davidson  
 R.P.E.: \_\_\_\_\_ L.L.S.: P.S. NO. 819



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



DATE: JULY 30, 2014 REV. AUGUST 4, 2014

OPERATOR'S WELL #: MND 1 BHS  
 API WELL # 47 051 01768  
 STATE COUNTY PERMIT

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

WATERSHED: OHIO RIVER ELEVATION: 1152.08'  
 COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: POWHATAN POINT, W. VA./OHIO  
 SURFACE OWNER: MURRAY ENERGY CORPORATION ACREAGE: 126.99  
 OIL & GAS ROYALTY OWNER: CNX GAS COMPANY, LLC, ET AL. ACREAGE: 126.99

10/31/2014

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: 15,774' ±  
 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 CANNONSBURG State PA Zip Code 15317 City CHARLESTON State WV Zip Code 25301