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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

January 15, 2014

**WELL WORK PERMIT**

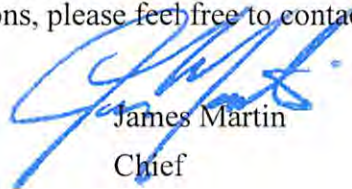
**Horizontal 6A Well**

This permit, API Well Number: 47-5101724, 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: WEB22KHS  
Farm Name: TURLEY, TIM M. & JENKINS, TAI  
**API Well Number: 47-5101724**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 01/15/2014

**Promoting a healthy environment.**

**01/17/2014**

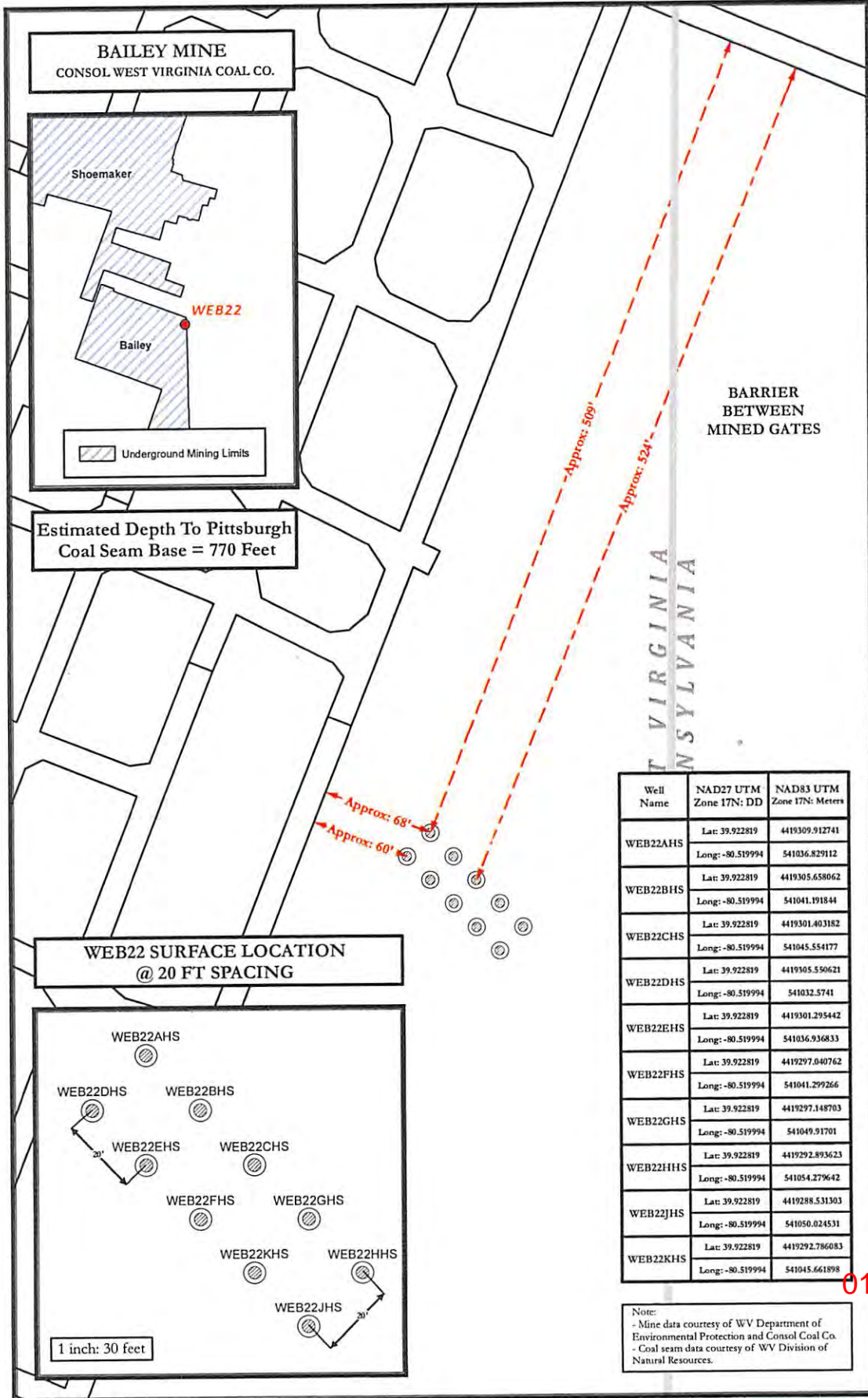
## PERMIT CONDITIONS

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

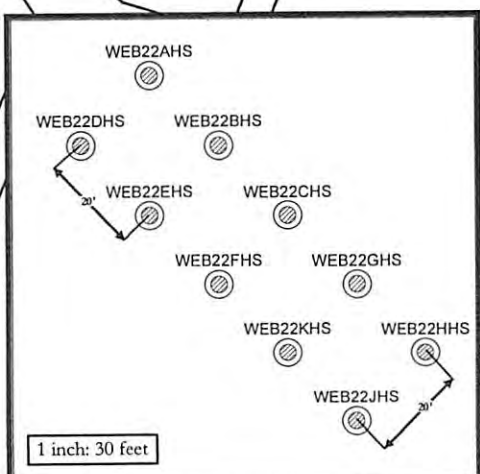
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1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE regarding this proposed activity.
2. If the operator encounters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



Estimated Depth To Pittsburgh Coal Seam Base = 770 Feet

WEB22 SURFACE LOCATION @ 20 FT SPACING



Well Name	NAD27 UTM Zone 17N: DD	NAD83 UTM Zone 17N: Meters
WEB22AHS	Lat: 39.922819	4419309.912741
	Long: -80.519994	541036.829112
WEB22BHS	Lat: 39.922819	4419305.658062
	Long: -80.519994	541041.191844
WEB22CHS	Lat: 39.922819	4419301.403182
	Long: -80.519994	541045.554177
WEB22DHS	Lat: 39.922819	4419305.550621
	Long: -80.519994	541032.5741
WEB22EHS	Lat: 39.922819	4419301.295442
	Long: -80.519994	541036.936833
WEB22FHS	Lat: 39.922819	4419297.040762
	Long: -80.519994	541041.299266
WEB22GHS	Lat: 39.922819	4419297.148703
	Long: -80.519994	541049.91701
WEB22HHS	Lat: 39.922819	4419292.893623
	Long: -80.519994	541054.279642
WEB22JHS	Lat: 39.922819	4419288.531303
	Long: -80.519994	541050.024531
WEB22KHS	Lat: 39.922819	4419292.786083
	Long: -80.519994	541045.661898

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

01/17/2014

**WEB22 SITE SAFETY PLAN**  
 - WELLHEAD TOPHOLE LOCATION -

0 35 70 140 Feet

Scale 1" = 70'

Projection: NAD\_1927\_StatePlane\_West\_Virginia\_North\_FIPS\_4701  
 Units: Foot US

**noble energy**

Date: 7/30/2013  
 Author: Christopher Gkover

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

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Received

OCT 30 2013

Office of Oil and Gas  
WV Dept. of Environmental Protection

WW-6B  
(9/13)

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

1) Well Operator: Noble Energy, Inc. 494501907 Marshall Webster Majorsville  
Operator ID County District Quadrangle

2) Operator's Well Number: WEB 22 KHS Well Pad Name: WEB 22

3) Farm Name/Surface Owner: Tim Turley & Tammy Jenkins Public Road Access: Dry Ridge Rd/CR 48

4) Elevation, current ground: 1325' Elevation, proposed post-construction: 1340.25'

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):  
Target-Marcellus, Depth-6875', Thickness-48', Pressure-4569#

8) Proposed Total Vertical Depth: 6913'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 12,942'

11) Proposed Horizontal Leg Length: 3,768'

12) Approximate Fresh Water Strata Depths: 212', 295'

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

14) Approximate Saltwater Depths: None noted in offsets

15) Approximate Coal Seam Depths: 761' to 771' Pittsburgh

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: Bailey Mine  
Depth: 770'  
Seam: Pittsburgh  
Owner: Consolidated Coal Company an affiliate of Consol Energy

GCS for WH  
11/13

01/17/2014

WW-6B  
(9/13)

18)

**CASING AND TUBING PROGRAM**

<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'	CTS
Fresh Water	20"	New	LS	94#	400'	400'	CTS
Coal	13 3/8"	New	J-55	54.5#	1220'	1220'	CTS
Intermediate	9 5/8"	New	J-55	36#	3356'	3356'	CTS
Production	5 1/2"	New	P110	20#	12,942'	12,942'	TOC 200' above 9.625 casing shoe
Tubing							
Liners							

<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		Type 1/Class A	1.2
Fresh Water	20"	26"	.438	2110	Type 1/Class A	1.2
Coal	13 3/8"	17 1/2"	.380	2730	Type 1/Class A	1.2
Intermediate	9 5/8"	12 3/8"	.352	3520	Type 1/Class A	1.19
Production	5 1/2"	8 3/4" & 8 1/2"	.361	12,640	Type 1/Class A	1.27
Tubing						
Liners						

**PACKERS**

Kind:				
Sizes:				
Depths Set:				01/17/2014

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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 6,913 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): 18.5

22) Area to be disturbed for well pad only, less access road (acres): 8.45

23) Describe centralizer placement for each casing string:

No centralizers will be used with conductor casing. Surface casing will have bow spring centralizers on first 2 joints then every third joint to 100' from surface. Intermediate casing will have bow spring centralizers on first 2 joints then every third joint to 100' from surface. Production string will have a rigid bow spring every joint to KOP, rigid bow spring every third joint from KOP to top of cement.

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

Conductor-1.15% CaCl Surface and Coal- Class A Portland Cement CaCl 2 with flake. Excess Yield=1.18 Intermediate-15.6 ppg Class A +0.4% Ret, 0.15% Disp, 0.2% AntiFoam, 0.125#/sk Lost circ 30% 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 15% Excess Yield=1.27 TOC greater or equal to 200' above 9.625" shoe.

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. 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 SOBMs and filled with KCl water once drilled to TD. Production-The hole is drilled with SOBMs and once to TD, circulated at maximum 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.

\*Note: Attach additional sheets as needed.

SI-01724



**DRILLING WELL PLAN**  
**WEB-22K-HS (Marcellus HZ)**  
**Macellus Shale Horizontal**  
**Marshall County, WV**

Ground Elevation		1325'		WEB-22K SHL (Lat/Long)		(519796.31N, 1713953.67E) (NAD27)															
Azm		156°		WEB-22K LP (Lat/Long)		(518937.36N, 1713155.71E) (NAD27)															
WELLBORE DIAGRAM		HOLE		CASING		GEOLOGY		MD		TVD		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											
	24	20" 94#	Surface Casing	400	400	AIR	15.6 ppg Type 1 + 2% CaCl <sub>2</sub> , 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											
			Pittsburgh Coal	761	761																
	17 1/2	13-3/8" 54.5# J-55 BTC	Int. Casing	1220	1220	AIR	15.6 ppg Type 1 + 2% CaCl <sub>2</sub> , 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											
			Dunkard Sand	1405	1405																
	12 3/8	9-5/8" 36# J-55 LTC	Big Lime	2007	2007	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											
			5th Sand Base	3106	3106																
			Int. Casing	3356	3356																
			Warren Sand		4567																
	8.75" Vertical		Java		5240	8.0ppg - 9.0ppg SOBMs	14.8ppg Class A 25.75.0 System	Rigid Bow Spring every third joint from KOP to TOC													
			Angola		5456																
			Rhinestreet		6088																
			Cashaqua		6523																
	8.75" Curve	5-1/2" 20# HCP-110 TXP BTC	Middlesex		6622	12.0ppg-12.5ppg SOBMs	+2.6% Cement extender, 0.7% Fluid Loss additive, 0.45% high temp retarder, 0.2% friction reducer	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											
			West River		6654																
Burkett				6710																	
Tully Limestone				6734																	
Hamilton				6760																	
8.75" - 8.5" Lateral		Marcellus		6875	12.0ppg-12.5ppg SOBMs	10% Excess Yield=1.27 TOC >= 200' above 9.625" shoe															
		TD	12942	6913																	
		Onondaga		6923																	

LP @ 6913' TVD / 7576' MD

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

+/-5365' ft Lateral

TD @ +/-6913' TVD  
 +/-12942' MD

01/17/2014

WW-9  
(5/13)

13 2013

Page \_\_\_\_\_ of \_\_\_\_\_  
API Number 47 - 51 - 01724  
Operator's Well No. WEB 22 KHS

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) Dunkard Fork (HUC 10) Quadrangle Majorsville

Elevation 1340' County Marshall District Webster

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

Will a pit be used for drill cuttings? Yes  No

If so, please describe anticipated pit waste: Closed Loop-No pit to 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? Yes

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air thru intermediate string, then SOBM

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

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

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 list

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) Jessica Leska  
Company Official Title Regulatory Technician



Subscribed and sworn before me this 13th day of December, 2013

[Signature] Notary Public

My commission expires November 23, 2015

01/17/2014



51-01724

Received

OCT 30 2013

Office of Oil and Gas  
WV Dept. of Environmental Protection

Form WW-9

Operator's Well No. WEB 22 KHS

Noble Energy, Inc.

Proposed Revegetation Treatment: Acres Disturbed 18.5 acres Prevegetation pH \_\_\_\_\_

Lime 2 to 3 Tons/acre or to correct to pH \_\_\_\_\_

Fertilizer type 10-20-20

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
See site plans for full list	

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5
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: \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

01/17/2014

*William Henderson by ACS*

Title: Inspector

Date: 11/11/13

Field Reviewed?  Yes

No

SI-01724

Received

OCT 30 2013

Office of Oil and Gas  
WV Dept. of Environmental Protection

## 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

MAX Environmental Technologies  
233 Max Lane  
Yukon, PA 25698  
PAD004835146

#### 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

### 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

01/17/2014



## Water Management Plan: Primary Water Sources



WMP- 01670

API/ID Number: 047-051-01724

Operator:

Noble Energy, Inc

WEB22KHS

### Important:

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP's assessment is based on the following considerations:

- Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- Identification of sensitive aquatic life (endangered species, mussels, etc.);
- Quantification of known existing demands on the water supply (Large Quantity Users);
- Minimum flows required by the Army Corps of Engineers; and
- Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

**DEP is aware that some intake points will be used for multiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interpreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.**

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator's responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at [DEP.water.use@wv.gov](mailto:DEP.water.use@wv.gov).

APPROVED DEC 09 2013

## Source Summary

WMP-01670

API Number:

047-051-01724

Operator:

Noble Energy, Inc

WEB22KHS

## Purchased Water

● Source **West Virginia American Water - Weston Water Treatme** Lewis Owner: **West Virginia American Water**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
8/15/2013	8/15/2014	11,000,000	500,000	-	-

Regulated Stream? **Stonewall Jackson Dam** Ref. Gauge ID: **3061000** **WEST FORK RIVER AT ENTERPRISE, WV**

**Max. Pump rate (gpm):** **Min. Gauge Reading (cfs): 170.57** **Min. Passby (cfs)**

DEP Comments:

● Source **Bethlehem Water Department** Ohio Owner: **Bethlehem Water Department**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
8/15/2013	8/15/2014	11,000,000	200,000	-	-

Regulated Stream? **Ohio River Min. Flow** Ref. Gauge ID: **9999999** **Ohio River Station: Willow Island Lock & Dam**

**Max. Pump rate (gpm):** **Min. Gauge Reading (cfs): 6,468.00** **Min. Passby (cfs)**

DEP Comments: Bethlehem Water Department purchases all its water from the City of Wheeling. Thresholds are set based on the location of the City of Wheeling's raw water intake.

● Source **Wellsburg Water Department** Brooke Owner: **Wellsburg Water Department**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
8/15/2013	8/15/2014	11,000,000	200,000	-	-

Regulated Stream? **Ohio River Min. Flow** Ref. Gauge ID: **9999999** **Ohio River Station: Willow Island Lock & Dam**

**Max. Pump rate (gpm):** **Min. Gauge Reading (cfs): 6,468.00** **Min. Passby (cfs)**

DEP Comments: This alluvial groundwater well is, to some extent, under the influence of the Ohio River. Please adhere to stated minimum flow requirements on the Ohio River for withdrawals. <http://www.erh.noaa.gov/er/ohrfc/flows.shtml>

01/17/2014

Source **Moundsville Water Board** Marshall Owner: **Moundsville Water Treatment Plant**

Start Date End Date Total Volume (gal) Max. daily purchase (gal) Intake Latitude: Intake Longitude:  
8/15/2013 8/15/2014 11,000,000 2,000,000 - -

Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999999 Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm): Min. Gauge Reading (cfs): **6,468.00** Min. Passby (cfs)

DEP Comments: This alluvial groundwater well is, to some extent, under the influence of the Ohio River. Please adhere to stated minimum flow requirements on the Ohio River for withdrawals. <http://www.erh.noaa.gov/er/ohrfc/flows.shtml>

Source **Dean's Water Service** Ohio Owner: **Dean's Water Service**

Start Date End Date Total Volume (gal) Max. daily purchase (gal) Intake Latitude: Intake Longitude:  
8/15/2013 8/15/2014 11,000,000 600,000 - -

Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999999 Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm): Min. Gauge Reading (cfs): **6,468.00** Min. Passby (cfs)

DEP Comments:

Source **Wheeling Water Department** Ohio Owner: **Wheeling Water Department**

Start Date End Date Total Volume (gal) Max. daily purchase (gal) Intake Latitude: Intake Longitude:  
8/15/2013 8/15/2014 11,000,000 17,500 - -

Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999999 Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm): Min. Gauge Reading (cfs): **6,468.00** Min. Passby (cfs)

DEP Comments: Refer to the specified sation on the National Weather Service's Ohio River forecasts at the following website: <http://www.erh.noaa.gov/ohrfc//flows.shtml>

01/17/2014

Source **Ohio County PSD** Ohio Owner: **Ohio county PSD**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
8/15/2013	8/15/2014	11,000,000	720,000	-	-

Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999999 Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm): Min. Gauge Reading (cfs): **6,468.00** Min. Passby (cfs)

DEP Comments: Refer to the specified station on the National Weather Service's Ohio River forecast website: <http://www.erh.noaa.gov/ohrfc//flows.shtml>

## Source Detail

WMP- 01670

API/ID Number: 047-051-01724

Operator:

Noble Energy, Inc

WEB22KHS

Source ID: 30900 Source Name: West Virginia American Water - Weston Water Treat  
West Virginia American Water

Source Latitude: -  
Source Longitude: -

HUC-8 Code: 5020002

Drainage Area (sq. mi.): 104.83 County: Lewis

Anticipated withdrawal start date: 8/15/2013

Anticipated withdrawal end date: 8/15/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 11,000,000

Trout Stream?  Tier 3?

Max. Pump rate (gpm):

Regulated Stream? Stonewall Jackson Dam

Max. Simultaneous Trucks:

Proximate PSD? Weston WTP

Max. Truck pump rate (gpm):

Gauged Stream?

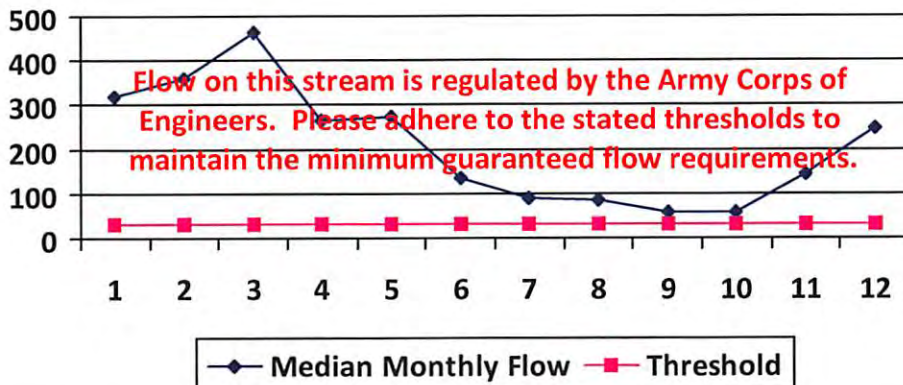
Reference Gaug: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

Drainage Area (sq. mi.): 759.00

Gauge Threshold (cfs): 234

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	321.23	-	-
2	361.67	-	-
3	465.85	-	-
4	266.43	-	-
5	273.47	-	-
6	137.03	-	-
7	88.78	-	-
8	84.77	-	-
9	58.98	-	-
10	57.83	-	-
11	145.12	-	-
12	247.76	-	-

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	24.32
Downstream Demand (cfs):	0.00
Pump rate (cfs):	
Headwater Safety (cfs):	8.08
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

## Source Detail

WMP- 01670

API/ID Number: 047-051-01724

Operator: Noble Energy, Inc

WEB22KHS

Source ID: 30901    Source Name: Bethlehem Water Department    Source Latitude: -  
 Bethlehem Water Department    Source Longitude: -

HUC-8 Code: 5030106

Drainage Area (sq. mi.): 25000    County: Ohio

Anticipated withdrawal start date: 8/15/2013

Anticipated withdrawal end date: 8/15/2014

Endangered Species?     Mussel Stream?

Total Volume from Source (gal): 11,000,000

Trout Stream?     Tier 3?

Max. Pump rate (gpm):

Regulated Stream?    Ohio River Min. Flow

Max. Simultaneous Trucks:

Proximate PSD?    City of Wheeling

Max. Truck pump rate (gpm):

Gauged Stream?

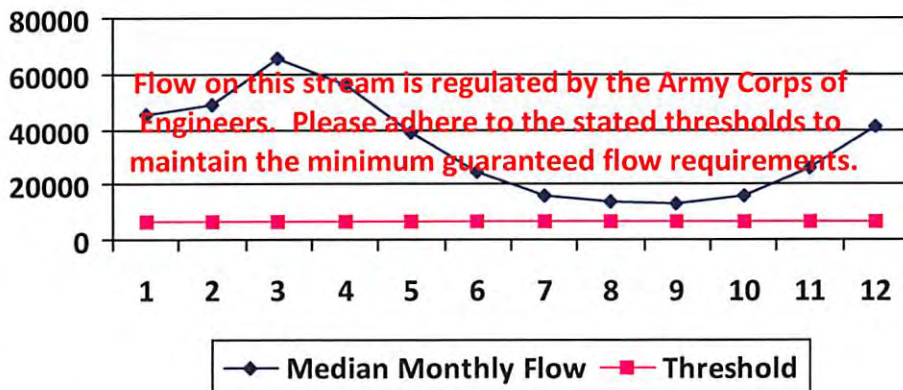
Reference Gaug: 9999999    Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.): 25,000.00

Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): -

Upstream Demand (cfs):

Downstream Demand (cfs):

Pump rate (cfs):

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 0.00

---

Min. Gauge Reading (cfs): -

Passby at Location (cfs): -

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

01/17/2014



### Source Detail

WMP-01670      API/ID Number: 047-051-01724      Operator: Noble Energy, Inc  
 WEB22KHS

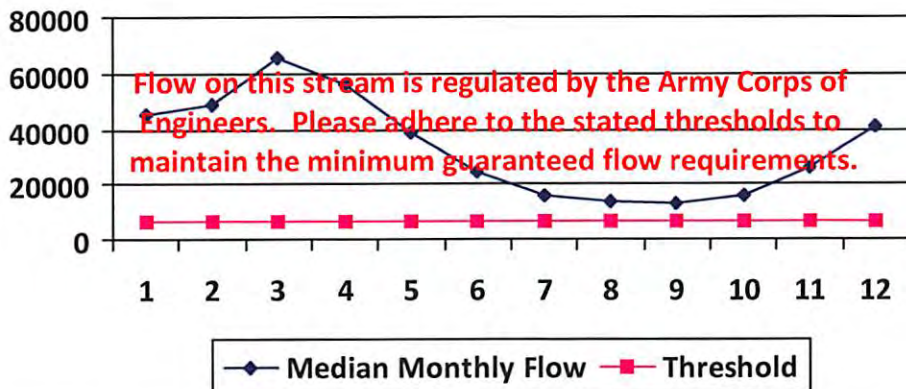
Source ID: 30902      Source Name: Wellsburg Water Department      Source Latitude: -  
 Wellsburg Water Department      Source Longitude: -

HUC-8 Code: 5030106      Anticipated withdrawal start date: 8/15/2013  
 Drainage Area (sq. mi.): 25000      County: Brooke      Anticipated withdrawal end date: 8/15/2014  
 Endangered Species?       Mussel Stream?  
 Trout Stream?       Tier 3?  
 Regulated Stream?      Ohio River Min. Flow      Total Volume from Source (gal): 11,000,000  
 Proximate PSD?      Wellsburg Water Department      Max. Pump rate (gpm):  
 Gauged Stream?      Max. Simultaneous Trucks:  
 Max. Truck pump rate (gpm):

Reference Gaug: 9999999      Ohio River Station: Willow Island Lock & Dam  
 Drainage Area (sq. mi.): 25,000.00      Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): -  
 Upstream Demand (cfs):  
 Downstream Demand (cfs):  
 Pump rate (cfs):  
 Headwater Safety (cfs): 0.00  
 Ungauged Stream Safety (cfs): 0.00

---

Min. Gauge Reading (cfs): -  
 Passby at Location (cfs): -

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

### Source Detail

WMP- 01670      API/ID Number: 047-051-01724      Operator: Noble Energy, Inc

WEB22KHS

Source ID: 30903      Source Name: Moundsville Water Board      Source Latitude: -  
 Moundsville Water Treatment Plant      Source Longitude: -

HUC-8 Code: 5030106      Anticipated withdrawal start date: 8/15/2013

Drainage Area (sq. mi.): 25000      County: Marshall      Anticipated withdrawal end date: 8/15/2014

Endangered Species?       Mussel Stream?      Total Volume from Source (gal): 11,000,000

Trout Stream?       Tier 3?      Max. Pump rate (gpm):

Regulated Stream?      Ohio River Min. Flow      Max. Simultaneous Trucks:

Proximate PSD?      Max. Truck pump rate (gpm):

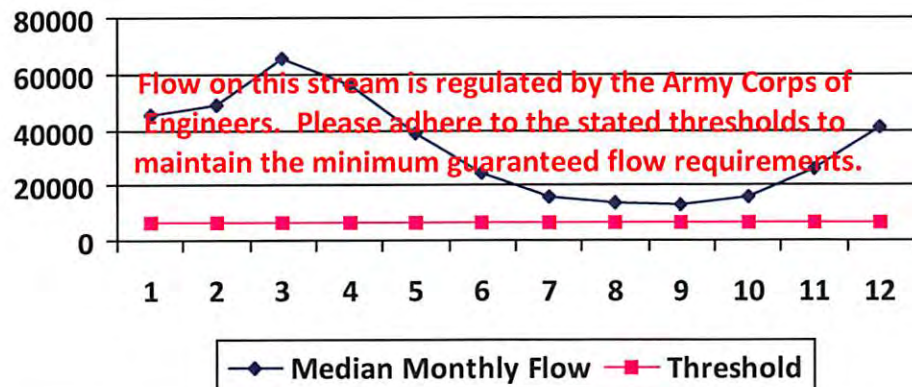
Gauged Stream?

Reference Gaug: 9999999      Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.): 25,000.00      Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

### Water Availability Profile



#### Water Availability Assessment of Location

Base Threshold (cfs): -

Upstream Demand (cfs):

Downstream Demand (cfs):

Pump rate (cfs):

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 0.00

---

Min. Gauge Reading (cfs): -

Passby at Location (cfs): -

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

01/17/2014

## Source Detail

WMP- 01670

API/ID Number:

047-051-01724

Operator:

Noble Energy, Inc

WEB22KHS

Source ID: 30904

Source Name: Dean's Water Service

Source Latitude: -

Dean's Water Service

Source Longitude: -

HUC-8 Code: 5030106

Drainage Area (sq. mi.): 25000

County:

Ohio

Anticipated withdrawal start date: 8/15/2013

Anticipated withdrawal end date: 8/15/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 11,000,000

Trout Stream?  Tier 3?

Max. Pump rate (gpm):

Regulated Stream? Ohio River Min. Flow

Max. Simultaneous Trucks:

Proximate PSD?

Max. Truck pump rate (gpm):

Gauged Stream?

Reference Gaug

9999999

Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.)

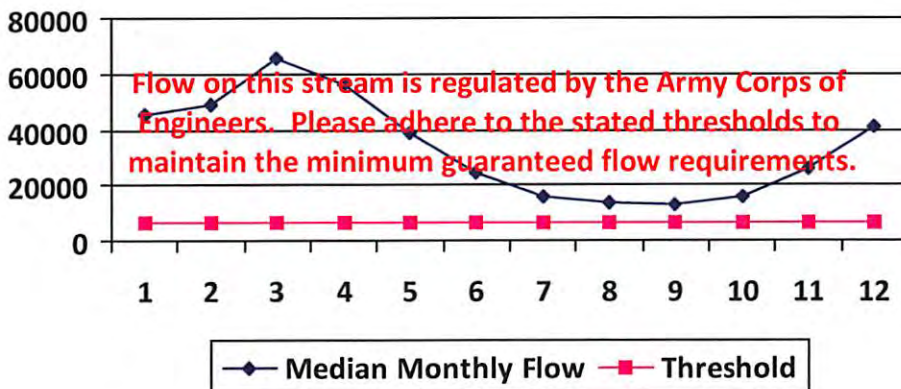
25,000.00

Gauge Threshold (cfs):

6468

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	0.00
Downstream Demand (cfs):	0.00
Pump rate (cfs):	
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

01/17/2014

## Source Detail

WMP-01670

API/ID Number: 047-051-01724

Operator: Noble Energy, Inc

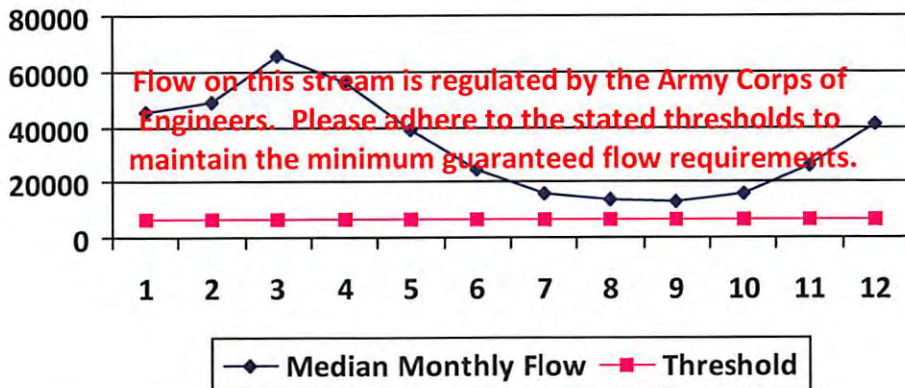
WEB22KHS

Source ID: 30906	Source Name: Wheeling Water Department Wheeling Water Department	Source Latitude: -
		Source Longitude: -
HUC-8 Code: 5030106	Drainage Area (sq. mi.): 25000	County: Ohio
<input type="checkbox"/> Endangered Species?	<input checked="" type="checkbox"/> Mussel Stream?	Anticipated withdrawal start date: 8/15/2013
<input type="checkbox"/> Trout Stream?	<input type="checkbox"/> Tier 3?	Anticipated withdrawal end date: 8/15/2014
<input checked="" type="checkbox"/> Regulated Stream?	Ohio River Min. Flow	Total Volume from Source (gal): 11,000,000
<input checked="" type="checkbox"/> Proximate PSD?	Wheeling Water Department	Max. Pump rate (gpm):
<input checked="" type="checkbox"/> Gauged Stream?		Max. Simultaneous Trucks:
		Max. Truck pump rate (gpm):

Reference Gaug: 9999999	Ohio River Station: Willow Island Lock & Dam
Drainage Area (sq. mi.): 25,000.00	Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	-
Downstream Demand (cfs):	-
Pump rate (cfs):	-
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

## Source Detail

WMP- 01670

API/ID Number: 047-051-01724

Operator: Noble Energy, Inc

WEB22KHS

Source ID: 30907 Source Name: Ohio County PSD Source Latitude: -  
Ohio county PSD Source Longitude: -

HUC-8 Code: 5030106

Drainage Area (sq. mi.): 25000 County: Ohio

Anticipated withdrawal start date: 8/15/2013

Anticipated withdrawal end date: 8/15/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 11,000,000

Trout Stream?  Tier 3?

Max. Pump rate (gpm):

Regulated Stream? Ohio River Min. Flow

Max. Simultaneous Trucks:

Proximate PSD? Wheeling Water Department

Max. Truck pump rate (gpm):

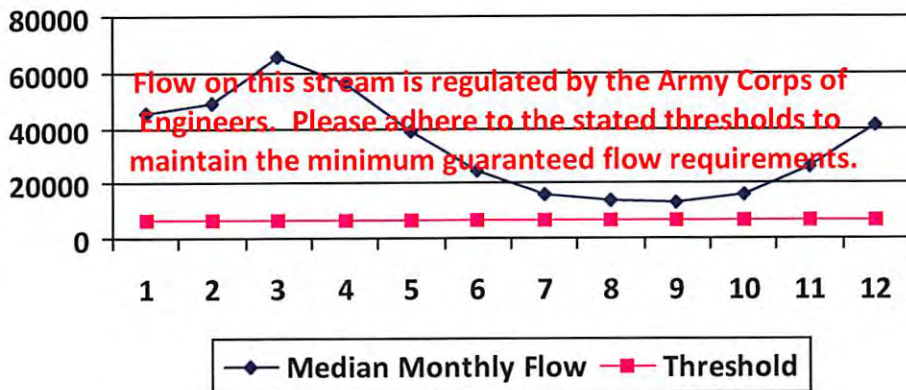
Gauged Stream?

Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.): 25,000.00 Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): -

Upstream Demand (cfs):

Downstream Demand (cfs):

Pump rate (cfs):

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 0.00

---

Min. Gauge Reading (cfs): -

Passby at Location (cfs): -

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

01/17/2014



# Water Management Plan: Secondary Water Sources



WMP- 01670

API/ID Number 047-051-01724

Operator:

Noble Energy, Inc

WEB22KHS

### Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

## Multi-site impoundment

Source ID:	30908	Source Name	SHL #3 Pad Tank Farm		Source start date:	8/15/2013
					Source end date:	8/15/2014
	Source Lat:	39.971171	Source Long:	-80.556856	County	Marshall
	Max. Daily Purchase (gal)		Total Volume from Source (gal):	11,000,000		
DEP Comments:						

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-1435

01/17/2014

**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Source ID:	30909	Source Name	SHL #4 Pad Tank Farm		Source start date:	8/15/2013	
					Source end date:	8/15/2014	
		Source Lat:	39.956739	Source Long:	-80.5515	County	Marshall
		Max. Daily Purchase (gal)		Total Volume from Source (gal):			11,000,000

DEP Comments:

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-1436

Source ID:	30910	Source Name	SHL #1 Centralized Freshwater Impoundment		Source start date:	8/15/2013	
					Source end date:	8/15/2014	
		Source Lat:	39.979696	Source Long:	-80.579465	County	Marshall
		Max. Daily Purchase (gal)		Total Volume from Source (gal):			11,000,000

DEP Comments:

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-200

**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Source ID:	30911	Source Name	SHL #2 Centralized Waste Pit		Source start date:	8/15/2013	
					Source end date:	8/15/2014	
		Source Lat:	39.966973	Source Long:	-80.561377	County	Marshall
		Max. Daily Purchase (gal)		Total Volume from Source (gal):		11,000,000	
DEP Comments:	WV51-WPC-00001						

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-201

Source ID:	30912	Source Name	SHL #3 Centralized Waste Pit		Source start date:	8/15/2013	
					Source end date:	8/15/2014	
		Source Lat:	39.974133	Source Long:	-80.55527	County	Marshall
		Max. Daily Purchase (gal)		Total Volume from Source (gal):		11,000,000	
DEP Comments:	WV51-WPC-00002						

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-202



**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Source ID:	30913	Source Name	SHL #4 Centralized Waste Pit		Source start date:	8/15/2013	
					Source end date:	8/15/2014	
		Source Lat:	39.963284	Source Long:	-80.562743	County	Marshall
		Max. Daily Purchase (gal)		Total Volume from Source (gal):		11,000,000	
DEP Comments:	WV51-WPC-00003						

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-204

**Purchased Water**

Source ID:	30905	Source Name	Bridgeport Ohio Water Department		Source start date:	8/15/2013	
					Source end date:	8/15/2014	
		Source Lat:	40.08348	Source Long:	-80.736488	County	
		Max. Daily Purchase (gal)	200,000	Total Volume from Source (gal):		11,000,000	
DEP Comments:	Please ensure that purchases from this source are approved by, and completed in accordance with, requirements set forth by the State of Ohio Department of Environmental Protection.						

WMP- 01670

API/ID Number

047-051-01724

Operator:

Noble Energy, Inc

WEB22KHS

**Important:**

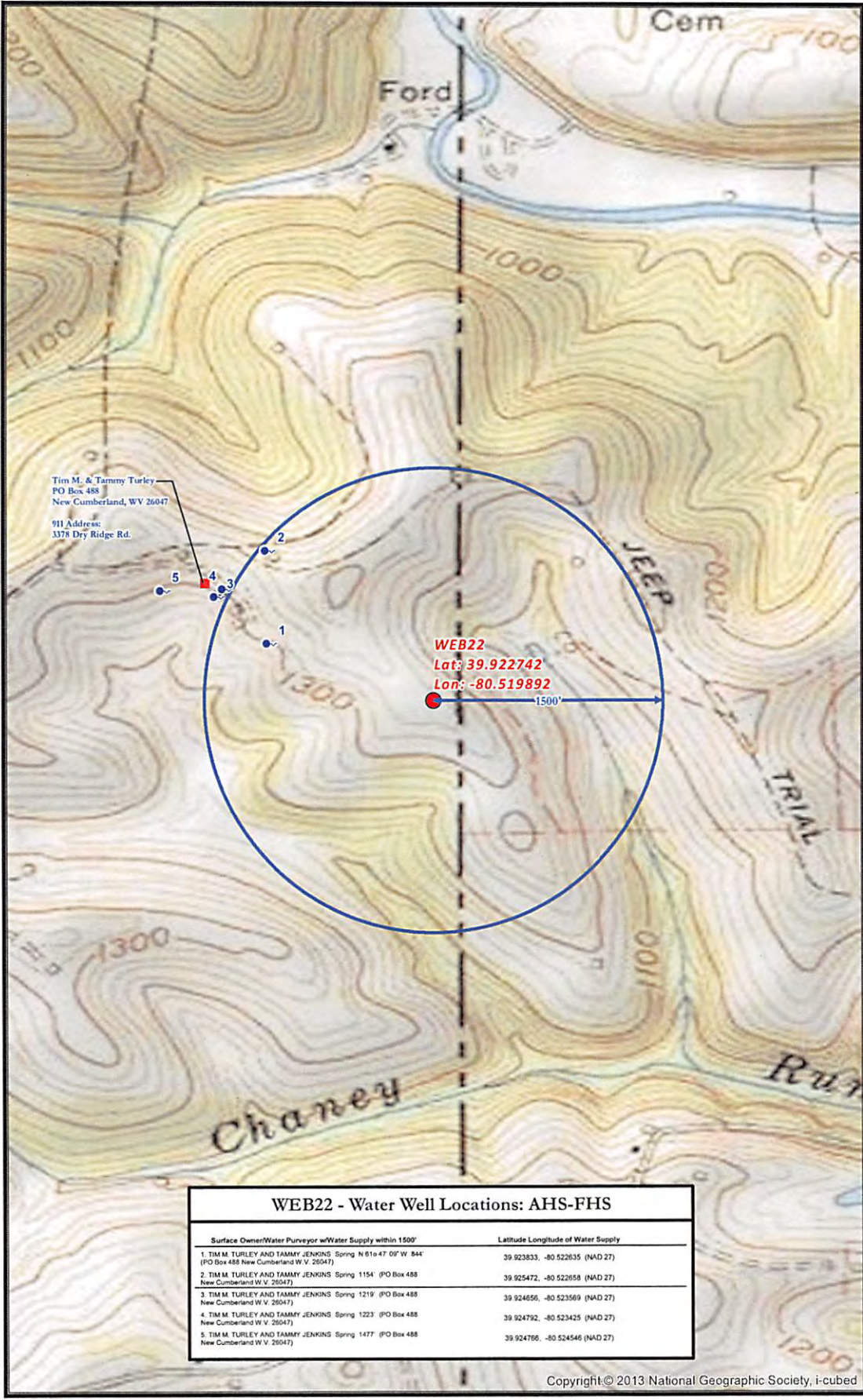
For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

**Recycled Frac Water**

Source ID:	30914	Source Name	Various	Source start date:	8/15/2013
				Source end date:	8/15/2014
	Source Lat:		Source Long:		County
	Max. Daily Purchase (gal)		Total Volume from Source (gal):		11,000,000
DEP Comments:	Sources include, but are not limited to, the WEB22 well pad.				

01/17/2014



**WEB22 - Water Well Locations: AHS-FHS**

Surface Owner/Water Purveyor w/Water Supply within 1500'	Latitude Longitude of Water Supply
1. TIM M. TURLEY AND TAMMY JENKINS Spring N 61o 47' 00" W 844' (PO Box 488 New Cumberland W.V. 26047)	39 923833, -80 522635 (NAD 27)
2. TIM M. TURLEY AND TAMMY JENKINS Spring 1154' (PO Box 488 New Cumberland W.V. 26047)	39 925472, -80 522658 (NAD 27)
3. TIM M. TURLEY AND TAMMY JENKINS Spring 1219' (PO Box 488 New Cumberland W.V. 26047)	39 924856, -80 523569 (NAD 27)
4. TIM M. TURLEY AND TAMMY JENKINS Spring 1223' (PO Box 488 New Cumberland W.V. 26047)	39 924792, -80 523425 (NAD 27)
5. TIM M. TURLEY AND TAMMY JENKINS Spring 1477' (PO Box 488 New Cumberland W.V. 26047)	39 924766, -80 524546 (NAD 27)

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**WEB22 SITE SAFETY PLAN**  
- WATER WELLS PROXIMITY -

- 911 Address
- Spring
- Well Pad
- W Water Well

0 375 750 1,500 Feet

Scale 1" = 750'

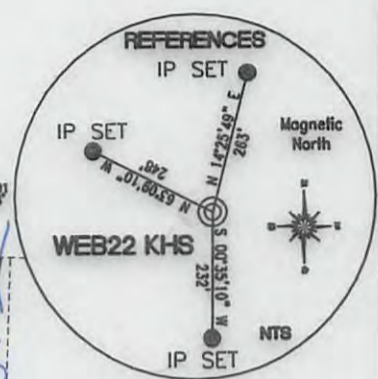
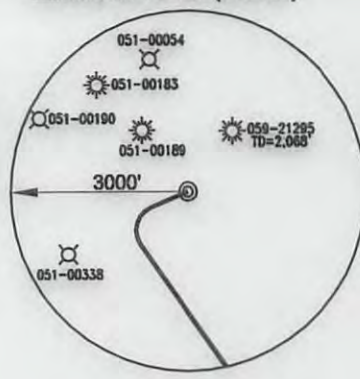
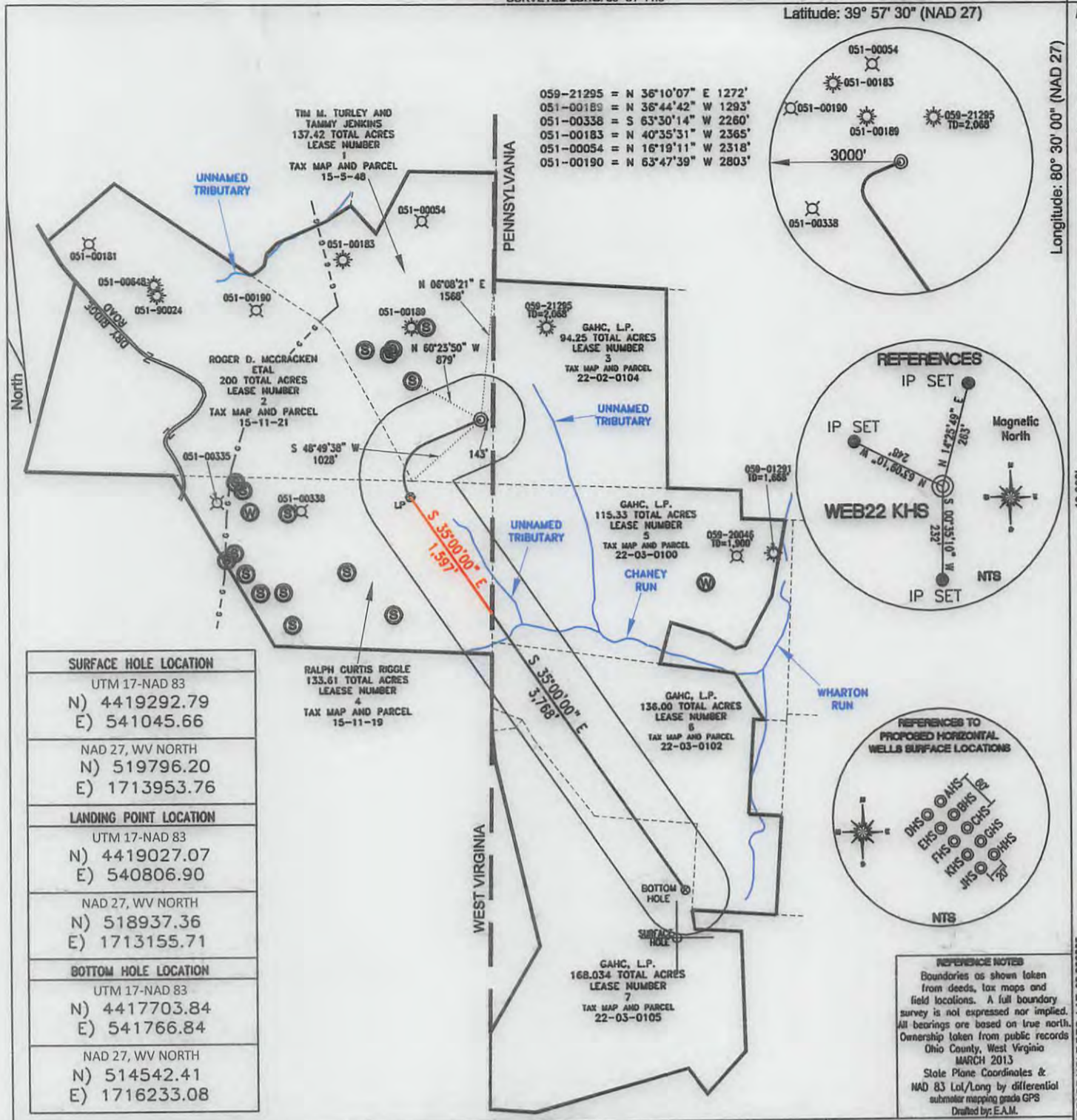
Projection: NAD\_1927\_StatePlane\_Virginia\_North\_FIPS\_4301  
Units: Foot US

**noble energy**

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

Date: 7/18/2013  
Author: Christopher Glover

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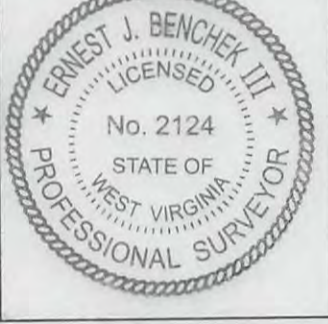


**REFERENCE NOTES**  
Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records Ohio County, West Virginia MARCH 2013. State Plane Coordinates & NAD 83 Lat/Long by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

SURFACE HOLE DEC. LAT: 39.952866 SURVEYED LAT: 39° 57' 30" NAD 27

FILE #: NOB 001  
DRAWING #: 2266  
SCALE: PLAT - 1"=1600'  
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

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

WATERSHED: DUNKARD FORK HUC 10  
COUNTY/DISTRICT: MARSHALL / WEBSTER  
SURFACE OWNER: TIM M. TURLEY AND TAMMY JENKINS  
OIL & GAS ROYALTY OWNER: TIM M. TURLEY AND TAMMY JENKINS  
LEASE NUMBERS: \_\_\_\_\_

DATE: AUGUST 21, 2013  
OPERATOR'S WELL #: WEB22 KHS  
API WELL #: 47 51 01724H6A  
STATE COUNTY PERMIT

ELEVATION: 1,325'  
QUADRANGLE: MAJORSVILLE WV-PA  
ACREAGE: 137.42 +/-  
ACREAGE: 890.394 +/- 01/17/2014

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  
WELL OPERATOR: NOBLE ENERGY, INC.  
ADDRESS: 333 TECHNOLOGY DRIVE SUITE 116  
CITY: CANONSBURG STATE: PA ZIP CODE: 15317

ESTIMATED DEPTH: TVD: 6,913' TMD: 12,942'  
DESIGNATED AGENT: STEVEN M. GREEN  
ADDRESS: 500 VIRGINIA STREET EAST  
CITY: CHARLESTON STATE: WV ZIP CODE: 25301