



west virginia department of environmental protection

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

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

August 15, 2013

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101664, 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: WEB13 CHS
Farm Name: HARTLEY, LUCILLE
API Well Number: 47-5101664
Permit Type: Horizontal 6A Well
Date Issued: 08/15/2013

Promoting a healthy environment.

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. 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.
2. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the fill material shall be within plus or minus 2% (unless soil test results show a greater range of moisture content is appropriate and 95% compaction can still be achieved) of the optimum moisture content as determined by the standard proctor density test, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort. Each lift must meet 95 % compaction of the optimum density based on results from the standard proctor density test of the actual soils used in specific engineered fill sites. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.

51-01664

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
W.VA. CODE §22-6A - WELL WORK PERMIT APPLICATION

51 09 453

1) Well Operator: Noble Energy, Inc.

494501907	Marshall	Webster	Majorsville
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Operator ID County District Quadrangle

2) Operator's Well Number: WEB13CHS Well Pad Name: WEB13

3 Elevation, current ground: 1265.72' Elevation, proposed post-construction: 1240'

4) Well Type: (a) Gas Oil _____
Other _____
(b) If Gas: Shallow Deep _____
Horizontal

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Target - Marcellus, Depth - 6630', Thickness - 48', Pressure - 4407#

7) Proposed Total Vertical Depth: 6668'

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 12,520'

10) Approximate Fresh Water Strata Depths: 128', 200', 300'

11) Method to Determine Fresh Water Depth: Offset well data

12) Approximate Saltwater Depths: 1300' (None noted in offsets)

13) Approximate Coal Seam Depths: Pittsburgh - 703'

14) Approximate Depth to Possible Void (coal mine, karst, other): No voids anticipated

15) Does land contain coal seams tributary or adjacent to, active mine? Yes-Shoemaker Mine (see attached) Depth of mine approx 700'

16) Describe proposed well work: Drill the vertical depth to the Onondaga at an estimated total vertical depth of approximately 6,668 feet, log, plug back to Marcellus at approximately 6630'. 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 50' below the void, set a basket and grout to surface. Please see attached mine maps provided by Consol Energy detailing their Shoemaker Mine and distance to WEB13.

17) Describe fracturing/stimulating methods in detail:
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 as described in the attached.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 20.46

19) Area to be disturbed for well pad only, less access road (acres): 16.58

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6-12-13
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JUN 14 2013

20)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft.</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill -up (Cu. Ft.)</u>
Conductor	30"	New	LS	81.3#	40'	40'	CTS
Fresh Water	20"	New	LS	94#	400'	400'	cts 15.6 ppg 40% excess yield 1.18
Coal	13 3/8"	New	J-55	54.5#	813'	813'	CTS 15.6 ppg 30% excess Yield 1.18
Intermediate	9 5/8"	New	J-55	36#	3123'	3123'	cts 15.6 ppg 30% excess yield 1.18
Production	5 1/2"	New	HCP110	20#	12,520'	12,520'	at least 500' above shallowest producing formation
Tubing							
Liners							

WRN
6-12-13

<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</u>
Conductor	30"	36"	.25	2110	Type 1	1.18
Fresh Water	20"	26"	.438	2730	Type 1	1.18
Coal	13 3/8"	17 1/2"	.380	2730	Type 1	1.18
Intermediate	9 5/8"	12 3/8"	.352	3520	Type 1	1.18
Production	5 1/2"	8 3/4" & 8 1/2"	.361	12,640	Type 1	1.27
Tubing						
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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51-01664

21) Describe centralizer placement for each casing string. Conductor - No centralizers used. Fresh Water & Coal -
Bow spring centralizers on first 2 joints then every third joint to 100 feet from surface. Intermediate - Bow spring
centralizers every third joint to 100' from surface.

Production - Rigid bow spring every third joint from KOP to TOC. Rigid bow spring every joint to KOP.

22) Describe all cement additives associated with each cement type. Conductor - 1.15% CaCl₂.

Fresh Water - "15.6 ppg Type 1 + 2% CaCl, 0.25# Lost Circ 20% Excess Yield = 1.18

Intermediate - "15.6ppg Class A +0.4% Ret, 0.15% Disp, 0.2% AntiFoam, 0.125#/sk Lost Circ 30% Excess Yield=1.18 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
15% Excess Yield=1.27 TOC >= 200' above 9.625" shoe.

23) Proposed borehole conditioning procedures. Conductor - The hole is drilled w/ air and casing is run in air. Apart from insuring

the hole is clean via air circulation at TD, there are no other conditioning procedures. Fresh Water -The hole is drilled w/air and casing
is run in air. 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 w/air and casing is run in air. Once casing is at setting depth, the hole is filled w/ KCl water and a
minimum of one hole volume is circulated prior to pumping cement. Intermediate - Once surface casing is set and cemented Intermediate hole is drilled either on air or SOBMs and 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, 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.

*Note: Attach additional sheets as needed.

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

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name Noble Energy, Inc. OP Code 494501907

Watershed Wheeling Creek Quadrangle Majorsville

Elevation 1240' County Marshall District Webster

Description of anticipated Pit Waste: None - Closed loop system

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

Will a synthetic liner be used in the pit? Yes If so, what mil.? 60 mil

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number _____ next anticipated well _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Top Hole to Intermediate Air/Bottom Hole Synthetic Oil Based Mud.

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

Additives to be used? Bactericide, polymers, and weighting agents

Will closed loop system be used? Yes

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All cuttings will be taken off site to an approved facility

-If left in pit and plan to solidify what medium will be used? Cement, lime,

-Landfill or offsite name/permit number? See attachment - Site Water/Cuttings Disposal

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 Jessica Leska

Company Official (Typed Name) Jessica Leska

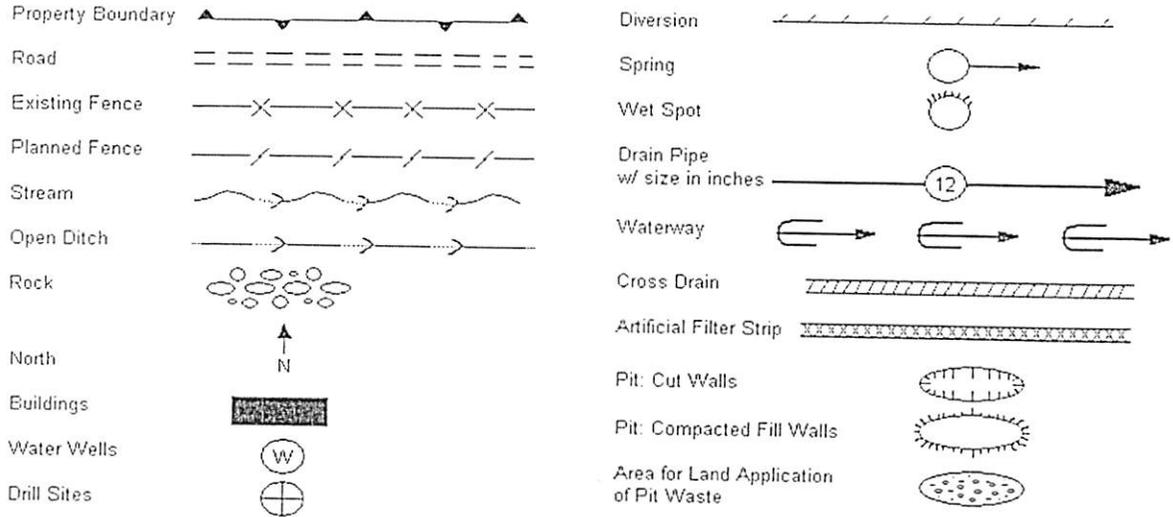
Company Official Title Regulatory

Subscribed and sworn before me this 12th day of June, 2013

Laura L. Oelken's Notary Public

My commission expires November 23, 2015

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Proposed Revegetation Treatment: Acres Disturbed 19.2 Prevegetation pH _____

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

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch hay or straw at 2 tons Tons/acre

Seed Mixtures

Seed Type	Area I lbs/acre	Seed Type	Area II lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5

Attach:
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Bill Hendershot

Comments: _____

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Title: Oil and Gas Inspector

Date: 6-12-13

JUN 14 2013

Field Reviewed? Yes

No



Water Management Plan: Primary Water Sources



WMP-01328

API/ID Number: 047-051-01664

Operator:

Noble Energy, Inc

WEB13CHS

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.

APPROVED JUL 31 2013

Source Summary

WMP-01328

API Number:

047-051-01664

Operator:

Noble Energy, Inc

WEB13CHS

Stream/River

● Source **Wheeling Creek Pump Station 1 @ CNX Land Resources** Marshall Owner: **Consol Energy**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/17/2013	9/17/2014	5,000,000		39.95205	-80.56189

Regulated Stream? Ref. Gauge ID: 3111955 Wheeling Creek near Majorville, WV

Max. Pump rate (gpm): **1,000** Min. Gauge Reading (cfs): **18.23** Min. Passby (cfs) **16.63**

DEP Comments:

● Source **Wheeling Creek Pump Station 2 @ CNX Land Resources** Marshall Owner: **CNX Land Resources, Inc.**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/17/2013	9/17/2014	4,000,000		39.949578	-80.531256

Regulated Stream? Ref. Gauge ID: 3111955 Wheeling Creek near Majorville, WV

Max. Pump rate (gpm): **1,000** Min. Gauge Reading (cfs): **18.23** Min. Passby (cfs) **16.24**

DEP Comments:

Source Summary

WMP-01328

API Number:

047-051-01664

Operator:

Noble Energy, Inc

WEB13CHS

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:
9/17/2013	9/17/2014	7,000,000	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:
9/17/2013	9/17/2014	3,000,000	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:
9/17/2013	9/17/2014	3,000,000	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>

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:
9/17/2013 9/17/2014 3,000,000 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:
9/17/2013 9/17/2014 3,000,000 600,000 - -

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:
9/17/2013 9/17/2014 5,400,000 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>

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

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/17/2013	9/17/2014	3,000,000	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 Summary

WMP-01328

API Number:

047-051-01664

Operator:

Noble Energy, Inc

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Ground Water

● Source **Shoemaker Groundwater Well #3** Marshall Owner: **Consol Energy**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/17/2013	9/17/2014	288,000		40.0222	-80.73389

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

Max. Pump rate (gpm): 800 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 **Shoemaker Groundwater Well #4** Marshall Owner: **Consol Energy**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/17/2013	9/17/2014	288,000		40.022293	-80.733586

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

Max. Pump rate (gpm): 800 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 **Shoemaker Groundwater Well #5** Marshall Owner: **Consol Energy**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/17/2013	9/17/2014	288,000		40.021256	-80.734568

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

Max. Pump rate (gpm): 800 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 **Shoemaker Groundwater Well #6** Marshall Owner: **Consol Energy**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/17/2013	9/17/2014	288,000		40.02076	-80.73397

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

Max. Pump rate (gpm): **800** 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 Detail

WMP- 01328

API/ID Number: 047-051-01664

Operator:

Noble Energy, Inc

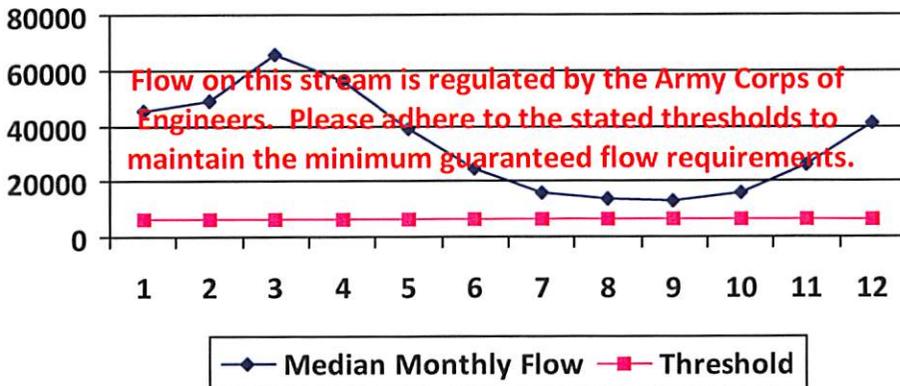
WEB13CHS

Source ID:	20424	Source Name	Shoemaker Groundwater Well #3 Consol Energy	Source Latitude:	40.0222
				Source Longitude:	-80.73389
HUC-8 Code:	5030106	Anticipated withdrawal start date:	9/17/2013		
Drainage Area (sq. mi.):	25000	County:	Marshall	Anticipated withdrawal end date:	9/17/2014
<input type="checkbox"/> Endangered Species?	<input checked="" type="checkbox"/> Mussel Stream?	Total Volume from Source (gal): 288,000			
<input type="checkbox"/> Trout Stream?	<input type="checkbox"/> Tier 3?	Max. Pump rate (gpm): 800			
<input checked="" type="checkbox"/> Regulated Stream?	Ohio River Min. Flow	Max. Simultaneous Trucks:			
<input type="checkbox"/> Proximate PSD?		Max. Truck pump rate (gpm):			
<input checked="" type="checkbox"/> 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):	1.78
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
<hr/>	
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- 01328

API/ID Number: 047-051-01664

Operator: Noble Energy, Inc

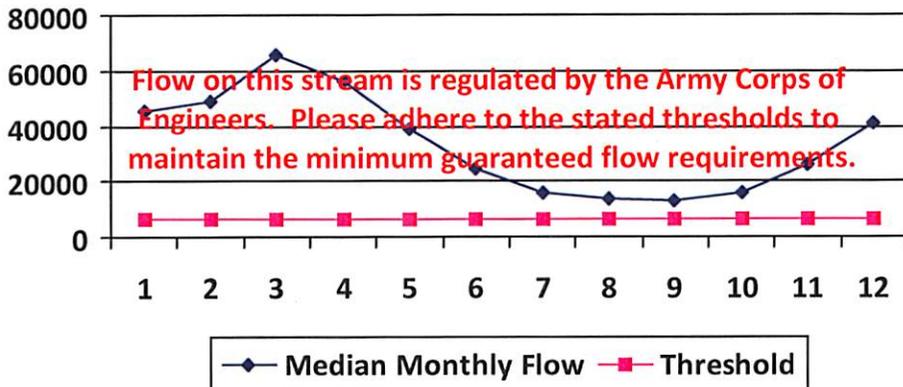
WEB13CHS

Source ID: 20425	Source Name: Shoemaker Groundwater Well #4 Consol Energy	Source Latitude: 40.022293
HUC-8 Code: 5030106	Drainage Area (sq. mi.): 25000	Source Longitude: -80.733586
County: Marshall	Anticipated withdrawal start date: 9/17/2013	Anticipated withdrawal end date: 9/17/2014
<input type="checkbox"/> Endangered Species? <input type="checkbox"/> Trout Stream? <input checked="" type="checkbox"/> Regulated Stream? <input type="checkbox"/> Proximate PSD? <input checked="" type="checkbox"/> Gauged Stream?	<input checked="" type="checkbox"/> Mussel Stream? <input type="checkbox"/> Tier 3? Ohio River Min. Flow	Total Volume from Source (gal): 288,000 Max. Pump rate (gpm): 800 Max. Simultaneous Trucks: <input type="text"/> Max. Truck pump rate (gpm): <input type="text"/>

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):	1.78
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- 01328

API/ID Number: 047-051-01664

Operator: Noble Energy, Inc

WEB13CHS

Source ID: 20426 Source Name Shoemaker Groundwater Well #5
Consol Energy

Source Latitude: 40.021256
Source Longitude: -80.734568

HUC-8 Code: 5030106

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

Anticipated withdrawal start date: 9/17/2013

Anticipated withdrawal end date: 9/17/2014

Endangered Species? Mussel Stream?

Trout Stream? Tier 3?

Regulated Stream? Ohio River Min. Flow

Proximate PSD?

Gauged Stream?

Total Volume from Source (gal): 288,000

Max. Pump rate (gpm): 800

Max. Simultaneous Trucks:

Max. Truck pump rate (gpm)

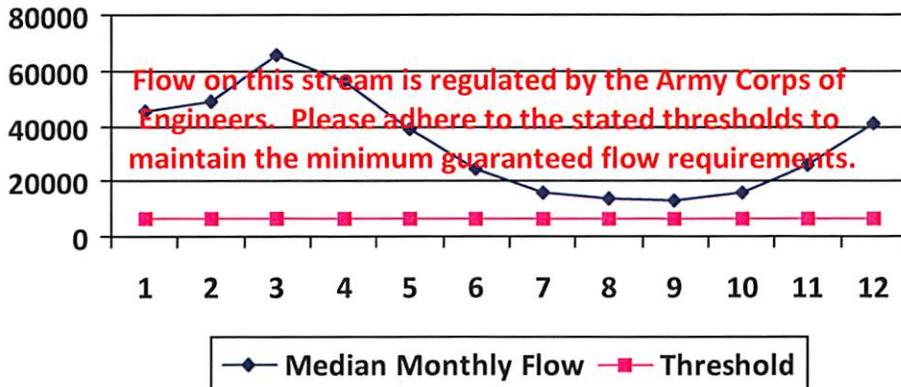
Reference Gaug 9999999 Ohio River Station: Willow Island Lock & Dam

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): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 1.78

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- 01328

API/ID Number: 047-051-01664

Operator: Noble Energy, Inc

WEB13CHS

Source ID: 20427 Source Name: Shoemaker Groundwater Well #6
Consol Energy

Source Latitude: 40.02076

Source Longitude: -80.73397

HUC-8 Code: 5030106

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

Anticipated withdrawal start date: 9/17/2013

Anticipated withdrawal end date: 9/17/2014

Endangered Species? Mussel Stream?

Trout Stream? Tier 3?

Regulated Stream? Ohio River Min. Flow

Proximate PSD?

Gauged Stream?

Total Volume from Source (gal): 288,000

Max. Pump rate (gpm): 800

Max. Simultaneous Trucks:

Max. Truck pump rate (gpm)

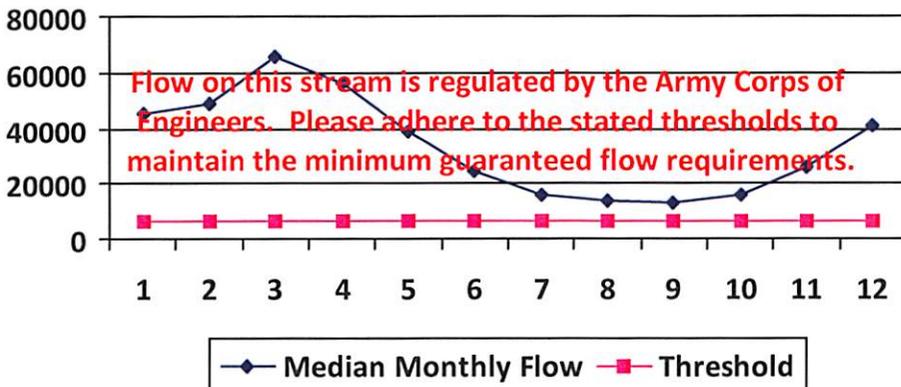
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

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): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 1.78

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

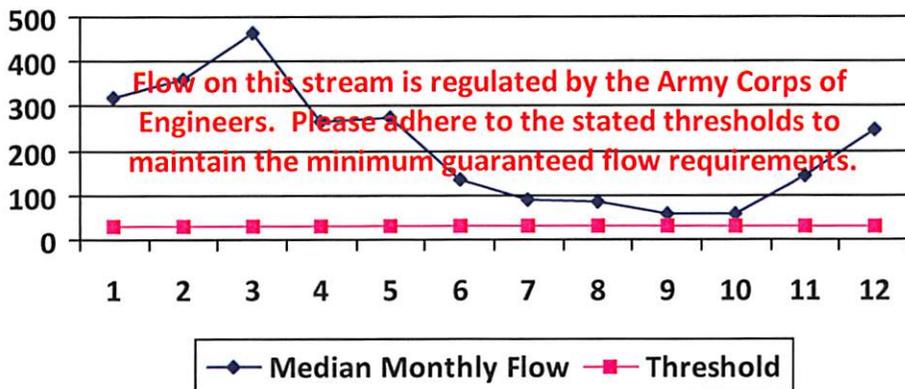
WMP- 01328 API/ID Number: 047-051-01664 Operator: Noble Energy, Inc
 WEB13CHS

Source ID: 20428 Source Name: West Virginia American Water - Weston Water Treat
 West Virginia American Water Source Latitude: -
 Source Longitude: -
 HUC-8 Code: 5020002 Anticipated withdrawal start date: 9/17/2013
 Drainage Area (sq. mi.): 104.83 County: Lewis Anticipated withdrawal end date: 9/17/2014
 Endangered Species? Mussel Stream?
 Trout Stream? Tier 3?
 Regulated Stream? Stonewall Jackson Dam Total Volume from Source (gal): 7,000,000
 Proximate PSD? Weston WTP Max. Pump rate (gpm):
 Gauged Stream? Max. Simultaneous Trucks:
 Max. Truck pump rate (gpm):

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-01328

API/ID Number: 047-051-01664

Operator: Noble Energy, Inc

WEB13CHS

Source ID: 20429 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: 9/17/2013

Anticipated withdrawal end date: 9/17/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 3,000,000

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?

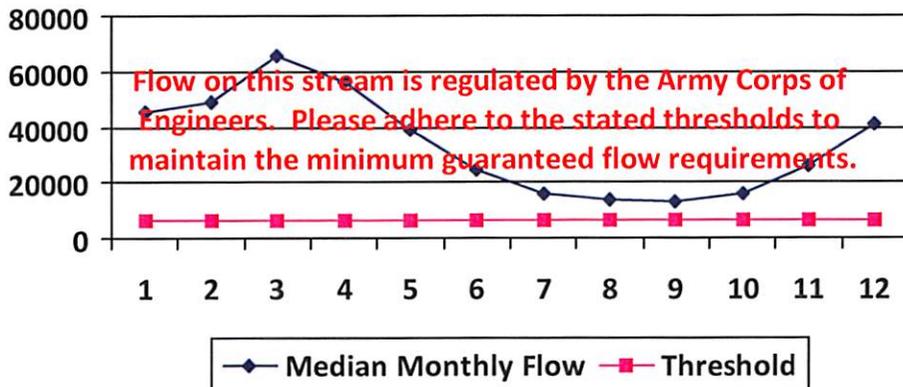
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

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.

Source Detail

WMP- 01328

API/ID Number: 047-051-01664

Operator:

Noble Energy, Inc

WEB13CHS

Source ID: 20430 Source Name: Wellsburg Water Department Wellsburg Water Department Source Latitude: - Source Longitude: -

HUC-8 Code: 5030106

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

Anticipated withdrawal start date: 9/17/2013

Anticipated withdrawal end date: 9/17/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 3,000,000

Trout Stream? Tier 3?

Max. Pump rate (gpm):

Regulated Stream? Ohio River Min. Flow

Max. Simultaneous Trucks:

Proximate PSD? Wellsburg Water Department

Max. Truck pump rate (gpm):

Gauged Stream?

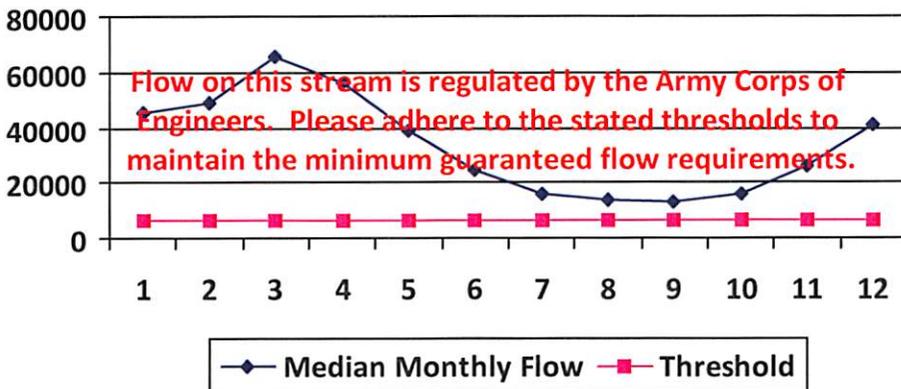
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

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.

Source Detail

WMP- 01328

API/ID Number: 047-051-01664

Operator:

Noble Energy, Inc

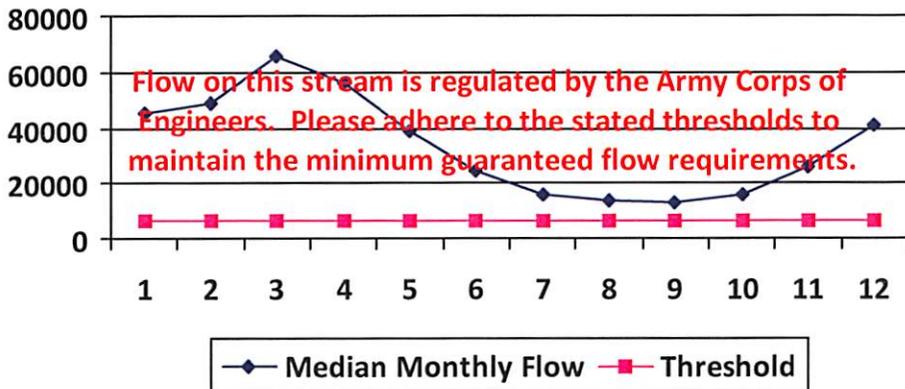
WEB13CHS

Source ID:	20431	Source Name: Moundsville Water Board Moundsville Water Treatment Plant	Source Latitude: -
			Source Longitude: -
HUC-8 Code:	5030106		
Drainage Area (sq. mi.):	25000	County: Marshall	Anticipated withdrawal start date: 9/17/2013
			Anticipated withdrawal end date: 9/17/2014
<input type="checkbox"/> Endangered Species?	<input checked="" type="checkbox"/> Mussel Stream?		Total Volume from Source (gal): 3,000,000
<input type="checkbox"/> Trout Stream?	<input type="checkbox"/> Tier 3?		Max. Pump rate (gpm):
<input checked="" type="checkbox"/> Regulated Stream?	Ohio River Min. Flow		Max. Simultaneous Trucks:
<input type="checkbox"/> Proximate PSD?			Max. Truck pump rate (gpm):
<input checked="" type="checkbox"/> 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.

Source Detail

WMP- 01328

API/ID Number: 047-051-01664

Operator:

Noble Energy, Inc

WEB13CHS

Source ID: 20432 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: 9/17/2013

Anticipated withdrawal end date: 9/17/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 3,000,000

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?

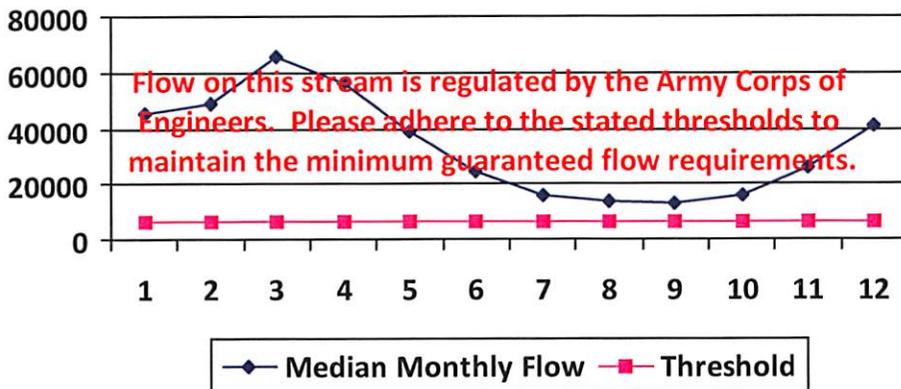
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

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.

Source Detail

WMP- 01328

API/ID Number: 047-051-01664

Operator: Noble Energy, Inc

WEB13CHS

Source ID: 20434 Source Name: Wheeling Water Department Source Latitude: -
 Wheeling Water Department Source Longitude: -

HUC-8 Code: 5030106

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

Anticipated withdrawal start date: 9/17/2013

Anticipated withdrawal end date: 9/17/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,400,000

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?

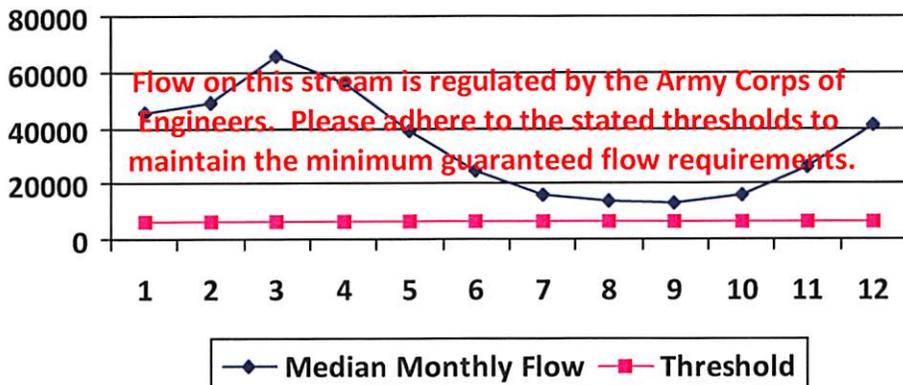
Reference Gaug 9999999 Ohio River Station: Willow Island Lock & Dam

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.

Source Detail

WMP- 01328

API/ID Number: 047-051-01664

Operator:

Noble Energy, Inc

WEB13CHS

Source ID: 20422 Source Name: Wheeling Creek Pump Station 1 @ CNX Land Resour
Consol Energy

Source Latitude: 39.95205

Source Longitude: -80.56189

HUC-8 Code: 5030106

Drainage Area (sq. mi.): 156.06 County: Marshall

Anticipated withdrawal start date: 9/17/2013

Anticipated withdrawal end date: 9/17/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,000,000

Trout Stream?

Tier 3?

Max. Pump rate (gpm): 1,000

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Gauged Stream?

Max. Truck pump rate (gpm)

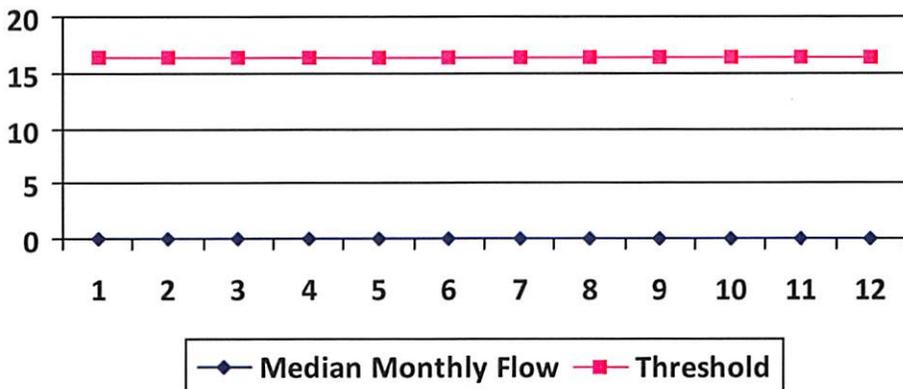
Reference Gaug: 3111955 Wheeling Creek near Majorsville, WV

Drainage Area (sq. mi.): 152.00

Gauge Threshold (cfs): 16

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	0.00	18.66	-
2	0.00	18.66	-
3	0.00	18.66	-
4	0.00	18.66	-
5	0.00	18.66	-
6	0.00	18.66	-
7	0.00	18.66	-
8	0.00	18.66	-
9	0.00	18.66	-
10	0.00	18.66	-
11	0.00	18.66	-
12	0.00	18.66	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 16.43

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 2.23

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): 18.23

Passby at Location (cfs): 16.43

"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- 01328

API/ID Number:

047-051-01664

Operator:

Noble Energy, Inc

WEB13CHS

Source ID: 20423 Source Name: Wheeling Creek Pump Station 2 @ CNX Land Resources, Inc.

Source Latitude: 39.949578

Source Longitude: -80.531256

HUC-8 Code: 5030106

Drainage Area (sq. mi.): 152.4 County: Marshall

Anticipated withdrawal start date: 9/17/2013

Anticipated withdrawal end date: 9/17/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 4,000,000

Trout Stream?

Tier 3?

Max. Pump rate (gpm): 1,000

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm):

Gauged Stream?

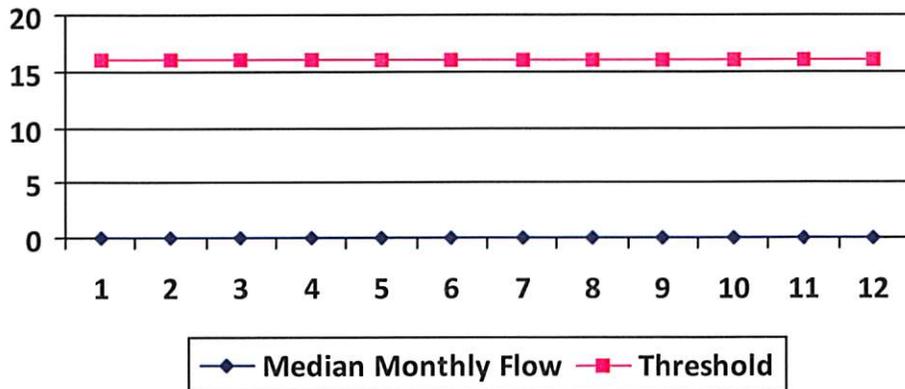
Reference Gaug: 3111955 Wheeling Creek near Majorsville, WV

Drainage Area (sq. mi.): 152.00

Gauge Threshold (cfs): 16

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	0.00	18.27	-
2	0.00	18.27	-
3	0.00	18.27	-
4	0.00	18.27	-
5	0.00	18.27	-
6	0.00	18.27	-
7	0.00	18.27	-
8	0.00	18.27	-
9	0.00	18.27	-
10	0.00	18.27	-
11	0.00	18.27	-
12	0.00	18.27	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 16.04

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 2.23

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): 18.23

Passby at Location (cfs): 16.04

"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.



Water Management Plan: Secondary Water Sources



WMP-01328

API/ID Number 047-051-01664

Operator:

Noble Energy, Inc

WEB13CHS

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:	20436	Source Name	SHL #1 Impoundment		Source start date:	9/17/2013
					Source end date:	9/17/2014
Source Lat:	39.979696	Source Long:	-80.579465	County	Marshall	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	3,400,000			
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

WMP-01328

API/ID Number

047-051-01664

Operator:

Noble Energy, Inc

WEB13CHS

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:	20437	Source Name	SHL #2 Impoundment (WV51-WPC-00001)		Source start date:	9/17/2013
					Source end date:	9/17/2014
Source Lat:	39.966973	Source Long:	-80.561377	County	Marshall	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	4,100,000			
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-201

Source ID:	20438	Source Name	SHL #3 Impoundment (WV51-WPC-00002)		Source start date:	9/17/2013
					Source end date:	9/17/2014
Source Lat:	39.974133	Source Long:	-80.55527	County	Marshall	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	4,300,000			
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-202

WMP-01328

API/ID Number

047-051-01664

Operator:

Noble Energy, Inc

WEB13CHS

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:	20439	Source Name	SHL #4 Impoundment (WV51-WPC-00003)		Source start date:	9/17/2013
					Source end date:	9/17/2014
Source Lat:	39.963284	Source Long:	-80.562743	County	Marshall	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	4,100,000			
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-204

Purchased Water

Source ID:	20433	Source Name	Bridgeport Ohio Water Department Public Water Provider		Source start date:	9/17/2013
					Source end date:	9/17/2014
Source Lat:	40.08348	Source Long:	-80.736488	County		
Max. Daily Purchase (gal)	200,000	Total Volume from Source (gal):	3,000,000			
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-01328

API/ID Number: 047-051-01664

Operator:

Noble Energy, Inc

WEB13CHS

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:

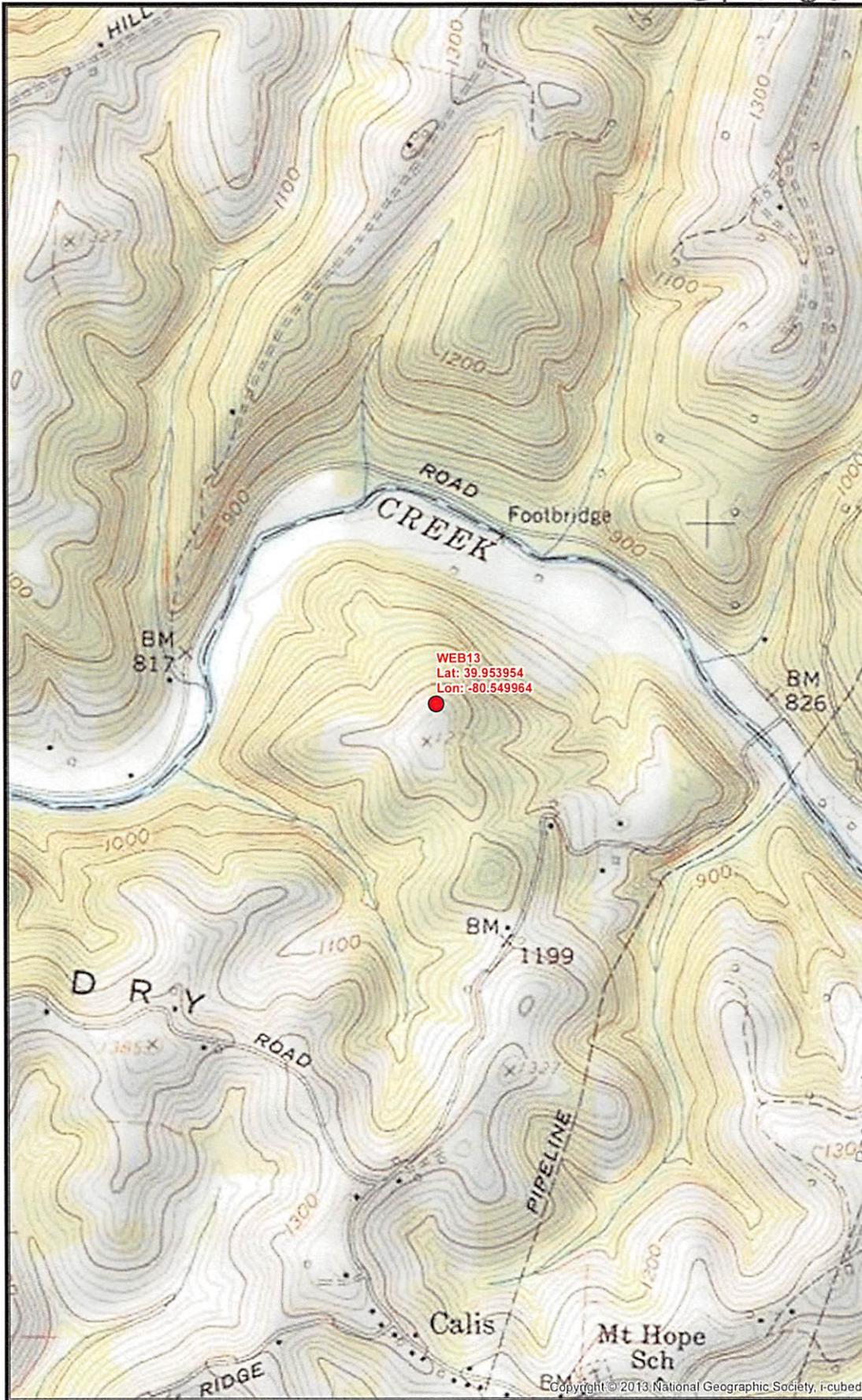
- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the 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:	20440	Source Name	WEB13	Source start date:	9/17/2013
				Source end date:	9/17/2014
Source Lat:		Source Long:		County	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	8,000,000		
DEP Comments:					

51-01664

Plat spotted



WEB13
 Lat: 39.953954
 Lon: -80.549964

Office of Oil & Gas

JUN 14 2013

WEB13 SITE SAFETY PLAN
- SITE WELL LOCATION -

● WEB13 Well Location

0 500 1,000 2,000 Feet

Scale 1" = 1,000'

Projection: NAD_1927_StatePlane_West_Virginia_North_FIPS_4701
Units: Foot US

noble energy

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

Date: 3/21/2013
Author: Christopher Glover

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Well is located on topo map 1,636' feet south of Latitude: 39° 57' 30"

Well is located on topo map 2,243' feet west of Longitude: 80° 32' 30"

LEGEND

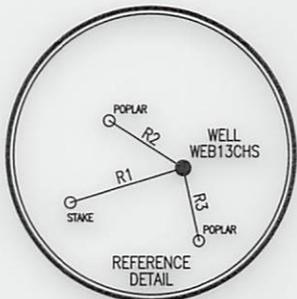
- ⊕ - TOPO MAP POINT
- ☼ - WELL
- - ALL ARE POINTS UNLESS OTHERWISE NOTED.
- ⊙ - WATER SOURCE
- ⓪ - LEASE NUMBER BASED ON ATTACHED WW-6A1
- - MINERAL TRACT BOUNDARY
- - - - - PARCEL LINES
- - - - - WELL REFERENCE
- — — — — PROPOSED HORIZONTAL WELL
- — — — — ROAD
- — — — — STREAM CENTER LINE
- - EXISTING WELLS
- ⊕ - PLUGGED WELLS

WELLS WITHIN 3000'

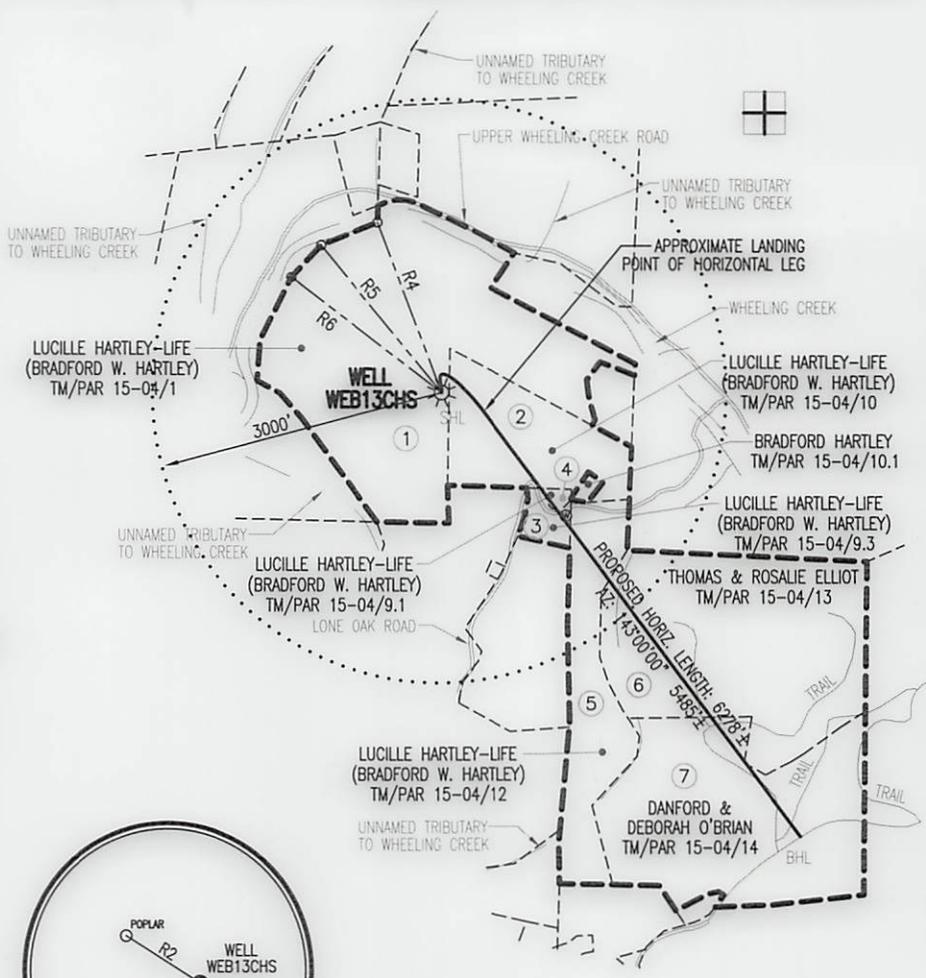
SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
 N:4422745.69
 E:538475.27
 NAD27, WV NORTH
 N:531268.20
 E:1705708.66

APPROX. LANDING POINT
UTM 17-NAD83
 N:4422687.01
 E:538610.33
 NAD27, WV NORTH
 N:531068.21
 E:1706148.64

BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
 N:4421369.38
 E:539638.27
 NAD27, WV NORTH
 N:526687.89
 E:1709449.45



LINE	BEARING	DISTANCE
R1	S 73°19'50" W	255.98'
R2	N 57°43'34" W	189.65'
R3	S 12°16'30" E	160.43'
R4	N 21°14'43" W	1879.03'
R5	N 39°59'17" W	1979.55'
R6	N 52°59'53" W	1982.27'



NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. There are no existing buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.



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

FILE #: WEB13CHS
 DRAWING #: WEB13CHS
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: *George D. Six*
 R.P.E.: _____ L.L.S.: P.S. No. 2000

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

PLACE SEAL HERE

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



DATE: MARCH 26, 2013
 OPERATOR'S WELL #: WEB13CHS
 API WELL #: 47 51 01664
 STATE COUNTY PERMIT

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

WATERSHED: WHEELING CREEK ELEVATION: 1265.02'
 COUNTY/DISTRICT: MARSHALL / WEBSTER QUADRANGLE: MAJORSVILLE, WV-PA 7.5'
 SURFACE OWNER: LUCILLE HARTLEY-LIFE (BRADFORD W. HARTLEY) ACREAGE: 153.408±
 OIL & GAS ROYALTY OWNER: SEE ATTACHED WW-6A1 ACREAGE: 453.58±

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,668'± TMD: 12,520'±
 WELL OPERATOR NOBLE ENERGY, INC. DESIGNATED AGENT STEVEN M. GREEN
 Address 333 TECHNOLOGY DRIVE, SUITE 116 Address 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 590
 City CANONSBURG State PA Zip Code 15317 City CHARLESTON State WV Zip Code 25301