



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

November 18, 2013

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101678, 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: WEB 22 CHS
Farm Name: TURLEY, TIM M. & JENKINS, TAI
API Well Number: 47-5101678
Permit Type: Horizontal 6A Well
Date Issued: 11/18/2013

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. 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.

51-01678

RECEIVED
Office of Oil and Gas

NOV 07 2013

WV GAS
Department of Environmental Protection

WW - 6B
(3/13)

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 CHS Well Pad Name: WEB 22 HS

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

4) Well Type: (a) Gas Oil Underground Storage
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-6875', Thickness-48', Pressure-4569#

7) Proposed Total Vertical Depth: 6913'

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 14,758'

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

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

12) Approximate Saltwater Depths: None noted for offsets

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

14) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated, drilling in pillar-see mine maps

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: Yes, Bailey Mine at approx. 770'

16) Describe proposed well work: 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.

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. See attached list.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 18.5 acres

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

51-0001678

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"	N	LS	117#	40'	40'	CTS
Fresh Water	20"	N	LS	94#	400'	400'	CTS
Coal	13 3/8"	N	J-55	54.5#	1220'	1220'	CTS
Intermediate	9 5/8"	N	J-55	36#	3356'	3356'	CTS
Production	5 1/2"	N	P110	20#	14,758'	14,758'	TOC 200' above 9.625 shoe
Tubing							
Liners							

*WRH
7-30-13*

<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"	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:			

Received

AUG - 2 2013

WW - 6B
(3/13)

21) 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.

22) Describe all cement additives associated with each cement type. Conductor-1.15% CaCl2.
*Surface-Class A cement with CaCl 2%, 2% Accelerator, 0.2% Antifoam and 0.125lb/sk Flake.
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.
*Surface Cement Blend Variance Approval Attached.

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

*Note: Attach additional sheets as needed.

RECEIVED
Office of Oil and Gas
NOV 07 2013
WV Department
Environmental Protection



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
dep.wv.gov

October 31, 2013

Schlumberger
Attn: Daniel L. Sikorski
4600 J Barry Court
Suite 200
Canonsburg, PA 15317

RE: Cement Variance Request

Dear Sir:

This agency has approved a variance request for the cement blend listed below to be used on surface and coal protection casing only. The variance cannot be used without an oil and gas operator requesting its use on a permit application and approved by this agency:

- 2% Accelerator (S001)
- 0.2% Antifoam (D046)
- 0.125 lb/sk Polyester Flake (D0130)

If you have any questions regarding this matter feel free to contact me at 304-926-0499, ext. 1653.

Sincerely,

James Peterson
Environmental Resources Analyst

RECEIVED
Office of Oil and Gas
NOV 07 2013
WV Department of
Environmental Protection

51-01678



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
dep.wv.gov

BEFORE THE OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE OF WEST VIRGINIA

IN THE MATTER OF A VARIANCE FROM) ORDER NO. 2013-78
REGULATION 35 CSR § 4-11.4/11.5/14.1)
AND 35 CSR § 8-9.2.h. 4/5/6/8 OF THE)
THE OPERATIONAL)
REGULATIONS OF CEMENTING OIL)
AND GAS WELLS)

REPORT OF THE OFFICE

Schlumberger requests approval of a different cement blend for use in cementing surface and coal protection casing of oil and gas wells.

FINDINGS OF FACT

- 1.) Schlumberger proposes the following cement blend:
 - 2% Accelerator (S001)
 - 0.2% Antifoam (D046)
 - 0.125 lb/sk Polyester Flake (D130)
- 2.) Schlumberger laboratory testing results indicate that the blend listed in Fact No.1 will achieve a 500 psi compressive strength within 5 hours, 22 minutes and a 1200 psi compressive strength within 10 hours, 29 minutes.

RECEIVED
Office of Oil and Gas
NOV 07 2013
WV Department of
Environmental Protection

CONCLUSIONS OF LAW

Pursuant to Articles 6 and 6A, Chapter 22 of the Code of West Virginia, the Office of Oil and Gas has jurisdiction over the subject matter embraced in said notice, and the persons interested therein, and jurisdiction to promulgate the hereinafter prescribed Order.

Pursuant to 35 CSR § 4-11.5 and 35 CSR § 8-9.2.h.8 the Chief of the Office of Oil and Gas may approve different cement blends upon the well operator providing satisfactory proof that different cement types are adequate.

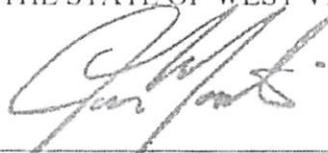
ORDER

It is ordered that Schlumberger may use the cement blend listed in Findings of Fact No.1 for the cementing of surface and coal protection casing of oil and gas wells in the State as may be requested by oil and gas operators. The waiting time on the cement blend shall be 8 hours. The cement blend shall be mixed in strict accordance with the specifications for each blend and weight measurements made on-site to assure the cement slurries meet the minimum weight specifications. A sample shall be collected and, if after 8 hours the cement is not set up, additional time will be required. Schlumberger shall keep a record of cement blend jobs in which the cement blend approved under this order is to be used and made available to the Office of Oil and Gas upon request.

Dated this, the 31rth day of October, 2013.

IN THE NAME OF THE STATE OF WEST VIRGINIA

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



James Martin, Chief
Office of Oil and Gas

RECEIVED
Office of Oil and Gas
NOV 07 2013
WV Department of
Environmental Protection

51-01678



**Laboratory Cement Test Report- 15.6 PPG SURFACE
Weston District Laboratory**

Fluid No : WES13-364P3	Client : NOBLE	Location / Rig : N/A	Signatures
Date : Oct-06-2013	Well Name : WEST VIRGINIA	Field : N/A	Mclaughlin

Job Type	SURFACE	Depth	700.0 ft	TVD	700.0 ft
BHST	63 degF	BHCT	78 degF	BHP	494 psi
Starting Temp.	80 degF	Time to Temp.	00:09 hr:mn	Heating Rate	-0.22 degF/min
Starting Pressure	179 psi	Time to Pressure	00:09 hr:mn	Schedule	9.2-1

Composition					
Slurry Density	16.60 lb/gal	Yield	1.20 ft ³ /sk	Mix Fluid	5.252 gal/sk
Solid Vol. Fraction	41.4 %	Porosity	58.6 %	Slurry type	Conventional

Code	Concentration	Sack Reference	Component	Blend Density	Lot Number
D901 - API A		94 lb of BLEND	Blend	197.27 lb/ft ³	08-13-13/6-20
Fresh water	6.252 gal/sk		Base Fluid		

S001	2.000 %BWOC	Accelerator	364AJ1632
D046	0.200 %BWOC	Antifoam	TU3G0700A0
D130	0.125 lb/sk	Lost circ	BULK

Rheology

Geometry: R1B1F1.0
S/N 10-1287-003

Temperature	78 degF		
	(rpm)	Up (deg)	Down (deg)
300	63.0	63.0	63.0
200	56.0	57.0	56.5
100	46.0	49.0	47.5
60	41.0	46.0	43.5
30	33.0	43.0	38.0
6	20.6	27.7	24.2
3	16.6	20.5	18.5

10 sec Gel	23 deg - 24.55 lb/100ft ²
10 min Gel	53 deg - 56.57 lb/100ft ²
Rheo. computed	Viscosity: 25.792 cP Yield Point: 38.21 lb/100ft ²

UCA Compressive Strength

S/N 501R

Time	CS
05:22 hr:mn	500 psi
10:29 hr:mn	1200 psi

Free Fluid

1.0 mL/250mL in 2 hrs
At 78 degF and 0 deg incl
Sedimentation: None

Comments

General Comment:

Note: This is a pilot test. Field may differ after testing. Please read field report carefully and compare to pilot report and load out. Contact the laboratory with any questions or concerns.

RECEIVED
Office of Oil and Gas
NOV 07 2013
WV Department of Environmental Protection

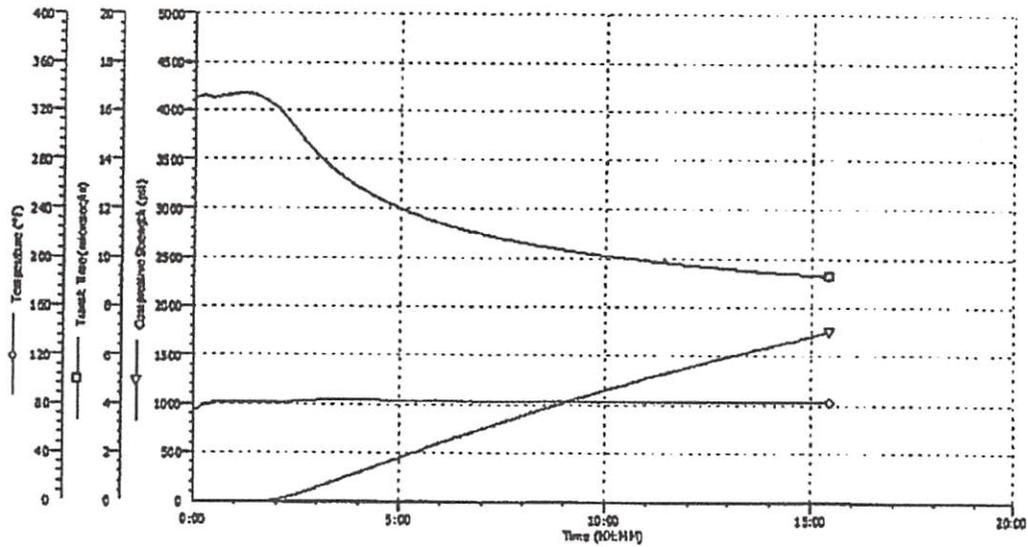


UCA Graph

Well: 13-36 AP3-1 Noble West Virginia Surface
 10/22/13 4:23:02 PM
 10/22/13 6:04:31 AM
 15.6 ppg
 Compressive strength type B (more than 14 lb/gal)

NOBLE WV
 Customer: NOBLE
 D901 API A
 2% 5001 + 0.2% DM16+0 125 pps 1130
 Surface
 #1 PUGM501A

SHCC78° F
 SHETS3 P
 80 psi @ 23:00
 80 psi @ 5:22:00
 Current CS: 1743 psi



Schlumberger
 Noble, WV District Laboratory

Test File Name: Well13-36 AP3-1 Noble West Virginia Surface
 Printed: 10/22/2013 12:33:32 PM

Page 1

RECEIVED
 Office of Oil and Gas
 NOV 07 2013
 WV Department of Environmental Protection
 Page 2

51-0001678

Surface Cement	Product Name	Purpose	Composition	CAS Number
	Calcium Chloride	Accelerator	Calcium Chloride, 96-98%	010043-52-4
	Cello Flake	Lost Circulation Material	No hazardous ingredient	N/A
	Premium NE-1	Cement	Gypsum, 5-10%	13397-24-5
			Calcium derivative (calcium carbonate), 1-5%	1317-65-3
			Calcium oxide, 1-5%	1305-78-8
			Magnesium oxide, 1-5%	1309-48-4
			Crystalline silica: Quartz (SiO ₂), 0-0.1%	14808-60-7
	Bentonite	Extender	Bentonite, 90-100%	1302-78-9
			Crystalline silica: Quartz (SiO ₂), 5-10%	14808-60-7
	FP-12L	Anti-foamer	Octamethylcyclotetrasiloxane, 0.1-1.0%	556-67-2
	EC-1	Expansive Additive	Calcium magnesium oxide, 60-100%	37247-91-9
	Granular Sugar	Retarder	Sucrose, 60-100%	57-50-1
Surebond III-L	Extender	Sodium silicate, 38.3%	1344-09-8	

Intermediate Cement	Product Name	Purpose	Composition	CAS Number
	Calcium Chloride	Accelerator	Calcium Chloride, 96-98%	010043-52-4
	Cello Flake	Lost Circulation Material	No hazardous ingredient	N/A
	Premium NE-1	Cement	Gypsum, 5-10%	13397-24-5
			Calcium derivative (calcium carbonate), 1-5%	1317-65-3
			Calcium oxide, 1-5%	1305-78-8
			Magnesium oxide, 1-5%	1309-48-4
			Crystalline silica: Quartz (SiO ₂), 0-0.1%	14808-60-7
	Bentonite	Extender	Bentonite, 90-100%	1302-78-9
			Crystalline silica: Quartz (SiO ₂), 5-10%	14808-60-7
	FP-12L	Anti-foamer	Octamethylcyclotetrasiloxane, 0.1-1.0%	556-67-2
	EC-1	Expansive Additive	Calcium magnesium oxide, 60-100%	37247-91-9
	Granular Sugar	Retarder	Sucrose, 60-100%	57-50-1
Surebond III-L	Extender	Sodium silicate, 38.3%	1344-09-8	

Received

Office of Oil and Gas
WV Dept. of Environmental Protection

51-0001678

Plug Cement	Product Name	Purpose	Composition	CAS Number
	Calcium Chloride	Accelerator	Calcium Chloride, 96-98%	010043-52-4
	Cello Flake	Lost Circulation Material	No hazardous ingredient	N/A
	Premium NE-1	Cement	Gypsum, 5-10%	13397-24-5
			Calcium derivative (calcium carbonate), 1-5%	1317-65-3
			Calcium oxide, 1-5%	1305-78-8
			Magnesium oxide, 1-5%	1309-48-4
			Crystalline silica: Quartz (SiO ₂), 0-0.1%	14808-60-7
	Bentonite	Extender	Bentonite, 90-100%	1302-78-9
			Crystalline silica: Quartz (SiO ₂), 5-10%	14808-60-7
	FP-12L	Anti-foamer	Octamethylcyclotetrasiloxane, 0.1-1.0%	556-67-2
	EC-1	Expansive Additive	Calcium magnesium oxide, 60-100%	37247-91-9
	Granular Sugar	Retarder	Sucrose, 60-100%	57-50-1
	Surebond III-L	Extender	Sodium silicate, 38.3%	1344-09-8

Production Cement	Product Name	Purpose	Composition	CAS Number
	US-40	Mutual Solvent	2-Butoxyethanol, 60-100%	111-76-2
	Poz (Fly Ash)	Extender	Silica, 60-100%	7631-86-9
			Aluminum oxide, 10-30%	1344-28-1
			Crystalline silica: Quartz (SiO ₂), 1-5%	14808-60-7
			Synthetic red iron oxide, 1-5%	1309-37-1
			Calcium oxide, 1-5%	1305-78-8
			Carbon, 1-5%	7440-44-0
	Barite	Weighting Material	Barium sulfate, 60-100%	7727-43-7
			Crystalline silica, quartz, 1-5%	14808-60-7
	Ultra Flush HV	Weighted Spacer	Petroleum distillates, 60-100%	64742-47-8
			Barium sulfate, 30-60%	7727-43-7
			Crystalline silica, quartz, 1-5%	14808-60-7
	Premium NE-1	Cement	Gypsum, 5-10%	13397-24-5
			Calcium derivative (calcium carbonate), 1-5%	1317-65-3
			Calcium oxide, 1-5%	1305-78-8
			Magnesium oxide, 1-5%	1309-48-4
			Crystalline silica: Quartz (SiO ₂), 0-0.1%	14808-60-7
	Techni-Hib 606	Corrosion Inhibitor/Oxygen Scavenger	Alkylpyridinium quaternary, 10-30%	Trade secret
			Methanol, 10-30%	67-56-1
		Ammonium bisulfite, 5-10%	10192-30-0	
		Isopropanol, 1-5%	67-63-0	

Received

51-0001678

		Quaternary ammonium compound, 1-5%	Trade secret
		Quaternary ammonium compound, 1-5%	Trade secret
		Quaternary ammonium compound, 1-5%	Trade secret
Alpha 1427	Biocide	Glutaraldehyde, 10-30%	111-30-8
		Didecy dimethyl ammonium chloride, 5-10%	7173-51-5
		Quaternary ammonium compound, 1-5%	68424-85-1
		Ethanol, 1-5%	64-17-5
FP-12L	Anti-foamer	Octamethylcyclotetrasiloxane, 0.1-1.0%	556-67-2
CD-32	Dispersant	Poly(oxy-1,2-ethanediyl), a-sulfo-w-(dodecyloxy)-, sodium salt, 10-30%	9004-82-4
FL-62	Fluid Loss	Trade Secret, 45%	Trade Secret
SS-2	Surfactant	No hazardous ingredient	N/A
ASA-301	Anti-Settling Agent	tridymite, 60-100%	15468-32-3
		Welan gum, 30-60%	72121-88-1
SealBond Spacer	Weighted Spacer	Crystalline silica: Quartz (SiO ₂), 0.1-1.0%	14808-60-7

Received

2

Office of Oil and Gas
WV Dept. of Environmental Protection

51-0001678



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

Ground Elevation		1325'		WEB-22C SHL (Lat/Long)			(519824.36N, 1713953.99E) (NAD27)		
Azm		325°		WEB-22C LP (Lat/Long)			(520411.45N, 1713867.68E) (NAD27)		
WELLBORE DIAGRAM		325°		WEB-22C BHL (Lat/Long)			(526531.86N, 1709582.12E) (NAD27)		
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
		Surface Casing	400	400	AIR	15.6 ppg Type 1 + 2% CaCl, 0.25# Lost Circ 30% Excess Yield = 1.18	Centralized every 3 joints to surface	Fill with KCl water once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	Surface casing = 0.438" wall thickness Burst=2730 psi
17 1/2	13-3/8" 54.5# J-55 BTC	Pittsburgh Coal	761	761	AIR	15.6 ppg Type 1 + 2% CaCl, 0.25# Lost Circ 30% Excess Yield = 1.18	Bow Spring on first 2 joints then every third joint to 100' form surface	Fill with KCl water once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.380" wall thickness Burst=2730 psi
		Int. Casing	1220	1220	AIR	15.6 ppg Class A + 0.4% Ret, 0.15% Disp, 0.2% AntiFoam, 0.125#/sk Lost Circ 20% Excess Yield=1.19 To Surface	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
12 3/8	9-5/8" 36# J-55 LTC	Dunkard Sand	1405	1405	AIR	15.6ppg Class A + 0.4% Ret, 0.15% Disp, 0.2% AntiFoam, 0.125#/sk Lost Circ 20% Excess Yield=1.19 To Surface	Bow spring centralizers every third joint to 100' feet from surface.	Fill with KCl water once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	Casing to be ran 250' below the 5th Sand. Intermediate casing = 0.352" wall thickness Burst=3520 psi
		Big 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
8.75" Vertical	5-1/2" 20# HCP-110 TXP BTC	Warren Sand		4567	8.0ppg - 9.0ppg SOBMM	14.8ppg Class A 25:75:0 System +2.6% Cement extender, 0.7% Fluid Loss additive, 0.45% high temp retarder, 0.2% friction reducer	Rigid Bow Spring every third joint from KOP to TOC	Once at TD, circulate at max allowable pump rate for at least 6x bottoms up. Once on bottom with casing, circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.361" wall thickness Burst=12640 psi Note: Actual centralizer schedules may be changed due to hole conditions
		Java		5240	12.0ppg- 12.5ppg SOBMM		Rigid Bow Spring every joint to KOP		
		Angola		5456					
		Rhinestreet		6088					
8.75" Curve	5-1/2" 20# HCP-110 TXP BTC	Cashaqua		6523	12.0ppg- 12.5ppg SOBMM	10% Excess Yield=1.27 TOC >= 200' above 9.625" shoe	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
		Middlesex		6622					
		West River		6654					
		Burkett		6710					
8.75" - 8.5" Lateral	5-1/2" 20# HCP-110 TXP BTC	Tully Limestone		6734	12.0ppg- 12.5ppg SOBMM	10% Excess Yield=1.27 TOC >= 200' above 9.625" shoe	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
		Hamilton		6760					
		Marcellus		6875					
		TD	14758	6913	12.0ppg- 12.5ppg SOBMM				
		Onondaga		6923					

LP @ 6913' TVD / 7286' MD

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

+/-7472' ft Lateral

TD @ +/-6913' TVD +/-14758' MD

X=centralizers

Received

AUG - 2 2013

Office of Oil and Gas
 WV Dept. of Environmental Protection

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION **51-0001678**
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 1314' 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 will be utilized

Will a synthetic liner be used in the pit? Yes No If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

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

Will closed loop system be used? Yes

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

-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. _____

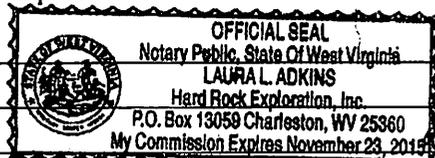
-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) _____

-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 Jessica Leska
Company Official (Typed Name) Jessica Leska
Company Official Title Regulatory Technician



Subscribed and sworn before me this 29th day of July, 20 13

Laura L. Adkins Notary Public

My commission expires November 23, 2015

Received

Office of Oil and Gas
Dept. of Environmental Protection

51-0001678

Operator's Well No. WEB 22 CHS

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

Mulch hay or straw at 2 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	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 [Signature]

Comments:

Title: Oil and Gas Inspector Date: 7-30-13

Field Reviewed? (X) Yes () No

Received AUG - 2 2013 Office of Oil and Gas WV Dept. of Environmental Protection

51-01678

RECEIVED
Office of Oil and Gas

NOV 07 2013
WV Department of
Environmental Protection

Chemical List Including CAS#'s

Type: Friction Reducer (DWP-612)
Chemical Component as listed on MSDS: Long Chain Polyacrylamide
CAS: N/A

Type: Biocide (DWP-944)
1st Chemical Component as listed on MSDS: 2,2-Dibromo-3-nitropropionamide
CAS: 10222-01-2
2nd Chemical Component as listed on MSDS: Polyethylene Glycol Mixture
CAS: 25322-68-3

Type: Scale Inhibitor (DAP-901)
1st Chemical Component as listed on MSDS: Methanol
CAS: 67-56-1
2nd Chemical Component as listed on MSDS: Phosphoric Acid Ammonium Salt
CAS: Trade Secret
3rd Chemical Component as listed on MSDS: Ammonium Chloride
CAS: 12125-02-9
4th Chemical Component as listed on MSDS: Organic Phosphonate
CAS: Trade Secret
5th Chemical Component as listed on MSDS: Amine Salt
CAS: Trade Secret
6th Chemical Component as listed on MSDS: Oxyalkylated Polyamine
CAS: Trade Secret

Type: Surfactant (DWP-938)
Chemical Component as listed on MSDS: Soap
CAS: N/A

Type: Hydrochloric Acid
Chemical Component as listed on MSDS: Hydrochloric Acid
CAS: 7647-01-0

Type: PA Breaker (DWP-690)
Chemical Component as listed on MSDS: Hydrogen Peroxide
CAS: Trade Secret

Type: Gel Slurry (DWP-111)
Chemical Component as listed on MSDS: Viscosifier
CAS: N/A

Type: Oxidizer Breaker (DWP-901)
Chemical Component as listed on MSDS: Ammonium Persulfate
CAS: 7727-54-0

Type: Buffer (DWP-204)
Chemical Component as listed on MSDS: Formic Acid
CAS: 64-18-6

Site Water/Cuttings Disposal

51-0001678

Cuttings

Haul off Company:

Eap Industries, Inc. DOT # 0876278
1575 Smith Twp State Rd. Atlasburg PA 15004
1-888-294-5227

Disposal Locations:

Apex Environmental, LLC Permit # 06-08438
11 County Road 78
Amsterdam, OH 43903
740-543-4389

Westmoreland Waste, LLC Permit # 100277
111 Conner Lane
Belle Vernon, PA 15012
724-929-7694

Sycamore Landfill (Allied Waste) R30-07900105-2010
4301 Sycamore Ridge Road
Hurricane, WV 25526
304-562-2611

Water

Haul off Company:

Dynamic Structures, Clear Creek DOT # 720485
3790 State Route 7
New Waterford, OH 44445
330-892-0164

Disposal Location:

Solidification
Waste Management, Arden Landfill Permit # 100172
200 Rangos Lane
Washington, PA 15301
724-225-1589

Solidification/Incineration
Soil Remediation, Inc. Permit # 02-20753
6065 Arrel-Smith Road
Lowelville, OH 44436

330-536-6825

51-0001678



Water Management Plan: Primary Water Sources



WMP-01444	API/ID Number:	047-051-01678	Operator:	Noble Energy, Inc
		WEB22CHS		

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 mutiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interepreted 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 SEP 20 2013

Source Summary

51-01678

WMP-01444

API Number:

047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

Stream/River

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

Start Date: 10/14/2013, End Date: 10/14/2014, Total Volume (gal): 11,000,000, Max. daily purchase (gal):, Intake Latitude: 39.95205, Intake Longitude: -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: 10/14/2013, End Date: 10/14/2014, Total Volume (gal): 11,000,000, Max. daily purchase (gal):, Intake Latitude: 39.949578, Intake Longitude: -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

51-01678

WMP-01444

API Number:

047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

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:
10/14/2013	10/14/2014	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:
10/14/2013	10/14/2014	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:
10/14/2013	10/14/2014	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>

51-01678

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:
10/14/2013 10/14/2014 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:
10/14/2013 10/14/2014 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:
10/14/2013 10/14/2014 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>

Source **Ohio County PSD**

Ohio

Owner:

51-01678
Ohio county PSD

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
10/14/2013	10/14/2014	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 Summary

51-01678

WMP-01444	API Number:	047-051-01678	Operator:	Noble Energy, Inc
		WEB22CHS		

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:
10/14/2013	10/14/2014	11,000,000		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:
10/14/2013	10/14/2014	11,000,000		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:
10/14/2013	10/14/2014	11,000,000		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:

51-01678

Consol Energy

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
10/14/2013	10/14/2014	11,000,000		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-01444

API/ID Number: 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

Source ID: 24239 Source Name: Shoemaker Groundwater Well #3
 Consol Energy Source Latitude: 40.0222
 Source Longitude: -80.73389

HUC-8 Code: 5030106

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

Anticipated withdrawal start date: 10/14/2013
 Anticipated withdrawal end date: 10/14/2014

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

Max. Pump rate (gpm): 800

Max. Simultaneous Trucks:
 Max. Truck pump rate (gpm):

Endangered Species? Mussel Stream?
 Trout Stream? Tier 3?
 Regulated Stream? Ohio River Min. Flow
 Proximate PSD?
 Gauged Stream?

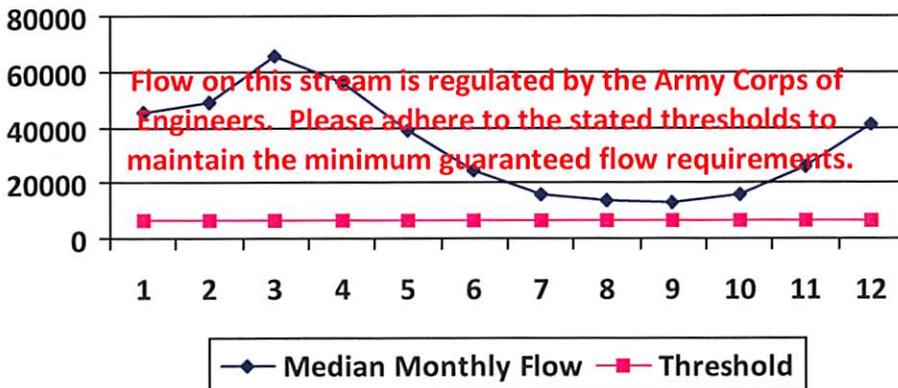
Reference Gaug 9999999 Ohio River Station: Willow Island Lock & Dam

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

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

51-01678

WMP-01444

API/ID Number: 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

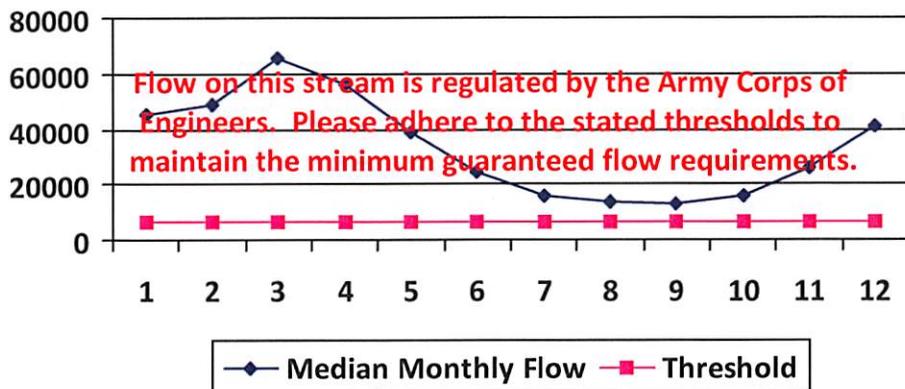
Source ID: 24240 Source Name: Shoemaker Groundwater Well #4 Source Latitude: 40.022293
 Consol Energy Source Longitude: -80.733586
 HUC-8 Code: 5030106
 Drainage Area (sq. mi.): 25000 County: Marshall
 Anticipated withdrawal start date: 10/14/2013
 Anticipated withdrawal end date: 10/14/2014
 Total Volume from Source (gal): 11,000,000
 Max. Pump rate (gpm): 800
 Endangered Species? Mussel Stream?
 Trout Stream? Tier 3?
 Regulated Stream? Ohio River Min. Flow
 Proximate PSD?
 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): 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

51-01678

WMP-01444

API/ID Number: 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

Source ID: 24241 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Trout Stream? Tier 3?

Regulated Stream? Ohio River Min. Flow

Proximate PSD?

Gauged Stream?

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

Max. Pump rate (gpm): 800

Max. Simultaneous Trucks:

Max. Truck pump rate (gpm)

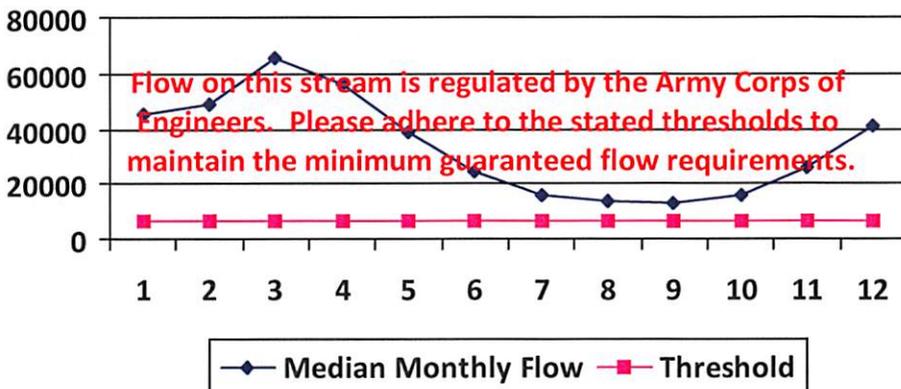
Reference Gaug 9999999 Ohio River Station: Willow Island Lock & Dam

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

51-01678

WMP- 01444

API/ID Number: 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

Source ID: 24242 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Trout Stream? Tier 3?

Regulated Stream? Ohio River Min. Flow

Proximate PSD?

Gauged Stream?

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

Max. Pump rate (gpm): 800

Max. Simultaneous Trucks:

Max. Truck pump rate (gpm)

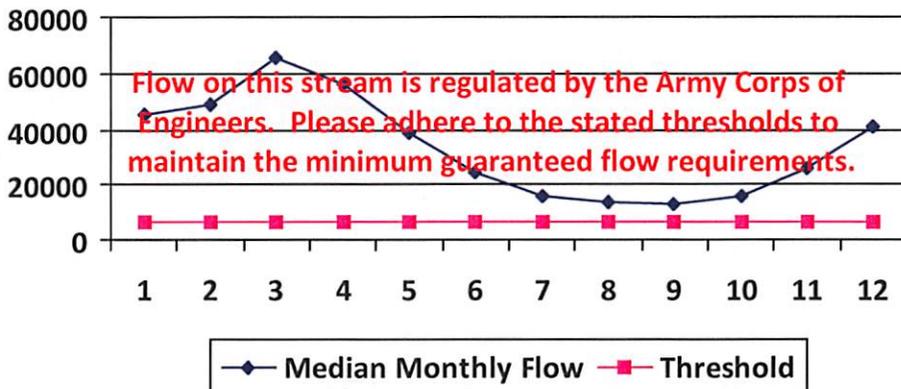
Reference Gaug 9999999 Ohio River Station: Willow Island Lock & Dam

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

51-01678

WMP- 01444

API/ID Number: 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

Source ID: 24243 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

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?

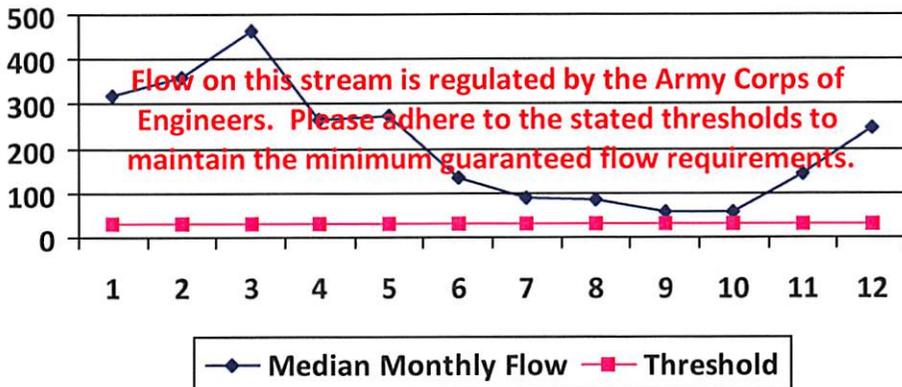
Reference Gaug 3061000 WEST FORK RIVER AT ENTERPRISE, WV

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

51-01678

WMP- 01444

API/ID Number: 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

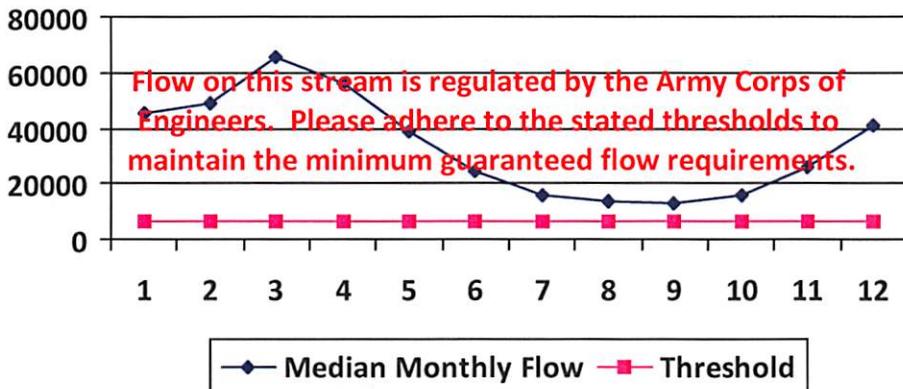
Source ID: 24244 Source Name: Bethlehem Water Department Source Latitude: -
 Bethlehem Water Department Source Longitude: -
 HUC-8 Code: 5030106
 Drainage Area (sq. mi.): 25000 County: Ohio
 Anticipated withdrawal start date: 10/14/2013
 Anticipated withdrawal end date: 10/14/2014
 Total Volume from Source (gal): 11,000,000
 Max. Pump rate (gpm):
 Max. Simultaneous Trucks:
 Max. Truck pump rate (gpm):
 Endangered Species? Mussel Stream?
 Trout Stream? Tier 3?
 Regulated Stream? Ohio River Min. Flow
 Proximate PSD? City of Wheeling
 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

51-01678

WMP-01444

API/ID Number: 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

Source ID: 24245 Source Name: Wellsburg Water Department Source Latitude: -
 Wellsburg Water Department Source Longitude: -

HUC-8 Code: 5030106

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

Anticipated withdrawal start date: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

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? Wellsburg Water Department

Max. Truck pump rate (gpm):

Gauged Stream?

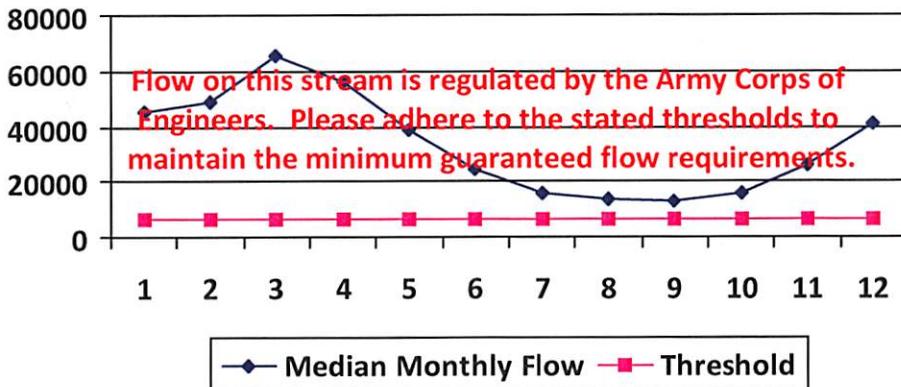
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

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

51-01678

WMP- 01444

API/ID Number: 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

Source ID: 24246 Source Name: Moundsville Water Board Source Latitude: -
Moundsville Water Treatment Plant Source Longitude: -

HUC-8 Code: 5030106

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

Anticipated withdrawal start date: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

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?

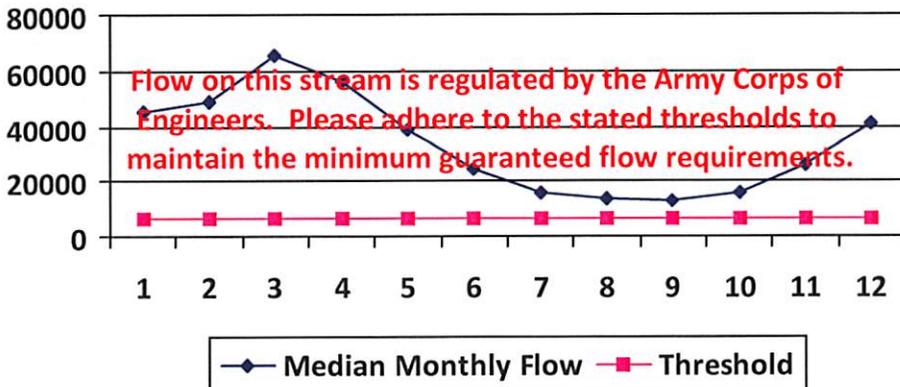
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

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.

Source Detail

51-01678

WMP- 01444

API/ID Number: 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

Source ID: 24247 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

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?

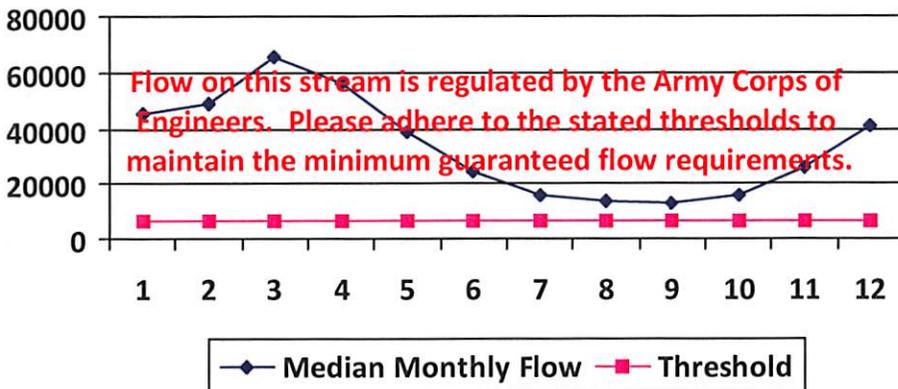
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

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.

Source Detail

51-01678

WMP- 01444

API/ID Number: 047-051-01678

Operator: Noble Energy, Inc

WEB22CHS

Source ID: 24249 Source Name: Wheeling Water Department
 Wheeling Water Department Source Latitude: -
 Source Longitude: -

HUC-8 Code: 5030106

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

Anticipated withdrawal start date: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

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

Endangered Species? Mussel Stream?

Trout Stream? Tier 3?

Regulated Stream? Ohio River Min. Flow

Max. Pump rate (gpm):

Proximate PSD? Wheeling Water Department

Max. Simultaneous Trucks:

Gauged Stream?

Max. Truck pump rate (gpm)

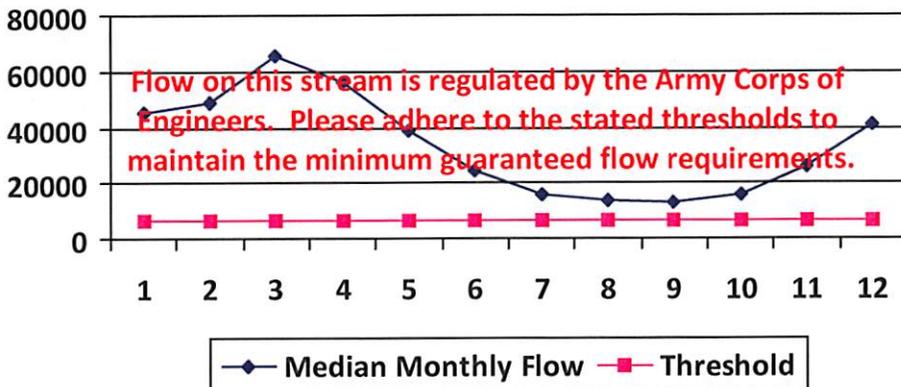
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

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

51-01678

WMP-01444

API/ID Number: 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

Source ID: 24250 Source Name: Ohio County PSD Ohio county PSD Source Latitude: - Source Longitude: -

HUC-8 Code: 5030106

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

Anticipated withdrawal start date: 10/14/2013
 Anticipated withdrawal end date: 10/14/2014
 Total Volume from Source (gal): 11,000,000
 Max. Pump rate (gpm):
 Max. Simultaneous Trucks:
 Max. Truck pump rate (gpm):

Endangered Species? Mussel Stream?
 Trout Stream? Tier 3?
 Regulated Stream? Ohio River Min. Flow
 Proximate PSD? Wheeling Water Department
 Gauged Stream?

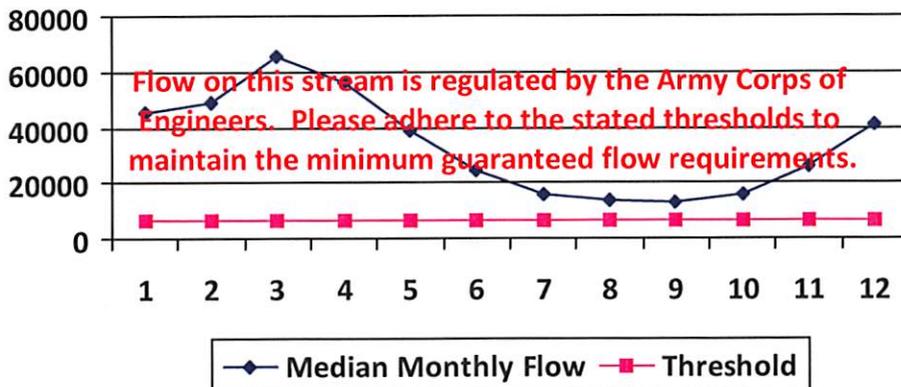
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

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

51-01678

WMP-01444

API/ID Number: 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

Source ID: 24237 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

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

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?

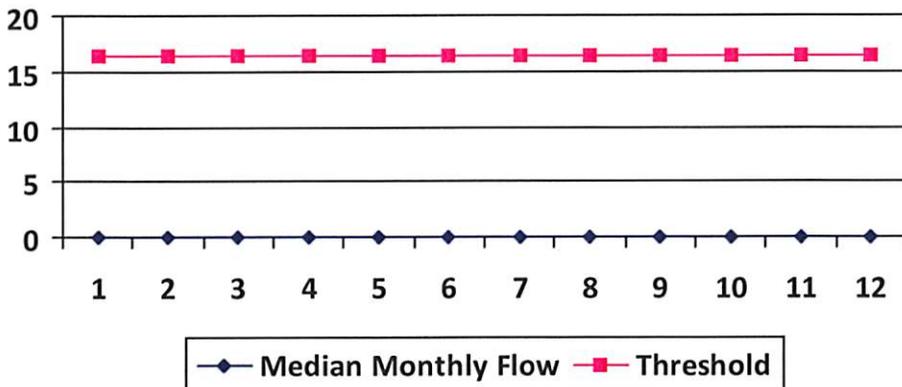
Reference Gaug: 3111955 Wheeling Creek near Majorsville, WV

Drainage Area (sq. mi.): 152.00

Gauge Threshold (cfs): 16

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	0.00	18.66	-
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

51-01678

WMP- 01444

API/ID Number:

047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

Source ID: 24238

Source Name: Wheeling Creek Pump Station 2 @ CNX Land Resour
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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Trout Stream? Tier 3?

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

Regulated Stream?

Max. Pump rate (gpm): 1,000

Proximate PSD?

Max. Simultaneous Trucks: 0

Gauged Stream?

Max. Truck pump rate (gpm)

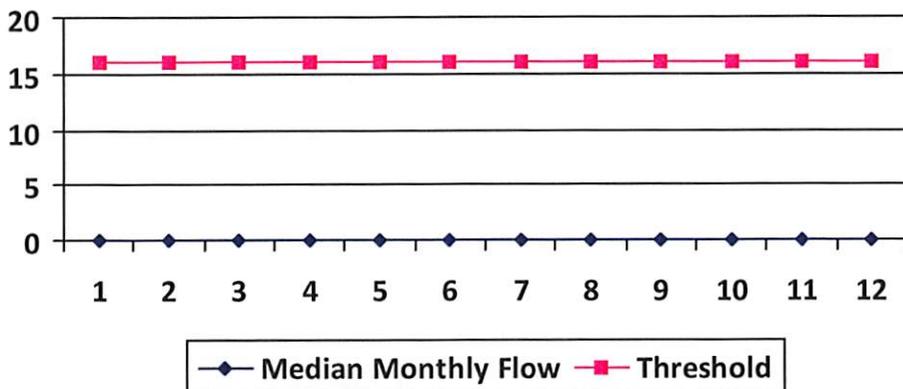
Reference Gaug 3111955 Wheeling Creek near Majorsville, WV

Drainage Area (sq. mi.) 152.00

Gauge Threshold (cfs): 16

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	0.00	18.27	-
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- 01444

API/ID Number 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

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:	24251	Source Name	SHL #1 Centralized Freshwater Impoundment		Source start date:	10/14/2013
					Source end date:	10/14/2014
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

WMP-01444

API/ID Number 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

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: 24252	Source Name	SHL #2 Centralized Waste Pit		Source start date:	10/14/2013
				Source end date:	10/14/2014
	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: 24253	Source Name	SHL #3 Centralized Waste Pit		Source start date:	10/14/2013
				Source end date:	10/14/2014
	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

WMP-01444

API/ID Number 047-051-01678

Operator:

Noble Energy, Inc

WEB22CHS

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:	24254	Source Name	SHL #4 Centralized Waste Pit		Source start date:	10/14/2013	
					Source end date:	10/14/2014	
		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:	24248	Source Name	Bridgeport Ohio Water Department Public Water Provider		Source start date:	10/14/2013	
					Source end date:	10/14/2014	
		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.						

WEB22CHS

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: 24255 Source Name Various

Source start date: 10/14/2013

Source end date: 10/14/2014

Source Lat:

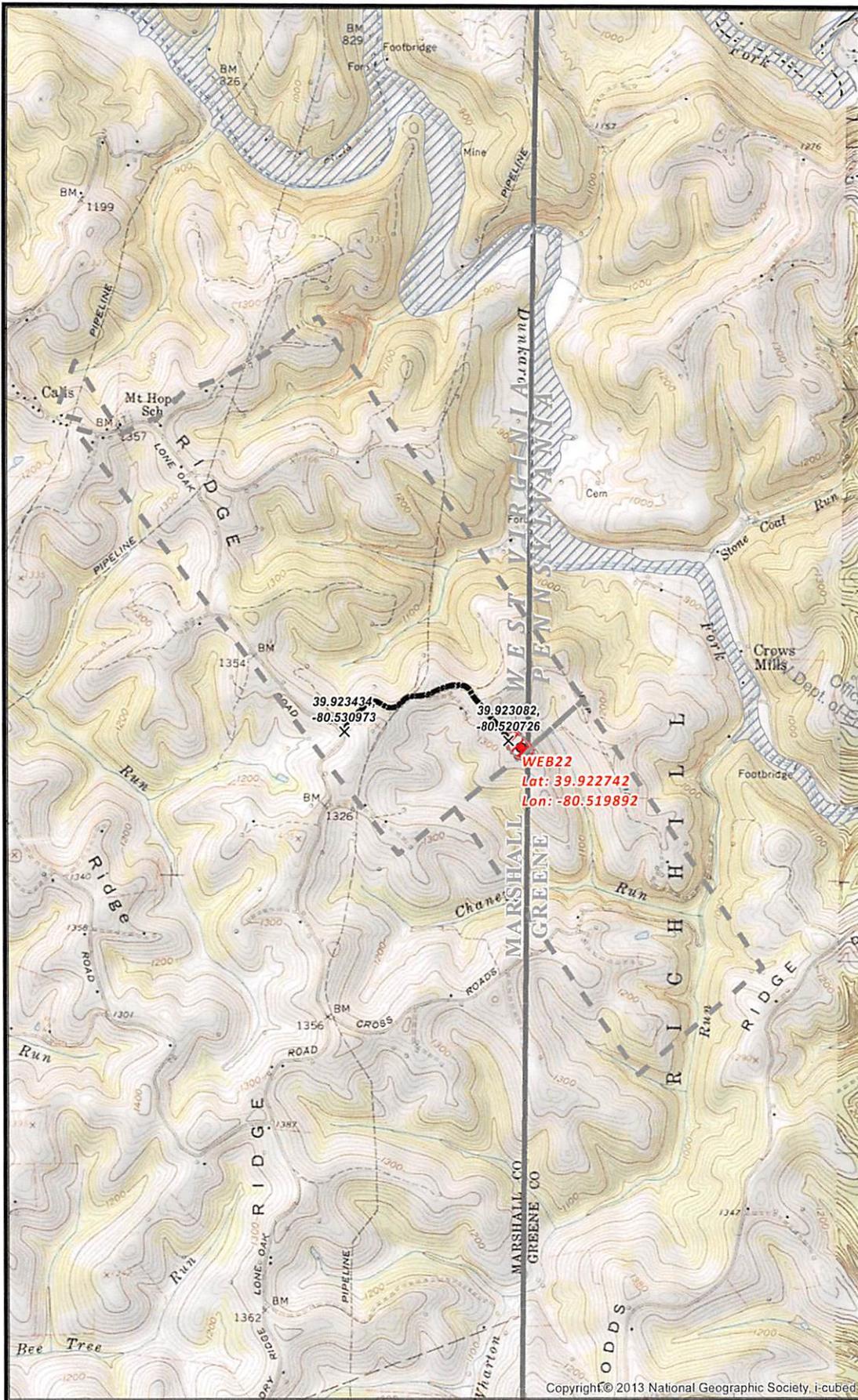
Source Long:

County

Max. Daily Purchase (gal)

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

DEP Comments: Sources include, but are not limited to, the SHL17, SHL23, and WEB13 well pads.



51-0001678

Received

AUG - 2 2013

Office of Oil and Gas
Environmental Protection

Copyright © 2013 National Geographic Society, i-cubed

**WEB22 SITE SAFETY PLAN
- FLOODPLAIN ZONES -**

- X Road Intersection
- Well Pad Boundary
- Floodplain
- Proposed Unit
- States
- Counties



Scale 1" = 2,000'

Projection: NAD_1927_StatePlane_West_Virginia_North_FIPS_4701
Units: Foot US



Date: 7/29/2013

Author: Christopher Glover

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

