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

March 31, 2015

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-1706648, issued to CNX GAS COMPANY LLC , 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: OXFD15CHS
Farm Name: HINTERER, DELORES
API Well Number: 47-1706648
Permit Type: Horizontal 6A Well
Date Issued: 03/31/2015

Promoting a healthy environment.

04/03/2015

API Number: 17-06648

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 will require permit coverage from the United States Army Corps of Engineers (USACE) and WV DEP Department of Water and Waste Management (DWWM). No activity authorized under this permit shall be commenced until all necessary permits from USACE and DWWM are obtained.

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.

04/03/2015

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Charleston, WV 25304
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Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ORDER
ISSUED UNDER
WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 6A

TO: CNX Gas Company, LLC
P.O. Box 1248
Jane Lew, WV 26378

DATE: March 31, 2015
ORDER NO.: 2015-W-2

INTRODUCTION

This Order (hereinafter "Order") is issued by the Office of Oil and Gas (hereinafter "OOG"), by and through its Chief, pursuant to the authority of W. Va. Code §§ 22-1-1, 22-6-1 and 22-6A-1 *et seq.* to CNX Gas Company, LLC. (hereinafter "CNX Gas Company" or "Operator"), collectively the "Parties."

FINDINGS OF THE CHIEF

In support of this Order, the Chief hereby finds the following:

1. OOG, an office within the West Virginia Department of Environmental Protection, is the agency with the duty and authority to execute and enforce W. Va. Code §22-6-1 and §22-6A-1 *et seq.*, and the rules and regulations promulgated thereunder.

2. CNX Gas Company is a "person" as defined by W. Va. Code §22-6-1(n), with a corporate address as Post Office Box 1248 Jane Lew, WV 26378.

3. On October 21st, 2014, CNX Gas Company submitted an application for a gas well identified as API# 47-017-06648, located on the OXFD15 Pad in New Milton District of Doddridge County, West Virginia.

4. On February 18, 2015, CNX Gas Company requested a waiver for Wetlands #3, #5, and #8 outlined in Exhibit 1, from well location restriction requirements in W. Va. Code §22-6A-12(b) for a gas well permit application identified as 47-017-06648, located on the OXFD15 Pad in New Milton District of Doddridge County, West Virginia.

04/03/2015

CONCLUSIONS OF LAW

1. West Virginia Code §22-1-6(d) requires, in part, that "[i]n addition to other powers, duties and responsibilities granted and assigned to the secretary by this chapter, the secretary is authorized and empowered to...(3) Enter private lands to make surveys and inspections for environmental protection purposes; to investigate for violations of statutes or rules which the Office of Oil and Gas is charged with enforcing; to serve and execute warrants and processes; to make arrests; issue orders, which for the purposes of this chapter include consent agreements; and to otherwise enforce the statutes or rules which the Office of Oil and Gas is charged with enforcing."

2. West Virginia Code §22-6A-2(a)(6) requires, in part, that "Concomitant with the broad powers to condition the issuance of well work permits, the secretary should also have broad authority to waive certain minimum requirements of this article when, in his or her discretion, such waiver is appropriate: *Provided*, That the secretary shall submit a written report of the number of waivers granted to the Legislature commencing January 1, 2013, and each year thereafter."

3. West Virginia Code §22-6A-12(b) requires, in part, that "[n]o well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the Office of Oil and Gas shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The Office of Oil and Gas may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary."

04/03/2015

ORDER

Therefore, the Office of Oil and Gas grants CNX Gas Company a waiver for Wetlands #3, #5, and #8 from well location restriction requirements in W. Va. Code §22-6A-12(b) for a gas well permit application identified as API# 47-017-06648, located on the OXFD15 Pad in New Milton District of Doddridge County, West Virginia. The Office of Oil and Gas hereby **ORDERS** that CNX Gas Company shall meet the following site construction and operational requirements for the OXFD15 well pad:

a. A berm shall be constructed around the perimeter of the pad to contain any potential spills and storm water runoff. Berm is to be at least two feet (2') in height;
b. Filter/silt socks and erosion control blankets shall be installed on all slopes and down gradient locations of the pad and topsoil pile areas as erosion and sediment controlling BMPs;
c. Wetlands #3, #5, and #8 shall have a double compost filter sock stack installed adjacent to the wetlands;
d. Disturbed areas not used for operations shall be seeded and mulched per the seeding tables in the WVDEP-OOG Erosion and Sediment Control Manual;
e. Drill cuttings and associated drilling mud shall be disposed of in a permitted landfill;
f. Waste generated by the flowback treatment systems shall be sent to offsite disposal at a permitted landfill;
g. Weekly site inspections shall be conducted to monitor and maintain the integrity of the BMP storm water controls;
h. Weekly storm water and spill prevention inspections shall be conducted focusing on storm water and spill prevention BMPs and maintenance of these BMPs;
i. Inspections of the storm water and spill prevention measures shall be conducted after any major storm event defined as a half inch (½") rain within any twenty-four (24) hour period;
j. Pad inspections shall be conducted no less than once a week to identify and mitigate potential deficiencies;
k. All records from inspections shall be maintained on site for the life of the project and be available upon request.

Thus ORDERED, the 31st day of March, 2015.

IN THE NAME OF THE STATE OF WEST VIRGINIA:

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

By: _____
JAMES A. MARTIN, CHIEF

04/03/2015

Wetland Waiver Request

API Number 17-06648 Well Number OXF 15 CHS

Operator CNX Gas Company LLC Pad Name Oxford-15

Submit a conclusive demonstration to justify the proposed activity by addressing the following:

1. **Demonstrate that there is not a practical alternative to impact the Waters of the U.S. by including other alternatives that were considered but eliminated.**
   a. Include a No-Action Alternative as to show "the future without the project"
   If the pad is unable to be built there would be no chance to provide the natural gas to market for the citizens of the United States.

   b. Location Alternatives must be shown
   No alternatives exist without adding significant wetland impacts to Wetland 3, 5 and 8. This location has wetlands on 3 sides of the pad. The proposed location is the only practical, environmentally friendly option.

   c. Must demonstrate why a 100' buffer cannot be maintained
   Theses wetlands are located off of Cain Run as well as the access road and provides filtration to multiple tributaries of the local system. Therefore, the additional E&S controls taken will enable the wetland to continue to function in its natural way while being protected.

2. **Show that treatment facilities (Erosion and Sediment Control Features) will be located as close as practical to the source(s) with which it is associated.**
   The proposed E&S BMPs are located as close as possible to the proposed earthwork area. No additional wetland impacts will result from the additional grading required to construct the pad location.

3. **Demonstrate that all proposed activity will not impact Waters of the U.S. more than is necessary to accommodate the proper construction and operation of the facility.**

   a. Specify and identify wetlands using unique identification and/or perennial streams located within 100' of the pad's limit of disturbance (including erosion and sediment controls).

Wetland-3, Wetland 3 is an emergent spring fed wetland that directly adds hydrology to S-15. The wetland is located on an existing access road. This wetland has flowing water through it until channelization of Stream 15 occurs. The tree stratum contains only *Platanus occidentalis* (American sycamore). The scrub/shrub layer contains the invasive *Elaeagnus umbellata* (autumn olive). The herbaceous stratum is comprised of *Carex lurida* (shallow sedge), *Boehmeria cylindrica* (smallspike false nettle), *Polygonum hydropiper* (marshpepper knotweed), *Juncus tenuis* (poverty rush), *Scirpus atrovirens* (green bulrush), *Carex vulpinoidea* (fox sedge), *Verbesina alternifolia* (wingstem), *Solidago rugosa* (wrinkleleaf goldenrod), *Impatiens capensis* (jewelweed) and *Onoclea sensibilis* (sensitive fern). The soils are comprised of one distinct layer consisting of a clay silt loam for twelve

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(12) inches with a moist color matrix of 2.5YR 5/2 at 51% and redox feature color of 2.5YR 5/4 at 49%. An impenetrable rock layer was encountered at 12 inches. Wetland data forms W-3 and U-3 describe this wetland and connecting uplands. (0.06 Acres within the AOI)

Wetland-5, Wetland 5 is an emergent spring fed wetland located directly along a historic logging road. This wetland has a direct hydrologic connection to S-16. The wetland is in an area with an abundance of red clay thus making the soil naturally problematic. The tree stratum contains *Platanus occidentalis* (American sycamore) and *Acer rubrum* (red maple). The scrub/shrub stratum contains *Lindera benzoin* (northern spice bush), *Platanus occidentalis* (American sycamore) and *Sambucus nigra spp. canadensis* (black elderberry). The herbaceous stratum is comprised of *Scirpus atrovirens* (green bulrush), *Packera aurea* (golden ragwort), *Leersia oryzoides* (rice cutgrass), *Polygonum hydropiper* (marshpepper knotweed), *Scirpus atrovirens* (green bulrush), *Boehmeria cylindrica* (smallspike false nettle), *Carex lurida* (shallow sedge), *Carex vulpinoidea* (fox sedge), *Onoclea sensibilis* (sensitive fern), *Polygonum sagittatum* (arrowleaf tearthumb) and *Glyceria striata* (fowl mannagrass). The soils are comprised of two distinct layers consisting of a silt loam clay for layer 1 from 0-3 inches with a moist color matrix of 2.5YR 4/1 at 51% with redox features of 5YR 5/6 at 49%. Layer 2 from 3-20 inches was a silt loam clay with a color matrix of 2.5YR 5/1 at 40% with redox features of 2.5YR 4/6 at 60%. Wetland data forms W-5 and U-5 describe this wetland and connecting uplands. (0.07 Acres within the AOI)

Wetland-8, Wetland 8 is an emergent spring fed wetland which emerges around an old but still active gas well. W-8 is the hydrologic source for S-18. The wetland contains red clay soils and thus makes the soils problematic. Soils were saturated at the time of delineation. The tree stratum contains *Platanus occidentalis* (American sycamore) and *Ulmus americana* (American elm). The scrub/shrub stratum contains *Lindera benzoin* (northern spicebush) and *Platanus occidentalis* (American sycamore). The herbaceous stratum is comprised of *Verbesina alternifolia* (wingstem), *Packera aurea* (golden ragwort), *Lindera benzoin* (northern spicebush), *Eleocharus obtusa* (blunt spikerush), *Eleocharus tenuis* (slender spikerush), *Boehmeria cylindrica* (smallspike false nettle), *Polygonum hydropiper* (marshpepper knotweed), *Impatiens capensis* (jewelweed), *Phalaris arundinacea* (reed canary grass), *Carex lurida* (shallow sedge), *Juncus effusus* (common rush), *Scirpus atrovirens* (green bulrush), *Ambrosia artemisiifolia* (annual ragweed), *Leucanthemum vulgare* (oxeye daisy), Plantago major (common plantain), *Trifolium pratense* (red clover), *Carex vulpinoidea* (fox sedge) and *Mimulus ringens* (Allegheny monkeyflower). The soils are comprised of two distinct layers consisting of a silt loam for layer 1 from 0-6 inches with a moist color matrix of 5YR 5/2 at 98% with a redox feature of 5YR 5/8 at 2%. Layer 2 from 6-20 inches was a silt loam clay with a color matrix of 7.5YR 4/2 at 99% and 5YR 6/8 at 1%. Wetland data forms W-8 and U-8 describe this wetland and connecting uplands. (0.13 Acres within the AOI)

b. **Is the proposed project the least environmentally damaging practicable alternative to the waters of the United States, so long as the alternative does not have other environmental consequences.**
   The proposed pad location is located within 100' of and Wetlands 3, 5 and 8. However, the proposed pad location will not be environmentally damaging and is the only practical location. No additional wetland impacts will result from the proposed work.

4. **Provide mapping, plans, specifications and design analysis for the preferred alternative to the**

project.

a. **Specify in writing what additional controls, measures, devices, monitoring, etc will be utilized to protect these wetlands and/or perennial streams.**

Below are a list of BMPs that may be utilized to protect adjacent wetlands.

ROCK CONSTRUCTION ENTRANCE

A rock construction entrance will be provided at the location shown on the plans and in accordance with the standard detail provided in the Erosion and Sediment Control Plan. This measure proves effective removing sediment from vehicles before entering onto State, and county roads. The rock construction entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained onsite for this purpose. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site. If the crushed stone does not adequately remove sediment from vehicle tires, the tires should be hosed off before the vehicle enters a public street. The washings should be done on an area covered with crushed stone, and the water wash should drain to a sediment control device.

DIVERSION DITCHES

A channel will be used to convey storm water runoff in a stable manner from the pad site construction area. The channel will be lined with erosion control matting to help keep seed in place once final grades are established. Channels shall be inspected twice a month until a uniform 70% perennial vegetative cover is established. Any damage to the channel or erosion control blanket shall be fixed immediately. The contractor is to place seed on all bare spots and areas not establishing ground cover.

ROCK CHECK DAMS

Rock check dams are to be installed in each channel to reduce the velocity of storm water flows, thereby reducing erosion of the channel and trapping sediment. Rock check dams are to be installed every 100 linear feet in any channel conveying sediment laden runoff. Inspect each check dam at a minimum once every seven (7) calendar days and within 24 hours after and storm event greater than 0.5 inches of rain per 24 hour period. Check to see if water has flowed around the edges of the structure. Replace stone and repair dams as necessary to maintain the correct height and configuration.

RIP RAP OUTLET PROTECTION

Rock Aprons will be used at storm sewer outfalls to dissipate the velocity coming from storm pipes, helping prevent erosion/scour of existing drainage ways and features.

The rock aprons shall be inspected weekly until a uniform 70% perennial vegetation has established. Any visible damage shall be fixed by the end of the working day by placing additional riprap in the damaged area with a layer of geotextile. Place additional stone as necessary to prevent further erosion.

COMPOST FILTER SOCK

Silt sock shall be installed in the locations shown on the plans and in accordance with the standard detail provided in the ESCP. Accumulated sediments shall be removed in all cases where accumulations have reached half the above ground height of the sock. If the sock has been damaged, it shall be repaired or replaced if beyond repair. The filter media will be dispersed on site once the disturbed area has been permanently stabilized. Adhere to manufacturer's recommendations.

EROSION CONTROL MATTING

The specified products or approved equivalent erosion control matting will be installed within all permanent channels and on all slopes 3:1 or greater. The erosion control matting shall be inspected weekly and after every rainfall event to look for scour/washout areas. Any scoured areas shall be fixed immediately by

compacting soil in the washout area and placing seed. Any damaged erosion control matting shall be replaced immediately. Matting shall be maintained until a uniform 70% perennial vegetation has been established.

TEMPORARY VEGETATIVE STABALIZATION

Fertilizing, seeding, and mulching will be used as a temporary E&S control measure on all disturbed areas as needed. Exposed soils not subject to construction traffic shall not remain unseeded or covered by mulch for more than twenty-one (21) days, including stockpiled soil materials. Refer to the seeding mixtures provided on the erosion and sedimentation control general notes drawing of the Erosion and Sediment Control Plan for temporary seed mixtures.

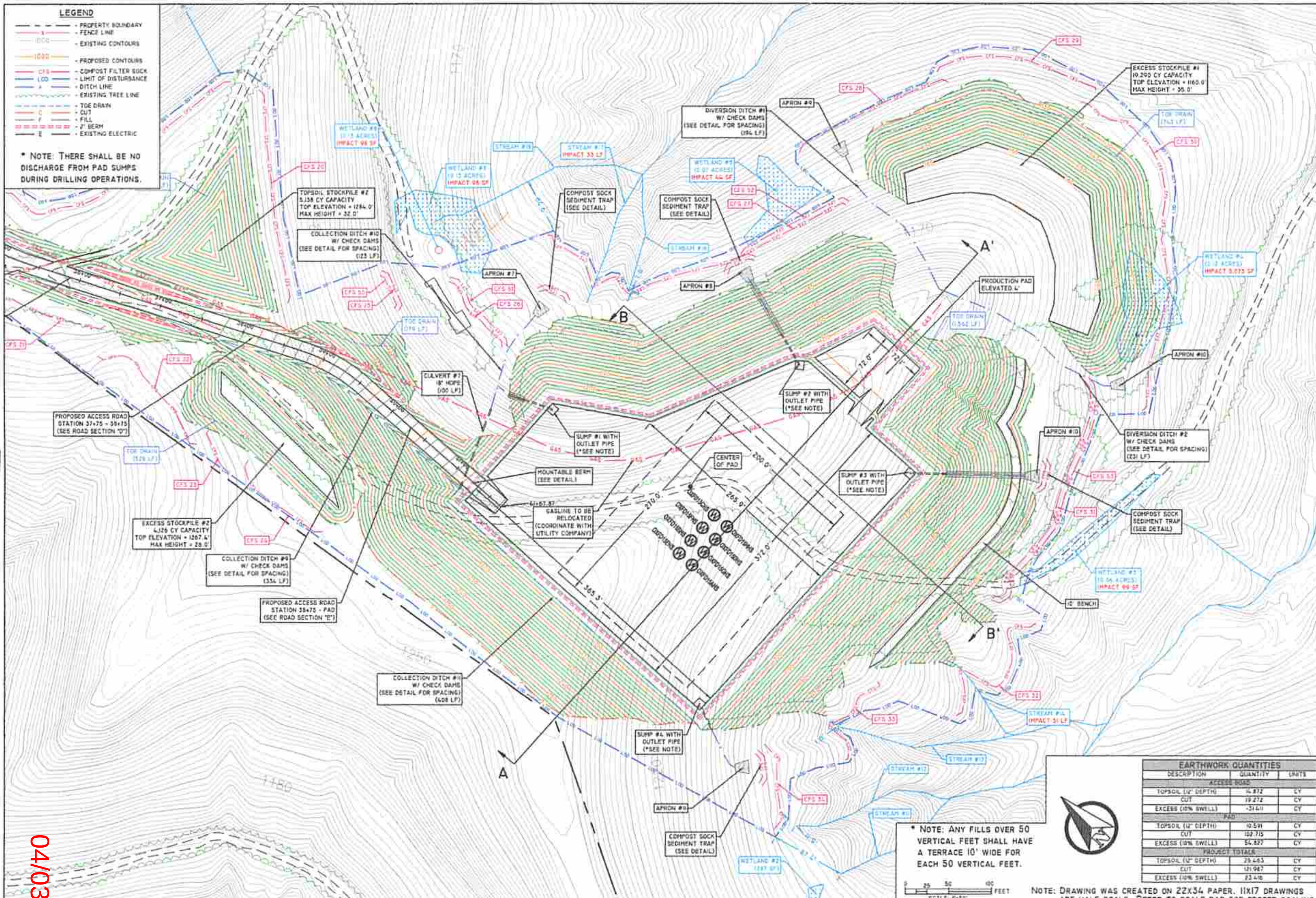
The contractor shall vegetate all disturbed areas at the earliest appropriate times for establishment of temporary or permanent seed mixtures, respectively. When site development staging or season will not permit timely sowing of the permanent seed mixture(s), prepare soils as for permanent seeding, seed with temporary seed mixture and mulch, and then over-sow the perennial seed mixture into the stubble of temporary vegetation at the next appropriate seeding season.

PERMANENT VEGETATIVE STABALIZATION

Fertilizing, seeding, and mulching will be used as a permanent E&S control measure on all disturbed areas. Refer to the permanent seed mixture provided on the erosion and sediment control plan's general notes drawing. The contractor shall inspect the site twice a week until a 70% perennial vegetative cover is established. The contractor is to place seed on all bare spots and disturbed areas not establishing ground cover.

4701706648

Exhibit 1



EARTHWORK QUANTITIES		
DESCRIPTION	QUANTITY	UNITS
ACCESS ROAD		
TOPSOIL (12" DEPTH)	14,872	CY
CUT	19,272	CY
EXCESS (10% SWELL)	-31,411	CY
PAD		
TOPSOIL (12" DEPTH)	10,591	CY
CUT	102,715	CY
EXCESS (10% SWELL)	54,827	CY
PROJECT TOTALS		
TOPSOIL (12" DEPTH)	25,463	CY
CUT	121,987	CY
EXCESS (10% SWELL)	23,416	CY

NOTE: DRAWING WAS CREATED ON 22X34 PAPER. 11X17 DRAWINGS ARE HALF SCALE. REFER TO SCALE BAR FOR PROPER SCALING.

Blue Mountain Inc.
Engineers and Land Surveyors
11023 Mason Dixon Hwy.
Burton, WV 26562-9616
(304) 662-6486

CNX GAS

CNX GAS COMPANY, LLC
ONE ENERGY DRIVE
JANE LEW, WV 26378

OXFD15HS WELL SITE
DETAILED SITE PLAN (4 OF 4)

REVISIONS

DATE	TYPE
1/06/15	DEP COMMENTS

WILLIAM P. FOLEY LICENSED No. 4449 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

DRAWN BY: WSH
CHECKED BY: WPF
DATE: 10/17/2014
SCALE: 1"=50'
JOB NO:
DRAWING NAME:
SHEET NO. 11

04/03/2015

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WW-6B
(9/13)

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

1) Well Operator:	CNX Gas Company LLC	494458046	Doddridge	New Milton	New Milton
		Operator ID	County	District	Quadrangle

2) Operator's Well Number: OXFD15CHS Well Pad Name: OXFD15HS

3) Farm Name/Surface Owner: Dolores Hinterer Public Road Access: Cain Run Rd

4) Elevation, current ground: 1206' Elevation, proposed post-construction: 1206'

5) Well Type (a) Gas ■ Oil _____ Underground Storage _____
Other _____
(b)If Gas Shallow ■ Deep _____
Horizontal ■

Doug Newlon Via email

6) Existing Pad: Yes or No NO

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Target - Marcellus, Depth - 6770', Thickness - 60', Pressure - 4500#

8) Proposed Total Vertical Depth: 6930'

9) Formation at Total Vertical Depth: Oriskany

10) Proposed Total Measured Depth: 11,218'

11) Proposed Horizontal Leg Length: 3671'

12) Approximate Fresh Water Strata Depths: 310', 1014'

13) Method to Determine Fresh Water Depths: Offset Well OXFD-11AHS (API#47-1706409)

14) Approximate Saltwater Depths: 2220', 2560', 2830'

15) Approximate Coal Seam Depths: 310'

16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes ☐ No ☑

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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(9/13)

18) **CASING AND TUBING PROGRAM**

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	20"	N	L.S.	81.3#	80'	80'	Grout to surface w/ Class A type cement
Fresh Water	13 3/8"	N	J-55	54.5#	1100'	1100'	CTS w/ Class A Type Cement
Coal							
Intermediate	9 5/8"	N	J-55	36#	2900'	2900'	CTS w/ Class A Type Cement
Production	5 1/2"	N	P-110	20#	11218'	11218'	2200 cu. ft. w/ 50/50 POZ Lead & Class A
Tubing	2 3/8"	N	J-55	4.7#	6700'	6700'	
Liners							

Doug Newlon via email

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	26"	0.438	2110	Class A Type	1.18
Fresh Water	13 3/8"	17 1/2"	0.380	2730	Class A Type	1.39
Coal						
Intermediate	9 5/8"	12 3/8"	0.352	3520	Class A Type	1.18
Production	5 1/2"	8 3/4" & 8 1/2"	0.361	14360	Class A Type	1.26
Tubing	2 3/8"	5 1/2" Csg	0.190	7700	.....	.....
Liners						

PACKERS

Kind:	None			
Sizes:	None			
Depths Set:	None			

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WV Dept. of Environmental Protection

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(9/13)

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill and stimulate new horizontal Marcellus well. Well to be drilled to a TMD of 11218'. Well to be drilled to a TVD of 6930', formation at TVD - Oriskany. The well bore will not be drilled any deeper than 100' beyond the Onondaga top, nor will there be any perforation, stimulation, or production of any formations below the target formation. Well will be plugged back to an approximate depth of 6000' (approximate due to exact kick off point being unknown). Plugging back will be done using the displacement method and Class A Type cement. A solid cement plug will be set from TD to KOP. If an unexpected void is encountered, plan will be to set casing at a minimum of 30' past void and cement to surface with approved Class A type cement.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water, and chemicals. Max Pressure - 9500 psi. Max Rate - 100 bbl/min.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 30.7 Acres

22) Area to be disturbed for well pad only, less access road (acres): 8.7 Acres

23) Describe centralizer placement for each casing string:

Conductor - No centralizers used. Fresh Water & Coal - Bow spring centralizers on first joint then every fourth joint to 100 feet from surface. Intermediate - Bow spring centralizers one on the first two joints and every forth joint until inside surface casing. Production - Rigid bow spring centralizer on first joint then every 2 casing joints (free floating) through the lateral and the curve. (Note: cementing the 5 1/2" casing completely in open hole lateral and curve.)

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

Conductor - 2% CaCl2. Fresh Water/Coal - 2% CaCl2. Intermediate - 2% CaCl2. Production - 2.6% Cement extender, 0.7% Fluid loss additive, 0.5% High Temperature Retarder, 0.2% Friction Reducer

25) Proposed borehole conditioning procedures:

Conductor - The hole is drilled w/ air and casing ran in air. Apart from insuring the hole is clean via air circulation at TD, there are no other conditioning procedures. Fresh Water/Coal - The hole is drilled w/ air and casing is ran in air. Once casing is on bottom, the casing shoe will be cleared with fresh water and gel prior to cementing. Intermediate - The hole is drilled w/ air and casing is ran in air. Once casing is on bottom, the casing shoe will be cleared with fresh water and gel prior to cementing. (Note: Drilling soap may be utilized if the hole gets wet/damp during the drilling of all air holes with the exception of the conductor). Production - The hole will be drilled with synthetic oil base mud and once at TD the hole is circulated at a drilling pump rate until the hole is clean. Once casing is ran the hole is circulated for a minimum of one hole volume prior to pumping cement.

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*Note: Attach additional sheets as needed.

JAN 27 2015

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4701706648

Cement Additives

- Conductor – 2% CaCl2
- Freshwater/Coal – 2% CaCl2
- Intermediate - 2% CaCl2
- Production -
  - 2.6% Cement extender
  - 0.7% Fluid Loss Additive
  - 0.5% High Temperature Retarder
  - 0.2% Friction Reducer

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04/03/2015

4701706648

CONSOL ENERGY

1000 CONSOL Energy Drive
Canonsburg, PA 15317

phone: (724) 485-3252
e-mail: JoshDalton@consolenergy.com
web: www.consolenergy.com

JOSH DALTON
Drilling Design Engineer

Mr. Douglas Newlon
WV Department of Environmental Protection
Office of Oil and Gas
601 57th Street – SE
Charleston, WV 25304

August 11, 2014

Re: Oxford WV Extended Surface Casing

Dear Mr. Newlon:

This letter is intended to justify the extension of our surface casing on Oxford (OXFD) pads in WV. The 13-3/8" surface casing will be exceeding the 150' beyond the deepest known fresh water zone located near 600'-700'.
The closest offset wells are on the OXFD-11 pad and were surface drilled in the month of July 2014. There was 80' of 20" conductor set and cemented to surface. There was initially 740' of 13-3/8" surface casing set and cemented to surface. Lastly the 9-5/8" intermediate casing was set at 2645' and cemented to surface. The first two of the six wells on OXFD-11 pad resulted in drill string retrieval operations while drilling the 12.25" intermediate section. Severe wellbore instability was experienced around the 900'-1000' depth. Hydrating red clays, or "Swelling Red Rock", was deemed the root cause of the stuck drill string in both cases. After DEP permission, the remaining four wells on the OXFD-11 pad had the 13-3/8" surface casing set between 1200' and 1250', which is 58' to 108' short of the pad elevation. This extension of the surface casing remediated the hydrating clay issue and no further issues were experienced on the pad.
It is our desire to continue with this plan of action by setting 13-3/8" surface casing 50' to 100' short of the pad elevation to proactively eliminate the formation issues.

If you have any questions concerning this request, please contact me at 724-485-3252 or via e-mail at JoshDalton@consolenergy.com.

Sincerely,

Josh Dalton

Received
OCT 21 2014
Office of Oil and Gas
WV Department of Environmental Protection

04/03/2015

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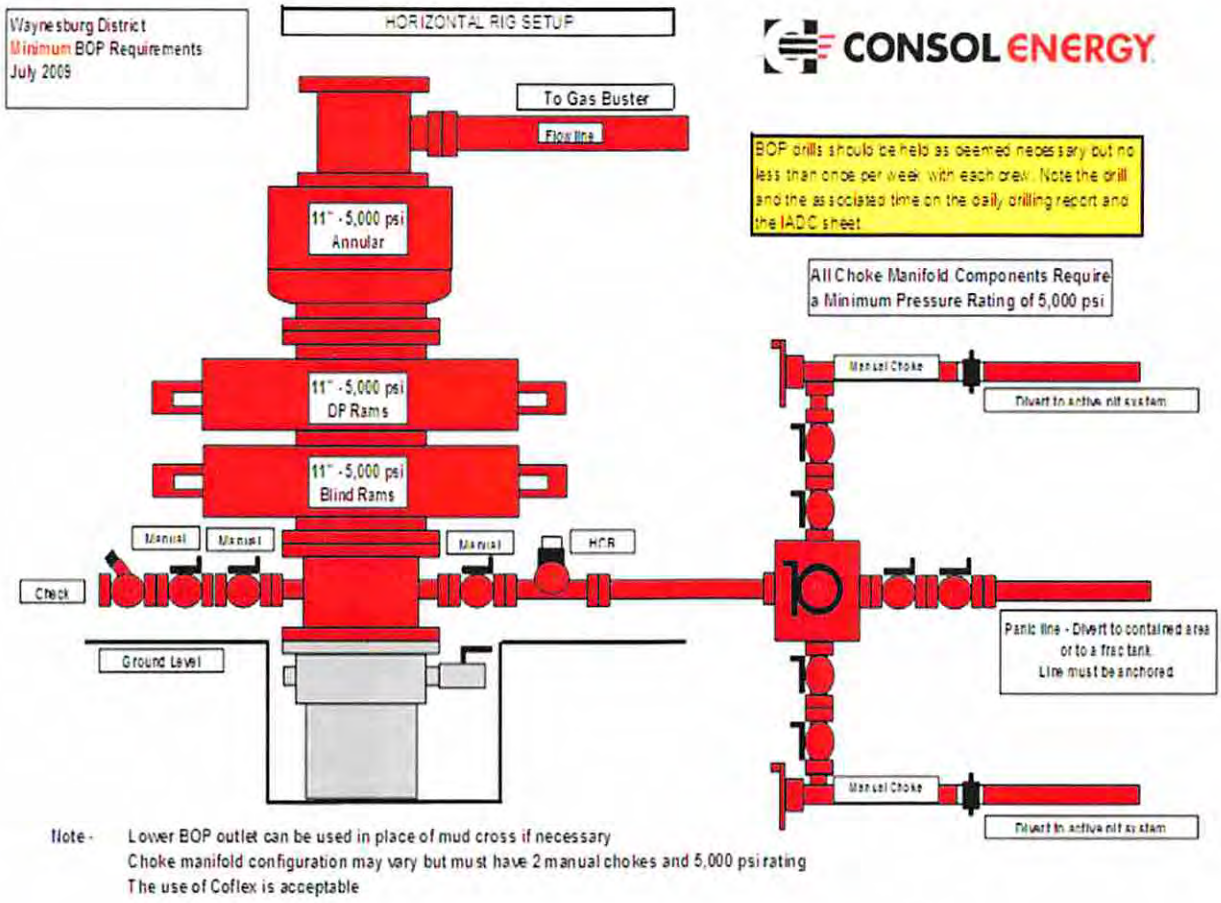

Remote Controls

Remote controls shall be readily accessible to the driller. Remote controls for all systems shall be capable of closing the preventer. Remote controls systems shall be capable of both opening and closing the preventer.

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WV Dept. of Environmental Protection

WW-9
(9/13)

4701706648

API Number 47 - _____ - _____
Operator's Well No. OXFD15CHS

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name CNX Gas Company, LLC OP Code 494458046

Watershed (HUC 10) Headwaters Middle Island Creek Quadrangle New Milton

Elevation 1206' County Doddridge District New Milton

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

Will a pit be used? Yes ☐ No ☑

If so, please describe anticipated pit waste: N/A

Will a synthetic liner be used in the pit? Yes ☐ No ☑ If so, what ml.? N/A

Proposed Disposal Method For Treated Pit Wastes:

_____ Land Application
_____ Underground Injection (UIC Permit Number _____)
_____ Reuse (at API Number _____)
■ Off Site Disposal (Supply form WW-9 for disposal location)
■ Other (Explain Recycle on other well on same pad or adjacent pads

Will closed loop system be used? If so, describe: yes

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Synthetic

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

Additives to be used in drilling medium? Bactericide, Polymers, and Weighting Agents

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill

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

-Landfill or offsite name/permit number? Meadowfill, Northwestern Landfill, Max Environmental Yukon Landfill & Bulger Landfill

Received
JAN 27 2015
Office of Oil and Gas
WV Dept. of Environmental Protection

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature Kelly Eddy

Company Official (Typed Name) Kelly Eddy

Company Official Title Permitting Supervisor

Subscribed and sworn before me this 26TH day of JANUARY, 2015

Carolinda Flanagan Notary Public

My commission expires 9/15/2021

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
CAROLINDA FLANAGAN
PO Box 603
Lumberport WV 26386
My Commission Expires Sept 15, 2021

04/03/2015

4701706648

Form WW-9

Operator's Well No. OXFD15CHS

CNX Gas Company, LLC

Proposed Revegetation Treatment: Acres Disturbed 30.7 Prevegetation pH 6.5

Lime according to pH test Tons/acre or to correct to pH 7.0

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch hay or straw at 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Orchard Grass	25	Orchard Grass	25
Birdsfoot Trefoil	15	Birdsfoot Trefoil	15
Ladino Clover	10	Ladino Clover	10

Attach:
Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Douglas Newlon

Comments: Preseed & Mulch install & maintain E+S to WV Dep regulations

Received

OCT 21 2014

WV Dep

Title: Oil & Gas inspector Date: 10-10-2014

Field Reviewed? (✓) Yes ( ) No

04/03/2015

CONSOL ENERGY

4701706648

Site Safety Plan for Well OXFD15CHS
CNX Gas Company LLC

DCN
10-10-2014

Received
OCT 21 2014
Office of Oil & Gas
WV Department of Environmental Protection

04/03/2015

Well is located on topo map 3,390 feet south of Latitude: 39° 10' 00"

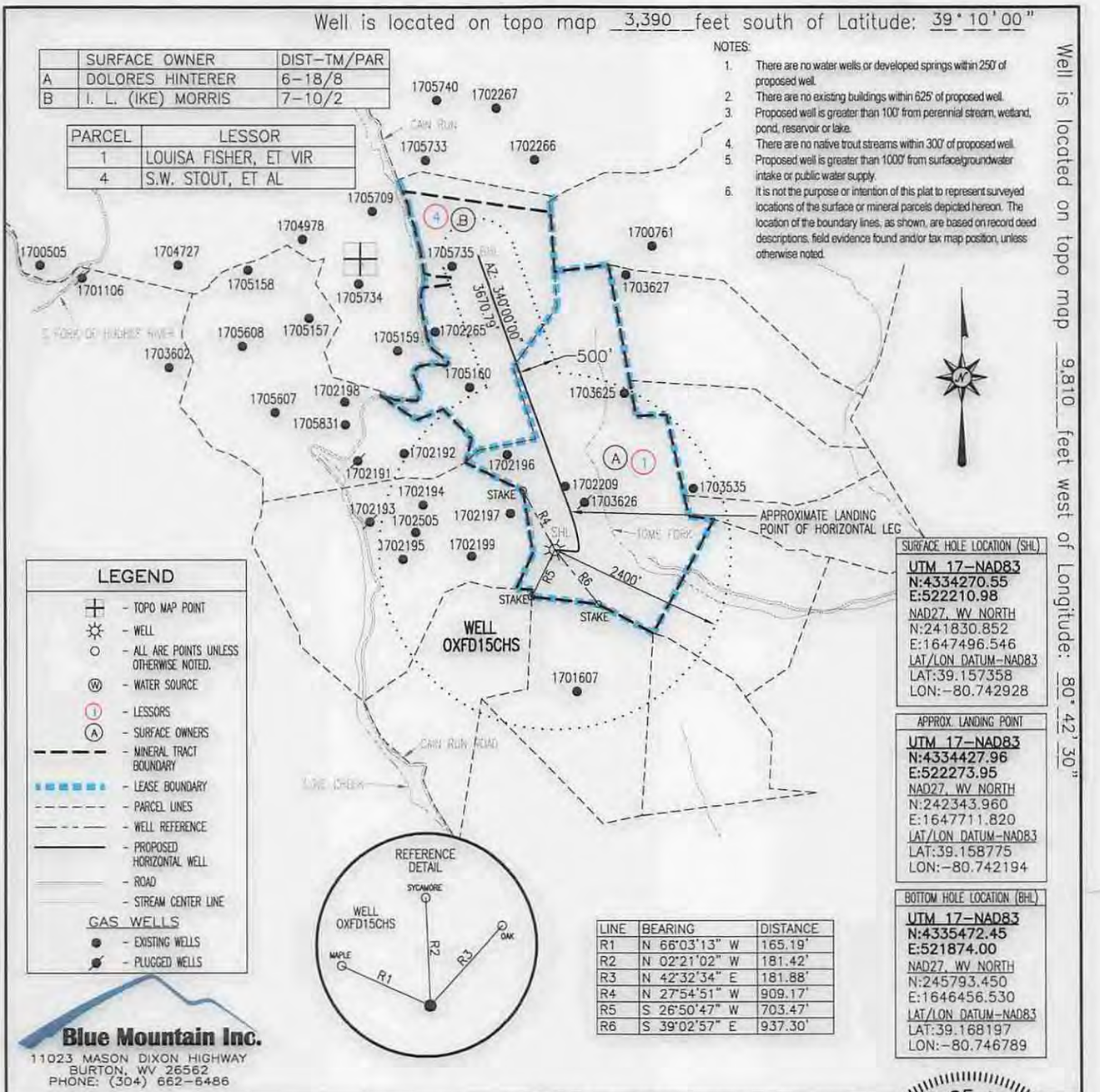
Well is located on topo map 9,810 feet west of Longitude: 80° 42' 30"

	SURFACE OWNER	DIST-TM/PAR
A	DOLORES HINTERER	6-18/8
B	I. L. (IKE) MORRIS	7-10/2

PARCEL	LESSOR
1	LOUISA FISHER, ET VIR
4	S.W. STOUT, ET AL

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.



LINE	BEARING	DISTANCE
R1	N 66°03'13" W	165.19'
R2	N 02°21'02" W	181.42'
R3	N 42°32'34" E	181.88'
R4	N 27°54'51" W	909.17'
R5	S 26°50'47" W	703.47'
R6	S 39°02'57" E	937.30'

LEGEND

- TOPO MAP POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED.
- WATER SOURCE
- LESSORS
- SURFACE OWNERS
- MINERAL TRACT BOUNDARY
- LEASE BOUNDARY
- PARCEL LINES
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- ROAD
- STREAM CENTER LINE

GAS WELLS

- EXISTING WELLS
- PLUGGED WELLS

SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
N:4334270.55
E:522210.98
NAD27, WV NORTH
N:241830.852
E:1647496.546
LAT/LON DATUM-NAD83
LAT:39.157358
LON:-80.742928

APPROX. LANDING POINT
UTM 17-NAD83
N:4334427.96
E:522273.95
NAD27, WV NORTH
N:242343.960
E:1647711.820
LAT/LON DATUM-NAD83
LAT:39.158775
LON:-80.742194

BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
N:4335472.45
E:521874.00
NAD27, WV NORTH
N:245793.450
E:1646456.530
LAT/LON DATUM-NAD83
LAT:39.168197
LON:-80.746789

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

FILE #: OXFD15CHS REV. 2
DRAWING #: OXFD15CHS REV. 2
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: [signature]

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: OCTOBER 10, 2014
OPERATOR'S WELL #: OXFD15CHS
API WELL #: 47 (STATE) 17 (COUNTY) 06648 (PERMIT) Hor A

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

WATERSHED: HEADWATERS MIDDLE ISLAND CREEK ELEVATION: 1206'±
COUNTY/DISTRICT: DODDRIDGE / NEW MILTON QUADRANGLE: NEW MILTON, WV 7.5'
SURFACE OWNER: DOLORES HINTERER ACREAGE: 204.4±
OIL & GAS ROYALTY OWNER: LOUISA FISHER, ET VIR ACREAGE: 305.623±

04/03/2015

DRILL [X] 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: 6,930'± TMD: 11,218±

WELL OPERATOR CNX GAS COMPANY LLC DESIGNATED AGENT MATTHEW IMRICH
Address P.O. BOX 1248 Address P.O. BOX 1248
City JANE LEW State WV Zip Code 26378 City JANE LEW State WV Zip Code 26378