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

February 12, 2014

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-1706409, 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: OXFD 11 AHS
Farm Name: MORRIS, I.L.
API Well Number: 47-1706409
Permit Type: Horizontal 6A Well
Date Issued: 02/12/2014

Promoting a healthy environment.

API Number: 017 06409

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.

WW-6B
(9/13)

017 06409

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

17 7 526

1) Well Operator:	CNX Gas Company LLC	494458046	Doddridge	Southwest	Oxford
		Operator ID	County	District	Quadrangle

2) Operator's Well Number: OXFD11AHS Well Pad Name: OXFD11HS

3) Farm Name/Surface Owner: I.L. Morris Public Road Access: Co. Rt. 19/11

4) Elevation, current ground: 1340' Elevation, proposed post-construction: 1310'

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

6) Existing Pad: Yes or No NO

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Target - Marcellus, Depth - 6950', Thickness - 60', Pressure - 2500#

8) Proposed Total Vertical Depth: 7110'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 13675'

11) Proposed Horizontal Leg Length: 5500'

12) Approximate Fresh Water Strata Depths: 50', 620'

13) Method to Determine Fresh Water Depths: Offset Well

14) Approximate Saltwater Depths: 1180', 2085'

15) Approximate Coal Seam Depths: 620'

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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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#	100'	100'	Grout to surface w/ Class A type cement
Fresh Water	13 3/8"	N	J-55	54.5#	690'	690'	CTS w/ Class A Type Cement
Coal							
Intermediate	9 5/8"	N	J-55	36#	5500'	5500'	CTS w/ Class A Type Cement
Production	5 1/2"	N	P-110	20#	13675'	13675'	2200 cu. ft. w/ 50/50 POZ Lead & Class
Tubing	2 3/8"	N	J-55	4.7#	7450'	7450'	
Liners							

Michael Daff
2-6-14

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	12640	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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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 13675'. Well to be drilled to a TVD of 7110', formation at TVD - Onondaga Group. The well bore will not be drilled any deeper than 100' into the Onondaga Group, 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 6800' (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): 24.4 Acres

22) Area to be disturbed for well pad only, less access road (acres): 20.4 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.

Cement Additives

- Conductor – 2% $CaCl_2$
- Freshwater/Coal – 2% $CaCl_2$
- Intermediate - 2% $CaCl_2$
- Production -
  - 2.6% Cement extender
  - 0.7% Fluid Loss Additive
  - 0.5% High Temperature Retarder
  - 0.2% Friction Reducer

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WW-9
(9/13)

API Number 47 - 017 -
Operator's Well No. OXFD11AHS

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) South Fork Hughes River Quadrangle Oxford

Elevation 1,340' County Doddridge District Southwest

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, cuttings/fluid separated with the use of a centrifuge/shaker liquids recycled solids disposed offsite at approved landfill

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

-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, and Bulger Landfill

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

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

Company Official Signature [signature]

Company Official (Typed Name) Jeremy Jones

Company Official Title Designated Agent General Manager WV Gas Operations

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Subscribed and sworn before me this 23rd day of October, 20 13

Kelly A. Eddy Notary Public

My commission expires September 18, 2018

NOTARY PUBLIC OFFICIAL SEAL
STATE OF WEST VIRGINIA
KELLY A. EDDY
RT 2 BOX 225A
JANE LEW, WV 26378
MY COMMISSION EXPIRES SEPT. 18, 2018

017 06409

Form WW-9

Operator's Well No. OXFD11AHS

CNX Gas Company LLC

Proposed Revegetation Treatment: Acres Disturbed 24.4 Prevegetation pH 6.5

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

Fertilizer type 500

Fertilizer amount Hay or Straw lbs/acre

Mulch 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: David W Cam

Comments: Preseed & mulch all cut area maintain all E&S

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Title: oil & gas inspector Date: 11-1-13

Field Reviewed? (✓) Yes ( ) No

017 06409

CONSOL ENERGY

Safety Plan for Well # OXFD11AHS

CNX Gas Company LLC

11-1-13

017 06409

Water Management Plan:
Primary Water Sources

WMP-01711	API/ID Number:	047-017-06409	Operator:	Consol Energy - WV
		OXFD11AHS		

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 DEC 17 2013

Source Summary

017 06409

WMP-01711 API Number: 047-017-06409 Operator: Consol Energy - WV

OXFD11AHS

Stream/River

- Source **S. Fk. of Hughes @ Consol Energy** Doddridge Owner: **Consol Energy**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
2/1/2015	2/1/2016	4,240,000		39.182812	-80.766281

☐ Regulated Stream? Ref. Gauge ID: 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, W\

Max. Pump rate (gpm): 1,470 **Min. Gauge Reading (cfs): 43.08** **Min. Passby (cfs) 0.25**

DEP Comments:

Source Summary

WMP-01711 API Number: 047-017-06409 Operator: Consol Energy - WV

OXFD11AHS

Ground Water

- Source **PHL1 Groundwater Well** Barbour Owner: **Consol Energy**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
2/1/2015	2/1/2016	4,240,000		39.191287	-80.019039

☐ Regulated Stream? Ref. Gauge ID: 9999994 TYGART VALLEY RIVER AT PHILIPPI, WV

Max. Pump rate (gpm): 900 **Min. Gauge Reading (cfs): 113.00** **Min. Passby (cfs) 113.00**

DEP Comments: Refer to USGS Stream Gauging Station 03054500

017 06409

Source Detail

WMP-01711 API/ID Number: 047-017-06409 Operator: Consol Energy - WV

OXFD11AHS

Source ID: 31665 Source Name PHL1 Groundwater Well

Consol Energy

Source Latitude: 39.191287

Source Longitude: -80.019039

HUC-8 Code: 5020001

Drainage Area (sq. mi.): 931.43 County: Barbour

Anticipated withdrawal start date: 2/1/2015

Anticipated withdrawal end date: 2/1/2016

Total Volume from Source (gal): 4,240,000

Max. Pump rate (gpm): 900

Max. Simultaneous Trucks:

Max. Truck pump rate (gpm)

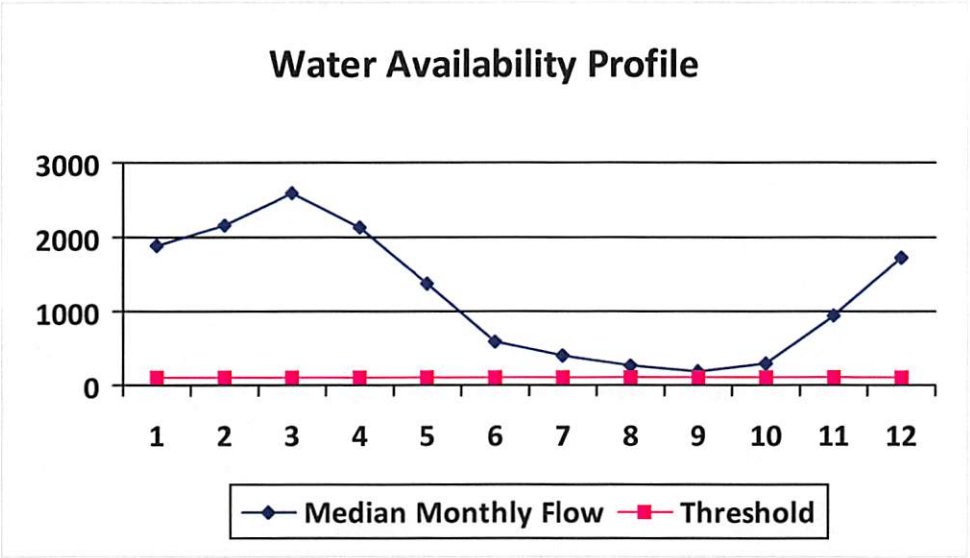
- ☐ Endangered Species?
- ☐ Mussel Stream?
- ☐ Trout Stream?
- ☐ Tier 3?
- ☐ Regulated Stream?
- ☐ Proximate PSD?
- ☑ Gauged Stream?

Reference Gaug 9999994 TYGART VALLEY RIVER AT PHILIPPI, WV

Drainage Area (sq. mi.) 914.00

Gauge Threshold (cfs): 111

Month	Median monthly flow (cfs)	Threshold (+ pump	Estimated Available water (cfs)
1	1,901.06	115.12	1,786.94
2	2,155.51	115.12	2,041.39
3	2,600.93	115.12	2,486.81
4	2,132.23	115.12	2,018.12
5	1,375.48	115.12	1,261.37
6	586.10	115.12	471.99
7	402.01	115.12	287.89
8	280.57	115.12	166.46
9	177.42	115.12	63.30
10	286.75	115.12	172.64
11	950.89	115.12	836.78
12	1,738.34	115.12	1,624.22



Water Availability Assessment of Location

Base Threshold (cfs):	113.12
Upstream Demand (cfs):	0.00
Downstream Demand (cfs):	0.00
Pump rate (cfs):	2.01
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	**113.01**
Passby at Location (cfs):	**113.12**

"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

017 06409

WMP- 01711 API/ID Number: 047-017-06409 Operator: Consol Energy - WV

OXFD11AHS

Source ID: 31664 Source Name S. Fk. of Hughes @ Consol Energy

Consol Energy

Source Latitude: 39.182812

Source Longitude: -80.766281

HUC-8 Code: 5030203

Drainage Area (sq. mi.): 2.08 County: Doddridge

Anticipated withdrawal start date: 2/1/2015

Anticipated withdrawal end date: 2/1/2016

Total Volume from Source (gal): 4,240,000

Max. Pump rate (gpm): 1,470

Max. Simultaneous Trucks:

Max. Truck pump rate (gpm)

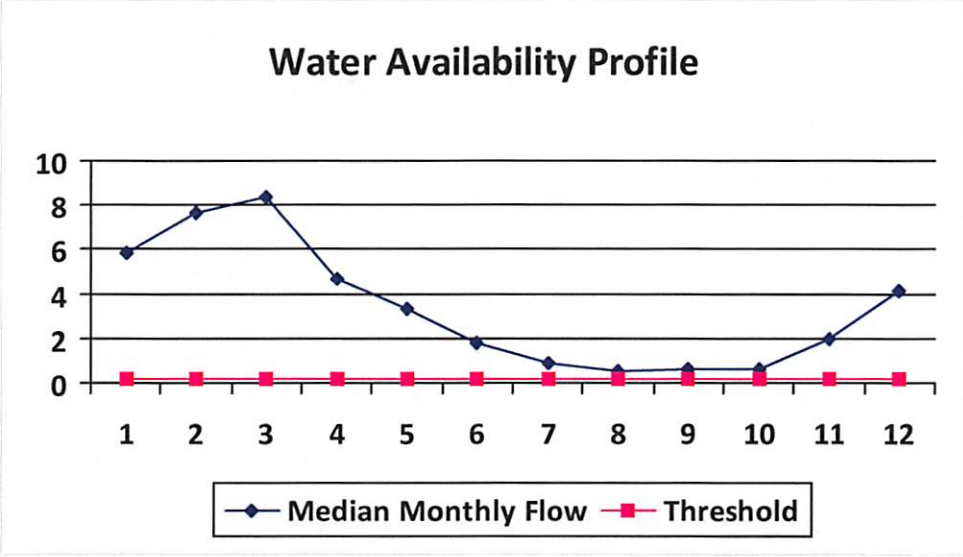
- [ ] Endangered Species?
- [x] Mussel Stream?
- [ ] Trout Stream?
- [ ] Tier 3?
- [ ] Regulated Stream?
- [ ] Proximate PSD?
- [x] Gauged Stream?

Reference Gaug 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

Drainage Area (sq. mi.) 229.00

Gauge Threshold (cfs): 22

Month	Median monthly flow (cfs)	Threshold (+ pump	Estimated Available water (cfs)
1	5.84	15.83	-9.78
2	7.62	15.83	-8.01
3	8.34	15.83	-7.28
4	4.72	15.83	-10.91
5	3.31	15.83	-12.32
6	1.78	15.83	-13.85
7	0.88	15.83	-14.74
8	0.51	15.83	-15.12
9	0.61	15.83	-15.01
10	0.66	15.83	-14.96
11	1.99	15.83	-13.64
12	4.10	15.83	-11.52



Water Availability Assessment of Location

Base Threshold (cfs):	0.20
Upstream Demand (cfs):	12.30
Downstream Demand (cfs):	0.00
Pump rate (cfs):	3.28
Headwater Safety (cfs):	0.05
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	**43.08**
Passby at Location (cfs):	**0.25**

"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- 01711	API/ID Number	047-017-06409	Operator:	Consol Energy - WV	
		OXFD11AHS			

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.

Lake/Reservior

Source ID:	31667	Source Name	Little Hackers Creek Impoundment (WV83489)	Source start date:	2/1/2015
				Source end date:	2/1/2016
Source Lat:	39.1889	Source Long:	-80.0653	County	Barbour
Max. Daily Purchase (gal)				Total Volume from Source (gal):	4,240,000

DEP Comments: Little Hackers Creek Impoundment (WV83489) used by Wolf Run Mining Company - Sentinel Mine

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: 31668 Source Name: Warder North Impoundment

Source start date: 2/1/2015

Source end date: 2/1/2016

Source Lat: 39.192505 Source Long: -80.025198 County: Barbour

Max. Daily Purchase (gal):

Total Volume from Source (gal): 4,240,000

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-189

Source ID: 31669 Source Name: Warder South Impoundment

Source start date: 2/1/2015

Source end date: 2/1/2016

Source Lat: 39.19097 Source Long: -80.025198 County: Barbour

Max. Daily Purchase (gal):

Total Volume from Source (gal): 4,240,000

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-190

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: 31670 Source Name: Alton 1 Freshwater Impoundment

Source start date: 2/1/2015

Source end date: 2/1/2016

Source Lat: 38.794961 Source Long: -80.184542 County: Upshur

Max. Daily Purchase (gal):

Total Volume from Source (gal): 4,240,000

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-194

Source ID: 31671 Source Name: Alton 2 Freshwater Impoundment

Source start date: 2/1/2015

Source end date: 2/1/2016

Source Lat: 38.806146 Source Long: -80.195108 County: Upshur

Max. Daily Purchase (gal):

Total Volume from Source (gal): 4,240,000

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-195

WMP- 01711 API/ID Number 047-017-06409 Operator: Consol Energy - WV

OXFD11AHS

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: 31672 Source Name PHL28 Tank Pad

Source start date: 2/1/2015

Source end date: 2/1/2016

Source Lat: 39.201747 Source Long: -80.034491 County Barbour

Max. Daily Purchase (gal) Total Volume from Source (gal): 4,240,000

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-1332

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: 31666 Source Name: Various Commercial Supplier

Source start date: 2/1/2015

Source end date: 2/1/2016

Source Lat: 39.5088 Source Long: -80.126418 County: Marion

Max. Daily Purchase (gal):

Total Volume from Source (gal): 4,240,000

DEP Comments:

Source ID: 31673 Source Name: Various

Source start date: 2/1/2015

Source end date: 2/1/2016

Source Lat: Source Long: County:

Max. Daily Purchase (gal):

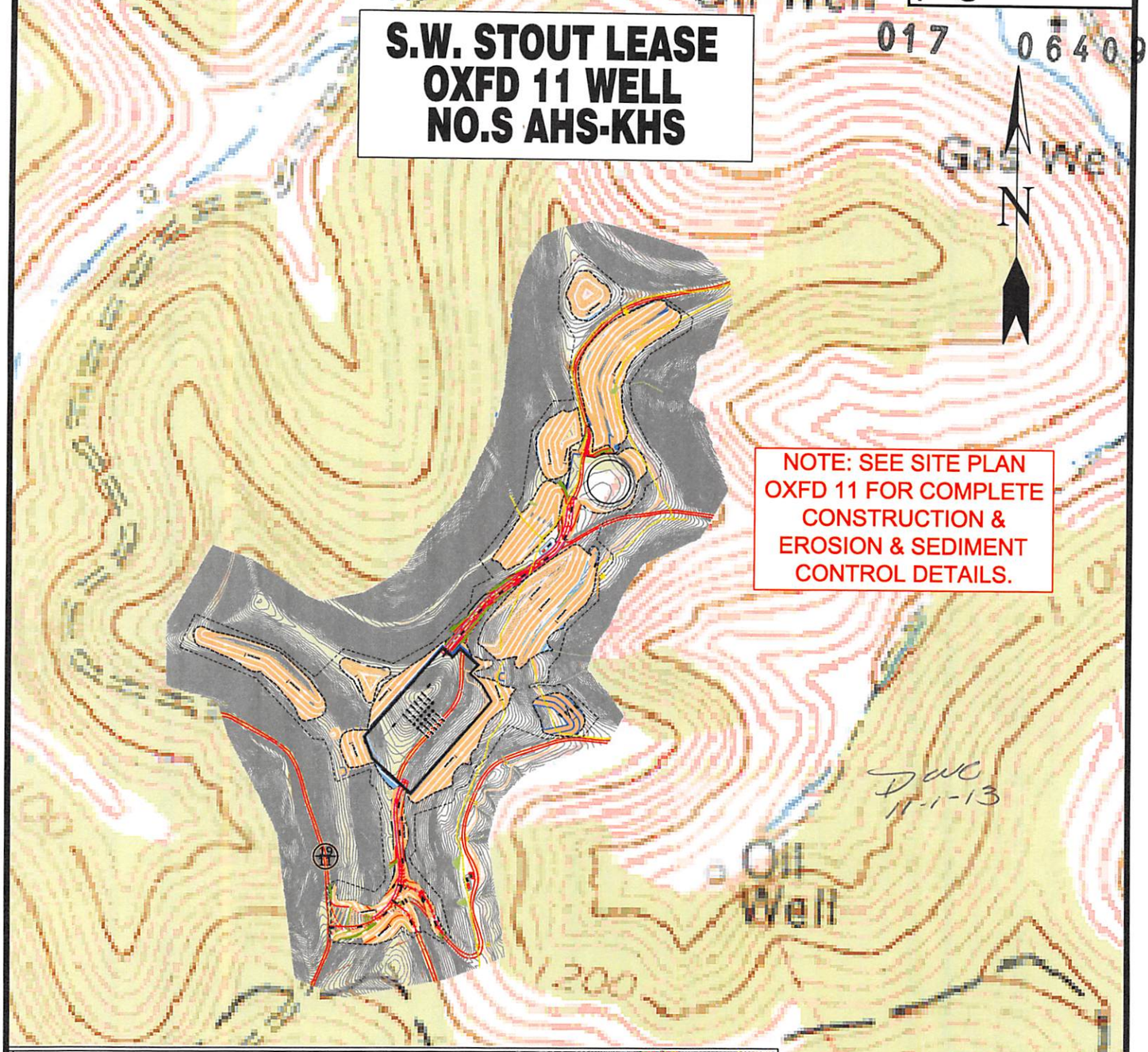
Total Volume from Source (gal): 4,240,000

DEP Comments: Sources include, but are not limited to: PHL4 and PHL13 well pads.

Form WW-9

page of

S.W. STOUT LEASE
OXFD 11 WELL
NO.S AHS-KHS

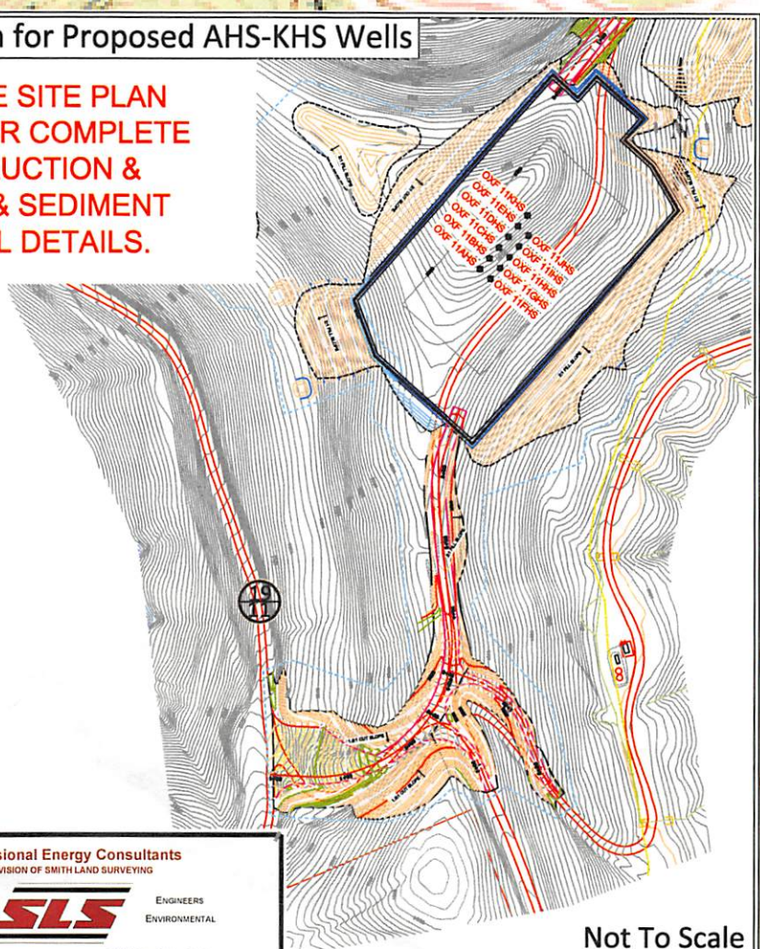


NOTE: SEE SITE PLAN OXFD 11 FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS.

DWC
11-1-13

Detail Sketch for Proposed AHS-KHS Wells

NOTE: SEE SITE PLAN OXFD 11 FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS.



Not To Scale

RECEIVED
Office of Oil and Gas
NOV 06 2013
WV Department of
Environmental Protection

SCALE: 1"=500'

0' 500' 1000'

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING
SURVEYORS PROJECT MGMT. SLS ENGINEERS ENVIRONMENTAL
226 West Main St.
P.O. Box 150
Glenville, WV 26351
(304) 462-5634
56065 Dilles Bottom Road
Shadyside, OH 43947
(740) 671-9911
HONESTY, INTEGRITY, QUALITY

DRAWN BY	FILE NO.	DATE	CADD FILE:
K.D.W.	7981	10-17-13	7981REC-AHS.dwg

TOPO SECTION OF OXFORD 7.5'
USGS TOPO QUADRANGLE

FORM WW 6

S.W. STOUT LEASE
WELL NO. OXFD 11 AHS

WELL NO. AHS TOP HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 27)
N. 246,757 E. 1,641,688
TOP HOLE (NAD 27) LAT=(N) 39°10'14.1" LONG=(W) 80°45'49.8"
TOP HOLE (NAD 83) LAT=(N) 39°10'14.4" LONG=(W) 80°45'49.1"
TOP HOLE UTM (NAD 83) (N) 4,335,742 (E) 520,416

WELL NO. AHS HEEL POINT STATE PLANE COORDINATES (NORTH ZONE NAD 27)
N. 246,292 E. 1,640,422
HEEL POINT (NAD 27) LAT=(N) 39°10'09.3" LONG=(W) 80°46'05.8"
HEEL POINT (NAD 83) LAT=(N) 39°10'09.6" LONG=(W) 80°46'05.1"
HEEL POINT UTM (NAD 83) (N) 4,335,594 (E) 520,033

WELL NO. AHS TOE POINT STATE PLANE COORDINATES (NORTH ZONE NAD 27)
N. 251,460 E. 1,638,541
TOE POINT (NAD 27) LAT=(N) 39°11'00.1" LONG=(W) 80°46'30.6"
TOE POINT (NAD 83) LAT=(N) 39°11'00.4" LONG=(W) 80°46'30.0"
TOE POINT UTM (NAD 83) (N) 4,337,159 (E) 519,434

NOTES ON SURVEY

1. TIES TO WELLS, REFERENCES, AND CORNERS ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD '27.
2. HIGHLIGHTED LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 230 PAGE 307 AND ADJOINING DEEDS.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF HARRISON COUNTY IN JULY, 2013.
4. WELL LAT./LONG. (NAD'27) ESTABLISHED BY DGPS(SURVEY GRADE).
5. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250'. NO APPLICABLE DWELLINGS OR BUILDINGS WITHIN 625'.

REFERENCES

SLS

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 DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 677 Gregory A. Smith

GREGORY A. SMITH LICENSED No. 677 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE NOVEMBER 1, 20 13

OPERATORS WELL NO. OXFD 11 AHS

API WELL NO. 47 — 017 — 06409 H6A
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 7981PAHSR1(457-21)

SCALE 1" = 2,000'

PROVEN SOURCE OF ELEVATION DGPS (SUBMETER MAPPING GRADE)

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

WELL TYPE: OIL ____ GAS X LIQUID INJECTION ____ WASTE DISPOSAL ____ IF "GAS" PRODUCTION X STORAGE ____ DEEP ____ SHALLOW X

LOCATION:
ELEVATION 1,340' WATERSHED SOUTH FORK HUGHES RIVER
DISTRICT SOUTHWEST COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'
SURFACE OWNER I.L. MORRIS ACREAGE 6603.75±
ROYALTY OWNER LINDSAY A EDMONDSON, ETAL ACREAGE 730 & 418
PROPOSED WORK: LEASE NO. L041996 & L41994
DRILL X CONVERT ____ DRILL DEEPER ____ REDRILL ____ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ____ PERFORATE NEW FORMATION ____ PLUG AND ABANDON ____ CLEAN OUT AND REPLUG ____ OTHER ____
PHYSICAL CHANGE IN WELL (SPECIFY) ____ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH 7,110' TVD / TMD 13,675'

COUNTY NAME

PERMIT

WELL OPERATOR CNX GAS COMPANY, LLC. DESIGNATED AGENT JEREMY JONES
ADDRESS P.O. BOX 1248 ADDRESS P.O. BOX 1248
JANE LEW, WV 26378 JANE LEW, WV 26378

SLS 124868