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west virginia department of environmental protection

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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Jim Justice , Governor  
Austin Caperton , Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Monday, March 13, 2017  
WELL WORK PERMIT  
Horizontal 6A / Fracture

CNX GAS COMPANY LLC (A)  
POST OFFICE BOX 1248

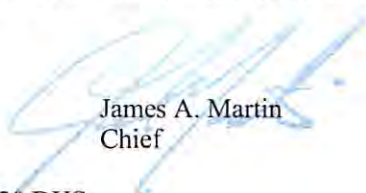
JANE LEW, WV 263786506

Re: Permit approval for PEN 20 DHS  
47-085-10111-00-00

This well work permit 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 any additional specific 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 of 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.

Per 35 CSR 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- 0450.



James A. Martin  
Chief

Operator's Well Number: PEN 20 DHS  
Farm Name: COKELEY, LAWRENCE & ANGELA  
U.S. WELL NUMBER: 47-085-10111-00-00  
Horizontal 6A / Fracture  
Date Issued: 3/13/2017

Promoting a healthy environment.

03/24/2017

## PERMIT CONDITIONS

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

### CONDITIONS

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1. 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.
2. 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.
3. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
4. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
5. 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.
6. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov).

WW-6B  
(04/15)

API NO. 47-085 - 10111 F  
OPERATOR WELL NO. PEN20DHS  
Well Pad Name: PEN20

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 085-Ritchie Clay Ellenboro  
Operator ID County District Quadrangle
- 2) Operator's Well Number: PEN20DHS Well Pad Name: PEN20
- 3) Farm Name/Surface Owner: Lawrence B. and Angela Cokeley Public Road Access: Bonds Creek Rd
- 4) Elevation, current ground: 1081 Elevation, proposed post-construction: 1081
- 5) Well Type (a) Gas  Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_  
Other \_\_\_\_\_  
(b) If Gas Shallow  Deep \_\_\_\_\_  
Horizontal
- 6) Existing Pad: Yes or No Yes
- 7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus 6178-6239 / 61' thick / 4118 psi
- 8) Proposed Total Vertical Depth: 6252'
- 9) Formation at Total Vertical Depth: Marcellus
- 10) Proposed Total Measured Depth: 14852'
- 11) Proposed Horizontal Leg Length: 7957.68'
- 12) Approximate Fresh Water Strata Depths: 398'
- 13) Method to Determine Fresh Water Depths: nearest offset wells
- 14) Approximate Saltwater Depths: none for noted offsets
- 15) Approximate Coal Seam Depths: None
- 16) Approximate Depth to Possible Void (coal mine, karst, other): None
- 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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03/24/2017

WW-6B  
(04/15)

API NO. 47- 085 - 10111 **F**  
 OPERATOR WELL NO. PEN20DHS  
 Well Pad Name: PEN20

18)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<b>Size (in)</b>	<b>New or Used</b>	<b>Grade</b>	<b>Weight per ft. (lb/ft)</b>	<b>FOOTAGE: For Drilling (ft)</b>	<b>INTERVALS: Left in Well (ft)</b>	<b>CEMENT: Fill-up (Cu. Ft.)/CTS</b>
Conductor	20"	NEW	DH-36	94	65.8'	65.8'	GTS
Fresh Water	13 3/8"	NEW	J-55	54.5	581.3'	581.3'	633.6
Coal							
Intermediate	9 5/8"	NEW	HCK-55	36.0	5311.8'	5311.8'	2283.33
Production	5 1/2"	NEW	P-110	20.0	14833.5'	14833.5'	3106.6
Tubing							
Liners							

<b>TYPE</b>	<b>Size (in)</b>	<b>Wellbore Diameter (in)</b>	<b>Wall Thickness (in)</b>	<b>Burst Pressure (psi)</b>	<b>Anticipated Max. Internal Pressure (psi)</b>	<b>Cement Type</b>	<b>Cement Yield (cu. ft./k)</b>
Conductor	20"	26"	0.25			GTS	GTS
Fresh Water	13 3/8"	17.5"	.380	2730		PJSM	102
Coal							
Intermediate	9 5/8"	12.38"	.352	3520		Class A	Stage (1) 1.93 Stage (2) 1.19
Production	5 1/2"	8.75" & 8.5"	.361	12,640		Class A	lead 1.62 tail 1.37
Tubing							
Liners							

**PACKERS**

Kind:				
Sizes:				
Depths Set:				

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

Well previously drilled by Noble Energy. Submitting permit application to complete hydraulic fracturing operations and produce the well.

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

The completions phase will be multiple stages 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 9,600 PSI, Max Rate 100 BPM

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 0

22) Area to be disturbed for well pad only, less access road (acres): 0 *MDS 1/19/17*

23) Describe centralizer placement for each casing string:

PREVIOUSLY COMPLETED. From original NOBLE ENERGY submittal "Conductor- No centralizers used. Fresh Water/Surface- Bow spring centralizers every 3 joints to surface. Intermediate- Bow spring centralizers on every joint to KOP, one every third joint from KOP to 100' surface. Production - Rigid bow spring every third joint from KOP to TOC, rigid bow spring every joint to KOP"

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

PREVIOUSLY COMPLETED. From original Noble Energy submittal "Conductor - grout to surface 1.15% CaCl2. Fresh Water - Class A Portland cement with flake and 1.15% CaCl2, 30% excess yield=1.18. Intermediate - 15.6 ppg Class A +0.4% Ret, 0.15% Disp, 0.2% Anti Foam, 0.125#sk lost circ 20% 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 10% excess Yield=1.27 TOC>=200' above 9.625" shoe."

25) Proposed borehole conditioning procedures:

PREVIOUSLY COMPLETED. From original NOBLE ENERGY submittal " Conductor- The hole is drilled w/ air and casing is run in air. apart from insuring the hole is clean via air circulation at TD, there are no other conditioning procedure. Fresh Water - The hole is drilled w/air and casing is run with air. Once casing is on bottom, the hole is filled w/ KCl water and a minimum of one hole volume is circulated prior to pumping cement. Coal- The hole is drilled with air and casing is run in air. Once casing is at set 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 SOBM and filled w/ KCl water once drilled to TD. The well is conditioned with KCl circulation prior to running casing. Once casing is at setting depth, the well is circulated a minimum of one hole volume prior to pumping cement. Production - the hole is drilled with synthetic oil base mud and once at TD the hole is circulated at a maximum allowable drilling pump rate for at least 6x bottoms up. Once on Bottom with Casing, Circulate a minimum of one hole volume prior to pumping cement."

\*Note: Attach additional sheets as needed.

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State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

API 47-085-10111 County Ritchie District Ellenboro  
Quad Pennsboro Pad Name PEN 20 Field/Pool Name N/A  
Farm name Lawrence & Angela Cokeley Well Number PEN 20DHS  
Operator (as registered with the OOG) Noble Energy, Inc.  
Address 1000 Noble Energy Drive City Canonsburg State PA Zip 15317

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing as drilled plat to be submitted by CNX Easting \_\_\_\_\_  
Landing Point of Curve Northing upon completion of the well. Easting \_\_\_\_\_  
Bottom Hole Northing \_\_\_\_\_ Easting \_\_\_\_\_

Elevation (ft) 1081 GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine  
Mud Type(s) and Additive(s)  
Synthetic Oil Based

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Date permit issued 08/05/2014 Date drilling commenced 12/17/2014 Date drilling ceased 12/29/2014  
Date completion activities began Not completed Date completion activities ceased Not completed  
Verbal plugging (Y/N) \_\_\_\_\_ Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 398' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft none noted for offsets Void(s) encountered (Y/N) depths N  
Coal depth(s) ft NA Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) No

**APPROVED**

NAME: Michael Laft  
DATE: 1/30/17

Reviewed by:  
AK RBDMS 03/24/2017  
2/2/17

WR-35  
Rev. 8/23/13

API 47-085 - 10111 Farm name Lawrence & Angela Cokeley Well number PEN 20DHS

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	26"	20"	65.8'	New	DH-36		
Surface	17.5"	13 3/8"	581.3'	New	J-55		
Coal							Y
Intermediate 1	12.38"	9 5/8"	5311.8'	New	HCK-55		Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5 1/2"	14,833.5'	New	P-110		N
Tubing							
Packer type and depth set							

Comment Details \*approved cement variance of 2% accelerator (S001) 0.2% Antifoam (D046) 0.125 lb/sk Polyester Flake (D130)

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor						25.8	
Surface	PJSM Cement	528	15.6	1.20	633.6	25.8	8
Coal							
Intermediate 1	Type 1 / Class A	stage (1) 987 stage (2) 318	15.6	Stage (1) 1.93 Stage (2) 1.19	total 2283.33	25.8	8
Intermediate 2							
Intermediate 3							
Production	Type 1 / Class A	lead 480 tail 1700	14.8	Lead 1.62 tail 1.37	total 3106.6	3000.0	8
Tubing							

Drillers TD (ft) 14852.00' Loggers TD (ft) 14825'  
 Deepest formation penetrated Marcellus Plug back to (ft) \_\_\_\_\_  
 Plug back procedure \_\_\_\_\_

Kick off depth (ft) 5208'

Check all wireline logs run  caliper  density  deviated/directional  induction  
 neutron  resistivity  gamma ray  temperature  sonic

Well cored  Yes  No Conventional Sidewall Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING No centralizers used on conductor.  
5 Centralizers on Surface Casing 64 Centralizers on Intermediate String (Bow string centralizers on first two joints then every third joint to 100' from surface).  
238 Centralizers on Production String (rigid bow string every joint to KOP, rigid bow spring every third joint from KOP to top of cement).

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WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_







# Actual Wellpath Report

PEN-20D-HS AWP Proj: 14852'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot D
Area	Ritchie County, WV	Well	PEN-20D-HS
Field	Ritchie	Wellbore	PEN-20D-HS AWB
Facility	PEN-20 Pad		

## REPORT SETUP INFORMATION

Projection System	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 4.0.1
North Reference	Grid	User	Gotfbral
Scale	0.999954	Report Generated	1/5/2015 at 9:48:25 AM
Convergence at slot	0.97° West	Database/Source file	WANorthEast/PEN-20D-HS_AWB.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-40.82	44.01	1568249.81	305234.76	39°19'40.728"N	81°01'34.738"W
Facility Reference Pt			1568205.80	305275.58	39°19'41.124"N	81°01'35.306"W
Field Reference Pt			0.00	0.00	38°17'12.460"N	86°28'23.077"W

## WELLPATH DATUM

Calculation method	Minimum curvature	Nomac 78 (RKB) to Facility Vertical Datum	1055.00ft
Horizontal Reference Pt	Slot	Nomac 78 (RKB) to Mean Sea Level	1055.00ft
Vertical Reference Pt	Nomac 78 (RKB)	Nomac 78 (RKB) to Mud Line at Slot (Slot D)	26.00ft
MD Reference Pt	Nomac 78 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	140.00°

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot D
Area	Ritchie County, WV	Well	PEN-20D-HIS
Field	Ritchie	Wellbore	PEN-20D-HS AWB
Facility	PEN-20 Pad		

WELLPATH DATA (157 stations) † = interpolated/extrapolated station														
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	
0.00†	0.000	212.580	0.00	0.00	0.00	0.00	1568249.81	305234.76	39°19'40.728"N	81°01'34.738"W	0.00	0.000	0.00	
26.00	0.000	212.580	26.00	0.00	0.00	0.00	1568249.81	305234.76	39°19'40.728"N	81°01'34.738"W	0.00	0.000	0.00	
100.00	0.260	212.580	100.00	0.05	-0.14	-0.09	1568249.72	305234.62	39°19'40.727"N	81°01'34.739"W	0.17	212.580	0.35	
200.00	0.390	241.180	200.00	0.05	-0.50	-0.51	1568249.30	305234.26	39°19'40.723"N	81°01'34.744"W	0.71	225.798	0.20	
300.00	0.220	45.400	300.00	-0.03	-0.53	-0.67	1568249.14	305234.23	39°19'40.723"N	81°01'34.746"W	0.85	231.959	0.60	
400.00	0.120	62.780	400.00	-0.02	-0.34	-0.44	1568249.37	305234.42	39°19'40.724"N	81°01'34.743"W	0.56	232.192	0.11	
500.00	0.270	59.510	500.00	0.04	-0.18	-0.15	1568249.66	305234.58	39°19'40.726"N	81°01'34.739"W	0.23	219.756	0.15	
600.00	0.260	56.780	600.00	0.11	0.07	0.25	1568250.06	305234.83	39°19'40.729"N	81°01'34.734"W	0.26	74.579	0.02	
700.00	0.270	60.590	699.99	0.18	0.31	0.64	1568250.45	305235.07	39°19'40.731"N	81°01'34.729"W	0.71	64.356	0.02	
800.00	0.360	54.360	799.99	0.24	0.61	1.10	1568250.91	305235.37	39°19'40.734"N	81°01'34.724"W	1.26	61.167	0.10	
900.00	0.320	79.300	899.99	0.40	0.84	1.63	1568251.44	305235.60	39°19'40.737"N	81°01'34.717"W	1.84	62.717	0.15	
1000.00	0.290	100.060	999.99	0.73	0.85	2.16	1568251.97	305235.61	39°19'40.737"N	81°01'34.710"W	2.32	68.494	0.11	
1100.00	0.180	31.950	1099.99	0.88	0.94	2.49	1568252.30	305235.70	39°19'40.738"N	81°01'34.706"W	2.66	69.333	0.28	
1200.00	0.470	33.080	1199.99	0.71	1.42	2.79	1568252.60	305236.18	39°19'40.742"N	81°01'34.702"W	3.13	63.141	0.29	
1300.00	0.490	86.170	1299.98	0.85	1.79	3.45	1568253.26	305236.55	39°19'40.746"N	81°01'34.694"W	3.88	62.578	0.43	
1400.00	0.280	76.350	1399.98	1.21	1.87	4.11	1568253.92	305236.63	39°19'40.747"N	81°01'34.686"W	4.52	65.488	0.22	
1500.00	0.310	357.390	1499.98	1.10	2.20	4.33	1568254.14	305236.96	39°19'40.750"N	81°01'34.683"W	4.86	63.072	0.38	
1600.00	0.380	345.510	1599.98	0.59	2.79	4.24	1568254.05	305237.55	39°19'40.756"N	81°01'34.684"W	5.08	56.621	0.10	
1700.00	0.460	356.280	1699.98	-0.04	3.51	4.13	1568253.94	305238.27	39°19'40.763"N	81°01'34.686"W	5.42	49.603	0.11	
1800.00	0.430	355.740	1799.97	-0.67	4.29	4.08	1568253.89	305239.05	39°19'40.771"N	81°01'34.687"W	5.92	43.540	0.03	
1900.00	0.280	343.260	1899.97	-1.19	4.90	3.98	1568253.79	305239.66	39°19'40.777"N	81°01'34.688"W	6.31	39.085	0.17	
2000.00	0.090	303.910	1999.97	-1.49	5.18	3.84	1568253.65	305239.94	39°19'40.780"N	81°01'34.690"W	6.45	36.592	0.22	
2100.00	0.130	293.300	2099.97	-1.67	5.26	3.67	1568253.48	305240.02	39°19'40.781"N	81°01'34.692"W	6.42	34.906	0.04	
2200.00	0.120	212.890	2199.97	-1.74	5.22	3.51	1568253.32	305239.98	39°19'40.780"N	81°01'34.694"W	6.29	33.927	0.16	
2300.00	0.130	197.860	2299.97	-1.65	5.03	3.42	1568253.23	305239.78	39°19'40.778"N	81°01'34.695"W	6.08	34.241	0.03	
2400.00	0.180	289.700	2399.97	-1.73	4.97	3.24	1568253.05	305239.73	39°19'40.778"N	81°01'34.697"W	5.93	33.081	0.23	
2500.00	0.230	260.250	2499.97	-1.96	4.99	2.89	1568252.70	305239.75	39°19'40.778"N	81°01'34.702"W	5.77	30.099	0.11	
2600.00	0.190	300.750	2599.97	-2.22	5.04	2.55	1568252.36	305239.80	39°19'40.778"N	81°01'34.706"W	5.65	26.853	0.15	
2700.00	0.180	338.810	2699.97	-2.53	5.27	2.35	1568252.16	305240.03	39°19'40.780"N	81°01'34.709"W	5.77	24.051	0.12	
2800.00	0.180	288.460	2799.97	-2.81	5.47	2.15	1568251.96	305240.23	39°19'40.782"N	81°01'34.711"W	5.87	21.437	0.15	

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# Actual Wellpath Report

PEN-20D-HS AWP Proj: 14852'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot D
Area	Ritchie County, WV	Well	PEN-20D-HS
Field	Ritchie	Wellbore	PEN-20D-HS AWB
Facility	PEN-20 Pad		

## WELLPATH DATA (157 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
2900.00	0.140	330.240	2899.97	-3.06	5.62	1.94	1568251.75	305240.38	39°19'40.784"N	81°01'34.714"W	5.95	19.007	0.12
3000.00	0.250	319.510	2999.97	-3.40	5.90	1.73	1568251.54	305240.65	39°19'40.787"N	81°01'34.717"W	6.15	16.397	0.12
3100.00	0.270	48.680	3099.97	-3.62	6.22	1.77	1568251.58	305240.98	39°19'40.790"N	81°01'34.716"W	6.46	15.893	0.37
3200.00	0.230	24.330	3199.97	-3.72	6.56	2.03	1568251.84	305241.31	39°19'40.793"N	81°01'34.713"W	6.86	17.204	0.11
3300.00	0.280	73.940	3299.96	-3.70	6.81	2.35	1568252.16	305241.57	39°19'40.796"N	81°01'34.709"W	7.20	19.029	0.22
3400.00	0.340	110.450	3399.96	-3.35	6.77	2.86	1568252.67	305241.53	39°19'40.795"N	81°01'34.703"W	7.35	22.903	0.20
3500.00	0.390	107.950	3499.96	-2.80	6.56	3.46	1568253.27	305241.32	39°19'40.793"N	81°01'34.695"W	7.42	27.818	0.05
3600.00	0.390	101.770	3599.96	-2.24	6.39	4.12	1568253.93	305241.15	39°19'40.792"N	81°01'34.687"W	7.60	32.818	0.04
3700.00	0.340	60.740	3699.96	-1.92	6.46	4.71	1568254.52	305241.22	39°19'40.793"N	81°01'34.679"W	8.00	36.091	0.26
3800.00	0.320	47.350	3799.96	-1.88	6.80	5.17	1568254.98	305241.56	39°19'40.796"N	81°01'34.673"W	8.54	37.287	0.08
3900.00	0.440	65.250	3899.95	-1.79	7.15	5.73	1568255.54	305241.91	39°19'40.800"N	81°01'34.666"W	9.16	38.718	0.17
4000.00	0.360	41.690	3999.95	-1.74	7.54	6.29	1568256.10	305242.30	39°19'40.804"N	81°01'34.659"W	9.82	39.814	0.18
4042.00	0.290	31.690	4041.95	-1.79	7.73	6.43	1568256.24	305242.49	39°19'40.805"N	81°01'34.657"W	10.06	39.753	0.21
4166.00	1.990	52.540	4165.92	-1.79	9.31	8.30	1568258.11	305244.07	39°19'40.821"N	81°01'34.634"W	12.47	41.740	1.39
4261.00	7.270	53.930	4260.58	-1.31	13.85	14.48	1568264.29	305248.61	39°19'40.867"N	81°01'34.556"W	20.04	46.261	5.56
4356.00	14.340	50.990	4353.84	-0.69	24.81	28.49	1568278.30	305259.57	39°19'40.978"N	81°01'34.380"W	37.78	48.953	7.46
4450.00	21.990	52.060	4443.08	0.14	42.99	51.45	1568301.26	305277.74	39°19'41.161"N	81°01'34.092"W	67.05	50.124	8.15
4545.00	21.180	49.250	4531.42	0.56	65.12	78.48	1568328.29	305299.88	39°19'41.385"N	81°01'33.753"W	101.98	50.314	1.38
4640.00	20.720	45.790	4620.15	-0.90	88.05	103.53	1568353.34	305322.80	39°19'41.615"N	81°01'33.439"W	135.91	49.621	1.39
4735.00	21.190	42.410	4708.87	-4.40	112.44	127.16	1568376.96	305347.20	39°19'41.861"N	81°01'33.144"W	169.74	48.514	1.37
4830.00	20.620	42.560	4797.61	-8.83	137.44	150.05	1568399.85	305372.19	39°19'42.111"N	81°01'32.858"W	203.48	47.512	0.60
4925.00	21.610	45.890	4886.24	-12.25	161.94	173.93	1568423.73	305396.69	39°19'42.357"N	81°01'32.560"W	237.65	47.044	1.64
5020.00	22.750	50.880	4974.21	-13.23	185.71	200.74	1568450.54	305420.46	39°19'42.597"N	81°01'32.224"W	273.47	47.228	2.32
5114.00	22.820	53.810	5060.88	-11.74	207.94	229.56	1568479.36	305442.69	39°19'42.821"N	81°01'31.862"W	309.73	47.828	1.21
5208.00	22.760	56.520	5147.54	-8.46	228.74	259.43	1568509.23	305463.48	39°19'43.032"N	81°01'31.486"W	345.87	48.598	1.12
5354.00	21.680	52.390	5282.71	-4.13	260.78	304.36	1568554.15	305495.52	39°19'43.356"N	81°01'30.921"W	400.80	49.410	1.30
5449.00	26.090	57.950	5369.56	-0.51	282.58	335.98	1568585.78	305517.33	39°19'43.577"N	81°01'30.524"W	439.02	49.934	5.21
5544.00	27.120	55.640	5454.50	4.51	305.89	371.57	1568621.36	305540.64	39°19'43.813"N	81°01'30.076"W	481.28	50.537	1.54
5639.00	29.710	54.720	5538.05	8.58	331.71	408.67	1568658.46	305566.46	39°19'44.075"N	81°01'29.610"W	526.35	50.934	2.76
5733.00	31.690	55.840	5618.88	13.01	359.03	448.12	1568697.90	305593.78	39°19'44.351"N	81°01'29.113"W	574.21	51.298	2.19

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**Actual Wellpath Report**  
 PEN-20D-HS AWP Proj: 14852'  
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**REFERENCE WELLPATH IDENTIFICATION**

Operator	NOBLE ENERGY	Slot	Slot D
Area	Ritchie County, WV	Well	PEN-20D-HS
Field	Ritchie	Wellbore	PEN-20D-HS AWB
Facility	PEN-20 Pad		

**WELLPATH DATA (157 stations)**

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
5828.00	33.960	63.470	5698.74	21.73	384.91	492.53	1568742.32	305619.65	39°19'44.614"N	81°01'28.554"W	625.09	51.992	4.96
5923.00	39.950	74.890	5774.71	40.79	404.76	545.83	1568795.61	305639.50	39°19'44.819"N	81°01'27.880"W	679.52	53.441	9.57
6018.00	40.750	77.110	5847.11	67.76	419.62	605.50	1568855.28	305654.36	39°19'44.976"N	81°01'27.124"W	736.69	55.277	1.73
6113.00	43.320	88.940	5917.78	102.43	427.16	668.42	1568918.20	305661.90	39°19'45.061"N	81°01'26.325"W	793.25	57.419	8.76
6211.00	46.470	109.630	5987.57	154.50	415.78	735.87	1568985.65	305650.52	39°19'44.960"N	81°01'25.464"W	845.21	60.533	15.20
6306.00	51.390	125.210	6050.18	220.37	382.67	798.89	1569048.67	305617.42	39°19'44.644"N	81°01'24.655"W	885.82	64.405	13.38
6397.00	54.010	127.870	6105.33	290.76	339.56	857.02	1569106.79	305574.31	39°19'44.227"N	81°01'23.906"W	921.84	68.386	3.70
6491.00	60.570	127.720	6156.09	368.03	291.12	919.49	1569169.26	305525.87	39°19'43.759"N	81°01'23.101"W	964.48	72.432	6.98
6586.00	70.580	128.250	6195.33	452.52	237.94	987.57	1569237.33	305472.69	39°19'43.245"N	81°01'22.223"W	1015.83	76.454	10.55
6681.00	77.910	129.190	6221.11	542.13	180.78	1058.85	1569308.61	305415.53	39°19'42.692"N	81°01'21.304"W	1074.17	80.311	7.77
6776.00	86.330	131.320	6234.12	634.79	120.01	1130.58	1569380.34	305354.77	39°19'42.104"N	81°01'20.378"W	1136.94	83.941	9.14
6871.00	89.570	138.220	6237.52	729.26	53.20	1197.93	1569447.68	305287.96	39°19'41.455"N	81°01'19.507"W	1199.11	87.457	8.02
6966.00	89.540	144.840	6238.26	824.17	-21.14	1257.00	1569506.75	305213.62	39°19'40.730"N	81°01'18.739"W	1257.17	90.963	6.97
7062.00	89.570	148.370	6239.01	919.52	-101.27	1309.83	1569559.57	305133.49	39°19'39.947"N	81°01'18.050"W	1313.73	94.421	3.68
7157.00	90.920	150.020	6238.60	1013.29	-182.86	1358.47	1569608.22	305051.90	39°19'39.149"N	81°01'17.413"W	1370.73	97.666	2.24
7255.00	92.030	143.390	6236.07	1110.53	-264.70	1412.22	1569661.96	304970.07	39°19'38.349"N	81°01'16.712"W	1436.81	100.616	6.86
7349.00	89.570	136.730	6234.76	1204.46	-336.72	1472.52	1569722.26	304898.05	39°19'37.647"N	81°01'15.929"W	1510.53	102.880	7.55
7445.00	89.200	136.270	6235.79	1300.28	-406.35	1538.60	1569788.34	304828.43	39°19'36.970"N	81°01'15.073"W	1591.36	104.794	0.61
7540.00	89.140	135.890	6237.17	1395.05	-474.78	1604.49	1569854.23	304760.01	39°19'36.305"N	81°01'14.220"W	1673.26	106.484	0.40
7635.00	89.230	134.120	6238.52	1489.67	-541.95	1671.65	1569921.38	304692.84	39°19'35.652"N	81°01'13.351"W	1757.31	107.963	1.87
7731.00	89.140	134.310	6239.88	1585.17	-608.89	1740.45	1569990.18	304625.90	39°19'35.002"N	81°01'12.462"W	1843.88	109.282	0.22
7826.00	89.110	133.130	6241.34	1679.59	-674.53	1809.10	1570058.82	304560.26	39°19'34.365"N	81°01'11.574"W	1930.76	110.448	1.24
7922.00	89.050	135.200	6242.88	1775.08	-741.41	1877.95	1570127.67	304493.39	39°19'33.716"N	81°01'10.684"W	2019.01	111.544	2.16
8017.00	89.690	139.380	6243.92	1869.94	-811.19	1942.37	1570192.09	304423.60	39°19'33.037"N	81°01'09.849"W	2104.96	112.667	4.45
8113.00	88.830	147.430	6245.16	1965.69	-888.20	1999.55	1570249.26	304346.60	39°19'32.286"N	81°01'09.105"W	2187.94	113.951	8.43
8208.00	90.310	145.520	6245.88	2060.07	-967.39	2052.01	1570301.72	304267.42	39°19'31.512"N	81°01'08.420"W	2268.61	115.241	2.54
8304.00	89.970	136.570	6245.64	2155.96	-1041.96	2112.31	1570362.02	304192.85	39°19'30.785"N	81°01'07.637"W	2355.32	116.256	9.33
8400.00	90.550	137.210	6245.21	2251.81	-1112.05	2177.91	1570427.62	304122.77	39°19'30.103"N	81°01'06.787"W	2445.39	117.049	0.90
8495.00	90.460	139.140	6244.37	2346.76	-1182.83	2241.26	1570490.96	304051.98	39°19'29.414"N	81°01'05.966"W	2534.23	117.823	2.03
8591.00	89.850	138.730	6244.11	2442.74	-1255.21	2304.32	1570554.02	303979.61	39°19'28.710"N	81°01'05.148"W	2624.02	118.578	0.77

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# Actual Wellpath Report

PEN-20D-HS AWP Proj: 14852'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot D
Area	Ritchie County, WV	Well	PEN-20D-HS
Field	Ritchie	Wellbore	PEN-20D-HS AWB
Facility	PEN-20 Pad		

WELLPATH DATA (157 stations)													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
8686.00	89.880	138.540	6244.33	2537.71	-1326.51	2367.10	1570616.80	303908.31	39°19'28.015"N	81°01'04.334"W	2713.45	119.266	0.20
8782.00	89.690	138.970	6244.69	2633.69	-1398.69	2430.39	1570680.09	303836.13	39°19'27.313"N	81°01'03.514"W	2804.13	119.920	0.49
8877.00	89.600	139.600	6245.28	2728.68	-1470.70	2492.36	1570742.05	303764.13	39°19'26.611"N	81°01'02.710"W	2893.93	120.544	0.67
8972.00	89.660	139.210	6245.89	2823.67	-1542.83	2554.18	1570803.86	303692.00	39°19'25.909"N	81°01'01.908"W	2983.98	121.134	0.42
9068.00	89.540	140.090	6246.57	2919.67	-1615.99	2616.33	1570866.01	303618.85	39°19'25.196"N	81°01'01.101"W	3075.16	121.702	0.93
9163.00	89.910	141.260	6247.02	3014.66	-1689.48	2676.53	1570926.21	303545.36	39°19'24.480"N	81°01'00.319"W	3165.15	122.261	1.29
9259.00	90.150	142.080	6246.97	3110.61	-1764.78	2736.07	1570985.75	303470.06	39°19'23.746"N	81°00'59.546"W	3255.85	122.822	0.89
9354.00	90.220	141.740	6246.66	3205.56	-1839.55	2794.67	1571044.35	303395.29	39°19'23.017"N	81°00'58.784"W	3345.77	123.354	0.37
9450.00	90.180	142.070	6246.33	3301.51	-1915.10	2853.90	1571103.58	303319.75	39°19'22.280"N	81°00'58.014"W	3436.91	123.863	0.35
9546.00	90.090	140.680	6246.10	3397.48	-1990.10	2913.83	1571163.50	303244.75	39°19'21.549"N	81°00'57.236"W	3528.58	124.333	1.45
9642.00	89.720	136.760	6246.26	3493.43	-2062.23	2977.15	1571226.82	303172.63	39°19'20.847"N	81°00'56.415"W	3621.63	124.710	4.10
9737.00	89.570	133.710	6246.85	3588.09	-2129.67	3044.04	1571293.70	303105.19	39°19'20.191"N	81°00'55.549"W	3715.06	124.977	3.21
9833.00	89.570	133.960	6247.57	3683.53	-2196.16	3113.28	1571362.95	303038.71	39°19'19.546"N	81°00'54.654"W	3809.94	125.200	0.26
9928.00	89.820	134.590	6248.08	3778.06	-2262.48	3181.30	1571430.96	302972.39	39°19'18.902"N	81°00'53.774"W	3903.78	125.420	0.71
10023.00	90.120	134.700	6248.13	3872.64	-2329.23	3248.89	1571498.55	302905.64	39°19'18.253"N	81°00'52.900"W	3997.58	125.638	0.34
10118.00	90.030	138.920	6248.00	3967.48	-2398.48	3313.90	1571563.55	302836.39	39°19'17.580"N	81°00'52.058"W	4090.80	125.896	4.44
10214.00	89.450	142.160	6248.44	4063.46	-2472.59	3374.90	1571624.55	302762.29	39°19'16.858"N	81°00'51.266"W	4183.74	126.228	3.43
10310.00	89.350	136.380	6249.44	4159.40	-2545.30	3437.51	1571687.16	302689.58	39°19'16.150"N	81°00'50.454"W	4277.27	126.518	6.02
10405.00	89.290	129.860	6250.57	4253.66	-2610.20	3506.81	1571756.45	302624.69	39°19'15.520"N	81°00'49.559"W	4371.60	126.661	6.86
10501.00	89.880	132.200	6251.27	4348.48	-2673.21	3579.22	1571828.86	302561.68	39°19'14.909"N	81°00'48.624"W	4467.31	126.755	2.51
10597.00	91.050	132.640	6250.49	4443.63	-2737.97	3650.09	1571899.72	302496.93	39°19'14.281"N	81°00'47.708"W	4562.85	126.874	1.30
10692.00	90.030	141.400	6249.59	4538.41	-2807.40	3714.79	1571964.42	302427.50	39°19'13.606"N	81°00'46.870"W	4656.30	127.080	9.28
10788.00	90.220	147.820	6249.38	4634.05	-2885.62	3770.35	1572019.98	302349.28	39°19'12.842"N	81°00'46.147"W	4747.88	127.428	6.69
10883.00	89.820	147.910	6249.35	4728.15	-2966.06	3820.89	1572070.51	302268.84	39°19'12.055"N	81°00'45.487"W	4837.01	127.821	0.43
10979.00	89.660	145.650	6249.79	4823.47	-3046.37	3873.48	1572123.10	302188.54	39°19'11.270"N	81°00'44.800"W	4927.90	128.184	2.36
11074.00	89.600	145.800	6250.40	4918.00	-3124.87	3926.98	1572176.60	302110.04	39°19'10.504"N	81°00'44.103"W	5018.56	128.511	0.17
11169.00	89.510	153.010	6251.14	5011.66	-3206.59	3975.29	1572224.91	302028.33	39°19'09.704"N	81°00'43.471"W	5107.36	128.891	7.59
11265.00	92.650	147.450	6249.33	5106.06	-3289.86	4022.92	1572272.54	301945.06	39°19'08.889"N	81°00'42.847"W	5196.84	129.276	6.65
11361.00	90.180	143.400	6246.96	5201.58	-3368.86	4077.37	1572326.99	301866.06	39°19'08.117"N	81°00'42.137"W	5289.06	129.565	4.94
11456.00	90.090	142.650	6246.73	5296.45	-3444.75	4134.51	1572384.12	301790.17	39°19'07.377"N	81°00'41.394"W	5381.50	129.800	0.80

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11552.00	89.880	140.380	6246.76	5392.41	-3519.89	4194.25	1572443.86	301715.04	39°19'06.644"N	81°00'40.618"W	5475.52	130.004	2.37
11647.00	89.970	138.020	6246.88	5487.39	-3591.80	4256.32	1572505.93	301643.13	39°19'05.944"N	81°00'39.813"W	5569.32	130.160	2.49
11743.00	89.820	137.080	6247.06	5583.30	-3662.64	4321.11	1572570.72	301572.30	39°19'05.255"N	81°00'38.974"W	5664.53	130.285	0.99
11839.00	89.630	137.560	6247.52	5679.19	-3733.21	4386.19	1572635.79	301501.73	39°19'04.568"N	81°00'38.130"W	5759.82	130.402	0.54
11934.00	89.510	138.870	6248.23	5774.14	-3804.04	4449.49	1572699.09	301430.90	39°19'03.879"N	81°00'37.310"W	5853.95	130.528	1.38
12030.00	89.660	140.650	6248.93	5870.14	-3877.32	4511.50	1572761.10	301357.63	39°19'03.165"N	81°00'36.506"W	5948.72	130.677	1.86
12125.00	89.630	137.790	6249.51	5965.12	-3949.25	4573.54	1572823.13	301285.70	39°19'02.464"N	81°00'35.701"W	6042.67	130.811	3.01
12221.00	89.690	137.030	6250.08	6061.01	-4019.92	4638.51	1572888.10	301215.03	39°19'01.777"N	81°00'34.859"W	6138.04	130.914	0.79
12316.00	89.660	139.600	6250.62	6155.96	-4090.86	4701.68	1572951.27	301144.09	39°19'01.086"N	81°00'34.040"W	6232.25	131.026	2.71
12412.00	90.000	139.280	6250.91	6251.96	-4163.79	4764.10	1573013.69	301071.16	39°19'00.376"N	81°00'33.231"W	6327.23	131.153	0.49
12508.00	89.820	144.410	6251.06	6347.88	-4239.26	4823.39	1573072.97	300995.70	39°18'59.640"N	81°00'32.460"W	6421.56	131.312	5.35
12604.00	90.220	142.210	6251.03	6443.71	-4316.23	4880.75	1573130.32	300918.73	39°18'58.889"N	81°00'31.714"W	6515.49	131.488	2.33
12700.00	90.430	141.060	6250.48	6539.67	-4391.50	4940.33	1573189.90	300843.47	39°18'58.155"N	81°00'30.940"W	6610.00	131.634	1.22
12795.00	90.250	137.480	6249.92	6634.64	-4463.48	5002.31	1573251.88	300771.49	39°18'57.454"N	81°00'30.136"W	6704.16	131.742	3.77
12891.00	90.460	128.140	6249.32	6729.78	-4528.64	5072.65	1573322.22	300706.33	39°18'56.821"N	81°00'29.228"W	6800.03	131.757	9.73
12986.00	90.030	132.560	6248.91	6823.41	-4590.14	5145.03	1573394.60	300644.84	39°18'56.226"N	81°00'28.294"W	6894.98	131.738	4.67
13082.00	90.180	142.660	6248.74	6919.20	-4660.95	5209.67	1573459.23	300574.03	39°18'55.537"N	81°00'27.456"W	6990.36	131.818	10.52
13177.00	90.520	146.760	6248.16	7013.86	-4738.47	5264.54	1573514.10	300496.51	39°18'54.780"N	81°00'26.742"W	7082.97	131.990	4.33
13273.00	90.340	137.280	6247.44	7109.69	-4814.05	5323.55	1573573.10	300420.94	39°18'54.043"N	81°00'25.975"W	7177.41	132.123	9.88
13368.00	91.720	140.900	6245.73	7204.64	-4885.82	5385.74	1573635.29	300349.17	39°18'53.344"N	81°00'25.168"W	7271.69	132.214	4.08
13463.00	90.310	147.290	6244.04	7299.34	-4962.72	5441.41	1573690.96	300272.28	39°18'52.593"N	81°00'24.444"W	7364.61	132.366	6.89
13559.00	89.880	145.900	6243.88	7394.70	-5042.86	5494.26	1573743.81	300192.14	39°18'51.810"N	81°00'23.754"W	7457.70	132.547	1.52
13655.00	89.880	139.610	6244.08	7490.54	-5119.24	5552.34	1573801.88	300115.76	39°18'51.065"N	81°00'22.999"W	7552.16	132.676	6.55
13750.00	89.380	138.860	6244.70	7585.53	-5191.19	5614.37	1573863.91	300043.82	39°18'50.364"N	81°00'22.195"W	7646.54	132.757	0.95
13845.00	89.380	141.900	6245.73	7680.51	-5264.36	5674.94	1573924.47	299970.66	39°18'49.651"N	81°00'21.409"W	7740.69	132.851	3.20
13940.00	89.600	140.690	6246.57	7775.48	-5338.49	5734.34	1573983.87	299896.53	39°18'48.928"N	81°00'20.637"W	7834.67	132.953	1.29
14036.00	89.690	140.160	6247.17	7871.47	-5412.48	5795.50	1574045.03	299822.54	39°18'48.207"N	81°00'19.844"W	7929.86	133.043	0.56
14131.00	90.090	141.400	6247.35	7966.46	-5486.08	5855.56	1574105.09	299748.94	39°18'47.490"N	81°00'19.064"W	8024.01	133.134	1.37
14227.00	90.000	139.830	6247.27	8062.45	-5560.27	5916.48	1574166.00	299674.75	39°18'46.766"N	81°00'18.273"W	8119.19	133.222	1.64
14323.00	90.030	141.250	6247.25	8158.45	-5634.39	5977.49	1574227.01	299600.64	39°18'46.044"N	81°00'17.481"W	8214.42	133.308	1.48

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# Actual Wellpath Report

PEN-20D-HS AWP Proj: 14852'

Page 7 of 9

**REFERENCE WELLPATH IDENTIFICATION**

Operator	NOBLE ENERGY	Slot	Slot D
Area	Ritchie County, WV	Well	PEN-20D-HS
Field	Ritchie	Wellbore	PEN-20D-HS AWB
Facility	PEN-20 Pad		

**WELLPATH DATA (157 stations)**

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
14419.00	89.630	139.150	6247.53	8254.44	-5708.14	6038.93	1574288.45	299526.89	39°18'45.325"N	81°00'16.684"W	8309.73	133.387	2.23
14514.00	89.630	138.360	6248.15	8349.42	-5779.57	6101.56	1574351.08	299455.47	39°18'44.630"N	81°00'15.872"W	8404.31	133.448	0.83
14610.00	89.570	139.060	6248.82	8445.39	-5851.70	6164.91	1574414.42	299383.34	39°18'43.928"N	81°00'15.051"W	8499.91	133.507	0.73
14705.00	89.380	140.600	6249.69	8540.38	-5924.29	6226.18	1574475.70	299310.76	39°18'43.220"N	81°00'14.256"W	8594.33	133.577	1.63
14801.00	88.950	141.710	6251.09	8636.35	-5999.05	6286.39	1574535.90	299236.00	39°18'42.492"N	81°00'13.474"W	8689.49	133.660	1.24
14825.00	88.800	141.540	6251.56	8660.34	-6017.86	6301.29	1574550.79	299217.19	39°18'42.308"N	81°00'13.280"W	8713.26	133.682	0.94
14852.00	88.800	141.540	6252.12	8687.32	-6039.00	6318.07	1574567.58	299196.05	39°18'42.102"N	81°00'13.062"W	8740.00	133.706	0.00

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**Actual Wellpath Report**  
 PEN-20D-HS AWP Proj: 14852'  
 Page 8 of 9



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot D
Area	Ritchie County, WV	Well	PEN-20D-HS
Field	Ritchie	Wellbore	PEN-20D-HS AWB
Facility	PEN-20 Pad		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
PEN-20D-HS LP Rev-3		6235.00	115.01	1151.50	1569401.25	305349.76	39°19'42.058"N	81°01'20.111"W	point
PEN-20D-HS BHL Rev-3		6262.72	-6017.57	6297.33	1574546.84	299217.48	39°18'42.310"N	81°00'13.331"W	point
PEN-20 ALT Vertices		6948.00	-30.58	-1.09	1568248.72	305204.18	39°19'40.426"N	81°01'34.745"W	polygon
PEN-20 Cokely Tract 1		6948.00	-30.58	-1.09	1568248.72	305204.18	39°19'40.426"N	81°01'34.745"W	polygon
PEN-20 Cokely Tract 2		6948.00	-30.58	-1.09	1568248.72	305204.18	39°19'40.426"N	81°01'34.745"W	polygon
PEN-20 LL		6948.00	-30.58	-1.09	1568248.72	305204.18	39°19'40.426"N	81°01'34.745"W	polygon
PEN-20 Parcel 3.12-1.2		6948.00	-30.58	-1.09	1568248.72	305204.18	39°19'40.426"N	81°01'34.745"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: PEN-20D-HS AWB Ref Wellpath: PEN-20D-HS AWP Proj: 14852'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	4042.00	Generic gyro - northseeking (Standard)	01 Gyrodatta MS Gyro <17-1/2"> (100'-4042')	PEN-20D-HS AWB
4042.00	5208.00	ISCWSA MWD, Rev. 2 (Standard)	02 Scientific EM <12-1/4"> (4042')(4166'-5208')	PEN-20D-HS AWB
5208.00	14825.00	NaviTrak (AT Curve Short Spaced)	03 BHI AT Curve <8-3/4"> (5208')(5354'-14825')	PEN-20D-HS AWB
14825.00	14852.00	Blind Drilling (std)	Projection to bit	PEN-20D-HS AWB

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot D
Area	Ritchie County, WV	Well	PEN-20D-HS
Field	Ritchie	Wellbore	PEN-20D-HS AWB
Facility	PEN-20 Pad		

COMMENTS
<p><b>Wellpath general comments</b>            API: 47-085-10111-0000            Rig: Nomac 78            BIH Job #: 6697359            Duration: 12/20/2014 – 12/28/2014            Gyrodata MS Gyro &lt;17-1/2"&gt; (100'-4042')            Scientific EM &lt;12-1/4"&gt; (4042')(4166'-5208')            BIH AT Curve &lt;8-3/4"&gt; (5208')(5354'-14825')            Projected MD at TD: 14852'</p>

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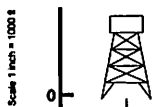


# NOBLE ENERGY



Location: Ritchie County, WV  
 Field: Ritchie  
 Facility: PEN-20 Pad

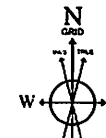
Slot: Slot D  
 Well: PEN-20D-HS  
 Wellbore: PEN-20D-HS PWB



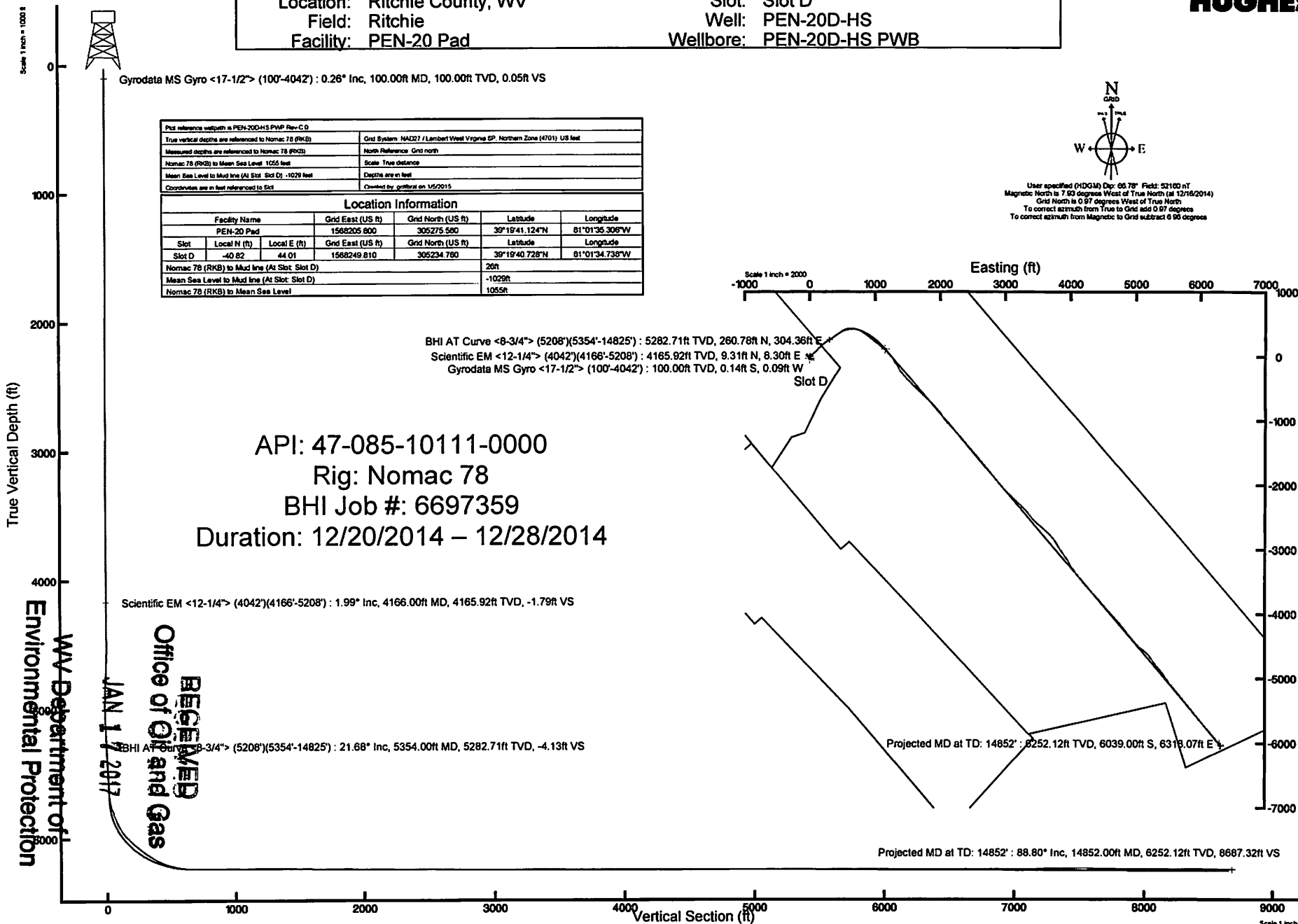
Gyrodata MS Gyro <17-1/2"> (100'-4042') : 0.26° Inc, 100.00ft MD, 100.00ft TVD, 0.05ft VS

PWB reference wellpath is PEN-20D-HS PWB Rev-C9	
True vertical depths are referenced to Nomac 78 (RKB)	Grid System: NAD83 / Lambert West Virginia SP, Northern Zone (4701) US feet
Measured depths are referenced to Nomac 78 (RKB)	North Reference: Grid north
Nomac 78 (RKB) to Mean Sea Level: 1055 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot Slot D) : -1029 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Checked by: gottsch on 1/5/2015

Location Information					
Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
PEN-20 Pad		1568205.800	305275.590	39°19'41.124"N	81°01'35.306"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude
Slot D	-40.82	44.01	1568249.810	305234.780	39°19'40.728"N
Nomac 78 (RKB) to Mud line (At Slot Slot D)				26ft	
Mean Sea Level to Mud line (At Slot Slot D)				-1029ft	
Nomac 78 (RKB) to Mean Sea Level				1055ft	



User specified (MDDM) Dip: 03.78° Field: 52100 nT  
 Magnetic North is 7.93 degrees West of True North (at 12/16/2014)  
 Grid North is 0.97 degrees West of True North  
 To correct azimuth from True to Grid add 0.97 degrees  
 To correct azimuth from Magnetic to Grid subtract 0.96 degrees



API: 47-085-10111-0000  
 Rig: Nomac 78  
 BHI Job #: 6697359  
 Duration: 12/20/2014 – 12/28/2014

Scientific EM <12-1/4"> (4042')(4166'-5208') : 1.99° Inc, 4166.00ft MD, 4165.92ft TVD, -1.79ft VS

BHI AT Curve <8-3/4"> (5208')(5354'-14825') : 21.68° Inc, 5354.00ft MD, 5282.71ft TVD, -4.13ft VS

WV Department of Environmental Protection

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JAN 17 2017

Northing (ft)

4708510111

Azimuth 140.00° with reference 0.00 N, 0.00 E

Scale 1 inch = 1000 ft

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Pen 20 Wells

Formations	Top	Base
Shale and Sandstone	0	1222
Sandstone	1222	1346
Shale and Sandstone	1336	1506
Sandstone	1506	1548
Shale and Sandstone	1548	1650
Maxton Sand	1650	1733
Shale and Sandstone	1733	1856
Big Lime	1856	1911
Big Injun	1911	2046
Price	2046	2318
Weir	2318	2357
Shale	2357	2637
Gordon	2637	2654
Shale and Sandstone	2654	2834
5th Sand	2834	2846
Shale	2846	2989
Sandstone	2989	3003
Shale	3003	3411
Warren	3411	3473
Shale	3473	3807
Sandstone	3807	3844
Shale and Sandstone	3844	4838
Benson	4838	4900
Shale	4900	5060
Alexander	5060	5128
Shale	5128	5638
Rheinstreet	5638	5964
Cashaqua	5964	6056
Middlesex	6056	6085
West River	6085	6129
Burkett	6129	6172
Tully Limestone	6172	6173
Hamilton	6173	6174
Marcellus	6174	6233
Onondaga	6233	

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03/24/2017

WW-9  
(4/16)

API Number 47 - 085 - ~~10109111~~ <sup>F</sup>

Operator's Well No. PEN20BMS DHS

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) North Fork Hughs River/Bonds Creek Quadrangle Ellenboro

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: no utilization of a pit

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 at next anticipated wells SHR3 A,B,C,D. 4709502193, 4709502124, 470952194, 4709502195 )
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain No drilling activity, unused frac water will be reused at other wells in the area.)

MAG  
1/19/17

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

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. NA No Drilling

-If oil based, what type? Synthetic, petroleum, etc. NA No Drilling

Additives to be used in drilling medium? NA No Drilling

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. NA No Drilling

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

-Landfill or offsite name/permit number? NA

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

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 *Matt Hanley*

Company Official (Typed Name) Matt Hanley

Company Official Title Manager - Permitting

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Subscribed and sworn before me this 18<sup>th</sup> day of January, 2017 WV Department of Environmental Protection

*Shirley K. Kusan*

NOTARY PUBLIC  
STATE OF WEST VIRGINIA  
COMMISSION EXPIRES 03/24/2017

Notary Public

My commission expires 02-11-17

03/24/2017

CNX GAS COMPANY LLC

Proposed Revegetation Treatment: Acres Disturbed 0 Prevegetation pH 6.0

Lime 2-3 Tons/acre or to correct to pH

Fertilizer type 10-10-20 or equal

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
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Michael Duff

Comments: Noble Energy's Original WW-9 attached. Will follow procedures of what was previously permitted.

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Title: Oil & Gas Inspector Date: 1/19/17 FEB 01 2017

Field Reviewed? (X) Yes ( ) No

WV Department of Environmental Protection 03/24/2017

WW-9  
(9/13)

API Number 47 - 085 - \_\_\_\_\_  
Operator's Well No. PEN 20 AHS \_\_\_\_\_

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Noble Energy, Inc. OP Code 494501907

Watershed (HUC 10) North Fork Hughs River / Bonds Creek Quadrangle Ellenboro

Elevation 1037 County 085-Ritchie District Clay

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: closed loop-no utilization of a pit

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 \_\_\_\_\_ at next anticipated well)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain \_\_\_\_\_)

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

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Antifeed based mud through intermediate string then SOB \_\_\_\_\_

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

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

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

-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 sheet

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 in 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 \_\_\_\_\_

Company Official (Typed Name) Dee Swiger

Company Official Title Regulatory Analyst III

Subscribed and sworn before me this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_

Notary Public

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Environmental Protection

03/24/2017

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Form WW-9

Operator's Well No. PEN 20 AHS

Noble Energy, Inc.

Proposed Revegetation Treatment: Acres Disturbed 18.9 Prevegetation pH 6.0

Lime 2-3 Tons/acre or to correct to pH \_\_\_\_\_  
10-10-20 or equal

Fertilizer type \_\_\_\_\_

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
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5

\*\*alternative seed mixtures are shown on the Site Design.

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 Wilson

Comments: pressured & Mulch all cut area maintain all O&G during operation

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FEB 01 2017

WV Department of  
Environmental Protection

Title: Oil and Gas Inspector

Date: 2-20-14

03/24/2017

Field Reviewed?  Yes  No





# Safety Plan for PEN20 Well Pad

Wells PEN20BHS, PEN20CHS, PEN20DHS, PEN20EHS, PEN20FHS, PEN20GHS, PEN20HHS

## CNX Gas Company LLC



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Environmental Protection  
03/24/2017

# Approval Sheet- PEN20 Well Pad

The Office of Oil and Gas and the Oil and Gas Conservation Commission have set forth minimum requirements for necessary equipment and procedures that must be addressed in a Safety Plan ("Plan") and shall be submitted and approved prior to drilling a deep well. A deep well shall be any well which meets the definition as provided for in Chapter 22C, Article 9 of the West Virginia Code.

A site specific Safety Plan must be submitted with each deep well application or no later than one week prior to spudding. Approved Plans shall be maintained and available at the drilling rig at all times.

The Office of Oil and Gas must approve all changes and modifications to previously approved plans.

This plan has met the requirements of the Policy Statement Deep Well Drilling Procedures and Site Safety Plan Requirements as set forth by:

West Virginia Division of Environmental Protection, Office of Oil and Gas

And

West Virginia Oil and Gas Conservation Commission.

Approved this day ~~19th~~<sup>19th</sup> of month January, 2017 by

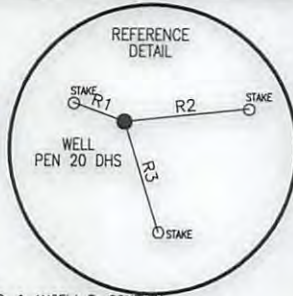
Michael Daff

Date: 1/19/17

Date: \_\_\_\_\_

BHL is located on topo map 7,853' feet south of Latitude: 39° 20' 00"  
 SHL is located on topo map 1,922' feet south of Latitude: 39° 20' 00"

TRACT	LESSOR
1	LAWRENCE B. & ANGELA COKELEY
2	LAWRENCE B. & ANGELA COKELEY
3	LAWRENCE B. & ANGELA COKELEY ET AL
4	PHILLIP A. & REBECCA LOFTY
5	PHILLIP A. & REBECCA LOFTY
6	ARTHUR D. HALL ET AL
7	ARTHUR D. HALL ET AL
8	KIEDAISCH & SUMMERS ET AL
9	DONALD G. & SUSIE A. HOGUE
10	DONZIL LEROY BAKER ET AL
11	WALNUT INVESTMENT COMPANY ET AL

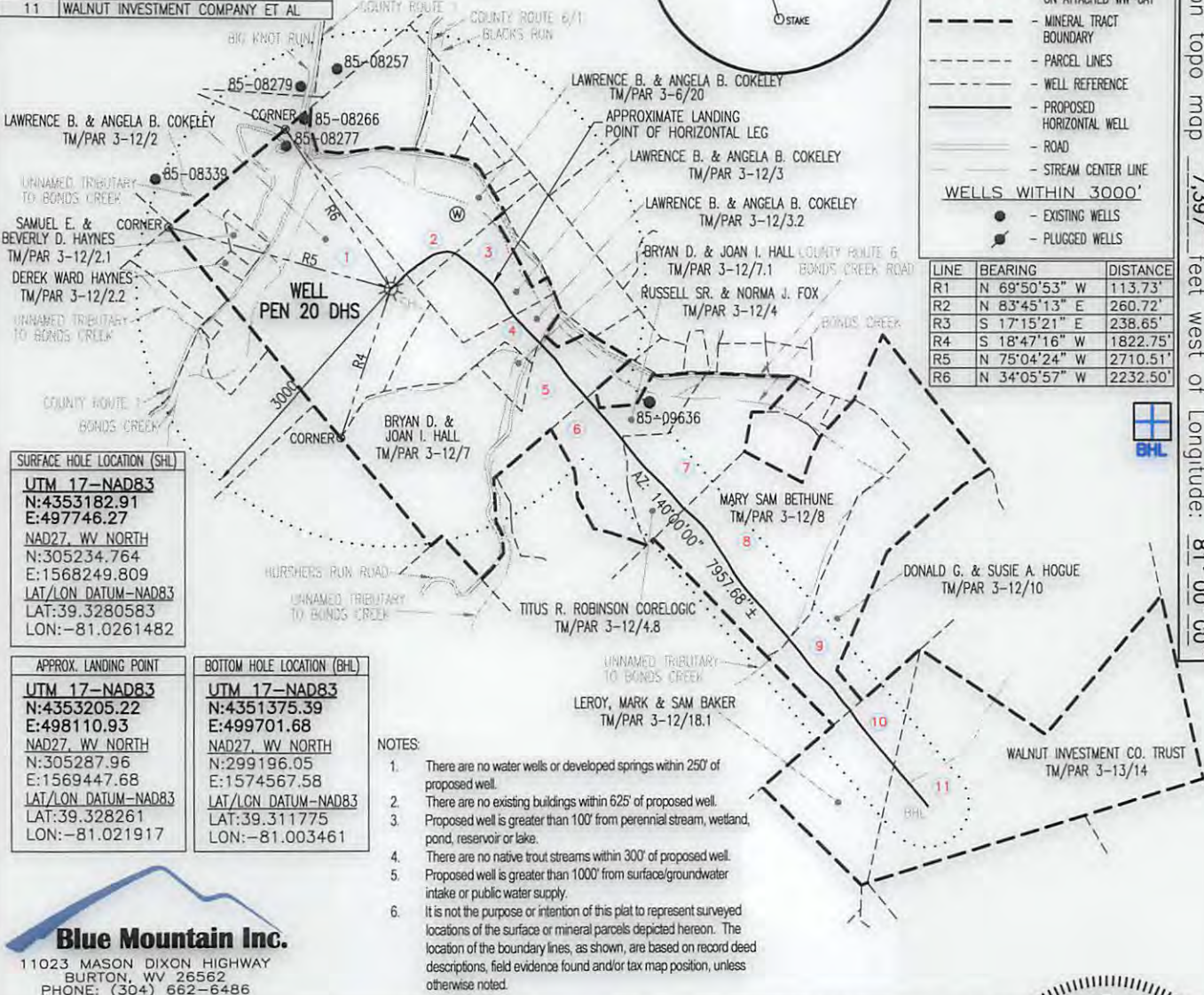


**LEGEND**

- TOPO MAP POINT
  - WELL
  - ALL ARE POINTS UNLESS OTHERWISE NOTED.
  - WATER SOURCE
  - LEASE NUMBER BASED ON ATTACHED WW-6A1
  - MINERAL TRACT BOUNDARY
  - PARCEL LINES
  - WELL REFERENCE
  - PROPOSED HORIZONTAL WELL
  - ROAD
  - STREAM CENTER LINE
- WELLS WITHIN 3000'**
- EXISTING WELLS
  - PLUGGED WELLS

LINE	BEARING	DISTANCE
R1	N 69°50'53" W	113.73'
R2	N 83°45'13" E	260.72'
R3	S 17°15'21" E	238.65'
R4	S 18°47'16" W	1822.75'
R5	N 75°04'24" W	2710.51'
R6	N 34°05'57" W	2232.50'

BHL is located on topo map 979' feet west of Longitude: 81° 00' 00"  
 SHL is located on topo map 7,397' feet west of Longitude: 81° 00' 00"



**SURFACE HOLE LOCATION (SHL)**  
 UTM 17-NAD83  
 N:4353182.91  
 E:497746.27  
 NAD27, WV NORTH  
 N:305234.764  
 E:1568249.809  
 LAT/LON DATUM-NAD83  
 LAT:39.3280583  
 LON:-81.0261482

**APPROX. LANDING POINT**  
 UTM 17-NAD83  
 N:4353205.22  
 E:498110.93  
 NAD27, WV NORTH  
 N:305287.96  
 E:1569447.68  
 LAT/LON DATUM-NAD83  
 LAT:39.328261  
 LON:-81.021917

**BOTTOM HOLE LOCATION (BHL)**  
 UTM 17-NAD83  
 N:4351375.39  
 E:499701.68  
 NAD27, WV NORTH  
 N:299196.05  
 E:1574567.58  
 LAT/LON DATUM-NAD83  
 LAT:39.311775  
 LON:-81.003461

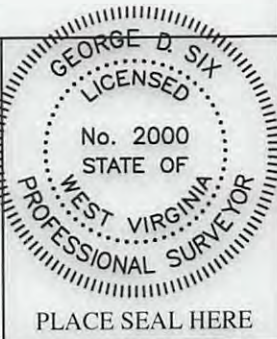
- NOTES:**
- There are no water wells or developed springs within 250' of proposed well.
  - There are no existing buildings within 625' of proposed well.
  - Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
  - There are no native trout streams within 300'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

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

FILE #: PEN 20 DHS  
 DRAWING #: PEN 20 DHS  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: 1/2500  
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

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

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



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



DATE: MARCH 8, 2017  
 OPERATOR'S WELL #: PEN 20 DHS  
 API WELL #: 47 85 10111 F  
 STATE COUNTY PERMIT

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

WATERSHED: NORTH FORK HUGHES RIVER ELEVATION: 1081'±  
 COUNTY/DISTRICT: RITCHIE / CLAY QUADRANGLE: ELLENBORO, WV 7.5'  
 SURFACE OWNER: LAWRENCE & ANGELA COKELEY ACREAGE: 126.17±  
 OIL & GAS ROYALTY OWNER: LAWRENCE B. & ANGELA COKELEY ACREAGE: 746.709±

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,252'± TMD: 14,852'±  
 WELL OPERATOR CNX GAS COMPANY LLC DESIGNATED AGENT CHRIS TURNER  
 Address 1000 CONSOL ENERGY DRIVE Address 1 DOMINION DR.  
 City CANONSBURG State PA Zip Code 15317 City JANE LEW State WV Zip Code 26378

03/24/2017

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
See Attached				

**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

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MAR 09 2017

Well Operator: CNX GAS COMPANY LLC  
 By: Matt Hanley   
 Its: Manager - Permitting

MAR 09 2017

Attachment - Form WW-6A-1 for PENS200HS

Tract ID	Tax Map & Parcel	Title Opinion QLS #	Grantor, Lessor, etc	Grantee, Lessee, etc	Royalty	Book/Page
1	3-12-2	281715000	S T & Pearl Weekly F P Weekly J H Wagner J H Wagner J D Israel and Mary E Israel, h/w Harry E Snyder and Lulu Snyder, h/w Nina Virginia Snyder, widow of Roy E Snyder James R Smith and Virginia Smith, h/w Kenneth E Mosser and Lorena D Mosser, h/w Noble Energy, Inc.	J H Wagner J D Israel W E Snyder  Kenneth E Mosser and Lorena D Mosser, h/w  Noble Energy, Inc. CNX Gas Company, LLC	Not less than 1/8 Assignment Assignment  Assignment  Assignment Assignment	56/385 91/103 91/104  189/121  272/128 304/344
2	3-6-20	Unknown	C C & B H Weekly F P Weekly Henaghan & Hanlon Inc. E L Hanlon Hanlon Oil Company  Charles E Reed  Chief Drilling Inc. Charles E Reed Chief Drilling Inc. Hi-Lo Investment Company Chief Drilling Inc. Wilbur Williams Mackenzie Products Company James M Burger Edwin Morrill Chester Hlinski Ralph J Hunter Big Knot Oil Company Inc. The Glass Development Co. Inc. Noble Energy, Inc.	Henaghan & Hanlon Inc. E L Hanlon Hanlon Oil Company Charles E Reed Chief Drilling Inc. Wilbur Williams Hi-Lo Investment Company James Burger Edwin Morrill Charles E Reed Chief Drilling Inc. Chester Hlinski The Mackenzie Products Company  Ralph J Hunter  Big Knot Oil Company Inc. The Glass Development Co. Inc. Noble Energy, Inc. CNX Gas Company, LLC	Not less than 1/8 Assignment Assignment Assignment  Assignment  Assignment Assignment Assignment Assignment  Assignment  Assignment Assignment Assignment Assignment	57/129 76/264 76/468 109/584  109/602  109/606 112/505 158/115 112/623  112/608  112/621 256/781 271/662 304/344
3	3-12-3 3-12-3.2	258040000	Wade Goodwin, et ux  The Coastal Corporation Pardee Gas Company Pardee Gas Company Pardee Exploration Company Pardee Minerals LLC  Antero Resources Appalachian Corporation Noble Energy, Inc.	The Coastal Corporation  Pardee Gas Company Pardee Exploration Company Pardee Exploration Company Pardee Minerals LLC Antero Resources Appalachian Corporation CNX Gas Company LLC Noble Energy, Inc. CNX Gas Company LLC	Not less than 1/8  Meiger Assignment Assignment Merger Assignment Assignment Assignment	205/714  CR 4/801 206/527 217/610 CR 6/726 256/314 273/115 304/344
4	3-12-7.1	264320000	Herald B. Middleton, Jr, et ux Phillip A. Lofly, et ux Kevin O'Conner d/b/a Frontier Land Company Key Oil Company Key Oil Company  Antero Resources Appalachian Corporation Noble Energy, Inc.	Key Oil Company Frontier Land Company Key Oil Company Antero Resources Appalachian Corporation Antero Resources Appalachian Corporation CNX Gas Company LLC Noble Energy, Inc. CNX Gas Company LLC	Not less than 1/8 Not less than 1/8 Assignment Assignment Assignment Assignment Assignment Assignment	239/473 239/790 241/8 253/747 258/509 273/115 304/344
5	3-12-7	264320000	Herald B. Middleton, Jr, et ux Phillip A. Lofly, et ux Kevin O'Conner d/b/a Frontier Land Company Key Oil Company Key Oil Company  Antero Resources Appalachian Corporation Noble Energy, Inc.	Key Oil Company Frontier Land Company Key Oil Company Antero Resources Appalachian Corporation Antero Resources Appalachian Corporation CNX Gas Company LLC Noble Energy, Inc. CNX Gas Company LLC	Not less than 1/8 Not less than 1/8 Assignment Assignment Assignment Assignment Assignment Assignment	239/473 239/790 241/8 253/747 258/509 273/115 304/344
6	3-12-4	266268000	Arthur D. Hall Kenneth L. Hall Gerald S. Hall Dale Hall Haze H. Hall Bluestone Energy Partners Antero Resources Bluestone LLC Antero Resources Appalachian Corporation Antero Resources Appalachian Corporation Noble Energy, Inc.	Bluestone Energy Partners Bluestone Energy Partners Bluestone Energy Partners Bluestone Energy Partners Bluestone Energy Partners Antero Resources Bluestone LLC Antero Resources Appalachian Corporation CNX Gas Company LLC Noble Energy, Inc. CNX Gas Company LLC	Not less than 1/8 Not less than 1/8 Not less than 1/8 Not less than 1/8 Not less than 1/8 Merger Merger Assignment Assignment	245/251 245/254 245/394 245/385 245/388 6/589 VV Secretary of State 273/115 304/344



4708510111F

CNX Gas Company LLC  
Conventional Operator Notice and Monitoring Plan – Hydraulic Fracturing Activity  
**PEN20HS Well Pad**  
Ritchie County, West Virginia



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Purpose:

The purpose of this hydraulic fracturing monitoring plan is to identify and notify any potentially affected conventional well operators near planned CNX hydraulic fracturing activity.

CNX has evaluated the existing geologic conditions in the area, and the potential for communication between the geologic zone being stimulated by CNX and the zone being produced by the conventional wells exists.

This plan is being implemented as an additional safety measure to be utilized in conjunction with the existing best management practices and the site safety/emergency response plans included for the site.

1. Communications with Conventional Well Operators

CNX has identified all known conventional wells and well operators within five hundred feet (500') of this pad and lateral sections pursuant to WV Code 35 CSR 8(5.11). A list and map of these wells and operators is provided as **Attachment A**.

Upon approval of this plan, CNX will notify operators identified in the referenced attachment, via letter, of the anticipated fracturing schedule associated with this pad. A copy of this letter is included as **Attachment B**, and includes the recommended steps a conventional operator can take to ensure safe and compliant operations.

2. Reporting

CNX will provide information relating to the hydraulic fracturing schedule, any communication with conventional operators, and ongoing monitoring of the work upon request of the OOG or immediately in the event of any discovered abnormalities that create additional risk or concern.

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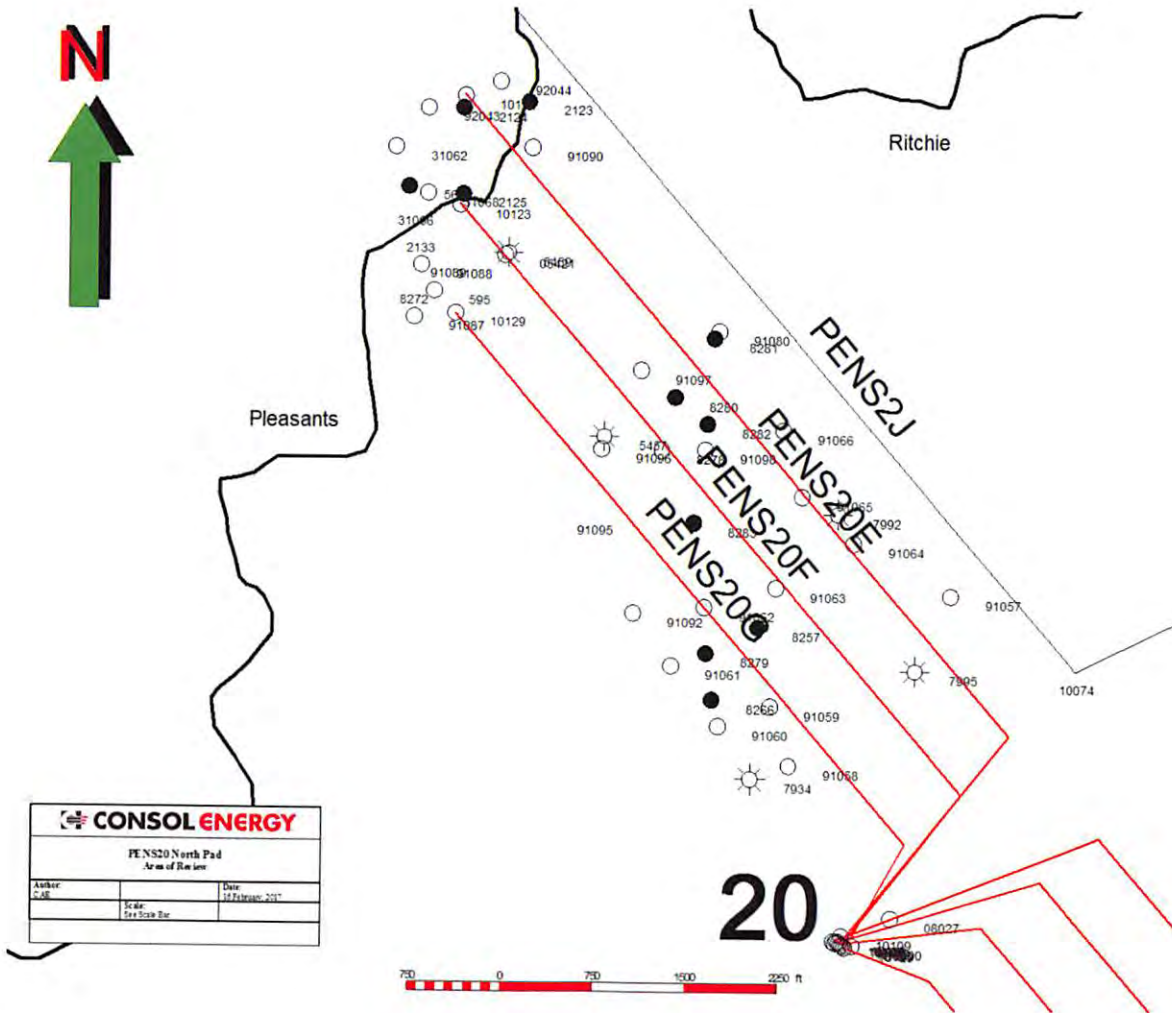
**Attachment A:  
Map and List of Conventional Operators in the PEN20 Project Area**

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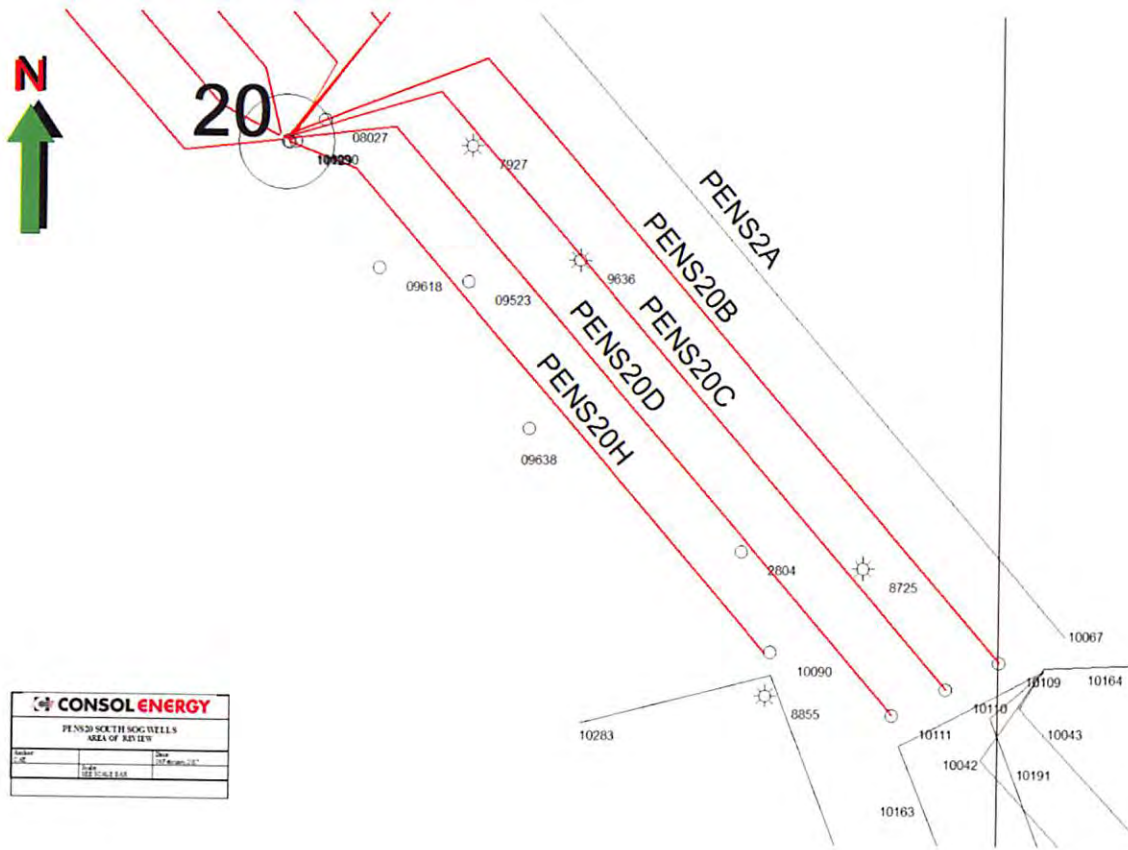
PENS20 North Pad Area of Interest	
Author: CJE	Date: 12 February 2017
Scale: As Shown	

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API	OPERATOR	WELL NAME	WELL #	TD	PRODUCING FORMATION AT TD	PERMIT DATE	STATUS COMMENTS	DISTANCE FROM LATERAL (2D MAP VIEW)
Any well producing from a formation deeper than 4800' is within 1500' of the Marcellus.								
470851074	CONSOL		PEN20H5	6314	MARCELLUS	10/30/2013	GAS	750
470851075	PETROMARK	WEEKLEY F. P.	WEEKLEY 1	5504	ALEXANDER	12/7/1984	GAS	272
470851076	TRAD RESOURCES	HAMMETT HOMER	GORRELL 1	5500	ALEXANDER	3/26/1982	GAS	50
470851082	CONSOL	Butcher #2	10275	5041	BENSON	6/17/1991	GAS	269
4708507992	CONSOL	Simonton #1	12717	5032	BENSON	10/29/1990	GAS	125
4708508061	CONSOL	Butcher #1	10274	5034	BENSON	5/8/1991	GAS	96
4708507945	PARDEE EXPLORATION COMPANY	MOSSOR KENNETH & LORENA	K. MOSSOR 1	5013	BENSON	10/22/1990	GAS	230
4708507995	CONSOL	WEEKLEY #1	13788	5006	BENSON	5/21/1990	GAS	450
4708507913	PARDEE EXPLORATION COMPANY	WEEKLEY REBECCA ANN	S. WEEKLEY 1	4900	BENSON	5/21/1990	GAS	20
4708507914	PARDEE EXPLORATION COMPANY	WEEKLEY REBECCA ANN	S. WEEKLEY 2	4885	BENSON	5/21/1990	GAS	20
470700592	GLASS DEVELOPMENT	FRELAND JOHN	12	2072	BIG INJLN	1/12/1993	OIL	
470700568	BEECHUCK OIL	WAGNER FLOYD	12	2040	BIG INJLN	1/28/1993	OIL	
470700120	GLASS DEVELOPMENT	FRELAND JOHN	FRELAND 6	2022	BIG INJLN	11/27/1993	OIL	
470700125	GLASS DEVELOPMENT	HAMMETT HOMER	M. L. GORRELL 4	1996	BIG INJLN	11/27/1993	OIL	
470700910	GLASS DEVELOPMENT	FRELAND JOHN	9	1975	BIG INJLN	12/6/1993	GAS	
4708508273	GLASS DEVELOPMENT COMPANY	MOSSOR KENNETH	T. BURCHER 1	1955	BIG INJLN	11/27/1993	GAS	
470700133	GLASS DEVELOPMENT	MCULLOUGH HEIRS	E. WAGNER 4	1945	BIG INJLN	11/27/1993	OIL	
4708508272	GLASS DEVELOPMENT COMPANY	MCULLOUGH HEIRS	E. WAGNER 1	1931	BIG INJLN	11/27/1993	OIL	
4708508284	GLASS DEVELOPMENT COMPANY	RITCHE RODNEY	0	1895	BIG INJLN	11/27/1993	OIL	
4707002124	GLASS DEVELOPMENT COMPANY	RITCHE RODNEY	0	1879	BIG INJLN	11/27/1993	OIL	
4708508257	GLASS DEVELOPMENT COMPANY	HAMMETT HOMER	M. L. GORRELL 3	1878	BIG INJLN	11/27/1993	OIL	
4707002132	GLASS DEVELOPMENT	CABDOLL MINT	W.M. SIMONTON 2	1878	BIG INJLN	11/27/1993	OIL	
4707002136	GLASS DEVELOPMENT	MCULLOUGH HEIRS	E. WAGNER 7	1875	BIG INJLN	11/27/1993	OIL	
4708508283	GLASS DEVELOPMENT COMPANY	MCULLOUGH HEIRS	E. WAGNER 2	1873	BIG INJLN	11/27/1993	OIL	
4707002134	GLASS DEVELOPMENT	RITCHE RODNEY	0	1870	BIG INJLN	11/27/1993	OIL	
4707002143	GLASS DEVELOPMENT	MCULLOUGH HEIRS	E. WAGNER 5	1864	BIG INJLN	11/27/1993	OIL	
4708508277	GLASS DEVELOPMENT COMPANY	HALL GERALD/R. WEEKLEY	R. WEEKLEY 3	1857	BIG INJLN	11/27/1993	OIL	
4707002119	GLASS DEVELOPMENT	RITCHE RODNEY	0	1852	BIG INJLN	11/27/1993	OIL	
4707002118	GLASS DEVELOPMENT	FRELAND JOHN	FRELAND 4	1850	BIG INJLN	11/27/1993	OIL	
4707002117	GLASS DEVELOPMENT	MCULLOUGH HEIRS	E. WAGNER 10	1840	BIG INJLN	11/27/1993	OIL	
4707002123	GLASS DEVELOPMENT	FRELAND JOHN	FRELAND 2	1826	BIG INJLN	11/27/1993	OIL	
4708508279	GLASS DEVELOPMENT COMPANY	HAMMETT HOMER	M. L. GORRELL 2	1823	BIG INJLN	11/27/1993	OIL	
4708508282	GLASS DEVELOPMENT COMPANY	RITCHE RODNEY	C. C. WEEKLEY 6	1822	BIG INJLN	11/27/1993	OIL	
4707002144	GLASS DEVELOPMENT	HALL GERALD/R. WEEKLEY	R. WEEKLEY 7	1820	BIG INJLN	11/27/1993	OIL	
4707002142	GLASS DEVELOPMENT	HALL GERALD/R. WEEKLEY	R. WEEKLEY 1	1806	BIG INJLN	11/27/1993	OIL	
4708508281	GLASS DEVELOPMENT COMPANY	RITCHE RODNEY	0	1780	MAXTON	11/27/1993	OIL	
4708508168	GLASS DEVELOPMENT COMPANY	GOODWIN WADE	F. P. WEEKLEY 1	1764	MAXTON	11/27/1993	OIL	
470700596	OPRIAN	FRELAND JOHN	1	UNKNOWN	UNKNOWN		GAS	
4707002118	GLASS DEVELOPMENT	WAGNER FLOYD	14	UNKNOWN	UNKNOWN		NEVER DRILLED	
4707002139	GLASS DEVELOPMENT	FRELAND JOHN	FRELAND 3	UNKNOWN	UNKNOWN	11/27/1993	OIL	
4707002140	GLASS DEVELOPMENT	MCHEERY HEIRS	M. RYAN 1	UNKNOWN	UNKNOWN	11/27/1993	GAS	
4707002141	GLASS DEVELOPMENT	MCHEERY HEIRS	M. RYAN 2	UNKNOWN	UNKNOWN	11/27/1993	OIL	
4707002142	GLASS DEVELOPMENT	MCHEERY HEIRS	M. RYAN 3	UNKNOWN	UNKNOWN	11/27/1993	GAS	
470731063	GLASS DEVELOPMENT	Clud B Williamson 4	UNKNOWN	UNKNOWN	UNKNOWN		INACTIVE	
470731062	Hanlon Oil & Gas Co.	Jacob Morrison 2	UNKNOWN	UNKNOWN	UNKNOWN		INACTIVE	
470731066	Hanlon Oil & Gas Co.	Jacob Morrison 9	UNKNOWN	UNKNOWN	UNKNOWN		INACTIVE	
470731068	Hanlon Oil & Gas Co.	Jacob Morrison 1	UNKNOWN	UNKNOWN	UNKNOWN		INACTIVE	
4707392029	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		INACTIVE	
4707392030	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392031	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392032	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392033	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392034	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392035	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392036	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392037	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392038	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392039	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392040	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392041	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392042	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392043	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4707392044	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED		NEVER DRILLED	
4708504421	WHITMAN OIL & GAS	HAMMETT HOMER ET AL	GORRELL #1	UNKNOWN	UNKNOWN		NEVER DRILLED	
4708508077	ANVIL OIL	GOODWIN W. ETUX	GORRELL #2	UNKNOWN	UNKNOWN		CAN	
4708508278	GLASS DEVELOPMENT COMPANY	RITCHE RODNEY	C. C. WEEKLEY 2	0	UNKNOWN	1/4/1991	CAN	
4708508389	KENNETH MOSSOR	WEEKLEY REBECCA	1	UNKNOWN	UNKNOWN	11/27/1993	ARO	
						5/16/1994	ABOIL	
4708510090	CONSOL		PEN 20 HHS			5/30/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510107	CONSOL		PEN 20 KHS			8/8/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510108	CONSOL		PEN 20 LHS			8/8/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510109	CONSOL		PEN 20 BHS			8/8/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510110	CONSOL		PEN 20 CHS			8/8/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510111	CONSOL		PEN 20 DHS			8/8/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510122	CONSOL		PEN 20 EHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510123	CONSOL		PEN 20 FHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510124	CONSOL		PEN 20 GHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510125	CONSOL		PEN 20 HHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510126	CONSOL		PEN 20 IHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510127	CONSOL		PEN 20 JHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510128	CONSOL		PEN 20 KHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510129	CONSOL		PEN 20 LHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510130	CONSOL		PEN 20 MHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510131	CONSOL		PEN 20 NHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510132	CONSOL		PEN 20 OHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510133	CONSOL		PEN 20 PHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510134	CONSOL		PEN 20 QHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510135	CONSOL		PEN 20 RHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510136	CONSOL		PEN 20 SHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510137	CONSOL		PEN 20 THS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510138	CONSOL		PEN 20 UHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510139	CONSOL		PEN 20 VHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510140	CONSOL		PEN 20 WHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510141	CONSOL		PEN 20 XHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510142	CONSOL		PEN 20 YHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510143	CONSOL		PEN 20 ZHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510144	CONSOL		PEN 20 AHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510145	CONSOL		PEN 20 BHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510146	CONSOL		PEN 20 CHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510147	CONSOL		PEN 20 DHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510148	CONSOL		PEN 20 EHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510149	CONSOL		PEN 20 FHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510150	CONSOL		PEN 20 GHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510151	CONSOL		PEN 20 HHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510152	CONSOL		PEN 20 IHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510153	CONSOL		PEN 20 JHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510154	CONSOL		PEN 20 KHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510155	CONSOL		PEN 20 LHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510156	CONSOL		PEN 20 MHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510157	CONSOL		PEN 20 NHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510158	CONSOL		PEN 20 OHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510159	CONSOL		PEN 20 PHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510160	CONSOL		PEN 20 QHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510161	CONSOL		PEN 20 RHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510162	CONSOL		PEN 20 SHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510163	CONSOL		PEN 20 THS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510164	CONSOL		PEN 20 UHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510165	CONSOL		PEN 20 VHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510166	CONSOL		PEN 20 WHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510167	CONSOL		PEN 20 XHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510168	CONSOL		PEN 20 YHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510169	CONSOL		PEN 20 ZHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510170	CONSOL		PEN 20 AHS			8/2/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	

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API	OPERATOR	WELL NAME	WELL #	TD	PRODUCING FORMATION AT TD	PERMIT DATE	STATUS COMMENTS	DISTANCE FROM LATERAL (2D MAP VIEW)
4708510163	ANTERO RESOURCES CORP	MUSGRAVE UNIT 1H	1H	6391	MARCELLUS	11/25/2014	PRODUCING HORIZONTAL MARCELLUS LATERAL	325
4708509636	HALL DRILLING	FOX RUSSELL E. 5R	A. HALL 2	6040	MARCELLUS	10/10/2007	PLUGGED 11-11-14	32
4708508725	KEY OIL	BAKER LEROY	1	5332	ALEXANDER	12/12/2000	GAS	150
4708507927	PARDEE EXPLORATION COMPANY	GOODWIN WADE	1	5225	ALEXANDER	3/21/1990	GAS	118
4708507740	MAY GAS	NICHOLS MICHAEL D.	NICHOLS 1	5201	ALEXANDER	2/22/1988	GAS	320
4708508855	KEY OIL	BAKER LEROY	BAKER 2	5177	BENSON	11/13/2001	GAS	440
4708507924	CONSOL	Bachelor #1, F. L.	3944	5172	BENSON	1/12/1990	GAS	160
4708507982	CONSOL	Baker #2, O. D.	4530	5123	BENSON	7/2/1990	GAS	140
4708509521	KEY OIL	MIDDLETON HERALD	MIDDLETON 2	5005	BENSON	2/8/2007	GAS	20
4708509639	HALL DRILLING	HALL BRYAN	B. HALL 1	4962	BENSON	10/12/2007	GAS	48
4708509618	KEY OIL	MIDDLETON HAROLD B.	MIDDLETON 3R	4927	BENSON	7/23/2007	GAS	130
4708509381	KEY OIL	MIDDLETON HERALD	MIDDLETON 1	4917	BENSON	7/31/2006	GAS	67
4708502804	TRANSCAPITAL INVESTMENT GROUP	BAKER OKEY	1	2806	GORDON	10/11/1963	ABDGAS	104
4708509522	KEY OIL	MIDDLETON HERALD B.	MIDDLETON 3	924	UNKNOWN	7/24/2007	PLG	72
4708500335	GLENN F MCBURNEY	BAKER D.L.	1	UNKNOWN	UNKNOWN		PLG	
4708500797	M A WILLNER	MORGAN O.E.	1	UNKNOWN	UNKNOWN		ABD	
4708508027	ANVIL OIL	GOODWIN W. ETUX	C. C. WISKEYLEY 2		NEVER DRILLED	1/4/1991	CAN	
4708509523	KEY OIL	MIDDLETON HERALD B.	MIDDLETON 4		NEVER DRILLED	2/8/2007	CAN	
4708509638	HALL DRILLING	HALL BRYAN D.	A. HALL 5		NEVER DRILLED	10/10/2007	CAN	
4708510090	CONSOL	PEN 20 HHS	PEN 20 HHS			5/30/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510090	CONSOL	PEN 20 HHS	PEN 20 HHS			5/30/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510107	CONSOL	PEN 20 KHS	PEN 20 KHS			8/8/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510108	CONSOL	PEN 20 LHS	PEN 20 LHS			8/8/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510109	CONSOL	PEN 20 BHS	PEN 20 BHS			8/8/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510110	CONSOL	PEN 20 CHS	PEN 20 CHS			8/8/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510111	CONSOL	PEN 20 DHS	PEN 20 DHS			8/8/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510123	CONSOL	PEN 20 FHS	PEN 20 FHS			8/1/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708510129	CONSOL	PEN 20 GHS	PEN 20 GHS			8/8/2014	DRILLED MARCELLUS LATERAL, BUT NOT YET FRAC'D	
4708591100	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	
4708591101	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	
4708591168	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	NEVER DRILLED	

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**Attachment B:  
Conventional Operator Notice Letter - Example**

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**CONSOL Energy Inc.**

CNX Center  
1000 CONSOL Energy Drive  
Canonsburg, PA 15317-6506

**phone:** (724) 485 – 4040

**e-mail:** PCR@consolenergy.com

**web:** www.consolenergy.com

**CNX GAS PRODUCTION TEAM**

[Conventional Well Operator]

[Address]

[State]

**Re: Ritchie County Hydraulic Fracturing Notice**

Dear Sir or Madam,

CNX Gas Company LLC (CNX) has developed a Marcellus pad PEN20HS located in Ritchie County, West Virginia. Through CNX's evaluation pursuant to WV Code 35 CSR 8(5.11), you have been identified as the owner or operator of a well within a 500' radius of the surface location or lateral section of the wellbore. Due to the apparent presence of unique geological conditions, communication between CNX hydraulic fracturing operations and the identified well is a possibility. As an owner or operator of a conventional natural gas well in this area, we are requesting your assistance in monitoring for changes that would indicate communication between your well(s) and our planned operation.

CNX anticipates conducting hydraulic fracturing activity at the PEN20HS during the 2<sup>nd</sup> Quarter 2017 through 3<sup>rd</sup> Quarter 2017. Plats for each well being hydraulically fractured on this pad are attached.

We recommend that conventional operators conduct the following activities before, during, and after fracturing operations.

1. Inspect surface equipment prior to fracturing, to establish integrity and confirm well conditions.
2. Observe wells during and after fracturing and monitor for abnormal increases in water, gas, or pressure.
3. Inspect and upgrade master valves or other necessary equipment for wellhead integrity as you see fit.
4. Notify the OOG and CNX if any changes in water, gas production, pressure, or other conditions that cause abnormal risk or concern.

Please feel free to contact CNX's Production Control Room at 724-485-4040 (staffed 24/7) with any questions or comments. You may also contact the West Virginia Office of Oil and Gas at 304-926-0499.

Sincerely,  
CNX Production

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MAR 09 2017

03/24/2017

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Matthew Hanley  
Manager – Gas Permitting  
CONSOL Energy Inc.  
1000 CONSOL Energy Drive  
Canonsburg, PA 15317

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304-2345

**RE: Road Letter – PENS 20 Well Pad Rework Applications**

To Whom It May Concern:

CNX Gas Company LLC has the right to drill, stimulate and produce wells that are drilled under the County and State Roads as designated on the plats.

Should you have any questions or need additional information, please do not hesitate to contact me at [matthanley@consolenergy.com](mailto:matthanley@consolenergy.com) or 724-485-3011.

Sincerely,

A handwritten signature in blue ink that reads 'Matthew Hanley'.

Matthew Hanley  
CNX Gas Company LLC

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Environmental Protection  
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STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE CERTIFICATION

Date of Notice Certification: 1/27/17

API No. 47- 085 - 10111  
Operator's Well No. PEN20DHS  
Well Pad Name: PEN20

**Notice has been given:**

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>497737.179</u>
County: <u>085-Ritchie</u>	UTM NAD 83 Northing: <u>4353191.046</u>
District: <u>Clay</u>	Public Road Access: <u>Bonds Creek Rd</u>
Quadrangle: <u>Ellenboro</u>	Generally used farm name: <u>Lawrence B. and Angela Cokley</u>
Watershed: <u>North Fork Hughs River/Bonds Creek</u>	

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="text-align: center;"><b>NO DRILLING</b></p> <p><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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**Required Attachments:**

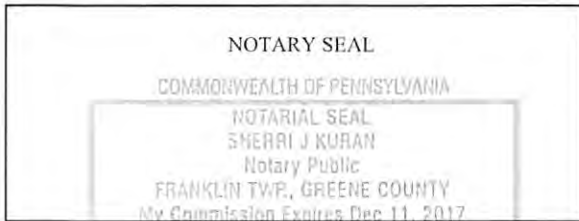
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

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WV Department of  
Environmental Protection

**Certification of Notice is hereby given:**

THEREFORE, I Matt Hanley, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, 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 and imprisonment.

Well Operator:	<u>CNX GAS COMPANY LLC</u>	Address:	<u>1000 Consol Energy Dr</u>
By:	<u>Matt Hanley</u> 		<u>Canonsburg, PA 15317</u>
Its:	<u>Manager - Permitting</u>	Facsimile:	<u></u>
Telephone:	<u>724-485-3011</u>	Email:	<u>Matthanley@consolenergy.com</u>



Subscribed and sworn before me this 18<sup>th</sup> day of January 2017.  
Sherrri J Kuran Notary Public  
 My Commission Expires 12-11-17

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [deprivacyofficer@wv.gov](mailto:deprivacyofficer@wv.gov).

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WV Department of  
Environmental Protection  
03/24/2017

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

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** 1/22/17 **Date Permit Application Filed:** 1/30/17

**Notice of:**

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

**Delivery method pursuant to West Virginia Code § 22-6A-10(b)**

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice  WSSP Notice  E&S Plan Notice  Well Plat Notice is hereby provided to:

SURFACE OWNER(s)  
 Name: Lawrence B. and Angela Cokeley  
 Address: 4573 Bonds Creek Road  
Pennsboro, WV 26415

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

SURFACE OWNER(s) (Road and/or Other Disturbance)  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

COAL OPERATOR  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)  
 Name: Lawrence B. and Angela Cokeley  
 Address: 4573 Bonds Creek Road  
Pennsboro, WV 26415

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

\*Please attach additional forms if necessary

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**Office of Oil and Gas**  
**FEB 01 2017**  
**WV Department of Environmental Protection**  
**03/24/2017**

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

**This Notice Shall Include:**

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No 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 department 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 department 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. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 405 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells and they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, made by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

**Water Well Testing:**

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

**Water Testing Laboratories:**

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

**Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:**

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

**Written Comment:**

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

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**Time Limits and Methods for Filing Comments.**

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

**Comment Requirements**

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

**Permit Denial or Condition**

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.


Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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WW-6A  
(8-13)

API NO. 47-085 - 10111 **F**  
OPERATOR WELL NO. PEN20DHS  
Well Pad Name: PEN20

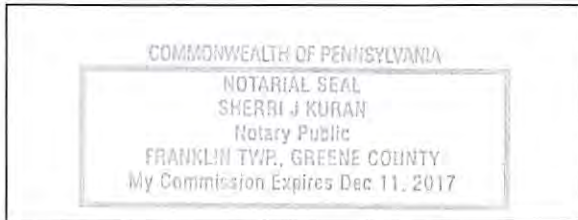
**Notice is hereby given by:**

Well Operator: CNX GAS COMPANY LLC   
Telephone: 724-485-3011  
Email: MattHanley@consolenergy.com

Address: 1000 CONSOL ENERGY DRIVE  
Canonsburg, PA 15317  
Facsimile: \_\_\_\_\_

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).



Subscribed and sworn before me this 18<sup>th</sup> day of January 2017.

Sherri J. Kuran Notary Public

My Commission Expires 12-11-17

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39.32826, -81.031919

39.328385, -81.026757

PEN20  
39.327974, -81.02637

Cokeley, Lawrence B & Angela B  
4579 Bonds Creek  
Road Pennsboro, WV 26415

1.500'  
2.000'  
2.500'  
3.000'

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- Well Site
- Water Wells
- Access Points

- Access Road
- Well Pad

- Buffer Distance**
- 1500 ft
  - 2000 ft
  - 2500 ft
  - 3000 ft



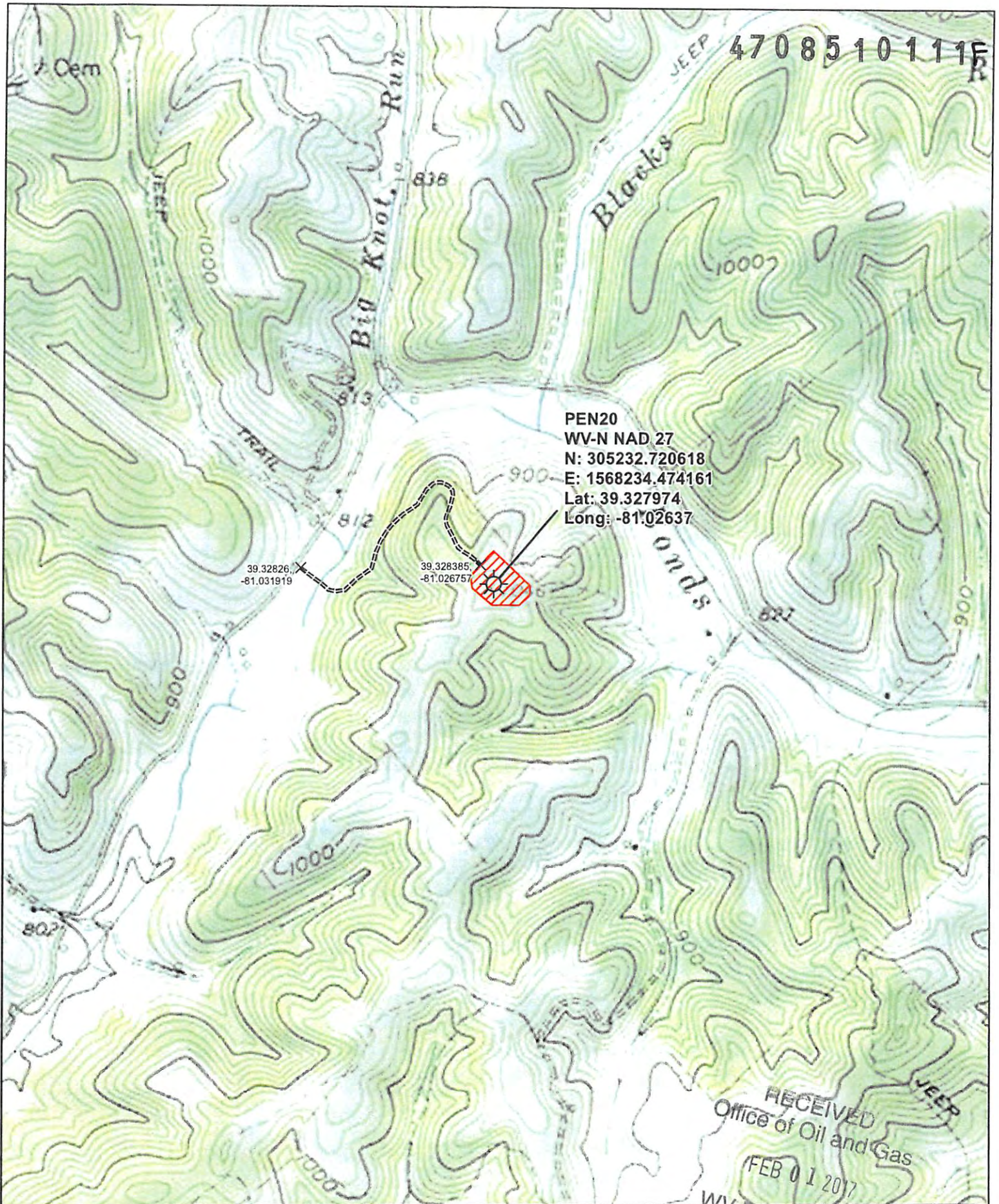
Date: 1/17/2017	Prepared By: Steiner
Revisions: 1	Approved By: R Hoon

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WV Department of Environmental Protection  
03/24/2017  
Water Purveyor Map





-  Well Site
-  Access Points
-  Access Road
-  Well Pad



0 100 200 1000  
1 inch = 1,000 feet

Date: 1/17/2017 Prepared By: J Steiner  
Revisions: 1 Approved By: R Hoon

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**CONSOL ENERGY**  
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Topo Well Map

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

**Notice Time Requirement:** notice shall be provided no later than the filing date of permit application.

**Date of Notice:** 1/27/17 **Date Permit Application Filed:** 1/30/17

**Delivery method pursuant to West Virginia Code § 22-6A-16(c)**

- CERTIFIED MAIL  
RETURN RECEIPT REQUESTED
- HAND  
DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

**Notice is hereby provided to the SURFACE OWNER(s)**

(at the address listed in the records of the sheriff at the time of notice):

Name: <u>Lawrence B. and Angela Cokeley</u>	Name: _____
Address: <u>4573 Bonds Creek Road</u> <small>Pennsboro, WV 26415</small>	Address: _____

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>497737.179</u>
County: <u>085-Ritchie</u>	UTM NAD 83 Northing: <u>4353191.046</u>
District: <u>Clay</u>	Public Road Access: <u>Bonds Creek Rd</u>
Quadrangle: <u>Ellenboro</u>	Generally used farm name: <u>Lawrence B. and Angela Cokeley</u>
Watershed: <u>North Fork Hughes River/Bonds Creek</u>	

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator: <u>CNX GAS COMPANY LLC</u>	Address: <u>1000 Consol Energy Dr</u>
Telephone: <u>724-485-3011</u>	<u>Canonsburg, PA 15317</u>
Email: <u>Matthanley@consolenergy.com</u>	Facsimile: _____

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).



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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110  
Charleston, West Virginia 25305-0430 • (304) 558-3505

Jim Justice  
Governor

Gregory L. Bailey, P. E.  
Acting Commissioner of Highways

January 24, 2017

James A. Martin, Chief  
Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304

Subject: DOH Permit for the PEN-20 Well Pad, Ritchie County

PEN20BHS

PEN20CHS

PEN20DHS ✓

PEN20EHS

PEN20FHS

PEN20FHS

PEN20GHS

PEN20HHS

Dear Mr. Martin,

The West Virginia Division of Highways has transferred Permit #03-2014-0091 for the subject site to CNX Gas for access to the State Road for the well site located off of Ritchie County Route 1 SLS.

The operator has signed an OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton  
Regional Maintenance Engineer  
Central Office Oil & Gas Coordinator

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Cc: Ray Hoon  
CNX Gas  
CH, OM, D-3  
File

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## Section V – Proposed Additives to be used in Fracturing or Stimulations

Type: Water CAS: 7732-18-5

Type: Silica CAS: 14808-60-7

Type: Hydrochloric Acid CAS: 7647-01-0

Type: Copolymer of Two Propenamide CAS: 69418-26-4

Type: Petroleum distillate CAS: 64742-47-8

Type: Glutaraldehyde CAS: 111-30-8

Type: Ethylene glycol CAS: 107-21-1

Type: Diethylene glycol mono n-butyl ether CAS: 112-34-5

Type: Oleic acid diethanolamide CAS: 93-83-4

Type: Alcohols, C12-16, ethoxylated CAS: 68551-12-2

Type: Quaternary ammonium compound CAS: 68424-85-1

Type: Ammonium chloride CAS: 12125-02-9

Type: Short chained glycol ether CAS: 112-34-5

Type: Ethoxylated (C10-16) alcohols CAS: 68002-97-1

Type: Metanol CAS: 67-56-1

Type: Formaldehyde CAS: 50-00-0

Type: Thiourea CAS: 62-56-6

Type: Acetophenone CAS: 98-86-2

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