



west virginia department of environmental protection

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

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

PERMIT MODIFICATION APPROVAL

March 06, 2015

CNX GAS COMPANY LLC
POST OFFICE BOX 1248
JANE LEW, WV 26378

Re: Permit Modification Approval for API Number 103289 , Well #: AUD3BHS

Extend Lateral

Oil and Gas Operator:

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

Gene Smith
Assistant Chief of Permitting
Office of Oil and Gas



Carolinda Flanagan
Permitting Analyst
P.O. Box 1248
Jane Lew, WV 26378
(304) 884-2057



January 28, 2015

West Virginia Department of Environmental Protection
Office of Oil & Gas
Attn: Laura Adkins
601 57th Street, SE
Charleston, WV 25304-2345

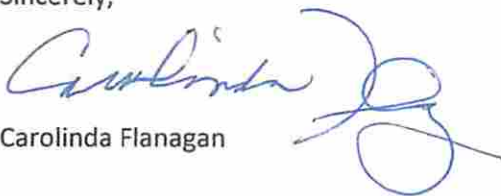
RE: **AUD3AHS - API# 47-001-03288 (Lateral Extension – extending 1195' more)**
AUD3BHS - API# 47-001-03289 (Lateral Extension – extending 2750' more)
AUD3CHS - API# 47-001-03290 (Lateral Extension – extending 1630' more)

Dear Laura,

Enclosed, please find modifications for the AUD3AHS-AUD3CHS to extend the laterals due to additional leasing being obtained. I have attached an updated casing plan, mylar plat, lease breakdown, and road letters where applicable.

Should you need any further information, please contact me at (304) 884-2057 or by email at carolindaflanagan@consolenergy.com. Thank you!

Sincerely,


Carolinda Flanagan

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Office of Oil and Gas

JAN 30 2015

WV Department of
Environmental Protection

03/06/2015

4700103289M02

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 Barbour Philippi Audra
Operator ID County District Quadrangle

2) Operator's Well Number: AUD3BHS Well Pad Name: AUD3HS

3) Farm Name/Surface Owner: Mike Ross, Inc. Public Road Access: US Rt. 119

4) Elevation, current ground: 1537' Elevation, proposed post-construction: 1537'

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 Associated Pressure(s):

Target - Marcellus, Depth - 7505', Thickness - 90', Pressure - 4500#

8) Proposed Total Vertical Depth: 7695'

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9) Formation at Total Vertical Depth: Onondaga

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10) Proposed Total Measured Depth: 18420'

11) Proposed Horizontal Leg Length: 9170

Office of Oil and Gas
WV Dept. of Environmental Protection

12) Approximate Fresh Water Strata Depths: 330', 370'

13) Method to Determine Fresh Water Depths: Reference offset wells (API #'s 47-001-00511 and 47-001-00358)

14) Approximate Saltwater Depths: None Anticipated

15) Approximate Coal Seam Depths: 270', 410', 450'

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

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

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

Depth: _____

Seam: _____

Owner: _____

4700103289

MCO

18)

CASING AND TUBING PROGRAM

TYPE	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	20	N	J-55	94	80	80	112.9/ CTS
Fresh Water	13.375	N	J-55	54.5	550	500	260.4/ CTS
Coal							
Intermediate	9.625	N	J-55	36	4200	4150	974.6/ CTS
Production	5.5	N	P-110	20	18420	18370	2740.7
Tubing	2.375	N	J-55	4.7	N/A	7550	
Liners							

TYPE	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Max. Associated Surface Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	20	26	0.438	2110	0	Class A	1.18
Fresh Water	13.375	17.5	0.380	2730	0	Class A	1.39
Coal							
Intermediate	9.625	12.25	0.352	3520	1249.1	Class A	1.18
Production	5.5	8.75	0.361	14360	6249.1	Class A	1.26
Tubing	2.375	5.5" CSG	0.190	7700			
Liners							

PACKERS

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Kind:	None			FEB 11 2015
Sizes:	None			Office of Oil and Gas WV Dept. of Environmental Protection
Depths Set:	None			

4700103289 MCO

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

Drill and stimulate new horizontal Marcellus well. Well to be drilled to a TMD of 18420'. Well to be drilled to a TVD of 7695', formation at TVD - Onondaga. The well bore will not be drilled any deeper than 100' beyond the Onondaga top, nor will there be any perforation, stimulation, or production of any formations below the target formation. Well will be plugged back to an approximate depth of 5000' (approximate due to exact kick off point being unknown). Plugging back will be done using the displacement method and Class A Type cement. A solid cement plug will be set from TD to KOP. If an unexpected void is encountered, plan will be to set casing at a minimum of 30' past void and cement to surface with approved Class A type cement.

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

The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water, and chemicals.

Max Pressure - 9500 psi. Max Rate - 100 bbl/min.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 16.2

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22) Area to be disturbed for well pad only, less access road (acres): 8.42

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23) Describe centralizer placement for each casing string:

Conductor - No centralizers used.

Surface - Rigid Bow spring centralizers on first joint then every third joint to surface.

Intermediate - Rigid Bow spring centralizers one on the first two joints and every third joint to surface.

Production - Rigid bow spring centralizer on first joint then every casing joint (free floating) through the lateral and every other joint in the curve. (Note: cementing the 5 1/2" casing completely in open hole lateral and curve.)

Office of Oil and Gas
WV Dept. of Environmental Protection

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

Conductor - 2% CaCl2.

Surface - 3% CaCl2 & 1#/sk Celloflake LCM.

Intermediate - 3% CaCl2 & 0.5#/sk Celloflake LCM.

Production - 2.6% Cement extender, 0.7% Fluid loss additive, 0.5% High Temperature Retarder, 0.2% Friction Reducer

25) Proposed borehole conditioning procedures:

Conductor - The hole is auger drilled w/ air and casing ran in air.

Surface - The hole is drilled w/ air and casing is ran in air. Once casing is on bottom, the casing string will be circulated w/ fresh water prior to cementing.

Intermediate - The hole is drilled w/ air and casing is ran in air. (Note: Drilling soap may be utilized if the hole gets wet/damp during the drilling of all air holes with the exception of the conductor).

Production - The hole will be drilled with synthetic oil base mud. At TD the hole is circulated at optimum pump rate until shale shaker deem the hole is clean. Once casing is ran the hole is circulated for a minimum of one hole volume prior to pumping cement.

*Note: Attach additional sheets as needed.

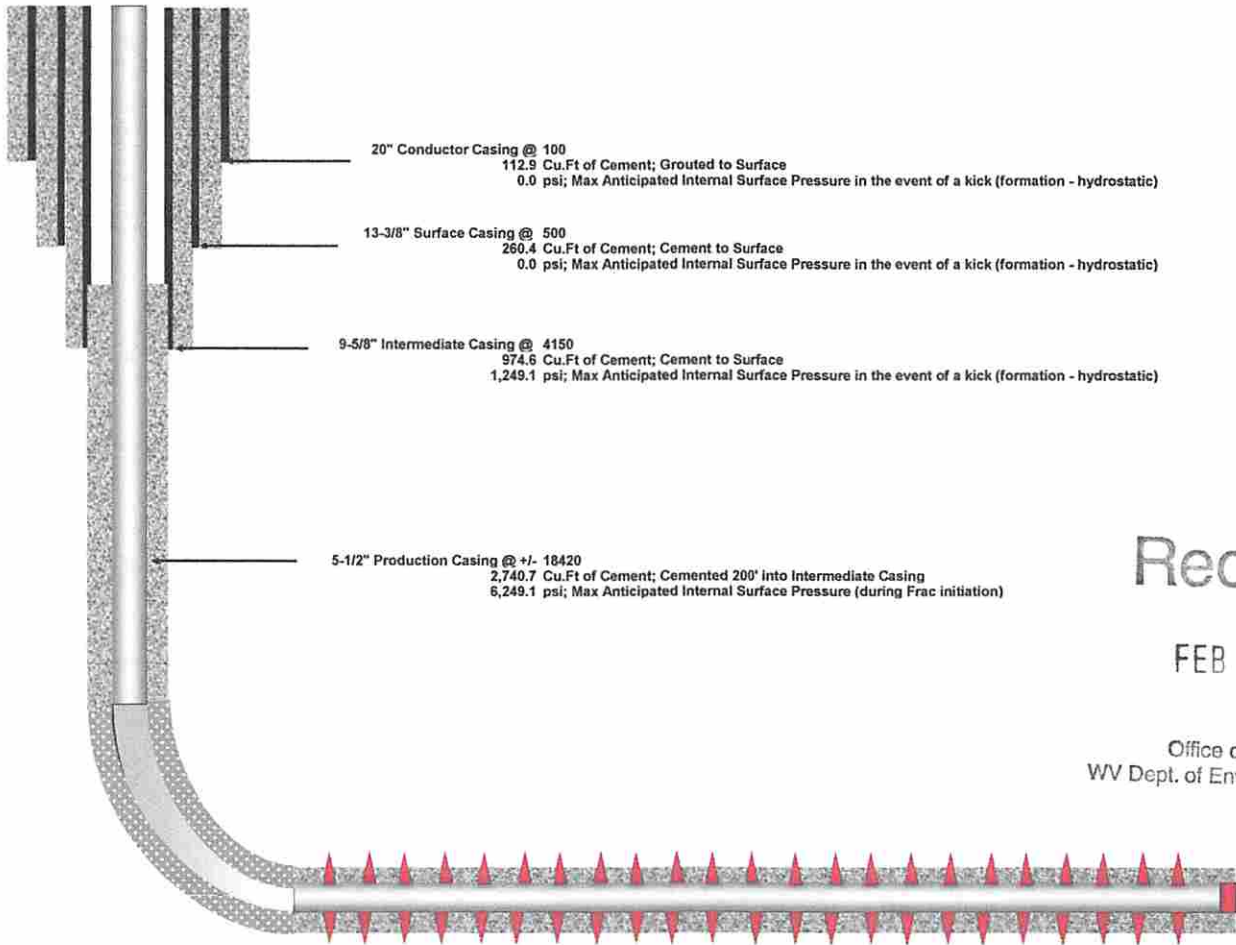
03/06/2015



AUD3BHS

Casing Schematic

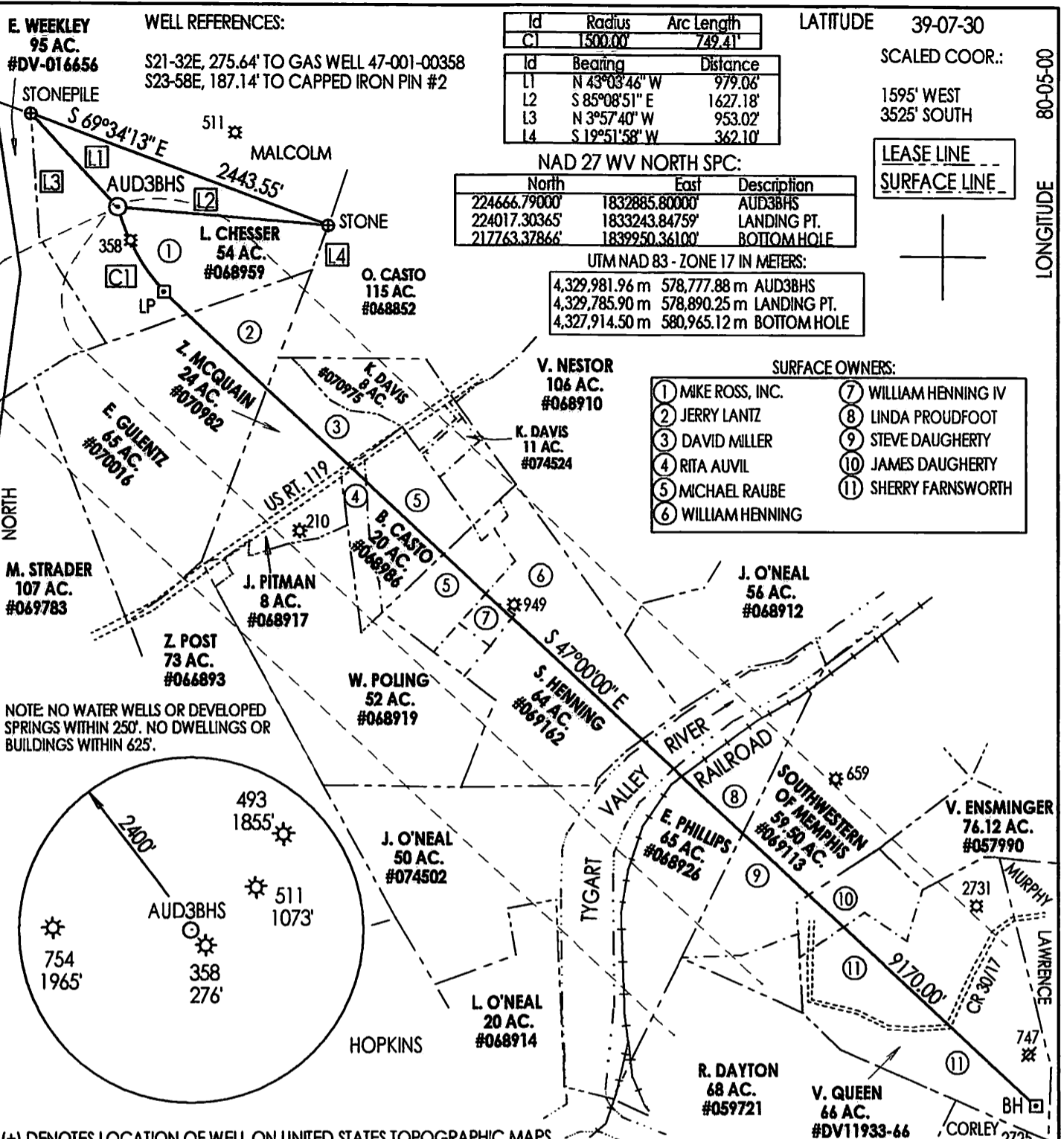
SCHEMATIC NOT TO SCALE



Received

FEB 11 2015

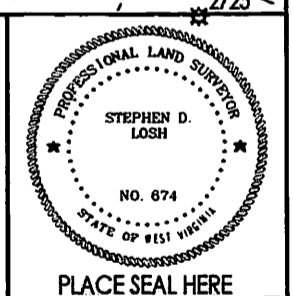
Office of Oil and Gas
WV Dept. of Environmental Protection



FILE NUMBER: _____
 DRAWING NUMBER: CNXAUD3BHSR4.PCS
 SCALE: 1" = 1100'
 MINIMUM DEGREE OF ACCURACY: SUBMETER
 PROVEN SOURCE OF ELEVATION: DGPS SURVEY
RTK SYSTEM

I THE UNDERSIGNED, HEREBY STATE 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 ENERGY.

(SIGNED) _____
 STEPHEN D. LOSH, P.S. #674



STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS
 #10 McJUNKIN ROAD
 NITRO, WV 25143-2506

FORM WW-6

LAND SURVEYING SERVICES
 21 CEDAR LANE, BRIDGEPORT, WV 26330
 PHONE: 304-842-2018 OR 842-5762

DATE: JANUARY 07, 2015
 OPERATORS WELL NO.: AUD3BHS
 API WELL NO. 47-001-03289 MOD
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL CBM
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 1537.31' WATERSHED ELK CREEK
 DISTRICT PHILIPPI COUNTY BARBOUR
 QUADRANGLE AUDRA LEASE NUMBER AS SHOWN

SURFACE OWNER MIKE ROSS, INC. ACREAGE 52.00 (19-05)
 OIL & GAS ROYALTY OWNER LUCILLE CHESSER, ET. AL. LEASE ACREAGE 1262.62

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE (SPECIFY) HORIZONTAL

TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD = 7695' TMD = 18420'
 WELL OPERATOR CNX GAS COMPANY LLC DESIGNATED AGENT MATTHEW IMRICH
 ADDRESS P. O. BOX 1248 JANE LEW, WV 26378 ADDRESS P. O. BOX 1248 JANE LEW, WV 26378

LONGITUDE 80-05-00
 COUNTY NAME
 PERMIT

Attachment - Form WW-6A1 for AUD3BHS:

Lease	Grantor, Lessor, etc	Grantee, Lessee, etc	Royalty	Book/Page
✓ 068959/ 132398000	Lucille & Page P.A. Chesser, H/W Hope Natural Gas Company Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company	Hope Natural Gas Company Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company CNX Gas Company LLC	<u>.13125</u>	<u>41/417</u> 53/261 99/481 51/795 58/362 151/423 16/577 17/1
✓ 070016/ 132474000	Elmira Gulentz Hope Natural Gas Company Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company	Hope Natural Gas Company Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company CNX Gas Company LLC	<u>.125</u>	<u>42/326</u> 53/261 99/481 51/795 58/362 151/423 16/577 17/1
✓ 070982/ 132530000	Zora McQuain Hope Natural Gas Company Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company	Hope Natural Gas Company Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company CNX Gas Company LLC	.125	44/283 53/261 99/481 51/795 58/362 151/423 16/577 17/1
✓ 068986/ 132401000	Bovey & Neva Casto Hope Natural Gas Company Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company	Hope Natural Gas Company Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company CNX Gas Company LLC	0.125	41/251 53/261 99/481 51/795 58/362 151/423 16/577 17/1
✓ 069162/ 132429000	S. Henning Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company	Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company CNX Gas Company LLC	0.125	60/227 99/481 51/795 58/362 151/423 16/577 17/1
✓ 068926/ 132385000	Elizabeth Teter Phillips and C.O. Phillips Hope Natural Gas Company Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company	Hope Natural Gas Company Consolidated Gas Supply Corp Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company CNX Gas Company LLC	0.125	41/276 53/261 99/481 51/795 58/362 151/423 16/577 17/1

Attachment - Form WW-6A1 for AUD3BHS:

Lease	Grantor, Lessor, etc	Grantee, Lessee, etc	Royalty	Book/Page
✓ 069113/ 132423000	Southwestern of Memphis Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company	Consolidated Gas Transmission Corp CNG Transmission Corp Dominion Transmission Inc Consol Energy Holdings LLC XVI Consol Gas Company CNX Gas Company LLC	0.125	99/481 51/795 58/362 151/423 16/577 17/1
✓ DV11933-66/ 250483005	V. Queen Richard C Hopkins	Petroleum Development Corp	0.125	130/401
250483003	Millicent Canter	Petroleum Development Corp		130/402
250483006	Nancy B. Collins	Petroleum Development Corp		130/406
250483004	Anne H. Collins	Petroleum Development Corp		130/410
250483007	R. Holt Poling et ux	Petroleum Development Corp		130/414
250483009	Rachel Bocock	Petroleum Development Corp		130/418
250483002	Peggy C Hadley et al	Petroleum Development Corp		130/446
250483011	Suzanne C. Sandell	Petroleum Development Corp		130/515
250483008	Jack W. Canter	Petroleum Development Corp		130/519
250483012	Lucinda H. Rogers	Petroleum Development Corp		130/523
250483010	Betty Krifka	Petroleum Development Corp		130/527
250483001	Gerald M. Fogg, Special Receiver	Petroleum Development Corp		130/531
251468001	John A. Mosesso et ux	Petroleum Development Corp		131/396
251476001	Elsie Daugherty	Petroleum Development Corp		130/422
258089001	James S. Daugherty	CNX Gas Company, LLC		131/333
258089002	Agnes Saffle	CNX Gas Company, LLC		169/28
258089003	Shirley J. Shockey	CNX Gas Company, LLC		169/33
258089004	John R. Daugherty	CNX Gas Company, LLC		169/38
258089005	Ila Mae Foreman	CNX Gas Company, LLC		169/43
258089006	Henry M. Daugherty	CNX Gas Company, LLC		169/48
	Petroleum Development Corp	PDC Mountaineer, LLC		169/53
	PDC Mountaineer, LLC	CNX Gas Company, LLC		150/444
				163/181



January 28, 2015

Ms. Laura Adkins
WV DEP Office of Oil & Gas
601 57th St., SE
Charleston, WV 25304

RE: CONSOL Energy's proposed AUD3BHS Well, in Barbour County, West Virginia
Drilling under State Route 119 and CR 30/17

Dear Laura:

CONSOL Energy, Inc. (CNX) is applying for a drilling permit for the above referenced well. The State of West Virginia has raised some concern as to CNX's right to drill under State Route 119 and CR 30/17. Please be advised that according to the title information we have relied on in submitting this application, the State owns no oil and gas rights under said road(s) and/or railroad(s) that CNX has leased said rights from the appropriate parties as set forth on the accompanying Form WW-6A1.

Very truly yours,

A handwritten signature in blue ink that reads 'Kelly Eddy'.

Kelly Eddy
Supervisor - Permitting

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Office of Oil and Gas

JAN 30 2015

WV Department of
Environmental Protection

03/06/2015