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 103290 , Well #: AUD3CHS
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,

for Gene Smith

Gene Smith
Assistant Chief of Permitting
Office of Oil and Gas

4700103290 MOD

CONSOL ENERGY

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

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

WW-6B
(10/14)

API NO. 47- 001 - 03290
OPERATOR WELL NO. AUD3CHS
Well Pad Name: AUD3HS

4700103289 MOD

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

1) Well Operator: CNX Gas Company LLC

Operator ID	County	District	Quadrangle
494458046	Barbour	Philippi	Audra

2) Operator's Well Number: AUD3CHS 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 X Oil _____ Underground Storage _____
Other _____
(b)If Gas Shallow X Deep _____
Horizontal X

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'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 18600'

11) Proposed Horizontal Leg Length: 8830

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 X

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

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WW-6B
(10/14)

API NO. 47- 001 - 03290
OPERATOR WELL NO. AUD3CHS
Well Pad Name: AUD3HS

4700103289 MOD

18) **CASING AND TUBING PROGRAM**

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
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	2774.8
Tubing	2.375	N	J-55	4.7	N/A	7550	
Liners							

MSH 3/5/15

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Max. Associated Surface Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
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

Kind:	None			
Sizes:	None			
Depths Set:	None			

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WW-6B
(10/14)

API NO. 47- 001 - 03290
OPERATOR WELL NO. AUD3CHS
Well Pad Name: AUD3HS

4700103289 MOD

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 18600'. 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
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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.

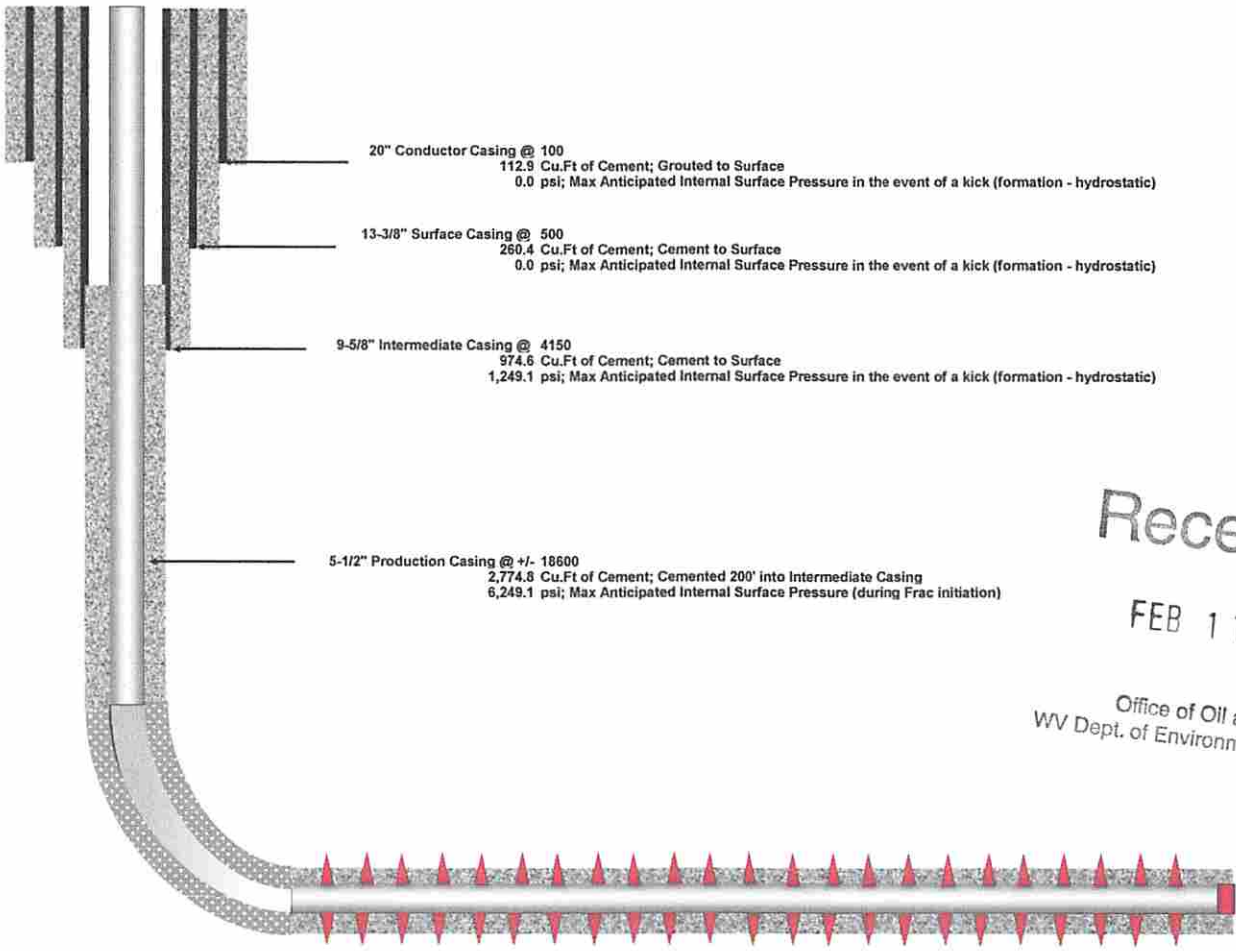
4700103290 MOD

CONSOL ENERGY

AUD3CHS

Casing Schematic

SCHEMATIC NOT TO SCALE



20" Conductor Casing @ 100
112.9 Cu.Ft of Cement; Grouted to Surface
0.0 psi; Max Anticipated Internal Surface Pressure in the event of a kick (formation - hydrostatic)

13-3/8" Surface Casing @ 500
260.4 Cu.Ft of Cement; Cement to Surface
0.0 psi; Max Anticipated Internal Surface Pressure in the event of a kick (formation - hydrostatic)

9-5/8" Intermediate Casing @ 4150
974.6 Cu.Ft of Cement; Cement to Surface
1,249.1 psi; Max Anticipated Internal Surface Pressure in the event of a kick (formation - hydrostatic)

5-1/2" Production Casing @ +/- 18600
2,774.8 Cu.Ft of Cement; Cemented 200' into Intermediate Casing
6,249.1 psi; Max Anticipated Internal Surface Pressure (during Frac initiation)

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WELL REFERENCES:

S26-26E, 306.95' TO GAS WELL 47-001-00358
S30-29E, 219.84' TO CAPPED IRON PIN #2

Id	Bearing	Distance
L1	N 42°15'08" W	941.44'
L2	S 84°37'04" E	1664.17'
L3	N 3°57'40" W	953.02'
L4	S 19°51'58" W	362.10'
L5	S 35°00'00" W	500.00'

Id	Radius	Arc Length
C1	550.00'	708.17'

LATITUDE 39-07-30

SCALED COOR.:

1635' WEST
3505' SOUTH

80-05-00 LONGITUDE

NAD 27 WV NORTH SPC:

North	East	Description
224685.25000'	1832850.32000'	AUD3CHS
224275.67398'	1832563.53178'	TANGENT PT.
223615.52080'	1832574.99756'	LANDING PT.
217593.47525'	1839032.85072'	BOTTOM HOLE

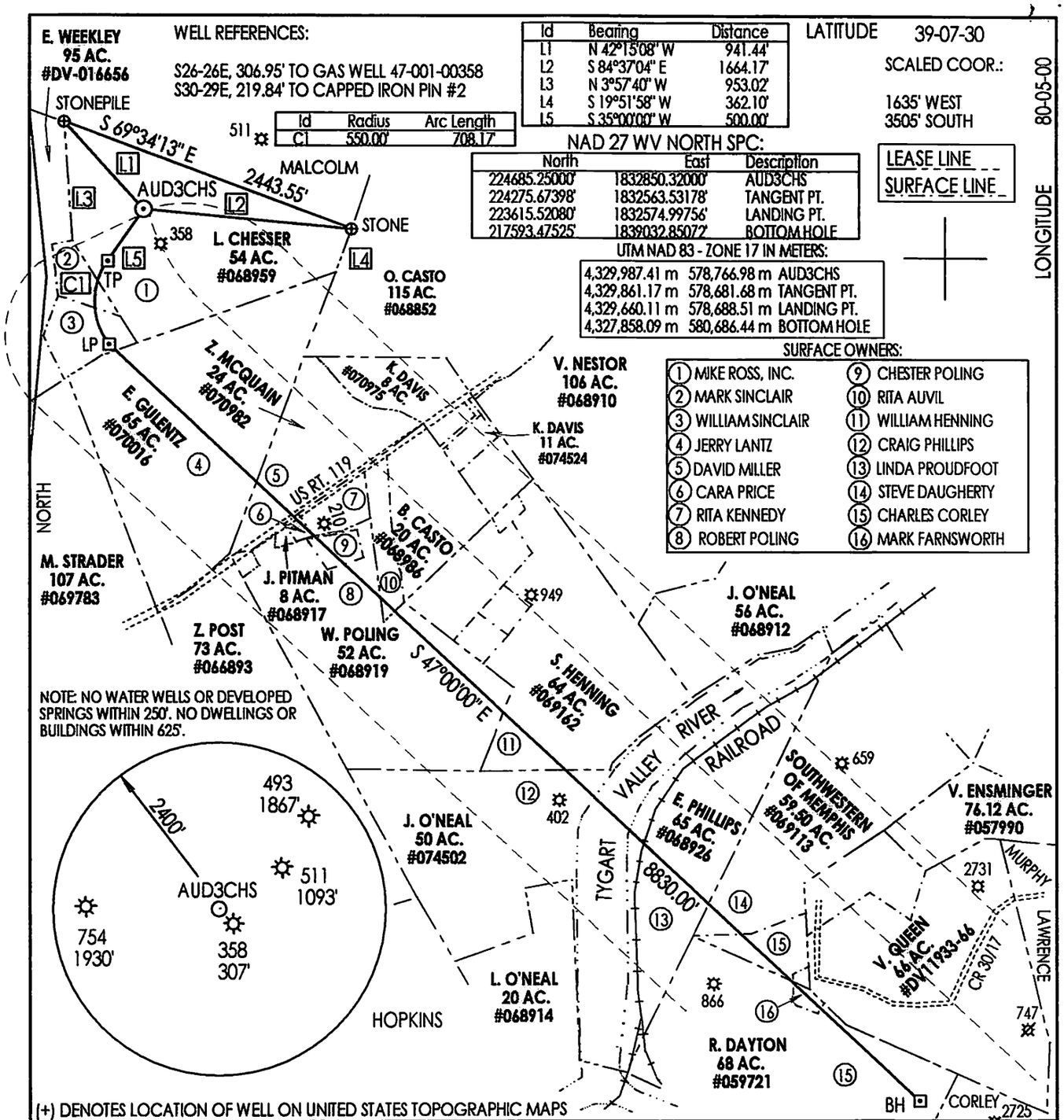
UTM NAD 83 - ZONE 17 IN METERS:

4,329,987.41 m	578,766.98 m	AUD3CHS
4,329,861.17 m	578,681.68 m	TANGENT PT.
4,329,660.11 m	578,688.51 m	LANDING PT.
4,327,858.09 m	580,686.44 m	BOTTOM HOLE

LEASE LINE
SURFACE LINE

SURFACE OWNERS:

1. MIKE ROSS, INC.
2. MARK SINCLAIR
3. WILLIAM SINCLAIR
4. JERRY LANTZ
5. DAVID MILLER
6. CARA PRICE
7. RITA KENNEDY
8. ROBERT POLING
9. CHESTER POLING
10. RITA AUVIL
11. WILLIAM HENNING
12. CRAIG PHILLIPS
13. LINDA PROUDFOOT
14. STEVE DAUGHERTY
15. CHARLES CORLEY
16. MARK FARNSWORTH



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

FILE NUMBER: _____
DRAWING NUMBER: CNXAUD3CHSR4.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

PROFESSIONAL LAND SURVEYOR
STEPHEN D. LOSH
NO. 674
STATE OF WEST VIRGINIA

PLACE SEAL HERE

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.: AUD3CHS
API WELL NO.
47 — 001 — 03290 MOD
STATE COUNTY PERMIT

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

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 X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___
PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE (SPECIFY) HORIZONTAL
PLUG & ABANDON ___ CLEAN OUT & REPLUG ___

TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD = 7695' TMD = 18600'
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

COUNTY NAME PERMIT

4700103280 MOD

Attachment - Form WW-6A1 for AUD3CHS:

Lease	Grantor, Lessor, etc	Grantee, Lessee, etc	Royalty	Book/Page
068959/ 132398000	**Lucille & Page P.A. Chesser, H/W**	**Hope Natural Gas Company**	0.13125	41/417
	Hope Natural Gas Company	Consolidated Gas Supply Corp		53/261
	Consolidated Gas Supply Corp	Consolidated Gas Transmission Corp		99/481
	Consolidated Gas Transmission Corp	CNG Transmission Corp		51/795
	CNG Transmission Corp	Dominion Transmission Inc		58/362
	Dominion Transmission Inc	Consol Energy Holdings LLC XVI		151/423
	Consol Energy Holdings LLC XVI	Consol Gas Company		16/577
	Consol Gas Company	CNX Gas Company LLC		17/1
070016/ 132474000	**Elmira Gulentz**	**Hope Natural Gas Company**	.125	42/326
	Hope Natural Gas Company	Consolidated Gas Supply Corp		53/261
	Consolidated Gas Supply Corp	Consolidated Gas Transmission Corp		99/481
	Consolidated Gas Transmission Corp	CNG Transmission Corp		51/795
	CNG Transmission Corp	Dominion Transmission Inc		58/362
	Dominion Transmission Inc	Consol Energy Holdings LLC XVI		151/423
	Consol Energy Holdings LLC XVI	Consol Gas Company		16/577
	Consol Gas Company	CNX Gas Company LLC		17/1
070982/ 132530000	Zora McQuain	Hope Natural Gas Company	.125	44/283
	Hope Natural Gas Company	Consolidated Gas Supply Corp		53/261
	Consolidated Gas Supply Corp	Consolidated Gas Transmission Corp		99/481
	Consolidated Gas Transmission Corp	CNG Transmission Corp		51/795
	CNG Transmission Corp	Dominion Transmission Inc		58/362
	Dominion Transmission Inc	Consol Energy Holdings LLC XVI		151/423
	Consol Energy Holdings LLC XVI	Consol Gas Company		16/577
	Consol Gas Company	CNX Gas Company LLC		17/1
068917/ 132379000	**J.H. Pitman & Mertie Pitman**	**Hope Natural Gas Company**	0.125	41/78
	Hope Natural Gas Company	Consolidated Gas Supply Corp		53/261
	Consolidated Gas Supply Corp	Consolidated Gas Transmission Corp		99/481
	Consolidated Gas Transmission Corp	CNG Transmission Corp		51/795
	CNG Transmission Corp	Dominion Transmission Inc		58/362
	Dominion Transmission Inc	Consol Energy Holdings LLC XVI		151/423
	Consol Energy Holdings LLC XVI	Consol Gas Company		16/577
	Consol Gas Company	CNX Gas Company LLC		17/1
068919/ 132381000	**W.J. & Neva Pearl Poling**	**Hope Natural Gas Company**	0.125	41/84
	Hope Natural Gas Company	Consolidated Gas Supply Corp		53/261
	Consolidated Gas Supply Corp	Consolidated Gas Transmission Corp		99/481
	Consolidated Gas Transmission Corp	CNG Transmission Corp		51/795
	CNG Transmission Corp	Dominion Transmission Inc		58/362
	Dominion Transmission Inc	Consol Energy Holdings LLC XVI		151/423
	Consol Energy Holdings LLC XVI	Consol Gas Company		16/577
	Consol Gas Company	CNX Gas Company LLC		17/1
068986/ 132401000	**Bovey & Neva Casto**	**Hope Natural Gas Company**	0.125	41/251
	Hope Natural Gas Company	Consolidated Gas Supply Corp		53/261
	Consolidated Gas Supply Corp	Consolidated Gas Transmission Corp		99/481
	Consolidated Gas Transmission Corp	CNG Transmission Corp		51/795
	CNG Transmission Corp	Dominion Transmission Inc		58/362
	Dominion Transmission Inc	Consol Energy Holdings LLC XVI		151/423
	Consol Energy Holdings LLC XVI	Consol Gas Company		16/577
	Consol Gas Company	CNX Gas Company LLC		17/1

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JAN 30 2015

WV Department of
Environmental Protection

4700103248 mad

Attachment - Form WW-6A1 for AUD3CHS:

Lease	Grantor, Lessor, etc	Grantee, Lessee, etc	Royalty	Book/Page
069162/ 132429000	**S. Henning**	**Consolidated Gas Supply Corp**	**0.125**	**60/227**
	Consolidated Gas Supply Corp	Consolidated Gas Transmission Corp		99/481
	Consolidated Gas Transmission Corp	CNG Transmission Corp		51/795
	CNG Transmission Corp	Dominion Transmission Inc		58/362
	Dominion Transmission Inc	Consol Energy Holdings LLC XVI		151/423
	Consol Energy Holdings LLC XVI	Consol Gas Company		16/577
	Consol Gas Company	CNX Gas Company LLC		17/1
074502/ 132690000	**James M. O'Neal**	**Hope Natural Gas Company**	**0.125**	**53/262**
	Hope Natural Gas Company	Consolidated Gas Supply Corp		53/261
	Consolidated Gas Supply Corp	Consolidated Gas Transmission Corp		99/481
	Consolidated Gas Transmission Corp	CNG Transmission Corp		51/795
	CNG Transmission Corp	Dominion Transmission Inc		58/362
	Dominion Transmission Inc	Consol Energy Holdings LLC XVI		151/423
	Consol Energy Holdings LLC XVI	Consol Gas Company		16/577
	Consol Gas Company	CNX Gas Company LLC		17/1
068926/ 132385000	**Elizabeth Teter Phillips and C.O. Phillips**	**Hope Natural Gas Company**	**0.125**	**41/276**
	Hope Natural Gas Company	Consolidated Gas Supply Corp		53/261
	Consolidated Gas Supply Corp	Consolidated Gas Transmission Corp		99/481
	Consolidated Gas Transmission Corp	CNG Transmission Corp		51/795
	CNG Transmission Corp	Dominion Transmission Inc		58/362
	Dominion Transmission Inc	Consol Energy Holdings LLC XVI		151/423
	Consol Energy Holdings LLC XVI	Consol Gas Company		16/577
	Consol Gas Company	CNX Gas Company LLC		17/1
069113/ 132423000	**Southwestern of Memphis**	**Consolidated Gas Transmission Corp**	**0.125**	**99/481**
	Consolidated Gas Transmission Corp	CNG Transmission Corp		51/795
	CNG Transmission Corp	Dominion Transmission Inc		58/362
	Dominion Transmission Inc	Consol Energy Holdings LLC XVI		151/423
	Consol Energy Holdings LLC XVI	Consol Gas Company		16/577
	Consol Gas Company	CNX Gas Company LLC		17/1
059721/ 131750000	**Ruth Woods & Arthur S. Dayton, H/W**	Hope Natural Gas Company	0.15	**26/27**
	Hope Natural Gas Company	Consolidated Gas Supply Corp		53/261
	Consolidated Gas Supply Corp	Consolidated Gas Transmission Corp		99/481
	Consolidated Gas Transmission Corp	CNG Transmission Corp		51/795
	CNG Transmission Corp	Dominion Transmission Inc		58/362
	Dominion Transmission Inc	Consol Energy Holdings LLC XVI		151/423
	Consol Energy Holdings LLC XVI	Consol Gas Company		16/577
	Consol Gas Company	CNX Gas Company LLC		17/1

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CONSOL ENERGY

January 28, 2015

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

RE: CONSOL Energy's proposed AUD3CHS Well, in Barbour County, West Virginia
Drilling under State Route 119

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. 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,

Kelly Eddy

Kelly Eddy
Supervisor - Permitting