



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

August 22, 2013

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

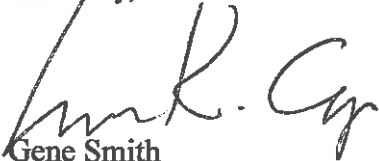
Re: Permit Modification Approval for API Number 103255 , Well #: PHL10EHS
lengthened conductor and extended lateral leg

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
Regulatory/Compliance Manager
Office of Oil and Gas

Promoting a healthy environment.

08/23/2013

WW - 6B
(3/13)

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

1) Well Operator: CNX Gas Company LLC 494458046 Barbour Pleasant Philippi
Operator ID County District Quadrangle

2) Operator's Well Number: PHL10EHS (47-001-03255) lateral extension Well Pad Name: PHL10HS

3 Elevation, current ground: 1619' Elevation, proposed post-construction: 1603'

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

5) Existing Pad? Yes or No: Yes

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Formation - Marcellus, Depth - 7850', Thickness - 90', Pressure - 4000#

7) Proposed Total Vertical Depth: 7850'

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 17,100'

10) Approximate Fresh Water Strata Depths: 305', 575'

11) Method to Determine Fresh Water Depth: Offset Wells

12) Approximate Saltwater Depths: 1800'

13) Approximate Coal Seam Depths: 355', 425', 575'

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

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: No

16) Describe proposed well work: Drill & stimulate new horizontal Marcellus well. Well to be drilled to a TMD of 17100'. Well to be drilled to a TVD of 7850', formation @ TVD - Marcellus. Well will be plugged back to an approximate depth of 7200' (approximate due to exact kick of 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. Well bore will not be drilled any deeper than 100' into the Onondaga Group, nor will there be any production, perforation, or stimulation of any formations below the target formation.

17) Describe fracturing/stimulating methods in detail:
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.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 17.0 Acres

19) Area to be disturbed for well pad only, less access road (acres): 14.0 Acres

Received

Office of Oil and Gas
WV Dept. of Environmental Protection

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WW - 6B
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20) **CASING AND TUBING PROGRAM**

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20"	N	L.S.	81.3#	100'	100'	Grouted to surface
Fresh Water	13 3/8"	N	J-55	54.5#	625'	625'	CTS w/ approved Class A Type Cement
Coal							
Intermediate	9 5/8"	N	J-55	36#	2000'	2000'	CTS w/ approved Class A Type Cement
Production	5 1/2"	N	P-110	20#	17100'	17100'	2400 cu. ft. w/ 60/60 POZ Lead & Class A Tail
Tubing	2 3/8"	N	J-55	4.7#	7790	7790	
Liners							

Draper Hill 8-14-13

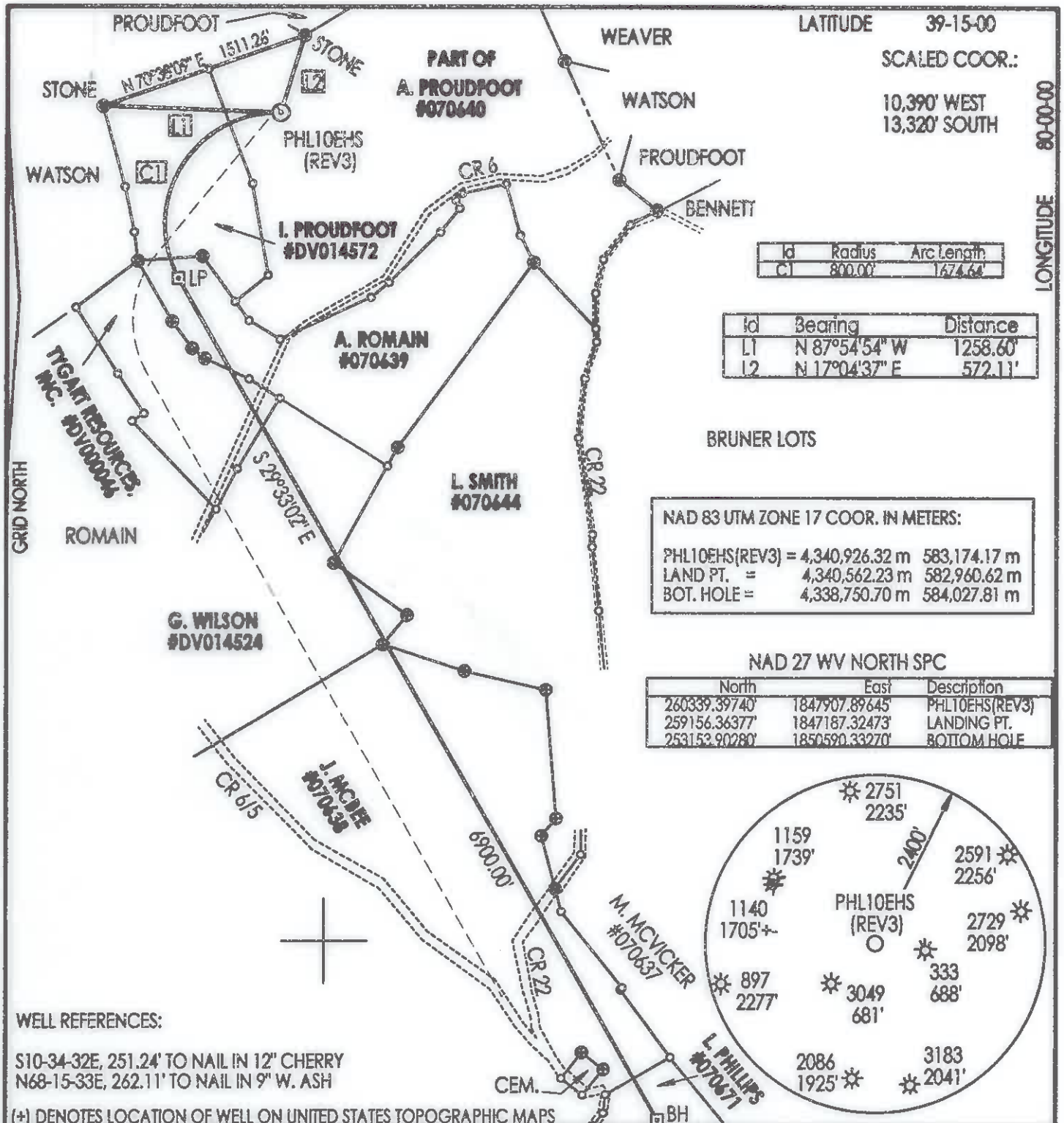
TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20"	26"	0.438	2110	Class A Type	1.18
Fresh Water	13 3/8"	17 1/2"	0.380	2730	Class A Type	1.39
Coal						
Intermediate	9 5/8"	12 1/4"	0.352	3520	Class A Type	1.18
Production	5 1/2"	8 3/4" and 8 1/2"	0.361	12640	Class A Type	1.26
Tubing	2 3/8"	5 1/2" CSG	0.190	7700
Liners						

PACKERS

Kind:	None			
Sizes:	None			
Depths Set:	None			

Received

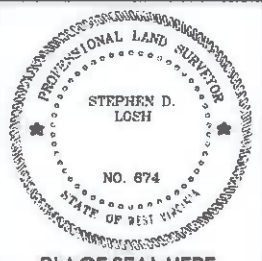
08/23/2013



FILE NUMBER: _____
 DRAWING NUMBER: CNXPHL10EHSR4.PCS
 SCALE: 1" = 1000'
 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

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

DATE: JULY 22, 2013
 OPERATORS WELL NO.: PHL10EHS (REV3)
 API WELL NO. MOD
47 - 001 - 03255 H6A
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION 1618.50' (493.32 m) WATERSHED TAYLOR DRAIN

DISTRICT PLEASANT COUNTY BARBOUR
 QUADRANGLE PHILIPPI LEASE NUMBER SEE ABOVE

SURFACE OWNER MARY LOU WATSON ACREAGE 103.00 (15-30)
 OIL & GAS ROYALTY OWNER A. PROUDFOOT, ET. AL. UNIT LEASE ACREAGE 1126

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 PLUG & ABANDON CLEAN OUT & REPLUG
 ESTIMATED DEPTH TVD 7850' / TMD 17100'

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

LONGITUDE 80-00-00
 COUNTY BARBOUR
 PERMIT 08/23/2013