



west virginia department of environmental protection

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

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

PERMIT MODIFICATION APPROVAL
Horizontal 6A / Horizontal 6A Well - 1

NORTHEAST NATURAL ENERGY LLC
707 VIRGINIA STREET EAST
STE 1200
CHARLESTON, WV 25301

Re: Permit Modification Approval for JENKINS 8H
47-061-01720-00-00

Adjusted and lengthened the horizontal well bore

NORTHEAST NATURAL ENERGY LLC

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.

If there are any questions, please feel free to contact me at (304) 926- 0450.


James A. Martin
Chief

Operator's Well Number: JENKINS 8H
Farm Name: JENKINS, LOIS A. IRREVOCABLE TRUST
U.S. WELL NUMBER: 47-061-01720-00-00
Horizontal 6A / Horizontal 6A Well - 1
Date Issued: 5/18/2017

Promoting a healthy environment.

05/19/2017

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

1) Well Operator: Northeast Natural Energy LLC 494498281 Monongalia Clay Blacksville
Operator ID County District Quadrangle

2) Operator's Well Number: Jenkins 8H Well Pad Name: Jenkins

3) Farm Name/Surface Owner: Lois A. Jenkins Irrevocable Trust Public Road Access: Mason Dixon Highway (State Route 7)

4) Elevation, current ground: 1,128' Elevation, proposed post-construction: 1,113.7'

5) Well Type (a) Gas Oil Underground Storage

Other _____

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No No *MQK 5/11/2017*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus, 7,921', 103', 3,600 psi

8) Proposed Total Vertical Depth: 7,921'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 17,929.48'

11) Proposed Horizontal Leg Length: 9,173'

12) Approximate Fresh Water Strata Depths: 50' ; 1,034'

13) Method to Determine Fresh Water Depths: Driller's Log from Offset Wells

14) Approximate Saltwater Depths: 1,340' ; 2,182'

15) Approximate Coal Seam Depths: 830 ; 1,032'

16) Approximate Depth to Possible Void (coal mine, karst, other): NA

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

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

Depth: _____

Seam: _____

Owner: _____

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18)

CASING AND TUBING PROGRAM

TYPE	Size (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	24"	New	NA	94.71	40'	40'	GTS
Fresh Water	13-3/8"	New	J-55	54.5	1100'	1090'	CTS
Coal							
Intermediate	9-5/8"	New	J-55	40	2280'	2250'	CTS
Production	5-1/2"	New	P-110	20	17,929.48'	17, 899.48'	4,255 Cu. Ft.
Tubing	2-7/8"	New	N-80	6.5	NA	8,500'	NA
Liners							

MQK 5/11/2017

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	24"	30"	.375	415		4,500 psi Grout	NA
Fresh Water	13-3/8"	17 1/2"	.38"	2,760	2,000	Class A	1.23
Coal							
Intermediate	9-5/8"	12 1/4"	.395"	3,950	3,000	Class A	1.3
Production	5-1/2"	8 3/4"	.361"	12,530	9,700	50:50 Poz	1.21
Tubing	2-7/8"	NA	.217"	10,570	3,600	NZ	NA
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:

Drilling and completion of a horizontal Marcellus well. The well will be drilled on air to an approximate depth of 5,992.46' TVD/MD. The well will then be horizontally drilled on fluid from the KOP to approximately 7,921' TVD / 17,929.48' MD along a 149 degree azimuth.

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

Multi-stage / high-rate slickwater fracture treatment using various size sands as proppant. First stage will be initiated via pressurization against a burst disc ran in the production casing string or perforated with coiled tubing. Subsequent stages will be perforated with pumped down guns ran on wireline. Individual stages will be isolated with composite frac plugs. Maximum pump rate during any stage will be 110 BPM with a maximum allowable surface pressure of 9,500 PSI. Composite bridge plugs will be set at the end of the last stage to isolate the treated formation.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 18.2

22) Area to be disturbed for well pad only, less access road (acres): 9.7

23) Describe centralizer placement for each casing string:

Surface and intermediate casing strings will have bow spring centralizers placed every third joint (~120') from the shoe joint to surface. Production casing will have rigid body centralizers placed at a minimum of every fourth joint (~160') from TD to surface.

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

Surface string cement will be a Class A + Max 3% bwoc Calcium Chloride Fresh Water blend. Intermediate string cement will be a Class A Cement + Max 3% bwoc Calcium Chloride + Fresh Water. Production string cement will be (50:50) Poz (Fly Ash):Type I Cement with a gas migration additive.

25) Proposed borehole conditioning procedures:

Surface string will use a 25.0 bbls Gel Pill + LCM + 25 lbs Cello Flake + 20 lbs/bbl Bentonite @ 8.4 ppg & 10 bbls fresh water spacer prior to cement. Intermediate string will use a 25.0 bbls Gel Pill + LCM + 25 lbs Cello Flake + 20 lbs/bbl Bentonite @ 8.4 ppg & 10 bbls fresh water spacer prior to cement. Production string will use a 50.0 bbls SealBond 25 + 1 gal/bbl US-40 + 275 lbs/bbl Barite + 1 gal/bbl SS-2 Spacer @ 13.5 ppg prior to cement.

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*Note: Attach additional sheets as needed.

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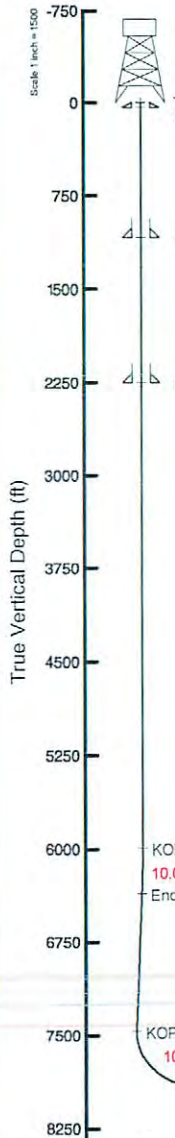
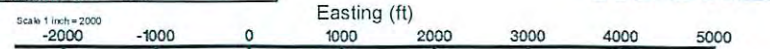
NORTHEAST NATURAL ENERGY, LLC

Location: Monongalia County, WV
 Field: Monongalia
 Facility: Jenkins Pad

Slot: Slot #08
 Well: Jenkins 8H
 Wellbore: Jenkins 8H PWB



Location Information					
Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Jenkins Pad		1788480.777	441086.186	39°42'33.300"N	80°08'23.600"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Longitude
Slot #08	5.75	-41.07	1788439.710	441091.940	80°08'24.126"W
Comment: Jenkins 8H					
Ground Level (GL) to Mud line (At Slot: Slot #08)				0ft	
Mean Sea Level to Mud line (At Slot: Slot #08)				-1114ft	
Ground Level (GL) to Mean Sea Level				1114ft	



Tie On : 0.00° Inc, 0.00ft MD, -0.00ft TVD, 0.00ft VS
 24in Conductor : 0.00° Inc, 40.00ft MD, 40.00ft TVD, 0.00ft VS

13.375in Casing Surface : 0.00° Inc, 1090.00ft MD, 1090.00ft TVD, 0.00ft VS

Type	Hole Size	Casing Size	Grade	GL Depth (Csg)
Conductor	28"	24"	NA	40'
Surface	17-1/2"	13-3/8"	J-55	54.5
Intermediate	12-1/4"	9-5/8"	J-55	40

9.625in Casing Intermediate : 0.00° Inc, 2250.00ft MD, 2250.00ft TVD, 0.00ft VS

Formation	Depth (KBTVD)
Geneseo	7633'
Tully	7685'
Hamilton	7749'
Upper Marcellus	7856'
Cherry Valley	7897'
Lower Marcellus	7901'
Onondaga	7959'

KOP 1 : 0.00° Inc, 5992.46ft MD, 5992.46ft TVD, 0.00ft VS

10.00°/100ft

End of Build : 40.00° Inc, 6392.46ft MD, 6360.75ft TVD, -6.85ft VS

KOP 2 : 40.00° Inc, 7837.15ft MD, 7467.45ft TVD, -54.31ft VS

10.00°/100ft

Landing Pt. : 90.00° Inc, 8755.95ft MD, 7921.00ft TVD, 518.31ft VS

Jenkins 8H LP Rev-2

BHL : 90.00° Inc, 17929.48ft MD, 7921.00ft TVD, 9691.84ft VS
 5.5in Casing Production : 90.00° Inc, 17929.48ft MD, 7921.00ft TVD, 9691.84ft VS

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 WV Department of
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BHL : 7921.00ft TVD, 9092.95ft S, 3651.00ft E
 Jenkins 8H BHL Rev-2



BGGM (1900.0 to 2018.0) Dip: 66.78° Field: 52163.3 mT
 Magnetic North is 9.10 degrees West of True North (at 30/Mar/2017)
 Grid North is 0.41 degrees West of True North
 To correct azimuth from True to Grid add 0.41 degrees
 To correct azimuth from Magnetic to Grid subtract 8.69 degrees

Vertical Section (ft)
 Azimuth 149.66° with reference 0.00 N, 0.00 E

Scale 1 inch = 1500

4706101720 mdp

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MOD



northeast
NATURAL ENERGY

Jenkins 8H
SITE SAFETY PLAN

May 2, 2017

*MSK
5/11/2017*

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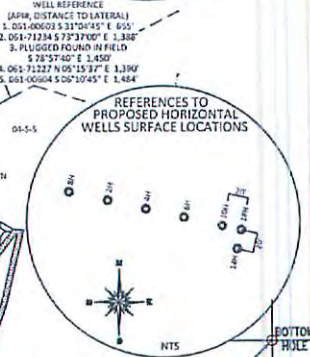
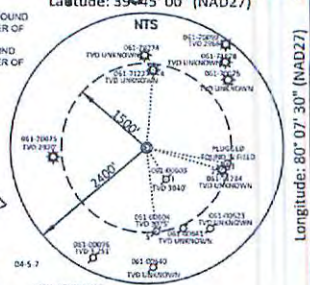
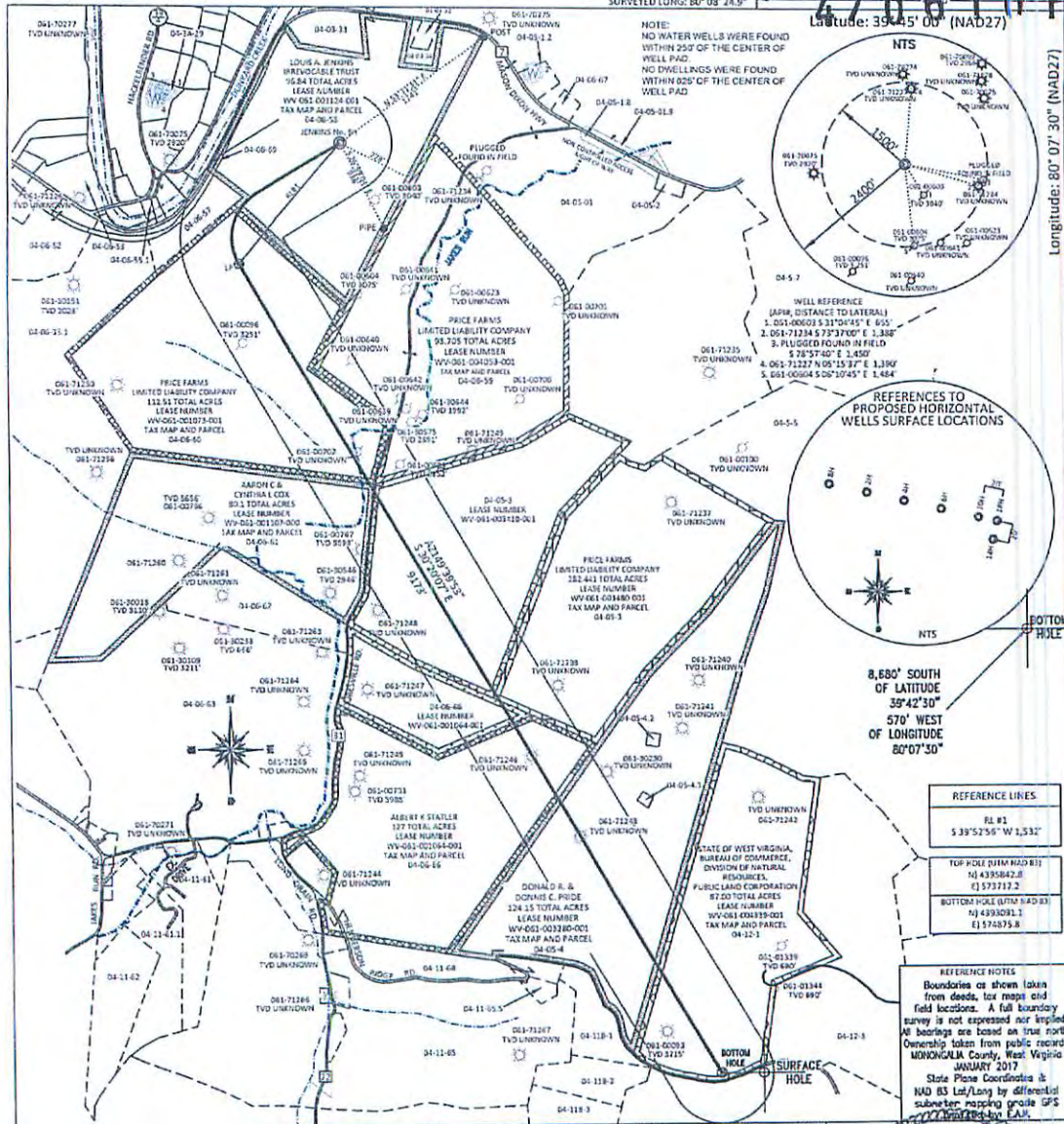
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SURFACE HOLE DEC. LONG: 80 140244
SURVEYED LONG: 80° 08' 24.9"

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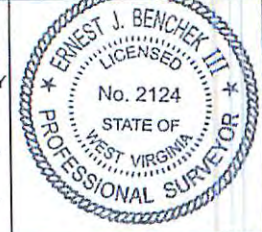
8,680' SOUTH OF LATITUDE 38°42'30"
570' WEST OF LONGITUDE 80°07'50"

REFERENCE LINES
RL #1 S 39°52'56" W 1,532'
TOP HOLE (BIRM HAD #1) N/ 4393082.8 E/ 573712.2
BOTTOM HOLE (BIRM HAD #3) N/ 4393081.1 E/ 574875.8

REFERENCE NOTES
Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records MONONGALIA County, West Virginia JANUARY 2017
State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS & Analyzed by EAM.

FILE #: NNE16
DRAWING #: 2728
SCALE: PLAT: 1" = 1400'
TICK: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

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: [Signature]
L.L.S. #2124 : Ernest J. Benchek III



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

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

WATERSHED: DUNKARD CREEK

COUNTY/DISTRICT: MONONGALIA / CLAY

SURFACE OWNER: LOIS A. JENKINS IRREVOCABLE TRUST

OIL & GAS ROYALTY OWNER: LOIS A. JENKINS IRREVOCABLE TRUST, ET AL

LEASE NUMBERS: _____

DATE: MAY 10, 2017

OPERATOR'S WELL #: JENKINS NO. 8H

API WELL #: 47 61

STATE COUNTY PERMIT
PROPOSED ELEVATION: 1,113.77'
CURRENT ELEVATION: 1,128'

QUADRANGLE: BLACKSVILLE

ACREAGE: 96.84 +/-

ACREAGE: 1,003.746 +/-

TARGET FORMATION: MARCELLUS

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

WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
CITY: CHARLESTON STATE: WV ZIP CODE: 25301

ESTIMATED DEPTH: TVD: 7,921' TMD: 17,929.48'
DESIGNATED AGENT: JOHN ADAMS
ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
CITY: CHARLESTON STATE: WV ZIP CODE: 25301

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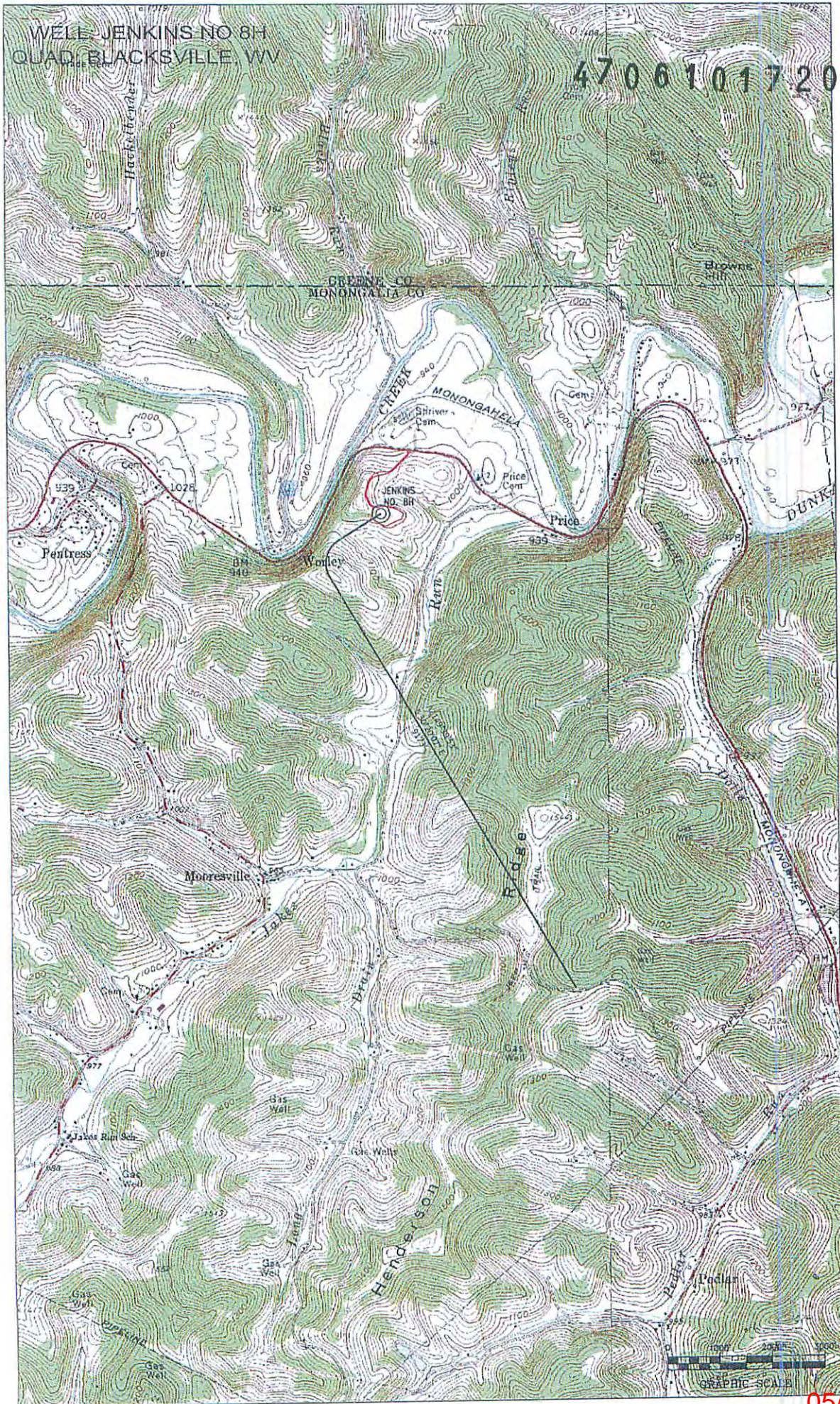
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SURFACE HOLE DEC. LAT: 38 703186
SURVEYED LAT: 38° 42' 31.1"

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WELL JENKINS NO 8H
QUAD, BLACKSVILLE, WV

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SCALE: 1" = 1,200'

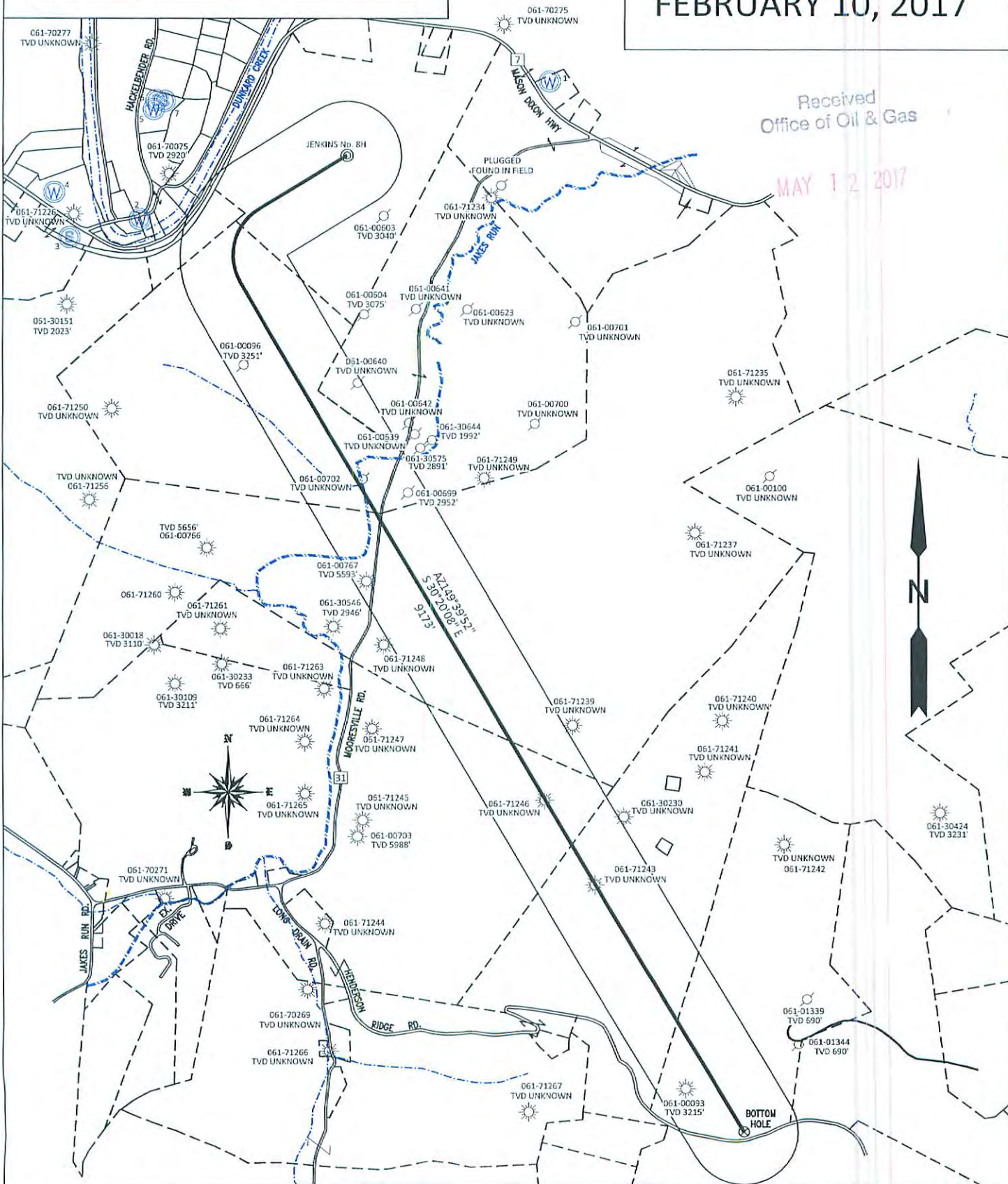
0 1,200' 2,400' 3,600'



JENKINS No. 8H EXISTING GAS WELLS FEBRUARY 10, 2017

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Jenkins 8H Area of Review

API Number	Well Name	Well Number	Operator	Latitude (NAD 27)	Longitude (NAD 27)	TMP	TVD	Producing Formation
47-061-00096	A Brown Price	2	Pittsburgh & WV Gas	39.703918	-80.143375	4-06-60	3251'	Upper Devonian Sands
47-061-00702	A B Price	NA	Consolidation Coal Co.	39.701017	-80.139433	4-06-60	1,078'	Plugged 8/29/1982
47-061-00767	Seaman	1	Hydrocarbon Exploration, Inc.	39.698117	-80.139057	4-06-61	5,593'	Elk
47-061-71248	A B & J O Price	NA	UNKNOWN	39.696802	-80.138679	4-05-03	NA	Pre 1929 Well
47-061-71246	Grant Stephens	7	UNKNOWN	39.692883	-80.133237	4-06-66	NA	Pre 1929 Well
47-061-71243	A I Tennant	1	UNKNOWN	39.690706	-80.131735	4-05-04	NA	Pre 1929 Well
47-061-00093	Myrtle C Brand	3	Pittsburgh & WV Gas	39.685502	-80.128732	4-12-01	3,215'	Upper Devonian Sands
47-061-30230	A I Tennant	4007	Hope Natural Gas Company	39.692462	-80.130797	4-05-04	NA	Pre 1929 Well Platted in 1940
47-061-71239	Wm Price	NA	Hope Natural Gas Company	39.694770	-80.132485	4-05-03	NA	Pre 1929 Well
47-061-00699	AB & JO Price	1	Consolidation Coal Co.	39.700582	-80.137931	4-06-59	2,952'	Plugged 8/17/1982
47-061-00640	A B Price	2	Consolidation Coal Co.	39.703483	-80.139621	4-06-59	1,500'	Plugged 1/30/1982

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WW-6A1
(5/13)

Operator's Well No. Jenkins 8H

**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 Attachment	See Attachment	See Attachment	See Attachment	See Attachment

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WV Department of
Environmental Protection

**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.

Well Operator: Northeast Natural Energy LLC
 By: Hollie M. Medley
 Its: Regulatory Coordinator

WW-6A1		Operator's Well No.	Jenkins 8H
NNE Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty Book/Page
WV-061-001124-001	JUNIOR JENKINS AND LOIS JENKINS	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER 1359/668
WV-061-001073-001	PRICE FARMS LLC	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1489/523
WV-061-001073-002	GROVES, JOHN T. AND ANDREA	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1491/416
WV-061-001073-003	GROVES, EDGAR W. AND JEANETTE	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1491/412
WV-061-001073-004	HENNING, VICTORIA R. AND JAMES L.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1491/410
WV-061-001073-005	RUCKER, HELEN J. AND BERT E.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1491/414
WV-061-001073-006	GROVES, LESTER R. AND DEBRA	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1492/233
WV-061-001073-007	GROVES, ALLEN W. AND MOUNDA	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1492/236
WV-061-001073-008	REID, JULIE A. AND KURT L.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1492/217
WV-061-001073-009	CLARK, WILLIAM J. AND VANIA L.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1492/219
WV-061-001073-010	HART, DEBORAH ANN AND TIMOTHY LEE	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1492/223
WV-061-001073-011	CLARK, JR., THOMAS	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1492/215
WV-061-001073-012	BURTON, SHERYL T.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1493/874
WV-061-001073-013	TAYLOR, SANDRA J. AND H. MEADE CADOT	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1510/078
WV-061-001073-014	TAYLOR, IV, J. PRESTON AND DIANE F.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1493/886
WV-061-001073-015	HASSETT, DIANE LEE	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1493/889
WV-061-001073-016	SARMANTO, JOANNA L. AND RAYMOND	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1493/882
WV-061-001073-017	HARRIS, ROBERT L.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1496/005
WV-061-001073-018	THISTLETHWAITE, ALETA Y.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1496/019
WV-061-001073-019	THISTLETHWAITE, JAMES E. AND DAWNA LISA	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1496/021
WV-061-001073-020	THISTLETHWAITE, BRENDA L.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1498/681
WV-061-001073-021	THISTLETHWAITE, RICHARD AND JODI	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1500/397
WV-061-001073-022	THISTLETHWAITE, SHELLY	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1500/169
WV-061-001073-023	THISTLETHWAITE, ROBERT JAVIER AND DAWN ROSE	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1501/504
WV-061-001073-024	GWYNNE, JOHN T.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1505/456
WV-061-001073-025	GWYNNE, JAMES RICHARD	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1505/458
WV-061-001073-026	GWYNNE, JOHN ROBERT	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1505/468
WV-061-001073-027	HASSETT, DIANE LEE	NORTHEAST NATURAL ENERGY LLC	DEED 1529/496
WV-061-001107-000	SHUMAN, INC.	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER 1429/371
WV-061-003410-001	PRICE FARMS LLC	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1512/733
WV-061-003411-001	PRICE FARMS LLC	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1514/083
WV-061-003412-001	PRICE FARMS LLC	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1513/301
WV-061-003480-001	RUCKER, HELEN JOANNE AND BERT E.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1516/0781
WV-061-003480-002	GROVES, JOHN T. AND ANDREA	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1521/123
WV-061-003480-003	CLARK, WILLIAM J. AND VANIA L.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1520/156
WV-061-003480-004	HASSETT, DIANE LEE	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1521/194
WV-061-003480-005	CLARK, JR., THOMAS	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1519/824
WV-061-003480-006	GROVES, ALLEN W. AND MOLINDA	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1516/0779
WV-061-003480-007	GROVES, EDGAR W. AND JEANETTE	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1517/336
WV-061-003480-008	HENNING, VICTORIA R. AND JAMES L.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1517/0385
WV-061-003480-009	TAYLOR, IV, JOSIAH PRESTON AND DIANE FERGUSON	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1516/0775
WV-061-003480-010	BURTON, SHERYL T.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1517/0403
WV-061-003480-011	GROVES, LESTER R. AND DEBRA	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1516/5
WV-061-003480-012	TAYLOR, SANDRA J.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1520/94
WV-061-003480-013	REID, JULIE A. AND KURT L.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1516/158
WV-061-003480-014	HART, DEBORAH ANN AND TIMOTHY LEE	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1517/0401
WV-061-003480-015	SARMANTO, JOANNA L. AND RAYMOND	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1518/35
WV-061-003480-016	THISTLETHWAITE, RICHARD AND JODI	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1524/359
WV-061-003480-017	HARRIS, ROBERT L.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1524/791
WV-061-003480-018	THISTLETHWAITE, JAMES E. AND DAWNA LISA	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1523/797
WV-061-003480-019	THISTLETHWAITE, BRENDA L.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1524/786
WV-061-003480-020	THISTLETHWAITE, ALETA Y.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1524/338
WV-061-003480-021	THISTLETHWAITE, ROBERT JAVIER AND DAWN ROSE	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1524/242
WV-061-003480-022	THISTLETHWAITE, SHELLY	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1524/709
WV-061-003587-001	GWYNNE, JOHN ROBERT	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1532/140
WV-061-003587-002	GWYNNE, JOHN T.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1529/57
WV-061-003587-003	GWYNNE, JAMES RICHARD	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1532/142
WV-061-001064-001	WETHERELL, DIANA V.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1486/406
WV-061-001064-002	SCOTT, TIMOTHY D.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1493/187
WV-061-001064-003	VOGT, KATHLEEN KELLEY	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1495/027
WV-061-001064-004	KELLEY, BEVERLY STEPHEN	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1495/023
WV-061-001064-005	POLLACK, RUTH MARY	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1493/277
WV-061-001064-006	SHISLER, PATRICIA KELLEY	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1495/025
WV-061-001064-007	CATANESE, REBECCA KELLEY	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1495/180
WV-061-001064-008	SCOTT, CHRISTOPHER S.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1495/283
WV-061-001064-009	SEALE, ANN R.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1495/080
WV-061-001064-010	SCOTT, PETER S.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1495/087
WV-061-001064-011	SCOTT, MICHAEL J.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1495/084
WV-061-001064-012	OKLAHOMA MEDICAL RESEARCH FOUNDATION	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER 1496/365

WW-6A1			Operator's Well No.	Jenkins 8H
NNE Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
WV-061-001064-013	OKLAHOMA UNITED METHODIST CHILDREN'S HOME	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/369
WV-061-001064-014	OKLAHOMA UNITED METHODIST FOUNDATION	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/371
WV-061-001064-015	OKLAHOMA UNITED METHODIST FOUNDATION - BOYS RANCH	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/367
WV-061-001064-016	RADTKA, RYAN C. AND SUSAN R.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1501/510
WV-061-001064-017	KELLEY, BEVERLY STEPHEN AND SANDRA T.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1495/23
WV-061-003484-001	SEALE, ANN R.	NORTHEAST NATURAL ENERGY LLC	DEED	1524/221
WV-061-003284-001	PINEY HOLDINGS, INC.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/373
WV-061-001064-001	RADTKA, RYAN C. AND SUSAN R.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1486/406
WV-061-001064-002	SCOTT, TIMOTHY D.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1493/187
WV-061-001064-003	VOGT, KATHLEEN KELLEY	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1495/27
WV-061-001064-004	KELLEY, BEVERLY STEPHEN	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1495/23
WV-061-001064-005	POLLACK, RUTH MARY	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1493/277
WV-061-001064-006	SHISLER, PATRICIA KELLEY	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1495/25
WV-061-001064-007	CATANESE, REBECCA KELLEY	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1495/180
WV-061-001064-008	SCOTT, CHRISTOPHER S.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1493/283
WV-061-001064-009	SEALE, ANN R.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1495/80
WV-061-001064-010	SCOTT, PETER S.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1495/87
WV-061-001064-011	SCOTT, MICHAEL J.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1495/84
WV-061-001064-012	OKLAHOMA MEDICAL RESEARCH FOUNDATION	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/365
WV-061-001064-013	METHODIST CHILDREN'S HOME	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/369
WV-061-001064-014	METHODIST HOME OF CLINTON INC	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/371
WV-061-001064-015	THE OKLAHOMA UNITED METHODIST FOUNDATION INC	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/367
WV-061-001064-016	RADTKA, RYAN C. AND SUSAN R.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1501/510
WV-061-001064-017	KELLEY, BEVERLY STEPHEN	NORTHEAST NATURAL ENERGY LLC	DEED	1516/532
WV-061-001064-018	OKLAHOMA MEDICAL RESEARCH FOUNDATION	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/365
WV-061-001064-019	METHODIST CHILDREN'S HOME	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/369
WV-061-001064-020	METHODIST HOME OF CLINTON INC	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/371
WV-061-001064-021	THE OKLAHOMA UNITED METHODIST FOUNDATION INC	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/367
WV-061-001072-001	WETHERELL, DIANA V.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1488/888
WV-061-003484-001	SEALE, ANN R.	NORTHEAST NATURAL ENERGY LLC	DEED	1524/221
WV-061-003284-001	PINEY HOLDING INC	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1496/373
WV-061-003280-001	CHESAPEAKE APPALACHIA, LLC.	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1487/282
WV-061-003280-002	STATOIL USA ONSHORE PROPERTIES INC	*STATOIL USA ONSHORE PROPERTIES INC	0.125 OR GREATER	1488/756
WV-061-004339-001	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	NORTHEAST NATURAL ENERGY LLC	MODIFICATION	1586/642

*See Attachment

RECEIVED
Office of Oil and Gas

MAY 12 2017

WV Department of
Environmental Protection

4706101720
MOD

Chesapeake Appalachia, LLC.
Statoil USA Onshore Properties, Inc

Northeast Natural Energy
Assignment
BK 120/769

RECEIVED
Office of Oil and Gas

MAY 12 2017

WV Department of
Environmental Protection

05/19/2017

WW-60
(7-01)

RECEIVED
Office of Oil and Gas
MAY 12 2017

DATE: April 26th, 20 17
OPERATOR'S
WELL NO. JENKINS 8H

API NO: 47-
State County Permit No.

WV Department of
Environmental Protection STATE OF WEST VIRGINIA
OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

A F F I D A V I T

State of WEST VIRGINIA

County of MONONGALIA

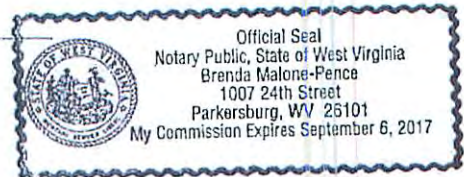
I, Jeanne Morgan Johnson (the designated owner or operator, or authorized representative thereof), after being duly sworn, do declare that the undersigned is authorized by the owner of the working interest in the well permit application to which this affidavit is attached to state that (he, she, or it) shall tender to the owner of the oil and gas in place not less than one-eighth of the total amount paid to or received by or allowed to the owner of the working interest at the wellhead for the oil or gas so extracted, produced, or marketed before deducting the amount to be paid or set aside for the owner of the oil or gas in place, or all such oil or gas to be extracted, produced, or marketed from the well. West Virginia Code 22-6-8(e).

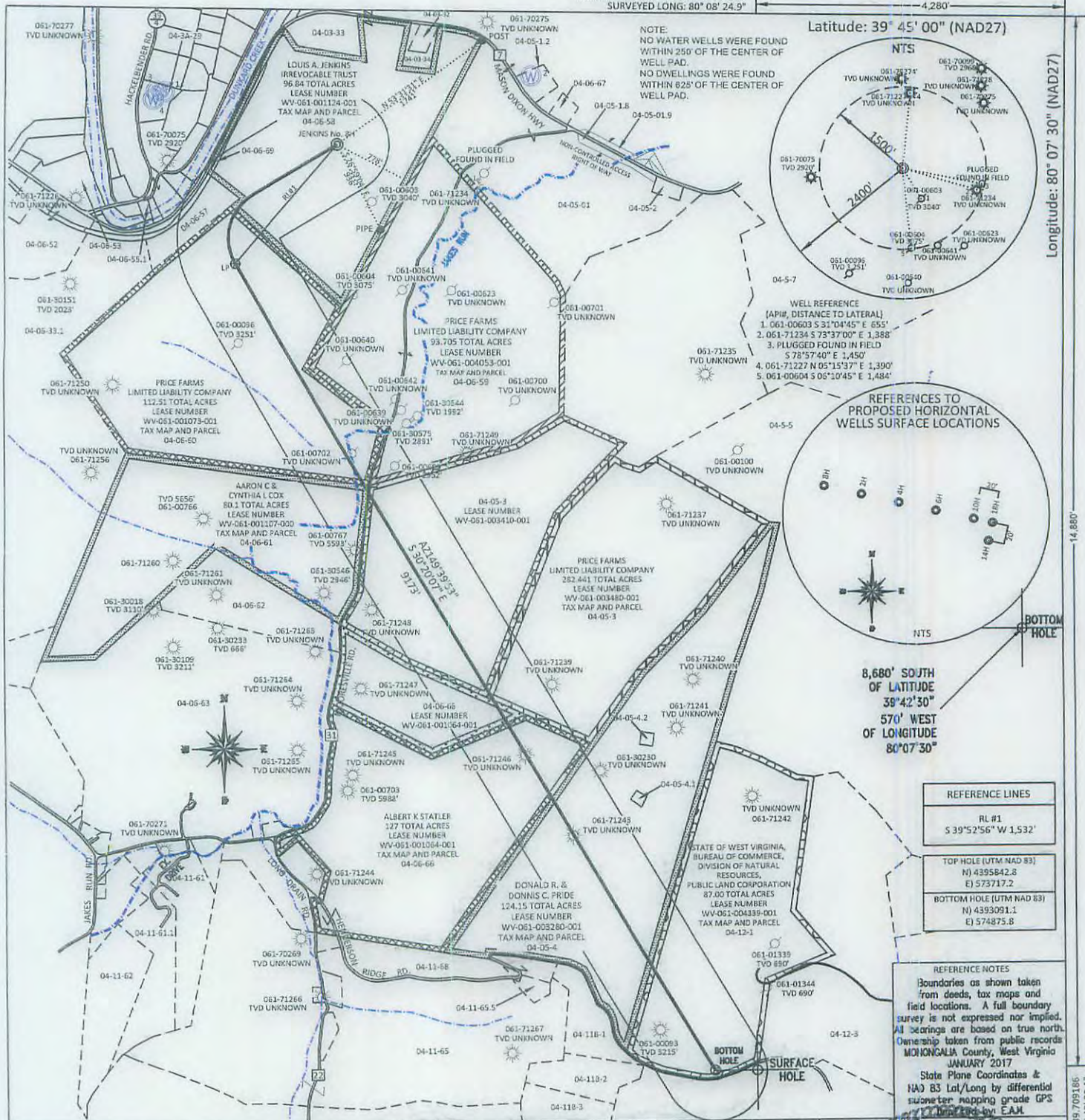
Signed: Jeanne Morgan Johnson

Taken, subscribed and sworn to before me this 26th day of April, 20 17.

Brenda Malone-Pence
Notary Public

My Commission expires: 09/06/2017





FILE #: NNE16
DRAWING #: 2728
SCALE: PLAT: 1" = 1400'
TICKS: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

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: *[Signature]*
L.L.S. #2124: Ernest J. Benchek III



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

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

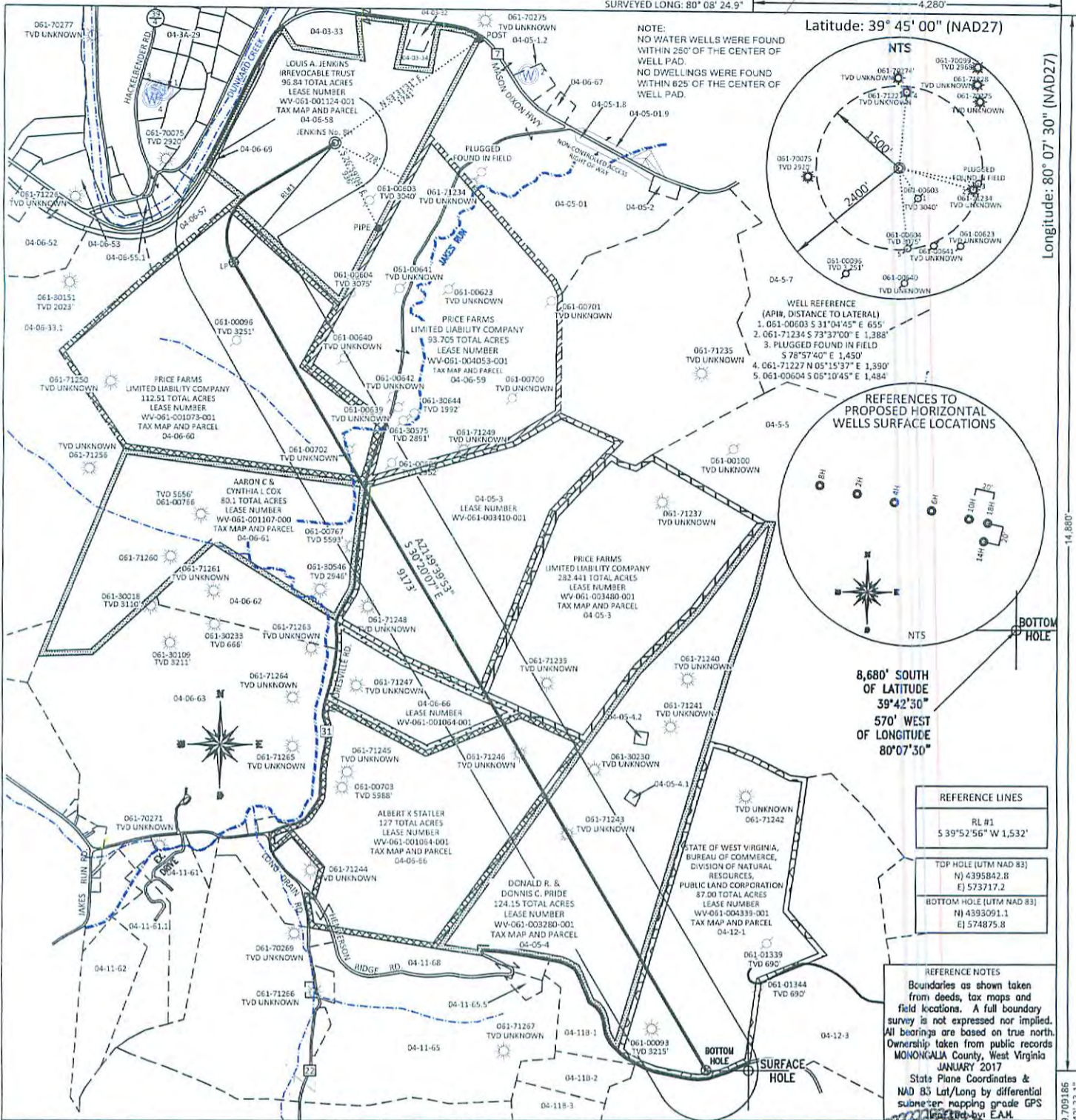
WATERSHED: DUNKARD CREEK
COUNTY/DISTRICT: MONONGALIA / CLAY
SURFACE OWNER: LOIS A. JENKINS IRREVOCABLE TRUST
OIL & GAS ROYALTY OWNER: LOIS A. JENKINS IRREVOCABLE TRUST, ET AL
LEASE NUMBERS:

DATE: MAY 10, 2017
OPERATOR'S WELL #: JENKINS NO. 8H
API WELL #: 47 61 01720 MOD
STATE COUNTY PERMIT
PROPOSED ELEVATION: 1,113.77'
CURRENT ELEVATION: 1,128'
QUADRANGLE: BLACKSVILLE
ACREAGE: 96.84 +/-
ACREAGE: 1,003.746

TARGET FORMATION: MARCELLUS
WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
CITY: CHARLESTON STATE: WV ZIP CODE: 25301

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY):
ESTIMATED DEPTH: TVD: 7,921' TMD: 17,929.48'
DESIGNATED AGENT: JOHN ADAMS
ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
CITY: CHARLESTON STATE: WV ZIP CODE: 25301

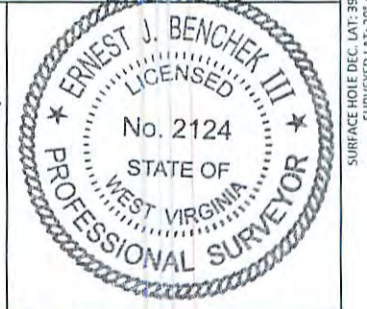
05/19/2017



FILE #: NNE16
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SCALE: PLAT: 1" = 1400'
TICK: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

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: [Signature]
L.L.S. #2124 : Ernest J. Benchek III



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

OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

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

WATERSHED: DUNKARD CREEK

COUNTY/DISTRICT: MONONGALIA / CLAY

SURFACE OWNER: LOIS A. JENKINS IRREVOCABLE TRUST

OIL & GAS ROYALTY OWNER: LOIS A. JENKINS IRREVOCABLE TRUST, ET AL

LEASE NUMBERS: _____

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

TARGET FORMATION: MARCELLUS

WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC

ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
CITY: CHARLESTON STATE: WV ZIP CODE: 25301

DATE: MAY 10, 2017

OPERATOR'S WELL #: JENKINS NO. 8H

API WELL #: 47 61 01720 mod

STATE COUNTY PERMIT
PROPOSED ELEVATION: 1,113.77'
CURRENT ELEVATION: 1,128'

QUADRANGLE: BLACKSVILLE

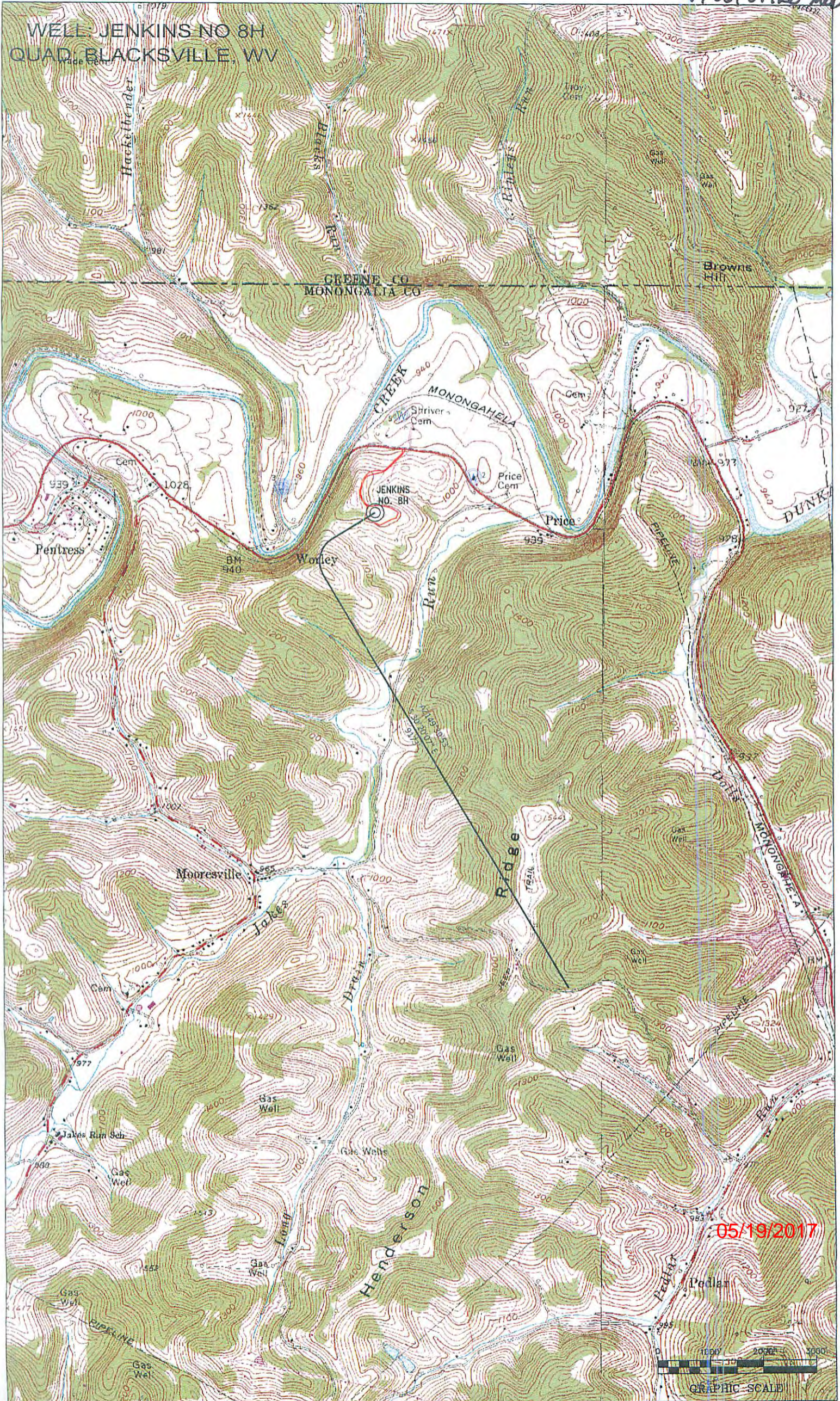
ACREAGE: 96.84 +/-
ACREAGE: 1,003.746 + **05/19/2017**

ESTIMATED DEPTH: TVD: 7,921' TMD: 17,929.48'
DESIGNATED AGENT: JOHN ADAMS
ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
CITY: CHARLESTON STATE: WV ZIP CODE: 25301

SURFACE HOLE DEC. LAT: 39.709186 SURVEYED LAT: 39° 47' 33.1"

47 06 (0172) MOD

WELL JENKINS NO 8H QUAD. BLACKSVILLE, WV



05/19/2017





northeast
NATURAL ENERGY

May 11, 2017

WV Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: Jenkins 2H, 4H, 6H, 8H, 10H, 14H and 18H Permit Modifications
API # 061-01741, 061-01742, 061-01743, 061-01720, 061-01725

Dear Permit Reviewer,

Northeast Natural Energy LLC ("NNE") would like to request modifications to its existing Jenkins 2H, 4H, 6H, 8H, and 10H Permits (061-01741, 061-01742, 061-01743, 061-01720, 061-01725). Additionally, NNE has submitted to the Office for review two applications for its proposed Jenkins 14H and 18H wells. NNE has adjusted and lengthened the horizontal well bores to allow for more efficient development of the permitted Jenkins Pad.

Please find enclosed with this request revised WW-6B Forms, WW-6A1 Forms and Attachments, Site Safety Plans, Well Bore Schematics, Area of Review Maps and Spreadsheets, and Mylar Plats for all seven wells.

Should you have any questions please contact me at 304.212.0422 or by email at hmedley@nne-llc.com.

Sincerely,

Hollie M. Medley
Regulatory Coordinator

BEHEVER
Office of Oil and Gas

MAY 12 2017

WV Department of
Environmental Protection