



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

www.dep.wv.gov

PERMIT MODIFICATION APPROVAL

/

Re: Permit Modification Approval for

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.

A handwritten signature in blue ink, appearing to read "John P. ...", is positioned above the title "Chief".

Chief

Operator's Well Number:

Farm Name:

U.S. WELL NUMBER:

Date Modification Issued:

Promoting a healthy environment.



SWN Production Company, LLC
P O Box 12359
Spring, Texas 77391-2359
www.swn.com

September 18, 2018

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

RE: Modifications: Kathy Mayhew BRK 201H & Kathy Mayhew BRK 1H

Dear Ms. Adkins

Enclosed please find the updated 6B, WBD, mylar, 6A1 & Road letter for the above captioned wells. We are extending the laterals. These wells are situated on the Mayhew's property, in Tiltonsville District, Brooke County, West Virginia.

If you have any questions or desire additional information, please me at 304-884-1613.

Thank you.

Sincerely,

Brittany Woody
Regulatory Analyst
Southwestern Energy Production Company, LLC

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

1) Well Operator: SWN Production Co., LLC 49447757 Brooke 1- Buffalo 247-Bethany/641
Operator ID County District Quadrangle

2) Operator's Well Number: Kathy Mayhew BRK 1H Well Pad Name: Kathy Mayhew PAD

3) Farm Name/Surface Owner: Kathy Lynn & Michael, ETAL Public Road Access: Apple Pie Ridge Road

4) Elevation, current ground: 1281' Elevation, proposed post-construction: 1281'

5) Well Type (a) Gas Oil _____ Underground Storage _____

Other _____

(b) If Gas Shallow Deep _____

Horizontal _____

6) Existing Pad: Yes or No yes

D. B. 5-2-12

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Target Formation- Marcellus, Up-Dip Well to the North, LP Target Top TVD- 5992', LP Target Base TVD- 6033', Anticipated Thickness- 41', Associated Pressure- 3921

8) Proposed Total Vertical Depth: 6021'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 15417'

11) Proposed Horizontal Leg Length: 8975.30'

12) Approximate Fresh Water Strata Depths: 371'

13) Method to Determine Fresh Water Depths: Nearby Water Well

14) Approximate Saltwater Depths: 623' Salinity Profile

15) Approximate Coal Seam Depths: 454'

16) Approximate Depth to Possible Void (coal mine, karst, other): Possible Void 454'

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: _____

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"	New	H-40	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	H-40	48#	501'	501'	480 sx/CTS
Coal							
Intermediate	9 5/8"	New	J-55	36#	1798'	1798'	686 sx/CTS
Production	5 1/2"	New	HCP-110	20#	15417'	15417'	Lead 196sx 1st 2230sx/100' Inside In 
Tubing							
Liners							

C. D. Q. 5.21.18

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"	30"	0.25	2120	81	Class A	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	633	Class A	1.19/50% Excess
Coal	9 5/8"	12 1/4"	0.395	3950	1768	Class A	1.19/50% Excess
Intermediate	7"	8 3/4"	0.317	4360	3250	Class A	1.20/15% Excess
Production	5 1/2"	8 3/4"	0.361	12360	9500	Class A	1.20/15% Excess
Tubing							
Liners							

PACKERS

Kind:					RECEIVED Office of Oil and Gas SEP 19 2018
Sizes:					WV Department of Environmental Protection
Depths Set:					

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

Drill and stimulate any potential zones between and including the Benson to Marcellus. **If we should encounter a void place basket above and below void area- balance cement to bottom of void and grout from basket to surface. Run casing not less than 20' below void nor more than 50' below void. (*If freshwater is encountered deeper than anticipated it must be protected, set casing 50' below and cts.)

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

Well will be perforated within the target formation and stimulated with a slurry of water, sand, and chemical additives at a high rate. This will be performed in stages with the plug and perf method along the wellbore until the entire lateral has been stimulated within the target formation. All stage plugs are then drilled out and the well is flowed back to surface. The well is produced through surface facilities consisting of high pressure production units, vertical separation units, water and oil storage tanks. Max press and anticipated max rate- 9000 lbs @ 80 barrels a minute.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 8.20

22) Area to be disturbed for well pad only, less access road (acres): 5.96

23) Describe centralizer placement for each casing string:

All casing strings will be ran with a centralizer at a minimum of 1 per every 3 joints of casing.

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

See Attachment ***

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25) Proposed borehole conditioning procedures:

All boreholes will be conditioned with circulation and rotation for a minimum of one bottoms up and continuing until operator is satisfied with borehole conditions.

*Note: Attach additional sheets as needed.

Southwestern Energy Company

Proposed Drilling Program

Well: KATHY MAYHEW BRK 1 Re-entry Rig: TBD
 Field: PANHANDLE FIELD WET Prospect: PANHANDLE
 County: BROOKE State: WV
 SHL: 40.1923 Latitude -80.6227 Longitude
 BHL: 40.2146 Latitude -80.6383 Longitude
 KB Elev: 1,308 ft MSL KB: 26 ft AGL GL Elev: 1,281 ft MSL



Coal Void @ 454' TVD
 TOC Lead at 1,818' MD
 TOC Tail at 5,377' MD

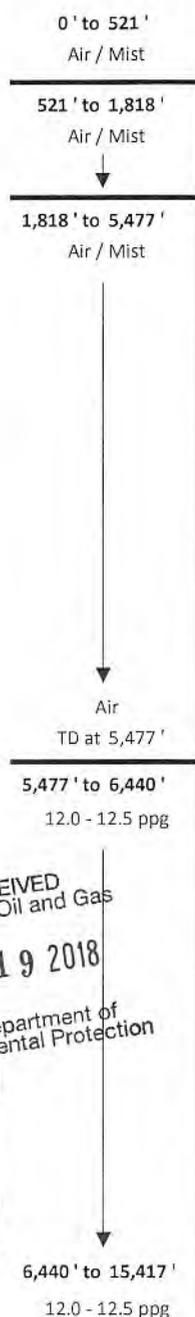
C-RH
 5-21-18

Tubular Detail

	Size (in)	Weight	Grade	From	To
Conductor	20	94.0 #	H-40	0'	100'
Surface	13.375	48.0 #	H-40	0'	501'
Intermediate	9.625	36.0 #	J-55	0'	1,798'
Production	5.5	20.0 #	HCP-110	0'	15,417'

Cement Detail

	Sacks	Class	Density
Conductor	151	A	19.3
Surface	480	A	15.6
Intermediate	686	A	15.6
Production Lead	796	A	15.6
Production Tail	2230	A	15.6



KOP at 5,477' MD

Freshwater Depth - 371' TVD
 Coal Depth (VOID) - 454' TVD
 Saltwater Depth - 623' TVD
 TVD - 6,021'
 TMD - 15,417'

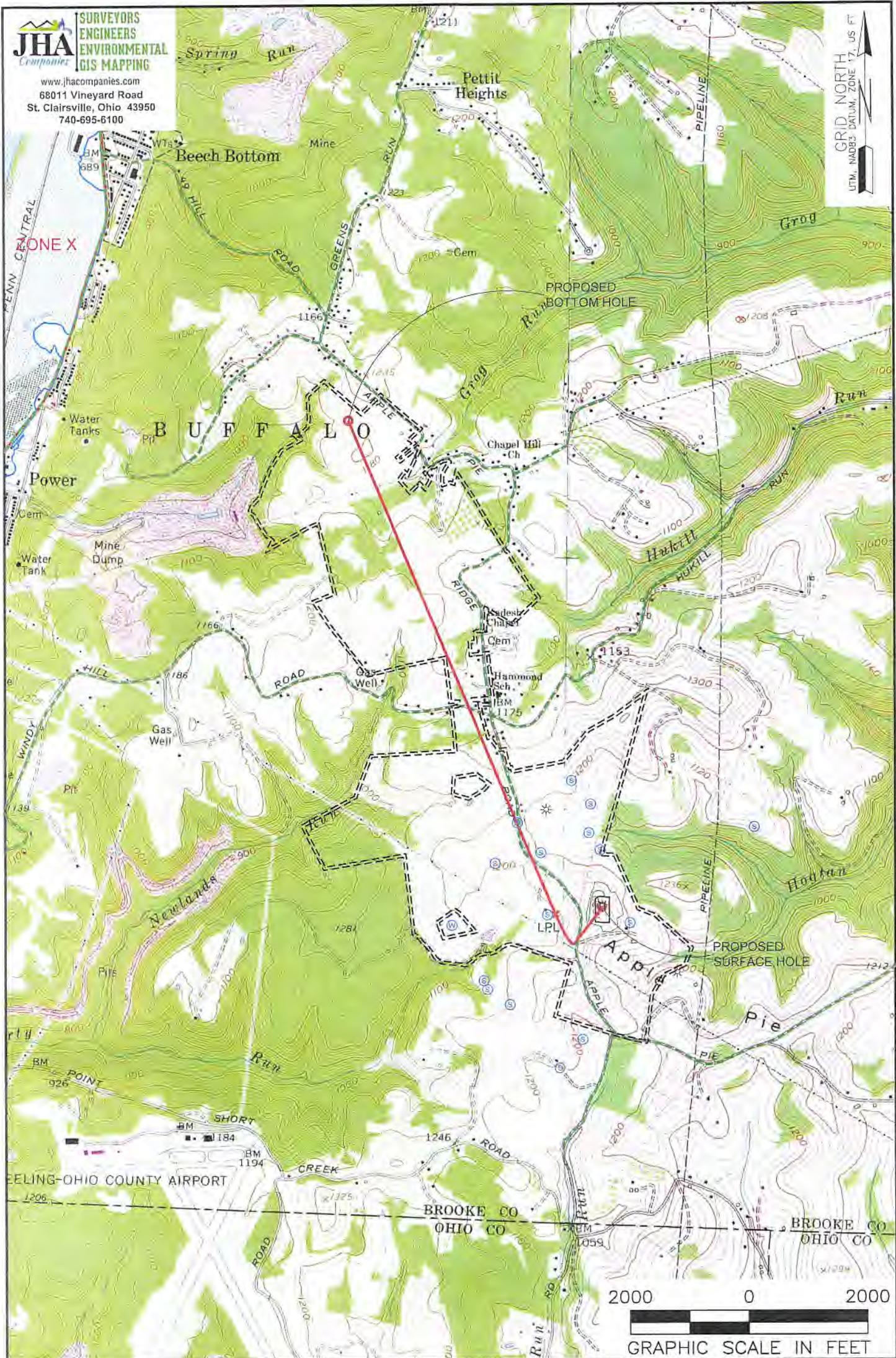
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6,021' Target Center

TD at 15,417' MD
 5,886' TVD

EOB at 6,021' TVD
 SHL Onondaga 6,033' TVD

Onondaga 5,898' TVD



NOTES ON SURVEY

1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
3. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

LEGEND:

- PROPOSED SURFACE HOLE / BOTTOM HOLE
- EXISTING / PRODUCING WELLHEAD
- LANDING POINT LOCATION
- FLOOD PLAIN
- ACCESS ROAD
- PUBLIC ROAD
- ACCESS ROAD TO PREV. SITE
- LEASE BOUNDARY
- PROPOSED PATH

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC	WELL (FARM) NAME: KATHY MAYHEW BRK	WELL # 1H	SERIAL # XXXX
ADDRESS: P.O. BOX 1300 JANE LEW, WV 26378	COUNTY - CODE BROOKE - 009	DISTRICT; BUFFALO	
SURFACE OWNER: KATHY LYNN & MICHAEL MAYHEW, ET AL	USGS 7 1/2 QUADRANGLE MAP NAME BETHANY, WV & TILTONSVILLE, OH		

LATITUDE: 40°15'00" BOTTOM HOLE ← 3658'

LATITUDE: 40°12'30" SURFACE HOLE ← 10984'

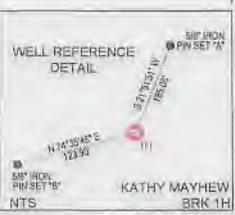
JHA
SURVEYORS
ENGINEERS
ENVIRONMENTAL
GIS MAPPING
www.jhacompanies.com
68011 Vineyard Road
St. Clairsville, Ohio 43950
740-695-6100

NOTES ON SURVEY

1. COORDINATE SYSTEM IS UTM NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
2. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREIN WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
3. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
4. NO DWELLINGS OR BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
5. NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
6. NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF THE LIMITS OF DISTURBANCE.
7. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.

GRID NORTH
UTM, NAD83 DATUM, ZONE 17, US FT

LINE	BEARING	DISTANCE
L1	N22°36'46"E	1945.50'
L2	N03°56'31"W	2565.44'



SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4449173.21 EASTING: 532116.75
LANDING POINT LOCATION (LPL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4449132.51 EASTING: 531879.44
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4451636.82 EASTING: 530780.95



SWN Production Company, LLC

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
P.S. 2041

<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034</p>	MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)	OPERATOR'S WELL #: KATHY MAYHEW BRK 1H API WELL #: 47 009 MOD 00203 STATE COUNTY PERMIT
	WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input checked="" type="checkbox"/> DEEP <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>	WATERSHED: UPPER OHIO SOUTH DISTRICT: BUFFALO COUNTY: BROOKE SURFACE OWNER: KATHY LYNN & MICHAEL MAYHEW, ET AL OIL & GAS ROYALTY OWNER: KATHY LYNN & MICHAEL MAYHEW, ET AL DRILL <input checked="" type="checkbox"/> DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input checked="" type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/>
CONVERT <input type="checkbox"/> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REPLUG <input type="checkbox"/> OTHER CHANGE <input type="checkbox"/> (SPECIFY) _____ TARGET FORMATION: MARCELLUS	WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378	DESIGNATED AGENT: DEE SOUTHALL ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378
LEGEND: (+) PROPOSED SURFACE HOLE / BOTTOM HOLE * EXISTING / PRODUCING WELLHEAD LPL LANDING POINT LOCATION (W) EXISTING WATER WELL (S) EXISTING SPRING	REVISIONS: _____ _____ _____ _____	DATE: 05-22-2018 DRAWN BY: C. WEHR SCALE: 1" = 2000' DRAWING NO: 2018-341 WELL LOCATION PLAT

WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS		
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	KATHY LYNN & MICHAEL MAYHEW, ET AL (S/R)	03-B42-27
TRACT	SURFACE OWNER	TAX PARCEL
2	JAY GLEN COLLINS	03-B41-80
3	JAY GLEN COLLINS	03-B41-79
4	SANDRA W. BUTLER	03-B41-78
5	SANDRA W. BUTLER	03-B41-72
6	RUTH A. HERCULES	03-B41-88
7	GARY MORRIS	03-B41-90
8	RUTH A. HERCULES	03-B41-91
9	CHARLES J. SUTER & D. LA VAUGHN	03-B41-94
10	ELIZABETH ELLEN FLUHARTY	03-B41-95
11	ERNEST F. & JOANNE P. CAPP	03-B41-98
12	ERNEST F. & JOANNE P. CAPP	03-B41-64
13	LORETTA JOAN BASIL	03-B41-99
14	CAROL L. DUFFY	03-B36-113
15	MARK PHILLIPS, ET AL	03-B36-107
16	WINDSOR POWER HOUSE COAL COMPANY	03-B36-104

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	JOSEPH S. & JANE M. BUREK	03-B47-19
B	JAMES LAMONT	03-B47-1
C	BETSY D. TUSTIN	03-B47-2-1
D	DALE T. & MARY R. WOOD	03-B46-46
E	DALE T. & MARY R. WOOD	03-B41-84
F	BARRY L. & PATRICIA A. GREATHOUSE (SURV.)	03-B41-82
G	ROBERT J. MILLER, JR. & LINDA MILLER	03-B41-47
H	WILLIAM & DAWNA MILLER (SURV.)	03-B41-61
I	SANDRA W. BUTLER	03-B41-71
J	RONALD C. BUTLER, ET AL	03-B41-70
K	FRANK & KELLY AINSCOUGH (SURV.)	03-B41-89
L	FRANK & KELLY AINSCOUGH (SURV.)	03-B41-61-7
M	DANIEL R. GORBY	03-B41-61-6
N	COREY CONLEY	03-B41-61-5
O	WILLIAM & DAWNA MILLER (SURV.)	03-B41-61
P	CARL & JUDITH SPENCER (SURV.)	03-B41-65
Q	EMILY J. HUFFNER	03-B41-65-1
R	ERNEST & JOANNE P. CAPP (SURV.)	03-B41-63
S	ERNEST & JOANNE P. CAPP (SURV.)	03-B41-53
T	ERNEST & JOANNE P. CAPP (SURV.)	03-B41-52
U	WINDSOR POWER HOUSE COAL COMPANY	03-B41-49
V	WINDSOR POWER HOUSE COAL COMPANY	03-B36-103
W	WINDSOR POWER HOUSE COAL COMPANY	03-B36-101
X	WINDSOR POWER HOUSE COAL COMPANY	03-B35L-36
Y	KEITH L. HAMILTON	03-B35L-35
Z	KEITH L. HAMILTON	03-B35L-37
AA	FLOYD R. & DORIS M. LOUGHRIE	03-B35L-38
AB	BRIAN L. TESLOVICH	03-B36-145
AC	LYNN COULTER, ET AL	03-B36-143
AD	BEECH BOTTOM VOLUNTEER FIRE DEPARTMENT	03-B36-105

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
AE	TREVOR SEAN RICHMAN	03-B36-106
AF	MARK A. & MELODY J. ADAMS	03-B36-142
AG	FREDERICK B. & JULIE M. DAVIS (SURV.)	03-B36-108
AH	DAVID MCCLURE	03-B36-110
AI	VEMURI HOME & GARDENS, LLC.	03-B36-111
AJ	ROBERT & GEORGIA FATHERINGHAM	03-B36-109
AK	MARK A. & MELODY J. ADAMS	03-B36-139
AL	SCOTTY B. & AMY L. COEN (SURV.)	03-B36-138
AM	CAROL L. DUFFY	03-B36-113
AN	DONNA HARMS, ET AL	03-B36-115
AO	DONNA HARMS, ET AL	03-B36-116
AP	JEFFERY ALAN FERRY, ET AL	03-B36-117
AQ	MARK LLOYD & JOANN VANHORN (SURV.)	03-B36-118
AR	JOHN GEORGE, SR. & MAXINE GEORGE	03-B41-100
AS	ERVAN R. COWAN, ET AL	03-B41-101
AT	WILLIAM J. & SANDRA L. COCHRAN (SURV.)	03-B41-102
AU	WAYNE J. & KASSI JO SMITH (SURV.)	03-B41-103
AV	WAYNE J. & KASSI JO SMITH (SURV.)	03-B41-104
AW	ROGER L. & KAREN A. SNODERLY	03-B41-105
AX	ROGER L. & KAREN A. SNODERLY (SURV.)	03-B41-106
AY	KADESH CHAPEL CEMETARY	03-B41-107
AZ	KADESH CHAPEL CEMETARY	03-B41-108
BA	REBECCA A. LOWMILLER	03-B41-96
BB	JEFF & REGINA M. VANCAMP (SURV.)	03-B41-97
BC	KADESH CHAPEL CEMETARY	03-B41-111
BD	HAROLD GRIFFIN, JR. & LINDA GRIFFIN (SURV.)	03-B41-112
BE	HAROLD D. & EVELYN C. GRIFFIN	03-B41-113
BF	RICHARD A. & PRISCILLA OLIVER (SURV.)	03-B41-115
BG	GARY A. MORRIS, SR.	03-B41-93
BH	RUTH A. HERCULES	03-B41-92
BI	DEWAYNE E. & ALBERTA J. KELLER (SURV.)	03-B41-87
BJ	ETHEL I. SCHERICH	03-B41-73
BK	ETHEL I. SCHERICH	03-B41-75
BL	SANDRA W. BUTLER	03-B41-74
BM	SANDRA W. BUTLER	03-B41-77
BN	SHAWN M. SINES	03-B41-85
BO	HENRY MIKELS & BONNIE J. BURKETT (SURV.)	03-B41-86-1
BP	JASON D. & MARY E. WHITE (SURV.)	03-B41-86
BQ	ROBERT D. HILDEBRAND III & LESLIE C. HILDEBRAND	03-B42-63
BR	FRANK G. & KELLY L. AINSCOUGH (SURV.)	03-B42-71
BS	HENRY HEINZROTH	03-B42-32
BT	LUTHER GRIZZEL	03-B42-30
BU	LUTHER GRIZZEL	03-B42-31
BV	LUTHER GRIZZEL	03-B42-29
BW	ELIZABETH ELLEN FLUHARTY	03-B47-18
BX	MARK & TRINA PROVENZANO (SURV.)	03-B41-80-1
BY	JOSEPH P. SCRIP, SR. & ROBIN M. SCRIP (SURV.)	03-B41-80-2

REVISIONS:

COMPANY:

SWN
Production Company, LLC

OPERATOR'S

KATHY MAYHEW

DATE: 05-22-2018

WELL #:

BRK 1H

DRAWN BY: C. WEHR

DISTRICT:
BUFFALO

COUNTY:
BROOKE

STATE:
WV

SCALE: N/A

DRAWING NO: 2018-341
WELL LOCATION PLAT

WW-6A1
(5/13)

Operator's Well No. Kathy Mayhew BRK 1H

**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 I 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
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See Exhibit A

**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: SWN Production Co., LLC
By: [Signature]
Its: Staff London

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Page I of _____

EXHIBIT "A"

Attached to and made a part of the State of West Virginia Oil and Gas Permit Form, WW-6A1, by SWN Production Company, LLC., Operator
 Kathy Mayhew BRK 1H
 Brooke County, West Virginia

#	TMP	LESSOR	LESSEE	ROYALTY	BK/PG
1)	03-OB42-0027-0000-0000	Kathy Lynn Mayhew and James Michael Mayhew	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	12.50%	10/439 30/480
		Andrew G. Romanyak	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	12.50%	10/441 30/480
		Regina Marie Vancamp	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	12.50%	10/438 30/480
2)	03-OB41-0080-0000-0000	Jay G. Collins and Barbara J. Collins	Fortuna Energy Inc. Range Resources – Appalachia, LLC Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	9/864 10/159 10/552 30/480
3)	03-OB41-0079-0000-0000	Jay G. Collins	Fortuna Energy Inc. Range Resources – Appalachia, LLC Chesapeake Appalachia, LLC SWN Production Company, LLC	12.50%	9/864 10/159 10/552 30/480
4)	03-OB41-0078-0000-0000	Sandra W. Butler	Chesapeake Appalachia, LLC SWN Production Company, LLC	18.00%	16/129 30/480
5)	03-OB41-0072-0000-0000	Sandra W. Butler	Chesapeake Appalachia, LLC SWN Production Company, LLC	18.00%	16/129 30/480
6)	03-OB41-0088-0000-0000	Ruth A. Hercules	Chesapeake Appalachia, LLC SWN Production Company, LLC	18.00%	16/119 30/480
7)	03-OB41-0090-0000-0000	Gary A. Morris, Sr.	Chesapeake Appalachia, LLC SWN Production Company, LLC	18.00%	18/346 30/480
8)	03-OB41-0091-0000-0000	Ruth A. Hercules	Chesapeake Appalachia, LLC	18.00%	16/119
			SWN Production Company, LLC		30/480
9)	03-OB41-0094-0000-0000	D. LaVaughn Suter	Chesapeake Appalachia, LLC	18.00%	18/351
			SWN Production Company, LLC		30/480
10)	03-OB41-0095-0000-0000	Elizabeth E. Fluharty	Chesapeake Appalachia, LLC	17.00%	19/475
			SWN Production Company, LLC		30/480
11)	03-OB41-0098-0000-0000	Ernest F. Capp & Joann P Capp	Great Lakes Energy Partners, L.L.C.	18.00%	10/103
			Range Resources – Appalachia, LLC		20/733

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 WV Department of
 Environmental Protection

EXHIBIT "A"

Attached to and made a part of the State of West Virginia Oil and Gas Permit Form, WW-6A1, by SWN Production Company, LLC., Operator
 Kathy Mayhew BRK 1H
 Brooke County, West Virginia

			Chesapeake Appalachia, LLC		10/552
			SWN Production Company, LLC		30/480
12)	03-0B41-0064-0000-0000	Ernest F. Capp & Joann P Capp	Great Lakes Energy Partners, L.L.C.	18.00%	10/103
			Range Resources – Appalachia, LLC		20/733
			Chesapeake Appalachia, LLC		10/552
			SWN Production Company, LLC		30/480
13)	03-0B41-0099-0000-0000	Loretta J. Basil, a/k/a Loretta Joan Basil	Chesapeake Appalachia, LLC	18.00%	19/579
			SWN Production Company, LLC		30/480
14)	03-0B36-0113-0000-0000	James William Debevoise	Chesapeake Appalachia, LLC	18.00%	24/348
			SWN Production Company		30/480
		Raymond D. Debevoise	Chesapeake Appalachia, LLC	18.00%	24/343
			SWN Production Company, LLC		30/480
		Carol Lee Duffy	SWN Production Company, LLC	14.00%	32/569
		Betty Gay Fisher	Chesapeake Appalachia, LLC	18.00%	24/338
			SWN Production Company, LLC		30/480
15)	03-0B36-0107-0000-0000	Gail Phillips Atkinson	Chesapeake Appalachia, L.L.C.	18.00%	19/186
			SWN Production Company, LLC		30/480
		George W. Grimm	Chesapeake Appalachia, L.L.C.	18.00%	19/174
			SWN Production Company, LLC		30/480
		Mark Phillips	Chesapeake Appalachia, L.L.C.	18.00%	19/180
			SWN Production Company, LLC		30/480
		Alfred Schell	Chesapeake Appalachia, L.L.C.	18.00%	18/329
			SWN Production Company, LLC		30/480
16)	03-0B36-0104-0000-0000	CNX Gas Company, LLC	SWN Production Company, LLC	21.00%	48/112

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September 18, 2018

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

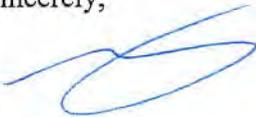
RE: SWN's proposed New Well: Kathy Mayhew BRK 1H, Kathy Mayhew BRK 3H, & Kathy Mayhew BRK 201H in Brooke County, West Virginia, Drilling under Hukill Run Road & Beech Bottom Hill Road.

Dear Ms. Adkins:

SWN Production Company, LLC ("SWN") is applying for a drilling permit for the above referenced well. The State of West Virginia has raised some concern as to SWN's right to drill Hukill Run Road & Beech Bottom Hill Road. Please be advised that SWN has leased all mineral owners under said route as it relates to the above-referenced well and unit.

Thank you.

Sincerely,



Gary Nuckolls
Staff Landman
SWN Production Company, LLC
PO Box 1300
Jane Lew, WV 26378

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