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west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC  
POST OFFICE BOX 12359

SPRING, TX 773914954

Re: Permit Modification Approval for MIKE RYNIWEC BRK 1H  
47-009-00242-00-00

Add Expected Void

SWN PRODUCTION COMPANY, 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: MIKE RYNIWEC BRK 1H  
Farm Name: MIKE RYNIWEC  
U.S. WELL NUMBER: 47-009-00242-00-00  
Horizontal 6A / New Drill  
Date Issued: 2/16/2018

Promoting a healthy environment.

02/16/2018



SWN Production Company, LLC  
179 Innovation Drive  
Jane Lew, WV 26378  
Tel: 304 884 1610  
Fax: 304 471 2497  
www.swn.com

February 15, 2018

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

RE: Proposed New Well Mike Ryniawec BRK 1H,6H, 3H and 201H

Dear Ms. Adkins

Enclosed please find modifications for the above captioned wells. We are adding to the permit applications that there is a possible void. These wells are situated on the Ryniawec's property, in Buffalo District, Brooke County, West Virginia.

If you have any questions or desire additional information, please me at 304-884-1614.

Thank you.

Sincerely,

Dee Southall  
Senior Regulatory Analyst  
Southwestern Energy Production Company, LLC 47 00900242



The Right People doing the Right Things,  
wisely Investing the cash flow from our  
underlying Assets, will create Value.<sup>®</sup>

02/16/2018

WW-6B  
(10/14)

API NO. 47-009 - 00242  
OPERATOR WELL NO. Mike Ryniawec BRK 1H  
Well Pad Name: Mike Ryniawec PAD

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 009-Brooke 3- Buffalo 247-Bethany  
Operator ID County District Quadrangle

2) Operator's Well Number: Mike Ryniawec BRK 1H Well Pad Name: Mike Ryniawec PAD

3) Farm Name/Surface Owner: Mike Ryniawec Public Road Access: Lazear Run Road

4) Elevation, current ground: 1147' Elevation, proposed post-construction: 1147'

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 Formation- Marcellus, Target Top TVD- 5904', Target Base TVD- 5945', Anticipated Thickness- 41', Associated Pressure- 3864

8) Proposed Total Vertical Depth: 5934'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16827'

11) Proposed Horizontal Leg Length: 10496.5'

12) Approximate Fresh Water Strata Depths: 346'

13) Method to Determine Fresh Water Depths: salinity profile

14) Approximate Saltwater Depths: 645'

15) Approximate Coal Seam Depths: 342'

16) Approximate Depth to Possible Void (coal mine, karst, other): Possible Void 342'

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: \_\_\_\_\_

WW-6B  
(10/14)

API NO. 47-009 -  
OPERATOR WELL NO. Mike Ryniawec BRK 1H  
Well Pad Name: Mike Ryniawec PAD

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"	New	H-40	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	H-40	48#	426'	426'	415 sx/CTS
Coal	9 5/8"	New	J-55	36#	1691'	1691'	650 sx/CTS
Intermediate	7"	New	J-55	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	HCP-110	20#	16827'	16827'	Lead 750x117 2000x100' inside 100'
Tubing	2 3/8"	New	HCP-110	4.7#	Approx. 5934'	Approx. 5934'	
Liners							

*C. BLO 2-15-14*

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"	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	2 3/8"	4.778"	0.190				
Liners							

PACKERS

Kind:	10K Arrowset AS1-X			
Sizes:	5 1/2"			
Depths Set:				