

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

Austin Caperton, Cabinet Secretary 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 RYNIAWEC BRK 6H

47-009-00214-00-00

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.

Chief

Operator's Well Number: MIKE RYNIAWEC BRK 6H

Farm Name: RYNIAWEC, MIKE

U.S. WELL NUMBER: 47-009-00214-00-00

Horizontal 6A / New Drill

Date Issued: 2/16/2018

Promoting a healthy environment.

API NO. 47- 51 -	50	PIEC	
OPERATOR WELL	NO.	Milto Ryniowec BRK 6H	
Well Pad Name:	Mike F	Rynizwec P	AD OF

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

Well Operator: SWN Production Co., LLC 49447757 009-Brooke 3- Buffal 247-Bethany
Operator ID County District Quadrangle
2) Operator's Well Number: Mike Ryniawec BRK 6H 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 X Oil Underground Storage
Other 470
(b) If Gas Shallow X 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- 5862', Target Base TVD- 5902', Anticipated Thickness- 40', Associated Pressure- 3534
8) Proposed Total Vertical Depth: 5992'
9) Formation at Total Vertical Depth: Marcellus
10) Proposed Total Measured Depth: 14026'
11) Proposed Horizontal Leg Length: 7719.4'
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- 51

OPERATOR WELL NO. Mike Rynkowee BRK 6H

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#	406'	406'	397 sx/CTS
Coal	9 5/8"	New	J-55	36#	1691'	1691'	652 sx/CTS
Intermediate	7"	New	J-55	20#	if Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	HCP-110	20#	14026'	14026'	Lead 780cs tol 100css/100 incide con-
Tubing	2 3/8'	New	HCP-110	4.7#	Approx. 5893'	Approx. 5893'	
Liners							

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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					6-		

		PACKERS	4700	
Kind:	10K Arrowset AS1-X			00220
Sizes:	5 1/2"			
Depths Set:				