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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)

Wednesday, November 18, 2020  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC  
POST OFFICE BOX 12359

SPRING, TX 773914954

Re: Permit Modification Approval for ROBERT BONE BRK 5H  
47-009-00286-00-00

Modified Cement Yield

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: ROBERT BONE BRK 5H  
Farm Name: ROBERT BONE  
U.S. WELL NUMBER: 47-009-00286-00-00  
Horizontal 6A New Drill  
Date Modification Issued: November 18, 2020

Promoting a healthy environment.

WW-6B  
(04/15)

4700900280 <sup>6</sup> MON  
API NO. 47-009

OPERATOR WELL NO. Robert Bone BRK 5H  
Well Pad Name: Robert Bone BRK 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 494512924 009-Brook 01-Buffal 247-Bethany & 62  
Operator ID County District Quadrangle

2) Operator's Well Number: Robert Bone BRK 5H Well Pad Name: Robert Bone BRK Pad

3) Farm Name/Surface Owner: Robert Bone Public Road Access: Hukill Run Road

4) Elevation, current ground: 1148' Elevation, proposed post-construction: 1148'

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 Expected Pressure(s):  
Target Formation- Marcellus, Up-Dip Well to the North, Target Top TVD- 5826', Target Base TVD- 5878', Anticipated Thickness- 52', Associated Pressure- 3820

8) Proposed Total Vertical Depth: 5863'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 23662'

11) Proposed Horizontal Leg Length: 17168.86'

12) Approximate Fresh Water Strata Depths: 344'

13) Method to Determine Fresh Water Depths: Salinity Profile

14) Approximate Saltwater Depths: 627' Salinity Profile

15) Approximate Coal Seam Depths: 309

16) Approximate Depth to Possible Void (coal mine, karst, other): Possible Void 309'

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: \_\_\_\_\_

RECEIVED  
Office of Oil and Gas  
NOV 04 2020  
WV Dept. of Environmental Protection

*C. B. B.*  
*10.15.20*

4700900280 <sup>6</sup> MOD

WW-6B  
(04/15)

API NO. 47- 009 -  
OPERATOR WELL NO. Robert Bone BRK 5H  
Well Pad Name: Robert Bone BRK 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	J-55	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	J-55	54.4#	420'	420'	414 sx/CTS
Coal	See	Surface	Casing				
Intermediate	9 5/8"	New	J-55	36#	1643'	1643'	521 sx/CTS
Production	5 1/2"	New	P-110 HP	20#	23,662'	23,662'	Tal 4303sw/ 100' Inside Intermediate
Tubing							
Liners							

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Office of Oil and Gas

NOV 04 2020

WV Department of Environmental Protection

*[Handwritten signature]*  
10-15-20

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	20"	30"	0.25	2120	81	Class A	1.20/30% Excess
Fresh Water	13 3/8"	17.5"	0.380	2730	633	Class A	1.20/30% Excess
Coal	See	Surface	Casing				
Intermediate	9 5/8"	12 1/4"	0.352	3520	1768	Class A	1.19/40% Excess
Production	5 1/2"	8 3/4"-8 1/2"	0.361	14360	10500	Class A	1.19/5% Excess
Tubing							
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				



Check # 1053367  
10/27/2020  
\$5,000.00

9-00286 (max)

SWN Production Company, LLC  
1300 Fort Pierpont Dr, Ste 201  
Morgantown, WV 26508  
Tel: 304 884 1610  
Fax: 304 471 2497  
www.swn.com

November 2, 2020

RECEIVED  
Office of Oil and Gas

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

NOV 04 2020

WV Department of  
Environmental Protection

RE: Proposed **Expedited Modification:** Robert Bone BRK 5H

Dear Ms. Adkins

Enclosed please find a modification for the above captioned well. We made changes to the cement yield on page two of the 6B per the DEP inspector's request. This well is situated on the Bone's property, in Buffalo District, Brooke County, West Virginia. Enclosed documents:

-Updated 6B

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

Thank you.

Sincerely,

Brittany Woody  
Senior Regulatory Analyst  
Southwestern Energy Production Company, LLC



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