



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

Tuesday, November 17, 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 405H
47-009-00319-00-00

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.

A blue ink signature of James A. Martin, written in a cursive style.

James A. Martin
Chief

Operator's Well Number: ROBERT BONE BRK 405H
Farm Name: ROBERT BONE
U.S. WELL NUMBER: 47-009-00319-00-00
Horizontal 6A New Drill
Date Modification Issued: November 17, 2020

Promoting a healthy environment.

WW-6B
(04/15)

470-0900319 Mo

OPERATOR WELL NO. Robert Bone BRK 405H
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 405H Well Pad Name: Robert Bone BRK Pad

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

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

WV Department of
Environmental Protection

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

(b) If Gas Shallow Deep _____
Horizontal _____

C. H. O.

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s). Anticipated Thickness and Expected Pressure(s): 10-15-20

Target Formation- Marcellus, Up-Dip Well to the North, Target Top TVD- 5835', Target Base TVD- 5887', Anticipated Thickness- 52', Associated Pressure- 3827

8) Proposed Total Vertical Depth: 5871'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 25863'

11) Proposed Horizontal Leg Length: 16,399.3'

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: _____

WW-6B
(04/15)

API NO. 47-009
 OPERATOR WELL NO. 4700900319 *MOY*
 Robert Bone BRK 405H
 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#	1688'	1688'	533 sx/CTS
Production	5 1/2"	New	P-110 HP	20#	25,863'	25,863"	Tail 4740sx/ 100' Inside Intermediate
Tubing							
Liners							

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C-2820
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 # 1053364
10/27/2020
\$5,000.00

9-00319 MDV

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

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

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RE: Proposed **Expedited Modification:** Robert Bone BRK 405H

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+[®]