



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

Friday, December 4, 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 10H
47-009-00287-00-00

Cement Yield Calculation WW-6B

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 handwritten signature in blue ink, appearing to read 'James A. Martin', is positioned above the printed name and title.

James A. Martin
Chief

Operator's Well Number: ROBERT BONE BRK 10H
Farm Name: ROBERT BONE
U.S. WELL NUMBER: 47-009-00287-00-00
Horizontal 6A New Drill
Date Modification Issued: 12/04/2020

Promoting a healthy environment.

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 10H 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 *C. B. L. 11-6-20*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Target Formation- Marcellus, Down-Dip Well to the South, Target Top TVD- 6087', Target Base TVD- 6139', Anticipated Thickness- 52', Associated Pressure- 3990

8) Proposed Total Vertical Depth: 6125'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 27220'

11) Proposed Horizontal Leg Length: 20627.79

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: _____

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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#	420'	420'	410 sx/CTS
Coal	See	Surface	Casing				
Intermediate	9 5/8"	New	J-55	36#	1643'	1643'	637 sx/CTS
Production	5 1/2"	New	HCP-110	20#	27220'	27220'	lead 75sx/Tail 4912sx/ 100' inside In
Tubing							
Liners							

C. J. [Signature] 11.6.20

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	2740	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							

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PACKERS

Kind:				
Sizes:				
Depths Set:				



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 9, 2020

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

RE: Proposed Expedited Modification: Robert Bone BRK 10H

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, 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

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CK# 1053376
Amt \$ 5000
Date 10/27/20