



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

Monday, November 2, 2020
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC
POST OFFICE BOX 12359
SPRING, TX 773914954

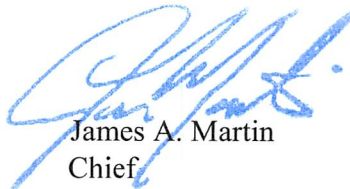
Re: Permit Modification Approval for STATE OF WV DNR C BRK 5H
47-009-00257-00-00

Cement yield on Casing Plan Updated

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: STATE OF WV DNR C BRK 5H
Farm Name: STATE OF W.V. DNR
U.S. WELL NUMBER: 47-009-00257-00-00
Horizontal 6A New Drill
Date Modification Issued: 11/02/2020

Promoting a healthy environment.

WW-6B
(04/15)

API NO. 47-009 - 00257 MOD
OPERATOR WELL NO. State of WV DNR C BRK 5H
Well Pad Name: State of WV DNR C BRK

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-Brooke 4-Cross 620-Steubenville
Operator ID County District Quadrangle

2) Operator's Well Number: State of WV DNR C BRK 5H Well Pad Name: State of WV DNR C BRK

3) Farm Name/Surface Owner: State of WV DNR Public Road Access: Putney Ridge Road

4) Elevation, current ground: 993' Elevation, proposed post-construction: 990'

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

(b) If Gas Shallow Deep _____
Horizontal _____

6) Existing Pad: Yes or No No

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- 5588', Target Base TVD- 5650', Anticipated Thickness- 62', Associated Pressure- 3672

C. B. H.
10-15-20

8) Proposed Total Vertical Depth: 5632'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 23,134'

11) Proposed Horizontal Leg Length: 16,105.77'

12) Approximate Fresh Water Strata Depths: 371'

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13) Method to Determine Fresh Water Depths: nearby water well

OCT 23 2020

14) Approximate Saltwater Depths: 575' salinity profile analysis

WV Department of
Environmental Protection

15) Approximate Coal Seam Depths: 6'

16) Approximate Depth to Possible Void (coal mine, karst, other): None that we are aware of

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 - 00257 MOD
 OPERATOR WELL NO. State of WV DNR C BRK 5H
 Well Pad Name: State of WV DNR C BRK

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	H-40	48#	496'	496'	459 sx/CTS
Coal	See	Conductor	Casing				
Intermediate	9 5/8"	New	J-55	36#	1380'	1380'	460 sx/CTS
Production	5 1/2"	New	P-110 HP	20#	23134'	23134'	1st 4253sx/100' inside intermediate
Tubing							
Liners							

C. B. B.
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	Conductor	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:				

October 19, 2020

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

RE: Proposed Expedited Modification: State of WV DNR C BRK 5H
State of WV DNR C BRK 6H
State of WV DNR C BRK 8H
State of WV DNR C 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 Edge's property, in Sand Hill District, Marshall 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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OCT 23 2020

WV Department of
Environmental Protection

CK# 1053067
Amt \$5000
Date 10/13/20

