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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

Jim Justice, Governor  
Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

PERMIT MODIFICATION APPROVAL  
Horizontal 6A / Horizontal 6A Well - 1

SWN PRODUCTION COMPANY, LLC  
POST OFFICE BOX 12359

SPRING, TX 773914954

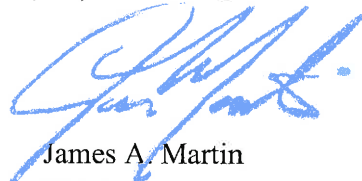
Re: Permit Modification Approval for JAMES SEABRIGHT BRK 10H  
47-009-00175-00-00

Modifying Casing Program

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: JAMES SEABRIGHT BRK 10H  
Farm Name: SEABRIGHT, JAMES K & MARTHA MAY  
U.S. WELL NUMBER: 47-009-00175-00-00  
Horizontal 6A / Horizontal 6A Well - 1  
Date Issued: 6/5/2017

Promoting a healthy environment.

06/09/2017

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 1-Buffalo 247-Bethany  
Operator ID County District Quadrangle  
47-009-00175

2) Operator's Well Number: James Seabright BRK 10H Well Pad Name: James Seabright BRK Pad

3) Farm Name/Surface Owner: James B Martin Seabright Life Estate, L James H Seabright Public Road Access: Bealls Ridge Road

4) Elevation, current ground: 1129' Elevation, proposed post-construction: 1129'

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 Associated Pressure(s):  
Target Formation- Marcellus, Target Top TVD- 6169', Target Base TVD- 6209' Anticipated Thickness- 40', Associated Pressure- 3712

8) Proposed Total Vertical Depth: 6192'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 13,672'

11) Proposed Horizontal Leg Length: 5773.13'

12) Approximate Fresh Water Strata Depths: 250'

13) Method to Determine Fresh Water Depths: from offset wells

14) Approximate Saltwater Depths: 868'

15) Approximate Coal Seam Depths: 311'

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: \_\_\_\_\_

*[Handwritten Signature]* 5.31.17

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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#	350'	350'	349 sx/CTS
Coal	9 5/8"	New	J-55	36#	1718'	1718'	668 sx/CTS
Intermediate	7"	New	J-55	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	HCP-110	20#	13,672'	13,672'	Local 700 sx 10' 1259 cu' 100' made
Tubing	2 3/8"	New	P-110	4.7#	Approx. 6064'	Approx. 6064'	
Liners							

*C. B. O. 5.31.17*

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							

PACKERS

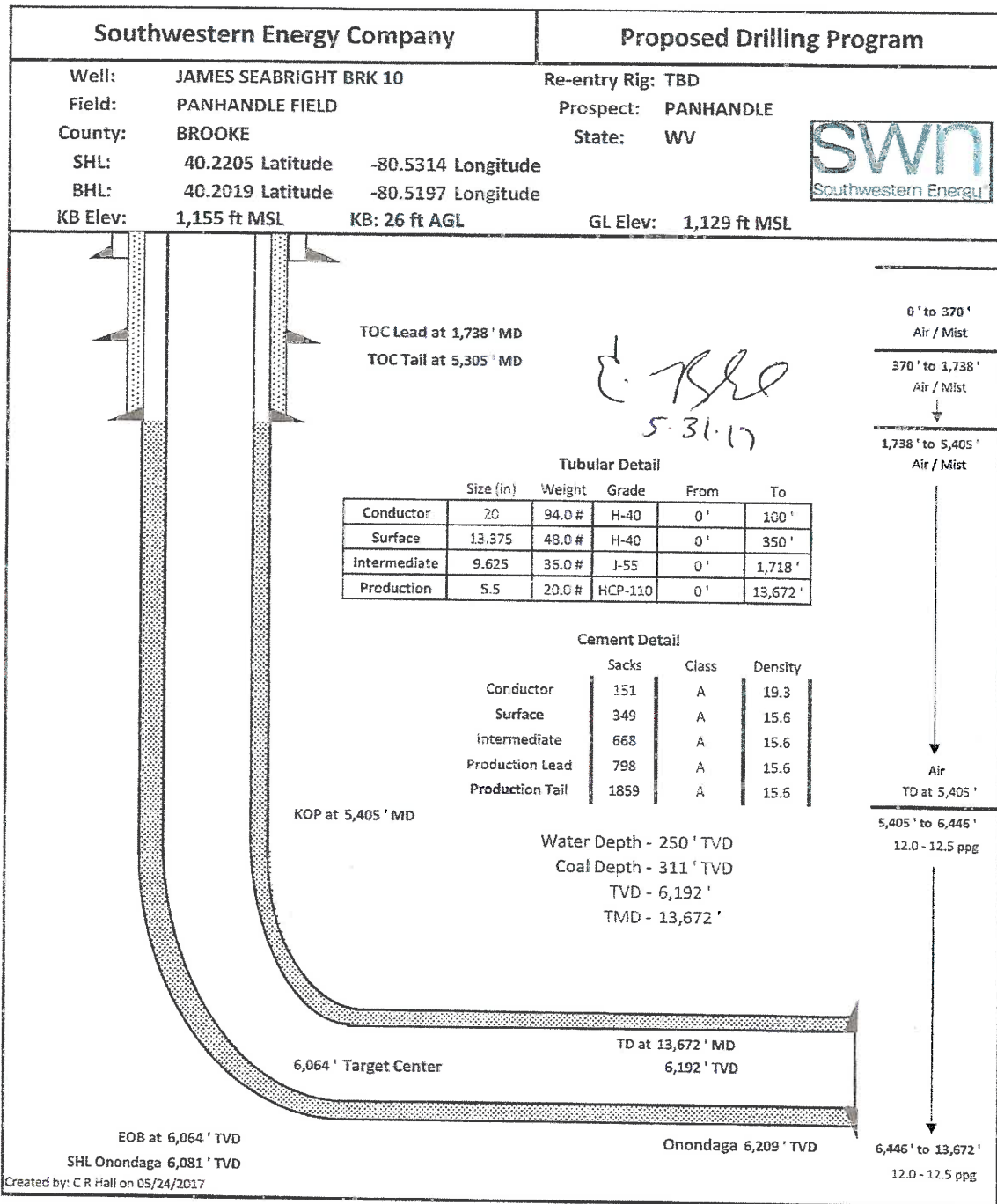
Kind:	10K Arrowset AS1-X			
Sizes:	5 1/2"			
Depths Set:				

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# SWN

Southwestern Energy®

PO Box 1300  
Jane Lew, WV 26378  
PHONE: (832) 796-1610

May 31, 2017

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

**RE:** Modification to James Seabright BRK 6H, 8H & 10H

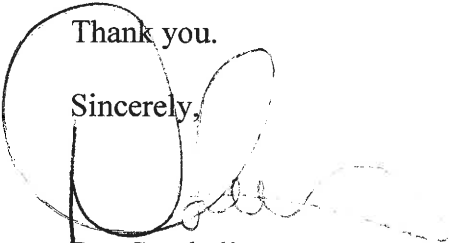
Dear Ms. Adkins

Enclosed please find a revised 6B and wbd for the above mentioned wells. We would like to modify the casing program.

If you have any questions or desire additional information, please me at 304-884-1614.

Thank you.

Sincerely,

  
Dee Southall  
Regulatory Supervisor  
Southwestern Energy Production Company, LLC  
PO Box 1300  
Jane Lew, WV 26378

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The Right People doing the Right Things,  
wisely Investing the cash flow from  
our underlying Assets, will create Value+

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