



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

PERMIT MODIFICATION APPROVAL

April 16, 2015

SWN PRODUCTION COMPANY, LLC
POST OFFICE BOX 12359
SPRING, TX 77391

Re: Permit Modification Approval for API Number 6900185 , Well #: ALICE EDGE OHI 206H
Modify casing for directional work

Oil and Gas Operator:

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.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

Gene Smith
Assistant Chief of Permitting
Office of Oil and Gas

4706900185 MOD

SWN

Southwestern Energy[®]

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

April 16, 2015

Ms. Melanie Hankins
Office of Oil & Gas
601 57th Street
Charleston, WV 25304

RE: Alice Edge OHI 10H, and Alice Edge OHI 206H

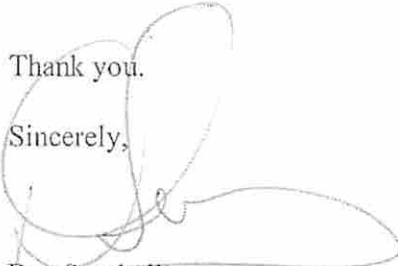
Dear Ms. Hankins:

Enclosed please find modification requests for the above captioned wells. We would like to modify the casing for directional work only. We will not be crossing any additional leases. These wells are situated on the Edge's property, in Liberty District, Ohio County, West Virginia.

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

Received

APR 16 2015

Office of Oil and Gas
WV Dept. of Environmental Protection

$\frac{R^2}{A} \rightarrow V^+$

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

04/17/2015

WW-6B
(10/14)

API NO. 47-69
OPERATOR WELL NO. Alice Edge OHI 208H
Well Pad Name: Alice Edge OHI 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 69- Ohio 3- Liberty 648- Valley Grove
Operator ID County District Quadrangle

2) Operator's Well Number: Alice Edge OHI 206H Well Pad Name: Alice Edge OHI Pad

3) Farm Name/Surface Owner: Alice Mae Edge Public Road Access: State Route 40

4) Elevation, current ground: 1198' Elevation, proposed post-construction: 1198'

5) Well Type (a) Gas x Oil _____ Underground Storage _____
Other _____
(b) If Gas Shallow x 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- 6373', Target Base TVD- 6373', Anticipated Thickness- 20, Associated Pressure- 4176

8) Proposed Total Vertical Depth: 6383' *cf*

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 14,800'

11) Proposed Horizontal Leg Length: 7303'

12) Approximate Fresh Water Strata Depths: 425'

13) Method to Determine Fresh Water Depths: from log analysis and nearby water wells

14) Approximate Saltwater Depths: 1050'

15) Approximate Coal Seam Depths: 580'

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 x No _____

(a) If Yes, provide Mine Info: Name: Tunnel Ridge
Depth: 558'
Seam: Pittsburgh #8
Owner: Tunnel Ridge

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APR 16 2015

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WV Dept. of Environmental Protection

E. R. L. 4/16/15 Page 1 of 3

WW-6B
(10/14)

API NO. 47- 69
OPERATOR WELL NO. Alice Edge OHI 206H
Well Pad Name: Alice Edge OHI 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	F-25	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	J-55	54.5#	630'	630'	545 sx/CTS
Coal	9 5/8"	New	J-55	40#	2113'	2113'	777 sx/CTS
Intermediate	7"	New	HCP-110	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	HCP-110	20#	14,800'	14,800'	14800 sx/CTS
Tubing	2 3/8"	New	P-110	4.7#	Approx. 7019'	Approx. 7019'	
Liners							

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	0.020	Class A	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	0.020	Class A	1.19/50% Excess
Coal	9 5/8"	12 1/4"	0.395	3950	0.020	Class A	1.19/50% Excess
Intermediate	7"	8 3/4"	0.317	4360	0.020	Class A	1.20/15% Excess
Production	5 1/2"	8 3/4"	0.361	12360	0.020	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:				

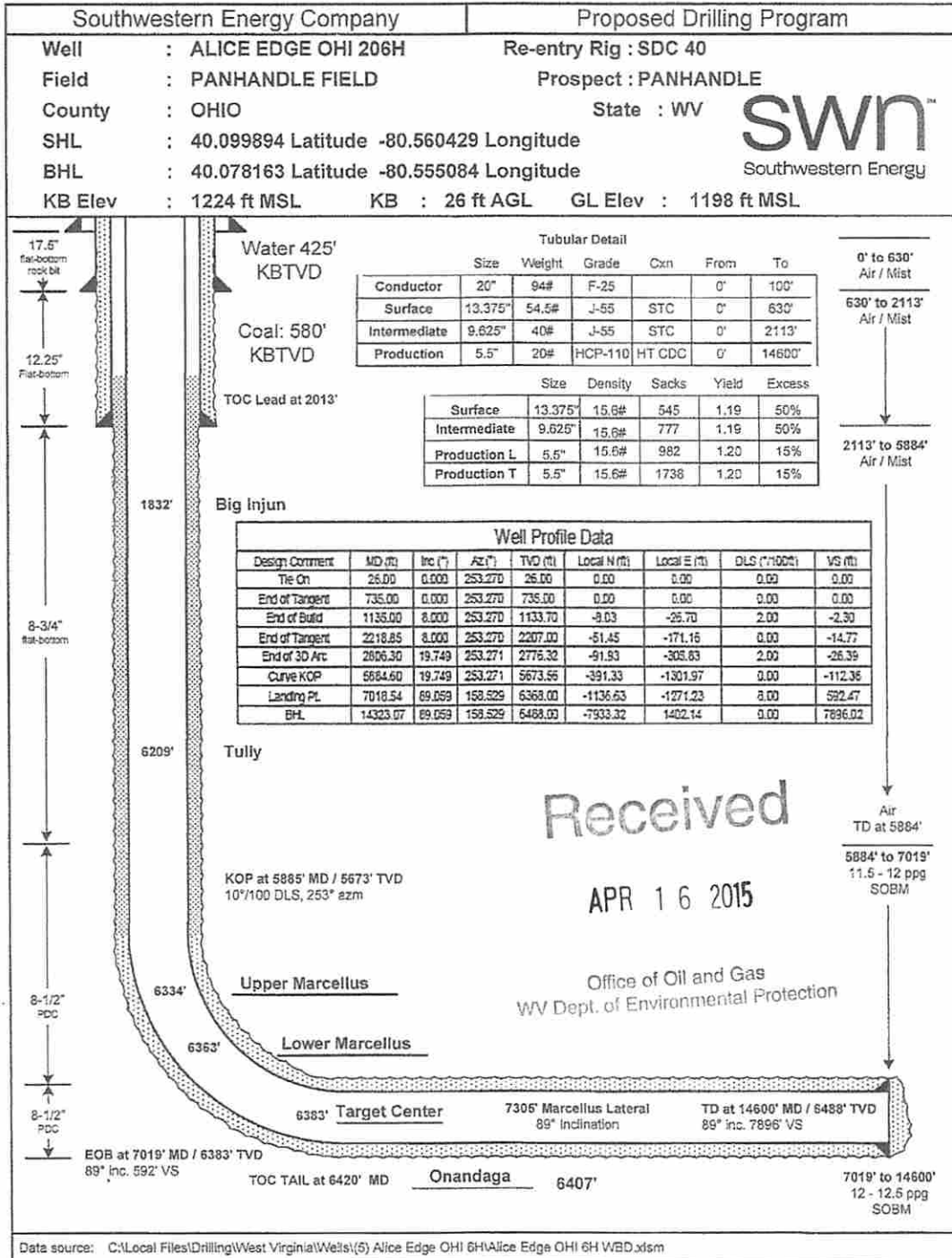
[Handwritten Signature] 7/16/15

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APR 16 2015

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WV Dept. of Environmental Protection

04/17/2015



Data source: C:\Local Files\Drilling\West Virginia\Wells\5) Alice Edge OHI 6H\Alice Edge OHI 6H WBD.xlsm

NOTE: This drawing was created for the Reentry Rig. The depths and lengths shown in the plot are referenced to Reentry Rig RKB.

C. SLO 4/16/15