



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 6900186 , Well #: ALICE EDGE OHI 10H
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

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

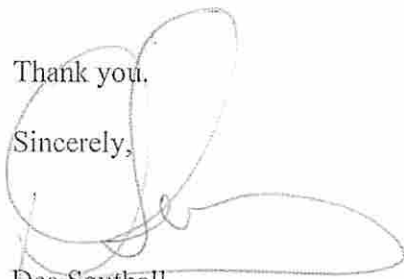
Dear Ms. Hankins:

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,

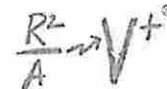


Dee Southall
Regulatory Supervisor
Southwestern Energy Production Company, LLC
PO Box 1300
Jane Lew, WV 26378

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APR 16 2015

Office of Oil and Gas
WV Dept. of Environmental Protection



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

WW-6B
(10/14)

API NO. 47-69
OPERATOR WELL NO. Alice Edge OHI 10H
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 10H 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 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- 6416', Target Base TVD- 6436', Anticipated Thickness- 20, Associated Pressure- 4176
- 8) Proposed Total Vertical Depth: 6426'
- 9) Formation at Total Vertical Depth: Marcellus
- 10) Proposed Total Measured Depth: 19,700'
- 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 No _____
- (a) If Yes, provide Mine Info: Name: Tunnel Ridge
Depth: 558'
Seam: Pittsburgh #8
Owner: Tunnel Ridge

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Office of Oil and Gas
WV Dept. of Environmental Protection

[Handwritten Signature]
4/16/15

WW-6B
(10/14)

API NO. 47- 69
OPERATOR WELL NO. Alice Edge OH# 10H
Well Pad Name: Alice Edge OH# 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# | 19,700' | 19,700' | Lead 100 sx 2012 bit 60' 60' 10119 Pgs |
| Tubing | 2 3/8" | New | P-110 | 4.7# | Approx. 6963' | Approx. 6963' | |
| 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

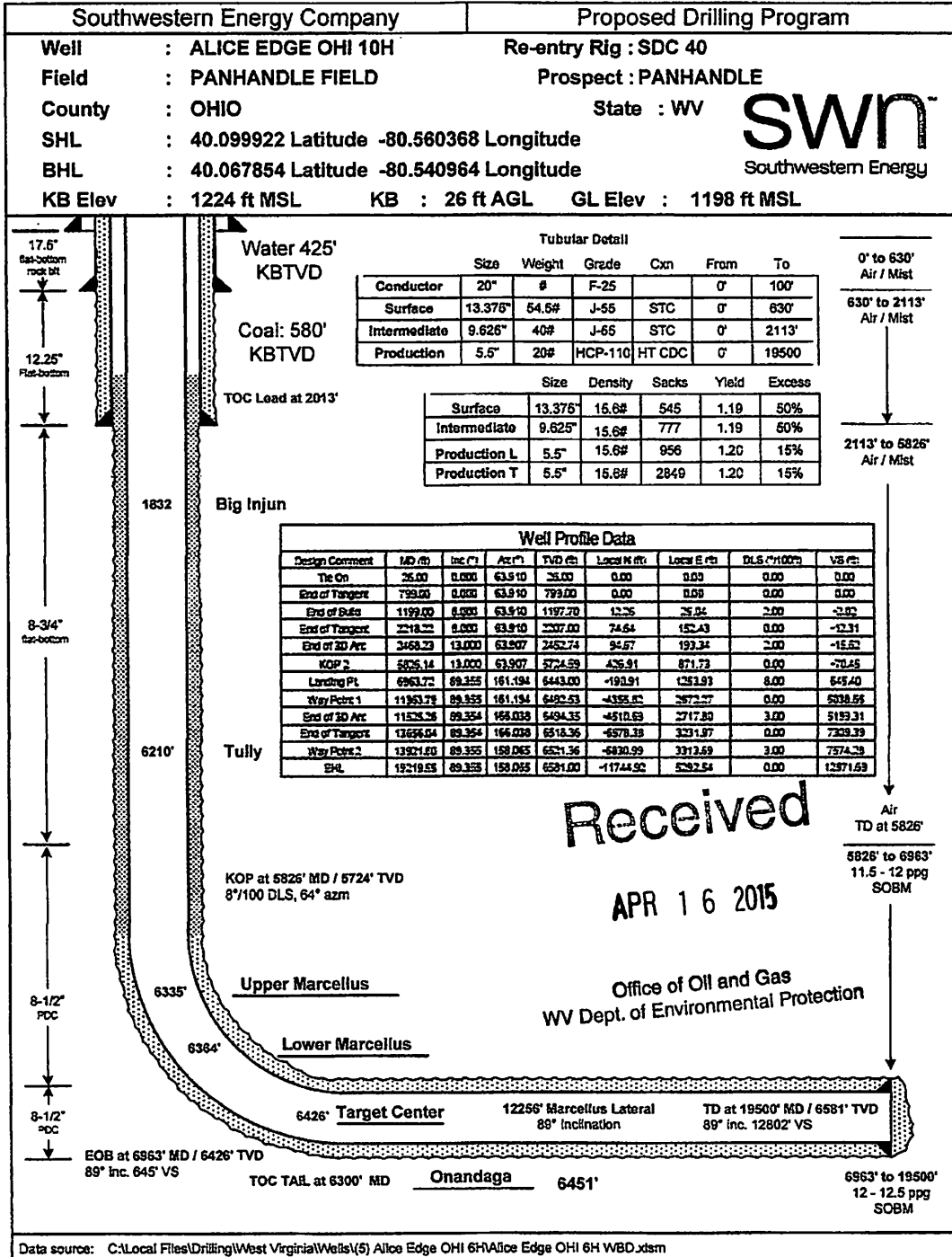
| | | | | |
|-------------|--------------------|--|--|--|
| Kind: | 10K Arrowset AS1-X | | | |
| Sizes: | 5 1/2" | | | |
| Depths Set: | | | | |

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Office of Oil and Gas
WV Dept. of Environmental Protection

[Handwritten Signature]
4/16/15



E. F. ...

4/16/15