



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 08, 2015

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

Re: Permit Modification Approval for API Number 6900184 , Well #: ALICE EDGE OHI 6H
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

69-00184 mon



April 8, 2015

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

RE: Modification to Alice Edge OHI 6H, and Alice Edge OHI 210H

Dear Laura:

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 - 8 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+

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 6H 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- 6387', Target Base TVD- 6448', Anticipated Thickness- 61, Associated Pressure- 4176'

8) Proposed Total Vertical Depth: 6390'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 19,200'

11) Proposed Horizontal Leg Length: 12,032'

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

*wkb
4-7-15*

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'	580 sx/CTS
Coal	9 5/8"	New	J-55	40#	2107'	2107'	630 sx/CTS
Intermediate	7"	New	HCP-110	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	HCP-110	20#	19,200'	19,200'	Lead 1150x 1500 tall sx100' inside <input checked="" type="checkbox"/>
Tubing	2 3/8"	New	P-110	4.7#	Approx. 6779'	Approx. 6779'	
Liners							

WRW
4-7-15

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

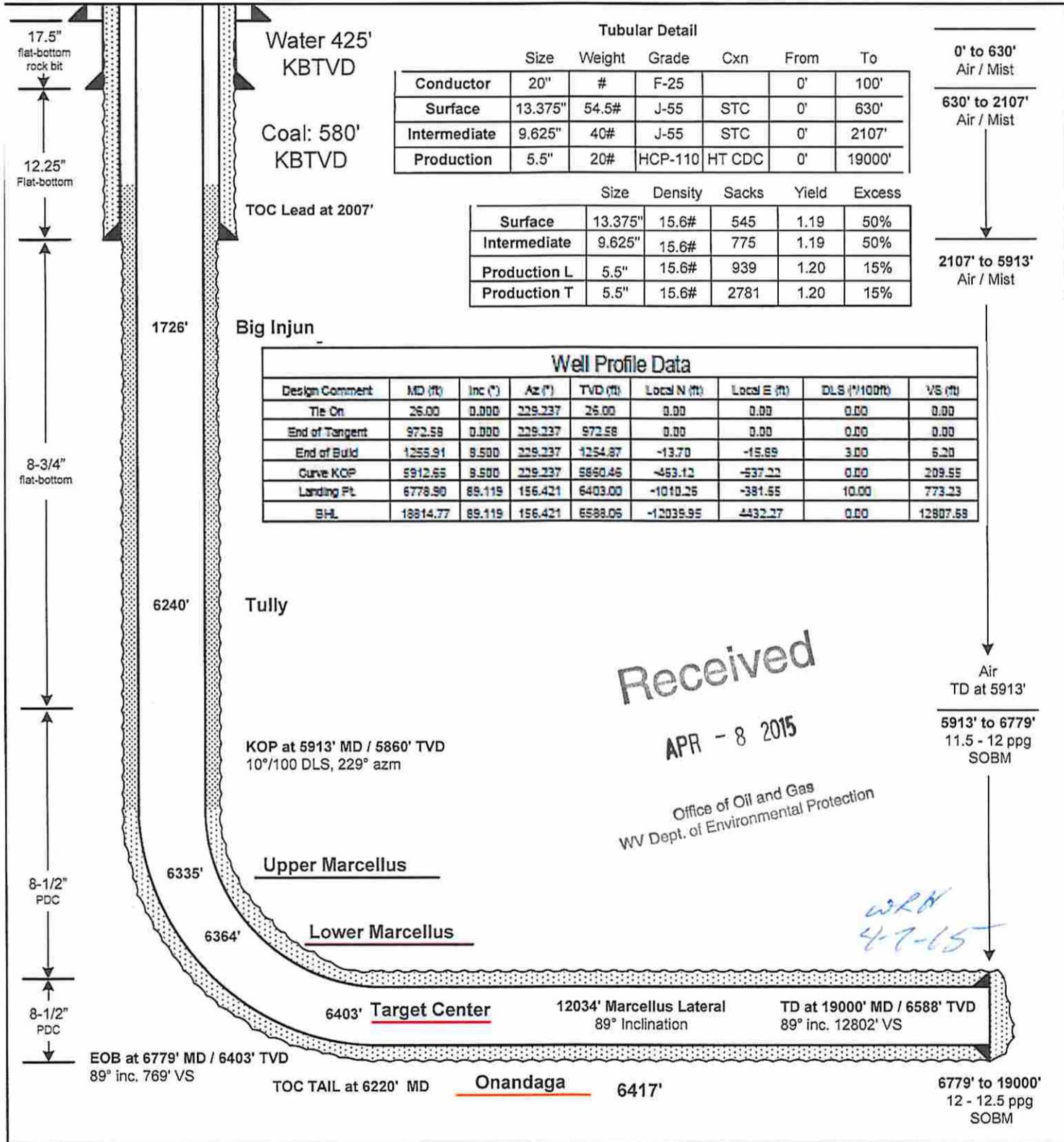
Kind:	10K Arrowset AS1-X				
Sizes:	5 1/2"				
Depths Set:					

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Office of Oil and Gas
WV Dept. of Environmental Protection

Southwestern Energy Company		Proposed Drilling Program	
Well	: ALICE EDGE OHI 6H	Re-entry Rig	: Sdc 40
Field	: PANHANDLE FIELD	Prospect	: PANHANDLE
County	: OHIO	State	: WV
SHL	: 40.099861 Latitude -80.560403 Longitude		
BHL	: 40.066824 Latitude -80.544574 Longitude		
KB Elev	: 1224 ft MSL	KB	: 26 ft AGL
		GL Elev	: 1198 ft MSL



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WV Dept. of Environmental Protection

WRN
4-7-15

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.

Latitude: 40° 07' 30" (NAD 27)
4706900184 MJD

Longitude: 80° 32' 30" (NAD 27)

LESSOR	PARCEL	ACREAGE	LEASE NUMBER
A KENNETH LEE COOPER C/O RUESSER	VG4-3	16.59 ACRES	47-000579-000
B DONALD & PEGGY PLETCHER	L14-56	7.473 ACRES	47-000029-001
C DOUGLAS EDWARD FARMER	L14-57.1	0.539 ACRES	47-000365-000
D MARY FISHER & RUTH FARMER	L14-57.2	0.54 ACRES	47-002569-000
E MARY RUTH FISHER	L14-57.4	6.90 ACRES	47-002569-000
F NANCY L. & JOHN W. GEARY	L14-15.2	5.957 ACRES	47-000407-000
G NANCY L. & JOHN W. GEARY	L14-15.3	1.05 ACRES	47-000407-000
H STEPHEN L. & TAMMY J. MILLER	L14-26.3	1.15 ACRES	1-313826-000
I STEPHEN L. & TAMMY J. MILLER	T9-45.3	4.876 ACRES	1-385596-000
J JAMES N. & ANNA M SENGWALT	L14-15.6	0.347 ACRES	47-000392-000
K JAMES N. & ANNA M SENGWALT	L14-17	1.107 ACRES	47-000392-000

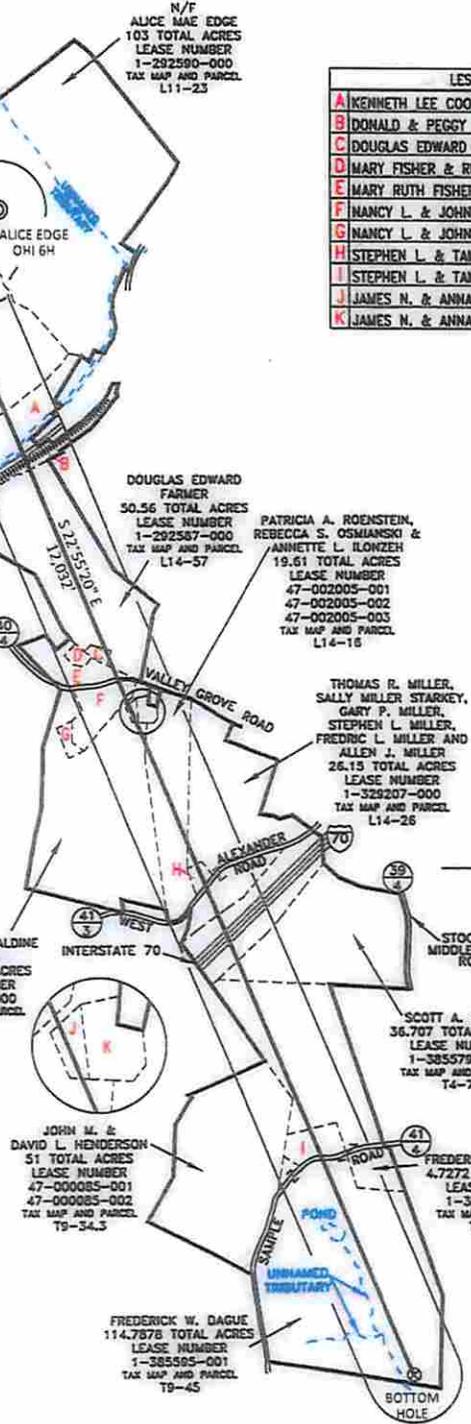
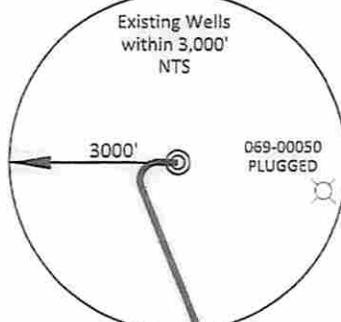
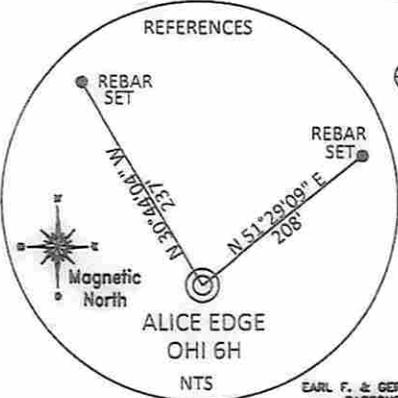
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WV Dept. of Environmental Protection

TOP HOLE (UTM NAD 83)
N) 4438933.5
E) 537469.2
BOTTOM HOLE (UTM NAD 83)
N) 4435273.4
E) 538837.2

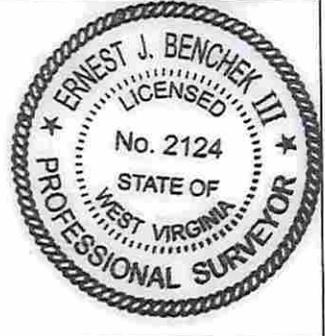


NOTE:
NO WATER WELLS WERE FOUND WITHIN 250' OF THE CENTER OF WELL PAD.
NO DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF THE WELL PAD.

REFERENCE NOTES
Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records OHIO County, West Virginia JUNE 2013
Stole Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS
Drafted by: EAM

FILE #: CHE 036
DRAWING #: 1655
SCALE: PLAT: 1" = 2000' TICK MARK: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
Signed: *[Signature]*
L.L.S. #2124 : Ernest J. Benchek III



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304
Well Type: Oil Waste Diposal Production Deep
 Gas Liquid Injection Storage Shallow
WATERSHED: UPPER OHIO SOUTH ELEVATION: 1,198'
COUNTY/DISTRICT: OHIO / LIBERTY QUADRANGLE: VALLEY GROVE, WV
SURFACE OWNER: ALICE MAE EDGE ACREAGE: 103 +/-
OIL & GAS ROYALTY OWNER: ALICE MAE EDGE ACREAGE: 576.051 +/-
LEASE NUMBERS:
DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY):
TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,390' TMD: 18,863'
WELL OPERATOR: SWN Production Co., LLC. DESIGNATED AGENT: Dee Southall
ADDRESS: PO BOX 1300 ADDRESS: PO BOX 6070
CITY: Jane Lew STATE: WV ZIP CODE: 26378 CITY: Jane Lew STATE: WV ZIP CODE: 26378