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west virginia department of environmental protection

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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

May 13, 2015

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

Re: Permit Modification Approval for API Number 10303097, Well #: RIDGETOP LAND  
VENT WTZ 3H  
**Move Lateral**

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

Promoting a healthy environment.

05/15/2015

# SWN

Southwestern Energy®

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

May 12, 2015

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

**RE:** Proposed New Well Ridgetop Land Ventures WTZ 3H & Ridgetop Land Ventures WTZ 5H

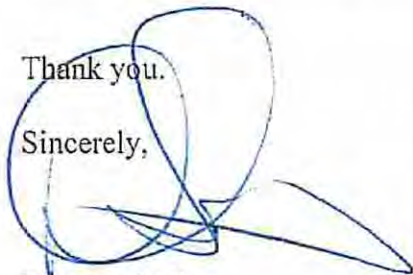
Dear Ms. Adkins:

Enclosed please find revised plats for the above captioned wells. Everything else stays the same, we would just like to change the direction of the wellbore. (per our DEP meeting) These wells are situated on the Ridgetop property, in Proctor District, Wetzel 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

MAY 13 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+

05/15/2015



GENERAL NOTES:

1. THE BOUNDARY LINES SHOWN HEREON ARE BASED ON RECORD DEED, PLATS, AND TAX MAPS BEST FIT TO FOUND FIELD EVIDENCE AND AERIAL PHOTOS.
2. THIS PLAT DOES NOT REPRESENT AN ACTUAL BOUNDARY SURVEY OF THE INDIVIDUAL PARCELS.
3. THERE ARE NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' OF PROPOSED WELL.
4. THERE ARE NO EXISTING OCCUPIED DWELLINGS OR BUILDINGS WITHIN 625' OF PROPOSED WELL.
5. THE PROPOSED WELL IS GREATER THAN 100' FROM PERENNIAL STREAM, WETLAND, POND, RESERVOIR OR LAKE.
6. THERE ARE NO NATIVE TROUT STREAMS WITHIN 300' OF PROPOSED WELL.

REFERENCE LINE

- L1 N17°16'13"E 1,201'
- L2 S62°55'40"E 1,140'
- L3 S17°56'38"E 1,436'
- L4 N47°41'31"W 104'
- L5 N34°14'42"E 106'

LEGEND

- PROPOSED GAS WELL
- EXISTING GAS WELL
- PROPOSED BORE TIE LINE
- 500' SETBACK
- OIL & GAS LEASE BOUNDARY
- PROPERTY LINE
- STREAM LINE

UTM NORTH (NAD 83)

Longitude: W 80°37'30"

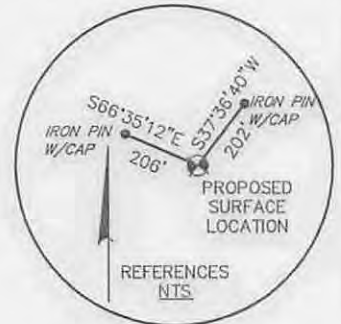
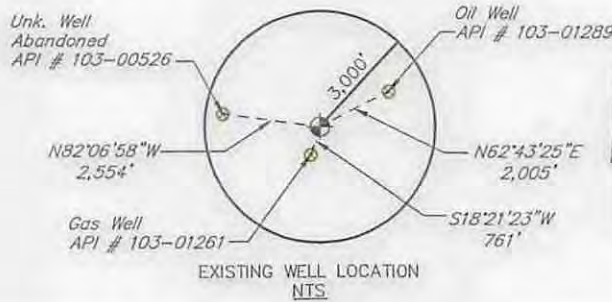
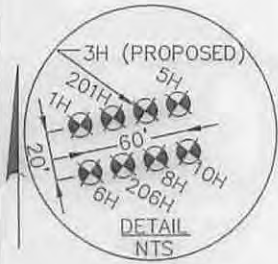
15,490

PROPOSED SURFACE LOCATION LAT. N 39°39'56.9" (NAD 27)

CHESAPEAKE APPALACHIA, LLC  
85.30 TOTAL ACRES  
TMP # 12-14-13  
Lease Number 1-251298-000

YOCUM, SHERAL ALAN  
2.63 TOTAL ACRES  
TMP # 12-14-22.4  
Lease Number 1-281489-000

TOP HOLE UTM (NAD 83)
N) 14,405,237.0f
E) 1,732,363.3f
TP UTM (NAD 83)
N) 14,405,272.6f
E) 1,732,321.3f
BOTTOM HOLE UTM (NAD 83)
N) 14,408,316.0f
E) 1,728,695.6f



PROPOSED SURFACE LOCATION

FILE #: 087569007

DRAWING #: 087569007\_WELL PLAT

SCALE: 1" = 1,600'

MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING 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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

SIGNED: *Craig Robert West*  
R.P.E.: \_\_\_\_\_ L.L.S.: 2241



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
WVDEP

OFFICE OF OIL & GAS  
601 57TH STREET  
CHARLESTON, WV 25304



DATE: MAY 6, 2015  
OPERATOR'S WELL #: RIDGETOP LAND VENTURES WTZ 3H  
API WELL #: 47 103 03097-64  
STATE COUNTY PERMIT

WELL TYPE:  OIL  WASTE DISPOSAL  
 GAS  LIQUID INJECTION

PRODUCTION  DEEP  
 STORAGE  SHALLOW

WATERSHED: LITTLE FISHING CREEK  
COUNTY/DISTRICT: WETZEL / PROCTOR  
SURFACE OWNER: RIDGETOP CAPITAL, LP  
OIL & GAS ROYALTY OWNER: RIDGETOP CAPITAL, LP

ELEVATION: 1,436' (AS-BUILT)  
QUADRANGLE: WILEYVILLE  
ACREAGE: 175 ±  
ACREAGE: 173 ±

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY): \_\_\_\_\_

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TMD: 12,611 TVD: 7,406  
WELL OPERATOR: SWN PRODUCTION CO., LLC DESIGNATED AGENT: DEE SOUTHALL  
ADDRESS: P.O. BOX 1300 ADDRESS: P.O. BOX 1300  
CITY: JANE LEW STATE: WV ZIP CODE: 23678 CITY: JANE LEW STATE: WV ZIP CODE: 26378

05/15/2015

03097-64 MOD

47-103-03097





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May 14, 2015

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

Re: Permit Modification Approval for API Number 10303097, Well #: RIDGETOP LAND  
VENT WTZ 3H  
**Fish hook vertical**

Oil and Gas Operator:

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May 14, 2015

Ms. Laura Adkins  
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**RE:** Proposed New Well Ridgetop Land Ventures WTZ 3H & Ridgetop Land Ventures WTZ 5H

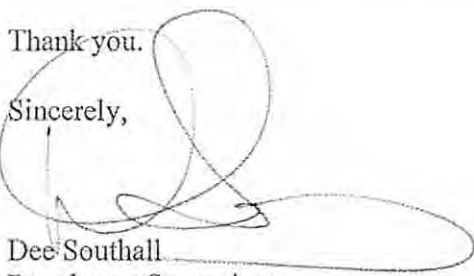
Dear Ms. Adkins:

Enclosed please find a deviation survey for the above captioned wells. Everything else stays the same, we would just like to fish hook the vertical section of wellbore. (per our DEP meeting) These wells are situated on the Ridgetop property, in Proctor District, Wetzel County, West Virginia.

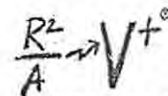
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Thank you.

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



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### Plan Data for 3H

Plan Point Information:

Dogleg Severity (USft)	MD (USft)	Inc (°)	Az (°)	TVD (USft)	+N/-S (USft)	+E/-W (USft)	VSec (USft)	Position offsets from Slot centre (DLSU) (DLSU)	Turn (DLSU) (DLSU)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3100.00	0.00	0.00	0.00	3100.00	0.00	0.00	0.00	0.00	0.00
3376.56	11.06	130.00	3374.84	-17.11	20.39	-26.62	4.00	0.00	0.00
6614.26	11.06	130.00	6552.39	-416.41	496.30	-647.85	0.00	0.00	0.00
7877.54	90.00	310.01	7406.01	35.52	-42.04	55.04	8.00	6.25	-14.25
12611.24	90.00	310.01	7406.01	3078.92	-3667.73	4788.74	0.00	0.00	0.00

### Plan Data for 3H

Target Set Information:

Name: RIDGETOP 3H TARGETS

Position offsets from Slot centre

Name	TVD (USft)	+N/-S (USft)	+E/-W (USft)	Northing (USft)	Eastng (USft)	Lat (° / ' / ")	Long (° / ' / ")
3H LP	7406.00	35.52	-42.04	14405272.56	1732321.30	39°39'57.5"	-88°40'24.3"
3H PBHL	7406.00	3078.93	-3667.73	14408315.97	1728695.61	39°40'27.7"	-88°41'10.5"

### Plan Data for 3H

Field: SOUTHWESTERN\_WETZEL\_CO, WV UTM NAD 83 (17N)  
 Map Unit: USft  
 Vertical Reference Datum (VRD): Mean Sea Level  
 Projected Coordinate System: NAD83 / UTM zone 17N

Site: RIDGETOP LAND VENTURES WTZ  
 Unit: USFeet  
 TVD Reference: SOUTHWESTERN ENERGY  
 Company Name: SOUTHWESTERN ENERGY  
 Northing: 14405241.08USft  
 Easting: 1732383.46USft  
 Latitude: 39°39'57.2"  
 Longitude: -88°40'23.5"  
 North Reference: Grid  
 Grid Convergence: 0.21°  
 Elevation Above VRD: 1436.00USft

### Slot: 3H

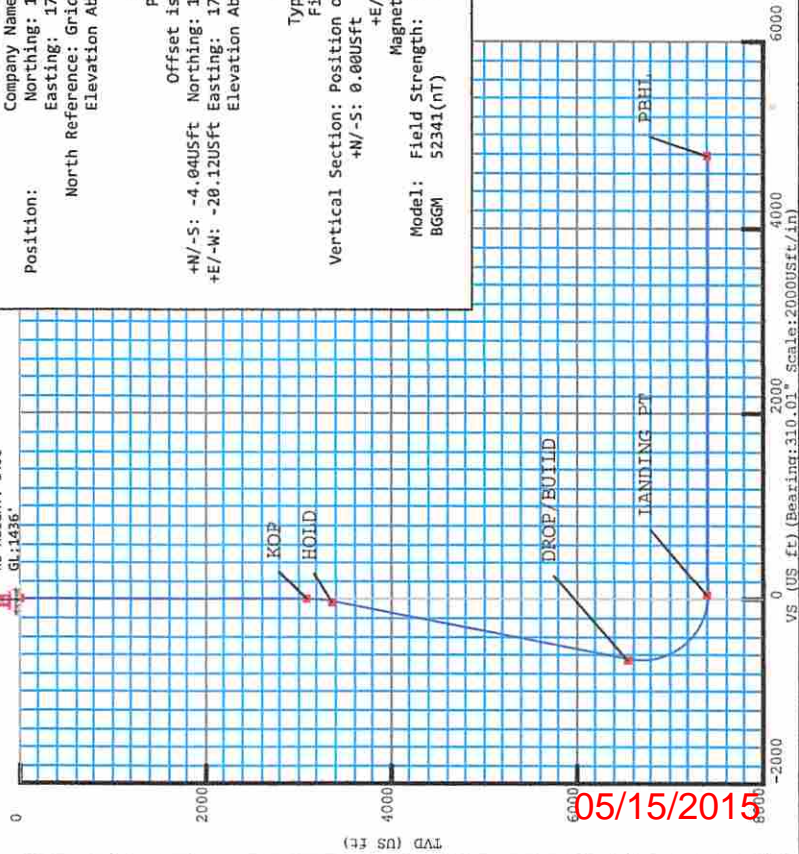
Position:  
 Offset is from Site centre  
 +N/-S: -4.04USft  
 +E/-W: -20.12USft  
 Northing: 14405237.04USft  
 Easting: 1732363.34USft  
 Latitude: 39°39'57.2"  
 Longitude: -88°40'23.8"  
 Elevation Above VRD: 1436.00USft

Well: 3H  
 Type: Main-Well  
 File Number:

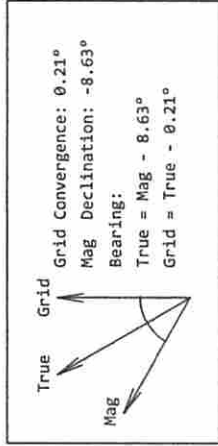
Vertical Section: Position offset of origin from Slot centre:  
 +N/-S: 0.00USft  
 +E/-W: 0.00USft  
 Azimuth: 310.01°

Magnetic Parameters:  
 Model: BGGW  
 Field Strength: 52341(nT)  
 Declination: -8.63°  
 Dip: 67.07°  
 Date: 2015-03-30

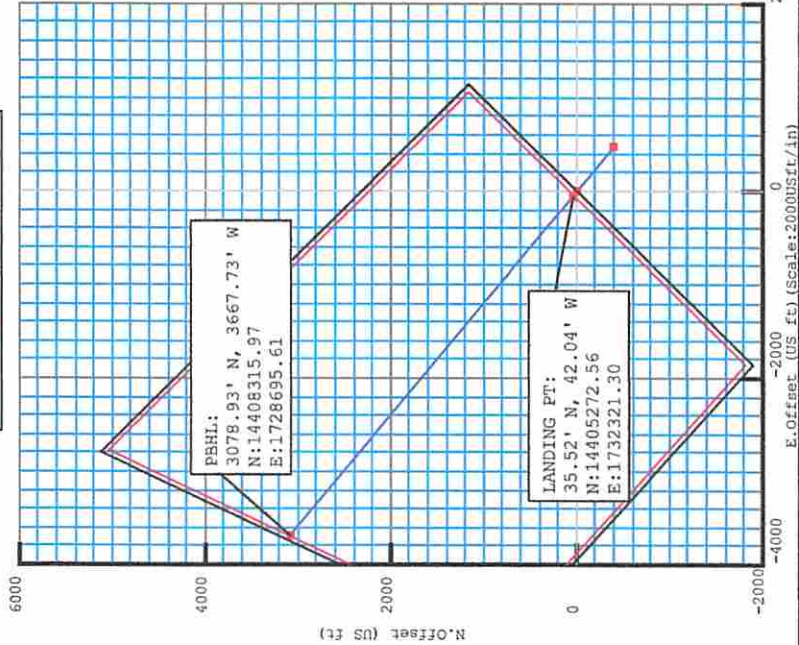
NOMAC 337  
 KB HEIGHT: 1458'  
 SL: 1436'



05/15/2015



VERTICAL SECTION AZM: 310.01



LANDING PT:  
 35.52' N, 42.04' W  
 N:14405272.56  
 E:1732321.30

PBHL:  
 3078.93' N, 3667.73' W  
 N:14408315.97  
 E:1728695.61

103-03097 MOD 200