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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

Earl Ray Tomblin, Governor  
Randy C. Huffman, 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 SHAWN COUCH OHI 10H  
47-069-00206-00-00

Lateral Extension

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: SHAWN COUCH OHI 10H  
Farm Name: COUCH, SHAWN W. TRUST  
U.S. WELL NUMBER: 47-069-00206-00-00  
Horizontal 6A / Horizontal 6A Well - 1  
Date Issued: 9/14/2016

Promoting a healthy environment.

July 25, 2016

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

**RE:** Proposed New Well Shawn Couch OHI 10H

Dear Ms. Adkins

Enclosed please find a new casing program, WW-6B, WW6A-1 and Mylar for the above captioned well. We would like to modify this permit by extending the lateral. This well is situated on the Couch'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,

*P.P. Brittany R. Noody, Regulatory Analyst*

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

4706900206 MOP

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Office of Environmental Protection  
The Right People doing the Right Things,  
wisely investing the cash flow from our  
underlying Assets, will create Value+®

SEP 12 2016

WV Department of  
Environmental Protection

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WELL WORK PERMIT APPLICATION

1) Well Operator: SWN Production Co., LLC

<u>494512924</u>	<u>69-Ohio</u>	<u>3-Liberty</u>	<u>247-Bethany</u>
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Operator ID County District Quadrangle

2) Operator's Well Number: Shawn Couch OHI 10H Well Pad Name: Shawn Couch OHI Pad

3) Farm Name/Surface Owner: Shawn W. Couch Trust Public Road Access: Weidmans Run Road

4) Elevation, current ground: 1247' Elevation, proposed post-construction: 1247'

5) Well Type (a) Gas  Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_  
Other \_\_\_\_\_

(b) If Gas Shallow  Deep \_\_\_\_\_  
Horizontal

6) Existing Pad: Yes or No No ci: 7.25.16

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):  
Target Formation- Marcellus, Target Top TVD- 6285', Target Base TVD- 6369', Anticipated Thickness- 84', Associated Pressure- 4160

8) Proposed Total Vertical Depth: 6198'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16,971'

11) Proposed Horizontal Leg Length: 8411.02'

12) Approximate Fresh Water Strata Depths: 300'

13) Method to Determine Fresh Water Depths: wireline logs

14) Approximate Saltwater Depths: 1150'

15) Approximate Coal Seam Depths: 467'

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: \_\_\_\_\_

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WW-6B  
(10/14)

API NO. 47- 69  
OPERATOR WELL NO. Shawn Couch OH1 104  
Well Pad Name: Shawn Couch OH1 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	H-40	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	J-55	54.5#	400'	400'	375 sx/CTS
Coal	9 5/8"	New	J-55	40#	1858'	1858'	712 sx/CTS
Intermediate	7"	New	J-55	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	HCP-110	20#	16,971'	16,971'	Lead 805 to 2205 bit 1x100' inside 100'
Tubing	2 3/8"	New	P-110	4.7#	Approx. 6198'	Approx. 6198'	
Liners							

*E. BLO 7.25.16*

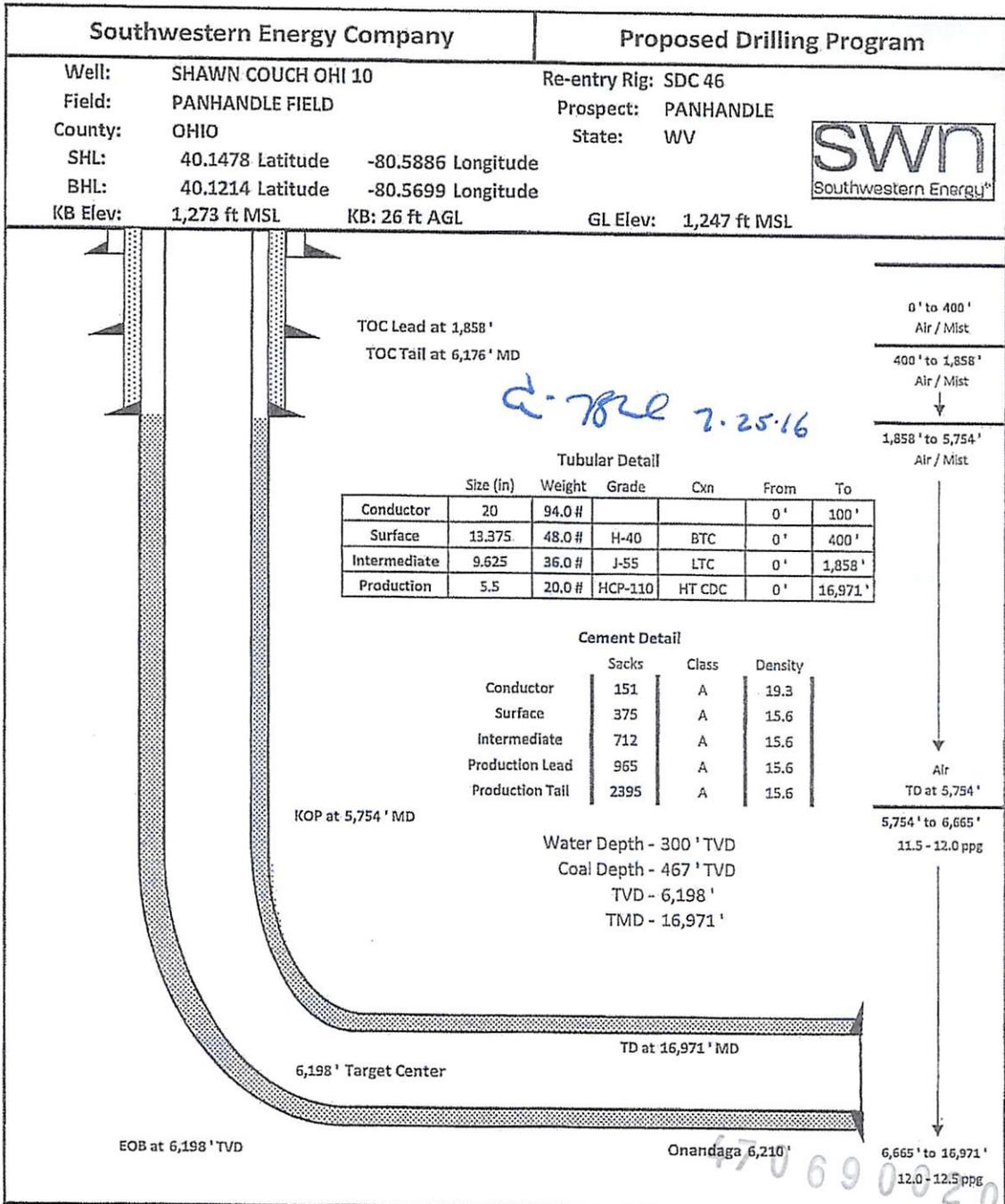
TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Max. Associated Surface Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	30"	0.25	2120	81	Class A	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	633	Class A	1.19/50% Excess
Coal	9 5/8"	12 1/4"	0.395	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 Production Company, LLC  
P O Box 12359  
Spring, Texas 77391-2359  
www.swn.com

September 14, 2016

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

**RE:** Proposed New Well Shawn Couch OHI 10H

Dear Ms. Adkins

SWN has reviewed the area of the above mentioned well and discovered no shallow wells within 500' of the lateral. This well is situated on the Couches 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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# THRASHER

THE THRASHER GROUP, INC.  
600 WHITE OAKS BLVD.  
BRIDGEPORT, WV 26330  
PHONE 304-624-4108

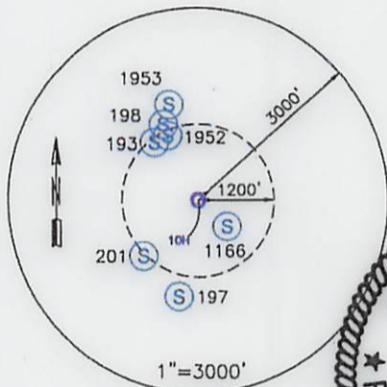
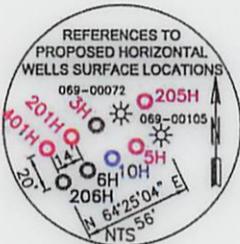
### NOTES ON SURVEY

- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.

LINE	DESCRIPTION	DISTANCE	DESCRIPTION	MONUMENT
L1	N 10°35'55" E	24.50'	SHL TO 069-00072	EXISTING WELL HEAD
L2	N 65°47'31" E	27.98'	SHL TO 069-00105	EXISTING WELL HEAD
L3	N 87°55'23" W	1717.98'	SHL TO LANDMARK	IRF FOUND
L4	S 75°13'39" W	1602.60'	SHL TO LANDMARK	IRF FOUND
L5	S 83°08'14" E	985.57'	SHL TO LP	LANDING POINT
L6	S 23°31'28" E	10301.05'	LP TO BHL	BOTTOM HOLE

TRACT	SURFACE OWNER	TAX PARCEL	ACRES
1	SHAWN W. COUCH TRUST	3-L4011000000000	121.56
2	PAUL & RHONDA TYRNA	3-L4011400000000	1.24
3	PENELOPE T. MILLER	3-L4011700000000	139.51
4	JAMES W. & HELEN L. LOEW	3-L4011800020000	15.00
5	KEVIN L. & RHONDA L. KIMMINS	3-L4011800030000	29.00
6	HERBERT P. & CAROL A. MINCH	3-L4012000000000	190.721
7	RONALD D. & MARY LEE FEKETE	3-L7000500000000	40.18
8	JOSEPH F. BIPPUS SR (ET AL)	3-L8000100050000	96.315
9	CHARLES E. DAGUE	3-L8001400000000	2.399
10	TUNNEL RIDGE, LLC	3-L8001500000000	19.829
11	THOMAS J. SCHMITT	3-L8001600000000	15.350
12	THOMAS J. SCHMITT	3-L8001600100000	2.700

ADJOINING OWNER INFORMATION  
(SEE ADJOINING OWNERS SHEET)

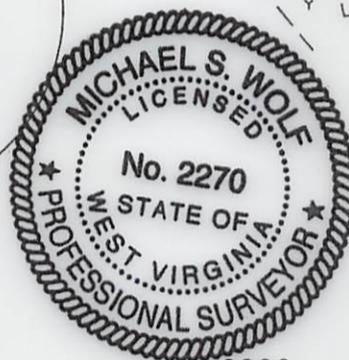


<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,444,244.894 EASTING: 535,039.583
<b>LANDING POINT LOCATION (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,444,196.053 EASTING: 535,393.338
<b>BOTTOM HOLE LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,441,317.234 EASTING: 536,646.546

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 2270

*Michael S. Wolf* 7/22/16



GRAPHIC SCALE IN FEET

COMPANY: **SWN** **SWN**  
Production Company, LLC Production Company™

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034	MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)	COMPANY: SHAWN COUCH OPERATOR'S WELL #: OHI 10H API WELL #: 47 069 00206 H6A STATE COUNTY PERMIT
	WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input type="checkbox"/> DEEP <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>	WATERSHED: MCGRAW RUN DISTRICT: LIBERTY COUNTY: OHIO SURFACE OWNER: SHAWN W. COUCH TRUST OIL & GAS ROYALTY OWNER: GEORGE W. COUCH

DRILL <input checked="" type="checkbox"/> DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input checked="" type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/>	CONVERT <input type="checkbox"/> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REPLUG <input type="checkbox"/> OTHER CHANGE <input type="checkbox"/> (SPECIFY)	TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,365 TVD 16,971 TMD
WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378	DESIGNATED AGENT: DEE SOUTHALL ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378	REVISIONS: _____ DATE: 7-22-16 DRAWN BY: K. POTH SCALE: 1" = 2000' DRAWING NO: 050-5635 WELL LOCATION PLAT

LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ✱ EXISTING / PRODUCING WELLHEAD ✕ ABANDONED WELL ✕ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR	(S) EXISTING SPRING (W) EXISTING WATER WELL --- LEASE BOUNDARY --- MARCELLUS DHP --- ABANDONED PATH
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Exhibit "A"

Attached to and made a part of the State of West Virginia Oil and Gas Permit Form, WW6A-1,

By SWN Production Company, L.L.C., Operator,

Shawn Couch OHI 10H, Ohio County, West Virginia

#	TMP	LEASE #	LESSOR	LESSEE	ROYALTY	BK/PG
1)	3-L4-110	1-324742-000	George W. Couch, widower	Fortuna Energy Inc. Range Resources - Appalachia, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	12.50%	775/537 786/422 808/493 883/539
2)	3-L4-114	47-003376-000	Paul L. Tyrna and Rhonda J. Tyrna, husband and wife	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	855/671 885/764
3)	3-L4-117	1-329416-000	Michael J. Miller and Penelope T. Miller, husband and wife	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	814/537 883/587
4)	3-L4-118.2	1-324726-000	James W. Loew and Helen L. Loew, his wife	Great Lakes Energy Partners, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	14.00%	777/94 808/563 883/527
5)	3-L4-118.3	1-324720-000	Kevin L. Kimmins and Rhonda L. Kimmins, his wife	Great Lakes Energy Partners, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	12.50%	776/264 808/549 883/527
6)	3-L4-120	1-324724-000	Herbert P. Minch and Carol A. Minch, his wife	Great Lakes Energy Partners, LLC Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	12.50%	777/225 808/563 883/527
7)	3-L7-5	1-325734-000	Ronald D. Fekete and Mary Lee Fekete, husband and wife	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	815/1 883/563

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8)	3-L8-1.5	1-329301-000	Joseph F. Bippus, Sr., a married man dealing in his sole and separate property, by and through his Attorney-in-Fact, Betty Ann Smith, Joseph F. Bippus, Jr., a married man dealing in his sole and separate property, Mary Lee Bippus Fekete, a married woman dealing in her sole and separate property and Betty Ann Smith f/k/a Betty Ann Bippus, a married woman dealing in her sole and separate property	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	813/280 883/587
9)	3-L8-14	47-000301-000	Charles Everett Dague, a single man	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	819/785 885/584
10)	3-L8-15	1-324722-000	Karl H. Binder and Sandra B. Binder	Great Lakes Energy Partners, L.L.C. Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	12.50%	776/266 808/563 883/527
11)	3-L8-16	47-000662-000	Kimberly Ann Perdew and Norman William Nelson, Jr., as joint tenants with the right of survivorship	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	820/149 885/632
12)	L-8-16.1	47-000662-000	Kimberly Ann Perdew and Norman William Nelson, Jr., as joint tenants with the right of survivorship	Chesapeake Appalachia, L.L.C. SWN Production Company, LLC	18.00%	820/149 885/632

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