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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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Wednesday, December 18, 2019  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC  
POST OFFICE BOX 12359

SPRING, TX 773914954

Re: Permit Modification Approval for FRANZ THOMAN OHI 10H  
47-069-00312-00-00

**Change cement density for production.**

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

A handwritten signature in blue ink, appearing to read 'James A. Martin', is written over the typed name and title.

Operator's Well Number: FRANZ THOMAN OHI 10H  
Farm Name: FRANZ THOMAN  
U.S. WELL NUMBER: 47-069-00312-00-00  
Horizontal 6A New Drill  
Date Modification Issued: December 18th, 2019

Promoting a healthy environment.

December 18, 2019

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

**RE:** Proposed Modification: Franz Thoman OHI 10H

Dear Ms. Adkins

Enclosed please find a new WBD with modified production density for the above captioned well. Drilling is wanting to change the production density to 14.5 in the cement details. We are wanting to use this density on the Franz Thoman OHI 10H as a test well to see if we want to use this on future wells. The change is a slurry which is currently being used in WV.

If you have any questions or desire additional information, please me at 304-884-1613

Thank you.

Sincerely,



Brittany Woody  
Senior Regulatory Analyst  
Southwestern Energy Production Company, LLC

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Office of Oil and Gas  
DEC 18 2019  
WV Department of  
Environmental Protection



# Southwestern Energy Company

# Proposed Drilling Program

Well: FRANZ THOMAN OHI 10  
 Field: PANHANDLE FIELD \\  
 County: OHIO  
 SHL: 40.1367 Latitude -80.6599 Longitude  
 BHL: 40.1209 Latitude -80.6455 Longitude  
 KB Elev: 1,164 ft MSL KB: 26 ft AGL

Re-entry Rig: TBD  
 Prospect: PANHANDLE  
 State: WV



GL Elev: 1,138 ft MSL

PROD TOC Lead @ 1,767 ' MD

PROD TOC Tail @ 5,100 ' MD

**TUBULAR DETAIL**

	Size (in)	Weight	Grade	From	To
Conductor:	20	94.0 #	H-40	0'	100'
Surf./Coal:	13.375	48.0 #	H-40	0'	426'
Intermediate:	9.625	36.0 #	J-55	0'	1,747'
Production:	5.5	20.0 #	HCP-110	0'	12,788'

**CEMENT DETAIL**

	Sacks	Class	Density
Conductor	151	A	19.3
Surface	415	A	15.6
Intermediate	678	A	15.6
Production Lead	828	POZ/A	14.5
Production Tail	1742	POZ/A	14.5

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 Office of Oil and Gas  
 DEC 18 2019  
 WV Department of Environmental Protection

KOP at 5,361 ' MD

Freshwater Depth - 326 ' TVD  
 Coal Depth - 343 ' TVD  
 Saltwater Depth - 470 ' TVD  
 TVD - 5,895 '  
 TMD - 12,788 '

5,895 ' Target Center

TD at 12,788 ' MD  
 5,710 ' TVD

EOB at 5,895 ' TVD

SHL Onondaga 5,911 ' TVD

Onondaga 5,726 ' TVD

0' to 446'  
Air / Mist

446' to 1,767'  
Air / Mist

1,767' to 5,361'  
Air / Mist

Air  
TD at 5,361'

5,361' to 6,298'  
12.0 - 12.5 ppg

6,298' to 12,788'  
12.0 - 12.5 ppg