



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

October 19, 2017
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC
POST OFFICE BOX 12359

SPRING, TX 773914954

Re: Permit Modification Approval for MASON COTTRELL OHI 6H
47-069-00233-00-00

Modified Mine Void Coverage

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: MASON COTTRELL OHI 6H
Farm Name: LOUIS COTTRELL, JR. AS TRUSTEE FOR MASON LOUIS COTTRELL
U.S. WELL NUMBER: 47-069-00233-00-00
Horizontal 6A / New Drill
Date Issued: October, 19, 2017

Promoting a healthy environment.

10/20/2017

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MOD

WW-6B
(04/15)

API NO. 47-069 - 00233 MOD
OPERATOR WELL NO. Mason Cottrell OHI 6H
Well Pad Name: Mason Cottrell 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 069-Ohio 6- Triad Valley Grove
Operator ID County District Quadrangle
- 2) Operator's Well Number: Mason Cottrell OHI 6H Well Pad Name: Mason Cottrell PAD
- 3) Farm Name/Surface Owner: Melvin W. & Carol M. Kahle Public Road Access: Gashell Run Road
- 4) Elevation, current ground: 1296' Elevation, proposed post-construction: 1296'
- 5) Well Type (a) Gas Oil Underground Storage
Other
(b) If Gas Shallow Deep
Horizontal
- 6) Existing Pad: Yes or No No *10/17/17*
- 7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Target Formation- Marcellus, Target Top TVD- 6402', Target Base TVD- 6440', Anticipated Thickness- 38', Associated Pressure- 4257
- 8) Proposed Total Vertical Depth: 6414'
- 9) Formation at Total Vertical Depth: Marcellus
- 10) Proposed Total Measured Depth: 12710'
- 11) Proposed Horizontal Leg Length: 5971.70'
- 12) Approximate Fresh Water Strata Depths: 387'
- 13) Method to Determine Fresh Water Depths: From salinity profile and nearby water wells
- 14) Approximate Saltwater Depths: 752'
- 15) Approximate Coal Seam Depths: 610'
- 16) Approximate Depth to Possible Void (coal mine, karst, other): 610' Possible Void
- 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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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	H-40	48#	660'	660'	618 sx/CTS
Coal	9 5/8"	New	J-55	36#	2022'	2022'	760 sx/CTS
Intermediate	7"	New	HCP-110	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	HCP-110	20#	12710'	12710'	max 8100x Tol 15600x Invol 17000x
Tubing	2 3/8"	New	HCP-110	4.7#	Approx. 6353'	Approx. 6353'	
Liners							

C-7880 104-17

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal 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	1.20/50% Excess
Production	5 1/2"	8 3/4"	0.361	12360	9500	Class A	1.20/50% Excess
Tubing	2 3/8"	4.778"	0.190	Approx 8193'	Approx 8193'		
Liners							

PACKERS

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

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Environmental Protection

10/20/2017



SWN Production Company, LLC
P O Box 12359
Spring, Texas 77391-2359
www.swn.com

October 5, 2017

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

RE: Modification Request: Mason Cottrell OHI 6H API 47-069-00233

Dear Ms. Adkins

Enclosed please find a revised 6B, WBD and signed coal waiver for the above captioned well. We would like to modify the "possible coal void" in order to be consisted with the Approved 6H permit. This well is situated on the Cottrell's property, in Ohio County, West Virginia.

If you have any questions or desire additional information, please me at 304-884-1614.

Thank you.

Sincerely,

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

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