

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.

Operator's Well Number: MASON COTTRELL OHI 6H

Farm Name: LOUIS COTTRELL, JR. AS TRUSTEE FOR MASON LOUIS COT

James A. Martin

U.S. WELL NUMBER: 47-069-00233-00-00

Horizontal 6A / New Drill

Date Issued: October, 19, 2017

Promoting a healthy environment.



WW-6B (04/15)



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

I) Well Operator: SWN Produ	ction Co., LLC	494512924	069-Ohio	6- Triade Valley Grove			
		Operator ID	County	District Quadrangle			
2) Operator's Well Number: Ma	son Cottrell OH	16H Well P	ad Name: Mas	on Cottrell PAD			
3) Farm Name/Surface Owner:	Melvin W. & Carol M	. Kahle Public Ro	ad Access: Ga	shell Run Road			
4) Elevation, current ground:	1296' EI	evation, proposed	d post-construct	ion: 1296'			
5) Well Type (a) Gas X	Oil	Une	derground Stora	ige			
Other							
(b)If Gas Sha	low X	Deep	/				
Hor	zontal X			-10//			
6) Existing Pad: Yes or No No			_ \ "	11/1/12			
7) Proposed Target Formation(s)	, Depth(s), Antic	ipated Thickness	and Expected I	Pressure(s):			
Target Formation-Marcellus, Target	Top TVD- 6402', Tan	get Base TVD- 6440',	Anticipated Thickn	ess- 38', Associated Pressure- 4257			
8) Proposed Total Vertical Depth	6414'						
9) Formation at Total Vertical D	epth: Marcellus	; 					
10) Proposed Total Measured Depth: 12710'							
11) Proposed Horizontal Leg Le	ngth: 5971.70'						
12) Approximate Fresh Water St	rata Depths:	387'					
13) Method to Determine Fresh	Water Depths: F	rom salinity pro	file and nearby	water wells			
14) Approximate Saltwater Dept	hs: 752'						
15) Approximate Coal Seam Dep	oths: 610'						
16) Approximate Depth to Possi	ole Void (coal mi	ine, karst, other):	610' Possible	Void			
17) Does Proposed well location directly overlying or adjacent to			No	x X			
(a) If Yes, provide Mine Info:	Name:						
esus: Ist	Depth:						
	Seam:		110000000000000000000000000000000000000				
	Owner:						

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API NO. 47- CED - W 233 HOD
OPERATOR WELL NO. Mason Cottrell OHI 6H
Well Pad Name: Mason Cottrell 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	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'	load BTBss Tail 1560as kalds insurred
Tubing	2 3/8"	New	HCP-110	4.7#	Approx. 6353'	Approx. 6353'	
Liners							

					1		
					- X80	2/04	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							

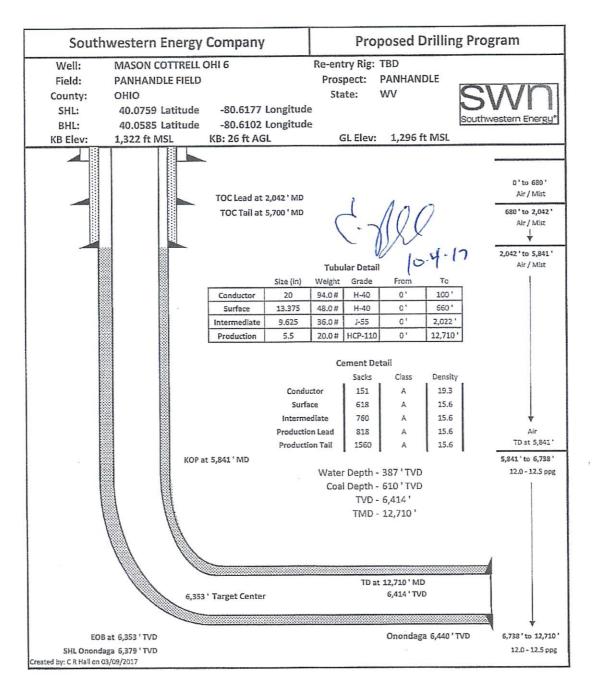
PACKERS

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

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OCT 06 2017

API NO. 47-069 - 00 33 HOD OPERATOR WELL NO. Mason Cottroll OHI 6H Well Pad Name: Mason Cottroll PAD

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS VOLUNTARY STATEMENT OF NO OBJECTION

Instructions to Persons Named on Page WW-6A

The well operator named on page WW-6A is applying for a permit from the State of West Virginia to conduct oil or gas well work. Well work permits are valid for twenty-four (24) months. Please contact the listed well operator and the Office of Oil and Gas if you do not own any interest in the listed surface tract.

Comment and Waiver Provisions

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary.

Pursuant to West Virginia Code § 22-6A-8(b) No permit may be issued less than thirty days after the filing date of the application for any well work except plugging or replugging; and no permit for plugging or replugging may be issued less than five days after the filing date of the application except a permit for plugging or replugging a dry hole: *Provided*, That if the applicant certifies that all persons entitled to notice of the application under the provisions of subsection (b), section ten of this article have been served in person or by certified mail, return receipt requested, with a copy of the well work application, including the erosion and sediment control plan, if required, and the well plat, and further files written statements of no objection by all such persons, the secretary may issue the well work permit at any time.

	VOLUNTARY STA	TEMENT	OF NO OBJ	TECTION		
, Evan	Mill have re	ead the Instruct	ions to Persons Na	amed on Page WW-6A and the associated		
provisions list	ed above, and that I have received copies o	f a Notice of A	pplication, an App	olication for a Well Work Permit on Form		
WW-6A and	attachments consisting of pages one (1) the well plat, all for proposed well work on t	ırough	, including t	the erosion and sediment control plan, if		
equired, and t	the well plat, all for proposed well work on t	he tract of land	as follows:			
State:	West Virginia		Facting	532599.78		
County:	069-Ohlo	UTM NAD 83 Porthing:		4436240.17		
District:	Triadelphia	Public Roa	d Access:	Gashell Run Road		
Quadrangle:	Valley Grove	Generally 1	used farm name:	Charles Frye		
Watershed:	Upper Ohio South					
Please check the box that applies FOR EXECUTION BY A NATURAL PERSON						
□ SURFAC	CE OWNER					
☐ SURFACE OWNER (Road and/or Other Disturbance)		ance)	Print Name:			
□ SURFAC	E OWNER (Impoundments/Pits)			1		
COAL OWNER OR LESSEE			FOR EXECUTION BY A CORPORATION, ETC. Company: Tunnel Plage, L.C.			
☐ COAL OPERATOR			By: Fran Mide Its: Land Manage			
□ WATER	PURVEYOR		Signature:	en		
OPERATOR OF ANY NATURAL GAS STORAGE FIELD			Date: 0767	10017		

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as RECEIVED needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will and Gas appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.



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

Offic For

Enviro

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OCT 0 6 2017

WV Department of Environmental Protection



underlying Assets, will create Value+®