west virginia department of environmental protection

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 18, 2015

CHEVRON APPALACHIA, LLC
POST OFFICE BOX 611
MOON TOWN, PA 15108

Re: Permit Modification Approval for API Number 5101726, Well #: BERGER 7H

Change Intermediate 1 & 2 Casing

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

4705101726

Chevron

Kristen Brooks
Permit Coordinator

Appalachian/Michigan
Strategic Business Unit
Chevron North America
Exploration and Production
A Division of Chevron U.S.A. Inc.
800 Mountain View Drive
Smithfield, PA 15478
Tel 724-564-3700
Fax 724-564-2365
kristenbrooks@chevron.com

April 27, 2015

West Virginia D.E.P.
Office of Oil & Gas
601 57th Street SE
Charleston, WV 25304-2345

RE: Berger 3H, 5H, 7H, and 9H
Casing Modification Change

Dear Ms. Hankins,

Please accept this as our formal request for a modification to the Intermediate & Coal Casing of the Berger 3H, 5H, 7H, and 9H drill permits. An updated Page 2 of the WW-6B and updated schematics are attached. If you have any questions, please contact me at (724) 564-3781 or kristenbrooks@chevron.com.

Sincerely,

Kristen Brooks

Kristen Brooks
Permit Coordinator
Chevron Appalachia, LLC

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Environmental Protection

Enclosure

WW-6B
(10/14)

API NO. 47- 51 - 01726
OPERATOR WELL NO. 7H
Well Pad Name: Berger

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	30"	New	Line		40'	40'	CTS
Fresh Water	20"	New	J-55	94#	300'	300'	CTS
Intermediate 1	13-3/8"	New	N-80	72#	2,665'	2,665'	CTS
Intermediate2	9-5/8"	New	P-110	40#	8,650'	8,650'	CTS
Production	5-1/2"	New	P-110	23#	17,718'	17,718'	CTS
Tubing							
Liners							

JK 4/23/15

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	30"	36"	0.375"				
Fresh Water	20"	26"	0.438"	2,110	200 psi	Class A	1.18
Intermediate 1	13-3/8"	17-1/2"	0.514"	5,380	2050 psi	Class A	1.18
Intermediate 2	9-5/8"	12-1/4"	0.545"	8,990	2426 psi	Class G	1.18
Production	5-1/2"	8-1/2"	0.545"	13,580	6252 psi	Class G	2.2
Tubing							
Liners							

PACKERS

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WV Dept. of Environmental Protection

Kind:				
Sizes:				
Depths Set:				

4705101726

Berger 7H

Marshall, WV
26 Sept, 2013

Casing & Cementing Details

Ground Level Elevation: 1292 ft
Depths measured from KB 0 ft

	AZM	Casing Formation	DEPTH MD	DEPTH TVD	Inclination	HOLE SIZE	CASING SPECS	CEMENT INFO	GENERAL INFO
		30" Conductor	40'			36"	Conductor	Cement to Surface	
		20" Casing	300'	500'	0°	21"	Water String 20" 94# J-55 BTC ID 19.12"	Cement to surface	
Place (1) one Basket 15 - 20 ft above the top of Coal Seam.		Estimated Basket Depth	805'	805'			1st Intermediate 13 3/8" 72# N-80 BTC Burst = 5380 psi		
		Pittsburgh Coal	825'	825'					
		Red Bed	880'	880'					
		Red Beds	1,185'	1,185'					
		Berea (Possibel Water)	2,565'	2,565'				Cement to surface	
		Red Beds	5,605'	5,605'					
		13 3/8" Casing	2,665'	2,665'	0°	17-1/2"			
		Gordan)	2,835'	2,835'			2nd Intermediate 9-5/8" 40# P-110 BTC Burst = 8,990 psi	Cement to surface	
		Onondaga	6,563'	6,563'					
		Huntersville Chet	6,569'	6,569'					
		Oriskany SS	6,724'	6,724'					
		Salina Group	7,287'	7,287'					
		Lockport Limestone	8,247'	8,247'					
MASP = 8723	psi test	9-5/8" Casing	8,650'	8,650'	0°	12.25"			
							Production Casing 5-1/2" 23# P-110 Vasuperior	Cement to surface	
		KOP	9,500'	9,500'	0°				
	130°	Utica		10,951'	47°				
	133°	Point Pleasant		11,079'	68°				
		Land Curve	11,417'	11,169'	90°				
		Lexington		11,189'					
		Trenton		11,209'		8,301'			
						8.5"			
	133°	5-1/2" Casing	17,718'	11,169'	90°	7.875"			

Jm 4/28/15

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