



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 5101725, Well #: BERGER 3H

Change Intermediate 1 and 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,

A handwritten signature in blue ink, appearing to read 'Gene Smith', is written over a blue circular stamp.

Gene Smith
Assistant Chief of Permitting
Office of Oil and Gas

Promoting a healthy environment.

05/22/2015



Kristen Brooks
Permit Coordinator

4705101725 *MD*

**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

RECEIVED
Office of Oil and Gas
APR 28 2015
WV Department of
Environmental Protection

Enclosure

05/22/2015

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
Intermediate 2	9-5/8"	New	P-110	40#	8,650'	8,650'	CTS
Production	5-1/2"	New	P-110	23#	18,271'	18,271'	CTS
Tubing							
Liners							

JCA 4/25/15

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	1.18
Tubing							
Liners							

PACKERS

Kind:				<p style="text-align: center;">Received</p> <p style="text-align: center;">APR 28 2015</p> <p style="text-align: center;">Office of Oil and Gas WV Dept. of Environmental Protection</p>
Sizes:				
Depths Set:				



Berger 3H

Marshall, WV
26 Sept, 2013

Casing & Cementing Details

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

AZM	Casing Formation	DEPTH		Inclination	HOLE SIZE	CASING SPECS	CEMENT INFO	GENERAL INFO
		MD	TVD					
	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'	0°	17-1/2"	1st Intermediate 13 3/8" 72# N-80 BTC Burst = 5380 psi	Cement to surface	
	Pittsburgh Coal	825'	825'					
	Red Bed	880'	880'					
	Red Beds	1,185'	1,185'					
	Berea (Possibel Water)	2,565'	2,565'					
	13 3/8" Casing	2,665'	2,665'	0°	17-1/2"	2nd Intermediate 9-5/8" 40# P-110 BTC Burst = 8,990 psi	Cement to surface	
	Gordan)	2,835'	2,835'	0°	12.25"	Production Casing 5-1/2" 23# P-110 Vasuperior	Cement to surface	
	Onondaga	6,563'	6,563'					
	Huntersville Chert	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"			
	KOP	9,500'	9,500'	0°				
130°	Utica		10,951'	47°				
133°	Point Pleasant		11,079'	68°				
	Land Curve	11,835'	11,169'	90°				
	Lexington		11,189'					
	Trenton		11,209'					
133°	5-1/2" Casing	18,271'	11,169'	90°	7.875"			

Handwritten signature

Received

APR 28 2015

Office of Oil and Gas
WV Dept. of Environmental Protection
05/22/2015