



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

August 14, 2013

RAVEN RIDGE ENERGY
3230 PENNSYLVANIA AVENUE
CHARLESTON, WV 25302

Re: Permit Modification Approval for API Number 3906349 , Well #: CRUM 1A
MODIFY CASING TO FRACTURE

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 *gsm*

Regulatory/Compliance Manager
Office of Oil and Gas

I
8/14/2013

WW - 2B
(Rev. 8/10)

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

1) Well Operator: RAVEN RIDGE ENERGY, LLC
Operator ID: 494485865 County: KANAWHA - 39 District: BIG SANDY - 1 Quadrangle: CLENDENIN - 299

2) Operator's Well Number: CRUM 1A 3) Elevation: 1,089'

4) Well Type: (a) Oil or Gas
(b) If Gas: Production / Underground Storage _____
Deep _____ / Shallow

5) Proposed Target Formation(s): WEIR Proposed Target Depth: 2,300'
6) Proposed Total Depth: 2,500' Feet Formation at Proposed Total Depth: 2,200' - 2,300'
7) Approximate fresh water strata depths: 200'
8) Approximate salt water depths: 1,300' - 1,800'

9) Approximate coal seam depths: NO COAL LISTED IN TITLE

10) Approximate void depths,(coal, Karst, other): NONE

11) Does land contain coal seams tributary to active mine? NO

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)
DRILL, STIMULATE AND FRAC (ACID & WATER) A PREVIOUSLY SHOT WELL. THE WELL HAS BEEN PRODUCED HOWEVER WE ARE NOT HAPPY WITH THE RESULT, THEREFORE WE WOULD ASK TO RUN 4 1/2" CASING AND PERFORM AN ACID AND WATER FRAC ON THIS WELL. WE PROPOSE TO FRAC THIS WELL IN THE SAME FORMATION PREVIOUSLY PRODUCED.

13) CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu Ft.)
Conductor						
Fresh Water	9 5/8"	LS	17LBS	350'	350'	CTS
Coal						
Intermediate	7"	J55	23LBS	1,850'	1,850'	CTS
Production	4 1/2"	J55	10.5LBS	2250'	2250'	150 Sacks Cmt.
Tubing						
Liners						

Received
8-6-13
AUG - 6 2013
Office of Oil and Gas
WV Dept. of Environmental Protection

Packers: Kind: _____
Sizes: _____
Depths Set: _____
Well is Drilled - Running Casing to Stimulate

Nottingham, Justin E

From: Danielle Boggs <dani.bays@cunninghamenergy.com>
Sent: Tuesday, August 06, 2013 1:44 PM
To: Nottingham, Justin E
Cc: Smith, Gene C; Urban, Terry W; ryan.cunningham@cunninghamenergy.com
Subject: Modifications
Attachments: SKMBT_C35130806130900.pdf

Hey Justin –

Please see attached modified WW-2B forms for the following wells:

White 1A – API 47-3906354
White 2A – API 47-3906351
Osborne 1A – API 47-3906347
Osborne 2A – API 47-3906350
Crum 1A – API 47-3906349

We wish to modify these permits to show that we wish to stimulate these wells rather than shoot them as we had first requested.

Thank you,
Danielle N. Boggs
Cunningham Energy
3230 Pennsylvania Ave
Charleston, WV 25302
Direct: (304) 344-9291
Cell: (304) 553-5850
Fax: (304) 344-9290
www.cunninghamenergy.com



NOTICE OF CONFIDENTIALITY

This e-mail message and its attachments (if any) are intended solely for the use of the addressees hereof. In addition, this message and the attachments (if any) may contain information that is confidential, privileged and exempt from disclosure under applicable law. If you are not the intended recipient of this message, you are prohibited from reading, disclosing, reproducing, distributing, disseminating or otherwise using this transmission. Delivery of this message to any other person than the intended recipient is not intended to waive any right or privilege. If you have received this message in error, please promptly notify the sender by reply e-mail and immediately delete this message from your system.

Disclaimer: Sender is not a United States Securities Dealer or Broker or United States Investment Adviser. This email letter and any and all attachments and related documents are never considered to be a solicitation for any purpose in any form or content. Upon receipt of these documents you, as the Recipient, hereby acknowledge this Warning and Disclaimer. These Confidential communications are protected under Gramm-Leach-Bliley Act 15 U.S.C. Subchapter 1, sections 6801-6809 and other laws addressing the disclosure of Non-Public Personal Information. All information is subject to change without notice.