



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

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Monday, December 10, 2018
PERMIT MODIFICATION APPROVAL
Vertical / New Drill

KEYROCK ENERGY LLC
PO BOX 2223

JOHNSON CITY, TN 37605

Re: Permit Modification Approval for KENNER 11
47-011-01004-00-00

SUBMIT NEW WW-2B TO ACCOMODATE THE PROPOSED TARGET FORMATION OF THE BEREA WITH A NEW TARGET DEPTH OF 2750'

KEYROCK ENERGY 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: KENNER 11
Farm Name: KENNER Y. MARKINS
U.S. WELL NUMBER: 47-011-01004-00-00
Vertical New Drill
Date Modification Issued: December 10, 2018

Promoting a healthy environment.

12/14/2018

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: Keyrock Energy LLC

494507629	Cabell	Grant	Milton 7.5'
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Operator ID County District Quadrangle

2) Operator's Well Number: Kenner No. 11 3) Elevation: 959'

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

5) Proposed Target Formation(s): BEREA Proposed Target Depth: 2600'

6) Proposed Total Depth: 2750' Feet Formation at Proposed Total Depth: BEREA

7) Approximate fresh water strata depths: 327', 336', 392', 922', (from ref wells 828, 802, 848)

8) Approximate salt water depths: 1477', 1511', 1558' (from ref wells 828, 802, 848)

9) Approximate coal seam depths: 702' (from ref. well 802)

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 and stimulate using a foam frac for a new well (estimated using 40k lbs sand with foam frac).

Will not produce from the Marcellus formation.

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	9 5/8"			30'	30'	Sand In
Fresh Water	7"			950'	950'	154 Cu. Ft., CTS
Coal						
Intermediate						
Production	4 1/2"			2765'	2765'	Cement to 1400' <i>g/mm</i>
Tubing	2 3/8"			2715	2715	Per WV Dep Rule
Liners						

Packers: Kind: _____
Sizes: _____
Depths Set _____

Allen Flowers 11/16/2018

WW - 2B
(Rev. 8/10)

ck # 14464
7-17-18
\$650.00

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

1) Well Operator: Keyrock Energy LLC 494507629 Cabell Grant Milton 7.5
Operator ID County District Quadrangle

2) Operator's Well Number: Kenner No. 11 3) Elevation: 959'

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

5) Proposed Target Formation(s): Lower Huron Proposed Target Depth: 3,400'

6) Proposed Total Depth 3,500 Feet Formation at Proposed Total Depth: Lower Huron

7) Approximate fresh water strata depths: 327', 336', 392', 922' (from ref wells 828, 802, 848)

8) Approximate salt water depths: 1477', 1511', 1558' (from ref. wells 828, 802, 848)

9) Approximate coal seam depths: 702' (from ref. well 802)

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 and stimulate using a foam frac for a new well (estimated using 40k lbs sand with foam frac).

Will not produce from the Marcellus Formation

13) **CASING AND TUBING PROGRAM**

TYPE	SPECIFICATIONS			FOOTAGE	INTERVALS	CEMENT
	Size	Grade	Weight per ft			
Conductor	13 3/8"			30'	30'	Sand In
Fresh Water	9 5/8"			955'	955'	271 Cu. Ft., CTS
Coal						
Intermediate						
Production	4 1/2"			3,400'	3,400'	332 Cu. Ft., CTS
Tubing	2 3/8"			3,350'	3,350'	Per WV DEP Rule
Liners						

Packers: Kind: _____
Sizes: _____
Depths Set _____

RECEIVED
Office of Oil and Gas

SEP 05 2018

WV Department of
Environmental Protection

[Signature] 9-5-2018