



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 09-0286297

THE APPLICATION OF BRIGADIER OPERATING, LLC TO AMEND FIELD RULES FOR
THE KRS (MARBLE FALLS) FIELD, JACK COUNTY, TEXAS

HEARD BY: Richard D. Atkins, P.E. - Technical Examiner
Marshall Enquist - Legal Examiner

ER&R PREPARED BY: Karl Caldwell - Technical Examiner

HEARING DATE: January 16, 2014

APPEARANCES: REPRESENTING:

APPLICANT:

Mickey Olmstead
James Clark

Brigadier Operating, LLC

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Field Rules for the KRS (Marble Falls) Field, Jack County, Texas were adopted in Final Order No. 09-0275135, effective April 24, 2012. The current Field Rules in effect for the field are summarized as follows:

1. Designation of the field as the entire correlative interval from 5,070 feet to 5,481 feet as shown on the log of the Swan PC, LP - W.B. Owen Lease, Well No. 1 (API No. 42-237-30424);
2. 330'-0' well spacing with special provisions for "take points", a 50 foot "box" rule and "off-lease" penetration point for horizontal drainhole wells;
3. 160 acre oil units; proration unit plats are not required for individual wells, but Form P-15 to be filed to designate the number of acres to be assigned to each well;
4. Allocation based on 100% acres with a top oil allowable based on the 1965

Yardstick Allowable of 310 barrels of oil per day;

5. Maximum permitted gas-oil ratio for oil wells of 5,000 cubic feet of gas per barrel of oil;
6. Special provisions pertaining to "stacked lateral" horizontal drainhole wells within the correlative interval for the field.

Brigadier Operating, LLC ("Brigadier") requests that the Field Rules be amended, as described below:

Rule 2: 100 foot lease line distance requirements from the first and last take points.

Rule 3: Add 320-acre proration unit requirements for vertical gas wells. Include an add-on formula of 0.14 acres/foot of horizontal drainhole length, for horizontal drainhole wells.

Rule 4: Gas allocation, with the allocation formula to be based on 100% acres with AOF status.

Brigadier also requests a blanket authority for the exception to Statewide Rule 10 for all wells in the KRS (Marble Falls) and Newark, East (Barnett Shale) Fields in Jack County, Texas.

The application is unopposed and the examiners recommend that the Field Rules be amended for the KRS (Marble Falls) Field, Jack County Texas as proposed by Brigadier. The examiners also recommend to approve blanket authority for exception to Statewide Rule 10 for all wells in the KRS (Marble Falls) Field, Jack County, Texas, and the Newark, East (Barnett Shale) Field, Jack County, Texas.

DISCUSSION OF THE EVIDENCE

The KRS (Marble Falls) Field, Jack County, Texas was discovered in October 2010 at an average depth of 5,300 feet. Core data has shown evidence of extensive natural fractures, which are orientated in an approximate North-South direction in the field. Field Rules were adopted for the KRS (Marble Falls) Field in Commission Final Order No. 09-275135, that was approved on April 24, 2012. At that time, there were 8 producing oil wells. Field Rules pertaining to gas wells in the field were not specifically addressed at that time. As of January 16, 2014 there have been approximately 200 total wells drilled in the KRS (Marble Falls) Field, of which only 12 to 15 are horizontal wells, with the remainder being vertical wells. To promote more horizontal drilling which would help determine best practices in developing the field given its complex nature, Brigadier is requesting 100 foot lease line spacing on first and last take points for horizontal drainhole wells. Through September, 2013, cumulative production from the field is 1,318,142 BO and 18,895,159 MCFG.

The current Field Rules governing the KRS (Marble Falls) Field do not address gas well density spacing rules, only vertical oil wells. As a result, gas wells have since defaulted to the 160 acre spacing that was set forth for vertical oil wells as per Rule 3 of the Field Rules. Brigadier showed evidence that 13 of their currently producing wells have a heptanes plus mole percent to be less than 11%, which is the percentage that has been set forth as a criteria to administratively classify a well as a gas well.

The KRS (Marble Falls) Field, Jack County wells are located in close proximity to the Burns-Dalton (Marble Falls) Field, Palo Pinto and Jack Counties, Texas. Permanent Field Rules for the Burns-Dalton (Marble Falls) Field Palo Pinto and Jack Counties were established in a Final Order (No. 7B-0201858) on August 6, 1996. Evidence presented in this Final Order also detailed natural fractures oriented in an approximate North - South direction. Furthermore, it was determined 320 acre spacing was appropriate for gas wells in the field (Field Rule 11) due to the complex nature of the reservoir that is characterized by natural fractures. Brigadier would also like to include a gas allocation formula to be based on 100% acres with AOF status.

Brigadier has production data from several wells in the KRS (Marble Falls) Field that tends to support the notion that communication is occurring between wells after they have been hydraulically fracture stimulated. The Henderson #S 6 well was brought on-line on approximately March 1, 2013. The Henderson #B 7 well, which is located 3672 ft from the Henderson #S 6, was hydraulically fracture stimulated on March 15, 2013. After the Henderson #B 7 was stimulated, the gas production for the Henderson # S 6 started to decline at a greater rate for approximately 10 days, at which time the gas production started to increase and approached the production rate that was observed prior to the Henderson #B 7 frac. Another example showed the gas production from the Jerry Craft #1 well decreased for approximately 2 days after the Stamper Fowler #16 well was hydraulically fracture stimulated on November 23, 2013. After observing a decrease in gas production for two days after the offset well was hydraulically fracture stimulated, the gas production sharply increased. The distance between these two wells was 4,133 feet. Since evidence points to communication occurring between wells that are hydraulically fracture stimulated at distances 4,133 feet apart from one another, Brigadier has requested to amend Field Rule 3 to address the issue. In an effort to prevent communication between wells, Brigadier proposes that a distance of 4,133 feet along with an additional 25% of this straight line distance be used to calculate an acreage "add-on" formula for both horizontal oil and gas wells in lieu of Statewide Rule 86. This results in an acreage "add-on" factor of 0.14 acres per foot of horizontal drainhole length.

In addition to amending the current Field Rules, Brigadier has requested a blanket Rule 10 exception for the KRS (Marble Falls) and Newark, East (Barnett Shale) Fields in Jack County. The base of the Marble Falls formation is also the top of the Barnett Shale formation, which is the source rock for the Marble Falls, and fluids would be compatible between the two formations. Wells in the KRS (Marble Falls) Field, Jack County are located in close proximity to wells that are categorized as Oran (Marble Falls) and Newark East (Barnett Shale) Fields in Jack and Palo Pinto Counties which produce from the same stratigraphic intervals. A final order (No. 7B-0284969) approving blanket authority for the exception to Statewide Rule 10 for the Oran (Marble Falls) and Newark East (Barnett

Shale) Fields, Palo Pinto County was approved on January 7, 2014. This order stated that wells that are commingled in the two subject fields after the effective date of the order shall be assigned to the Oran (Marble Falls) Field. Brigadier's request is for wells commingled in the KRS (Marble Falls) and Newark, East (Barnett Shale) Fields, Jack County to be assigned to the KRS (Marble Falls) Field for proration purposes.

FINDINGS OF FACT

1. Notice of this application and hearing was provided to all persons entitled to notice at least ten (10) days prior to the date of the hearing.
2. The KRS (Marble Falls) Field was discovered in October 2010 at an average depth of 5,300 feet.
 - a. The field operates under Field Rules that were adopted in Final Order No. 09-0275135, effective April 24, 2012.
 - b. There are currently approximately 200 total wells in the field, 12 to 15 of which are horizontal drainhole wells, with the majority being vertical wells.
 - c. The KRS (Marble Falls) Field is actively being developed with vertical and horizontal drainhole wells.
3. A 100 ft lease line distance requirement from first and last take points in a horizontal well will promote development of the field, allow greater flexibility in selecting future drilling locations to contact more of the reservoir, and prevent waste.
4. 320 acre spacing is appropriate for gas wells in the KRS (Marble Falls) Field.
5. Including an "add-on" factor of 0.14 acres/foot of horizontal drainhole length for all horizontal wells will promote development of the field, protect correlative rights, and prevent waste.
6. A gas allocation formula based on 100% acres with AOF status is appropriate for the KRS (Marble Falls) Field, Jack County, Texas.
7. Approval of the requested blanket authority for exception to Statewide Rule 10 for all wells in the KRS (Marble Falls) and Newark, East (Barnett Shale) Fields, Jack County, Texas will prevent waste.

CONCLUSIONS OF LAW

1. Proper notice of this hearing was issued.

2. All things have been accomplished or have occurred to give the Commission jurisdiction in this matter.
3. Amending Field Rules for the KRS (Marble Falls) Field is necessary to prevent waste, protect correlative rights and promote development of the field.

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the examiners recommend that the Commission amend Field Rules for the KRS (Marble Falls) Field, as requested by Brigadier Operating, LLC.

Furthermore, the examiners recommend that the Commission approve blanket authority for exception to Statewide Rule 10 for all wells in the KRS (Marble Falls) and Newark, East (Barnett Shale) Fields, Jack County, Texas, as requested by Brigadier Operating, LLC.

Respectfully submitted,



Karl Caldwell
Technical Examiner



Marshall Enquist
Legal Examiner