



# RAILROAD COMMISSION OF TEXAS

## HEARINGS DIVISION

OIL AND GAS DOCKET NO. 08-0304902

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**THE APPLICATION OF CROSSING ROCKS ENERGY, LLC TO AMEND THE FIELD RULES FOR THE WAHA W. (CONSOLIDATED DELAWARE) FIELD, WARD AND REEVES COUNTIES, TEXAS**

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**HEARD BY:** Karl Caldwell — Technical Examiner  
Jennifer Cook — Administrative Law Judge

**HEARING DATE:** June 21, 2017  
**RECORD CLOSED:** July 11, 2017  
**CONFERENCE DATE:** August 15, 2017

**APPEARANCES:**

**APPLICANT:**

H. Philip Whitworth  
Stephanie Kover  
Rick Johnston, P.E.  
Kevin Duncan  
Andy Nelson

**REPRESENTING:**

Crossing Rocks Energy, LLC

**EXAMINER'S REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

Crossing Rocks Energy, LLC ("Crossing Rocks") requests to amend the field rules for the Waha W. (Consolidated Delaware) Field in Ward and Reeves Counties, Texas. Crossing Rocks filed its application to amend the field rules on May 5, 2017. Hearing was set for June 21, 2017 and notice of hearing for the amended field rules was provided to all operators listed on the proration schedule for the field.

Crossing Rocks requests that the current field rules be amended as follows:

- Rule 1. Designation of the entire correlative interval from 5,030 feet (MD) to 8,115 feet (MD), as seen on the Borehole Compensated Sonic log of the Tom Brown, Inc. Lyda G 4 No. 1 Well (API No. 42-389-32194),

Section 4, Block C4, PSL Survey, Reeves County, Texas as the Waha W. (Consolidated Delaware) Field.

- Rule 2. 330-foot lease line spacing and 0-foot between well spacing for oil and gas wells.
- Rule 3. Density – no change.
- Rule 4a. Oil and gas allowables based on 75% acreage and 25% per well.
- Rule 4b. Gas well allocation to allow multiple Rule 49(b) allowables with a maximum allowed acreage of 160 acres plus 10% tolerance (no change).
- Rule 5. Fieldwide GOR of 2000 SCF/Bbl with a Net GOR gas limit of 5000 MCFD.
- Rule 6. Eliminate the surface casing rule (Rule 6), currently set forth in the special field rules to allow surface casing to be governed by existing Commission Statewide Rules.

The application is unopposed. The Administrative Law Judge and Technical Examiner (collectively, "Examiners") recommend that the field rules for the Waha W. (Consolidated Delaware) Field be amended as requested by Crossing Rocks.

### **DISCUSSION OF THE EVIDENCE**

In 1974, the Railroad Commission consolidated the Waha West (Delaware 5500), (Delaware 5800), (Delaware 5800, South), (6050 Sand), (6250), and (6450 Sand) into the Waha W. (Consolidated Delaware) Field. Crossing Rocks proposes developing the field with vertical wells completed in the Lamar Lime, Bell Canyon, Cherry Canyon, Brushy Canyon, and Leonard Shale formations. Crossing Rocks accordingly requests that the field be defined as the entire correlative interval from 5,030 feet (MD) to 8,115 feet (MD), as seen on the Borehole Compensated Sonic log of the Tom Brown, Inc. Lyda G 4 No. 1 Well (API No. 42-389-32194), Section 4, Block C4, PSL Survey, Reeves County, Texas. Cumulative production from the Field through March 2017 is approximately 2.9 million barrels of oil and 27.5 billion cubic feet of gas. The cumulative gas-oil ratio for the Field is 9,337 standard cubic feet per barrel of oil.

When the Field was consolidated in 1974, the Commission approved field rules for the Field that included 40-acre oil and gas units with a 20-acre tolerance for the last well on the same lease or unit for oil wells, and 10% tolerance for gas wells, oil and gas allowables based on 100% acreage, a gas limit of 2,000 MCFD per oil well, a multiple 49(b) rule with a maximum acreage of 160 acres with 10% tolerance for gas wells, and a surface casing rule.

Despite the Field's 40-year existence and the drilling of numerous vertical wells, the reserves in the Cherry Canyon and Brushy Canyon formations remain essentially undeveloped. Almost all of the existing wells in the Field only produced from the Bell Canyon. Few wells in the Field even extend into the Brushy Canyon formation.

Recently, Crossing Rocks began to develop the Field by drilling vertical infill wells that are perforated in not only the Bell Canyon and Cherry Canyon formations, but also in the Brushy Canyon, Leonard Shale and Lamar Lime formations. Within the 2.5-mile radius around the subject field area there are only 2 recognized Delaware fields with a defined field interval. Neither one of those two fields include the Lamar Lime. In addition, within this same study area, there is only one Delaware completion that includes reported perforations in the Lamar Lime. This well is the Steward Energy LLC Ligon State 22 Well No. 4 that is assigned to the TMBring (Cherry Canyon) Field which is subject to Statewide rules and has no defined field interval. This evidence supports the inclusion of both the Lamar Lime and Leonard Shale in the requested field interval. Other than the Crossing Rocks well in this Field, only one well in any field is perforated in the Lamar Lime within a 2.5 mile radius of the Field. The Crossing Rocks well is the only well in the 2.5 mile study area that has perforations in the Leonard Shale.

The Lamar Lime formation is approximately 40-feet thick and marks the distinct separation of the Field's productive interval from the non-productive anhydrite salts above it. This interval is not expected to be economical to produce from a vertical well, absent commingling other zones and is not an economically justifiable target for horizontal wells.

In October 2016, Crossing Rocks completed the Hardin-Simmons CRE 3 No. 2 Well (API No. 42-389-35226) with a producing interval from 5,216 feet to 8,065 feet. Since the Hardin-Simmons CRE 3 No. 2 Well was completed below the base of the Brushy Canyon with perforations in the Leonard Shale, Crossing Rocks' Form W-2 completion for this well was not approved by the Commission's engineering staff. Crossing Rocks accordingly shut in this well pending the subject hearing.

The field's cumulative GOR is 9,337 cubic feet per barrel. During the period it was produced, the Hardin-Simmons CRE 3 No. 2 Well produced between 3,000 and 4,000 MCFD, which is greater than the current Net GOR gas limit of 2,000 MCFD. The request to increase the gas limit to 5,000 MCFD per well is to set the level high enough so as not to be a limitation on production.

Crossing Rocks plans to develop the proposed field interval with new vertical wells that will be completed in the Bell Canyon, Cherry Canyon, Brushy Canyon, and Leonard Shale formations. The deep rights from the top of the Bone Spring Lime/base of the Leonard Shale on the Crossing Rocks Energy acreage are owned by another company. The proposed field interval will allow Crossing Rocks to develop the Leonard Shale, which would be otherwise stranded on the Crossing Rocks acreage. The requested change to

the lease line spacing rule to 330 feet and the between well spacing to zero will avoid the need for Rule 37 exceptions for new drills.

If the proposed field interval is not adopted, the reserves in the Leonard Shale will not be developed on the Crossing Rocks acreage. To target only the Leonard Shale formation with either vertical or horizontal wells would be uneconomical. Therefore, including the Leonard Shale in the Field interval will allow these otherwise unrecoverable reserves to be produced. Crossing Rocks proposes a two- factor allocation formula based on 75% acreage and 25% per well since the correlative interval contains multiple accumulations of hydrocarbons.

Rescinding the surface casing rule adopted in Special Order No. 8-64,216, effective August 19, 1974 for the Waha W. (Consolidated Delaware) Field ensures that all surface casing adheres to Commission Statewide Rules.

Crossing Rocks agreed, that, pursuant to the provisions of Texas Government Code §2001.144(a)(4)(A), this Final Order shall be effective on the date a Master Order relating to this Final Order is signed.

#### **FINDINGS OF FACT**

1. Notice of this hearing was given to all parties entitled to notice at least ten (10) days prior to the date of the hearing.
2. In 1974 various fields were consolidated into the Waha, W. (Consolidated Delaware) Field.
3. Cumulative oil production from the Waha W. (Consolidated Delaware) Field is 2.9 million barrels of oil and 27.5 billion cubic feet of gas through March 2017.
4. The June 2017 Oil and Gas Proration Schedule shows there are 31 wells completed in the Waha W. (Consolidated Delaware) Field.
  - a. Only two marginal gas wells are completed in this Field.
  - b. These wells are mainly perforated in the Bell Canyon formation.
  - c. Few of these wells extend into the Cherry or Brushy Canyon.
  - d. Only Crossing Rocks' recent wells are perforated in the Leonard Shale.
  - e. Only one well in the area is perforated in the Lamar Lime.

- f. Until Crossing Rocks completed its Hardin-Simmons CRE 3 No. 2 Well in September, 2016, no well in the Field was perforated in the Leonard Shale.
5. The proposed Field interval would include the Lamar Lime, Bell Canyon, Cherry Canyon, Brushy Canyon and the Leonard Shale formations, and would be defined as 5,030 feet (MD) to 8,115 feet (MD), as seen on the Borehole Compensated Sonic log of the Tom Brown, Inc. Lyda G 4 No. 1 Well (API No. 42-389-32194), Section 4, Block C4, PSL Survey, Reeves County, Texas.
6. Adding the Leonard Shale formation to the field interval will prevent stranding and waste of reserves in the Leonard Shale formation.
  - a. To target only the Leonard Shale formation with either vertical or horizontal wells appears to be uneconomical.
  - b. For a large productive area of the Field, the rights to the Leonard Shale are held by operators who are different than the operators who hold the right to develop the depths below the Leonard Shale.
  - c. If the Leonard Shale formation is not included in this Field, the Leonard Shale reserves cannot be produced from the lands with different leasehold ownership and will result in the waste of these recoverable hydrocarbons
7. Adding the Lamar Lime formation to the Field interval will allow the production of otherwise unrecoverable reserves.
  - a. The top of the Lamar Lime marks the distinct separation of the productive interval of the Field from non-productive anhydrite salts above it.
  - b. Targeting the Lamar Lime with vertical wells or with horizontal wells cannot be economically justified.
  - c. Only two Delaware fields that are assigned to wells completed within a 2.5 mile radius of the Field have designated field intervals, and neither includes the Lamar Lime.
  - d. The only well completed within a 2.5 mile radius of the Field had perforations reported in the Lamar Lime, but that well was assigned to a field with no designated field interval.
8. Field rules providing for 330-foot lease line spacing and 0-foot between well spacing will provide operators flexibility in drilling new vertical wells between existing wells that were not drilled deep enough to penetrate and produce the proposed new field interval.

9. An allocation formula of 75% acreage and 25% per well is needed because the proposed field interval contains separate accumulations of hydrocarbons not in natural communication with each other.
10. A net gas-oil ratio with a gas limit of 5,000 MCFD per well is appropriate to maximize production from the Field.
  - a. The cumulative gas-oil ratio for the Field is 9,337 standard cubic feet per barrel of oil through March 2017.
  - b. The Hardin-Simmons CRE 3 No. 2 Well produces in excess of the current gas limit of 2000 MCFD.
11. The existing special surface casing rule is not necessary and should be eliminated as Statewide Rule 13: *Casing, Cementing, Drilling, Well Control, and Completion Requirements* is appropriate for this Field.
12. Crossing Rocks agreed, that, pursuant to the provisions of Texas Government Code §2001.144(a)(4)(A), this Final Order shall be effective on the date a Master Order relating to this Final Order is signed.

#### **CONCLUSIONS OF LAW**

1. Resolution of the subject application is a matter committed to the jurisdiction of the Railroad Commission of Texas. Tex. Nat. Res. Code § 81.051
2. All notice requirements have been satisfied. 16 Tex. Admin. Code § 1.45
3. The proposed allocation formula of not less than two factors is appropriate as the field interval contains multiple accumulations of hydrocarbons
4. Adoption of the proposed field rules will prevent waste, protect correlative rights, and promote the orderly development of the field.
5. Pursuant to §2001.144(a)(4)(A), of the Texas Government Code, and the agreement of the applicant, this Final Order is effective when a Master Order relating to this Final Order is signed on August 15, 2017.

**EXAMINERS' RECOMMENDATION**

Based on the above findings of fact and conclusions of law, the Examiners recommend that the Commission amend the field rules for the Waha W. (Consolidated Delaware) Field as requested by Crossing Rocks.

Respectfully submitted,



Karl Caldwell  
Technical Examiner



Jennifer Cook  
Administrative Law Judge