



# RAILROAD COMMISSION OF TEXAS

## HEARINGS DIVISION

**OIL AND GAS DOCKET NO. 06-0281432**

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**THE APPLICATION OF TRIVIUM OPERATING, LLC TO ADOPT FIELD RULES FOR THE AUSTONIO (CANTRELL SD.) FIELD, HOUSTON COUNTY, TEXAS**

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**HEARD BY:** Richard D. Atkins, P.E. - Technical Examiner  
Terry Johnson - Legal Examiner

**HEARING DATE:** May 8, 2013

**APPEARANCES:** **REPRESENTING:**

**APPLICANT:**

Bill Spencer  
Cary McGregor

Trivium Operating, LLC

**EXAMINERS' REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

The Austonio (Cantrell Sd.) Field currently operates under Statewide Field Rules. Trivium Operating, LLC ("Trivium") requests that Field Rules be adopted, as shown below:

1. Designated correlative interval from 8,345 feet to 8,391 feet as shown on the log of the W & W Production, Inc. - Bromberg & Adams et al Lease, Well No. 1 (API No. 42-225-00470);
2. 467'-0' well spacing with special provisions for "take points", 100' lease line spacing for the first and last take points, 50' "box" rule and "off-lease" penetration point for horizontal drainhole wells;
3. 40 acre oil units with a special formula for the assignment of additional acreage to horizontal drainhole wells and the filing of Form P-15 without proration unit plats;
4. Allocation based on 100% acres with a top oil allowable based on the 1965 Yardstick Allowable of 133 barrels of oil per day.

The application is unopposed and the examiners recommend that Field Rules be adopted for the Austonio (Cantrell Sd.) Field, as proposed by Trivium.

### DISCUSSION OF EVIDENCE

The Austonio (Cantrell Sd.) Field was discovered in September 1965 at an average depth of 8,300 feet. There is one shut-in horizontal drainhole well carried on the oil proration schedule and Trivium is the only operator in the field. The field operates under Statewide Field Rules. Cumulative production from the field through June 2013 is 137.7 MBO and 16.3 MMCFG.

There is currently no defined correlative interval for the field. Trivium requests that the Austonio (Cantrell Sd.) Field be defined as the correlative interval from 8,345 feet to 8,391 feet as shown on the log of the W & W Production, Inc. - Bromberg & Adams et al Lease, Well No. 1 (API No. 42-225-00470), J J Estrade Survey, A-359, Houston County, Texas. The correlative interval includes the entire Cantrell Sand formation.

Trivium is developing the field with horizontal drainhole wells and requests that the Field Rules be amended to promote the efficient and effective development of the remaining hydrocarbons. Trivium proposes 467'-0' well spacing with special provisions for "take points", 100' lease line spacing for the first and last take points, 50' "box" rule and "off-lease" penetration point for horizontal drainhole wells. Similar Field Rules have been adopted in other tight reservoirs, including the Eagle Ford, Wolfcamp, Bone Springs, Cotton Valley and Barnett Shale formations.

Trivium requests that a Field Rule be adopted which includes language relevant to the measurement of distances to lease lines for horizontal drainhole wells. Trivium's proposed rule specifies that, for purposes of lease line spacing, the nearest "take point" in a horizontal well be used. This take-point could be a perforation in a horizontal well that is cased and cemented, an external casing packer in a cased well, or any open-hole section in an uncased well.

Trivium also proposes a 50' "box rule" for horizontal drainhole wells that would allow drainholes to deviate 50 feet from either side of their permitted track without the necessity of obtaining a Statewide Rule 37 exception. As drilled wells for which all points are located within the "box" would be considered in compliance with their drilling permits.

In some cases, it is beneficial to penetrate the reservoir off lease, while still having "take points" no closer to lease lines than allowed under the field rules. Trivium requests that Field Rules for the subject field provide for an "off-lease" penetration point. Statewide Rule 86 requires that the penetration point of a horizontal drainhole be on the lease. In this field, a well generally requires approximately 600 feet of horizontal displacement to make the 90 degree turn from vertical to horizontal. If the penetration point is required to be on

the lease, then the first point of production would be about 600 feet from the lease line. The proposed rule will allow approximately 500 feet of additional producing drainhole, which will result in the recovery of additional reserves. The Commission has adopted similar rules allowing offsite penetration points in other fields, after the operator has given notice to the mineral owners of the off-lease tract on which the penetration point is to be located and received no protest.

The Austonio (Cantrell Sd.) Field is located in the East Texas Basin and the Cantrell Sand formation is correlative across the entire area. The Cantrell Sand formation is a low permeability sandstone reservoir that requires fracture stimulation and has a solution gas drive as the primary drive mechanism. Trivium is requesting that the first and last take points of a lateral be as close as 100' to lease lines. The Cantrell Sand reservoir has oriented fractures and most of the drainage is along the fracture orientation with little contribution from the matrix in a perpendicular direction. A wellbore can be presumed to be drilled to encounter the maximum number of fractures and, therefore, be perpendicular to the fracture direction. The end points of such a lateral will not drain over 100' from the matrix in a direction perpendicular to fracture direction. The 100' leaseline spacing for the first and last take points will result in the additional recovery of reserves.

Trivium requests 40 acre oil units with a special provision for the additional assignment of acreage to horizontal drainhole wells based on the formula  $A = (L \times 0.11488) + 40$ . Trivium believes that horizontal drainhole wells will drain a large area and requests that the assignment of additional acreage be limited to 640 acres. The proposed formula is similar to the one used in other tight formation fields. For purposes of the assignment of additional acreage pursuant to the formula above, it is proposed that the distance between the first and last take points in a horizontal drainhole well be used.

Trivium also requests that proration unit plats not be required for individual wells, but that Form P-15 be filed to designate the number of acres to be assigned to each well with no maximum diagonal limitation. Trivium proposes allocation based on 100% acres with a top oil allowable based on the 1965 Yardstick Allowable of 133 barrels of oil per day.

#### **FINDINGS OF FACT**

1. Notice of this hearing was provided to all persons entitled to notice at least ten (10) days prior to the date of the hearing and no protests were received.
2. The Austonio (Cantrell Sd.) Field was discovered in September 1965 at an average depth of 8,300 feet.
  - a. There is one shut-in horizontal drainhole well carried on the oil proration schedule and Trivium is the only operator in the field.
  - b. The field operates under Statewide Field Rules.

- c. The Austonio (Cantrell Sd.) Field is actively being developed with horizontal drainhole wells.
3. The Austonio (Cantrell Sd.) Field should be defined as the correlative interval from 8,345 feet to 8,391 feet as shown on the log of the W & W Production, Inc. - Bromberg & Adams et al Lease, Well No. 1 (API No. 42-225-00470), J J Estrade Survey, A-359, Houston County, Texas. The correlative interval includes the entire Cantrell Sand formation.
4. A spacing rule which utilizes "take-points" in a horizontal well for determination of distances to lease lines will prevent waste and will not harm correlative rights.
  - a. A take-point in a horizontal well in this field may be a perforation in a horizontal well that is cased and cemented, an external casing packer in a cased well, or any open-hole section in an uncased portion of the wellbore.
  - b. Adoption of the proposed rule will allow the horizontal drainhole length on a lease to be maximized.
5. The proposed 50' "box rule" is necessary to allow operators reasonable minor deviations from the wellbore track that has been permitted.
6. Allowing an "off-lease" penetration point will result in maximum producing drainhole length, thereby increasing ultimate recovery from horizontal drainhole wells. To protect correlative rights, prior notice and opportunity to object should be given to the mineral owners of "off-lease" surface locations.
7. A 100' leaseline spacing for the first and last take points will result in an additional recovery of reserves.
  - a. The Cantrell Sand formation is a low permeability sandstone reservoir that requires fracture stimulation.
  - b. The Cantrell Sand reservoir has oriented fractures and most of the drainage is along the fracture orientation with little contribution from the matrix in a perpendicular direction.
  - c. A wellbore can be presumed to be drilled to encounter the maximum number of fractures and, therefore, be perpendicular to the fracture direction.

- d. The end points of such a lateral will not drain over 100' from the matrix in a direction perpendicular to fracture direction.
8. Adoption of 40 acre oil units with a special provision for the additional assignment of acreage to horizontal drainhole wells based on the formula  $A = (L \times 0.11488) + 40$  is appropriate for the field.
    - a. Horizontal drainhole wells will drain large areas and the proposed formula is similar to the one used in other tight formation fields.
    - b. The assignment of additional acreage to horizontal drainhole wells should be limited to 640 acres.
    - c. For purposes of assignment of additional acreage pursuant to the special formula, the distance between the first and last take points in a horizontal drainhole well should be used.
  9. Similar Field Rules have been adopted in other tight reservoirs, including the Eagle Ford, Wolfcamp, Bone Springs, Cotton Valley and Barnett Shale formations.
  10. Allocation based on 100% acres with a top oil allowable based on the 1965 Yardstick Allowable of 133 barrels of oil per day is appropriate for the Austonio (Cantrell Sd.) Field.
  11. The filing of Form P-15 to designate the number of acres to be assigned to each well for proration purposes with no proration unit plats will eliminate unnecessary paperwork.

#### **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. Adopting Field Rules for the Austonio (Cantrell Sd.) Field is necessary to prevent waste, protect correlative rights and promote development of the field.

**RECOMMENDATION**

Based on the above findings of fact and conclusions of law, the examiners recommend that the Commission adopt Field Rules for the Austonio (Cantrell Sd.) Field, as proposed by Trivium Operating, LLC.

Respectfully submitted,



Richard D. Atkins, P.E.  
Technical Examiner



Terry Johnson  
Legal Examiner

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