

**APPLICATION OF CHESAPEAKE OPERATING INC. TO ADOPT FIELD RULES FOR THE
ACHILLES (TONKAWA) FIELD, HEMPHILL COUNTY, TEXAS**

Heard by: Andres J. Trevino, P.E. on January 6, 2011

Appearances:

Jim Clark

Representing:

Chesapeake Operating Inc.

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Chesapeake Operating Inc. requests that the following field rules be adopted for the Achilles (Tonkawa) Field. The proposed rules are summarized as follows:

1. The entire correlative interval from 8,410 feet and 9,138 feet as shown on the Induction Density-Neutron log of the Chesapeake Day Lease, Well No. 1011H;
2. Minimum well spacing of 330' 0' between wells spacing, take points, 50' box rule, Offsite penetration;
3. 160 acre gas proration units plus 10% tolerance and optional 40 acre proration units for oil and gas wells with a 2,100' maximum diagonal;
4. An allocation formula based on 100% acreage for oil and gas wells with AOF Status;
5. Stacked lateral rules.

The examiner recommends that field rules for the Achilles (Tonkawa) Field be amended as proposed by Chesapeake Operating Inc. Additionally, the examiner recommends the field be classified as associated prorated as the first oil well has been completed.

DISCUSSION OF THE EVIDENCE

The Achilles (Tonkawa) Field was discovered in 1977 at approximately 9,498'

subsurface depth. The field is governed by Statewide Rules. The gas field is designated as a non-associated field with the allocation formula suspended. Chesapeake drilled the Day No. 1011H well as the field's first horizontal oil well. The Day 1011H had an initial potential of 487 BOPD, 1,418 MCF of gas and 180 BWPD. There are 5 operators and 5 gas wells in the field. The field has produced 2.6 BCF of gas and 90.9 MBC.

Chesapeake requests that the Achilles (Tonkawa) Field be designated as the correlative interval from 8,410 feet and 9,138 feet as shown on the log of the Chesapeake Day Lease, Well No. 1011H. This interval is from the top of the Tonkawa marker to the top of the Avant marker. The pay zone is generally found within 100 feet of the top of the Tonkawa. Chesapeake believes other zones may be productive within the 700 foot Tonkawa formation.

Chesapeake requests to adopt 330' lease line spacing and 0' between well spacing be adopted to be consistent with the spacing rules of other fields being developed with horizontal wells. The 0' between well spacing will allow the drilling of horizontal wells in between the numerous existing vertical wells.

Chesapeake is amending the existing field rules in the Achilles (Tonkawa) Field to adopt horizontal rules to allow efficient and orderly development of the Achilles (Tonkawa) Field with horizontal wells. The proposed horizontal rules are similar to horizontal rules found in other fields being developed with horizontal wells.

Chesapeake requests several standard horizontal well provisions commonly adopted when horizontal well development is anticipated. The provisions include take point language to allow flexible drilling of the laterals and off-lease penetration to allow the additional recovery of reserves by allowing the lateral to be horizontal at a legal lease line location. An additional stage frac will be placed on each lateral if off lease penetration is allowed.

Chesapeake provided drainage calculations for two wells in the field which will drain greater than 40 acres. These calculations are based on 7 and 9% porosity, 30 and 25% water saturation and net pay of 20 feet. Estimated ultimate recoveries range from 1.0 BCF of gas for the Sundance Well No. 101 and 1.4 BCF for the Jahnel Well No. 1. The estimated drainage area for the Sundance Well No. 101 is 115 acres and for the Jahnel Well No. 1 is 201 acres.

The gross thickness of the Tonkawa in this field is over 700 feet. The initial horizontal drilling target within the Tonkawa interval will be the Upper Tonkawa sands found within 100 feet of the top of the designated interval. In planning future development of the subject field, it has been determined that stacked laterals may be required to develop this thick reservoir. Chesapeake foresees that laterals will need to be drilled from multiple surface locations, including some locations off lease. Amending the rule as proposed will allow stacked lateral drainholes to be simultaneously drilled from multiple surface locations. The stacked lateral rules also require that each point of a stacked lateral

horizontal drainhole be no more than 300 feet in a horizontal direction from any point along any other horizontal drainhole of the same stacked lateral well.

Chesapeake proposes a 50 foot "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. Chesapeake requests that the allocation formula for the field remain suspended.

FINDINGS OF FACT

1. Notice of this hearing was given to all operators of wells in the Achilles (Tonkawa) Field at least ten days prior to the date of hearing.
2. The Achilles (Tonkawa) Field was discovered in 1977 at a depth of 8,450'.
3. There are 5 operators and 5 gas wells in the field. Cumulative production from the field is about 2.6 BCF of gas and 90.9 MBC.
4. The Achilles (Tonkawa) Field is a non-associated gas field governed by Statewide Rules. The allocation formula is suspended. The field be classified as associated prorated as the first oil well (Day No. 1011H) has been completed.
5. The Achilles (Tonkawa) Field should be defined as the correlative interval from 8,410 feet and 9,138 feet as shown on the Induction Density-Neutron log of the Chesapeake Day Lease, Well No. 1011H. This interval includes the entire Tonkawa formation.
6. Adopting field rules that provide for 330 feet lease line spacing and eliminating between well spacing will allow the flexible placement of horizontal wells between existing vertical wells.
7. Adoption of a density rule providing for 160 units with optional 40 acre units is appropriate for this field.
 - a. For the two wells in the field studied by Chesapeake, net pay of 20 feet.
 - b. For the two wells, estimated ultimate recoveries range from 1 BCF to 1.4 BCF.
 - c. The two wells had calculated drainage areas of 201 acres and 115 acres.
8. Given that the gross thickness of the Tonkawa in this field is over 700 feet,

multiple stacked laterals may be required to fully develop the reservoir. The initial horizontal drilling target will be the Upper Tonkawa pay zone followed by other potential pay zones once identified.

9. The proposed 50 foot “box rule” is necessary to allow operators reasonable minor deviations from the wellbore track that has been permitted.
10. Field rules that provide for 330 feet lease line spacing, eliminate between well spacing for all wells in the field, take point language, stacked laterals and a “box rule” for horizontal wells will provide consistency with other fields under going horizontal drilling.
11. Allowing off-lease penetration will allow an additional stage frac to be placed on each lateral causing the recovery of additional reserves that would otherwise be left in the ground.
12. Continued suspension of the allocation formula is appropriate, as there is a 100% market for all the gas produced.

CONCLUSIONS OF LAW

1. Proper notice of this hearing was given to all persons legally entitled to notice.
2. All things have occurred or been accomplished to give the Railroad Commission jurisdiction in this matter.
3. Amending field rules as proposed by Chesapeake Operating Inc. is necessary to prevent waste and protect correlative rights.

EXAMINER’S RECOMMENDATION

Based on the above findings and conclusions, the examiner recommends that field rules be adopted for the Achilles (Tonkawa) Field to reduce lease line spacing to 330 feet, eliminate between well spacing for all wells, 160 acre units with optional 40 density, add take points, allow off lease penetration, add stacked lateral language and a 50 foot “box” rule.

Respectfully submitted,

Andres J. Trevino, P.E.
Technical Hearings Examiner