

THE APPLICATION OF LAREDO ENERGY TO ADOPT TEMPORARY FIELD RULES FOR THE HAWKVILLE (AUSTIN CHALK) FIELD, WEBB COUNTY, TEXAS

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

DATE OF HEARING: February 18, 2011

APPEARANCES:

REPRESENTING:

APPLICANT:

James M. Clark

Laredo Energy

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Laredo Energy ("Laredo") requests that temporary Field Rules be adopted for the Hawkville (Austin Chalk) Field. The proposed rules are summarized as follows:

1. Designation of the field as the correlative interval from 10,230 feet to 10,795 feet as shown on the log of the Laredo Energy - Rosa Vela Benavides Lease, Well No. 2H (API No. 42-479-40561);
2. 330'-660' well spacing, 100' lease line spacing for the first and last take points, no between well spacing between vertical and horizontal wells, no between well spacing restriction on laterals that overlap by less than 500 feet and special provisions for "take points", a "box rule" and off-lease penetration point for horizontal drainhole wells;
3. 320 acre density, with special provisions for assignment of acreage to horizontal wells and a maximum acreage assigned to a well of 640 acres;
4. Allocation based on 10% acres and 90% deliverability with AOF status.

This application was unopposed and the examiner recommends that the Field Rules proposed by Laredo be adopted on a temporary basis for the Hawkville (Austin Chalk) Field, subject to review in 18 months.

DISCUSSION OF EVIDENCE

The Hawkville (Austin Chalk) Field was discovered in April 2010 at a depth of 10,230

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feet. There is currently one producing gas well on the proration schedule with one additional well waiting on completion. The producing well, the Puig Lease, Well No. 1H, is a horizontal well and on initial potential produced dry gas at a rate of 3.5 MMCFPD from perforations at 12,440 feet (MD) to 15,247 feet (MD). Laredo plans to drill only horizontal wells in the field.

Laredo requests that the Hawkville (Austin Chalk) Field be defined as the correlative interval from 10,230 feet to 10,795 feet as shown on the log of the Laredo Energy - Rosa Vela Benavides Lease, Well No. 2H (API No. 42-479-40561), Section 1450, A. Gonzales Survey, A-57, Webb County, Texas. The interval includes the entire Austin Chalk formation and ranges in thickness of 600 to 900 feet. At this depth, the Austin Chalk is expected to produce only a dry gas.

Laredo is in the early stages of development for the Hawkville (Austin Chalk) Field and believes it should be developed with similar Field Rules as the deeper Hawkville (Eagleford Shale) Field. Laredo believes the Field Rules adopted for the Eagleford Shale field are appropriate as the Austin Chalk lies directly above the Eagleford Shale and will have similar production characteristics after it is artificially fractured stimulated.

Laredo request initial proration units be 320 acres with additional acreage assigned based on lateral lengths. The maximum acreage assigned to any well will be limited to 640 acres regardless of lateral length. Laredo also requests special provisions for "take points", a "box rule" and off-lease penetration point for horizontal drainhole wells to allow the lateral greater contact with the reservoir within the lease boundaries. The horizontal rules proposed by Laredo for purposes of assigning acreage and allowing take points are similar to those which have been adopted in other fields including the Newark, East (Barnett Shale), Sugarkane (Eagle Ford) and the Hawkville (Eagleford Shale) Fields.

Laredo requests a spacing rule that requires a minimum of 330 feet from lease lines and 660 feet between wells. This proposed spacing is similar to other fields being developed using horizontal wells. Laredo requests that the first and last take points be no closer than 100 feet from the lease lines. This will allow at least one additional frac stage to take place at each end of the lateral to recover additional reserves that would otherwise remain unrecovered. Reservoir drainage is expected to occur along the perpendicular fractures from the laterals and not in a radial pattern as in a conventional gas reservoir. Laredo also requests that there be no minimum between well spacing requirement between a horizontal and a vertical well or two horizontal drainholes that are parallel or subparallel (within 45 degrees of parallel) and that overlap each other by no more than 500 feet.

Laredo requests that a field rule be adopted which includes language relevant to measurement of distances to lease lines for horizontal drainhole wells. Laredo'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, if a horizontal well is cased

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and cemented, an external casing packer in a cased well, or any open-hole section in an uncased well. Similar rules have been adopted in other tight reservoirs, including the Newark, East (Barnett Shale), Carthage (Haynesville Shale) and Eagleville (Eagle Ford Sour) Fields.

The proposed rule would allow operators to drill horizontal wells with penetration points, as defined by Rule 86, at distances closer than 330 feet to a lease line, as long as no take-point, other than the first and last take points, is closer than 100 feet to any lease line. Horizontal drainhole length on a lease is then maximized, resulting in the additional recovery of gas. For purposes of the assignment of additional acreage, it is proposed that the distance between the first and last take-point in a horizontal well be used.

Laredo proposes a 10% tolerance “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. Laredo 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 700 feet from the lease line. Since there is a requested 100' lease line spacing for the first and last take points, the proposed rule will allow approximately 600 feet of additional producing drainhole, resulting in the recovery of additional gas reserves. Similar rules allowing offsite penetration points have been adopted in other fields, after notice to the mineral owners of the off-lease tract on which the penetration point is to be located and if no protest is received.

Laredo also requests that the allocation formula be based on 10% acres and 90% deliverability and that it be suspended, as there is a 100% market demand for all of the gas produced from the field.

FINDINGS OF FACT

1. Notice of this hearing was given to all persons entitled to notice and no protests were received.
2. The Hawkville (Austin Chalk) Field was discovered in April 2010 at a depth of 10,230 feet. There is currently one producing gas well on the proration schedule with one additional well waiting on completion.

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3. The Hawkville (Austin Chalk) Field should be defined as the correlative interval from 10,230 feet to 10,795 feet as shown on the log of the Laredo Energy - Rosa Vela Benavides Lease, Well No. 2H (API No. 42-479-40561), Section 1450, A. Gonzales Survey, A-57, Webb County, Texas.
4. Adoption of 320 acre gas units with special provisions for the assignment of acreage to horizontal wells and a maximum acreage assigned to a well of 640 acres for the field is appropriate.
 - a. The Hawkville (Austin Chalk) Field is a gas field that will be developed with horizontal wells with multiple stage fracture stimulation.
 - b. There are no vertical wells in the field and production decline data from horizontal wells is limited.
 - c. Other fields including the Newark, East (Barnett Shale), Sugarkane (Eagle Ford) and the Hawkville (Eagleford Shale) Fields have large proration units between 640 to 320 acre units.
5. Field Rules that provide for 330' lease line spacing for the perpendicular distance along a horizontal drainhole, 100' lease line spacing for the first and last take points and with special provisions for "take points", an off-lease penetration point and a "box rule" for horizontal wells will provide consistency in developing the field and will allow greater flexibility in selecting future drilling locations.
6. A spacing rule which utilizes "take-points" in a horizontal well for determination of distances to lease lines will not harm correlative rights.
 - a. The Austin Chalk formation is a tight formation and is not commercially productive unless fracture-stimulated.
 - b. A take-point in a horizontal well in this field may be a perforation, if a horizontal well is cased and cemented, an external casing packer in a cased well, or any open-hole section in an uncased portion of the wellbore.
 - c. "Take points" will allow the horizontal drainhole length on a lease to be maximized.
 - d. Allowing no between well spacing restriction on laterals that overlap by no more than 500 feet will allow maximum hydrocarbon reserves to be recovered that would otherwise be left in place.

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- e. Allowing the first and last take points to be as close as 100 feet from the lease lines will allow at least one additional frac stage to take place at each end of the lateral to recover additional reserves that would otherwise remain unrecovered.
7. The proposed 50 foot “box rule” will allow operators reasonable minor deviations from the wellbore track that has been permitted without the need to re-permit the well.
8. Allowing an off-lease penetration point will result in maximum producing drainhole length, thereby increasing ultimate recovery from horizontal drainhole wells. The proposed rule will allow approximately an additional 700 feet of producing drainhole. To protect correlative rights, prior notice and opportunity to object should be given to the mineral owners of offsite surface locations.
9. For purposes of assignment of additional acreage, the distance between the first and last take-point in a horizontal well should be used.
10. Allocation based on 10% acres and 90% deliverability is a reasonable formula which will protect correlative rights of mineral owners in the field.

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. Adoption of the proposed Field Rules for the Hawkville (Austin Chalk) Field on a temporary basis 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 examiner recommends that the Commission adopt the Field Rules proposed by Laredo Energy for the Hawkville (Austin Chalk) Field on a temporary basis, subject to review in 18 months.

Respectfully submitted,

Richard D. Atkins, P.E.
Technical Examiner