



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 06-0281971

THE APPLICATION OF FOREST OIL CORPORATION TO RENUMBER AND AMEND
FIELD RULES FOR THE HENDERSON (RUSK CO. PETTIT) FIELD, RUSK COUNTY,
TEXAS

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

HEARING DATE: May 30, 2013

APPEARANCES: REPRESENTING:

APPLICANT:

Rick Johnston

Forest Oil Corporation

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Field Rules for the Henderson (Rusk Co. Pettit) Field were adopted in Final Order No. 6-7,326, effective March 5, 1945, as amended. The current Field Rules in effect for the field are summarized as follows:

1. 467'-933' well spacing;
2. Casing provisions;
3. Wellhead provisions;
4. Tubing provisions;
5. Separator provisions;
6. Permitted gas-oil ratio of 2,000 cubic feet per barrel and oil production unit provisions;
7. 40 acre oil units and 640 acre gas units;

8. Oil allocation based on 75% acres and 25% per well.

Forest Oil Corporation ("Forest") requests that the Field Rules be renumbered and amended, as shown below:

1. Designation of the field as the correlative interval from 7,086 feet to 7,370 feet as shown on the log of the Trice Prod. Co. - L. Webb Estate Lease, Well No. 1 (API No. 42-401-00501);
2. 330'-330' well spacing and no minimum between well spacing limitation for horizontal drainhole wells and vertical wells 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 and gas units with the filing of Form P-15 without proration unit plats;
4. Gas allocation based on 100% deliverability and oil allocation based on 75% acres and 25% per well with a top oil allowable based on the 1947 Yardstick Allowable of 121 barrels of oil per day;
5. Oil well increased net gas-oil ratio authority with a casinghead gas limit of 1,000 MCFGPD.

The application is unopposed and the examiners recommend that the Field Rules be renumbered and amended for the Henderson (Rusk Co. Pettit) Field, as proposed by Forest.

DISCUSSION OF EVIDENCE

The Henderson (Rusk Co. Pettit) Field was discovered in July 1945 at an average depth of 7,200 feet. The field is classified as associated-49B exempt. There are 17 producing oil wells, 3 producing gas wells and 13 operators carried on the proration schedules. The field operates under Field Rules that provide for 467'-933' well spacing, 40 acre oil units and 640 acre gas units. Cumulative production from the field through December 2012 is 50.5 BCFG and 2.5 MMBO.

There is currently no defined correlative interval for the field. Forest requests that the field be defined as the correlative interval from 7,086 feet to 7,370 feet as shown on the log of the Trice Prod. Co. - L. Webb Estate Lease, Well No. 1 (API No. 42-401-00501), W Brumley Survey, A-73, Rusk County, Texas. The correlative interval includes the entire Pettit formation, which is located between the base of the James Lime formation and the top of the Travis Peak formation.

Forest 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. Forest proposes 330'-330' well spacing and no minimum between well spacing limitation for horizontal drainhole wells and vertical wells 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. Forest argues that the proposed between well spacing is necessary to allow the drilling of horizontal drainhole wells, which may have to be placed very near vertical wells in some cases. Similar Field Rules have been adopted in other tight reservoirs, including the Eagle Ford, Wolfcamp, Bone Springs, Cotton Valley and Barnett Shale formations.

Forest requests that a Field Rule be adopted which includes language relevant to the measurement of distances to lease lines for horizontal drainhole wells. Forest'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. For purposes of the assignment of additional acreage pursuant to Statewide Rule 86, it is proposed that the distance between the first and last take-point in a horizontal drainhole well be used.

By allowing a 100' leaseline spacing for the first and last take points, an additional 230 feet of the reservoir is exposed to the horizontal drainhole well lateral and drained. These reserves would go unrecovered if the 100' leaseline spacing for the first and last take points is not approved. Forest 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. Forest 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 230 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 main drive mechanism is a solution gas drive and the field bottomhole pressure is below the bubble point. Forest believes that horizontal wells will typically have initial potentials with gas-oil ratios substantially in excess of the permitted 2,000 cubic feet per barrel, which will result in the assignment of penalized oil allowables. Restricting a well's oil production based on the gas-oil ratio is not necessary to prevent waste or maximize recovery in this type of reservoir. As a result, Forest requests an increased net gas-oil ratio authority with a casinghead gas limit of 1,000 MCFGPD for each vertical oil well in the Henderson (Rusk Co. Pettit) Field. Forest proposes increased net gas-oil ratio authority for a horizontal drainhole oil well assigned more than 40 acres be determined by multiplying the number of acres assigned to such horizontal drainhole oil well by 25 MCFG per acre.

Forest requests 40 acre oil and gas units and 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. Forest proposes gas allocation based on 100% deliverability and oil allocation based on 75% acres and 25% per well with a top oil allowable based on the 1947 Yardstick Allowable of 121 barrels of oil per day. Forest also proposes that the gas allocation formula 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 provided to all persons entitled to notice at least ten (10) days prior to the date of the hearing.
2. The Henderson (Rusk Co. Pettit) Field was discovered in July 1945 at an average depth of 7,200 feet.
 - a. The field is classified as associated-49B exempt.
 - b. There are 17 producing oil wells, 3 producing gas wells and 13 operators carried on the proration schedules.
 - c. The field operates under Field Rules that provide for 467'-933' well spacing, 40 acre oil units and 640 acre gas units.
 - d. The Henderson (Rusk Co. Pettit) Field is actively being developed with horizontal drainhole wells.

3. The Henderson (Rusk Co. Pettit) Field should be defined as the correlative interval from 7,086 feet to 7,370 feet as shown on the log of the Trice Prod. Co. - L. Webb Estate Lease, Well No. 1 (API No. 42-401-00501), W Brumley Survey, A-73, Rusk County, Texas. The correlative interval includes the entire Pettit formation, which is located between the base of the James Lime formation and the top of the Travis Peak 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.
 - c. For purposes of assignment of additional acreage pursuant to Statewide Rule 86, the distance between the first and last take point in a horizontal drainhole well should be used.
5. A Field Rule providing for 330'-330' well spacing with no minimum between well spacing limitation between horizontal drainhole wells and vertical wells with a special provision for 100' leaseline spacing for the first and last take points is appropriate for the Henderson (Rusk Co. Pettit) Field.
 - a. The proposed no minimum between well spacing limitation between horizontal drainhole wells and vertical wells is necessary to allow the drilling of horizontal wells, which may have to be placed very near vertical wells in some cases.
 - b. By allowing a 100' leaseline spacing for the first and last take points, an additional 230 feet of the reservoir is exposed to the horizontal lateral and drained. These reserves would go unrecovered if the 100' leaseline spacing for the first and last take points is not approved.
6. The proposed 50' "box rule" is necessary to allow operators reasonable minor deviations from the wellbore track that has been permitted.

7. 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.
8. Similar Field Rules have been adopted in other tight reservoirs, including the Eagle Ford, Wolfcamp, Bone Springs, Cotton Valley and Barnett Shale formations.
9. An increased net gas-oil ratio authority with a casinghead gas limit of 1,000 MCFGPD for each oil well in the Henderson (Rusk Co. Pettit) Field is appropriate.
 - a. The main drive mechanism is a solution gas drive and the field bottomhole pressure is below the bubble point.
 - b. Horizontal wells will typically have initial potentials with gas-oil ratios substantially in excess of the permitted 2,000 cubic feet per barrel, which will result in the assignment of penalized oil allowables.
 - c. Restricting a well's oil production based on the gas-oil ratio is not necessary to prevent waste or maximize recovery in this type of reservoir.
10. Allocation based on 100% acres with a top oil allowable based on the 1965 Yardstick Allowable of 172 barrels of oil per day is appropriate for the Henderson (Rusk Co. Pettit) Field.
11. Suspension of the allocation formula is appropriate, as there is a 100% market demand for all of the gas produced from the field.
12. 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. Renumbering and amending Field Rules for the Henderson (Rusk Co. Pettit) 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 renumber and amend Field Rules for the Henderson (Rusk Co. Pettit) Field, as proposed by Forest Oil Corporation.

Respectfully submitted,



Richard D. Atkins, P.E.
Technical Examiner



Michael Crnich
Legal Examiner