November 17, 2000

OIL AND GAS OCKET NO. 08-0226397

THE APPLICATION OF RIATA ENERGY TO AMEND FIELD RULES IN THE PINON (OVERTHRUST) FIELD, PECOS COUNTY, TEXAS

Heard by: Margaret Allen, Technical Hearings Examiner

Procedural history

Application received: October 10, 2000
Hearing held: November 15, 2000

Appearances

	Representing
Charles A. Jones	Riata Energy

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

The existing rules for the Pinon (Overthrust) Field were adopted April 9, 1984, under Docket No. 8-36,544, as amended, and are summarized as follows:

1. 467-1200 foot well spacing;

2. 40 acres with 20 acre tolerance for the last well on a lease; and

3. allocation based 95% on acreage and 5% on deliverability.

Riata Energy seeks to amend the rules to provide for 20-acre density and 330-933 foot well spacing. The examiner suggested that the between-well spacing be 660 feet, which is the standard for 20-acre proration units, and the applicant agreed.

DISCUSSION OF THE EVIDENCE

The Pinon (Overthrust) Field was formed in 1984, by consolidation of three producing formations: the Tesnus sandstone, Caballos novaculite, and Dimple limestone. In 1990, the Pinon (Caballos) Field was separated out, leaving the Tesnus sandstone and Dimple limestone as the producing formations in the Pinon (Overthrust) Field. The current gas rules were based on the Statewide Rules and specify 40 acre proration units with 467-1200 foot well spacing.

The field has 19 gas wells, two of which were added in the summer of 2000, and all of which are operated by Riata. The gas gravity is 0.65 and the gravity of the condensate is 55 degrees API. The average porosity in the Tesnus sandstone is 14% and in the Dimple limestone is 13%. Water saturation in the Tesnus is 25% and in the Dimple is 30%. The permeability measured in the Tesnus formation was 0.0119 md, before fracture stimulation. Cumulative production has been 6.5 BCF and 19,000 barrels of condensate. Current daily field production is 6.5 MMCF, 6 to 10 barrels of condensate and 5 to 7 barrels of water.

The Pinon (Overthrust) Field produces from thrust faults that terminate just north of the field. These thrust faults overlap and some wells have penetrated two or even three repeat sections of the Tesnus sandstone and Dimple limestone. Any reservoir in the uppermost thrust fault block is not in physical communication with any reservoir in an underlying thrust fault block.

The original reservoir pressure in the first Tesnus section was measured in 1982 at 1302 psi, through perforations between 3892 to 3996 feet. The original pressure in the repeat or lower Tensus formation, as measured in a well perforated between 5166 and 5468 feet, was 2600 psi. When Riata completed the Longfellow Lease Well No. 4-7 in April of 1998, it measured the reservoir pressure at 2233 psi in the first Tesnus between 4686 and 4970 feet, and at 2667 psi in the repeated Tesnus section between 5206 and 5226 feet. The Longfellow No. 4-7 was drilled in the middle of seven wells which had been producing from the Tesnus for many years. The high reservoir pressures in this well drilled in 1998, indicate that at least some areas of the Tesnus formation have not been drained on the existing development pattern.

The original reservoir pressure in the Dimple limestone, measured in 1982 in perforations between 3672 and 3774 feet, was 1155 psi. In June of 1998, the newly-drilled Longfellow Lease Well No. 4-9 encountered reservoir pressure of 1050 psi in Dimple perforations between 3222 and 3823 feet. In December of 1998, the Dimple section between 5804 and 5970 feet in the Longfellow Lease Well No. 2-1 had 2137 psi of reservoir pressure. These recent high pressures measured in the Dimple limestone indicate that it is also not being fully drained under the present density rule.

The estimated ultimate recovery for one of the older wells in the field, the Longfellow Lease Well No. 4-3, completed in 1984 in the Tesnus, is 577 MMCF. The estimated ultimate recovery from one of the newer wells, the Longfellow Lease Well No. 4-9, completed in the Dimple in 1998, is almost the same at 435 MMCF. Riata has calculated that the drainage areas for wells completed in the Tesnus formation range from 2 to 29 acres, and for wells in the Dimple formation range from 17 to 20 acres.

Well spacing of 330-660 feet is standard for 20-acre density and will allow infill wells to be drilled between the existing wells, without unnecessary Rule 37 exceptions. In addition, this is an area of great topographic relief and this well spacing will make it easier to locate wells where the terrain is more favorable.

FINDINGS OF FACT

1. Notice of this hearing was given to all operators in the Pinon (Overthrust) Field on October 20, 2000.

2. The Pinon (Overthrust) Field was formed in 1984, from the consolidation of the Tesnus sandstone, Caballos novaculite, and Dimple limestone, but the Caballos formation was separated out in 1990.

3. The field has 19 gas wells, all operated by Riata, and the cumulative production has been 6.5 BCF and 19,000 barrels of condensate.

4. The field produces from complex thrust faults and many wells encountered two Tesnus and/or two Dimple sections as they penetrated through the separate thrust fault blocks.

5. In 1982, the original reservoir pressure in various Tesnus sections was measured at 1302 psi at a depth of about 1996 feet, and at 2600 psi at about 5300 feet.

6. In 1982, the original reservoir pressure measured in the Dimple at about 3735 feet was 1155 psi.

7. Decline curves for new wells indicate that they will have about as much ultimate recovery as the older wells in the field.

8. Twenty-acre gas proration units will be necessary to completely drain the reserves from this field.

    a. Volumetric calculations indicate that the drainage areas for wells completed in the Tesnus formation range from 2 to 29 acres, and for wells in the Dimple formation range from 17 to 20 acres.

    b. Pressure data from recently drilled wells indicate they encountered about the same reservoir pressures as were encountered by wells drilled in 1982.

    c. The permeability of the Tesnus and Dimple Formations is low, which inhibits drainage from any great distance away from the wellbores.

    d. The geology is very complex with numerous thrust faults, and wells encountered repeat sections which are not in communication with the same formation in other fault blocks.

9. Lease-line spacing of 330 feet and between-well spacing of 660 feet will allow infill wells to be drilled or recompleted between the existing wells.

CONCLUSIONS OF LAW

1. Proper notice was given as required by statute.

2. All things have been done or occurred to give the Railroad Commission jurisdiction to resolve this matter.

3 The requested amendments to the field rules for the Pinon (Overthrust) Field will prevent waste, protect correlative rights within the field, and provide for orderly development of the field.

EXAMINER'S RECOMMENDATION

Based on the above findings and conclusions, the examiner recommends that the existing rules for the Pinon (Overthrust) Field be amended as requested, to provide for 330-660 foot well spacing and 20 acre proration units.

Respectfully submitted,

Margaret Allen
Technical Hearings Examiner

Date of Commission action: December 5, 2000