

OIL AND GAS DOCKET NO. 06-0253477

THE APPLICATION OF PETROHAWK OPERATING COMPANY TO AMEND THE FIELD RULES FOR THE TENAHA (JURASSIC) FIELD, SHELBY COUNTY, TEXAS

Heard by: Andres J. Trevino, P.E. on October 24, 2007

Appearances:

Rick Johnston

Representing:

Petrohawk Operating Company

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Field rules for the Tenaha (Jurassic) Field were adopted in Oil and Gas Docket No. 6-77,361, effective December 21, 1981. The rules are summarized as follows:

1. 660'-2,640' well spacing;
2. 640 acre gas units with 10% tolerance; maximum diagonal of 10,000';
3. allocation based on 100% acreage.

At the hearing Petrohawk Operating proposed the optional density be changed from 80 acres to 160 acres¹. Petrohawk requests that the following rules be adopted for the field :

1. Designation of the field as the correlative interval from 10,726 feet to 11,425 feet as shown on the log of the Humble Oil & Refining's Pollard Unit, Well No. 1 (API 42-419-00019), Shelby County, Texas:
2. 467' - 933' well spacing provided no between well spacing minimum shall apply between vertical and horizontal wells;

¹ Notice of Hearing proposed an optional 80 acre density. Request amended at hearing.

3. 640 acre gas units with 10% tolerance and a maximum diagonal of 8,500 feet; optional 160 acre units with a maximum diagonal of 4,500 feet,;
4. Allocation is based on 100% deliverability.

Petrohawk also requests continuation of 100% AOF Status. This application was unprotested and the examiner recommends that the field rules for the Tenaha (Jurassic) Field be adopted as proposed by Petrohawk Operating Company.

DISCUSSION OF EVIDENCE

The Tenaha (Jurassic) Field was discovered in 1965 at a depth of approximately 10,745 feet. The field is a non-associated gas field which has had at most three gas wells operating. Currently there is only two producing gas wells, which are operated by Sonora Petroleum Corporation. Petrohawk Operating has a farmout agreement with Sonora to drill two horizontal wells on its two current units. The allocation formula is currently based on acreage.

In 1981, the Commission adopted field rules for the field which provided for 660'-2,640' well spacing and 640 acre with optional 320 acre density. Cumulative production from the field is about 2.47 BCF of gas and 1,290 BC. Current production rate is about 100 MCFD. Petrohawk is proposing to redevelop this mature gas field by drilling two new horizontal wells.

Petrohawk requests that the field be designated as the correlative interval from 10,726 feet and 11,425 feet as shown on the log of the Pollard Unit Well No. 1. This interval includes the entire Jurassic/Cotton Valley Lime. The Cotton Valley Lime has porosity development near the top and bottom of the proposed interval. Amending the current field rules will allow Petrohawk to drill horizontal wells that will increase reservoir contact and produce additional gas reserves effectively and efficiently.

Petrohawk provided drainage calculations for the only two wells in the field which demonstrate the need for optional 160 acre density. These two wells are vertical wells and the calculations are based on current production. The DeArman No. 2 has 8.0% porosity, 20% water saturation, 24 feet of pay and a recovery factor of 68.1%. With an ultimate recovery of 1.121 BCF, this well will drain 107.4 acres. The Alexander No. 1 has 8.0% porosity, 20.0% water saturation, 44 feet of pay and a recovery factor of 71.5%. This well will ultimately recover 1.384 BCF, this well will drain 61.7 acres.

Petrohawk is requesting zero between well spacing between vertical and horizontal wells. This additional flexibility will allow for optimum placement of horizontal drainholes between existing vertical wells.

The allocation will be based on 100% deliverability and the 100% AOF status remain unchanged.

FINDINGS OF FACT

1. Notice of this hearing was given to all persons entitled to notice and no protests were received.
2. The Tenaha (Jurassic) Field was discovered in 1965 at a depth of approximately 10,745 feet. The field is a non-associated gas field with two producing gas wells.
3. Rules currently in effect for the field provide for 660'-2,640' well spacing, 640 acre with optional 320 acre density. The allocation formula is based on 100% acreage.
4. Cumulative production from the field is about 2.47 BCF of gas and 1,290 BC. Current production rate is about 100 MCFD.
5. The Tenaha (Jurassic) Field should be designated as the correlative interval from 10,726 feet and 11,425 feet as shown on the log of the Pollard Unit Well No. 1. This interval includes the entire Jurassic/Cotton Valley Lime.
6. An optional 160 acre density rule is appropriate for the field.
 - a. The DeArman No. 2 will ultimately recover 1.12 BCF and will drain 107.4 acres.
 - b. The Pollard Unit No. 1 will ultimately recover 1.38 BCF and will drain 61.7 acres.
 - c. Net pay in these two wells are 24 feet to 44 feet respectfully.
7. In order to efficiently and effectively drain the reservoir, horizontal wells must be drilled. Horizontal drainholes will maximize reservoir contact within the Cotton Valley Lime Formation.
8. A 467' - 933' well spacing for vertical wells and no between well spacing for horizontal drainhole wells and any vertical wells will provide flexibility in developing this field using horizontal drainhole wells.
9. Allocation based on 100% deliverability is a reasonable allocation formula which satisfies statutory requirements. The field is currently AOF status.

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. Amending the field rules for the Tenaha (Jurassic) Field is necessary to prevent waste, protect correlative rights and promote development of the field.

RECOMMENDATION

Based on the above findings and conclusions of law, the examiner recommends that the Commission amend the field rules for the Tenaha (Jurassic) Field as proposed by Petrohawk Operating Company. It is recommended that the allocation formula for the field remain suspended.

Respectfully submitted,

Andres J. Trevino, P.E.
Technical Examiner