****
* KEY ISSUES: Confiscation *
* First well *
* *
* FINAL ORDER: R37 EXCEPTION GRANTED *
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RULE 37 CASE NO. 0201527

APPLICATION OF CANTRO EXPLORATION, INC. FOR AN EXCEPTION TO STATEWIDE RULE 37 FOR ITS MILTON KURTEN LEASE, WELL NO. 1, KURTEN (AUSTIN CHALK) AND WILDCAT FIELDS, BRAZOS COUNTY, TEXAS

APPEARANCES:

For Applicant:	**Applicant:**
Michael McElroy, Attorney Logan Irvin	Cantro Exploration, Inc.
For Protestant:	**Protestant:**
Glenn E. George F. Baron Craft	Rialto Energy, Inc.

AMENDED PROPOSAL FOR DECISION

PROCEDURAL HISTORY

Date of Notice of Hearing:	March 18, 1993
Dates Case Heard:	April 15, 1993 June 30, 1993
Heard By:	Barbara Epstein, Hearings Examiner Thomas Richter, P.E., Technical Examiner
Transcript Date:	July 12, 1993
Original PFD Circulation Date:	June 18, 1993
Amended PFD Circulation Date:	July 30, 1993
Current Status:	Protested

STATEMENT OF THE CASE

Cantro Exploration, Inc., hereinafter referred to as "Cantro", has applied for a spacing exception for its Milton Kurten Lease, Well No. 1, in the Austin Chalk and Wildcat Fields, Brazos County, Texas. The application is protested by Rialto Energy, Inc., hereinafter referred to as "Rialto".

BACKGROUND

Cantro seeks an exception to Statewide Rule 37 because the proposed horizontal well will have a penetration point 249 feet from the northwest lease line and a terminus in the I. Curd Survey 200 feet from the southeast lease line. Field rules for the Kurten (Austin Chalk) Field require 660'/1320' spacing and field rules for the Wildcat Field require 467'/1200' spacing. The protestant believes that this application should be denied because the well at the proposed location would drain Rialto's lease.

This hearing was originally held April 15, 1993. A Proposal for Decision was circulated to the parties June 18, 1993, and at the request of the applicant and with the agreement of the protestant, the hearing was re-opened on June 30, 1993 so that the applicant could present additional evidence.

DISCUSSION OF THE EVIDENCE

Cantro contends that the proposed location is necessary to maximize the number of fractures that its horizontal well can encounter on its lease, thereby giving it an opportunity to recover its share of hydrocarbons underlying its tract.

The oil contained in fractures in the Austin Chalk can only be recovered by encountering the primary fractures on the stress plane, which occur parallel to strike with the formation. The Austin Chalk matrix rock has some porosity but almost no permeability. Drilling in this area has resulted in the reliance on horizontal wells to encounter as many fractures as possible with each well drilled.

Cantro utilizes the following data in an effort to determine the recoverable oil under the Kurten tract. This tract is approximately 2,600' wide and 3,200' long. The fracture orientation of the Austin Chalk formation is N70°E. In reviewing horizontal drainhole well mud logs it appears that the vertical fractures occur in systems that range from 50' to 200' wide. A well that happens to penetrate one of these systems can be very productive.

Such a system was reviewed by Cantro in its Exhibit No. 10. Seven (7) vertical wells were completed in the East Giddings Area. The wells ranged in distance from 1,250' to 1,600' from each other in a relatively straight line. The average between well distance was 1,450'. The oil production

recoveries range from approximately 108,000 BO to 212,000 BO for an average of 136,000 BO per well. The average oil recovery divided by the average between well spacing yields 93 BO per foot.

A similar analysis was performed on three wells in the Northrup Area (4 miles from the East Giddings Area). The results of this analysis yielded 130 BO per foot. The average production of these wells was 180,000 BO.

The net pay thickness in these two areas is approximately 170', however the net pay in the Kurten lease area is 55' or 32.4%. Applying this correction factor to the Kurten lease, and using a 2,600' lease width, the estimated oil recovery for one fracture system ranges from 78,000 BO to 110,000 BO. Thus it is reasonable to assume that one fracture system under the Kurten lease would yield approximately 100,000 BO (more or less).

In order to determine the probable number of fracture systems which underlie the Kurten tract the mud logs of two horizontal wells in the subject field were used. The Clayton Williams - Peters Well No. 2 (4,600' horizontal displacement) showed four primary fracture systems. The Clayton Williams - Borske-Peters 2 (3,335' horizontal displacement) showed four primary fracture systems. The offsetting Chevron - Jones Lang well (at the closest point 700' from the Kurten tract) has a horizontal displacement of 4,200'. This well has cumulative production of approximately 83,000 BO and is currently producing 640 BO per day. There was no mud log available so the actual number of fracture systems is not known; however, by analogy to the two Clayton Williams wells, it is reasonable to assume four primary systems are present. The Chevron well should produce 300 - 400,000 BO.

The proposed Cantro well cannot have as long a displacement because the Kurten lease is only 3,200' in length so it is reasonable to assume that three fracture systems underlie the Kurten tract. This equates to approximately 300,000 BO. The Chevron - Jones Lang well is competing for these reserves. A regular location well would provide Cantro with approximately 1,700' of horizontal displacement in the pay interval of the Austin Chalk. This would miss one or possibly two of the primary fracture systems. This is further substantiated by two vertical wells west of the Kurten tract which were drilled 2,000' apart perpendicular to strike and have penetrated a fracture system. Each well has produced 95,000 and 96,000 BO respectively. The proposed Rule 37 exception well will result with a horizontal displacement of 2,800' with approximately 2,500' in the target pay area. Thus a Rule 37 location should result in a recovery of 200,000 - 300,000 BO. A regular location would leave at least 100,000 BO unrecovered.

An existing vertical well, the Hawn Brothers Milton Kurten Well No. 1, was used to illustrate that the Austin Chalk was present, fractured, and had a show of oil under this lease. This well is completed in the Kurten (Woodbine) field, which is a deeper formation than the Chalk. The Hawn Brothers Well No. 1 is currently producing from the Woodbine.

Cantro argues that Rialto, the offsetting operator to the northwest (shown on the W-1 plat as Torch), will not be affected by this Rule 37 exception because each fracture in the Austin Chalk is

entirely separate and there would be no drainage perpendicular to the fractures.

With respect to the Wildcat zone, Cantro testified that it would not drill a separate well to test the Wildcat zone.

Rialto, an offsetting lessee on the northwest side of the applicant's tract, did not present a direct case but did conduct cross-examination of Cantro's witness. Under cross-examination by Rialto, Cantro's witness testified that the entire tract is considered productive and that fractures could be encountered throughout the tract and extend to offsetting tracts.

EXAMINERS' OPINION

It is the examiners' opinion that the proposed exception should be granted because the proposed location is necessary to prevent confiscation. Cantro has shown that a horizontal well drilled at a regular location cannot recover its share of hydrocarbons underlying its tract. An accurate determination cannot be made of the reserves-in-place underlying the subject tract. This is the nature of fractured Austin Chalk reservoirs. The protestant did not show that the proposed well will actually drain its tract or that a regular location would provide Cantro a fair chance to recover its share of hydrocarbons underlying its tract.

Based on the testimony presented at the hearing and the evidence admitted into the record, the examiners make the following findings of fact and conclusions of law.

FINDINGS OF FACT

1. At least ten (10) days' notice was given to all adjacent operators, adjacent lessees with no designated operator and/or unleased mineral owners of each adjacent unleased tract.

2. The applicable field rules in this case are:

   Kurten (Austin Chalk) 660'/1320'
   Wildcat 467'/1200'

3. This application is protested by Rialto Energy, Inc.

4. An exception to Statewide Rule 37 is required for the Milton Kurten Lease, Well No. 1 because the proposed horizontal well will be located 249' from the northwest lease line at its penetration location and 200' from the southeast lease line (extending into the I. Curd Survey) at the terminus of the drainhole.

5. The net pay zone in the Kurten (Austin Chalk) Field under the applicant's tract is calculated to be 55 feet thick.

6. The strike of fracturing in the Austin Chalk formation is North 70° East based on Cantro Exploration's statistical study. The most efficient drainage of the lease will occur by drilling a well as near possible perpendicular to strike to maximize the number of fractures to be encountered.

    a. Vertical fracture systems in the Austin Chalk have a range from 50' to 200' in width.

    b. Analysis of two horizontal wells with displacements ranging from 3335' to 4600' indicate a penetration of four primary fracture systems.

    c. The direct offsetting horizontal Chevron Jones-Lang (horizontal displacement 4200') well has penetrated an estimated four primary fracture systems. The well has produced 65,000 barrels of oil in six months of production with a current rate of 640 BO per day.

    d. Some of the fracture systems on the Chevron-Jones Lang tract extend westward onto the applicant's tract.

7. The proposed well will be the first well on the applicant's tract in the Kurten (Austin Chalk) field.

8. The applicant would not drill a separate well just to test the Wildcat zone.

9. A well drilled at a regular location will encounter one fracture system and recover an estimated 100,000 barrels of oil.

10. A well drilled at the proposed location on the Milton Kurten Lease may encounter three primary fractures to recover an estimated 300,000 barrels of oil.

11. Reserves under the Kurten tract are 300,000 barrels of oil which may be encountered in three primary fractures.

CONCLUSIONS OF LAW

1. A Railroad Commission Form W-1 was properly filed.

2. Proper notice was issued by the Railroad Commission to appropriate persons legally entitled to notice.

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

4. The proposed exception to Statewide Rule 37 is necessary to provide the applicant with a reasonable opportunity to recover its share of hydrocarbons underlying its tract, thereby preventing confiscation.

RECOMMENDATION

The examiners recommend that the above findings of fact and conclusions of law be adopted and that this exception to Statewide Rule 37 be **GRANTED**.

Respectfully submitted,

Barbara Epstein
Hearings Examiner

Thomas H. Richter, P.E.
Technical Examiner