
* KEY ISSUES: _____ *
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* FINAL ORDER: R37 EXCEPTION DENIED *

RULE 37 CASE NO. 0209004

**APPLICATION OF ARRINGTON CJM, INC. FOR A RULE 37 SPACING EXCEPTION
TO COMPLETE ITS WEST TURKEY TRACK LEASE, WELL NO. 31 IN THE
ARRINGTON, WEST (HUNTON) FIELD, HUTCHINSON COUNTY, TEXAS**

APPEARANCES:

FOR APPLICANT:

John Soule, attorney
Arthur L. Paquett
Bob Ed Culver
Terry Payne
Greg Cloud
George W. Arrington

APPLICANT:

Arrington CJM, Inc.

FOR PROTESTANT:

Brian R. Sullivan
Ed Podzemny
Anthony J. Beilman

PROTESTANT:

Merex Resources, Inc.

PROCEDURAL HISTORY

DATE APPLICATION FILED:

May 26, 1995

DATE OF HEARING:

July 25, 1995

HEARD BY:

Barbara Epstein, Hearings Examiner
Charles Dickson, Technical Examiner
Margaret Allen, Technical Examiner

REVIEWED BY:

DATE CIRCULATED:

October 25, 1995

STATUS:

Protested

STATEMENT OF THE CASE

Arrington CJM, Inc. seeks an exception to Statewide Rule 37 to complete its West Turkey Track Lease Well No. 31. The proposed well would be located 722' from the nearest well on the subject lease. Field rules for the Arrington, West (Hunton) Field require 1200' between well spacing. The application is protested by Merex Resources, Inc., an offsetting operator to the east.

DISCUSSION OF THE EVIDENCE

Arrington CJM, Inc. has filed an application seeking an exception to Statewide Rule 37 and permission to complete the already drilled West Turkey Track Well No. 31 in the Arrington, West (Hunton) Field. Well No. 31 was drilled to test deeper fields which did not require a Rule 37 exception. Field rules for the Arrington, West (Hunton) Field require that wells be at least 1200' from existing wells. The subject well is located 2482 feet FEL and 4094 feet FSL of the lease which places the well 772 feet from the West Turkey Track Well No. 10.

The Arrington, West (Hunton) Field has a total of nine wells, eight operated by the applicant and one operated by the protestant. The applicant divides the Hunton reservoir into upper, middle and lower sections. The upper section is considered to be mainly dolomite, the middle section consists of dolomite and limestone, while the bottom section is mostly limestone. A structure map of the field indicates that the reservoir is well-defined by drilling and is bounded by an oil water contact.

Seven of the eight wells operated by the applicant in the Arrington, West (Hunton) Field have been on production for at least four years, however the West Turkey Track Well No. 29 was drilled and completed in May of 1995. According to the applicant, the log for this well shows approximately the same water saturations as the average water saturations over the net pay in the older field wells. This indicates to Arrington that, despite the removal of some 800,000 BO and 9,000,000 barrels of water from the Hunton, the original oil/water contact has not moved up structure appreciably. The applicant concluded that the field contains undrained areas between relatively closely spaced wells.

At the time of the hearing there were seven pumping wells on the West Turkey Track lease, producing at 98% water cut. The reported discovery reservoir pressure of the Arrington, West (Hunton) was 2854 psi. The current calculated bottom-hole reservoir pressure based on wells perforated only in the middle and lower Hunton, is between 2265 psi and 2649 psi. Apparently the upper Hunton is pressure-separated from the rest of the productive Hunton as the only well completed solely in the upper Hunton indicates a lower current reservoir pressure of 1581 psi. The applicant concluded that the near original reservoir pressure in the lower and middle Hunton is due to a water drive and the reduced pressure in upper Hunton is due to the water drive in this part of the formation being limited or partial.

By reviewing the production curve for the West Turkey Track lease and using an economic limit of 36 BOPD and a 65% decline rate, the applicant estimated that an additional 144,000 barrels of oil can be produced from the existing 7 producing wells. As the current cumulative production is 872,000 BO, the estimated ultimate recovery for the lease is therefor 1,016,000 BO. The applicant assumed that most of the field production has come from the middle and lower Hunton intervals and calculated that the estimated ultimate recovery per zone was 85,000 barrels. Thus a well which encountered pay in both the middle and lower Hunton, could be expected to recover 170,000 barrels of oil.

Volumetric calculations of the reserves on Arrington's acreage in the middle and lower Hunton interval indicate to the applicant that there were 5,550,000 BO originally in place (2,130,000 BO in the middle and 3,420,000 BO in the lower Hunton). By assuming a recovery factor of 40% the applicant calculated that the Arrington acreage should produce 2,220,00 BO, or 1,035,000 BO more than the ultimate recovery predicted for the existing wells with the addition of reserves from a regular location near West Turkey Tract Well No. 3. Even if a recovery factor of only 30% was used, 479,000 BO would not be recovered by existing wells. According to the applicant six additional wells will be required to produce the calculated 1,035,000 barrels of recoverable oil which will not be produced by existing wells.

The applicant then determined that the upper Hunton could contribute an additional 50,000 BO per well. The applicant indicated that 500,000 barrels would be the total production from the upper Hunton from three sources: existing upper Hunton wells; upper Hunton which is behind pipe in existing unperforated wells; and any upper Hunton production from proposed wells at other regular locations (near well No. 3 and near well No. 17). If the recovery factor in the lower and middle Hunton is assumed to be 40% and the recovery factor in the upper Hunton is assumed to be 20%, there are 1,081,000 barrels of recoverable oil left on the applicant's lease. These barrels of recoverable oil do not include future reserves which can be produced by existing wells nor reserves which could be recovered by wells at other regular locations.

According to the applicant, Well No. 29, which produced at an initial rate of 612 BOPD and 4596 BWPD, proves that incremental reserves will be produced by this well and that additional wells are needed. The stable oil/water contact determined by the drilling of the recent Well No. 29, indicates that water has not uniformly invaded this reservoir despite the high water cuts in producing wells. The applicant theorized that the high water cuts in the older wells are due to water being coned into the existing wells from fractures. The water cones around existing wells leave or bypass oil that is between existing wells and that would be unrecoverable without additional wells.

When the subject well, No. 31, was drilled in May of 1995, the log showed high oil saturations in the middle and lower Hunton. This indicates to the applicant that offset Well Nos. 7 and 11 have not drained or swept the area around Well No. 31. The applicant explains the undrained area as being due to water being coned around Well Nos. 7 and 11 and preventing some of the oil between the wells from migrating to either producing well.

Arrington contended that the proposed exception should be granted to prevent waste, but after acknowledging that no unusual condition existed to support the proposed location, and that no drainage was occurring, Arrington argued that this application should be granted to prevent confiscation, that is, to allow it recover its fair share of hydrocarbons underling its tract.

Merex studied the geology of the field and produced a net pay isopach map of the entire Hunton reservoir. This net pay isopach was based on a porosity cut-off of 10% and an maximum water saturation of 70%. The isopach map was used to calculate that 1,918,000 barrels of oil originally occupied the volume of the reservoir. The protestant then used a 15% residual oil saturation to calculate that originally recoverable oil from the entire reservoir was 1,198,000 BO.

Merex estimates the remaining recoverable oil from existing wells on the Arrington CJM lease and on its own lease as 309,289 and 71,372 BO respectively by using an advanced decline curve analysis. When the protestant's estimated remaining reserves are added to the cumulative production the ultimate recovery the ultimate recovery is predicted to be 1,270,000 BO. Merex believes that the existing wells will produce all of the recoverable oil and that allowing Well No. 31 to be produced as an exception to SWR 37 will allow its acreage to be drained.

Merex pointed out that the applicant has the opportunity to test its theory that there is significant unswept oil between existing wells by shutting in the existing well which is too close to Well No. 31. The applicant could then produce Well No. 31 to determine whether it would yield incremental reserves. The protestant also pointed out that although Well No. 31 is near the top of the structure, the applicant had admitted that structural position does not make any difference in its unswept oil area theory.

When Well No. 29 was placed on production, lease totals increased from 11,646 BO for the month prior to production to 18,098 BO for the month of production. However, the next month production declined to 10,421 BO and total production on a lease basis is now on the same decline line, as it was on prior to the production of Well No. 29. This indicates to the protestant that Well No. 29 did not encounter any incremental reserves and no infill wells are needed.

EXAMINERS' OPINION

It is the examiners' opinion that the proposed exception to Statewide Rule 37 should be denied. Arrington admits that there are still regular locations that have not been drilled argues that even once the regular locations are drilled, it will still need several irregular locations to recover the remaining reserves under its tract. Arrington argues that infill wells are needed at irregular locations because water coning has kept oil located between wells from migrating to existing wells.

These options aside, Arrington has not shown that infill reserves really exist. Well No. 29, drilled in May, 1995, should have tested this theory of trapped oil, and yet its production has shown no increase of incremental reserves. Had this well shown a marked increase in production, this application would have been more plausible.

Arrington initially argued that this case was based on waste because it was trying to recover remaining oil that would otherwise go unrecovered from its lease. When Arrington conceded that there is no unusual condition to support a waste argument (since coning occurs around each well throughout the tract), it fell back to a confiscation argument. The examiners believe that based on the well control provided by Well No. 29, the data does not show that additional wells are needed to recover Arrington's fair share of remaining hydrocarbons underlying its tract.

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

FINDINGS OF FACT

1. At least ten days notice was given to all designated operators, all lessees of record for tracts with no designated operator, and all owners of record of unleased mineral interests, for each adjacent tract and each tract nearer to the well than the prescribed minimum lease-line spacing distance.
2. An exception to Statewide Rule 37 is required because the proposed completion would be located 722' from the nearest well on the subject tract and field rules for the Arrington, West (Hunton) Field require a well to be located 1200 from the nearest well.
3. Field rules for the Arrington, West (Hunton) Field are:

467'/1200'/ 80 density/ 40 acres tolerance.
4. The Arrington, West (Hunton) Field is well defined by production, and most of the production results from the underlying mobile oil/water contact.
5. Arrington CJM, Inc. operates eight wells in the Arrington, West (Hunton) Field.
6. The subject well which was drilled and tested in deeper and shallower zones is presently shut-in.

7. There are no unusual conditions associated with the proposed location that are not associated with the entire field.
8. The Arrington West Turkey Tract Lease is not being drained by offset production.
9. Reperforation of existing wells and drilling two additional wells at regular locations on the Arrington tract will recover additional oil.
10. The evidence does not show that Arrington CJM, Inc. needs wells drilled at irregular locations between existing wells on the Arrington West Turkey Track lease to recover the remaining oil underneath its lease.
11. The initial production from Well No. 29, completed in May, 1995, between established wells, indicates that this well did not encounter any incremental reserves which might have remained unproduced due to water coning around existing wells.
 - a. Prior to commencing production from Well No. 29, the Arrington Turkey Tract Lease produced 11,646 BO for the month of April.
 - b. Well No. 29, initially produced at a rate of 612 BOPD and 4596 BWPD.
 - c. In its first month of production in May, 1995, the Arrington Turkey Tract Lease produced 18,098 BO but the June, 1995 production declined to 10,421 BO.
 - d. Lease production from the Arrington Turkey Tract lease is now on the same decline line as it was prior to producing Well No. 29.

CONCLUSIONS OF LAW

1. Proper notice was given to all persons legally entitled to notice of this hearing.
2. All things have been done or have occurred to give the Railroad Commission jurisdiction to decide this matter.
3. The applicant did not meet its burden of proof to show that the proposed well is necessary to prevent waste of hydrocarbons.
4. The applicant did not meet its burden of proof to show that the proposed well is necessary to afford the applicant an opportunity to recover its share of hydrocarbons underlying its tract.

RECOMMENDATION

The examiners recommend that the above findings and conclusions be adopted and this exception to Statewide Rule 37 be **DENIED**.

Respectfully submitted,

Barbara Epstein
Hearings Examiner

Margaret Allen
Technical Examiner

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