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\* KEY ISSUES: CONFISCATION \*  
\* Fair Share - current reserves \*  
\* Regular locations available \*  
\* \*  
\* FINAL ORDER: R37 EXCEPTION DENIED \*  
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**RULE 37 DOCKET NO. 0210263**

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**APPLICATION OF SONAT EXPLORATION COMPANY FOR AN EXCEPTION TO STATEWIDE RULE 37 TO DRILL ITS WELL NO. 2-7 ON THE ROY LEASE, IN THE REFOIL (3200 SAND) AND OZONA (CANYON SAND) FIELDS, CROCKETT COUNTY, TEXAS**

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**APPEARANCES:**

**REPRESENTING:**

**FOR APPLICANT:**

George Neale  
Jeff Gibbs  
Mike Burke  
Brent Hilliard

Sonat Exploration Company

**FOR PROTESTANT:**

Tim George  
Robert Berger  
Millis Oakes  
Milton Fry

Memorial Exploration

William Osborn

Harrison Interests

**PROCEDURAL HISTORY**

**DATE APPLICATION FILED:** October 13, 1995  
**NOTICE OF HEARING:** October 18, 1995  
**HEARING DATE:** January 5, 1996  
**TRANSCRIPT RECEIVED:** February 5, 1996  
**PFD CIRCULATION DATE:** May 3, 1996  
**HEARD BY:** Jeffrey T. Pender, Hearings Examiner  
Donna Chandler, Technical Examiner

### **STATEMENT OF THE CASE**

Sonat Exploration Company ("Sonat") is seeking an exception to Statewide Rule 37 to drill 239' from the lease line, its Well No. 2-7 on the 165.1 acre Roy Lease (see attached plat) in the Refoil (3200 Sand) and Ozona (Canyon Sand) Fields, Crockett County, Texas ("subject lease and well"). The Ozona (Canyon Sand) Field is Sonat's primary target. In the area of this application, the Canyon Sand reservoir consists of a series of en echelon sand bodies referred to as the "A", "B" and "C" units, each separated by at least 100 feet of impervious, non-reservoir rock. The Ozona (Canyon Sand) Field requires 660' lease-line and 933' between-well spacing on 320/40 acres. The secondary target, the Refoil (3200 Sand) Field, requires 467' lease-line and 1,000' between-well spacing on 40 acres. Sonat believes the application is necessary to prevent confiscation.

Memorial Exploration ("Memorial") and Harrison Interests ("Harrison") are protesting Sonat's application.

### **APPLICANT'S EVIDENCE AND POSITION**

#### "50 FEET NET PAY" AND "933 FEET INTER-WELL SPACING" CRITERIA

Mike Burke, a geologist for Sonat, testified that Sonat should drill its second well only where there is at least 50 feet of net pay and no closer than 933' to the nearest well. He created a net pay sand isopach map for the Ozona (Canyon sand) Field in the vicinity of the proposed well. In counting net pay, Mr. Burke used a density-porosity cutoff of greater than 10% and a gamma ray response less than 60 or 80%, depending on the vintage of the log run. The protestants did not have any major disputes with the methodology behind the construction of the net pay map.

Mr. Burke believes that to have a reasonable opportunity to recover its reserves, Sonat must drill above the 50 foot net pay contour. In support of his 50 net pay criterion, Mr. Burke testified that there is a direct relationship between net pay and cumulative production; basically, the thicker the net pay, the greater the cumulative production. He claims that generally, where there is net pay greater than 50 feet, the cumulative production will be in the one to two BCF range. Below 30 net feet, the wells only cum 0.5 BCF or less. Mr. Burke presented no study to support his theory. He did, however, point out that the Harrison Johnson No. 4, located about 1000' to the west of the proposed location, has produced only .334 BCF from 62' of net pay since 1978, an apparent exception to his theory. On redirect, Mr. Burke amended his theory by stating that Sonat could recover reserves comparable to those expected from the proposed well, from multiple wells drilled at regular locations on the western side of the tract.

Mr. Burke also believes that Sonat must stay at least 933' from any producing well to minimize the risk of interference. In support of this contention he testified that the Memorial Exploration Hunt-Miller No. 2, completed in August, 1995, recorded a bottomhole pressure of 1,250 psi in an area where virgin pressure should have been 2,500 psi. However, on cross examination, Mr. Gibbs, Sonat's petroleum engineer, admitted that he made no studies or calculations to support Mr. Burke's "933 feet" criterion. Ozona (Canyon Sand) Field rules require 933' between well spacing.

Mr. Burke also presented a map showing the location of nearby wells drilled to the Refoil (3200 Sand) Field. He indicated that there has not been a significant amount of production from this field and that Sonat viewed the zone as a "bail out" zone. No evidence as to remaining recoverable reserves in the Refoil (3200 Sand) Field was presented.

#### RESERVE ESTIMATES

Mr. Gibbs presented volumetric reserve estimates for the Roy Lease. He calculates the original recoverable gas in place to be about 3.5 BCF. Subtracting the EUR for the Roy Lease No. 1 (1.5 BCF) leaves about 2 BCF remaining recoverable of the original 3.5 BCF gas recoverable. Assuming that the proposed well will recover 1.75 BCF, Sonat will recover most of its remaining share of original recoverable reserves from the proposed well, according to Mr. Gibbs. On cross examination, however, Mr. Gibbs admitted that he does not have any demonstrable basis for his estimate of the reserves recoverable from the proposed well ("There was no exact science on that number. That is just a number I estimated."). On cross examination he also admitted that he does not know the amount of current recoverable gas in place and that, because of drainage, the original recoverable gas in place is not a valid estimate of the current recoverable gas in place. On redirect, following the lead of Sonat's counsel, Mr. Gibbs contradicted his prior testimony and testified that there was probably 2 BCF current remaining recoverable gas in place.

Though Mr. Gibbs testified that the proposed well would be economic, on cross examination, he admitted that he has done no economic studies and does not know how much production would be necessary to get a reasonable rate of return.

#### SITE PREPARATION/RESTORATION COSTS AT ALTERNATIVE LOCATIONS

Using the 50 foot net pay and 933' between-well criteria, Mr. Burke identified six possible locations for a second well in section 7. In later testimony, Mr Gibbs elaborated on the positive and negative aspects of each surface location concluding that the northeasternmost site was the most reasonable site.

Mr. Gibbs also presented cost estimates for the various alternative locations. The costs to drill a vertical well are estimated to be \$280,000 according to Mr. Gibbs. At the requested location (location 3 on Sonat Exhibit #7), site preparation and restoration costs are estimated to be \$15,000. At alternative location #5, next to the oak and cedar grove, site preparation is expected to cost \$52,800. Sonat does not believe it is possible to drill at sites 6, 2 or 1 for various reasons including pipeline easements, road right-of-ways and steep topography. No estimate of site costs was made for alternative location #4 because it is only 883' from the Roy No. 1 and therefore, does not meet Sonat's "933'" criterion.

#### **PROTESTANT'S EVIDENCE AND POSITION**

Protestants declined the opportunity to put on a direct case.

**EXAMINER'S OPINION**

The examiners do not believe that Sonat is entitled to an exception to Rule 37. To get an exception based on confiscation, an applicant must demonstrate that:

1. It cannot get its fair share from a regular location; and
2. The proposed location is reasonable.

Sonat has presented insufficient evidence as to the amount of hydrocarbons it is entitled to recover from the Roy Lease. Mr. Gibbs admits that his reserve estimates on Sonat Exhibit #6 are based on original recoverable reserves and are not estimates of current recoverable reserves. His attempt, on redirect, to supplement his testimony concerning current recoverable reserves was unsupported, contradicted his prior testimony and was therefore, not credible.

Sonat has also failed to refute the sufficiency of the regular locations on the tract. Sonat acknowledges that there are regular locations but failed to present convincing evidence that it could not get the remainder of its fair share, if any, from a well at a regular location. In fact, Sonat's geologist, Mr. Burke, admitted that Sonat could recover reserves at regular locations on the tract, comparable to what could be recovered at the proposed location.

Sonat's claim that the second well must be located at a location where at least 50 feet of net sand will be encountered is without support. Mr. Burke presented no studies verifying his hypothesis. In fact, two wells directly offsetting the proposed location, the Harrison-Johnson No. 4 and the Memorial Miller No. 1, strongly contradict Mr. Burke's unsupported proposition. Sonat also believes that the second well must be located 933' from any producing well. The fact that the Memorial Hunt-Miller No. 2 encountered pressures much lower than virgin pressures is only evidence that there is drainage; it is not evidence that 933' is a "safe" between-well distance. Mr. Gibbs, the applicant's engineer, admitted that he does not know the basis of Mr. Burke's "933" rule and made no quantitative drainage estimates of his own.

Because Sonat failed to prove its right to any additional reserves other than that which will be recovered by the existing well on the tract, or that can be recovered from regular locations, its application should fail.

**FINDINGS OF FACT**

1. Notice of hearing was given on November 17, 1995, to all designated operators, lessees of record of tracts that have no designated operator, and owners of record of unleased mineral interests for each adjacent tract and each tract nearer to the well than 467 feet.
2. Sonat Exploration Company ("Sonat") has applied on Form W-1 for a permit to drill 239 feet from the lease line, its Well No. 2 on the 165.1 acre Roy Lease in the Refoil (3200 Sand) and Ozona (Canyon Sand) Fields, Crockett County, Texas ("subject lease" and "subject well").
3. Field rules for the Ozona (Canyon Sand) Field require 660' lease-line and 933' between-well spacing on 320/40 acres. Field rules for the Refoil (3200 Sand) Field require 467' lease-line and 1,200' between-well spacing on 40 acres. There are regular locations on the subject lease in both fields.

4. The remaining recoverable reserves under the subject lease in the Ozona (Canyon Sand) and the Refoil (3200 Sand) Fields are unknown.
5. The reserves recoverable by a well at the proposed location are unknown.
6. The reserves recoverable at regular locations on the subject lease are unknown.

**CONCLUSIONS OF LAW**

1. Proper notice of hearing was timely issued by the Railroad Commission to appropriate persons legally entitled to notice.
2. All things necessary to the Commission attaining jurisdiction over the subject matter and the parties in this hearing have been performed
3. Sonat failed to carry its burden to show that without the applied-for drilling permit, it could not recover its fair share of hydrocarbons from under the subject lease.
4. Sonat is not entitled to an exception to Rule 37 at the applied-for location to prevent confiscation.

**RECOMMENDATION**

The examiner's recommend that the above findings and conclusions be adopted and that Sonat's application for an exception to Rule 37, be denied.

Respectfully submitted,

Jeffrey T. Pender  
Hearings Examiner

Donna Chandler  
Technical Examiner

JTP/bjw