

July 11, 2008

RULE 37/38 CASE NO. 0252782

APPLICATION OF CHESAPEAKE OPERATING, INC. FOR AN EXCEPTION TO STATEWIDE RULES 37 AND 38 TO DRILL THE BARKLEY LEASE, WELL NO. 3701, TEXAS HUGOTON FIELD, SHERMAN COUNTY, TEXAS.

APPEARANCES:

FOR APPLICANT:

Glenn Johnson, Attorney
Wayman Gore, Petroleum Engineer

APPLICANT:

Chesapeake Operating, Inc.
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FOR PROTESTANT:

John Soule, Attorney

PROTESTANT:

Rio Petroleum

PROPOSAL FOR DECISION

PROCEDURAL HISTORY

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| DATE APPLICATIONS FILED: | July 11, 2007 |
| DATE OF NOTICES OF HEARING: | September 12, 2007 |
| DATE OF HEARING: | October 19, 2007 |
| TRANSCRIPT RECEIVED: | October 30, 2007 |
| HEARD BY: | Marshall Enquist, Hearings Examiner Thomas H. Richter, Technical Examiner Donna Chandler, Technical Examiner |
| DATE PFD CIRCULATED: | July 11, 2008 |

STATEMENT OF THE CASE

This is the application of Chesapeake Operating, Inc. (“Chesapeake”) for an exception to Statewide Rules 37 and 38 to drill the Barkley Lease, Well No. 370-1 (“subject well”), on Section 370 in the Texas Hugoton Field, Sherman County, Texas. On the same section, the Bryan -B- Well No. 1 was drilled in 1947 approximately in the center of the section. Chesapeake wishes to drill the

new Barkley Well No. 370-1 at a location 1320 feet from the west line of the section and 1689 feet from the existing Bryan -B- Well No. 1 [see Attachment I]. The Texas Hugoton Field was discovered in June, 1945 and has 1250 foot leaseline spacing and 2500 foot between-well spacing on 640 acres. The applied-for well requires a Statewide Rule 37 between-well spacing exception and a Statewide Rule 38 density exception. Chesapeake's application is opposed by its offset to the west, Rio Petroleum ("Rio"), which operates wells on Section 369. A hearing was held on October 19, 2007. Chesapeake appeared and presented evidence. Rio appeared and cross-examined Chesapeake's expert witness.

DISCUSSION OF THE CASE

Chesapeake

The applied-for Barkley Well No. 370-1 will be the second well on the 640 acre Section 370 in Sherman County. Chesapeake argues that the well is necessary to prevent waste and confiscation. Chesapeake notes that Rio Petroleum, the operator of Section 369 to the west, has two wells on its lease, giving it an effective density of 320 acres per well.

Chesapeake has drilled or deepened a number of wells in the Texas Hugoton Field and has seen an increase in productivity and recoverable reserves on those units. Chesapeake anticipates the proposed Barkley Well No. 370-1 will recover an additional 0.5 BCF. In the area, Chesapeake operates wells on Sections 380, 381, 382, 383, 368, 370, 371, 347 and 348. Rio operates Section 369 (see Attachment II).

Twenty-two sections fall within a 2 mile radius of the applied-for well and 13 of those sections have second wells. Chesapeake offered its Exhibit 10 as a well density map, showing the total number of wells in each section that have ever produced out of the Hugoton. Only seven sections out of 22 in this area have wells that are still on 640 acres. Thirteen sections, or about 60%, have 320 acres or less. This indicates this is an area that the Commission has recognized in the past as needing second wells and 320 acre density.

An area structure map on top of the Chase Group of the Brown Dolomite indicates the structural updip direction is to the southwest. The better wells are higher on structure, to the west, south and southwest of Section 370, indicating a correlation between structural position and production. The applied-for well is in a more favorable location as it is updip of the existing Bryan -B- Well No. 1. Section 369, operated by Rio and to the west of Section 370, has produced approximately double what Section 370 has produced: 36.7 BCF versus 18.1 BCF.

In 2002, Rio requested a second well, the Bryan Well No. 3, for its Section 369, citing the need for the well in order to capture 3.2 BCF that would otherwise go unrecovered. The Commission granted Rio the second well. In the same year, 2002, Chesapeake applied for a Statewide Rule 38 exception for its proposed Calvird -A- Well No. 3 on Section 382 (the section immediately south of Section 370), citing the need for the well in order to capture 5.4 BCF that would otherwise go unrecovered. The Commission granted Chesapeake the second well. Both

applications had calculations of the original gas-in-place, recoverable gas-in-place, EUR of existing wells and estimated recoverable reserves not captured by existing wells. Chesapeake asserts that its current application is presented on the same basis as the previously granted Rio and Chesapeake applications.

Chesapeake's Exhibit 11 is a remaining recoverable reserve tabulation. It shows the cumulative production, remaining gas and EUR for four wells: the Bryan -B- Well No. 1 (operated by Chesapeake on Section 370) and the Bryan -A- Well No. 1, Bryan Well No. 2 and Bryan Well No. 3 (operated by Rio on Section 369). The table indicates that the Chesapeake well, the Bryan -B- Well No. 1, has a cumulative production of 18.13 BCF, remaining recoverable gas of 0.473 BCF and an EUR of 18.6 BCF.

Chesapeake's Exhibit No. 13 is a gas recovery analysis (see Attachment III). Calculating the recoverable gas on Section 370, Chesapeake estimates 340 feet of thickness in the Brown Dolomite, 12 per cent porosity and 25 per cent water saturation. This yields an original gas-in-place of 31.2 BCF. Multiplied by a recovery factor of 95%, the original recoverable gas-in-place was 29.6 BCF. Because the existing well will eventually recover 18.6 BCF, Chesapeake's exhibit shows remaining recoverable reserves of 11 BCF in Section 370. Chesapeake claims this is justification for the applied-for well, the proposed Barkley Well No. 370-1.

However, Chesapeake also admitted that the recovery of an additional 11 BCF would have occurred only under original conditions. The bottomhole pressure in the Hugoton Field is currently very low. It is unlikely that 11 BCF remains under the section given the drainage that has occurred.

- A. (Wayman Gore for Chesapeake)So this leaves 11 BCF of recoverable reserves under original conditions that will not be recovered. And I think this would be the justification or showing the need for the second well, the proposed Barkley 370 No. 1 on this section. And this is similar to again the Rio application for its Bryan No. 3 well. And our very next exhibit will be a similar application that Chesapeake filed and had approved by the Commission for their Calvird "A" No. 3 well.
- Q. (Glenn Johnson for Chesapeake) Are you saying the proposed well will recover 11 BCF?
- A. No. The 11 is under original conditions. We know that the bottomhole pressure in the Hugoton Field is very low. So there is – unlikely there is to date 11 BCF of recoverable reserves remaining.....

(Transcript, Vol. I, p. 23, lines 10-25) Chesapeake argues that the applied-for well is necessary to recover any remaining reserves and to protect against future drainage.

Chesapeake sums up its case by stating that (1) the existing Bryan -B- Well No. 1 on Section 370 will not recover the original recoverable reserves in place beneath the tract, (2) the proposed location of the Barkley Well No. 1 is in a structurally favorable position, (3) Section 370 is at a competitive disadvantage compared to the Rio Section 369, (4) Rio was granted a Statewide Rule 38 exception for a second well on its section on the same basis as Chesapeake is requesting, (5) the RRC has granted numerous Rule 38 exceptions in this area of the Texas Hugoton Field, (6) 60% of

the sections within a 2-mile radius have increased density and (7) the applied-for Barkley 370 Well No. 1 is necessary to prevent waste and protect correlative rights.

Chesapeake is of the opinion that the proposed well will recover a substantial amount of gas, possibly as much as 0.5 BCF, based on the results that Chesapeake has observed in the drilling or deepening of other wells in this area, second wells and Rule 38 exception wells on these sections. If the currently recoverable reserves under the tract could be recovered by other wells off-lease, the proposed well would be necessary to protect Section 370 from drainage.

Rio Petroleum

Counsel for Rio Petroleum did not present any Rio-sponsored witnesses, but did cross-examine Chesapeake's expert witness. Through cross, Rio confirmed that structure does have an impact on the amount of gas recovered in this area and that the better wells are generally updip. This is possibly due to better reservoir updip with more reserves, in turn suggesting that the downdip tracts have fewer recoverable reserves than the updip tracts. Rio also elicited the opinion from Chesapeake that the geological reservoir characteristics under Section 370 are not significantly different from the surrounding sections. Chesapeake relied only on differences in production to infer differences in reservoir quality or permeability. Chesapeake did not examine reservoir thickness or average porosities.

- Q. (John Soule for Rio) Do you – The geology reservoir characteristics, would you say that those that exist under Section 370, the subject section, are significantly different from the surrounding sections in any way?
- A. (Wayman Gore for Chesapeake) Well, the only basis that I would have would be just comparing production. I haven't looked at thicknesses or average porosities. The production would suggest that there would be some differences.

(Transcript, Vol. I, p. 39, lines 11-19).

Through cross, Rio established that the Calvird -A- Well No. 2 has never produced, yet it is shown on the Chesapeake maps as a producing well. Of the three wells on the Rio tract, Section 369, no more than two ever produced at the same time (the Bryan -A- Well No. 1 ceased production in 1988.) Rio also elicited testimony that Chesapeake's well density maps just add up the total number of wells on each section that ever produced, regardless of the time period. This means that many of the sections that Chesapeake represents as having 2 wells and consequent effective densities of 320 acres actually merely had replacement wells drilled, such that those tracts never had two wells producing at the same time. The actual well density on those tracts is, and has always been, 640 acres. Rio showed this was the case for Sections 337, 345 and 349. If Chesapeake's maps reflected current density of development, showing two or more wells producing on a section at the same time, it would arrive at a percentage less than the 60% of sections in a 2 mile radius asserted by Chesapeake.

Chesapeake's Exhibit 11 does not suggest that Section 370 has no more than 0.473 BCF of remaining recoverable reserves, only that the existing Chesapeake Bryan -B- Well No. 1 will only recover that much more. Chesapeake does not know where the reserves being recovered by the Rio wells come from. They could be produced from the section the well is on or draining offsetting acreage. Rio points out that its wells on Section 369 are unlikely to be draining Chesapeake's Section 370, because the Rio wells are on the west side of Section 369, far from Chesapeake's Section 370 which lies to the east. In fact, the Rio wells are 3500 plus feet from Section 370.

Although Chesapeake's Exhibit 13 indicated there are 11 BCF of currently recoverable reserves under Section 370, Chesapeake's expert witness admitted that there is not currently 11 BCF of recoverable gas in place under Section 370. The bottomhole pressure is only 10 to 20 psi, showing that the field is substantially depleted. Chesapeake admitted that it did not perform a calculation of currently recoverable reserves in place under Section 370.

- Q. (John Soule for Rio) Now if I understood your testimony about Exhibit 13, you are not suggesting that there are remaining to be produced from Section 370 11 BCF of gas?
- A. (Wayman Gore for Chesapeake) That is correct. The 11 would be under original conditions.
- Q. Okay. And you did indicate that the pressure – what is the current pressure in Section 370?
- A. I don't know specifically with regard to Section 370 but I think in general the pressure in the Hugoton Field is probably on the order of, you know, 10 to 20 pounds. It's substantially depleted.
- Q. And based on that current pressure, have you made a calculation of what would be the remaining recoverable reserves under Section 370 today?
- A. No.

(Transcript, Vol. I, p. 36, lines 24-25 and p. 37, lines 1-14)

Chesapeake estimates that the proposed well will recover approximately 0.5 BCF, but this estimate is not supported by any calculation of currently recoverable reserves. Asked by Rio which wells would drain that hypothetical half BCF if the applied-for location is not granted, Chesapeake answered that it would likely be the closest wells, the Calvird -A- Well No. 3 and the Blankenship -A- 3381, both operated by Chesapeake on adjoining sections.

- Q. (John Soule for Rio) Which wells, in your opinion, will recover that half a BCF if this well is not drilled and completed?
- A. (Wayman Gore for Rio) Well, I don't know that, you know, necessarily any well would. The two nearest wells would be the Calvird A-3 and the Blankenship A-330 – looks like 3-381, which would be the well in the section due south, Section 381 in the northwestern corner. Those would be the nearest wells. So while I haven't really done a drainage study of those wells, just due to close proximity that would be the first place I would look.

(Transcript, Vol. I, p. 42, lines 14-25)

EXAMINERS' OPINION

An owner of oil and gas is entitled to a reasonable opportunity to recover the reserves underlying his tract, and any denial of that opportunity amounts to confiscation. *Atlantic Refining Co. v. Railroad Commission*, 346 S.W.2d 801 (Tex. 1961); *Imperial American Resources Fund, Inc. v. Railroad Commission*, 557 S.W.2d 280 (Tex. 1977). An applicant seeking exceptions to Statewide Rules 37 and/or 38 based on prevention of confiscation must show that: (1) it is not feasible for the applicant to recover its fair share of minerals from regular locations; and (2) that the proposed irregular locations are reasonable.

Chesapeake emphasizes that its present application is made on the same basis as the prior applications for the Rio Bryan Well No. 3 and the Chesapeake Calvird -A- Well No. 3, and therefore this application should be approved just as the two prior applications were approved. The examiners hereby take Official Notice that the prior applications [Rio Bryan Well No. 3-- Rule 37/38 Case No. 0232619 and Chesapeake Calvird -A- Well No. 3 -- Oil & Gas Docket No. 10-0232588] were administrative approvals, that is, they were not protested. The present application is protested.

In addition, although the recoverable reserve calculation for the present application was prepared in the same manner as the recoverable reserve calculations for the Rio Bryan Well No. 3 and the Chesapeake Calvird -A- Well No. 3, and presented as Chesapeake Exhibit No. 13, Chesapeake immediately disavowed the accuracy of the calculation. Chesapeake may not rely on a calculation which it admits is meaningless and irrelevant.

Chesapeake calculated the EUR of the existing Bryan -B- Well No.1 of 18.6 BCF and subtracted this from a calculation of the original recoverable gas. This resulted in a claim of 11 BCF of remaining recoverable reserves beneath Section 370. However, Chesapeake stated that this calculation would only be correct under original conditions. It also assumes no drainage by any offsetting well. Original conditions have long passed in this field. The Texas Hugoton Field was discovered in 1945 and has steadily produced since. Current bottomhole pressures are only 10 to 20 psi, indicating substantial depletion. Chesapeake did not calculate the remaining recoverable reserves currently in place beneath Section 370 or show that the existing well can not recover those reserves. Chesapeake failed to prove its need for the applied-for well based on prevention of confiscation.

To establish entitlement to an exception to Statewide Rule 37 to prevent waste, an applicant must demonstrate that: (1) unusual conditions, different from conditions in adjacent parts of the field, exist on the tract for which the exception is sought; and (2) as a result of these conditions, a substantial volume of hydrocarbons will be recovered by the well for which a permit is sought that would not be recovered by any existing well or by additional wells drilled at regular locations.

Chesapeake did not demonstrate the presence of any unusual condition on Section 370. Chesapeake did note some variability in production from section to section but attributed this to structural position. Chesapeake did not consider the effect of formation thickness or average porosities.

Chesapeake did not show that a substantial quantity of hydrocarbons would be recovered by the applied-for well that could not be recovered by the existing well. Chesapeake failed to offer any

credible calculation of currently recoverable reserves beneath Section 370. Chesapeake's own evidence indicated EURs for wells on surrounding sections of 16, 18 and 19 BCF. The estimated EUR of 18.6 BCF for the existing Bryan Well No. 1 on Section 370 falls within that range. To the east and north, recoveries are lower, while to the west and south recoveries are higher.

Chesapeake admits that if there are any remaining recoverable reserves on Section 370 that would not be recovered by the existing well, those reserves would most likely be recovered by wells to the south of Section 370, wells on Sections 381 and 382 operated by Chesapeake. Therefore, Chesapeake failed to show that an exception is necessary to prevent waste.

Based on the record in this case, the examiners recommend adoption of the following Findings of Fact and Conclusions of Law.

FINDINGS OF FACT

1. At least ten (10) days notice was provided to all persons affected by this application.
2. Chesapeake Operating, Inc. ("Chesapeake") requests exceptions to Statewide Rules 37 and 38 to drill the Barkley Well No. 370-1 in the Texas Hugoton Field, Section 370, Bk. 1T, T&NO RR Co/Cummins, W Survey, A-1270, in Sherman County.
 - a. A Statewide Rule 37 between-well spacing exception in the Texas Hugoton Field is requested for the proposed well. The applied-for location is 1689 feet from the existing Bryan -B- Well No. 1 on Section 370.
 - b. A Statewide Rule 38 density exception is requested in the Texas Hugoton Field for the proposed well. A second well on the 640 acre Section 370 would result in 320 acre density.
3. The Chesapeake application is opposed by Rio Petroleum, owner of the minerals in Section 369, the offsetting section to the west.
4. The Texas Hugoton Field was discovered in 1945 and is subject to statewide rules providing for 1250' lease line spacing, and 2500' between-well spacing on 640 acre proration units.
5. The existing Bryan -B- Well No. 1 on Section 370 has a cumulative production of 18.13 BCF, and is expected to recover an additional 0.473 BCF for an EUR of 18.6 BCF.
6. Chesapeake's Gas Recovery Analysis for the Texas Hugoton Field on Section 370 indicates 31.2 BCF Original Gas-In-Place, 29.6 BCF of Original Recoverable Gas-In-Place (95% recovery factor), and an EUR for the existing Bryan -B- Well No. 1 of 18.6 BCF.
7. Chesapeake did not demonstrate that a second well is necessary to recover its fair share of reserves beneath Section 370.
 - a. Current bottomhole pressures in the Texas Hugoton are 10 to 20 psi.

- b. The Texas Hugoton is substantially depleted in this area.
 - c. Chesapeake admits that there are not 11 BCF of currently recoverable reserves in place beneath Section 370 in the Texas Hugoton Field.
 - d. Chesapeake asserts that the applied-for well will recover an additional 0.5 BCF of gas from Section 370 but does not offer any calculation to support this.
 - e. Chesapeake has not calculated the currently remaining recoverable reserves in place beneath Section 370 in the Texas Hugoton Field.
8. In the area of the applied-for well, the updip wells which are to the west, southwest and south, have better production.
- a. Chesapeake stated the updip sections may have better reservoir quality and more reserves.
 - b. Chesapeake relied on differences in production to infer differences in reservoir quality and permeability.
 - c. Chesapeake did not examine reservoir thickness or average porosities on other sections.
9. Chesapeake did not establish the existence of an unusual condition under Section 370 in the Texas Hugoton Field.
10. Chesapeake admitted that remaining recoverable reserves on Section 370 in the Texas Hugoton Field, if any, would probably be drained by existing Chesapeake-operated wells to the south of the applied-for location.
11. Chesapeake did not demonstrate that a second well is necessary to prevent waste.

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. Chesapeake Operating, Inc. did not prove that the granting of a Statewide Rule 37 between-well spacing exception to drill its Barkley Well No. 370-1, Texas Hugoton Field, Sherman County, Texas, is necessary to prevent waste or to prevent confiscation and protect correlative rights.

4. Chesapeake Operating, Inc. did not prove that the granting of a Statewide Rule 38 density exception to drill its Barkley Well No. 370-1, Texas Hugoton Field, Sherman County, Texas, is necessary to prevent waste or to prevent confiscation and protect correlative rights.

RECOMMENDATION

The examiner recommends that the application of Chesapeake Operating, Inc. for exceptions to Statewide Rules 37 and 38 to drill its Barkley Lease, Well No. 370-1 in the Texas Hugoton Field, Sherman County, Texas, be denied.

Respectfully submitted,

Marshall Enquist
Hearings Examiner

Donna Chandler
Technical Examiner