September 27, 1995

OIL AND GAS DOCKET NO. 03-0209739

THE APPLICATION OF CHESAPEAKE OPERATING, INC. TO CONSIDER A NEW FIELD DESIGNATION AND TEMPORARY FIELD RULES FOR THE (PROPOSED) NAVASOTA RIVER (CRETACEOUS LWR) FIELD, GRIMES COUNTY, TEXAS

Heard by: Margaret Allen, Technical Hearings Examiner

Procedural History

Application received: August 16, 1995
Hearing held: September 8, 1995

Appearances

	Representing
Ana Maria Marsland	
Ed Gallegos	
R. Duane Heckelsberg	

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Chesapeake Operating is seeking to have its Perry Well No. 1-H designated as the discovery well for a new field to be known as the Navasota River (Cretaceous Lwr), and to adopt the following temporary field rules:

1. Designated Interval from 13,472 feet to 13,709 feet as shown on the log for the Viola Production, Inc., L.R. Fuqua Well No. 1;

2. 467'-1200' well spacing;

3. 160-acre base units with 80-acre optional units;

   For the purpose of allocating allowable gas production, acreage may be assigned to each Horizontal Drainhole Well up to the acreage determined by

the following formula. (In this formula, L is the Horizontal Displacement of the well in feet, and A is acreage assignable.)

$$A - [(L \times 0.11488) + 160] \times 1.5$$

Provided, however, that no such calculation shall be made unless L is at least 150 feet, and provided further that the result shall be rounded upward to the next number of acres evenly divisible by 40.

The maximum diagonal for each proration unit containing the Horizontal Drainhole Well shall not exceed the greater of the maximum diagonal allowed for a vertical well with the same acreage assigned or the number of feet determined by the following formula (rounded to the nearest 100 feet):

Maximum diagonal - $475.933 \sqrt{A}$, but not less than 2,000 feet plus the Horizontal drainhole Displacement, where A = the acres actually assigned to the proration unit.

4. Allocation based 95% on acreage and 5% on deliverability;

DISCUSSION OF THE EVIDENCE

Chesapeake drilled and completed its Perry Well No. 1-H in June of 1995 with an initial deliverability of 5413 MCF/D. The open horizontal wellbore is from 12,789 to 16,187' (measured depth) in the Buda and Georgetown Formations. The overlying Austin Chalk is productive in the Giddings (Austin Chalk-Gas) Field and the operator is seeking the same rules as in the Giddings (Austin Chalk-Gas) Field. There are only four penetrations of the Buda and Georgetown within a 2½ mile radius, none of them productive, and the operator is hoping to deepen some of the Austin Chalk wellbores in the future to tap the Buda and Georgetown. Virgin pressure of 6700 psi was encountered in the Perry No. 1-H.

The Buda/Georgetown produces from vertically fractured limestone as does the Austin Chalk, and horizontal wellbores have a much greater chance of encountering more fractures than vertical wells. The applicant drilled a vertical well first which encountered the top of the Buda at 12,653 feet and the top of the Georgetown at 12,706 feet. The log depth of the vertical interval (12,742 feet) did not reach the base of the Georgetown even though all of the Georgetown is thought to be productive. Because the log of this well does not cover all of the production interval, the applicant asked that the Viola Production, Inc. L.R. Fuqua No. 1 be used to indicate the full correlative interval even though this well is outside the field.

The logged interval of the discovery well indicates about 30' of fractured limestone in the Buda and about 30' of productive limestone in the Georgetown. The two limestone intervals are separated by 2 to 3 feet of shaly section but the fractures probably extend

through the shaly limestone and effectively cause the Buda and Georgetown to form one reservoir.

The cumulative production of the Perry No 1-H after 51 days is 283 MMCF and 44,000 BW with no oil. Water production has dropped from 1500 barrels per day to 500 barrels per day. It is difficult to determine the ultimate production from a horizontal well after less than two months and the applicant has used production from two similar wells to estimate ultimate production for the Perry No. 1-H. The Upchurch No. 2-H is a horizontal well in the Iola (Georgetown) Field which produces from both the Buda and Georgetown Formations, and the Danby Trust No. 1-H is a horizontal well in the overlying Giddings (Austin Chalk) Field. Both of these fields have density rules specifying 160 acre gas proration units with 80 acre optional units.

The estimated ultimate recovery of the Upchurch No. 2-H is 150,000 barrels of liquid hydrocarbons and 385,000 MCF and of the Danby Trust No. 1-H is 400,000 barrels of liquid hydrocarbons and 2,500,000 MCF. The early production of these wells was compared to the early production of the Perry No. 1-H and 2 BCF was estimated as the ultimate recovery for the Well No. 1-H after accounting for differences in net pay and gas gravity.

FINDINGS OF FACT

1. Notice of this hearing was issued to all operators in the field and all offset operators of the discovery tract on August 25, 1995.

2. Chesapeake completed its Perry No. 1-H in the Buda and Georgetown on June 22, 1995, with an initial deliverability of 5,413 MCF/D.

3. The Perry No. 1-H encountered virgin pressure of 6700 psi and there are only four other penetrations, none productive, within 2½ miles of the discovery well.

4. The Perry No. 1-H encountered the top of the Buda at 12,653' but the log of the vertical open hole in this well does not indicate the base of the Georgetown.

5. The log of a nearby non-productive well, the Viola-Fuqua No. 1 encountered the top of the Buda Formation at 13,472' and the base of the production interval in the Perry No. 1-H at a correlative depth of 13,709'.

6. The Perry No. 1-H has produced 283,000 MCF in its first 51 days but the ultimate recovery of horizontal wells is difficult to predict after such a short time.

7. Based on comparisons with wells that produce from similar reservoirs in other fields with base 160 acre proration units and 80 acre optional units, the Perry No. 1-H should ultimately recover 2,000,000 MCF of gas in order to drain its horizontal proration unit.

8. The proposed Navasota River (Cretaceous Lwr) Field underlies the Giddings (Austin Chalk-Gas) Field and eventually some of the wellbores in one field may be recompleted to the other.

9. The same rules are proposed for vertical and horizontal wells in the Navasota River (Cretaceous Lwr) Field as are in effect for the Giddings (Austin Chalk) Field.

10. The Buda and Georgetown Formations are productive from vertical fractures which cross the 2 to 3 feet of shaly section in between.

CONCLUSIONS OF LAW

1. Proper notice was issued as required by all applicable codes and regulatory statutes.

2. All things have occurred and been accomplished to give the Commission jurisdiction in this matter.

3. Granting the requested field rules on a temporary basis will prevent waste, protect correlative rights and promote an orderly development of the reservoir.

EXAMINER'S RECOMMENDATION

Based on the above findings and conclusions, the examiner recommends that most of the requested field rules be adopted. A two-factor allocation formula is not necessary since the field produces from a single source of supply and the allocation formula should be based entirely on acreage.

Respectfully submitted,

Margaret Allen
Technical Hearings Examiner

Date of Commission Action_____