

July 19, 2000

**OIL AND GAS DOCKET NO. 05-0225162**

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**THE APPLICATION OF VALENCE OPERATING COMPANY TO AMEND FIELD RULES  
IN THE NAN-SU-GAIL (COTTON VALLEY) FIELD, FREESTONE COUNTY, TEXAS**

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**Heard by:** Margaret Allen, Technical Hearings Examiner

**Procedural history**

Application received: June 14, 2000  
Hearing held: July 19, 2000

**Appearances**

David Gross  
David L. Willis

Representing  
Valence Operating Company

**EXAMINER'S REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

The existing rules for the Nan-Su-Gail (Cotton Valley) Field were adopted October 31, 1983, under Docket No. 5-80,424, as amended, and are summarized as follows:

1. Well spacing of 933-1867 feet;
2. 640 acre gas proration units, with 320-acre optional units; and
3. Allocation based on acreage.

Valence seeks to amend the well spacing to 660-1320 feet and to adopt 160-acre optional gas units. The examiner suggested that a designated interval rule be added and Valence proposed the following Rule 1:

1. Designated interval between 10,450 feet and 12,660 feet as shown on the log of the Valence (originally TXO Production Company) Eppes "B" Lease Well No. 1.

This proposed designated interval for the Nan-Su-Gail (Cotton Valley) Field will require a two-factor allocation formula for statutory reasons. The examiner recommends that allocation be based 95% on acreage and 5% per well, but that the allocation formula remain suspended.

### **DISCUSSION OF THE EVIDENCE**

The Nan-Su-Gail (Cotton Valley) Field was discovered in 1981 and has 39 producing wells. Valence believes that infill drilling will be necessary to fully develop at least its part of the field. The ultimate optional density may need to be less than 160 acres, but stepping down the optional unit size gradually will allow operators to evaluate the success of the first infill wells before further drilling. According to Valence, Seagull Energy has drilled some Rule 38 exception wells (currently owned by Ocean Energy) in this field that were economically successful and some that were not. Other wells in this field are operated by Marathon Oil Company and Apache Corporation.

Valence operates seven wells and has obtained enough log information from other wells that it can estimate the drainage areas of eleven wells. The net pay, which was determined to be the number of feet with porosity over 8%, ranged from 30 to 115 feet. Typical average porosity, as determined in Apache Corporation's Folk Well No. 1, is 11.5% and typical water saturation is 17.66%. Based on the original reservoir pressure of 7500 psi and an assumed abandonment pressure of 2200 psi, the recovery factor will be 63%. According to Valence, volumetric calculations indicate 689 MCF of gas recoverable per acre-foot. Ultimate recoveries estimated from rate vs. cumulative production curves for the eleven study wells ranged from 400 MMCF to 2.8 BCF. Comparisons of the estimated ultimate recovery with volumetric calculations indicate that the eleven study wells will drain between 12 and 59 acres.

The Cotton Valley Formation extends from 10,450 to 12,660 feet in the log of the Valence Operating (formerly TXO Production Corporation) Eppes "B" Lease Well No. 1. This interval includes multiple reservoirs and a two-factor allocation is therefore necessary for statutory reasons. The current acreage allocation formula is suspended and changing to one based 95% on acreage and 5% per well will have little practical effect. Current spacing requires wells be 933 feet from lease lines and 1867 feet apart. Reducing the optional density will be facilitated by reducing minimum well spacing at the same time to 660 feet from lease lines and 1320 feet between wells.

### **FINDINGS OF FACT**

1. Notice of this hearing was given to all operators in the Nan-Su-Gail (Cotton Valley) Field on June 28, 2000.
2. The subject field was discovered in 1981 and has 39 wells, seven of them operated by the applicant.
3. Field rules for the Nan-Su-Gail (Cotton Valley) Field provide for 640 acre density with 320-acre optional units and 933-1867 foot well spacing.
4. Adding optional units of 160 acres to the current density rule is appropriate.
  - a. The estimated ultimate recovery from the eleven wells studied varied from 400

MMCF to 2.8 BCF.

- b. The calculated drainage areas of these wells ranged between 12 and 59 acres.
5. Only some of the recent Rule 38 exception wells on 160 acres were economically successful, indicating that 160 acres is more appropriate for optional density at the present time than for standard density.
6. The productive interval proposed for the Nan-Su-Gail (Cotton Valley) Field extends from 10,450 feet to 12,660 feet as shown on the log of the Valence Operating Company (formerly TXO Production Company) Eppes "B" Lease Well No. 1.
7. A two-factor allocation formula is necessary for statutory reasons and one based 95% on acreage and 5% per well is very close to the current allocation formula.
8. Amending the well spacing to 660-1320 feet will facilitate infill drilling.

#### **CONCLUSIONS OF LAW**

1. Proper notice was given as required by statute.
2. All things have been done or occurred to give the Railroad Commission jurisdiction to resolve this matter.
3. The recommend amendments to the field rules for the Nan-Su-Gail (Cotton Valley) Field will prevent waste, protect correlative rights within the field, satisfy statutory requirements, and provide for an orderly development of the reservoir.

#### **EXAMINER'S RECOMMENDATION**

Based on the above findings and conclusions, the examiner recommends that the existing rules for the Nan-Su-Gail (Cotton Valley) Field be amended to include the proposed designated interval, 160-acre optional units, 660-1320 foot spacing and a two-factor allocation formula.

Respectfully submitted,

Margaret Allen  
Technical Hearings Examiner

Date of Commission action: August 8, 2000.

Exhibits

1. Proration schedule
2. Map
3. Volumetric content
4. Log of Folk No. 1
5. Decline curves
6. Designated interval