

THE APPLICATION OF CHAPARRAL NATURAL RESOURCES, INC. TO CONSOLIDATE THE RHEINLANDER (AUSTIN CHALK) FIELD INTO THE FENTRESS (1750) FIELD AND TO AMEND FIELD RULES FOR THE FENTRESS (1750) FIELD, CALDWELL COUNTY, TEXAS

Heard by: Margaret Allen, Technical Hearings Examiner

Procedural history

Application received: May 10, 2006

Hearing held: June 5, 2006

Appearances

Philip Whitworth
Mike Peays

Representing
Chaparral Natural Resources, Inc.

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Chaparral Natural Resources, Inc. ("Chaparral") is seeking to have the Rheinlander (Austin Chalk) Field consolidated into the Fentress (1750) Field. The following field rules were adopted for the Fentress (1750) Field in Final Order No. 1-76,615, effective August 10, 1981, as amended:

1. 330'-933' well spacing;
2. 40 acre proration units with 20 acre optional units; and
3. acreage allocation based on the yardstick allowable of 74 BOPD.

Chaparral is proposing the following amended field rules:

1. Correlative interval from the top of the Austin Chalk at 1556' to the base of the Buda Formation at 1752' as shown on the log of the Rollert Co. F.C. Rheinlander Lease, Well No. 2;
2. 933'-1867' well spacing;
3. 160 acre oil proration units with a maximum diagonal of 4500' and tolerance acreage of 80 acres for the last well on a lease; and
4. allocation based on acreage with a top allowable of 74 BOPD.

DISCUSSION OF THE EVIDENCE

The Fentress (1750) Field produced from the Buda limestone after it was discovered in 1980. The Rheinlander (Austin Chalk) Field was discovered at the slightly shallower depth of 1615' in 1982. Only a few wells were ever completed in the Rheinlander Field. The Austin Chalk and Buda form a single reservoir that produced only in the immediate vicinity of a single fault. If a well encountered the fault where it cut the Buda, the well produced oil from the Buda and similarly where the fault cut the Austin Chalk, a well was completed in the chalk.

The original wells in both fields form a single line one well wide and 49 wells long, along a fault trending northeast/southwest. All of the original wells were plugged and abandoned. The only wells still producing are along a second fault over a mile to the northwest of the original wells. There are four active wells along this second fault, with a total potential of 11 BOPD.

Field rules for the Fentress (1750) Field were adopted in 1981, providing for 40 acre density and 467'-1200' well spacing with a top allowable of 74 BOPD based on acreage. When the rules were made permanent, 20 acre optional units were added and the spacing was changed to 330'-933'. Field rules for the Rheinlander (Austin Chalk) Field were first adopted in 1983, and now provide for 330'-933' well spacing and 40 acre density. Allowables in this field are also based on acreage, again with a top allowable of 74 BOPD.

Most of the wells produced between 10,000 and 50,000 barrels, with an average of 21,288 BO. The cumulative production was 1,043,000 barrels from wells along the first fault, and another 150,000 barrels from the second fault trend. The early wells produced at relatively high rates for shallow wells for just a few years then declined rapidly, most within a few months of each other. For most wells the most rapid decline occurred between July and November of 1984. Almost all of the wells were abandoned by 1991.

The Rheinlander Lease had five wells on it, the last of which was plugged in 1985. In April, 2006, Chaparral re-entered a well on this lease that was producing only a few barrels a day when abandoned. To Chaparral's surprise, this previously abandoned well is capable of producing 70 BOPD.

Chaparral believes that the early wells quickly produced the oil from the open fault and fractures directly connected to it. Over the last 20 years, the matrix and smaller fractures have fed in oil, partially recharging the reservoir. The original reservoir pressure was about 700 psi. Current pressure in Chaparral's recompleted well is 135 psi.

The fact that most of the early wells produced at high rates then declined rapidly at about the same time indicates the open fault/fracture system was in good communication. There was no need for the densely spaced wells allowed by the field rules, and these rules actually harmed ultimate recovery, according to Chaparral. Chaparral believes the Rheinlander and Fentress fields were overdrilled. Had development been slower, and wells farther apart, there would have been more time for the less permeable matrix rock to feed oil gradually to the fault/fracture system and wells could have produced longer.

Chaparral is requesting that the rules be amended to require wells to be 933' from lease lines and

1867' from other wells on the same lease. This results in a proration unit size of 160 acres, though drainage is linear not radial. Chaparral is also requesting that the top allowable remain 74 barrels per day to slow production and give the secondary porosity system time to drain.

The top of the Austin Chalk is at 1556' on the log of the discovery well for the Rheinlander (Austin Chalk) Field, the Rollert Company F.C. Rheinlander Lease Well No. 2. The base of the Austin Chalk/top of the Buda is about 1680' in this well, and the base of the Buda Formation is at 1752'.

FINDINGS OF FACT

1. Notice of this hearing was given to operators of all wells assigned to both fields to be consolidated on May 15, 2006.
2. The Rheinlander (Austin Chalk) Field and Fentress (1750) Field (which produces from the Buda Formation) form a single reservoir that is productive only in the immediate vicinity of a single fault.
3. All of the wells along the original fault have been plugged and abandoned, and the only wells still producing in the Fentress (1750) are along a second fault over a mile to the northwest of the original wells.
4. Chaparral Natural Resources, Inc. recompleted a well abandoned when producing only a few barrels a day and encountered rates of 70 BOPD.
5. Early wells quickly depleted the open fault/fracture system that had good communication, but over the last 20 years the matrix and smaller fractures have partially recharged the reservoir.
6. The existing field rules for the Fentress (1750) and Rheinlander (Austin Chalk) Fields resulted in overdrilling, preventing the recovery of all of the oil available.
 - a. The existing rules for both fields provide for 330'-933' well spacing and 40 acre proration units; with 20 acre optional units for the Fentress (1750) Field only.
 - b. The early wells produced at relatively high rates for shallow wells for just a few years then declined rapidly, most between July and November of 1984.
 - c. Almost all of the wells were abandoned by 1991, and all were plugged and abandoned before 2006.
 - d. The cumulative production was 1,043,000 barrels from wells along the first fault, and another 150,000 barrels from the second fault trend.
7. Well spacing of 933'-1867' with 160 acre density will slow redevelopment of the consolidated field and allow the recovery of additional oil.
8. The current allowable for both the Fentress (1750) and Rheinlander (Austin Chalk) Fields is 74 BOPD, based on the yardstick for 40 acres.
9. A top allowable of 74 barrels of oil per day for wells on 160 acres will slow production and give

the second porosity system time to drain.

10. The log of the Rollert Company F.C. Rheinlander Lease Well No. 2 shows the top of the Austin Chalk Formation at 1556' and the base of the Buda Formation at 1752'.

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. Consolidation of the Fentress (1750) Field and Rheinlander (Austin Chalk) Field will prevent waste and protect correlative rights, while encouraging conservation.
4. The amended rules requested for the Fentress (1750) Field will prevent waste, protect correlative rights within the field, and promote conservation.

EXAMINER'S RECOMMENDATION

Based on the above findings and conclusions, the examiner recommends the application of Chaparral Natural Resources, Inc. to consolidate the Rheinlander (Austin Chalk) Field into the Fentress (1750) Field be approved. The amended field rules proposed for the Fentress (1750) Field should be adopted, as per the attached order.

Respectfully submitted,

Margaret Allen
Technical Hearings Examiner