

OIL AND GAS DOCKET NO. 03-0225068

THE APPLICATION OF MITCHELL ENERGY CORPORATION FOR INCREASED NET GAS OIL RATIO AUTHORITY FOR ITS COLUMBUS FIELD UNIT, WELL NO. 1022, COLUMBUS FIELD, COLORADO COUNTY, TEXAS

Heard by: Margaret Allen, Technical Hearings Examiner

Procedural history

Application received: June 6, 2000

Hearing held: September 13, 2000

Appearances

Mark Stephenson

Duane Perego

Representing

Mitchell Energy Corporation

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Mitchell Energy is requesting that its Columbus Field Unit Well No. 1022, in the Columbus Field, be allowed to produce under increased net gas/oil ratio authority, with a daily gas limit of 500 MCF. Mitchell also requests that the overproduction for this well be canceled.

DISCUSSION OF THE EVIDENCE

The Columbus Field has been producing since 1944, and there are seven remaining oil wells. At least part of the producing section was approved for gas injection in August of 1957. Between 1957 and 1970, over 25 BCF of gas were injected into the two sandstone members that the subject well is producing from.

The Columbus Field Unit Well No. 1022 was drilled in 1991, by Oxy USA. In May of 1997, Oxy completed Well No. 1022 in a member of the Wilcox Formation known informally as the Lower 7-C Lower, with perforations between 8375 and 8384 feet. The well's initial potential was 3000 barrels of oil per month at a gas/oil ratio of 1100 cubic feet per barrel. Production became erratic early in 1998, as the oil production trended downward and the GOR increased. Oxy installed gas lift but this lift was discontinued when Mitchell took over operations later in 1998. In November of 1999, Mitchell added perforations between 8339 and 8346 feet, in the Upper 7-C member. The well's daily potential increased to 36 barrels of oil and 304 MCF (for a gas/oil ratio of 8444 cubic feet per barrel), along with 144 barrels of water.

Since 1997, Well No. 1022 has produced 22,000 barrels of oil and 97 MMCF of gas from the two sandstones in the 7-C. The current daily allowable in the Columbus Field is 113 barrels of oil and 226 MCF. The allowable of Well No. 1022 is penalized to 27 BOPD by to its high gas/oil ratio, and the well has accumulated 3200 MCF of overproduction.

The well was step-rate tested between August 9 and 29, 2000. On a 1-inch choke, the daily production averaged 16 barrels oil, with a gas/oil ratio of 21,500, and over 200 barrels of water. When the choke size was decreased to 20/64th inches, the gas/oil ratio did not change. The average daily gas and oil rates dropped slightly but not enough to comply with the well's allowable. When the choke size was decreased to 17/64th inches, the well began loading up. Daily production rates decreased to 5 barrels of oil, 91 barrels of water and 90 MCF, and the flowing tubing pressure dropped.

Choking back Well No. 1022 to stay within its allowable causes it to load with liquids. To eliminate loading, the well would have to be produced on gas lift, and restricting flow to stay within the gas allowable is difficult in a well with artificial gas lift. Increasing the daily gas limit will provide natural gas lift and delay the resumption of artificial gas lift. The well's recent gas production has been quite variable, ranging from 433 MCF/D in February of 2000 to 76 MCF/D during July. Mitchell is requesting a daily gas limit of 500 MCF to allow flexibility in producing what is essentially a salvage well.

Although only 15 days of shut-in would be needed to make up this well's overproduction, it would probably take a week or two to bring the well back to efficient operation after shut-in. There is only one active well in the subject field that is not on Mitchell's Columbus Field Unit and it is over 2000 feet from Well No. 1022. Requiring Well No. 1022 to make up this overproduction would not prevent waste or protect correlative rights.

FINDINGS OF FACT

1. Notice of this hearing was issued to operators of record in the Columbus Field on June 19, 2000.
2. The Columbus Field has produced since 1944, and has seven remaining oil wells.
3. Between 1957 and 1970, 25 BCF of gas was re-injected into the upper and lower 7-C members of the Wilcox Formation in the Columbus Field.
4. The Columbus Field Unit Well No. 1022 produced on gas lift from the lower 7-C member between 1997 and 1999.
5. Perforations were added in the lower 7-C in 1999 and the daily potential increased to 36 barrels of oil and 304 MCF (for a gas/oil ratio of 8444 cubic feet per barrel), along with 144 barrels of water.

6. Since 1997, Well No. 1022 has produced 22,000 barrels of oil and 97 MMCF of gas from the two sandstones in the 7-C.
7. A step-rate test indicated that the well loads with liquid when produced at a gas rate near the current daily limit of 226 MCF.
8. Producing the well with a higher daily gas limit provides natural gas lift and will delay the resumption of artificial gas lift.
9. Well No. 1022 has accumulated overproduction which should be canceled.
 - a. If the well were shut-in to make up overage, it would require some time before efficient operations could resume.
 - b. The current completion is essentially a salvage operation.
 - c. Producing at a reduced rate would require gas lift be resumed immediately to keep the well unloaded, though it is operationally difficult to choke back a well on gas lift.

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. Granting increased gas oil ratio authority will prevent waste and protect correlative rights.

EXAMINER'S RECOMMENDATION

Based on the above findings and conclusions, the examiner recommends that net gas/oil ratio authority, with a daily gas limit of 500 MCF, be approved for Mitchell's Columbus Field Unit Well No. 1022 in the Columbus Field. All overproduction for this well should also be canceled.

Respectfully submitted,

Margaret Allen
Technical Hearings Examiner

Date of Commission Action: October 10, 2000