

**OIL AND GAS DOCKET NO. 03-0227676**

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**THE APPLICATION OF EEX OPERATING, L.P. FOR INCREASED NET GAS OIL RATIO AUTHORITY FOR ITS PLOW REALTY LEASE, WELL NOS. 6, 7 AND 8, GOLDEN PLOW (YEGUA 250) FIELD, COLORADO COUNTY, TEXAS**

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

**Procedural history**

Application received: March 2, 2001

Hearing held: May 30, 2001

**Appearances**

Dale Miller

Representing

EEX Operating, L.P.

**EXAMINER'S REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

EEX Operating is requesting that its Plow Realty Lease Well Nos. 6, 7 and 8 in the Golden Plow (Yegua 250) Field, be allowed to produce under increased net gas/oil ratio authority, with a daily gas limit of 500 MCF. EEX also requests that the overproduction for these wells be canceled.

**DISCUSSION OF THE EVIDENCE**

All three wells in the Golden Plow (Yegua 250) Field were drilled in 1988. Well No. 8 is the highest on the small structure, encountering the top of the pay at 5296 feet. In January of 1989, gas injection was approved for the purpose of secondary recovery. Well No. 8 was converted to injection, cycling all of the gas produced from Well Nos. 6 and 7 back into the reservoir to maintain pressure. Well No. 6 developed mechanical problems in 1991 and was shut-in. At that time, its daily producing rate was only 3 BOPD and 276 MCF/D, with 250 barrels of water, even though it was on gas lift.

The original reservoir pressure was 2068 psi and current pressure is estimated at 1550 psi. Cumulative field production has been 994,000 BO, and almost all of the 3 BCF of produced gas has been reinjected. In the late 1990's, 3d seismic was shot across the top of the structure and a secondary gas cap identified. Water cut has increased from about 10% in 1990 to 80%, and EEX believes this indicates there is a partial water drive.

In January of 2001, the only producing well, No. 7, was tested at a rate of 68 BOPD, 1623

MCF/D and 263 BWP/D. On March 9, 2001, the injection well, No. 8, was shut-in and Well No. 7's production measured daily until May 15. At the start of the test, Well No. 7 produced as much as 1400 MCF/D, but during the test gas production declined. The oil produced per MCF also increased while Well No. 8 was shut-in for the test, indicating that gas re-injection is no longer increasing oil recovery.

After 35 days of testing, Well No. 7 was producing at rates of about 700 MCF and 110 barrels of oil per day. The well was then choked back to about 500 MCF/D, and the flowing tubing pressure stabilized just above line pressure. As the daily gas rate was reduced from 700 MCF to 500 MCF, the daily oil rate increased to 120 to 135 barrels and the water cut decreased slightly.

After 45 days of testing, Well No. 8 was re-opened but immediately loaded with fluid and would not produce. EEX expected this well to be capable of producing the gas that had been injected into it for many years. The applicant has attempted several times to correct this well's mechanical problems and is still hoping to be able to produce gas from the top of the structure.

The final order in Oil & Gas Docket No. 3-92,619 required that all gas produced be used on the lease or re-injected. As there was no gas injection during the test period, all of the gas produced during that time is overproduction. There is no point in requiring EEX to shut-in the field to make-up the gas overproduction. Gas cycling is no longer improving the field's ultimate oil recovery. All three wells in the field are on the same lease.

A daily gas rate of 500 MCF appears to be the most efficient rate, but EEX is asking that up to 600 MCF be allowed per day. This will allow the wells to be opened up occasionally to prevent loading. It will also allow the flexibility to increase production to match the line pressure as the reservoir pressure decreases further. EEX is requesting authority to produce up to 600 MCF/D from all three wells though Well Nos. 6 and 8 apparently have mechanical problems. Only Well No. 7 was tested and it is the lowest well on the structure. If either up-structure well can be returned to production, they should be able to produce at least 600 MCF/D without causing waste.

#### **FINDINGS OF FACT**

1. Notice of this hearing was issued to operators of record in the Golden Plow (Yegua 250) Field on May 8, 2001.
2. All three wells in the Golden Plow (Yegua 250) Field were drilled in 1988 and by 1989, the produced gas was being re-injected into Well No. 8, on top of the structure.
3. Cycling the 3 BCF of produced gas has kept the reservoir pressure relatively high and aided in the recovery of 994,000 BO.
4. A secondary gas cap has developed and the greatly increased water cut indicates there is a also partial water drive.

5. Gas re-injection is no longer useful for increasing oil recovery
  - a. In January of 2001, the only producing well, No. 7, was tested at a rate of 68 BOPD, 1623 MCF/D and 263 BWPD.
  - b. On March 9, 2001, the injection well, No. 8, was shut-in and Well No. 7's production measured daily until May 15.
  - c. At the start of the test, Well No. 7 produced as much as 1400 MCF/D, but during the test gas production and gas/oil ratio declined.
  - d. After 35 days of testing, Well No. 7 was producing at daily rates of about 700 MCF and 110 barrels of oil.
  - e. When the daily gas rate was reduced from 700 MCF to 500 MCF, the daily oil rate increased to 120 to 135 barrels and the water cut decreased slightly.
7. A daily gas limit of 600 MCF will help prevent liquid loading and allow flexibility to increase production to match the line pressure as reservoir pressure decreases further.
8. Both Well No. 6 and Well No. 8 have apparently mechanical problems but are structurally higher than Well No. 7 and could safely produce 600 MCF/D if those problems can be corrected.
9. Final order No. 03-71513 requires all gas be re-injected, but none of the gas producing during the test was re-injected and is considered overproduction.
  - a. Requiring Well No. 7 to make up overproduction would not improve the field's oil recovery.
  - b. The entire field is on one lease and cancellation of overproduction would not harm correlative rights.

#### 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. Ceasing gas cycling and allowing increased gas production 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 600 MCF, be approved for EEX Operating's Plow Realty Lease Well Nos. 6, 7 and 8 in the Golden Plow (Yegua 250) Field. All overproduction for this lease should also be canceled.

Respectfully submitted,

Margaret Allen  
Technical Hearings Examiner

Date of Commission Action: June 21, 2001