OIL AND GAS DOCKET NO. 09-0223363

THE APPLICATION OF LANE OPERATING COMPANY FOR INCREASED NET GAS OIL RATIO AUTHORITY FOR THE HARRIS LEASE WELL NO. 1, HARRIS-PRICE (CADDO) FIELD, CLAY COUNTY, TEXAS

Heard by: Margaret Allen, Technical Hearings Examiner

Procedural history

Application received: November 24, 1999
Hearing held: January 10, 2000

Appearances

	Representing
Sherry Brackeen	Lane Operating Company
William Osborn	

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Lane Operating is requesting increased net gas/oil ratio authority with a daily gas limit of 450 MCF for its Harris Lease, Well No. 1 in the Harris-Price (Caddo) Field, Clay County.

DISCUSSION OF THE EVIDENCE

The Harris-Price (Caddo) Field was discovered August 4, 1999, with the recompletion of Lane's Harris Well No. 1 to the Caddo Formation. The well initially produced only gas and was classified as a gas well. It began flowing oil during September of 1999 and was reclassified to oil on September 15. The initial potential of the well as an oil well was 146 BOPD, with a gas/oil ratio of 2972 cubic feet per barrel. The well's perforations are from 5656 to 5758 feet and include the entire Caddo Lime.

The porosity of the reservoir is 2.7% and the water saturation is 40%. The discovery well's initial production was from the gas cap, which was underpressured at 1381 psi. When the well began to move oil to the wellbore, the bottom-hole pressure was measured at 2197 psi. The bubble point of the oil reservoir is 2126 psi and the oil reservoir pressure is certainly below the bubble point now, as the well has produced 9500 BO and 52 MMCF.

The applicant believes the Caddo reservoir has an oil rim at virgin pressure. The gas cap shows pressure depletion, indicating there may be poor communication between the gas cap and oil reservoir. The applicant also believes that the gas the well is currently producing is due to dissolution from the oil, not from the gas cap. Restricting such solution gas production will not

conserve the reservoir energy in the thin oil rim, and may cause oil to migrate permanently into the gas cap. Because the oil reservoir drive mechanism is solution gas, the gas/oil ratio will continue to increase above the current 5500 cubic feet per barrel, as the pressure drops.

The discovery allowable is 160 BO and 320 MCF per day. Restricting the well to 320 MCF per day penalizes the oil production to 35 BOPD though the well is capable of producing more oil. Cumulative production since the well was classified as oil, has been 9500 BO and 50 MMCF.

A step rate test was conducted between December 6, 1999, and January 6, 2000. The gas/oil ratio declined from 9200 cubic feet per barrel, when the well was produced near the current gas allowable, to 5700 cubic feet per barrel when produced at a daily gas rate of 450 MCF. The well flowed most efficiently when on a 17/64th inch choke, and the daily gas rate was between 450 and 470 MCF.

FINDINGS OF FACT

1. Notice of this hearing was given to all operators in the Harris-Price (Caddo) Field on December 23, 1999.

2. The subject well is the only well in the field and was completed in August, 1999, as a gas well with a bottom-hole pressure about 1300 psi.

3. This well initially produced gas with no liquid production, but the oil rate began is rise rapidly and the well was reclassified as oil during September, 1999.

4. The initial test rate as a oil well was 146 BOPD, with a gas/oil ratio of 2972 cubic feet per barrel, at a bottom-hole pressure was 2197 psi.

5. The reservoir bubble point pressure was 2126 psi and as the well has already produced 9500 BO and 52 MMCF of gas, the reservoir pressure is below the bubble point.

6. The well's current daily allowable based on the discovery yardstick is 160 barrels of oil and 340 MCF, but the well's oil rate is penalized by a high gas/oil ratio.

7. A step rate test was conducted from December 6, 1999 to January 6, 2000 and showed that the lowest gas/oil ratio occurred at a daily gas rate of 450 MCF/D.

    a. On a 12.5/64th inch choke, the well produced about 35 BOPD and 320 MCF/D for a gas/oil ratio of 9200 cubic feet per barrel.
    b. On a 17/64th inch choke, the well produced about 450 MCF/D and 79 BOPD for a gas/oil ratio of 5700 cubic feet per barrel.

8. Oil may be lost into the partially depleted gas cap, if oil production is penalized by the increasing amount of solution gas.

9. The well can efficiently produce at a daily gas rate of 450 MCF, where the concomitant daily oil rate is 79 barrels.

10. A gas producing rate of 450 MCF/D is efficient for this well and there is no reason to require the well to make up overproduction by producing it at a less efficient rate.

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 increased net gas/oil ratio authority be approved for the Lane Operating Company Harris Lease Well No. 1 in the Harris-Price (Caddo) Field. The recommended daily gas limit is 450 MCF. Any overproduction for this, the only well in the field, should also be canceled.

Respectfully submitted,

Margaret Allen
Technical Hearings Examiner

Date of Commission Action: February 8, 2000

Exhibits

1. Well data sheet
2. Log
3. Fluid properties
4. Proration schedule
5. Commission notification of test
6. P-1 production reports
7. Graph of daily production
8. Tabulation of daily production
9. Graph of test data
10. Tabulation of test data
11. Impact of denial
12. Letter from pipeline
13. Conclusions