
THE APPLICATION OF OCEAN ENERGY, INC., FOR TEMPORARY FIELD RULES AND INCREASED GAS-OIL RATIO AUTHORITY, JUST PLAIN LUCKY (RODESSA) FIELD, VAN ZANDT COUNTY, TEXAS

Heard by: Margaret Allen, Technical Hearings Examiner

Procedural history

Application received: June 13, 2002
Hearing held: September 5, 2002
Proposal for decision issued: October 9, 2002
Hearing reopened: June 5, 2003

Appearances

	Representing
Michael McElroy	Ocean Energy
Ricky Harris	
Ben Wilson	

EXAMINER'S REPORT AND PROPOSAL FOR DECISION

STATEMENT OF THE CASE

Ocean Energy, Inc. ("Ocean") originally requested that its Tidwell Lease Well No. 1, in the Just Plain Lucky (Rodessa) Field, Van Zandt County, Texas, be allowed to produce under increased gas-oil ratio authority at the maximum rate possible. The examiner recommended denial of the application in a proposal for decision issued October 9, 2003. November 7, 2002, Ocean requested that the hearing be reopened and amended notice of hearing was issued on May 7, 2003. At the reopened hearing on June 5, 2003, Ocean requested the following temporary field rules, along with an unlimited daily gas allowable.

1. 660-1320' well spacing;
2. 80 acre proration units with 40 acre tolerance for the last well on a lease; and
3. allocation based on acreage.

In the alternative, Ocean requested a daily gas limit of 750 MCF. Ocean also requested that all overproduction for this field be canceled. The examiner is recommending that a designated interval be adopted and Ocean suggested the interval between 9500' and 9544' as shown on the log of its Tidwell Lease Well No. 1.

DISCUSSION OF THE EVIDENCE

Ocean's Tidwell Lease Well No. 1 ("Tidwell No. 1") was the discovery well for the Just Plain Lucky (Rodessa) Field. In July, 2000, this well was perforated from 9512' to 9544'. The well is located on a small, seismically-defined structural closure, bounded to the east by a normal fault. The producing

interval occurs between 9500' and 9544' as shown on the log of the Tidwell No. 1.

During its initial test, August 14, 2000, the Tidwell No. 1 produced at a daily rate of 122 BOPD and 90 MCF, for a gas/oil ratio of 737 cubic feet per barrel. The top allowable assigned to wells in this field was 172 BOPD and 344 MCF/D, though a discovery allowable of 440 BOPD should have been assigned from August, 2000. The nearest pipeline was five miles away and some gas was flared with Commission permission before gas sales could begin.

The initial oil gravity measured in the Tidwell No. 1 was 41° API and the initial bottom-hole pressure was 4500 psi, about the same as the bubble-point pressure. A PVT analysis a month after completion of Tidwell No. 1, (when the bottom-hole pressure was 4168 psi) showed a saturated oil with 27 BC per MMCF. By that time, the Tidwell No. 1's daily production was 1027 MCF and 93 barrels of black oil with a gravity of 47°. A second PVT test a year later, found a retrograde dew point of 9555 psi, and Fesco called the reservoir liquid 'retrograde condensate'.

The Ocean Davis No. 1, completed in November, 2001, is 12' structurally lower than the Tidwell No. 1. The Davis produced at a lower gas/oil ratio, at least initially, as its initial daily rate was 46 BO and 133 MCF. A third well was completed at the apex of the structure in December, 2002, 27' high to the discovery well. This well had an initial daily potential of 45 barrels of 42° gravity oil at a gas/oil ratio of 20,000 cubic feet per barrel.

The gas/oil ratio increases with increased elevation, but even the lowest well of structure has a gas/oil ratio above 10,000. The gas/oil ratio of all three wells increased initially but has been steady for about the past year. Cumulative field production through March, 2003, is 57,400 BO and the estimated ultimate production is 98,000 BO and 1575 MMCF.

All three wells were step-rate tested early in 2003. The gas/oil ratio of the lowest well on structure, the Davis No. 1 remained about 11,000 cubic feet per barrel regardless of the choke size. The test results of the Tidwell No. 1 between December 19, 2002 and March 26, 2003, are summarized in Table 1 as follows:

Choke size (inches)	Average daily oil rate (barrels)	Water rate (bbl)	Average daily gas rate (MCF)	Flowing tubing pressure (psi)	Gas/oil ratio (cubic feet per barrel)
8/64th	28	3	417	1250	15,042
12/64th	32	6	571	850	17,640
16/64th	37	8	740	670	20,044
22/64th	34	10	740	350	21,678
24/64th	42	14	865	325	20,798
26/64th	44	10	908	370	20,843

Table 1 - Tidwell No. 1

The Tidwell No. 1 has 2-3/8 inch tubing and, according to Ocean, unless wells with this tubing size are

produced above a certain rate, the gas stream will be unable to lift liquids (water and oil) out of the wellbore. According to Ocean, this is shown by the sharp decrease in water production when the well is produced on a choke size less than 16/64th inches.

The Thomas Tidwell No. 1, the highest well on structure, was tested between December 1, 2002 and March 1, 2003. The results are shown in Table No. 2 as follows:

Choke size (inches)	Average daily oil rate (barrels)	Water cut (bbl)	Average daily gas rate (MCF)	Flowing tubing pressure (psi)	Gas/oil ratio (cubic feet per barrel)
7/64th	13	2	608	1640	48,478
8/64th	17	1	740	1520	43,747
9/64th	16	2	722	1550	44,977
20/64th	42	3	1220	570	29,268
24/64th	39	5	1042	390	26,554
30/64th	32	8	975	370	30,748

Table 2 - Davis No. 1

This test indicate that producing the Thomas Tidwell No. 1 at lower gas rates is less efficient than producing it at higher rates. On the lowest rates, the well is unable to unload water.

The reservoir porosity in the Tidwell No. 1 is 10%, the average water saturation is 38% and the net pay is 19' thick. The original gas-in-place under 80 acres around the Tidwell No. 1 is calculated to be 882 MMCF. The ultimate recovery of this well is estimated to be 684.4 MMCF and 48,358 BC. Assuming that a barrel of condensate is equivalent to 700 MCF, the expected ultimate recovery of 718 MMCF (gas equivalent) is 81.4% of the original gas-in-place under 80 acres.

Well spacing of 660' from lease lines and 1320' between wells is standard for 80-acre density. Allocation based on acreage will protect correlative rights. The top allowable for wells at this depth on 80-acre proration units is 272 BO and 544 MCF per day. Almost all overproduction in the field was eliminated by the retroactive assignment of the correct discovery allowable. Only the Davis No. 1 has any overproduction due to the step-rate tests conducted on it in 2003. Ocean is the only operator in the field and cancellation of the remaining overproduction in the Davis No. 1 will not violate correlative rights.

EXAMINER'S OPINION

The examiner believes that the step rate test for the Tidwell No. 1 shows that this well produces more efficiently above a critical rate that is about 750 MCF/D. At rates above 750 MCF per day, the well remains about equally efficient. The test of the Thomas Tidwell No. 1 shows that this well's

efficiency increases as the daily gas rate increases. The Davis No. 1 is not rate sensitive and producing it at higher rates will not result in waste. The examiner believes that Ocean's request to produce the Thomas Tidwell No. 1 at an unlimited rate will prevent waste. Producing the other two wells at unlimited gas rates will not cause waste.

Restricting gas production will not recover more oil. Most of the liquid recovered at the surface is the product of condensation and not crude petroleum oil.

FINDINGS OF FACT

1. Notice of this hearing was issued to Ocean Energy, Inc., ("Ocean") the only operator of record in the Just Plain Lucky (Rodessa) Field on July 9, 2002.
2. Notice of the reopened hearing was issued to the operators in the subject field and to all offset operators and unleased mineral interest owners on May 1, 2003.
3. Notice of the reopened hearing and amended application was published in the Van Zandt News on May 4, 11, 18 and 25, 2003.
4. The Just Plain Lucky (Rodessa) Field was discovered in 2000, with the completion of Ocean Energy's Tidwell Lease Well No. 1 ("Tidwell No. 1").
5. The Tidwell No. 1 had an initial daily potential of 122 BOPD and 90 MCF, for a gas/oil ratio of 737 cubic feet per barrel.
6. Cumulative production from the three wells in the field through March, 2003, is 57,400 BO and the estimated ultimate production is 98,000 BO and 1575 MMCF.
7. Increased gas/oil ratio authority with unlimited gas allowables are appropriate for temporary field rules.
 - a. PVT analyses show the reservoir fluid exists largely as gas in the reservoir, and the liquid produced at the surface is most likely retrograde condensate.
 - b. The step-rate test on the structurally lowest well showed the gas/oil ratio remained about 11,000 cubic feet per barrel regardless of the choke size.
 - c. The 2003 test results of the Tidwell No. 1 show that it produces more efficiently above a critical rate that is about 750 MCF/D and remains about equally efficient at rates above that.
 - d. The test results from the Thomas Tidwell No. 1, the highest well on structure, show that at lower gas rates the well is unable to unload water and that the well produces more efficiently as the daily gas rate increases.
8. Temporary rules specifying 80-acre oil proration units are appropriate.
 - a. The original gas-in-place under 80 acres around the Tidwell No. 1 is calculated to be 882

MMCF.

- b. The ultimate recovery of this well is estimated to be 684.4 MMCF and 48,358 BC (gas equivalent of 718 MMCF).
 - c. The expected ultimate recovery will be 81.4% of the original gas-in-place under 80 acres.
9. Well spacing of 660' from lease lines and 1320' between wells is standard for 80-acre density.
 10. The producing interval occurs between 9500' and 9544' as shown on the log of the Tidwell No. 1.
 11. Allocation based on acreage, with a top allowable of 272 BO and 544 MCF per day, will protect correlative rights.
 12. The wells in this field became overproduced largely due to the incorrect assignment of the yardstick allowable (172 BO and 344 MCF) instead of the discovery allowable (440 BO and 880 MCF).
 13. Retroactive assignment of the discovery allowable removed most of the overproduction assigned to wells in this field.
 14. Ocean is the only operator in the field and cancellation of the small remaining amount of overproduction will not violate 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. Approval of the requested temporary field rules for the Just Plain Lucky (Rodessa) Field will prevent waste, promote conservation and protect correlative rights.
4. Allowing wells in the Just Plain Lucky (Rodessa) Field to produce unlimited amounts of gas will not cause waste and will protect correlative rights.

EXAMINER'S RECOMMENDATION

Based on the above findings and conclusions, the examiner recommends that Ocean Energy's requested temporary field rules for the Just Plain Lucky (Rodessa) Field, including increased net gas/oil ratio, be approved and reviewed in 18 months. All overproduction in this field should be canceled.

Respectfully submitted,

Margaret Allen
Technical Hearings Examiner