CASE NO. 5048

NEW MEXICO OIL CONSERVATION COMMISSION
EXAMINER HEARING
WEDNESDAY, AUGUST 22, 1973

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APPLICATION OF ROGER C. HANKS FOR CREATION OF SOUTH DAGGER DRAW POOL AND SPECIAL POOL RULES, EDDY COUNTY, NEW MEXICO

Roger C. Hanks seeks designation of a new pool and special rules for Section 23, 26, and 35, Township 20 South, Range 24 East, Eddy County, New Mexico. Hydrocarbon production in this area was discovered in 1971, and two wells produced for a few months before being shut in due to lack of a gas connection and salt water disposal facilities. Installation of these facilities was completed in early 1973, and wells within the area were returned to production. Since the wells are now producing on a continuous basis, applicant is seeking rules to govern the production of these wells and the spacing and drilling of any subsequent wells within this area.

EXHIBIT NO. 1 is a lease plat showing the proposed field area and also showing other wells in the area which have penetrated the Cisco-Canyon portion of the Upper Pennsylvanian formation. The wells within circles which are colored red are those which have been completed in the Cisco-Canyon. Those within squares which are colored green are those wells which have penetrated the Cisco-Canyon but either did not attempt completion or were unsuccessful in completion attempts in that zone. The area considered in this hearing is part of a large producing trend that includes a number of Cisco-Canyon Fields. The producing wells shown on the lower part of the map are part of the Indian Basin Field which is a large, prolific gas field. North of the proposed field area are a number of smaller fields. The Dagger Draw Field contains two producing oil wells and one well which has been recompleted in another zone. The Parrish Ranch Field also contains two oil producers and one abandoned well. The Boyd Cisco Gas Field has one producer and is offset by two other wells which have an undesignated classification. The Antelope Sink Field in 18-19-24 has a single gas producer.

Discovery of the proposed field occurred in January, 1971, when the Roger C. Hanks No. 1 Preston Federal well in Section 35 was completed as a gas producer with an open flow potential of 1,080,000 cubic feet per day. The well also flowed water at the rate of about 40 to 50 barrels per hour. Due to lack of a gas connection and salt water disposal facilities, the well was shut-in until March, 1973. Two additional wells were completed in May, 1971, as oil producers. The Hanks No. 1 Robin Federal in Section 26 had a flowing potential of 204 BOPD while the Hanks No. 1 Penny Federal in Section 23 flowed at the rate of 144 BOPD. Both wells initially reported low gas-oil ratios. The fourth well for the field, the Hanks No. 1 Vicki Federal in Section 26, was completed in September, 1971, pumping 303 BO and 1728 BW per day with a GOR of 2640. The Penny Federal

well was also shut in until the latter part of March, 1973. The Robin Federal and Vicki Federal wells were produced following completion until December, 1971, at which time they were also shut in and remained that way until March, 1973, when they were returned to production.

EXHIBIT NO. 2 is a cross section showing logs of the producing zones in the four wells in the proposed field. The Cisco-Canyon in this area is composed of a carbonate reef. The reservoir rock is described as being limestone with varying degrees of dolomitization. The porous portions of the reef have been found primarily in those zones which are predominantly dolomite. Logs on each of these wells indicate several different porosity zones. Although cores of these wells indicate the presence of some vertical fractures, whole core analysis and drill stem test data would indicate that there is not vertical communication throughout the entire reef section. While the wells exhibit good permeability and there is evidence of communication between some of the wells, it is also possible that not all porosity zones are continuous from well to well.

Also shown on this cross section are the initial bottom hole pressures taken on these wells opposite the zones that were tested. The pressure shown on the No. 1 Preston Federal is the extrapolated pressure obtained from a build-up test taken after the well had been perforated and flow tested for 19 hours. The pressures shown on the other wells were obtained from drill stem tests taken while drilling. All tests that had sufficient closure on the build-up curves to permit calculation of reservoir pressure have been shown. All of the pressures were in the range of 2900 psi which is normal virgin pressure for this depth in this area. While not all porosity zones were tested, the test data available indicates that these wells had not experienced any drainage from other fields in the area.

EXHIBITS NO. 3, 4, 5, and 6 are graphs showing the daily production of oil, gas and water from each of the four wells in the area since production was resumed in March, 1973. When production was resumed, all wells were being produced by use of hydraulic pumping equipment. Since that time, all wells but the Vicki Federal No. 1 have begun flowing and no longer require artificial lift equipment. The gas-oil ratios on all wells have increased during this time, and all wells also produce a large amount of water. For the early part of August, 1973, the Preston Federal No. 1 averaged 242 MCFPD with no oil recovery reported. The Penny Federal No. 1 averaged 500 MCFPD with a gas-oil ratio of about 83,000 to 1. The Robin Federal No. 1 averaged 1225 MCFPD with gas-oil ratio of 100,000 to 1, and the Vicki Federal No. 1 made 330 MCFPD with a gas-oil ratio of about 41,000 to 1. Water production on the wells is estimated to be in the range of about 850 to 2,000 barrels daily for each well.

EXHIBITS NO. 7 and 8 are related. EXHIBIT 7 is a tabulation of bottom hole pressures taken on the four wells plus the average annual pressure reported for

wells in the Indian Basin Upper Penn Gas Field. This same information is portrayed graphically in EXHIBIT 8. For comparison purposes, the pressures on the four wells have been corrected to the Indian Basin datum of -3640 feet. The pressures taken during 1971 are of particular significance. All of the initial pressures on the four wells taken during the period of January through August of 1971 are near 2900 psi which was also the approximate initial pressure for the Indian Basin Field. This indicates that at the time of completion of these wells, virgin conditions still existed in the reservoir, and there had been no pressure depletion resulting from production from other Cisco-Canyon Fields in the area. The pressure in the Indian Basin Field had declined to about 2450 psi at this time. Also of importance are two pressures taken on the Preston Federal No. 1 well in December, 1971. The first pressure taken on December 13 showed a pressure of 2438 psi. This was more than 500 psi lower than the initial pressure taken in January despite the fact that the well had been shut in during this period. However, the Robin Federal No. 1 and Vicki Federal No. 1 were producing during this time. These two wells were shut in on December 14, 1971, and a second pressure taken on the Preston Federal No. 1 on December 17. This survey showed an increase of 300 psi following shut in of the two wells. This indicates the Preston Federal No. 1 was in communication with the two other wells despite being more than one mile away from them. This indicates good reservoir permeability and shows that the wells are capable of draining a wide area. Some additional pressures were taken in May, 1973 prior to work-over activities on the wells and in July, 1973, while the wells were shut in for a gas processing plant shut down. These pressures show considerable variation among the wells; however, none of the wells have all of the same porosity zones open and some variation could be expected.

The proposed field rules specify spacing of 320 acres per well. The pressure data shown in EXHIBITS 7 and 8 indicated communication between wells more than one mile apart, and the general producing characteristics of all the wells indicate good permeability and that they are capable of draining wide areas. Another reason for proposing 320-acre spacing is economics. At the present time, the wells in this area are averaging about 575 MCF and 6.5 barrels of oil daily in addition to large amounts of water. Due to the high costs associated with the production and disposal of the water and processing of the gas, revenue from these wells at this time is only sufficient to permit a break-even operation. Because of this, development on closer spacing certainly cannot be justified at this time. There have been several Upper Penn Fields in Southeast New Mexico which have shown a tendency to increase in oil and gas production as water in the reservoir is depleted. These wells are being produced in the hope that a similar experience will occur. If this does occur and if part of this reservoir should prove to be an oil pool, it may be desirable to develop the field on closer spacing at a later date. However, at the present time spacing of 320 acres per well would seem to be the minimum justified.

A gas-oil ratio of 30,000 to 1 has been recommended as the criteria for designation between oil and gas wells. At the present time, all of the wells are producing with ratios in excess of 30,000 to 1 and would, therefore, be classified as gas wells. However, these wells have produced for only a brief time following a shut down for repairs in the gas processing plant, and it is possible that one or more of the wells may stabilize at a lower ratio later. Three of the four wells were initially completed with low ratios. It is possible that other wells might also produce at low ratios if additional wells are drilled in the field.

Although 320-acre spacing is being proposed, the recommended oil allowable of 267 barrels daily is depth allowable for 80-acre spacing. This allowable is adequate for all the existing wells and would guard against excessive withdrawal if closer spacing should prove desirable at a later date.

A limiting gas-oil ratio of 8,000 to 1 is proposed for determining maximum gas production. It is recommended that both oil and gas wells be limited to this ratio times the top oil allowable. The proposed rules would authorize equal withdrawals from both oil and gas wells and would protect correlative rights. It should be pointed out that the proposed ratio of 8,000 to 1 is 4 times the normal ratio of 2,000 to 1. Under the proposed rules the maximum gas withdrawal per acre would be the same as for normal 80-acre oil allowables.

In summary, it is the applicant's opinion that the proposed field rules will prevent waste, protect the correlative rights of all interested parties and permit effective production of the recoverable hydrocarbons from this reservoir. The applicant respectfully requests that the proposed rules be adopted.

EXHIBITS

EXHIBIT 1	Lease Plat
EXHIBIT 2	Cross Section A - A'
EXHIBIT 3	Production History, Roger C. Hanks Preston Federal No. 1 Well
EXHIBIT 4	Production History, Roger C. Hanks Penny Federal No. 1 Well
EXHIBIT 5	Production History, Roger C. Hanks Robin Federal No. 1 Well
EXHIBIT 6	Production History, Roger C. Hanks Vicki Federal No. 1 Well
EXHIBIT 7	Tabulated Bottom Hole Pressure Data
EXHIBIT 8	Graphical Bottom Hole Pressure Data

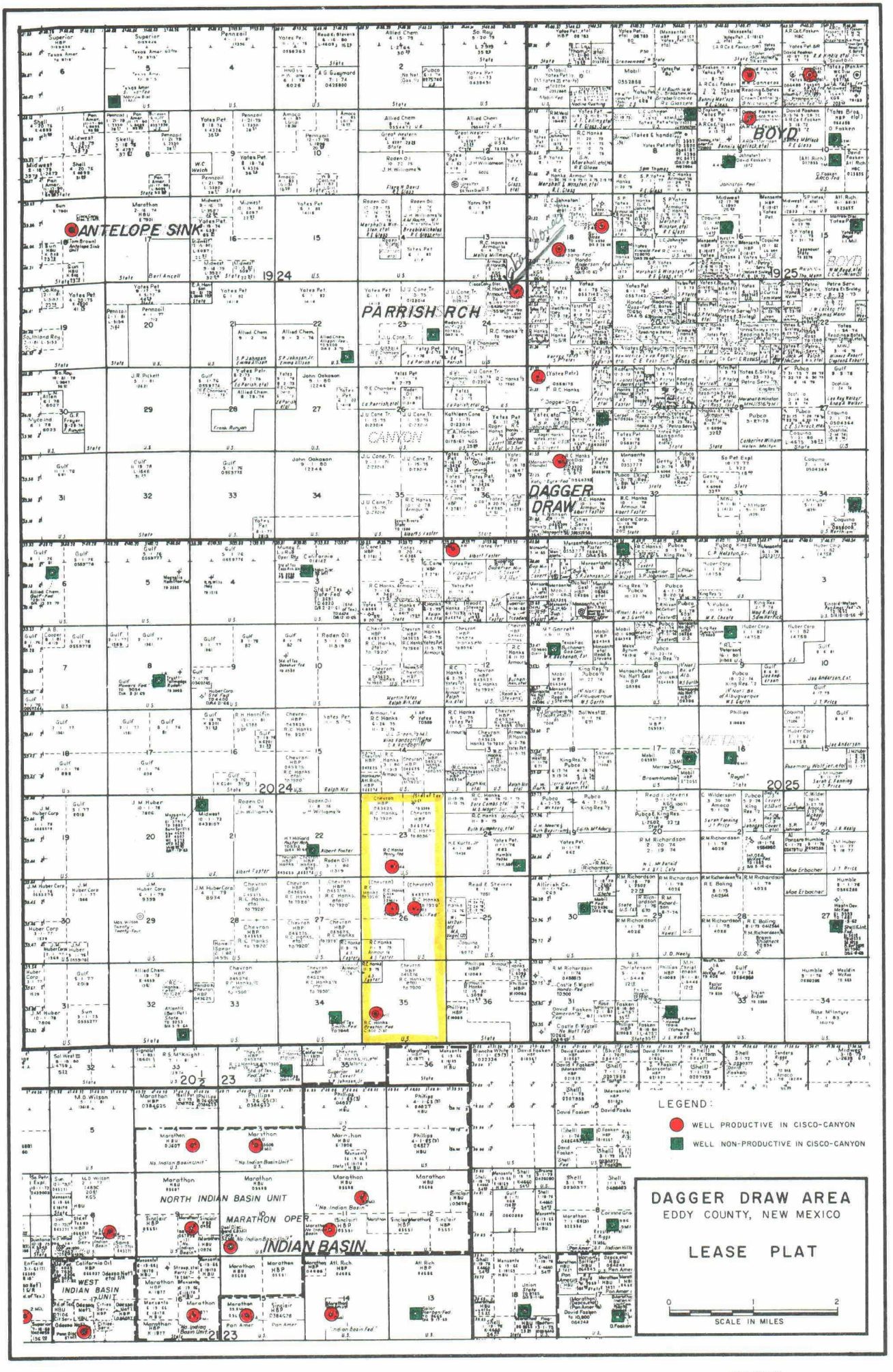
ANTELOPE SINK
PARRISH RCH
DAGGER DRAW
BOYD
NORTH INDIAN BASIN UNIT
MARATHON OPER.
INDIAN BASIN
WEST INDIAN BASIN UNIT
LEGEND:
WELL PRODUCTIVE IN CISCO-CANYON
WELL NON-PRODUCTIVE IN CISCO-CANYON
DAGGER DRAW AREA
EDDY COUNTY, NEW MEXICO
LEASE PLAT
SCALE IN MILES

EXHIBIT 1