STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:

DE NOVO
CASE NO. 10994
ORDER NO. R-5771-C

APPLICATION OF ENSERCH EXPLORATION, INC. FOR THE ASSIGNMENT OF A SPECIAL POOLWIDE DEPTH BRACKET OIL ALLOWABLE, ROOSEVELT COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:00 a.m. on February 23, 1995, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this 18th day of April, 1995, the Commission, a quorum being present, having considered the testimony and the record, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) By Division Order No. R-5771, dated July 17, 1978, the South Peterson-Fusselman Pool was defined and created for the production of oil from the Fusselman formation. The horizontal limits for said pool included the following described lands in Roosevelt County, New Mexico:

TOWNSHIP 5 SOUTH, RANGE 32 EAST, NMPM
Section 25: SE/4
Section 36: NE/4

TOWNSHIP 5 SOUTH, RANGE 33 EAST, NMPM
Section 30: S/2
Section 31: All

TOWNSHIP 6 SOUTH, RANGE 33 EAST, NMPM

Section 1: Lots 3 and 4
Section 2: All
Section 3: Lots 1 and 2
Section 10: NE/4

(3) Said Order No. R-5771, as amended by Division Order No. R-5771-A, promulgated special rules and regulations for the South Peterson-Fusselman Pool which established 80-acre spacing and proration units and designated well location requirements. This pool is operated under these special rules and regulations and the General Rules of the Division which set a depth bracket allowable for an 80-acre unit of 267 barrels of oil per day and a limiting gas/oil ratio of 2,000 cubic feet of gas per barrel of oil which results in a casinghead gas allowable of 534 MCF per day.

(4) The applicant in this matter, Enserch Exploration, Inc. ("Enserch"), now seeks the assignment of a special depth bracket allowable for the South Peterson-Fusselman Pool, pursuant to General Rule 505(d), of 500 barrels of oil per day to replace the current depth bracket allowable for said pool of 267 barrels of oil per day.

(5) There are currently three operators in the subject pool; Enserch, Phillips Petroleum Company, and Bledsoe Petro Corporation.

(6) Phillips Petroleum Company ("Phillips"), who currently operates three wells in said Pool, appeared at the hearing and presented geologic and petroleum engineering evidence in opposition to increasing the oil allowable in the subject Pool.

(7) The Fusselman formation in this pool is a highly fractured fine to coarse crystaline to sucrosic grey dolomite which exhibits a dual porosity system consisting of a fracture system and a matrix system. A strong bottom water drive with an edge water drive component is the reservoir drive mechanism in the South Peterson-Fusselman Pool, which results in wells with high water cuts. Currently there are six wells producing from this pool, one of which is outside of the structural feature being shared by the other five wells all in Section 31, Township 5 South, Range 33 East, NMPM, Roosevelt County, New Mexico.

(8) Evidence presented by Enserch suggests that:

(a) the Enserch Lambrith Well No. 1, located in Unit "K" of said Section 31 is the best well in the pool because it occupies the highest structural position in the pool and has the best quality of reservoir rock and has the potential to produce at a rate in excess of 500 barrels of oil per day;

(b) although structurally up-dip to both Phillips' wells, the Enserch well does not have any advantage because the base of the current perforations in each of these wells is at the same correlative point;

(c) the reservoir is in an advanced state of depletion with the oil in the fracture system having been produced and displaced with water and the remaining oil production coming primarily from the matrix;

(d) increasing the production rate of total fluids from wells in this pool creates a pressure differential in the reservoir which increases oil production from the matrix and lowers water cuts;

(e) Enserch Exhibit No. 9, "SPE paper 7463 presented October 1, 1979 in Houston, Texas at the 53rd Annual Fall Technical Conference and Exhibition of the Society of Petroleum Engineers of A.I.M.E.", showed that from water drive reservoirs in West Texas, high volume lift is an effective means of increasing rates and ultimate recovery. Based upon this technical paper, Enserch theorized that by adding large submersible pumps which could lift 3,000 barrels of fluids per day in certain wells, additional oil recovery could be attained in the Pool.

(f) increasing the allowable to 500 barrels of oil per day per well would enable Enserch to recover an additional 456,000 barrels of oil that would otherwise be lost.

(9) In opposition, Phillips presented evidence which suggests that:

(a) the aforementioned Enserch Lambrith Well No. 1 is situated at the highest structural portion of the reservoir being 38 feet higher in their perforations at the top of the reservoir;

(b) By increasing the oil allowable Enserch would accelerate edge water advancement into the reservoir and water out the Phillips wells prematurely;

(c) as a result of previous test with the installation of submersible pumps in both the Phillips' wells a dramatic increase in water production was observed and Phillips was not able to achieve the kind of results hypothecated in SPE paper 7463;

(d) increasing the rate of the oil allowable in this pool would serve to benefit only one well in the pool, the Enserch Lambrith Well No. 1, and will have an adverse effect on the Phillips wells by increasing the rate of water inflow into the Phillips wells because of increased edge water drive caused by the increased pressure differential.

(10) Correlative rights are defined as the opportunity of owners in a pool to produce their share of oil and gas utilizing their share of reservoir energy. Phillips exercised their right to the available reservoir energy in 1992 by installing submersible pumps in their Lambrith A1 and A2 wells. They viewed their effort as unsuccessful even through the oil rate and a proportional amount of water increased in both cases. Phillips was able to use the available reservoir energy, a natural water drive, to increase the oil rate in both of their wells and thus protected their correlative rights.

(11) Enserch demonstrated that with the application of new ideas utilizing proven equipment, they were able to improve the efficiency of oil recovery from their Lambrith #1 Well as evidenced by the decrease in water/oil ratio. They installed high volume pumping equipment which utilized the available reservoir energy more efficiently. However, they did not use the maximum energy available because a large fluid column remained over the pump. The additional drawdown in reservoir pressure resulted in the flow of oil from the reservoir matrix to the natural fracture system where it flowed to the wellbore, thus increasing the percentage of oil produced with a fixed volume of total fluid.

(12) The time remaining to produce the South Peterson Fusselman Pool reserves may be constrained by the frequent collapse of casing in wells in the area. The increase in the oil producing rate by both parties reduces the chance of losing oil reserves due to casing failure and subsequent well abandonment.

(13) The issue of premature water breakthrough was raised during the testimony. However, water breakthrough occurred prior to the installation of high volume pumping equipment and is a non-issue in this case.

(14) Granting a special allowable in this specific case of a naturally fractured reservoir producing large amounts of water from all wells in the later stages of pool life is a different situation than one in which the reservoir is producing clean oil in a competitive situation early in the primary life of a pool. The presence of an oil column over the pump is not sufficient evidence in itself to justify an increase in the allowed rate.

(15) Enserch successfully applied modern technology to increase oil recoveries and should be granted their request for a higher allowable.

IT IS THEREFORE ORDERED THAT:

(1) The application of Enserch Exploration, Inc. for the assignment of a special depth bracket allowable for an 80 acre unit in the South Peterson-Fusselman Pool, Roosevelt County, New Mexico, pursuant to General Rule 505(d), of 500 barrels of oil per day to replace the current depth bracket allowable for said pool of 267 barrels of oil per day is hereby APPROVED effective June 1, 1994.

(2) All other provisions of the Special Rules and Regulations for the South Peterson-Fusselman Pool, as promulgated by Division Order No. R-5771, as amended shall remain in full force and effect until further notice.

(3) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

GARY CARLSON, Member

WILLIAM W. WEISS, Member

WILLIAM J. LEMAY, Chairman

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