

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

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

**CASE NO. 12400
Order No. R-11449**

**APPLICATION OF YATES PETROLEUM CORPORATION FOR SPECIAL
POOL RULES AND AMENDMENT OF THE DEPTH BRACKET ALLOWABLE
FOR THE NORTHWEST SHOE BAR-STRAWN POOL, LEA COUNTY, NEW
MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on May 4, 2000, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 1st day of September, 2000, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given and the Division has jurisdiction of this case and its subject matter.

(2) By Order No. R-1283 dated November 18, 1958, the Oil Conservation Commission created the North Shoe Bar-Pennsylvanian Pool with vertical limits comprising the Pennsylvanian formation and horizontal limits comprising the SE/4 of Section 15, Township 16 South, Range 35 East, NMPM, Lea County, New Mexico. The pool was discovered by the Sinclair Oil & Gas Company F. J. Danglade Well No. 1 located in Unit J of Section 15.

(3) By Order No. R-6876 dated January 22, 1982, the Division contracted the vertical limits of the North Shoe Bar-Pennsylvanian Pool to comprise only the Strawn formation and redesignated the pool as the Northwest Shoe Bar-Strawn Pool.

(4) The Northwest Shoe Bar-Strawn Pool currently comprises the N/2 and SE/4 of Section 15, Township 16 South, Range 35 East, NMPM.

(5) The Northwest Shoe Bar-Strawn Pool is currently governed by Division Rule 104.B., which requires standard 40-acre spacing and proration units with wells to be located no closer than 330 feet to the outer boundary of the unit. The pool is also subject to a standard depth bracket allowable of 320 BOPD and 640 MCFGPD as provided by Division Rule 505.A., and a standard gas-oil ratio limitation of 2,000 cubic feet of gas per barrel of oil as provided by Division Rule 506.A.

(6) The applicant, Yates Petroleum Corporation ("Yates"), seeks to increase the oil allowable and the gas-oil ratio limitation for the Northwest Shoe Bar-Strawn Pool to 365 BOPD and 6,000 cubic feet of gas per barrel of oil, respectively.

(7) The applicant presented evidence that demonstrates the following described wells have either previously produced from or are currently producing from the Northwest Shoe Bar-Strawn Pool:

<u>Well Name</u>	<u>Well Location</u> <u>(T-16 South, R-35 East)</u>	<u>Perforated Interval</u>
Sinclair Oil & Gas Co. F. J. Danglade No. 1	Unit J, Section 15	10,954'-10,980'
Nearburg Producing Co. L.L.C. Eidson No. 1	Unit F, Section 15	10,987'-11,043'
TMBR/Sharp Drilling, Inc. Carlisle "15" No. 1	Unit J, Section 15	10,952'-11,012'
Yates Petroleum Corporation Big Flat "ASN" State No. 2	Unit P, Section 10	11,304'-11,321'
Yates Petroleum Corporation C. O. Jones "ATK" State No. 2	Unit N, Section 11 (Bottomhole Location)	11,320'-11,385' (TVD)

(8) The applicant testified that there are three additional wells currently being drilled in Section 14, Township 16 South, Range 35 East, NMPM, to test the Northwest Shoe Bar-Strawn Pool: the David H. Arrington Oil & Gas Inc. ("Arrington") Mayfly "14" State Com Well No. 5 located in Unit D; the Arrington Mayfly "14" State Com Well No. 4, a horizontal well located in Units E and L; and the Arrington Mayfly "14" State Com Well No. 3, a horizontal well located in Units C and F.

(9) The applicant presented geologic evidence that demonstrates:

- (a) this Strawn reservoir is limited in size and likely encompasses only portions of Sections 10, 11, 14 and 15;
- (b) the Strawn formation in this area is characterized by a northwest to southeast trending structural high located within Section 15. The discovery well for the pool, the F. J. Danglade Well No. 1, was completed within this Strawn structural high;
- (c) the newly drilled wells in the pool, the Yates Big Flat "ASN" State No. 2 and C. O. Jones "ATK" State No. 2, are located off this structural high in Sections 10 and 11. These wells have been completed in the Strawn formation below 11,000 feet; and
- (d) the wells currently drilling in Section 14, the Arrington Mayfly "14" State Com Wells No. 3, 4 and 5, are projected to be completed within the Strawn formation at approximately the same structural position within the Strawn formation as the Yates wells in Sections 10 and 11.

(10) The applicant presented current production data for wells within the Northwest Shoe Bar-Strawn Pool, described as follows:

<u>Well Name</u>	<u>Current Producing Rate</u>		
	<u>Oil</u>	<u>Gas</u>	<u>GOR</u>
Carlisle "15" No. 1	20 BOPD	40 MCFGPD	2000:1
Eidson No. 1	4 BOPD	7 MCFGPD	1750:1
Big Flat "ASN" State No. 2	300 BOPD	900 MCFGPD	3000:1
C. O. Jones "ATK" State No. 2	600 BOPD	1,300 MCFGPD	2166:1

- (11) The applicant presented engineering evidence that demonstrates
- (a) the Northwest Shoe Bar-Strawn Pool is a solution gas drive reservoir with a weak water drive component;
 - (b) a PVT analysis has been conducted on the Yates Petroleum Corporation Runnels "ASP" Well No. 3, which is located at a bottomhole location in Unit A of Section 11, Township 16 South, Range 35 East;
 - (c) the Runnels "ASP" Well No. 3 is completed in the Strawn formation and is within the boundaries of the South Big Dog-Strawn Pool. The South Big Dog-Strawn Pool is currently governed by special pool rules established by Division Order No. R-10448-A, which require standard 80-acre spacing and proration units with wells to be located no closer than 330 feet to the outer boundary of the unit nor closer than 1020 feet to the nearest well drilling to or capable of producing from the same pool. The pool is also subject to an oil allowable and a gas-oil ratio limitation of 445 BOPD and 2000:1, respectively;
 - (d) the Runnels "ASP" Well No. 3 may be in pressure communication with certain wells within the Northwest Shoe Bar-Strawn Pool;
 - (e) in terms of API gravity and components, the oil produced from the Northwest Shoe Bar-Strawn Pool is nearly identical to the oil being produced from the South Big Dog-Strawn Pool;
 - (f) in companion Case No. 12374, which was also heard on May 4, 2000, Yates seeks to increase the gas-oil ratio limitation for the South Big Dog-Strawn Pool to 6000:1;
 - (g) the PVT analysis conducted on the Runnels "ASP" Well No. 3 demonstrates that:

- (i) oil produced from this Strawn reservoir is a volatile oil; and
- (ii) the initial solution gas-oil ratio of the reservoir fluid is 2779 standard cubic feet of gas per barrel of oil.

(12) Volatile oil reservoirs are typically characterized by higher initial solution gas-oil ratios than those encountered in normal black oil reservoirs. Volatile oil reservoirs also develop free gas saturations in the reservoir more rapidly than normal black oil reservoirs as pressure declines below the bubble point.

(13) The geologic and engineering evidence presented demonstrates that it is reasonable and appropriate to increase the gas-oil ratio limitation for the Northwest Shoe Bar-Strawn Pool, however, the data presented further demonstrates that a gas-oil ratio limitation of 6,000 cubic feet of gas per barrel of oil may be somewhat excessive at this point in the development of the reservoir.

(14) The evidence presented demonstrates that a gas-oil ratio limitation of 4,000 cubic feet of gas per barrel of oil will enable the operators in the pool to efficiently produce the hydrocarbons within this reservoir.

(15) The geologic evidence further demonstrates that new wells drilled within this reservoir are being completed in a Strawn interval that is generally at a depth below 11,000 feet. The applicant's request to increase the oil allowable for the Northwest Shoe Bar-Strawn Pool to 365 barrels of oil per day based upon a depth bracket allowable for wells in the 11,000-11,999 feet depth range, as per Division Rule No. 505.A., is reasonable and should be granted.

(16) The applicant provided notice in this case to all operators within the Northwest Shoe Bar-Strawn Pool, and to all operators of Strawn wells within one mile of the pool which have not been placed in another Division-designated Strawn pool.

(17) No offset operator or interest owner appeared at the hearing in opposition to the application.

(18) Increasing the depth bracket allowable and gas-oil ratio limitation for the Northwest Shoe Bar-Strawn Pool will enable the operators in the pool to efficiently produce the hydrocarbons within this reservoir, will not result in the excessive waste of reservoir energy, should not reduce the ultimate recovery of oil from this reservoir, and will not violate correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) The application of Yates Petroleum Corporation to increase the gas-oil ratio limitation to 6,000 cubic feet of gas per barrel of oil for the Northwest Shoe Bar-Strawn Pool, which currently comprises the N/2 and SE/4 of Section 15, Township 16 South, Range 35 East, NMPM, Lea County, New Mexico, is hereby denied.

(2) Pursuant to the application of Yates Petroleum Corporation, special pool rules for the Northwest Shoe Bar-Strawn Pool are hereby established as follows:

**SPECIAL POOL RULES FOR THE
NORTHWEST SHOE BAR-STRAWN POOL**

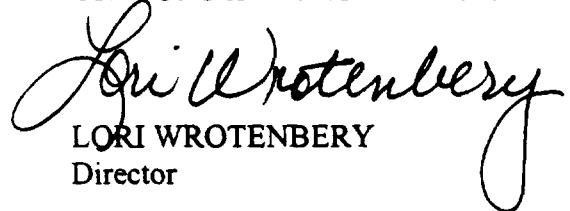
RULE 1. The allowable for a standard 40-acre oil proration unit shall be based on a special depth bracket allowable of 365 barrels of oil per day. In the event there is more than one well on a 40-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

RULE 2. The Northwest Shoe Bar-Strawn Pool shall be produced at a limiting gas-oil ratio of 4,000 cubic feet of gas per barrel of oil (1,460 MCFGPD casinghead gas limit).

(2) Jurisdiction is hereby 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 DIVISION


LORI WROTENBERY
Director

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