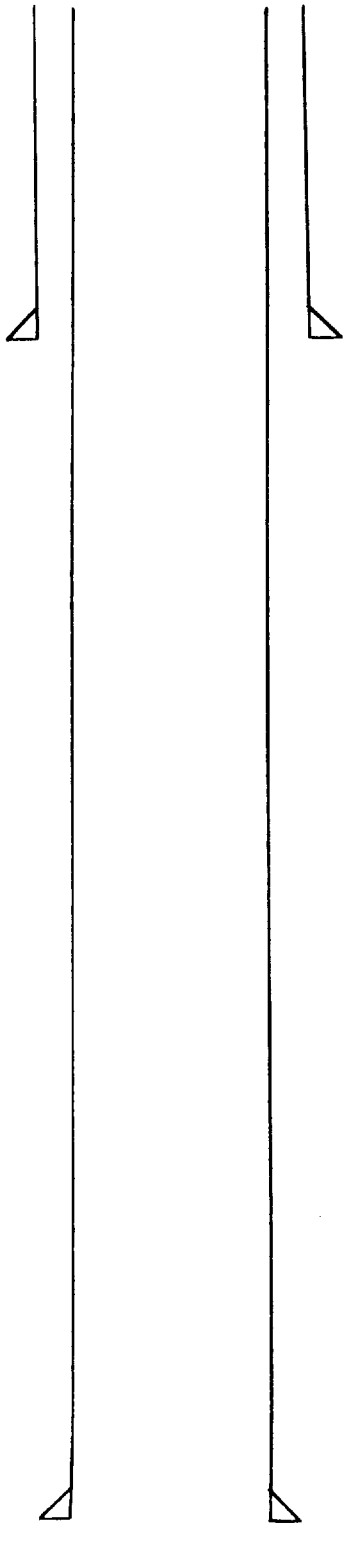
Zia Energy, Inc.

Cities Federal No. 3-C

Section 20 - T22S - R36E

BEFORE EXAMINER STOGNER
OIL CONSERVATION DIVISION
Zia EXHIBIT NO. 5
CASE NO. 9002



Elevation 3577' RKB

9 5/8" - 47 # casing set at 460' with 220 sacks cement (circ)

3150' Top of Yates

Perforate Jalmat Zones of porosity from logs.
Stimulate by fracture treating as required.

3350' Top of Seven Rivers

3409' Set Cement retainer and squeeze with 300 sacks cement

3680' Base of Jalmat Field

3780' Top of Queen

3704' - 3866' South Eunice Seven Rivers-Queen perforations

4 1/2" - 10.5 # casing set at 4019' with 1050 sacks cement (cir

T.D. 4030'

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 9003 Exhibit No. 1
Submitted by Jackson
Hearing Date 11/21/86

HENRY ENGINEERING

INTER-OFFICE MEMO
October 14, 1986

To: James F. Groce

From: Mark B. Merritt

Re: Pressure Buildup No. 2 - 10/2/86
Consolidated State No. 3
Lea County, New Mexico

Attached is an analysis of the Pressure Buildup No. 2 on the Consolidated State No. 3. The permeability is estimated to be 99.7 Md from 14 feet of net pay with a -3.0 skin. There is a boundary indicated at 836 feet. The p* reservoir pressure was 2364 psig at mid-perf, which is 461 psi below the original DST pressure of 2825 psig. The well was flowing at a four day average rate of 502 BOPD with 207 psi drawdown. Cummulative production was 12,417 barrels of oil.

The analysis was based on the digital strain pressure gauge. The pressures from the Amerada type gauge, which was run in tandem, were plotted up for comparison and are also attached. The improved resolution of the digital gauge is shown by comparison.

A material balance was calculated based on this pressure data and the Strawn reservoir fluid study from the Consolidated State No. 2. It is estimated the Consolidated State No. 3 is draining from a reservoir with 245,000 barrels of original oil in place (OOIP). This corresponds to an 87 acre drainage area with an average net pay of 14', 6% porosity and 25.7% water saturation. eH φ-Fr.

A similar material balance was calculated for Exxon's State "EX" No. 2 using a reservoir pressure of 3535 psig after the "EX" No. 2 had produced for six weeks. This pressure was from conversation with an Exxon engineer. It was assumed the "EX" No. 2 was in communication with the Consolidated State No. 3 by the 14' of net pay. The "EX" No. 2 has an additional 49' of net pay. The OOIP affected by the "EX" No. 2 is estimated to be 4.1 million barrels, which corresponds to an estimated volumetric reservoir size of 272 acres.

The recoverable reserves for the Consolidated State No. 3 were estimated to be 104,000 barrels or 43% based on a cummulative GOR of 2000 and an abandonment pressure of 500 psi. The cummulative GOR is based on the current cummulative GOR for the combined production from the Consolidated State No. 2 and the Warren No. 2. An alternate case of 3000:1 GOR was assumed and resulted in recoverable reserves of 68,000 barrels or 28% recovery.

Mark B. Merritt

MBM:va

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 9003 Exhibit No. 1
Submitted by Jaskon
Hearing Date 11/21/86

HENRY ENGINEERING

INTER-OFFICE MEMO
October 14, 1986

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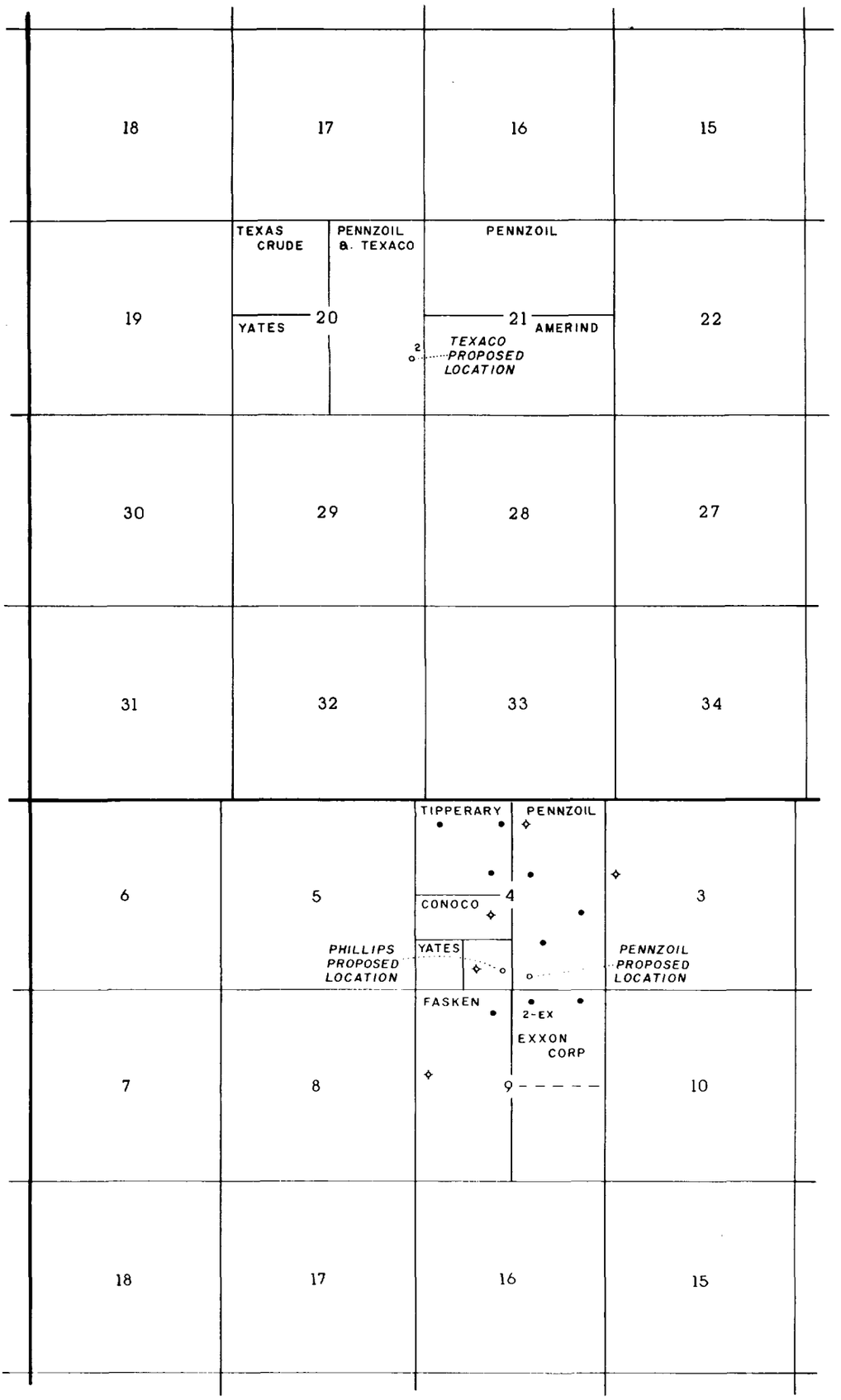
Mark B. Merritt

MBM:va

R-37-E



CASE 9003
11-20-86

N

EXXON

EXHIBIT NO. 1

EXXON CORPORATION

SHIPP FIELD
FIELD

Land Map

T-16&17-S, R-37-E — LOCATION
Lea — COUNTY
New Mexico — STATE

1" = 4000'

A Yes, that's correct.

Q All right. What is your understanding of the basis or justification for the minimum distance between wells, Mr. Hair, and whether or not you recommend that that basis be continued?

A At the hearing, when the -- for the establishment of field rules, an engineer from Pennzoil presented quite a bit of data having to do with the permeability of these reservoirs.

We presented data based on our Viersen No. 1, which has since been confirmed in our Viersen No. 2 and our Shipp No. 1, of the excellent permeability of these reservoirs.

[redacted]

Q What was the range of permeability in millidarcies, Mr. Hair?

A I believe in that testimony the average permeability was 42 millidarcies in this zone, which is excellent.

Q Okay.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 9003 Exhibit No. 1-A
Exxon
11/21/86

VOLUMETRIC RESERVE ANALYSIS OF VIERSON #2 POD

Based upon Pennzoil's testimony:

A= 10 acres

Ø= 8%

h_{avg}= unknown

S_w= 15%

RF= 25%

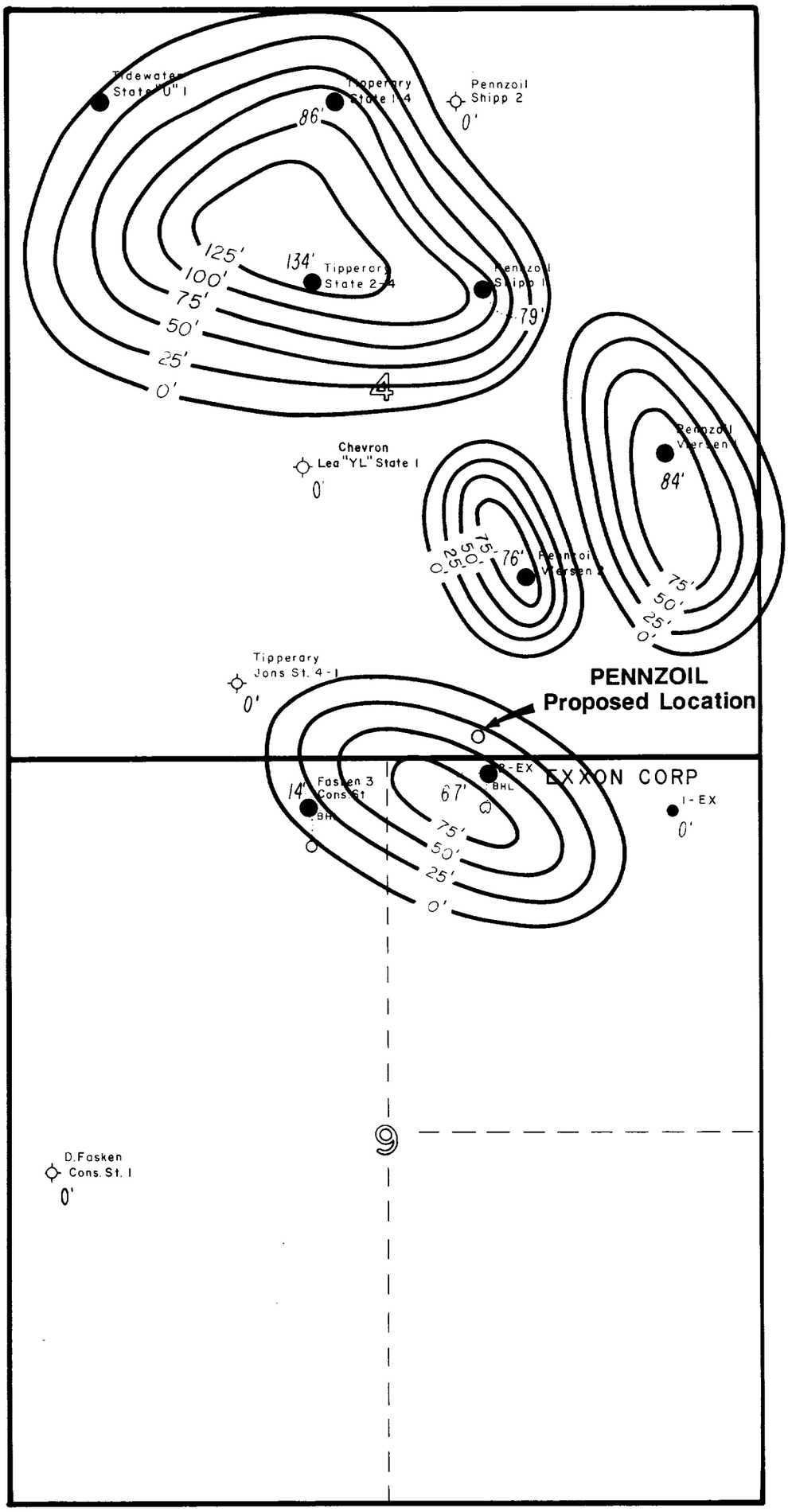
B_o= 1.5 RB/STB

N= 71,000 STB

Solving for h:

$$71{,}000 = \frac{7758(10)(0.08)(1-0.15)(.25)(h)}{1.5}$$

h =80.7'



● Strawn Producer

EXXON

EXHIBIT NO. 2

DOCKET NO. 9003

HEARING DATE 11/20/86

N

EXXON CORPORATION, U.S.A.

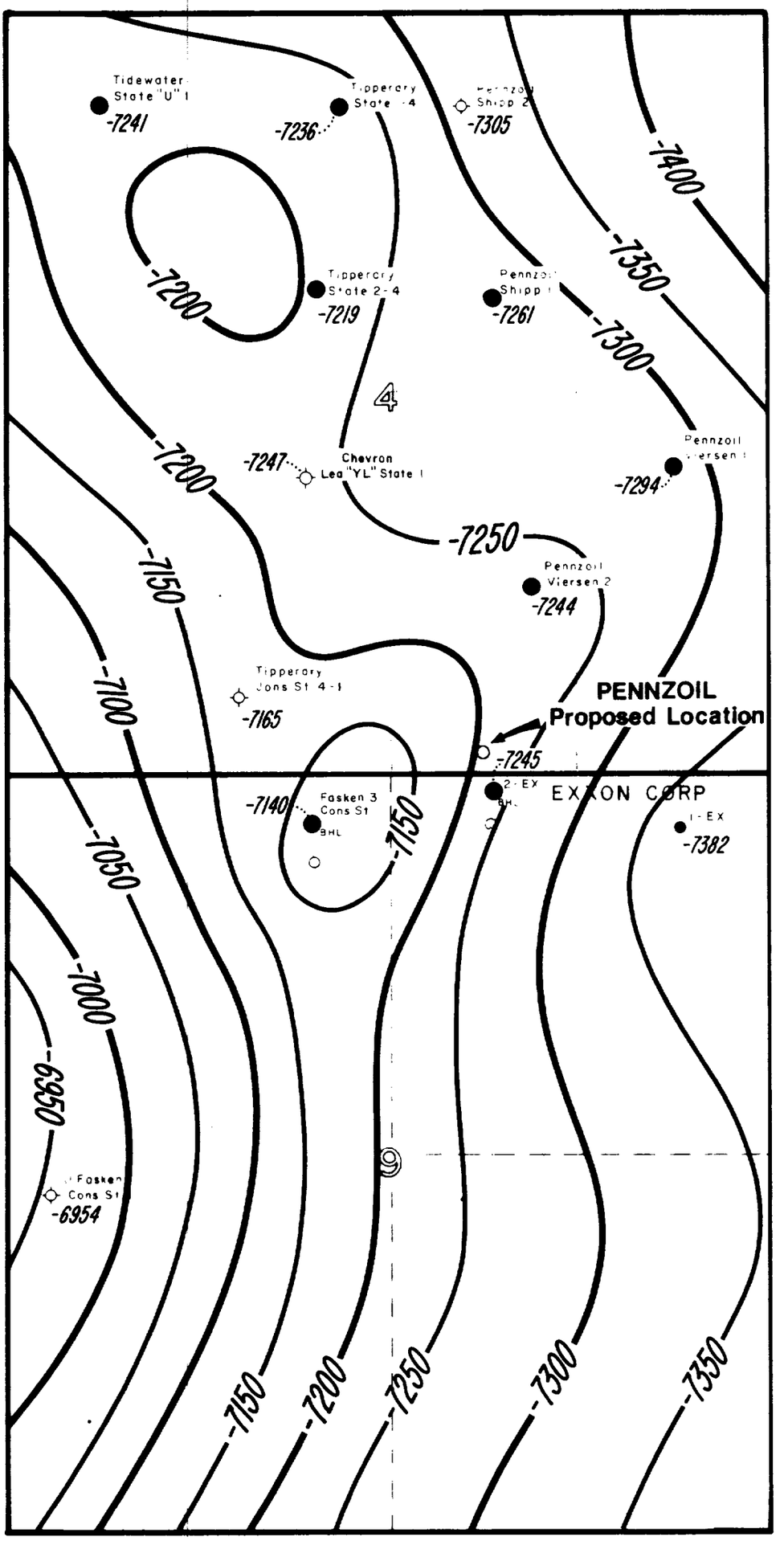
SHIPP FIELD

Net Porosity Map - Strawn
HORIZON

T-17-S, R-37-E — Lea County, New Mexico
LOCATION — COUNTY — STATE

4% Porosity Cutoff

1" = 1000' — C.I. - 25'



● Strawn Producer

EXXON

EXHIBIT NO. 2A

DOCKET NO. 9003

HEARING DATE 11-20-86

N

EXXON CORPORATION

SHIPP FIELD

Structure Map - Top of Strawn

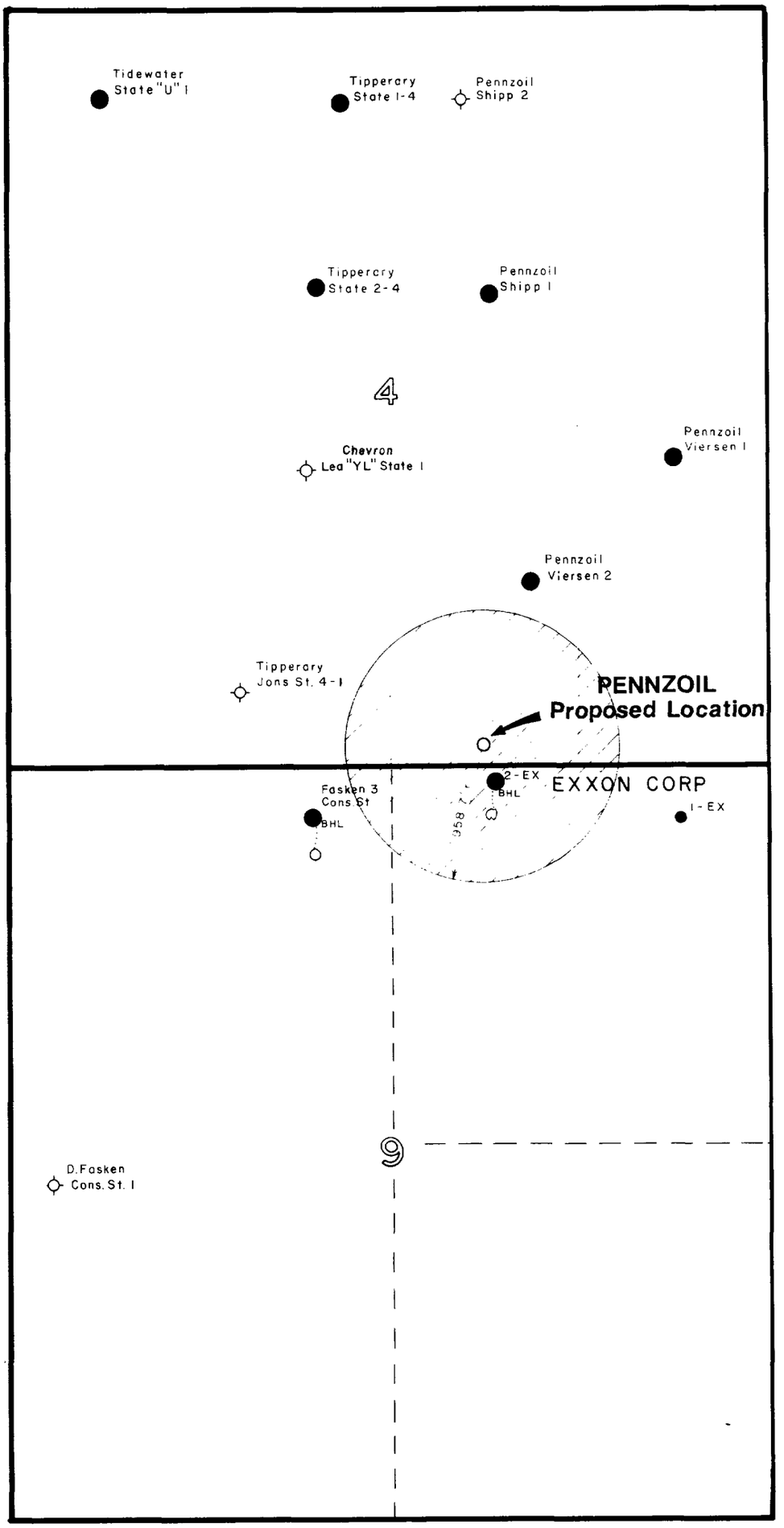
HORIZON

T-17-S, R-37-E — LOCATION

Lea County, New Mexico — COUNTY, STATE

C.I. - 50'

1" - 1000'



● Strawn Producer

EXHIBIT NO. 3

DOCKET NO. 9003

HEARING DATE 11-20-86

EXXON CORPORATION

SHIPP FIELD

Possible BHL's (at 11,000-foot drill depth) without exceeding 5° deviation from vertical.

HORIZON

T-17-S, R-37-E — LOCATION

Lea County, New Mexico — COUNTY, STATE

1" = 1000' — r = 958.7'

PENALTY CALCULATION[1]

Acreage Distribution of Strawn Reservoir Productive in Fasken-Consolidated State #3 and Exxon "Ex" State #2

Company	Number of Productive Acres Leased
Exxon	39
Pennzoil	13
Phillips	8
Faskin	13

Total area of this productive reservoir = 73 acres

$$\text{Production Limitation Factor}^2 = \frac{\text{Productive Acreage}}{\text{Proration Unit Size}}$$

$$= \frac{13 \text{ Acres}}{80 \text{ Acres}}$$

$$\text{Production Limitation Factor}^2 = 0.16$$

$$\text{Penalty} = (1-0.16) = 0.84$$

$$\text{Production Limitation} = (0.16)(445 \text{ BOPD}) = 71 \text{ BOPD}$$

[1] From Order No. R-8239

[2] To be applied to the Depth Bracket Allowable for an 80-acre Oil Proration Unit.

Exxon Corporation
Exhibit No. 4
Case No. 9003
November 20, 1986

PENALTY CALCULATION

Volume Distribution of Strawn Reservoir Productive in Fasken-Consolidated State #3 and Exxon "Ex" State #2

Company	Volume of Reservoir under Leased Acreage (Acre/ft)
Exxon	1662
Pennzoil	360
Phillips	254
Faskin	233

Total volume of this productive reservoir = 2509 acre-feet

$$\text{Production Limitation Factor}^1 = \frac{\text{Leased Volume}}{\text{Total Volume}}$$

$$= \frac{360 \text{ Acre-ft}}{2509 \text{ Acre-ft}}$$

$$\text{Production Limitation Factor}^1 = 0.14$$

$$\text{Penalty} = (1-0.14) = 0.86$$

$$\text{Production Limitation} = (0.14)(445 \text{ BOPD}) = 62 \text{ BOPD}$$

[1] To be applied to the Depth Bracket Allowable for an 80-acre Oil Proration Unit.

Exxon Corporation
Exhibit No. 5
Case No. 9003
November 20, 1986