CASE 9274: DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO

CASE NO.

6927

APPLICATION,
TRANSCRIPTS,
SMALL EXHIBITS,

ETC.

DOYLE HARTMAN
Oil Operator
508 C & K Petroleum Bldg.
P. O. BOX 10426
MIDLAND, TEXAS 79702

(915) 684-4011

RECEIVED
SEP - 2 1980
OIL CONSERVATION DIVISION
SANTA FE

September 18, 1980

CERTIFIED MAIL

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt D. Krehbiel

Re: Compulsory Pooling
South Empire State No. 1
S/2 Section 24, 17-S, R-28-E
Eddy County, New Mexico

Gentlemen:

Please find enclosed two copies of an AFE and Detail Well Estimate for my proposed South Empire State No. 1. On July 7, 1980, the New Mexico Oil Conservation Division entered a favorable order (No. R-6390) concerning my application before the NMOCD (Case No. 6927) wherein I had requested approval of a non-standard location and compulsory pooling of all non-consenting parties in the S/2 Section 24.

As provided for in the pooling statutes of the State of New Mexico, you now have thirty days from the date of this letter in which to voluntarily join in the drilling of the proposed South Empire State No. 1 (which is presently drilling at a total depth of 2487'), or have the compulsory pooling order rendered by the NMOCD become final as to your interest. If you now wish to voluntarily join in the proposed development work, please return to my office at your earliest convenience one signed copy of the enclosed AFE and Detail Well Estimate and a signed copy of the Operating Agreement covering the S/2 Section 24.

Very truly yours,

Doyle Hartman

DH/mh

Enclosures as above

cc: See Address List Attached

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SANTA FE

DETAIL WELL ESTIMATE

LEASE NO. LG-6340 APPR. NO. _____

LEASE NAME South Empire State WELL NO. 1 W. I. _____

COUNTY Eddy STATE New Mexico FIELD Empire Morrow, South

LOCATION: 660 FSL and 660 FWL Section 24, T-17-S, R-28-E

DRILLING INTANGIBLES:	PRODUCER	DRY HOLE
1. Drilling Cost _____ Feet @ _____ Per Foot		
2. Day Work 52 Days at $5000./day Rig Mobilization $73,000.	330,000	330,000
3. Coring Service _____ Well Surveys _____	25,000	25,000
4. Testing _____	5,000	5,000
5. Fuel _____ Water _____		
6. Mud and Water Mud Logging _____	26,000	26,000
7. Cementing Service _____ Cement _____ Floats _____	42,800	17,800
8. Company Labor _____ Contract Labor _____	12,000	1,200
9. Digging Pits _____ Filling Pits _____	12,000	12,000
10. Roads & Bridges _____ Dredging & Grading _____	12,000	12,000
11. Acidizing _____ Fracturing _____ Perforating _____	150,000	---
12. Plugging _____		8,000
13. Trucking Cost _____	8,500	2,500
14. Development Superintendence 75 days @ $ 350.00 /day	26,250	18,200
15. Rental Equipment _____	23,000	18,000
16. Swabbing and Testing 15 days at $1,200.	18,000	---
17. Other Costs Bits	29,100	29,100
Contingence	30,350	15,200
Total Intangibles	750,000	520,000

WELL EQUIPMENT:

18. Casing	500	Ft. of	13 3/8	@	23.368	Per Ft.		
	2,500	Ft. of	8 5/8	@	11.853	Per Ft.		
	11,400	Ft. of	5 1/2	@	12.764	Per Ft.	186,826	41,317
19. Tubing	11,400	Ft. of	2 7/8	@	5.067	Per Ft.	57,764	
20. Casing Head							6,000	6,000
21. Xmas Tree or Pumping Connections							39,000	
22. Pumping Unit								
23. Engine								
24. Sucker Rods								
25. Pump								
26. Tank Battery							7,200	
27. Separator or Dehydration Equip.							32,000	
28. Metering Equipment								
29. Flow Lines							12,500	
30. Other Contingence							10,000	
							18,710	2,683
Total Tangibles							370,000	50,000
TOTAL COST OF WELL							1,120,000	570,000

REMARKS: _____

Originated by Larry A. Neumann Title Engineer Date April 30, 1980

Approved _____ Title _____ Date _____

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: ARCo Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt D. Krehbiel

MIDLAND TEX. SEP 19 '80

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SEP 2 1980
OIL CONSERVATION DIVISION
SANTA FE

PS Form 3811, Jan. 1979

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Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered..... 55 ¢
- ☐ Show to whom, date and address of delivery.... ¢
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  Show to whom and date delivered..... ¢
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  Show to whom, date, and address of delivery.$

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2. ARTICLE ADDRESSED TO:
ARCo Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

3. ARTICLE DESCRIPTION:

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☆GPO : 1979-300-469

Husky

Husky Oil Company

600 South Cherry Street
Denver, Colorado 80222
(303) 320-4040

June 4, 1980

Oil Conservation Commission
New Mexico Energy & Mineral Department
Land Office Building
Santa Fe, New Mexico 87503

RE: Case No. 6927
Case No. 6928

Gentlemen:

Husky Oil Company, under the State of New Mexico Lease #647-368, which includes Sec.25-T17S-R28E, Eddy County, New Mexico, owns a 15.97222% working interest in said Sec.25-T17S-R28E. This 15.97222% working interest applies to the following interval: from 500' below the top of the San Andres Formation to any depth.

Mr. Doyle Hartman has applied for an unorthodox Morrow well to be located 660' FWL and 660' FSL, Sec.24-T17S-R28E, Eddy County, New Mexico. Since a Morrow dry hole (Pennzoil) exists at a location 1980' FWL & 660' FSL Sec.24-T17S-R28E, Husky Oil Company as an offset working interest owner objects to the proposed unorthodox location. If the Commission deems it advisable to grant the unorthodox location, we strongly recommend that a severe allowable restriction be placed on the proposed unorthodox location. The previously mentioned Pennzoil dry hole definitely demonstrates that the entire 320 acre spaced unit is not productive from the Morrow Formation. Such an allowable restriction should protect the correlative rights and ownership of offset owners.

At the same time, we firmly support Application No. 6928 by ARCO Oil and Gas Company for the same "320" acre unit utilizing a well in an orthodox location for the reason that it will protect correlative rights and prevent waste.

Husky Oil Company has been an active participant in the development of the deeper gas producing formations in this area since September, 1972.

Respectfully submitted,

J. L. Corkill

HUSKY OIL COMPANY
J. L. Corkill
Manager, Joint Interest Production

JLC:dh

June 5, 1980

Oil Conservation Commission
New Mexico Energy & Minerals Department
Land Office Building
Santa Fe, New Mexico 87503

Re: Case 6927
Case 6928

Gentlemen:

DEPCO has a working interest in Section 25, Township 17 South, Range 28 East, and would like to state its opposition to Application No. 6927 by Doyle Hartman for an unorthodox location in the South half of Section 24, Township 17 South, Range 28 East. We have looked at the situation and are of the strong opinion that approval of the Hartman application would be contrary to the protection of correlative rights and prevention of waste.

If the Commission sees fit to approve the Hartman application, we would strongly request that an allowable restriction to significantly less than 25% of deliverability be imposed.

Respectfully submitted,

DEPCO, Inc.

By Lee Flowers
Lee Flowers
Chief Engineer

LF:to

Docket No. 17-80

Dockets Nos. 19-80 and 20-80 are tentatively set for June 25 and July 9, 1980. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: COMMISSION HEARING - THURSDAY - JUNE 5, 1980

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

CASE 6927: Application of Doyle Hartman for compulsory pooling and an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South and West lines of said Section 24. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6928: Application of ARCO Oil and Gas Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

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Docket No. 16-80

DOCKET: EXAMINER HEARING - WEDNESDAY - JUNE 4, 1980

9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

CASE 6803: (Continued from April 23, 1980, Examiner Hearing)

In the matter of the hearing called by the Oil Conservation Division on its own motion to permit EPROC Associates, Hartford Accident and Indemnity Company, and all other interested parties to appear and show cause why its Monsanto State H Well No. 1 located in Unit E of Section 2, Township 30 North, Range 16 West, San Juan County, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6906: Application of Amoco Production Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its South Mattix Unit Well No. 39 located in Unit G of Section 15, Township 24 South, Range 37 East, to produce oil from the Fowler-Upper Yeso and Fowler-Drinkard Pools thru parallel strings of tubing.

CASE 6907: Application of Amoco Production Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Myers B Federal Well No. 28 located in Unit M of Section 9, Township 24 South, Range 37 East, to produce gas from the Jalmat and Langlie Mattix Pools thru parallel strings of tubing.

CASE 6908: Application of Estoril Producing Corporation for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Curry State Well No. 1, a Pennsylvanian test to be drilled 660 feet from the North and East lines of Section 22, Township 23 South, Range 34 East, Antelope Ridge Field, the N/2 of said Section 22 to be dedicated to the well.

CASE 6909: Application of El Paso Natural Gas Company for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Basin-Dakota and Largo-Gallup production in the wellbore of its Rincon Unit Well No. 164 located in Unit L of Section 2, Township 26 North, Range 7 West.

CASE 6886: (Continued from May 21, 1980, Examiner Hearing)

Application of Aminoil USA, Inc. for compulsory pooling and an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp and Pennsylvanian formations underlying the S/2 of Section 10, Township 24 South, Range 28 East, to be dedicated to a well to be drilled at an unorthodox location 2080 feet from the South line and 1773 feet from the East line of said Section 10. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6910: Application of Grace Petroleum Corporation for four compulsory poolings, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Gallup formation underlying four 40-acre proration units, being the SE/4 NE/4, the SE/4 NW/4, and the NW/4 NW/4 of Section 28, and the SW/4 SE/4 of Section 29, all in Township 24 North, Range 7 West, each to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the wells, and a charge for risk involved in drilling said wells.

CASE 6911: Application of Grace Petroleum Corporation for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Gallup formation underlying the NE/4 NW/4 of Section 11, Township 23 North, Range 7 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6912: Application of Southland Royalty Company for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its State "14" Comm. Well No. 1 located in Unit F of Section 14, Township 19 South, Range 29 East, Turkey Track Field, to produce gas from the Morrow and Atoka formations thru tubing and the casing-tubing annulus, respectively

CASE 6913: Application of Kerr-McGee Corporation for an unorthodox well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its State F Well No. 14 to be drilled 1310 feet from the North line and 1330 feet from the West line of Section 2, Township 8 South, Range 33 East, Chaveroo-San Andres Pool.

CASE 6914: Application of Wilson Oil Company for a non-standard proration unit and unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 320-acre non-standard gas proration unit comprising the S/2 of Section 29, Township 20 South, Range 36 East, North Osudo-Morrow Gas Pool, to be dedicated to its State JD Well No. 1 at an unorthodox location 1650 feet from the South line and 1980 feet from the West line of said Section 29.

CASE 6915: Application of Jake L. Hamon for a non-standard gas proration unit and an unorthodox well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 320-acre non-standard gas proration unit comprising the S/2 of Section 8, Township 20 South, Range 36 East, North Osudo-Morrow Gas Pool, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South line and 1980 feet from the West line of said Section 8.

CASE 6916: Application of Petro-Lewis Corporation for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of the Drinkard and Blinebry production in the wellbore of its State DC Well No. 1, a quadruple completion located in Unit F of Section 19, Township 21 South, Range 37 East.

CASE 6917: Application of Yates Petroleum Corporation for an NGPA determination, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks a new onshore reservoir determination for its Goat Roper "LP" Com. Well No. 1 located in Unit P of Section 30, Township 17 South, Range 26 East.

CASE 6918: Application of Yates Petroleum Corporation for downhole commingling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Upper Penn and Morrow gas production in the wellbore of its Kennedy "JQ" Com. Well No. 1 located in Unit H of Section 33, Township 17 South, Range 26 East, Kennedy Farms Field.

CASE 6919: Application of Yates Petroleum Corporation for downhole commingling or consolidation of two pools, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Wolfcamp and Penn gas production in the wellbore of its Anderson State "CS" Com. Well No. 1-Y located in Unit G of Section 14, and its Fordinkus State "HZ" Com. Well No. 1 located in Unit G of Section 22, both in Township 18 South, Range 24 East, or, in the alternative, the consolidation of the Fordinkus-Cisco Gas Pool and the Penasco Draw Permo-Penn Gas Pool into one Permo-Penn gas pool to include the above-described wells.

CASE 6920: Application of Yates Petroleum Corporation for a dual completion and unorthodox well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its 5 Mile Draw Federal Well No. 1 to produce from the Pennsylvanian and Abo formations thru the tubing and casing-tubing annulus, respectively; applicant also seeks approval for the unorthodox location of said well in the Abo formation 800 feet from the South line and 2100 feet from the East line of Section 34, Township 6 South, Range 25 East, the SE/4 of the section to be dedicated to the well.

CASE 6903: (Continued from May 21, 1980, Examiner Hearing)

Application of Harvey E. Yates Company for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Pennsylvanian-Mississippian test well to be drilled 660 feet from the South line and 990 feet from the East line of Section 33, Township 13 South, Range 36 East, the S/2 of said Section 33 to be dedicated to the well.

CASE 6904: (Continued from May 21, 1980, Examiner Hearing)

Application of Harvey E. Yates Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the McDonald Unit Area, comprising 1,440 acres, more or less, of fee lands in Townships 13 and 14 South, Range 36 East.

CASE 6921: Application of Harvey E. Yates Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp-Mississippian formations underlying the S/2 of Section 33, Township 13 South, Range 36 East, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South and East lines of Section 33. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6922: Application of Harvey E. Yates Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp-Pennsylvanian formations underlying the E/2 of Section 24, Township 18 South, Range 28 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6923: Application of Harvey E. Yates Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Cayton-Austin Unit Area, comprising 960 acres, more or less, of State and fee lands in Township 14 South, Range 36 East.

CASE 6924: Application of Caribou Four Corners, Inc. for two unorthodox oil well locations, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of two wells to be drilled, the first being 860 feet from the North line and 2090 feet from the West line, and the second being 910 feet from the North line and 395 feet from the West line, both in Section 13, Township 29 North, Range 15 West, Cha Cha-Gallup Oil Pool, the E/2 and the W/2, respectively, of the NW/4 of said Section 13 to be dedicated to the wells.

CASE 6925: Application of Caribou Four Corners, Inc. for two exceptions to Rule 306, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Rule 306 of the Division Rules and Regulations to permit the permanent flaring of gas from its Kirtland Wells Nos. 1 and 2, located in Units A and B, respectively, of Section 13, Township 29 North, Range 15 West.

CASE 6889: (Readvertised)

Application of Belco Petroleum Corporation for directional drilling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to directionally drill a well, the surface location of which is 1980 feet from the North line and 920 feet from the West line of Section 36, Township 22 South, Range 30 East, in such a manner as to bottom it at an unorthodox location within 660 feet of a point 1320 feet from the North line and 2640 feet from the West line of said Section 36 in the Morrow formation, the N/2 of said Section 36 to be dedicated to the well.

CASE 6896: (Continued from May 21, 1980, Examiner Hearing)

Application of John E. Schalk for a non-standard gas proration unit and an unorthodox gas well location, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard Blanco Mesaverde gas proration unit comprising the NE/4 of Section 8, Township 25 North, Range 3 West, to be dedicated to his Gulf Well No. 2 to be drilled at an unorthodox location 1925 feet from the North line and 790 feet from the East line of said Section 8.

CASE 6926: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating, contracting vertical limits, and extending horizontal limits of certain pools in Chaves, Eddy, and Lea Counties, New Mexico:

(a) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Pennsylvanian production and designated as the Arkansas Junction-Pennsylvanian Pool. The discovery well is Rex Alcorn Bobbi Well No. 1Y located in Unit J of Section 20, Township 18 South, Range 36 East, NMPM. Said pool would comprise:

TOWNSHIP 18 SOUTH, RANGE 36 EAST, NMPM
Section 20: SE/4

(b) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Delaware production and designated as the Avalon-Delaware Pool. The discovery well is MWJ Producing Company State GW Well No. 1 located in Unit K of Section 36, Township 20 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 27 EAST, NMPM
Section 36: SW/4

(c) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Delaware production and designated as the East Burton-Delaware Pool. The discovery well is J. C. Williamson TOG Federal Well No. 1 located in Unit F of Section 16, Township 20 South, Range 29 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 29 EAST, NMPM
Section 16: NW/4

(d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the Dog Canyon-Strawn Gas Pool. The discovery well is Harvey E. Yates Company Gates Federal Deep Well No. 1 located in Unit P of Section 6, Township 17 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 6: S/2

(e) CREATE a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production and designated as the South Double L-San Andres Pool. The discovery well is McClellan Oil Corporation Mark Federal Well No. 1 located in Unit I of Section 30, Township 15 South, Range 30 East, NMPM. Said pool would comprise:

TOWNSHIP 15 SOUTH, RANGE 30 EAST, NMPM
Section 30: SE/4

(f) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Grayburg production and designated as the Empire-Grayburg Gas Pool. The discovery well is Carl A. Schellinger West Federal Well No. 1 located in Unit G of Section 14, Township 17 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM
Section 14: NE/4

(g) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Morrow production and designated as the North Hume-Morrow Gas Pool. The discovery well is Bass Enterprises Production Company Bass 36 State Well No. 1 located in Unit E of Section 36, Township 15 South, Range 34 East, NMPM. Said pool would comprise:

TOWNSHIP 15 SOUTH, RANGE 34 EAST, NMPM
Section 36: W/2

(h) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Atoka production and designated as the Lusk-Atoka Gas Pool. The discovery well is Phillips Petroleum Company Lusk Deep Unit A Com Well No. 13 located in Unit K of Section 18, Township 19 South, Range 32 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
Section 18: S/2

(i) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Morrow production and designated as the Milepost-Morrow Gas Pool. The discovery well is Exxon Corporation Scheidt Federal Well No. 1 located in Unit L of Section 30, Township 26 South, Range 26 East, NMPM. Said pool would comprise:

TOWNSHIP 26 SOUTH, RANGE 25 EAST, NMPM
Section 36: N/2 N/2 and Lots, 1, 2, 3, and 4

TOWNSHIP 26 SOUTH, RANGE 26 EAST, NMPM
Section 30: S/2
Section 31: N/2 NW/4 and Lots 3 and 4

(j) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Atoka production and designated as the Turkey Track-Atoka Gas Pool. The discovery well is Tenneco Oil Company State HL 11 Well No. 1 located in Unit N of Section 11, Township 19 South, Range 29 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 10: E/2
Section 11: S/2

(k) CONTRACT the vertical limits of the East Grama Ridge-Bone Springs Pool to the interval from 10,472 feet to 10,900 feet as found on the type log for the Getty Oil Company State 35 Well No. 1 located in Unit K of Section 35, Township 21 South, Range 34 East, NMPM, and redesignate said pool as the East Grama Ridge-Lower Bone Springs Pool.

(l) EXTEND the Airstrip-Upper Bone Springs Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM
Section 25: W/2 SW/4
Section 26: SE/4

(m) EXTEND the Atoka-Yeso Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 26 EAST, NMPM
Section 33: NW/4 and N/2 S/2

(n) EXTEND the Brunson-Fusselman Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH RANGE 37 EAST, NMPM
Section 8: SE/4

(o) EXTEND the Buckeye-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM
Section 9: NW/4

(p) EXTEND the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM
Section 13: W/2
Section 14: E/2

(q) EXTEND the Catclaw Draw-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 26 EAST, NMPM
Section 34: S/2

TOWNSHIP 21 SOUTH, RANGE 25 EAST, NMPM
Section 2: Lots 1 through 8

(r) EXTEND the Chaveroo-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 32 EAST, NMPM
Section 34: NE/4

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Section 3: SW/4

(s) EXTEND the Cinta Roja-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 35 EAST, NMPM
Section 4: All

(t) EXTEND the South Corbin-Strawn Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM
Section 29: N/2
Section 30: N/2

(u) EXTEND the South Corbin-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM
Section 28: W/2

(v) EXTEND the Crooked Creek-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 24 EAST, NMPM
Section 8: S/2

(w) EXTEND the South Empire-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 29 EAST, NMPM
Section 17: All

(x) EXTEND the East Grama Ridge-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 34 EAST, NMPM
Section 12: W/2

(y) EXTEND the Hat Mesa-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 32 EAST, NMPM
Section 10: W/2

(z) EXTEND the Henshaw Queen-Grayburg-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 30 EAST, NMPM
Section 11: SW/4 SW/4
Section 14: S/2 and W/2 NW/4
Section 15: E/2 SE/4

(aa) EXTEND the Hobbs-Drinkard Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 38 EAST, NMPM
Section 4: SE/4

(bb) EXTEND the Indian Flats-Delaware Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: N/2 NE/4

(cc) EXTEND the South Kemnitz Atoka-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 29: W/2

(dd) EXTEND the Logan Draw-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM
Section 19: N/2 NE/4 and SE/4 NE/4

(ee) EXTEND the Middle Lynch Yates-Seven Rivers Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 34 EAST, NMPM
Section 21: E/2 SW/4

(ff) EXTEND the Penasco Draw San Andres-Yeso Associated Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 25 EAST, NMPM
Section 31: SW/4

(gg) EXTEND the East Red Lake Queen-Grayburg Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 28 EAST, NMPM
Section 25: S/2 S/2
Section 26: S/2 SE/4 and SE/4 SW/4
Section 36: N/2 NW/4

(hh) EXTEND the North Shugart-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 17: S/2

(ii) EXTEND the Tomshawk-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 31 EAST, NMPM
Section 25: SE/4

(jj) EXTEND the Turkey Track Seven Rivers-Queen-Grayburg Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 9: E/2 NE/4

(kk) EXTEND the North Vacuum-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM
Section 17: NW/4

(ll) EXTEND the Winchester-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 3: All

(mm) EXTEND the Winchester-Upper Pennsylvanian Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 30: W/2

****

Docket No. 18-80

DOCKET: EXAMINER HEARING - THURSDAY - JUNE 19, 1980

9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for July, 1980, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for July, 1980, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CAMPBELL AND BLACK, P.A.
LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR

POST OFFICE BOX 2208
JEFFERSON PLACE
SANTA FE, NEW MEXICO 87501
TELEPHONE (505) 982-4285

RECEIVED
MAY 14 1980
OIL CONSERVATION DIVISION
SANTA FE

May 14, 1980

Mr. Joe D. Ramey
Director
Oil Conservation Division
New Mexico Department of
Energy & Minerals
Post Office Box 2088
Santa Fe, New Mexico 87501

HAND DELIVERED

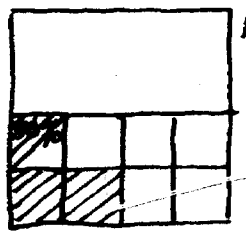
Case 6927

Re: Application of Doyle Hartman for Compulsory Pooling and an Unorthodox Well Location, Eddy County, New Mexico

Dear Mr. Ramey:

Enclosed herewith in triplicate is the application of Doyle Hartman in the above-referenced case. Mr. Hartman requests that this case be included on the docket for the Commission hearing scheduled for June 5, 1980. We are requesting a full Commission hearing in this matter due to the fact that Mr. Hartman has a rig available on or about July 1 to drill the Morrow test well which is the subject of this case. We understand that Arco Oil and Gas Company will oppose this application and that, in any event, this case will eventually require a Commission hearing. We, therefore, believe that setting the matter for June 5 will avoid unnecessary delays in obtaining a final Commission order and will eliminate the possibility of an additional hearing in this matter.

On April 26, 1980, Mr. Hartman filed a C-101 and C-102 for the subject well. He noted on these forms that an application for a hearing to pool this acreage and to approve the non-standard location was being filed with the Division. Mr. Hartman owns the S/2 SW/4 of Section 24 and also owns 50% of Unit L. Arco owns the remaining 20 acres in Unit L. Mr. Hartman is proposing to drill his acreage. We do not know of any other acreage in the S/2 of 24 which currently is owned by Arco. We do, however, believe that Arco will file a similar application with the Oil Conservation Division proposing a well in Unit O. We, therefore, request that



Hartman 80 acres S/2 SW/4
50%/40 acres NW/4 SW/4
100 net acres WI = 31.25% WI in S/2

neither application for permit to drill be approved pending hearing. We hope that the cases will be heard on the same date and intend to request that the cases be consolidated for the purposes of hearing since they involve the same issues.

Your attention to our request is appreciated.

Very truly yours,

William F. Carr

WFC:lr

Enclosures

cc: Mr. Doyle Hartman

BEFORE THE

OIL CONSERVATION COMMISSION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

RECEIVED
MAY 1 1 1980
OIL CONSERVATION DIVISION
SANTA FE

IN THE MATTER OF THE APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX WELL LOCATION, EDDY COUNTY, NEW MEXICO

CASE 6922

APPLICATION

Comes now, DOYLE HARTMAN, by and through his undersigned attorneys and, as provided by Section 70-2-17, New Mexico Statutes Annotated, 1978 Compilation, hereby makes application for an order pooling all of the mineral interests in the Pennsylvanian formation in and under the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M., Eddy County, New Mexico, and in support thereof would show the Commission:

1. Applicant is the owner of 31.25% of the working interest in and under the S/2 of Section 24, and applicant has the right to drill thereon.

2. Applicant proposes to dedicate the above-referenced pooled unit to a well to be drilled at an unorthodox location 660 feet from the South and West lines of said Section 24.

3. Applicant has sought and obtained either voluntary agreement for pooling or farmout from all other working interest owners in the S/2 of said Section 24 except the following:

Pennzoil Company Post Office Box 1828 Midland, Texas 79702	31.2500%

Inexco Oil Company 1100 Milam Building Suite 1900 Houston, Texas 77002	26.3672%
Maralo, Inc.	.4883%
Mrs. Erma Lowe	.4883%
M. Ralph Lowe, Inc. c/o Maralo, Inc. 4600 Post Oak Place Suite 307 Houston, Texas 77027	.9765%
Exxon Company, U.S.A. Post Office Box 1600 Midland, Texas 79702	1.9531%
Continental Oil Company Post Office Box 1959 Midland, Texas 79702	.4883%
Tenneco Oil Company 6800 Park Ten Boulevard Suite 200 North San Antonio, Texas 78213	.4883%
Arco Oil and Gas Company Post Office Box 1610 Midland, Texas 79702	6.2500%

4. Said pooling of interest and well completion will avoid the drilling of unnecessary wells, will prevent waste and will protect correlative rights.

5. In order to permit the applicant to obtain its just and fair share of the oil and gas underlying the subject lands, the mineral interest should be pooled, and applicant should be designated the operator of the well to be drilled.

WHEREFORE, applicant prays that this application be set for hearing before the full Oil Conservation Commission, and that after notice and hearing as required by law the Commission enter its order (1) pooling the lands, including provisions designating the applicant as operator of the well, providing for applicant to recover its costs of drilling, equipping and

completing the well, its costs of supervision while drilling, and after completion, including overhead charges, and a risk factor for the risk assumed by the applicant in drilling, completing and equipping the well and (2) approving the unorthodox location for the proposed well and (3) making such other and further provisions as may be proper in the premises.

Respectfully submitted,

CAMPBELL AND BLACK, P.A.

By William F. Carr

William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Applicant

BEFORE THE

OIL CONSERVATION COMMISSION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

RECEIVED
MAY 1 1 1980
OIL CONSERVATION DIVISION
SANTA FE

IN THE MATTER OF THE APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX WELL LOCATION, EDDY COUNTY, NEW MEXICO

CASE 6927

APPLICATION

Comes now, DOYLE HARTMAN, by and through his undersigned attorneys and, as provided by Section 70-2-17, New Mexico Statutes Annotated, 1978 Compilation, hereby makes application for an order pooling all of the mineral interests in the Pennsylvanian formation in and under the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M., Eddy County, New Mexico, and in support thereof would show the Commission:

1. Applicant is the owner of 31.25% of the working interest in and under the S/2 of Section 24, and applicant has the right to drill thereon.

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completing the well, its costs of supervision while drilling, and after completion, including overhead charges, and a risk factor for the risk assumed by the applicant in drilling, completing and equipping the well and (2) approving the unorthodox location for the proposed well and (3) making such other and further provisions as may be proper in the premises.

Respectfully submitted,

CAMPBELL AND BLACK, P.A.

By _____
William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Applicant

BEFORE THE

OIL CONSERVATION COMMISSION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

RECEIVED
MAY 14 1980
OIL CONSERVATION DIVISION
CASE SANTA FE

IN THE MATTER OF THE APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX WELL LOCATION, EDDY COUNTY, NEW MEXICO

APPLICATION

Comes now, DOYLE HARTMAN, by and through his undersigned attorneys and, as provided by Section 70-2-17, New Mexico Statutes Annotated, 1978 Compilation, hereby makes application for an order pooling all of the mineral interests in the Pennsylvanian formation in and under the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M., Eddy County, New Mexico, and in support thereof would show the Commission:

1. Applicant is the owner of 31.25% of the working interest in and under the S/2 of Section 24, and applicant has the right to drill thereon.

2. Applicant proposes to dedicate the above-referenced pooled unit to a well to be drilled at an unorthodox location 660 feet from the South and West lines of said Section 24.

3. Applicant has sought and obtained either voluntary agreement for pooling or farmout from all other working interest owners in the S/2 of said Section 24 except the following:

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completing the well, its costs of supervision while drilling, and after completion, including overhead charges, and a risk factor for the risk assumed by the applicant in drilling, completing and equipping the well and (2) approving the unorthodox location for the proposed well and (3) making such other and further provisions as may be proper in the premises.

Respectfully submitted,

CAMPBELL AND BLACK, P.A.

By William F. Carr

William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Applicant

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

RECEIVED
JUN 23 1980
OIL CONSERVATION DIVISION
SANTA FE

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

APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO.

CASE NO. 6927

Order No. R-6390

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on June 5, 1980, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this _____ day of June, 1980, the Commission, having considered the testimony, exhibits and the record, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Doyle Hartman, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M., South Empire-Morrow Gas Pool, Eddy County, New Mexico.

(3) That the applicant has the right to drill and proposes to drill a well at an unorthodox location 800 feet from the South line and 1000 feet from the West line of said Section 24.

(4) That Amoco Oil and Gas Company opposed the proposed unorthodox well location at the hearing of the case.

(4) That ARCO Oil & Gas Company, in companion Case No. 6928, ~~[illegible]~~ requested compulsory pooling of the S/2 of ~~[illegible]~~ said Section 24 to be dedicated to a well 660 feet from the South line and 1980 feet from the ~~[illegible]~~ East line~~[illegible]~~ of said Section 24.

(5) That ARCO Oil & Gas Company opposed the proposed unorthox well location sought in this Case.

(6) That the preponderance of evidence presented in this case indicated a Morrow formation channel sand containing substantial reserves of hydrocarbons underlies, at a minimum, portions of Sections 24 & 25, Township 17 South, Range 28 East N.M.P.M., Eddy County, New Mexico.

(7) That ARCO ~~Oil & Gas Company~~ operates two wells in said Section 25, south of the proposed proration unit.

(8) That the ARCO wells in said Section 25 are completed in & producing from said Morrow formation channel sand.

(9) That in said Section 25, the channel trends generally in a northwest-southeast direction.

(10) That geophysical ~~[illegible]~~ evidence presented indicated

in said pool, the subject application should be approved by pooling all mineral interests, whatever they may be, within said unit.

(17) That the applicant should be designated the operator of the subject well and unit.

(18) That any non-consenting working interest owner should be afforded the opportunity to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production.

(19) That any non-consenting working interest owner that does not pay his share of estimated well costs should have withheld from production his share of the reasonable well costs plus an additional 200 percent thereof as a reasonable charge for the risk involved in the drilling of the well.

(20) That any non-consenting interest owner should be afforded the opportunity to object to the actual well costs but that actual well costs should be adopted as the reasonable well costs in the absence of such objection.

(21) That following determination of reasonable well costs, any non-consenting working interest owner that has paid his share of estimated costs should pay to the operator any amount that reasonable well costs exceed estimated well costs and should receive from the operator any amount that paid estimated well costs exceed reasonable well costs.

(22) That $3,100.00 per month while drilling and $310.00 per month while producing should be fixed as reasonable charges for supervision (combined fixed rates); that the operator should be authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator should be authorized to withhold from production the proportionate share of actual expenditures required for operating the subject well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(23) That all proceeds from production from the subject well which are not disbursed for any reason should be placed in escrow to be paid to the true owner thereof upon demand and proof of ownership.

(2) That upon the failure of the operator of said pooled unit to commence drilling of the well to which said unit is dedicated on or before September 20, 1980, the order pooling said unit should become null and void and of no effect whatsoever.

IT IS THEREFORE ORDERED:

(1) That all mineral interests, whatever they may be, in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M., South Empire-Morrow Gas Pool, Eddy County, New Mexico, are hereby pooled to form a standard 320 acre gas spacing and proration unit to be dedicated to a well to be drilled at an unorthodox location 800 feet from the South line and 1000 feet from the West line of said Section 24.

PROVIDED HOWEVER, that the operator of said unit shall commence the drilling of said well on or before the 20th day of September, 1980, and shall thereafter continue the drilling of said well with due diligence to a depth sufficient to test the Pennsylvanian formation;

PROVIDED FURTHER, that in the event said operator does not commence the drilling of said well on or before the 20th day of September, 1980, Order (1) of this order shall be null and void

PROVIDED FURTHER, that should said well not be drilled to completion, or abandonment, within 120 days after commencement thereof, said operator shall appear before the ~~Commission~~ Oil Conservation Division and show cause why Order (1) of this order should not be rescinded.

(2) That Doyle Hartman is hereby designated the operator of the subject well and unit.

(3) That after the effective date of this order and within 30 days prior to commencing said well, the operator shall furnish the ~~Commission~~ Division and each known working interest owner in the subject unit an itemized schedule of estimated well costs.

(4) That within 30 days from the date the schedule of estimated well costs is furnished to him, any non-consenting working interest owner shall have the right to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production, and that any such owner who pays his share of estimated well costs as provided above shall remain liable for operating costs but shall not be liable for risk charges.

(5) That the operator shall furnish the ~~Commission~~ Division and each known working interest owner an itemized schedule of actual well costs within 90 days following completion of the well; that if no objection to the actual well costs is received by the ~~Commission~~ Division and the ~~Commission~~ has not objected within 45 days following receipt of said schedule, the actual well costs shall be the reasonable well costs; provided however, that if there is an objection to actual well costs within said 45-day period, the ~~Commission~~ Division will determine the reasonable well costs after public notice and hearing.

(6) That within 60 days following determination of reasonable well costs, any non-consenting working interest owner that has paid his share of estimated costs in advance as provided above shall pay to the operator his pro rata share of the amount that reasonable well costs exceed estimated well costs and shall receive from the operator his pro rata share of the amount that estimated well costs exceed reasonable well costs.

(7) That the operator is hereby authorized to withhold the following costs and charges from production:

(a) The pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(b) As a charge for the risk involved in the drilling of the well, 200% of the pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(8) That the operator shall distribute said costs and charges withheld from production to the parties who advanced the well costs.

(9) That $3,100.00 per month while drilling and $310.00 per month while producing are hereby fixed as reasonable charges for supervision (combined fixed rates); that the operator is hereby authorized to withhold from production the proportionate share of such supervision charges attributable to each non-

consenting working interest, and in addition thereto, the operator is hereby authorized to withhold from production the proportionateshare of actual expenditures required for operating such well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(10) That any unsevered mineral interest shall be considered a seven-eighths (7/8) working interest and a one-eighth (1/8) royalty interest for the purpose of allocating costs and charges under the terms of this order.

(11) That any well costs or charges which are to be paid out of production shall be withheld only from the working interests share of production, and no costs or charges shall be withheld from production attributable to royalty interests.

(12) That all proceeds from production from the subject well which are not disbursed for any reason shall be placed in escrow in Eddy County, New Mexico, to be paid to the true owner thereof upon demand and proof of ownership; that the operator shall notify the ~~Commission~~ Division of the name and address of said escrow agent within 90 days from the date of this order.

(13) That jurisdiction of this cause is retained for the entry of such further orders as the ~~Commission~~ Division may deem necessary.

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

That the channel swings in a northerly direction at the south boundary of Section 24, and underlies a substantial portion of the W/2 of said Section 24.

(11) That the wells currently producing gas from this Morrow formation channel sand in Section 25 are draining gas from this channel under Section 24.

(12) That a well drilled at an orthodox location in said Section 24 would be outside the boundaries of said Morrow channel.

(13) That the preponderance of evidence established that there are approximately the same number of productive zones in this Morrow channel sand underlying the S/2 of Section 24 as underlie the N/2 or the S/2 of Section 25, the proration units to the South.

(14) That a well at the proposed unorthodox location would be at a standard location relative to the North & South lines of the S/2 of said Section 24.

15 (~~13~~) That the evidence presented established that Doyle Hartman would gain no advantage over any other producer in the Morrow formation by reason of drilling and producing a well at the proposed unorthodox location.

16 (~~14~~) That approval of Doyle Hartman's proposed well location, without penalty, will afford him the opportunity to drill a well in the channel in the S/2 of Section 24 to produce the reserves underlying his property thereby protecting his correlative rights, preventing waste &

17 (~~15~~) That there are interest owners in the proposed proration unit who have not agreed to pool their interests.

18 (~~16~~) That to avoid the drilling of unnecessary wells, to protect correlative rights, and to afford to the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the gas

SUMMARY OF RESERVOIR AND PRODUCTION INFORMATION FOR MORROW SAND WELLS

IN THE VICINITY OF DOYLE HARTMAN'S PROPOSED SO. EMPIRE ST. NO. 1
AT 24(M)-17S-28E, SO. EMPIRE MORROW POOL
EDDY COUNTY, NEW MEXICO

	**** Hondo O&G St. "BV" 2	**** Hondo O&G St. "BV" 1	Pennzoil Co. Aid-St. 1	Conoco, Inc. St. 19 Com. 1	H.E.Yates Co. Empire So. Dp. Unit 18	Gen. American Co. Green "B" 9	H.E.Yates Co. Empire So. Dp. Unit 13	Amoco Pr So. Empi Unit
Location of Well	25(F)-17S-28E	25(J)-17S-28E	24(A)-17S-28E	19(N)-17S-29E	30(F)-17S-29E	19(G)-17S-29E	30(N)-17S-29E	31(G)-17
Completion Date and Interval	11-30-79 10,612-682	6- 9-78 10,685-765	3-22-71 10,608-707	3-22-79 10,679-687 10,706-722	6- 2-78 10,722-758	7-11-79 10,744-784	4- 7-77 10,665-677	11-2 10,796
N.M.O.C.D. C-122 Test:								
Date	12- 5-79	6-15-78	4- 2-71	3-24-79	6-22-78	8- 6 79	5-17-77	1-1
Measured Pressures, psia								
Wellhead	2254.2	2935.2	3125.2	2030.2	3134.2	1577.2	3069.2	312
Subsurface	3178.2	4053.2	4272.***	2809.2	4287.2	2137.2	4476.2	436
Subsurface Datum, ft. s.s.	-6886	-6958	-6931	-6963	-7097	-7066	-7010	-71
Gas - Liquid H.C. Ratio, MCF/bbl.	35.393	69.400	36.012	N/A	42.667	170.228	27.366	N/
A.P.I. Gravity of Liquid H.C.	52.1	58.0	53.5	55.3###	55.0	55.3###	56.0	55.
Sp. Grav. Sep. Gas	0.673	0.667	0.667	0.670	0.657	0.668	0.647	0.6
Sp. Grav. Flowing Fluid	0.749	0.712	0.741	0.670	0.720	0.668	0.743	0.6
AOF, MCF/d @ S.C.	39,915	61,145	2,496	4,927	14,721	18,737	2924	12,8
Calc. Perm. - Thickness/md. ft.	94.8	235.	13.9	9.4	10.7	81.3	16.2	7.9
Est. Skin Factor	-6.6	-7.0	-	-5.94	-6.7	-7.0	-	-5.
Radius of Investigation, ft.	98.	130.	110.	47.	85.	160.	130.	62
Log Interpretation Results:								
Mean Porosity, fcn. Bulk Vol.	0.102	0.119	0.0548	0.0990	0.0785	0.0720	0.106	0.1
Mean Con. Wtr. Sat., Fcn. N.E.P.S.	0.10	0.056	0.39	0.13	0.071	0.12	0.14	0.5
Gross Pay Thickness, ft.	94.	108.	90.	43.	38.	56.	13.	70
Net Effective Pay Thickness, ft.	81.	108.	33.	33.	22.	27.	13.	54
Ratio of Thicknesses: Net/Gross	0.86	1.0	0.37	0.77	0.58	0.48	1.0	0.
Original Gas-in-Place, MCF/ac.	70.5	133.7	11.9	23.0	18.4	10.1	13.6	32.
Est. Mean Eff. Permeability, md.	1.17	2.18	0.420	0.285	0.485	3.00	1.25	0.1
Cum. Production @ 3-1-80								
Liquids, bbls.	7975	107,525	21,684#	3813	42,755	7,648	71,494	23,80
Gas, MMCF	542.9	6542.0	2123.9	630.2	3247.9	1159.9	1624.3	1608
Estimated Ult. Recovery @ 3-1-80								
Liquids, bbl.	*****	525,000##	21,684	3813	52,100	10,300	128,000	23,8
Gas, MMCF	*****	33,980##	2,124	1839	4,057	1,940	4092	162
Estimated O.G.I.P., MMCF	-	41,647##	3,029	*****	*****	*****	*****	738
Est. Gas R.F., Fcn. O.G.I.P.	*****	0.816##	0.701	*****	*****	*****	*****	0.22
Est. Eff. Drainage Area, acres	*****	310##	260	*****	*****	*****	*****	230

*Est. Gas/Water Contact @ 10,850' (-7192)
**Measured 1-17-73 - Test run 9-17-73 with same P_c.
***Calculated by Cullender & Smith Numerical Integration
****Wells completed in Target Reservoir for Doyle Hartman's So. Empire Deep No. 1
*****Insufficient data to make estimate

#Negligible Current Liquid Production
##Includes Hondo St. "BV" 1 and St. "BV" 2
###Estimated

ALL ENGINEERING ESTIMATES
APPROPRIATE NUMBER OF SIGN

SUMMARY OF RESERVOIR AND PRODUCTION INFORMATION FOR MORROW SAND WELLS

IN THE VICINITY OF DOYLE HARTMAN'S PROPOSED SO. EMPIRE ST. NO. 1
AT 24(M)-17S-28E, SO. EMPIRE MORROW POOL
EDDY COUNTY, NEW MEXICO

**** Hondo O&G St. "BV" 2	**** Hondo O&G St. "BV" 1	Pennzoil Co. Aid-St. 1	Conoco, Inc. St. 19 Com. 1	H.E.Yates Co. Empire So. Dp. Unit 18	Gen. American Co. Green "B" 9	H.E.Yates Co. Empire So. Dp. Unit 13	Amoco Prod. Co. So. Empire Dp. Unit 5	Amoco Prod. Co. So. Empire Dp. Unit 3
25(F)-17S-28E	25(J)-17S-28E	24(A)-17S-28E	19(N)-17S-29E	30(F)-17S-29E	19(G)-17S-29E	30(N)-17S-29E	31(G)-17S-29E	31(N)-17S-29E
11-30-79 10,612-682	6- 9-78 10,685-765	3-22-71 10,608-707	3-22-79 10,579-687 10,706-722	6- 2-78 10,722-758	7-11-79 10,744-784	4- 7-77 10,665-677	11-26-74 10,796-803	1-17-73 10,817-830
12- 5-79	6-15-78	4- 2-71	3-24-79	6-22-78	8- 6 79	5-17-77	1-15-75	1-17-73
2254.2	2935.2	3125.2	2030.2	3134.2	1577.2	3069.2	3123.2	2803.2**
3178.2	4053.2	4272.***	2809.2	4287.2	2137.2	4476.2	4368.2	4045.2**
-6886	-6958	-6931	-6963	-7097	-7066	-7010	-7145	-7173
35.393	69.400	36.012	N/A	42.667	170.228	27.366	N/A	25.7
52.1	58.0	53.5	55.3###	55.0	55.3###	56.0	55.3###	57.2
0.673	0.667	0.667	0.670	0.657	0.668	0.647	0.668	0.650
0.749	0.712	0.741	0.670	0.720	0.668	0.743	0.668	0.751
39,915	61,145	2,496	4,927	14,721	18,737	2924	12,874	3,500
94.8	235.	13.9	9.4	10.7	81.3	16.2	7.92	23.2
-6.6	-7.0	-	-5.94	-6.7	-7.0	-	-5.9	-2.1
98.	130.	110.	47.	85.	160.	130.	62.	180.
0.102	0.119	0.0548	0.0990	0.0785	0.0720	0.106	0.103	0.103
0.10	0.056	0.39	0.13	0.071	0.12	0.14	0.54	0.14
94.	108.	90.	43.	38.	56.	13.	70.*	14.
81.	108.	33.	33.	22.	27.	13.	54.	10.
0.86	1.0	0.37	0.77	0.58	0.48	1.0	0.77	0.71
70.5	133.7	11.9	23.0	18.4	10.1	13.6	32.1	9.99
1.17	2.18	0.420	0.285	0.485	3.00	1.25	0.150	2.32
7975	107,525	21,684#	3813	42,755	7,648	71,494	23,808#	59817#
542.9	6542.0	2123.9	630.2	3247.9	1159.9	1624.3	1608.4	4761.7
*****	525,000##	21,684	3813	52,100	10,300	128,000	23,808	59,817
*****	33,980##	2,124	1839	4,057	1,940	4092	1622	5407
-	41,647##	3,029	*****	*****	*****	*****	7380	6369
*****	0.816##	0.701	*****	*****	*****	*****	0.220	0.849
*****	310##	260	*****	*****	*****	*****	230	640

(-7192)
73 with same P_c.
ical Integration
r Doyle Hartman's So. Empire Deep No. 1

ALL ENGINEERING ESTIMATES GIVEN IN
APPROPRIATE NUMBER OF SIGNIFICANT FIGURES.

CASE NO. 6927
Exh
FIGURE NO. 13 (w/map)

2

TABULATION OF INITIALLY MEASURED PRESSURES
AID MORROW AND SO. EMPIRE MORROW POOLS
EDDY COUNTY, NEW MEXICO

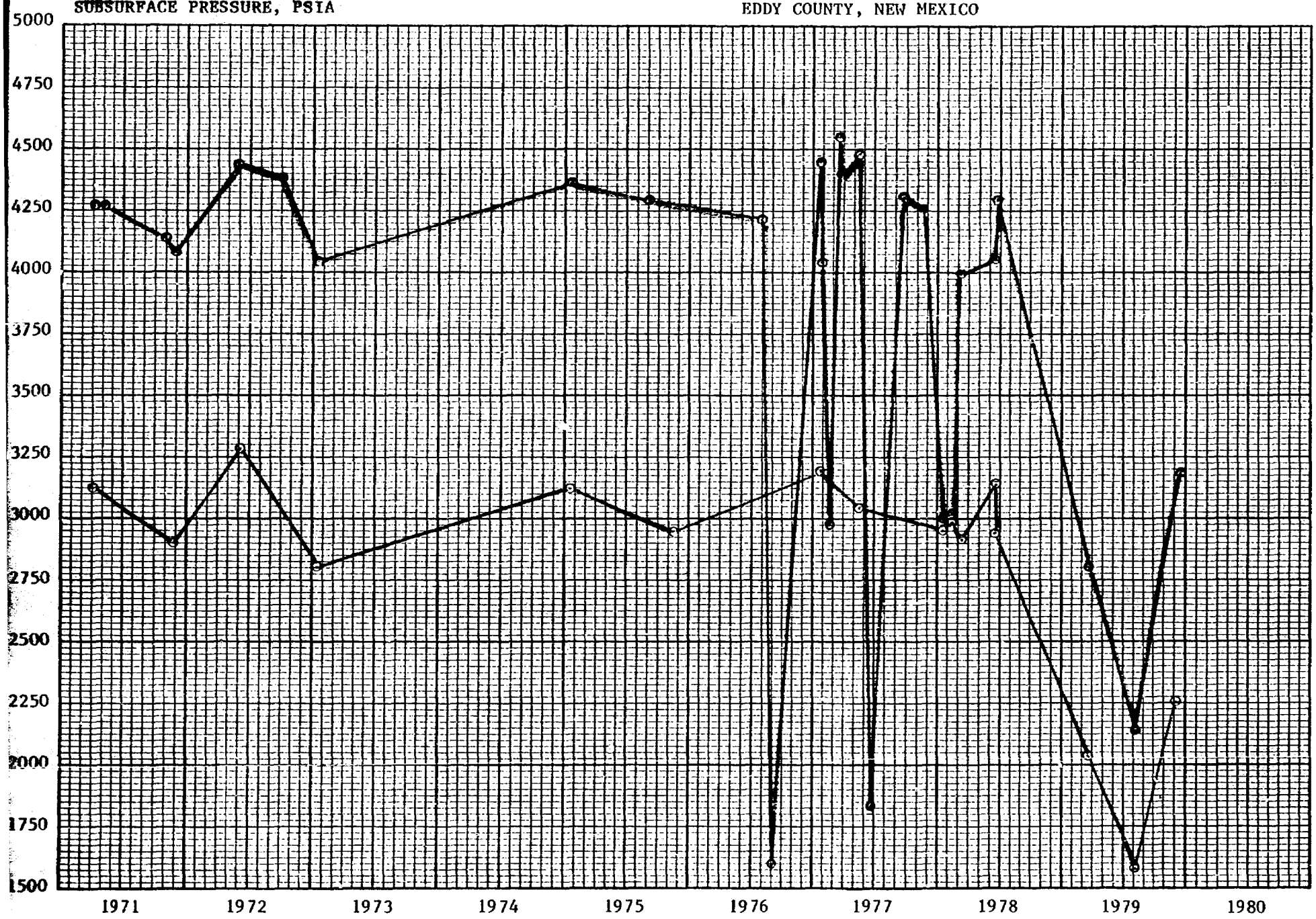
DATE	OPERATOR, LEASE & WELL NO.	LOCATION S(U)-T-R	SOURCE	SURFACE PRESSURE PSIA		SUBSURFACE DATUM FEET		SUBSURFACE PRESSURE PSIA	
				MEASURED	CALCULATED	WELL DEPTH	SUBSEA *midperf	MEASURED	CALCULATED
3- 3-71	Pennzoil Co.	24(A)-17-28	DST	--		10,633-663	*-6921 DF	4270/4418	
4- 2-71	Aid-St. Com #1		C-122	3125		10,658	-6931 DF	4272	
10-28-71	Midwest Oil S.E.D.U. #1	6(F)-18-29	DST	--		10,630-780	*-7047 KB	4131/4131	
11-29-71			C-122	2901		10,750	N/A	4076	
5-27-72	Midwest Oil S.E.D.U. #2	6(K)-18-29	DST	--		10,820-888	*-7216 GL	4442/4442	
6- 9-72			C-122	3259		10,882	-7244 GL	--	
10- 8-72	Midwest Oil S.E.D.U. #3	31(N)-17-29	DST	--		10,814-847	*-7163.9 KB	4379/4379	
1-17-73			C-122	2805		10,824	-7173 GL	4045	
1-15-75	Amoco S.E.D.U. #5	31(G)-17-29	C-122	3123		10,803	-7145 RDB	4368	
9- 5-75	Amoco S.E.D.U. #6	1(O)-18-28	DST	--		10,680-887	*-7120	4287/4287	
11-12-75			C-122	2945		10,831	-7167	--	
7-21-76	Amoco S.E.D.U. #9 (P&A)	5(D)-18-29	DST	--		10,756-11,194	*-7378 RDB	4215	
9- 7-76	Amoco S.E.D.U. #10	1(G)-18-28	DST	--		10,630-730	*-6993 RDB	1595/1569	
1-26-77	Amoco S.E.D.U. #12	5(K)-18-29	Measured	--		10,900	-7333 GL	4403	
1-28-77			C-122	3188		10,771	-7204 GL	4037	
2-21-77	H.E. Yates Travis D.U. #1	18(K)-18-29	DST	--		10,857-960	*-6954 KB	1435/2873	
3-24-77			C-122	--		10,848	-6693 KB	4391.2	
5-26-77	Amoco S.E.D.U. #14	5(G)-18-29	DST	--		10,640-839	*-7163 RDB	1901/1832	
3-28-77	H.E. Yates S.E.D.U. #13	30(N)-17-29	DST	--		10,570-701	*-6975 KB	4550	
5-17-77			C-122	3069		10,671	-7010 KB	4476	
9-22-77	Amoco S.E.D.U. #15	8(E)-18-29	DST	--		10,850-873	*-7307 RDB	4318/4308	
1-17-78			C-122	2958		10,866	-7311	3000	
11-18-77	Amoco S.E.D.U. #16	7(G)-18-29	DST	--		10,932-11,000	*-7361	4246/4254	
2-13-78			C-122	2983		10,927	-7322	3020	
3-10-78	H. E. Yates Travis Bassett Birney #1	7(J)-18-29	C-122	2917		10,908	-7319 KB	3999	
6-22-78	H. E. Yates S.E.D.U. #18	30(F)-17-29	C-122	3134		10,740	-7097 GR	4287	
6-15-78	Hondo O&G (Arco) St. BV-1	25(J)-17-28	C-122	2936		10,647	-6958.5 GL	4053	
3-24-79	Conoco State "19" Com	19(N)-17-29	C-122	2030		10,609	-6963 GL	2809	
8- 6-79	General Amer. Green "B" #9	19(G)-17-29	C-122	1577		10,764	-7066 GL	2137	
12- 5-79	Arco BV St. 2	25(F)-17-28	C-122	2254		10,557	-6886 GL	3178	

CASE NO. 6927

EXHIBIT NO. 12

K•E 12 X 20 TO THE INCH 359-21
KEUFFEL & ESSER CO. MADE IN U.S.A.

INITIALLY MEASURED PRESSURES FROM AID MORROW AND SOUTH EMPIRE MORROW POOLS.
EDDY COUNTY, NEW MEXICO



SUMMARY OF INITIALLY OBSERVED LOWER MORROW RESERVOIR PRESSURES FOR
WELLS IN THE VICINITY OF DOYLE HARTMAN'S PROPOSED LOCATION AT 24(M)-17S-28E
SO. EMPIRE MORROW POOL
EDDY COUNTY, NEW MEXICO

DATE	OPERATOR, LEASE & WELL NO.	LOCATION S(U)-T-R	SOURCE	SURFACE PRESSURE PSIA		SUBSURFACE DATUM FEET		SUBSURFACE PRESSURE PSIA	
				MEASURED	CALCULATED	WELL DEPTH	SUBSEA	MEASURED	CALCULATED
3- 3-71	Pennzoil Co. Aid-St. 1	24(A)-17-28	DST			10,633-663	-6921 KB	4270/4418	
4- 2-71			C-122	3125		10,658	-6931 DF		4272
10- 8-72	Amoco P.C.S.E.D.U. 3	31(N)-17-29	DST			10,814-847	-7160.9 KB	4379/4379	
1-17-73			C-122	2805		10,824	-7157.4 KB	4045	
12- 4-74	Amoco P.C.S.E.D.U. 5	31(G)-17-29	C-125	3103		10,805	-7145 KB		4234
1-15-75			C-122	3123		10,803	-7145 RDB	4368	
3-22-77	Harvey E. Yates E.S.D.U. 13	30(N)-17-29	DST			10,570-701	-6974.5 KB	4550	
4- 7-77			C-122	3069		10,665-677	-7010 KB	4476	
4- 6-78	Hondo O&G St. "BV", 1	25(J)-17-28	DST			10,710-785	-7047 KB	4075/4075	
6-15-78			C-122	2936		10,647	-6958.5 GR	4053	
6-22-78	Harvey E. Yates E.S.D.U. 18	30(F)-17-29	C-122	3134		10,722-758	-7097 GR	4287	
3-24-79	Conoco, Inc. St. 19 Com 1	19(N)-17-29	C-122	2030		10,609	-6963 GL	2809	
8- 6-79	Gen.Am.O.C. Tex.Green"B", 9	19(G)-17-29	C-122	1577		10,764	-7066	2137	
12- 5-79	Hondo O&G St. "BV", 2	25(F)-17-28	C-122	2254		10,557	-6886 GL	3178	

CASE NO. 6927

EXHIBIT NO. _____

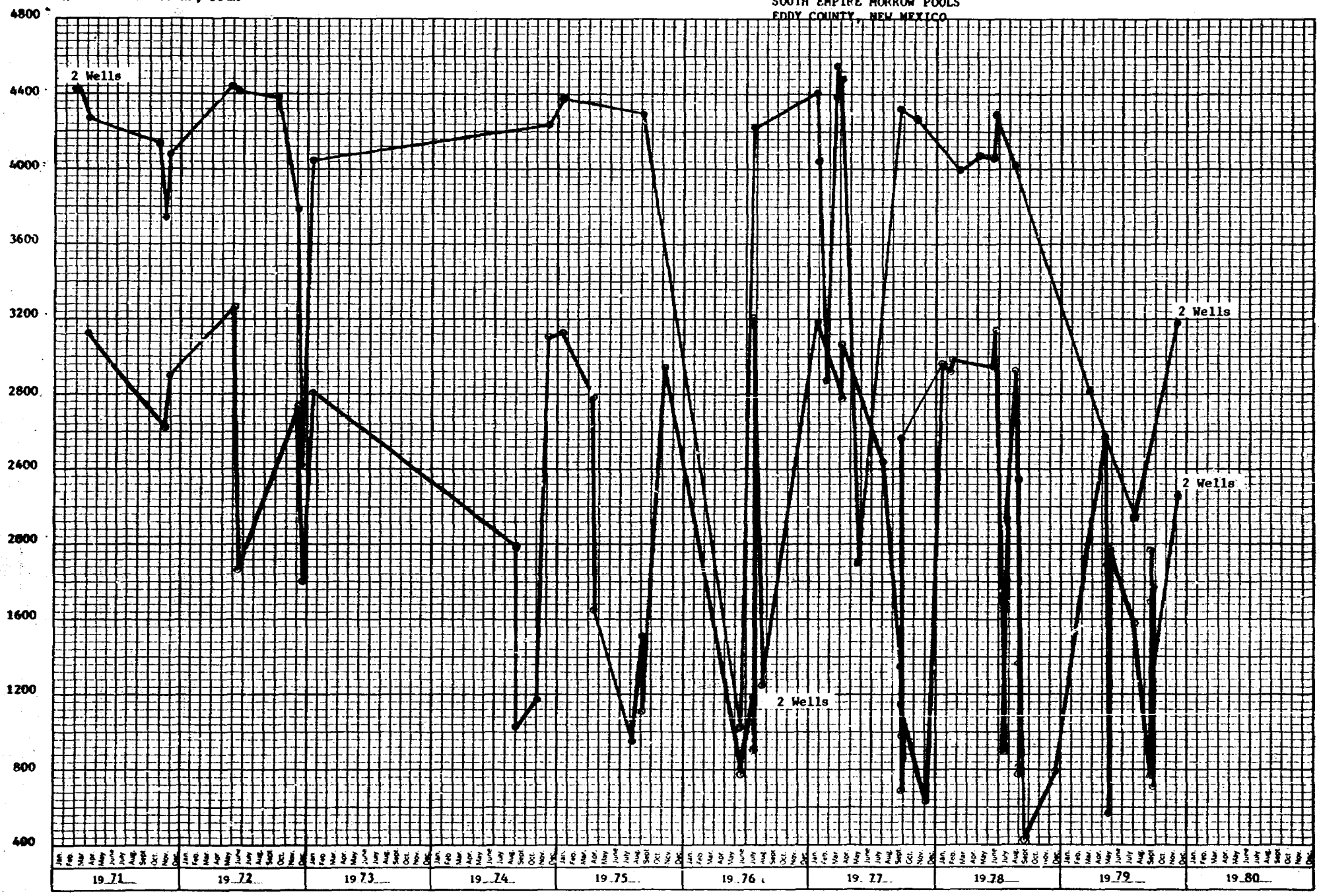
K&E 12 X 20 TO THE INCH 359-21
KEUFFEL & ESSER CO. MADE IN U.S.A.

INITIALLY OBSERVED LOWER MORROW
RESERVOIR PRESSURES FOR WELLS
IN THE VICINITY OF DOYLE HARTMAN'S PROPOSED LOCATION
AT 24(M)-17S-28E SOUTH EMPIRE MORROW POOL
EDDY COUNTY, NEW MEXICO



SURFACE PRESSURE, PSIA
SUBSURFACE PRESSURE, PSIA

ALL OBSERVED PRESSURES FOR AID MORROW AND
SOUTH EMPIRE MORROW POOLS
EDDY COUNTY, NEW MEXICO



SUMMARY OF W.I. OWNERSHIP
SUPPORTING UNIT M AS
MORROW DRILLSITE IN S/2 SEC. 24

PARTIES SUPPORTING UNIT M	NO. OF ACRES	W.I. %	FORM OF PARTICIPATION	STATUS OF COMMITTMENT
Doyle Hartman	100.0000	31.2500	will join as unit operator	committed
Pennzoil	100.0000	31.2500	will join or farmout	waiting on final management decision
Inexco	84.3750	26.3672	will join or farmout	waiting on final management decision
Maralo Group	6.2500	1.9531	will join	waiting on final management approval
Tenneco	1.5625	0.4883	will join	waiting on final management approval
Conoco	1.5625	0.4883	will farmout	waiting on final management approval
Total Ownership Supporting Unit M	293.7500	91.7969		

PARTIES OPPOSING UNIT M	NO. OF ACRES	W.I. %
ARCo	20.0000	6.2500
Exxon	6.2500	1.9531
Total Ownership Opposing Unit M	26.2500	8.2031

OIL CONSERVATION COMMISSION
Case No. 6927 Exhibit No. 11
Submitted by HARTMAN
Hearing Date June 5, 1980

PENNZOIL COMPANY
WESTERN DIVISION

MIDLAND DISTRICT: GIBRALTAR SAVINGS BUILDING • (915) 682-7316
MAILING ADDRESS: P. O. DRAWER 1828 MIDLAND, TEXAS 79702

H. W. HOLLINGSHEAD, JR.
District Manager

June 2, 1980

Mr. Doyle Hartman
508 C&K Petroleum Building
Midland, Texas 79701

Re: Proposed 11,000' Morrow Test
(South Empire Morrow Pool)
SW/4 SW/4 Section 24, T-17-S,
R-28-E
Eddy County, New Mexico

Dear Mr. Hartman:

In reference to your proposed 11,000-feet Morrow test in the South Empire Morrow Pool, please be advised that Pennzoil, after a review of all available geological and geophysical data, considers the SW/4 SW/4 Section 24 to be the preferable Morrow location in the S/2 Section 24. It is Pennzoil's intention to either join or farmout to your proposed well and a final management decision should be shortly forthcoming.

We shall appreciate your keeping us informed of any new information with regard to your proposed well.

Very truly yours,

H. W. Hollingshead, Jr.

HWH:cb

INEXCO OIL COMPANY

May 12, 1980

Doyle Hartman
508 C & K Petroleum Building
Midland, Texas 79701

Re: S/2 Section 24-17S, 28E
Eddy County, New Mexico
South Empire-Aid Cisco Area
NM 111

Dear Mr. Hartman:

Please be advised that Inexco Oil Company wishes to participate for its pro rata share of the seismic program you are presently undertaking in the referenced area. Our 26%+ share of the $20,000.00 program should be around $5,300.00.

After we have reviewed this new data and also had a chance to review the outcome of your hearing with the State of New Mexico Oil and Gas Conservation Commission, particularly if any penalties are imposed as to allowables because of the unorthodox location, Inexco shall advise you of its desire to join in the drilling of a well or farm out.

Our technical staff agrees that from the presently available data, the unorthodox location proposed by you appears to be the preferable location. If ARCO has data to support their proposed location that has heretofore not been available to the other owners in the area, we would welcome the opportunity to review same and incorporate the information into our interpretation of the area.

By copy of this letter I am asking Eldon Busch of Reservoir Department to contact you to make arrangements for Inexco to obtain copies of your seismic data.

Please advise us of the hearing date in order that we can keep abreast of the situation and be able to make a timely decision regarding joinder or farmout for the well.

Very truly yours,

L. J. Tacconi
Area Landman

LJT/ph

cc: Addressee list attached

RECEIVED MAY 16 1980

1100 MILAM BUILDING · SUITE 1900 · HOUSTON, TEXAS 77002 · (713) 651-3300

ADDRESS LIST

Pennzoil Company
P. O. Box 1828
Midland, Texas 79702

Attention: Mr. Kenneth Medlock

Inexco Oil Company
1100 Milam Building
Suite 1900
Houston, Texas 77002

Attention: Mr. Eldon Bush
Mr. Les Taconi

Maralo, Inc.
Mrs. Erma Lowe
M. Ralph Lowe, Inc.
c/o Maralo, Inc.
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Attention: Mr. John Burke

Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

Attention: Mr. H. W. Hugly

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Attention: Mr. Steve D. King

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

MEMO TO FILE

May 30, 1980

Re: South Empire State No. 1

Today I talked to John Burke with Maralo about the results of their weekly management meeting yesterday concerning our proposed South Empire State No. 1 Morrow test located SW/4 SW/4 Section 24, T-17-S, R-28-E, Eddy County, New Mexico. He informed me that they were not able to hold their weekly meeting due to Mary Ralph Lowe being unable to attend and indicated that their final approval would probably be forthcoming at their next weekly management meeting scheduled for June 5. However, he did indicate that our proposed location has received the full recommendation of the Maralo Staff and that the outcome of the decision to join was essentially cut and dried at this point.

Doyle Hartman

Tenneco Oil
Exploration and Production
A Tenneco Company

Southwestern Division

6800 Park Ten Blvd. • Suite 200 North
San Antonio, Texas 78213
(512) 734-8161

May 20, 1980

Mr. Doyle Hartman
Suite 508, C&K, Petroleum Building
Midland, Texas 79701

RE: South Empire State #1
S/2 Section 24, T17S-R28E
Eddy County, New Mexico

Dear Mr. Hartman:

Reference is made to your letters concerning the above acreage and your attempts to secure approval of a non-standard drilling location for a Morrow test. Tenneco Oil Company has studied the geology in the active area and has decided to participate, as to our net interest in the referenced acreage, in the drilling of the Morrow test.

This election to participate is, of course, subject to your securing approval of the non-standard location and also, subject to final management approval of the terms of any operating agreement and any AFE proposed by you as operator.

Please forward your proposed operating agreement when ready for our consideration. If I may be of any further assistance, please feel free to contact me.

Very truly yours,

TENNECO OIL COMPANY

By: Steve D. King
Landman

SDK:ph

cc: Working Interest List

RECEIVED MAY 2 2 1980

Pennzoil Company
ATTENTION: Kenneth Medlock
P. O. Drawer 1828
Midland, Texas 79702

Inexco Oil Company
ATTENTION: William G. Goodwin
1100 Milam Building, Suite 1900
Houston, Texas 77002

Doyle Hartman
508 C & K Petroleum Building
Midland, Texas 79701

Exxon Company, U.S.A.
ATTENTION: H. W. Hugly
P. O. Box 1600
Midland, Texas 79702

M. Ralph Lowe, Inc.
Erma Lowe
Maralo Inc. ATTENTION: John R. Burke
c/o Maralo Inc.
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Continental Oil Company
ATTENTION: David M. Goodfellow
P. O. Box 1959
Midland, Texas 79702

Tenneco Oil Company
ATTENTION: Steve D. King
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Hear.

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

May 19, 1980

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

Re: Proposed South Empire State No. 1
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico

Gentlemen:

Reference is made to our various prior correspondence concerning the above noted well and our telephone conversation Thursday, May 15, 1980.

In view of the fact that Conoco's interest is very small and in order to not burden Conoco with bookkeeping on an extremely small back-in after payout, I would like to propose the following farmout:

1. Operator to drill a Morrow test as outlined in prior correspondence to you.

2. Completion of the well as one capable of producing in paying quantities to earn Conoco's interest in the S/2 of Section 24, limited from surface to 100 feet below total depth drilled.

3. Conoco to retain a gross 40% of 8/8 override, absorbing all present royalty and other burdens out of this override, so operator would be assigned a 60% net revenue interest.

I would much prefer that Conoco farmout rather than be force-pooled. As a matter of policy, I would rather not have to rely on force-pooling since it generally causes bad feelings irrespective of the outcome of this type of hearing. Also, it would be much better to be able to report to the New Mexico Oil Conservation Division that Conoco supports our position at least to the extent of farming out.

Thank you for your consideration and please let me hear from you.

Very truly yours,

Doyle Hartman

DH/mh

MEMO TO FILE

Ma/

~~April~~ 28, 1980

Today I talked to Dave Goodfellow with Continental and he indicated he is recommending to upper management that Conoco farmout its interest in the S/2 Section 24, T-17-S, R-28-E, Eddy County, New Mexico to Doyle Hartman as per the terms of our farmout letter dated May 19, 1980. He also indicated he would attempt to get us a letter to this effect if possible.

Doyle Hartman

✓

ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0100

May 2, 1980

WORKING INTEREST OWNERS ADDRESS LIST ATTACHED

Subject: ARCO Oil and Gas Company
Pennzoil 24 State Com #1 Well
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico
NM-4488

Gentlemen:

By letter dated December 13, 1979, to Pennzoil Company, ARCO proposed drilling the subject well and asked that you consider farming out. We are presently enclosing two copies of an Operating Agreement and AFE for your further consideration. We will appreciate those wishing to join signing and returning one copy each of the AFE and JOA. Those wishing to farmout need sign and return only a copy of the JOA. An Exhibit "A" showing the interests of the parties will be prepared and forwarded with copies of other parties' execution pages to complete your files. The agreement will be limited to rights below 2300' beneath the surface to the base of the Morrow formation. The farmout terms will provide for the farming out party to retain a 30% override out of which will be borne existing royalties and overrides with the option to convert the net portion of the retained override to a 50% working interest after payout, all subject to proportionate reduction.

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For ARCO's proposed location, see attached AFE.

entered the picture and proposed a well on the same spacing unit but at an unorthodox location in the SW/4 of the SW/4. We understand he is trying to schedule a hearing this month before the New Mexico Oil and Gas Conservation Commission regarding the unorthodox location and the forced pooling of all interests in the S/2 of Section 24. ARCO intends to oppose the unorthodox location and continue with its plans to drill at the orthodox location in the SE/4 regardless of the outcome of the Exxon well in Section 23.

We are also attaching a schedule showing the interests of the parties in the S/2 of Section 24. ARCO's interest in this well including the farmout from Pennzoil is 37.50%. Should Inexco also elect to farmout, ARCO's interest will increase to 63.87%. A provision covering the farmout and rights to be earned will be included in the Exhibit "A" yet to be prepared.

We will appreciate your early attention to the execution and return of the enclosed JOA and AFE.

Yours very truly,

Curt Krehbiel

Curt Krehbiel

CK:bk

Enclosures

AtlanticRichfieldCompany

Authorization for Expenditure

Title: Penzoil 24 State Com #1: Drill & Equip

☒ Original authorization
☐ Revision number

Location: 660' FSL & 1980' FEL, Sec. 24, T-17-S, R-28-E, Eddy Co., New Mexico

APPR TO 10,900 OBJ Form Mod

Purpose of authorization
☒ Drilling - New ☐ Recompletion ☐ Workover ☐ Other
☐ Drill old well deeper
☒ Development ____ %*
☐ Exploratory ____ %*
* Show percent of total cost applicable to each.
☒ Single ☐ Dual ☐ Three or more

Primary objective of drilling
☐ Oil only ☒ Gas only ☐ Oil and/or gas

Signed (Dist. Eng. and/or Explor. group)

Reason for drilling
☒ Develop reserves ☐ Secondary recovery
☐ Rate ☐ Replacement
☐ Comb. reserve & rate ____ % rate ☐ Service

See reverse side

Budget Information
Budget (1) ____ Amt. ____
Item (2) ____ Amt. ____
Capital Instabudget dated ____
☐ Named on Instabudget
Amount capital differs from Instabudget $ ____ Over/(under)
☐ Substituted for
Amount capital differs from Instabudget $ ____ Over/(under)
☐ Addition to Instabudget
Current year capital differs from Instabudget current year by $ ____ Over/(under)

Originated by | AFE number
District: Permian West | Project identifier
Field name: Empire South Morrow
Lease record number: NM-4488
Expl. project No. | Field code
Subject to production payment? ☐ Yes ☐ No | Property code(s)
Has well plan been prepared? ☐ Yes ☐ No
Co-owner operator AFE No(s).

Use reverse side if needed

Component AFE No(s)	Description and justification		Account codes	Amounts—in whole dollars only: On hand	Capital	Expense	Total
	Tangible		031		217,000		217,000
	Intangible		037		606,000		606,000
	Total Drilling Cost				823,000		823,000
	Lease Equipment		038		35,000		35,000
		Gross totals			858,000		858,000
Operator		Net Atlantic Richfield share					
Atlantic Richfield ownership decimal		Range requested			Lower		Upper

Payout (years) (AFIT) | % Return (AFIT) | PW ____ % (AFIT) | Start date | Completion date | $ Prior year Capital ____ Expense ____ | $ Curr. year Capital ____ Expense ____ | $ Thereafter Capital ____ Expense ____

Technical audits (check those required)
☐ Engineering ☐ Exploration ☐ Dallas budget ☐ Evaluation Other ☐ Procedural audits

☐ Co-owner approval
Signature ____
Company ____

Approvals (check highest level required) Authorized expenditure limit table No. ____

	Date		Date
Originator		☐ Executive vice-president	
Division	Date		
Department	Date	☐ President/Chairman	Date
Controller	Date	☐ For Board of Directors	Date

EXXON COMPANY, U.S.A.
POST OFFICE BOX 1600 · MIDLAND, TEXAS 79702

EXPLORATION DEPARTMENT
SOUTHWESTERN DIVISION

March 18, 1980

Re: S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico

Mr. Doyle Hartman
Suite 508
C&K Petroleum Building
Midland, TX 79701

Dear Mr. Hartman:

Your letter dated February 13, 1980, suggested farming out to Arco Oil and Gas Company for an irregular location in the S/2 Section 24. Our company presently has plans to drill a well in the E/2 of Section 23 and we would, therefore, prefer delaying any action on Section 24 until the well in Section 23 has been drilled and evaluated. We will be glad to consider Section 24 at that time.

Thank you for your interest in this matter.

Very truly yours,

H. W. Hugly

HWH:rd

cc: All Owners (see address list)

RECEIVED MAR 19 1980

ADDRESS LIST

Pennzoil Company
P. O. Box 1828
Midland, TX 79702
Attention: Mr. Mike McCullough

Inexco Oil Company
1100 Milam Building, Suite 1900
Houston, TX 77002
Attention: Mr. Tom Dodds

Maralo, Inc. and Mrs. Erma Lowe
4600 Post Oak Place
Suite 307
Houston, TX 77027
Attention: Mr. John Burke

Continental Oil Company
P. O. Box 1959
Midland, TX 79702
Attention: Mr. David M. Goodfellow

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, TX 78213
Attention: Mr. M. M. Hinze

OWNERSHIP BY TRACT
(PENNSYLVANIAN FORMATION)
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico

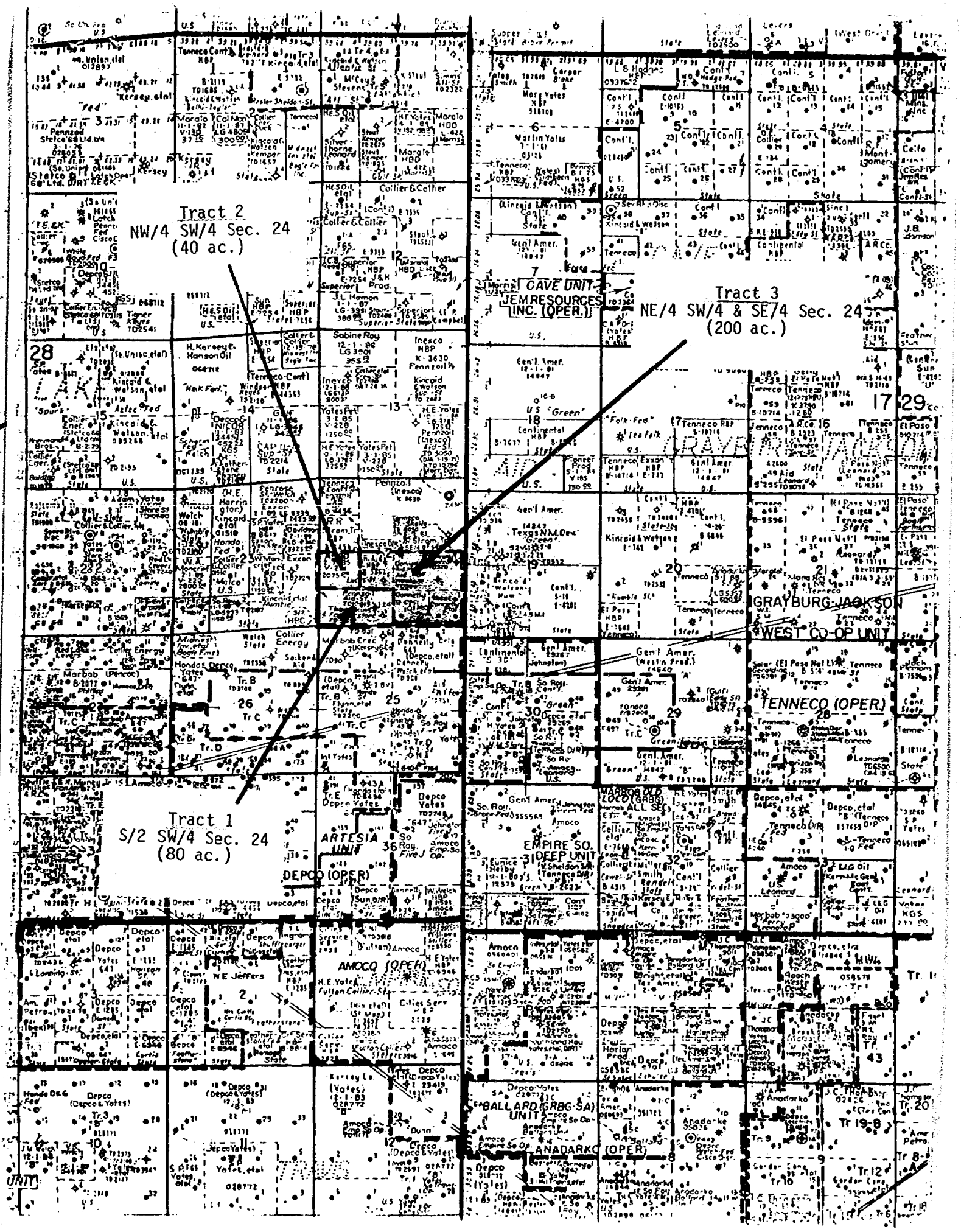
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6927 Exhibit No. 10
Submitted by HARTMAN
Hearing Date June 5, 1980

Tract 1--S/2 SW/4 (80 acres)

Tract 2--NW/4 SW/4 (40 acres)

Tract 3--NE/4 SW/4 & SE/4 (200 acres)

PARTY	NET ACRES			TOTAL (320 ac.)	
	Tract 1	Tract 2	Tract 3	Net Acres	W.I. (%)
Doyle Hartman	80.0000	20.0000	--------	100.0000	31.2500
ARCo	-------	20.0000	--------	20.0000	6.2500
Pennzoil	-------	-------	100.0000	100.0000	31.2500
Inexco	-------	-------	84.3750	84.3750	26.3672
Maralo Group	-------	-------	6.2500	6.2500	1.9531
Exxon	-------	-------	6.2500	6.2500	1.9531
Tenneco	-------	-------	1.5625	1.5625	0.4883
Conoco	-------	-------	1.5625	1.5625	0.4883
Total	80.0000	40.0000	200.0000	320.0000	100.0000%


Tract 2
NW/4 SW/4 Sec. 24
(40 ac.)
Tract 3
NE/4 SW/4 & SE/4 Sec. 24
(200 ac.)
Tract 1
S/2 SW/4 Sec. 24
(80 ac.)
CAVE UNIT
JEM RESOURCES INC. (OPER.)
EMPIRE SO. DEEP UNIT
ARTESIA UNIT
DEPCO (OPER)
AMOCO (OPER)
BALLARD (GRBG-SA) UNIT
ANADARKO (OPER)
GRAYBURG-JACKSON
WEST CO-OP UNIT
TENNECO (OPER)

Dan Nutter

Hartman
Exhibits
Complete
1 thru 19

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

May 2, 1980

To: All Working Interest Owners
(Address List Attached)

Re: South Empire State No. 1
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico

Gentlemen:

As mentioned in our previous letter to you dated April 18, 1980, we are enclosing two copies of AFE for our proposed South Empire State No. 1, located 660 FSL & 660 FWL Section 24, T-17-S, R-28-E, Eddy County, New Mexico. If this AFE meets with your approval, sign one copy and return it to this office. Upon receipt of a signed AFE, we will forward a Model-Form Operating Agreement. The second copy of the AFE may be retained for your files.

We are now in the process of scheduling a hearing before the full Commission of the New Mexico Oil Conservation Division in Santa Fe concerning our request for non-standard location of 660 FSL & 660 FWL Section 24. We will keep you informed on the progress of this hearing.

If you should have any further information in this regard, please let us hear from you.

Very truly yours,

Doyle Hartman

DH/mh

Enclosures as above

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6928 6927 Exhibit No. 13
Submitted by ARCO
Hearing Date 6-5-80

RECEIVED
MAY 5 1980
ARCO OIL AND GAS CO.
NORTH & WEST LAND DEPT.

13

DOYLE HARTMAN
Oil Operator
SUITE 509
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

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Santa Fe, New Mexico
Case No. 6928 6927 Exhibit No. 13
Submitted by ARCO
Hearing Date 6-5-80

RECEIVED
MAY 5 1980
ARCO OIL AND GAS CO.
NORTH & WEST LAND DEPT.
13

ADDRESS LIST

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P. O. Box 1828
Midland, Texas 79702

Attention: Mr. Mike McCullough

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1100 Milam Building
Suite 1900
Houston, Texas 77002

Attention: Mr. William G. Goodwin

Maralo, Inc. and Mrs. Erma Lowe
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Attention: Mr. John Burke

Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

Attention: Mr. H. W. Hugly

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Attention: Mr. M. M. Hinze

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

DETAIL WELL ESTIMATE

LEASE NO. LG-6340 APPR. NO. _____

LEASE NAME South Empire State WELL NO. 1 W. I. _____

COUNTY Eddy STATE New Mexico FIELD Empire Morrow, South

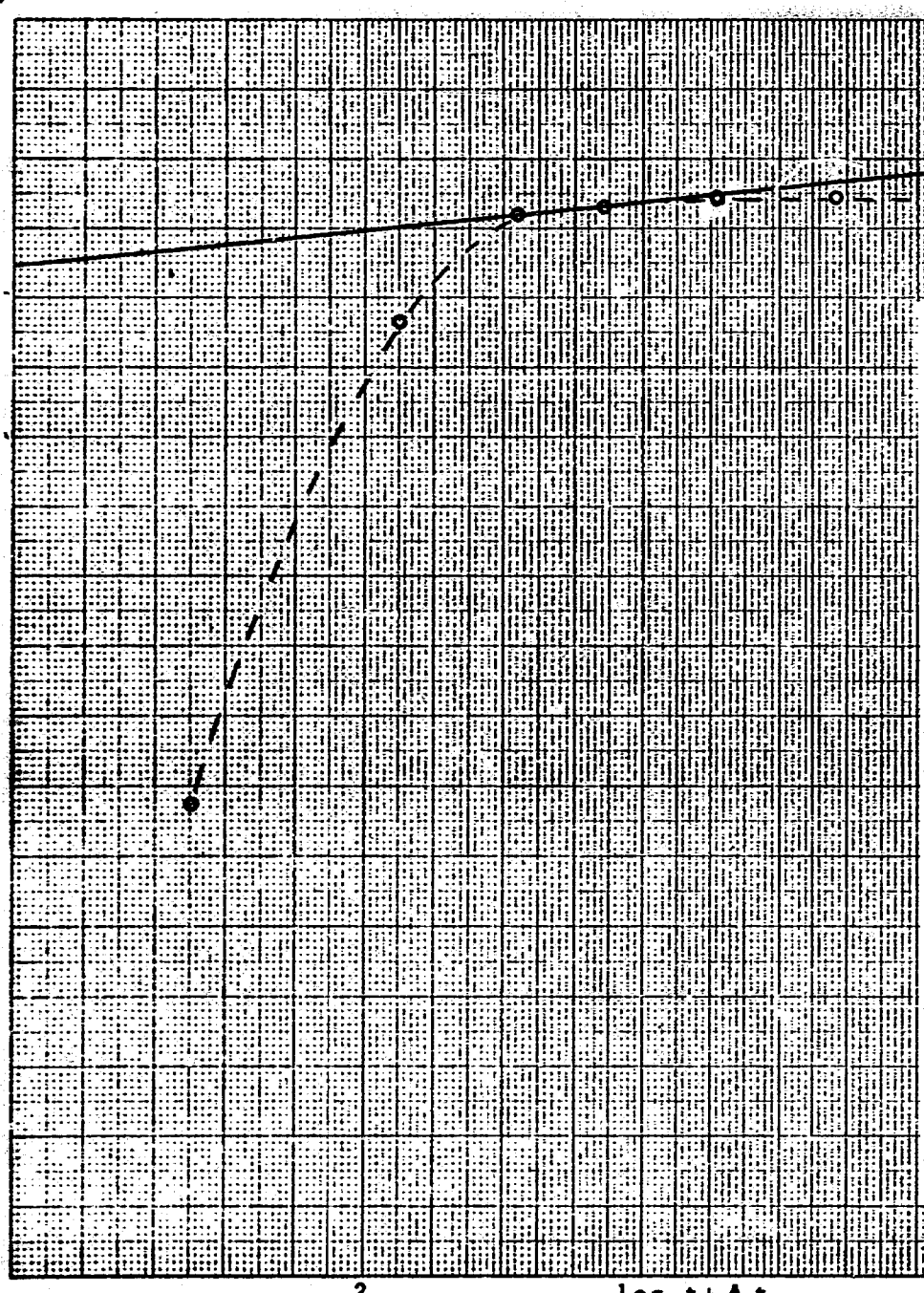
LOCATION: 660 FSL and 660 FWL Section 24, T-17-S, R-28-E

DRILLING INTANGIBLES:	PRODUCER	DRY HOLE
1. Drilling Cost _____ Feet @ _____ Per Foot		
2. Day Work 52 Days at $5000./day Rig Mobilization $73,000.	330,000	330,000
3. Coring Service _____ Well Surveys	25,000	25,000
4. Testing	5,000	5,000
5. Fuel _____ Water		
6. Mud and Water Mud Logging	26,000	26,000
7. Cementing Service _____ Cement _____ Floats	42,800	17,800
8. Company Labor _____ Contract Labor	12,000	1,200
9. Digging Pits _____ Filling Pits	12,000	12,000
10. Roads & Bridges _____ Dredging & Grading	12,000	12,000
11. Acidizing _____ Fracturing _____ Perforating	150,000	---
12. Plugging		8,000
13. Trucking Cost	8,500	2,500
14. Development Superintendence 75 days @ $350.00 /day	26,250	18,200
15. Rental Equipment	23,000	18,000
16. Swabbing and Testing 15 days at $1,200.	18,000	---
17. Other Costs Bits	29,100	29,100
Contingence	30,350	15,200
Total Intangibles	750,000	520,000

WELL EQUIPMENT:

18. Casing	500	Ft. of	13 3/8	@	23.368	Per Ft.		
	2,500	Ft. of	8 5/8	@	11.853	Per Ft.		
	11,400	Ft. of	5 1/2	@	12.764	Per Ft.	186,826	41,317
19. Tubing	11,400	Ft. of	2 7/8	@	5.067	Per Ft.	57,764	
20. Casing Head							6,000	6,000
21. Xmas Tree or Pumping Connections							39,000	
22. Pumping Unit								
23. Engine								
24. Sucker Rods								

ressure
psi)
080
060
040
020
000
980
960



2 log $\frac{t+\Delta t}{\Delta t}$ 1

State BV No. 1

DST pressure buildup

OH: 10710 - 10785'

5-16-78

Transmissibility = $\frac{Kh}{u} = \frac{162.6\ quB}{M}$

= 155957 $\frac{Md\text{-}ft}{cp}$

Permeability = K = 50.4 Md

q = flow rate (bbl) = $ft^3/5.615$

u = Viscosity (cp)

h = pay thickness (ft)

B = gas volume factor (ft^3/ft^3)

M = slope = 4070-4060

= 10 psi/cycle

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6928 6929 Exhibit No. 12
Submitted by ARCO
Hearing Date 6-5-80

RESERVOIR PRESSURE DATA

BV Channel

Date	Well	Reservoir Pressure @ - 7025 Psi
11-25-74	ESDU No. 5	4293
6-19-78	St. BV No. 1	4037
3-5-79	St. BV. No. 1	3603
12-6-79	St. BV. No. 2	3171
12-19-79	St. BV No. 1	3154

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6928 6927 Exhibit No. 11
Submitted by ARCO
Hearing Date 6-5-80

11

May 2, 1980

WORKING INTEREST OWNERS ADDRESS LIST ATTACHED

Subject: ARCO Oil and Gas Company
Pennzoil 24 State Com #1 Well
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico
NM-4488

Gentlemen:

By letter dated December 13, 1979, to Pennzoil Company, ARCO proposed drilling the subject well and asked that you consider farming out. We are presently enclosing two copies of an Operating Agreement and AFE for your further consideration. We will appreciate those wishing to join signing and returning one copy each of the AFE and JOA. Those wishing to farmout need sign and return only a copy of the JOA. An Exhibit "A" showing the interests of the parties will be prepared and forwarded with copies of other parties' execution pages to complete your files. The agreement will be limited to rights below 2300' beneath the surface to the base of the Morrow formation. The farmout terms will provide for the farming out party to retain a 30% override out of which will be borne existing royalties and overrides with the option to convert the net portion of the retained override to a 50% working interest after payout, all subject to proportionate reduction.

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BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6927 Exhibit No. 7
Submitted by ARCO
Hearing Date 6-5-80

entered the picture and proposed a well on the same spacing unit but at an unorthodox location in the SW/4 of the SW/4. We understand he is trying to schedule a hearing this month before the New Mexico Oil and Gas Conservation Commission regarding the unorthodox location and the forced pooling of all interests in the S/2 of Section 24. ARCO intends to oppose the unorthodox location and continue with its plans to drill at the orthodox location in the SE/4 regardless of the outcome of the Exxon well in Section 23.

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We will appreciate your early attention to the execution and return of the enclosed JOA and AFE.

Yours very truly,

Curt Krehbiel

Curt Krehbiel

CK:bk

Enclosures

PARTY AND ADDRESS	ACRES	INTEREST
ARCO Oil and Gas Company P. O. Box 1610 Midland, Texas 79702	20.0000	6.2500%
Doyle Hartman 508 C & K Petroleum Building Midland, Texas 79701	100.0000	31.2500%
Pennzoil Company P. O. Drawer 1828 Midland, Texas 79702	100.0000	31.2500%
Inexco Oil Company 1100 Milam Building, Suite 1900 Houston, Texas 77002	84.3750	26.3672%
Exxon Company, U.S.A. P. O. Box 1600 Midland, Texas 79702	6.2500	1.9531%
M. Ralph Lowe, Inc.	3.1250	.9765%
Erma Lowe	1.5625	.4883
Maralo Inc. c/o Maralo Inc. 4600 Post Oak Place Suite 307 Houston, Texas 77027	1.5625	.4883%
Continental Oil Company P. O. Box 1959 Midland, Texas 79702	1.5625	.4883%
Tenneco Oil Company 6800 Park Ten Blvd. Suite 200 North San Antonio, Texas 78213	1.5625	.4883%
	320.0000	100.0000%

Pennzoil Company
ATTENTION: Kenneth Medlock
P. O. Drawer 1828
Midland, Texas 79702

Inexco Oil Company
ATTENTION: William G. Goodwin
1100 Milam Building, Suite 1900
Houston, Texas 77002

Doyle Hartman
508 C & K Petroleum Building
Midland, Texas 79701

Exxon Company, U.S.A.
ATTENTION: H. W. Hugly
P. O. Box 1600
Midland, Texas 79702

M. Ralph Lowe, Inc.
Erma Lowe
Maralo Inc. ATTENTION: John R. Burke
c/o Maralo Inc.
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Continental Oil Company
ATTENTION: David M. Goodfellow
P. O. Box 1959
Midland, Texas 79702

Tenneco Oil Company
ATTENTION: Steve D. King
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Authorization for Expenditure

Title: Penzoil 24 State Com #1: Drill & Equip

☒ Original authorization ☐ Revision number

Location: 660' FSL & 1980' FEL, Sec. 24, T-17-S, R-28-E, Eddy Co., New Mexico

APPR TD 10,900 OBJ Form Mor

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See reverse side

Budget information
Budget (1) ____ Amt. ____
Item (2) ____ Amt. ____
Capital Instabudget dated ____
☐ Named on Instabudget
Amount capital differs from Instabudget $ ____ Over/(under)
☐ Substituted for
Amount capital differs from Instabudget $ ____ Over/(under)
☐ Addition to Instabudget
Current year capital differs from Instabudget current year by $ ____ Over/(under)

Originated by

AFE number

District: Permian Wes

Project identifier

Field name: Empire South Morrow

Lease record number: NM-4488

Expl. project No.

Field code

Subject to production payment? ☐ Yes ☐ No

Property code(s)

Has well plan been prepared? ☐ Yes ☐ No

Co-owner operator AFE No(s).

Use reverse side if needed

Component AFE No(s)	Description and justification	Account codes	Amounts—in whole dollars only On hand	Capital	Expense	Total
	Tangible	031		217,000		217,000
	Intangible	037		606,000		606,000
	Total Drilling Cost			823,000		823,000
	Lease Equipment	038		35,000		35,000
	Gross totals			858,000		858,000
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Atlantic Richfield ownership decimal	Range requested			Lower		Upper

Payout (years) (AFIT)	% Return (AFIT)	PW ____% (AFIT)	Start date	Completion date	$ Prior year Capital / Expense	$ Curr. year Capital / Expense	$ Thereafter Capital / Expense

Technical audits (check those required)
☐ Engineering ☐ Exploration ☐ Dallas budget ☐ Evaluation Other ☐ Procedural audits

☐ Co-owner approval
Signature ____
Company ____

Approvals (check highest level required) Authorized expenditure limit table No. ____

	Date		Date
☐ District		☐ Executive vice-president	
☐ Other		☐ President/Chairman	
☐ Regional		☐ For Board of Directors	
☐ Senior vice-president			

Atlantic Richfield Company ◇ ☐ Supplement Drilling Cost Estimate – Page

Well name: Penzoil 24 State Com #1 | T.D.: 10,900

Location: 660' FSL & 1980' FEL Sec. 24, T-17-S, R-28-E

Region: Western | District: Permian | Field: Empire South Morrow

Objective: Morrow @ 10,700 ft. | @ ft.

☐ Development ☒ Single
☐ Exploratory ☐ Dual
☐ Completion ☐ Multiple

Data Processing Information

Trans. Ident. 1 2 3 4	5	A.F.E. Number 6 7 8 9 10 11
A F E E	3	

Update code: 1 = Delete, 3 = Add

Original/Revision Indicator: 1 = Original, 2 = Revision

Tangible costs	Dry hole	Completion costs	Detail code 12 13 14	Total gross dollars 15 16 17 18 19 20 21 22	Major account 23 24 25
1. Tubular goods.					
20 " OD from 0 ' to 30 '	1,000				
" OD from ' to '					
13-3/8 " OD from 0 ' to 650 '	14,000				
" OD from ' to '					
8-5/8 " OD from 0 ' to 2650 '	28,000				
" OD from ' to '					
5-1/2 " OD from 0 ' to 10900 '		104,000			
2-3/8 " OD from 0 ' to 10700 '		36,000			
2. Casinghead and Christmas tree	12,000	14,000	5 0 4		
3. Tubing accessories		30,000	5 0 6		
4. Artificial lift accessories			5 0 7		
5. Unclassified materials	2,000	3,000	5 0 8		
Total tangibles	57,000	160,000			
Intangible costs					
6. Testing tubular goods		2,000	5 6 9		
7. Trucking tubular goods	2,000	2,000	5 0 9		
8. Casing accessories	2,000	2,000	5 1 2		
9. Site preparation, maint., clean up	8,000		5 1 4		
10. Permits, insurance, damages			5 1 5		
11. Moving expense	32,000		5 1 7		
12. Boat & barge rental			5 1 8		
13. Camp & catering			5 2 2		
14. Boiler			5 2 5		
15. Roads, airstrips & maintenance			5 5 6		
16. Air freight & air transportation			5 2 8		
17. Contract footage drilling					
ft @ $ / ft.			5 3 2		
Contract daywork (items 18 through 24)					
18. Drilling 41 days @ $5000 /day	205,000		5 3 3		
19. Casing 3 days @ $ 5000 /day	10,000	5,000	5 3 4		
20. Fishing days @ $ /day			5 3 6		
21. Lost circ. & flows 1 days @ $ 5000 /day	5,000		5 3 7		
22. Log test & core 5 days @ $ 5000 /day	15,000	10,000	5 3 8		
23. Shut down time days @ $ /day			5 3 9		
24. Completion or plugging days @ $ /day			5 4 1		
25. Completion unit daywork 7 days @ $ 1000 /day		7,000	5 4 2		
26. Rental: DP, DC, & related tools			5 4 3		
27. Well control equipment			5 4 7		
28. Drill bits # 1 size 17-1/2	1,000		5 4 8		
# 2 size 12-1/4	3,000				
# 8 size 7-7/8	16,000				
# size					

AR3B-153-C

AtlanticRichfieldCompany

Drilling Cost Estimate – Page 2

Lease
Penzoil 24 State Com #1

Prepared by
S. R. Keasler

Date
3/25/80

Data Processing Information

Tran. ident. (1 2 3 4): A F E E

(5)

A.F.E. number (6 7 8 9 10 11):

Update code: 1 = delete, 3 = add

Original / revision indicator: 1 = Original, 2 = Revision

Intangible cost (continued)	Dry hole	Completion costs	Detail code (12 13 14)	Total gross dollars (15 16 17 18 19 20 21 22)	Major account (23 24 25) (26)
Fuel, fresh water & drayage	30,000		549		
Drilling mud materials & drayage	20,000		551		
Drilling mud equipment	7,000		552		
Air compressor rental or gas cost			553		
Air or gas drlg. accessories & drayage			554		
Open hole surveys	50,000		557		
Data recording services			558		
Wireline formation tester			559		
Mud log			560		
Cased hole surveys		8,000	561		
Perforating fees	(vann)	23,000	562		
Sidewall coring #			563		
Cont. diamond XXXXXXXXXXX 100 ft.	30,000		568		
Drill stem tests # 2	4,000		572		
X Acidize X Fracture ____ gal. ____ lbs		28,000	577		
Cement & fees for casing					
13-3/8 " OD 1000 sacks	13,000				
" OD sacks					
8-5/8 " OD 1500 sacks	18,000				
" OD sacks					
5-1/2 " OD 2300 sacks		23,000			
" OD sacks					
Cement & fees for squeezes or plugs			579		
Fishing tool rental & drayage			580		
Directional drlg. tool rental & drayage			581		
Operations - prorate			590		
Unclassified tool rental & drayage	3,000	2,000	587		
Unclassified drayage & supplies	2,000	1,000	594		
Contracted services & material losses	2,000	2,000	589		
Overhead	1,000	1,000	592		
Supervision by contract personnel			105		
Supervision by ARCO personnel	9,000	2,000	106		
Total intangibles	488,000	118,000			
Total cost (tangible & intangible)	545,000	278,000			
Estimated well cost (dry hole & comp.)	823,000				

Date: 5/1/80

Benzoil 24 State Com #1

Permian - West Area

660' FSL & 1980' FEL, Section 24, T-17-S, R-28-E, Eddy County, New Mexico

Morrow

formation

Proved depth	Contract footage	Daywork depth
10900	10900	10900

Casing program:

Surface casing	Position	Length	Cmt.
20" conductor pipe set @ 30'	Cmt w/Redi-mix		
13.375" OD 8R STC 54.5# K-55	0-450	450	Circ
Protective string			
8.625" OD 8R STC 28# S-80	0-3500	3500	Circ
'string			
for			
5.5" OD 8R LTC 17# L-80	0-10900	10900	Circ

Wellhead

13-3/8" X 12" - 900; 900 X 10" - 1500; 10" - 1500 X 6" - 1500

Estimated formation tops

Yates	Bone Springs	3450	Strawn	9650
Queen	Dean	6280	Atoka	10150
Grayburg	Wolfcamp	7550	Morrow	10375
San Andres	Cisco	8800	Chester	10925

Mud program

	-	450	Spud mud dry drill w/fresh water if
50	-	3500	10# Brine
3500	-	10000	Cut Brine
10000	-	TD	Brine polymer 9.2 - 9.5#/gal. Vis. 34 WL 8-10

Logs

BHC-Sonic	Surface to TD
FDC-CNL-GR	TD - 3000'
DIL-MSFL	TD - 3000'
Dipmeter	Minimum run

ring

2 50' cores in Morrow Approximately 10,700 depth

re priority

none

ll stem tests

1-Cisco, Strawn or Atoka
1-Morrow

mples

10- intervals from 3000'-TD

uid samples

2 qts - analyze locally

ed logging

2 - man unit, 6400' to TD

vations

pe completion

Single gas well

mpletion equipment

2-3/8" tbg w/pkr

(District Drilling Superintendent)

orsed

Operations Manager	Date
Engineer	Date
Exploration (geologist)	Date

roved

Manager	Date

PENNZOIL COMPANY

POST OFFICE DRAWER 1828 • MIDLAND, TEXAS 79702 • (915) 682-7316

January 7, 1980

RECEIVED
JAN 8
ATLANTIC RICHFIELD COMPANY
LAND DEPT.

TO: ALL CO-OWNERS
(Address List Attached)

Re: ARCO Farmout Request
Aid Field
Eddy County, New Mexico
S/2 Section 24, T-17-S,
R-28-E

Gentlemen:

Enclosed is a copy of farmout request dated December 13, 1979, from ARCO, whereby they propose to farmout our interest in the S/2 Section 24, T-17-S, R-28-E on a net 70% revenue interest basis to a 50% back-in, towards the drilling of a Morrow test on the same proration unit on which we drilled our Aid "24" State Comm #1.

Our combined interest in the proposed unit is based on our operating agreement dated November 9, 1970, covering the Aid State #1, which we calculate to be the interest shown opposite your name.

The NW/4 SW/4 Section 24 has expired and will be up on the next New Mexico State Sale.

We are evaluating this request and will advise you of our decision and would appreciate it if you would advise us of your position in this regard as soon as possible.

Very truly yours,

K. Medlock

Kenneth Medlock
Landman

KM/mlm
Encl.

cc: ARCO Oil & Gas Co.
P. O. Box 1610
Midland, Texas 79702
Attention: Mr. Curt Krehbiel

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6928
6927
Submitted by ARCO
Hearing Date 6-5-80

4

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

February 13, 1980

All Owners
(Address List Attached)

Re: S/2 Section 24,
T-19-S, R-28-E
(Pennzoil Aid-State No. 1)

Gentlemen:

Please refer to recent correspondence from Arco Oil and Gas Company proposing a farmout covering the above noted Morrow tract.

We are the owners of the S/2 SW/4 of Section 24 which constitutes 25% of the above noted 320-acre tract and believe from various conversations with some of the interested parties in this matter that the location for any future Morrow well on this tract would be in W/2 SW/4 Section 24.

We have also checked with our lawyer in Santa Fe who handles all our New Mexico Oil Conservation Division work who advises as follows:

1. A well in W/2 SW/4 of Section 24 would be situated at a non-standard location under NMOCD rules.

2. Approval for this location could be obtained by receiving written waivers from the offset operators or at a NMOCD hearing.

   If Arco (operator of the offset acreage to the south) refused to grant a waiver and/or opposed this non-standard location at the hearing, approval from the NMOCD would provide for a severe penalty in the form of a highly restricted allowable for the new well. The allowable would be based on a pipeline deliverability test to be performed after completion of the well with the actual allowable to be 25% to 50% of the actual test results.

   This presents a serious problem for us as owners of the S/2 SW/4 of Section 24 (which appears to constitute a significant portion of the recoverable gas reserves in the S/2 of Section 24) since the offsetting Arco BV State No. 1 and 2 in Section 25, T-19-S, R-28-E, are non-prorated wells.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6923 6927 Exhibit No. 5
Submitted by ARCO
Hearing Date 6-5-80

As you can see, the non-prorated wells will severely drain a prorated well drilled at the above noted non-standard location. Based on the foregoing, it appears to us that a decision by the working interest owners in the S/2 Section 24 regarding drilling or farming out is subject to considerations other than simply purely geologic merit.

It is our opinion that it is critical, in order to eliminate any possible opposition to a location in the W/2 SW/4 of Section 24, that Arco receive enough additional interest (by way of a farmout) so that it will agree to drill the well and be the operator.

We urge all parties to reach a decision in this matter as soon as at all possible due to the possible extreme drainage that could be occurring from the producing wells to the south.

Very truly yours,

Doyle Hartman

DH/mh
Enclosure

DOYLE HARTMAN
Oil Operator
SUITE 538
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

April 18, 1980

RECEIVED
APR 21 1980
ARCO OIL AND GAS CO.
NORTH & WEST LAND DEPT.

To: All Working Interest Owners
(Address List Attached)

Re: Doyle Hartman No. 1
South Empire State,
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico

Gentlemen:

Reference is made to various correspondence over the past several months regarding the drilling of a 11,000 foot Morrow well on the above described tract.

From various conversations with the larger owners in the subject tract this week, it has become apparent that the drilling of this well is being delayed, which appears to be contrary to the best interests of all concerned.

We own 100 net acres in the S/2 of Section 24 and have paid a considerable amount of money for these leases. Furthermore, we have also participated in an expensive dry hole which has been very valuable in further defining this prospect.

In our opinion, we are dealing with a narrow, but prolific Morrow channel sand crossing a portion of the W/2 of Section 24 and the E/2 of Section 23. Therefore, in order to maximize the potential of our leasehold interests as well as protect the interests of our royalty owners, we propose the following:

(1) We are currently staking an 11,000-foot Morrow well to be drilled at a location of 660' FSL and 660' FWL Section 24 and will file the necessary New Mexico Oil Conservation Division forms as soon as the surveyors plats are available.

(2) We respectfully request that all working interest owners agree to one of the following alternatives:

(a) Participate in the proposed well under Model Form Operating Agreement naming the undersigned as operator. AFE and Operating Agreement will be furnished as soon

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6927 Exhibit No. 6
Submitted by: Atlantic
Hearing Date: 6-5-80

cc: Forrest Sullivan
Straightway

Hartman
hearing

as possible; or,

(b) Farmout your interest while retaining a gross 30% of 8/8 override absorbing all present royalty out of the override so operator would be assigned a 70% net revenue interest.

At payout, each party to have the option of converting its net part of the override to a 50% working interest. All interests subject to proportionate reduction.

Rights earned limited to 100' below total depth drilled.

Due to the considerable amount of time that has already elapsed in getting this well started, please advise as soon as at all possible regarding your decision to participate or farmout as well as your comments concerning our proposed plan of development including proration unit and location.

Very truly yours,

Doyle Hartman

DH/mh

Address list attached

ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0130

Curt Krehbiel
District Landman

December 13, 1979

Pennzoil Company
ATTENTION: Mr. Ken Medlock
Box 1828
Midland, Texas 79702

Subject: Farmout Request
Eddy County, New Mexico

Gentlemen:

Pennzoil as operator drilled a Morrow test in the S/2 of Section 24, T-17-S, R-28-E, Eddy County, New Mexico, which was completed as a dry hole. We understand that 40 acres of this 320 acre spacing unit has since expired. ARCO Oil and Gas Company is willing to drill another Morrow test on this spacing unit if Pennzoil and the other non-operating parties will agree to permit ARCO to earn all of their leasehold interest subject to the retention of the difference between existing burdens and 20% in order for ARCO to have an 80% net revenue interest during payout of such well. At payout Pennzoil and each other party would have the option to convert its overriding royalty interest to a 50% working interest.

We will appreciate your causing this proposal to be considered by the present owners of the remaining 280 acres in the S/2 of Section 24. Your early attention to this proposal is requested as we could conceivably commence this well as early as February 1980.

Yours very truly,

Curt Krehbiel

CK:bk

BEFORE THE
OIL CONSERVATION COMMISSION
Case No. 6928
6927
Exhibit No. 3
Submitted by ARCO
Hearing Date 6-5-80

WORKING INTEREST OWNERS - PROPOSED PENNZOIL
24 State Com #1

PARTY AND ADDRESS	ACRES	INTEREST
ARCO Oil and Gas Company P. O. Box 1610 Midland, Texas 79702	20.0000	6.2500%
Doyle Hartman 508 C & K Petroleum Building Midland, Texas 79701	100.0000	31.2500%
Pennzoil Company P. O. Drawer 1828 Midland, Texas 79702	100.0000	31.2500%
Inexco Oil Company 1100 Milam Building, Suite 1900 Houston, Texas 77002	84.3750	26.3672%
Exxon Company, U.S.A. P. O. Box 1600 Midland, Texas 79702	6.2500	1.9531%
M. Ralph Lowe, Inc. Erma Lowe Maralo Inc. c/o Maralo Inc. 4600 Post Oak Place Suite 307 Houston, Texas 77027	3.1250 1.5625 1.5625	.9765% .4883% .4883%
Continental Oil Company P. O. Box 1959 Midland, Texas 79702	1.5625	.4883%
Tenneco Oil Company 6800 Park Ten Blvd. Suite 200 North San Antonio, Texas 78213	1.5625	.4883%
	320.0000	100.0000%

Want Exxon well completed

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6928 6927
Exhibit No. 2
Submitted by ARCO
Hearing Date 6-5-80

Dan Nutter

ARCO Exhibits
Complete
1 thru 13

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
5 June 1980

COMMISSION HEARING

IN THE MATTER OF:		
Application of Doyle Hartman for compulsory pooling and an unorthodox location, Eddy County, New Mexico.	)	CASE 6927
and	)	
Application of ARCO Oil and Gas Company for compulsory pooling, Eddy County, New Mexico.	)	CASE 6928

BEFORE: Commissioner Joe Ramey
Commissioner Emery Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Commission: Ernest L. Padilla, Esq.
Legal Counsel to the Commission
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the applicant, Doyle Hartman: William F. Carr, Esq.
CAMPBELL & BLACK P. A.
Jefferson Place
Santa Fe, New Mexico 87501

For the Applicant, ARCO:

John B. Draper, Esq.
MONTGOMERY & ANDREWS
P. O. Box 2307
Santa Fe, New Mexico 87501

For Pennzoil:

W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

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MR. RAMEY: It appears we have two cases this morning that concern the same acreage, so I think, without objection, we'll consolidate the cases; have one transcript, issue two orders. Is that agreeable?

We will call Case 6927.

MR. PADILLA: Application of Doyle Hartman for compulsory pooling and an unorthodox location, Eddy County, New Mexico.

MR. RAMEY: Call Case 6928.

MR. PADILLA: Application of ARCO Oil and Gas Company for compulsory pooling, Eddy County, New Mexico.

MR. RAMEY: I'll ask for appearances at this time.

MR. CARR: May it please the Commission, I am William F. Carr, Campbell and Black, P. A., Santa Fe, appearing on behalf of Doyle Hartman, the applicant in Case 6927.

MR. DRAPER: May it please the Commission, I am John B. Draper, from the firm of Montgomery and Andrews here in Santa Fe, appearing on behalf of ARCO Oil and Gas Company, applicant in Case Number 6928.

MR. KELLAHIN: Mr. Ramey, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of Pennzoil Company.

MR. FLOWERS: May it please the Commission,

I'm Lee Flowers with DEPCO, Incorporated, and I'd like to make a statement.

MR. CORKILL: Sir, I am J. L. Corkill, C-O-R-K-I-L-L, representing Husky Oil Company, Midland, and I'll make a statement supporting ARCO.

MR. RAMEY: Any other appearances? I would ask that all witnesses at this time stand and be sworn.

(Witnesses sworn.)

MR. RAMEY: Okay, Mr. Carr, you may proceed.

MR. CARR: Thank you.

May it please the Commission, initially I would move to amend the application of Doyle Hartman. We would propose to move the well location from its proposed location 660 feet from the south and west lines of Section 4, and move it towards a standard location 800 feet from the south line and 1000 feet from the west line. We're moving from an unorthodox location to a more orthodox location, and I do not believe the application will have to be re-advertised.

MR. RAMEY: It would be less unorthodox than you -- than the one we advertised.

MR. CARR: Yes, sir.

MR. RAMEY: Okay, I think you're probably

correct in assuming that; it's less unorthodox and more orthodox.

MR. CARR: At this time I would like to call our first witness, Mr. Donald Wambaugh.

DONALD C. WAMBAUGH

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place of residence?

A Donald Curtis Wambaugh, Midland, Texas.

Q Mr. Wambaugh, by whom are you employed and in what capacity?

A I am a consulting geologist. I work for myself.

MR. RAMEY: Would you spell your last name, please?

A W-A-M-B-A-U-G-H.

Q Have you previously testified before this Commission and had your credentials accepted and made a matter of record?

A No, sir.

Q Will you briefly summarize your educational background and your work experience?

A I graduated from Ohio State University with a degree in geology in 1951. I went to work in Hobbs, New Mexico, for Continental Oil Company; worked there from 1951 to 1954. I moved to Midland in Texas in 1954; worked with Continental Oil Company until 1960, when I left them to open my own consulting office; been on my own since.

Q Are you familiar with the area which is the subject of this application?

A Yes, sir.

Q And are you familiar with the application of Mr. Hartman in this matter?

A Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. RAMEY: Yes, they are.

Q Mr. Wambaugh, would you briefly state what Mr. Hartman is seeking with this application?

A This is an application of Doyle Hartman for compulsory pooling and an unorthodox location, Eddy County, New Mexico.

Applicant in the above styled cause seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the south half of Section 24, Township

17 South, Range 28 East, to be dedicated to a well to be drilled at an unorthodox location 800 feet from the south line and 1000 feet from the west line of said Section 24.

Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof, as well as the actual operating cost and the charges for supervision; designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

Q Now, have you prepared certain exhibits for introduction in this case?

A Yes, sir.

Q Will you please refer to what has been marked as Hartman's Exhibit Number One and explain to the Commission what this is and what it shows?

A All right. Exhibit Number One is a structure map contoured on top of the Lower Morrow formation of Pennsylvanian age.

It shows a gentle dip to the southeast of monoclinal magnitude and has the location of Mr. Hartman's well circled in red in the southwest quarter of Section 24.

Q And it has indicated on there the location of a channel, is that correct?

A Yes, there is a location of a channel, yes, sir.

Q And in your opinion, how important is the structure in this general area in regard to obtaining commercial production from the Morrow formation?

A In my opinion, I do not think that structure has too much to do with the -- with the production horizons, formations.

Q So this exhibit is offered only as general background?

A Yes, sir.

Q Will you now refer to what has been marked as Hartman's Exhibit Number Two and explain what it is and what it shows?

A Yes, sir. Exhibit Number Two is an Isopachous map of the Lower Morrow net sand porosity. It has been derived by using electric log examination with the parameters of 35 API units gamma ray or less, and greater than 8 percent porosity determinations.

Q Okay. Now, I think it's important that we make very clear what you are showing with this Isopach map. You are limiting this to -- well, you are mapping only the best quality sand, is that correct?

A Yes, sir, and it's a method of comparing one well to another and rather than having apples and oranges, you have all oranges.

Q You have, in Section 24 in the northeast

corner, a Pennzoil well. Has that well in fact produced or not?

A Yes, sir, that well is presently producing from the Lower Morrow and it's been a very poor producer, and according to these parameters, does not have any of the sand qualities that --

Q But that is because you are confining this to mapping only the best quality sand.

A Yes, sir.

Q And throughout, as you're talking and working with your exhibits, are you talking about all the Morrow formation, the Middle Morrow, the Lower?

A No, sir, only the sand in the Lower Morrow.

Q Now, this plat reflects two channels. How do the thicknesses in these two channels compare with each other?

A The channel that goes through the west half of Section 24, which shows the proposed proration unit on it, is -- has a thicker sand deposition than the channel shown on the east side of the exhibit, and is a narrower channel. It's a thicker sand with a narrower border. It has -- the other one is a thinner sands and is spread out wider laterally.

Q Now, Mr. Wambaugh, I direct your attention to two wells completed in the channel in Section 25, and ask

if you would indicate the thickness of the sand intercepted by each of those two wells?

A All right. The ARCO No. 1 "BV" State has 95 feet of sand. The ARCO No. 2 "BV" State has 79 feet of sand.

Q Are there other wells in this general area that have intercepted sands of like quality?

A Yes, sir, the Amoco No. 5 Empire South Deep intercepted this sand, also.

Q Are these typical Morrow sands, based on your experience?

A No, sir, normally you do not find a thick channel section like this in the Morrow. Most of the time it's more of a lensical type lateral sheet sand.

Q All right. Is there a gas/water contact that can be established in this area?

A Yes, sir, the Amoco Empire South Deep Unit indicates gas/water contact from log determination, and also the fact that I'll show on a later cross section, they only perforated the very top portion of the sand.

MR. RAMEY: Mr. Wambaugh, would you identify those Amoco wells that you were talking about?

A No. 5 --

MR. RAMEY: The No. 5 in Section 31?

A -- is in Section 31, yes, sir, which would

be in "G".

MR. RAMEY: Thank you.

Q Now, Mr. Wambaugh, as I look at this exhibit, I notice you have, as you move from southeast to northwest, you have turned the channel, pulled it somewhat to the north, to due north. Would you explain why you have interpreted this data in this fashion?

A Yes, sir. It seemed to me under geological concepts and from determination of the data, that this would be a more logical way. Normally sand channels, rivers, do not run in a straight line. Also, at one point in time, if you take a straight line through the Amoco 5, the "BV" 1 and 2, you find that Yates drilled a well in Section 23, which is a dry hole.

Q Is it possible that the sand could have just thinned out between the wells in Section 25 and the Yates dry hole in Section 23?

A Yes, sir, but it would be very difficult to show that under geological concepts.

Q You believe that turning the channel to the north, then, is geologically a sound interpretation of the data that you have?

A Yes. Yes, sir.

Q Now, I would direct your attention to the Amoco Empire South Well No. 19 in Section 36.

A Yes, sir.

Q And also to the Yates Empire South Well No. 13 in Section 30.

A Yes, sir.

Q And ask you if you have been able to see -- have you examined logs on those wells?

A Yes, sir, I have.

Q Have you been able to -- have you found any evidence of a channel in either of those wells?

A No, sir. The sand present in the Lower Morrow does not fit the parameters, and both of these wells are completed as Upper Morrow Sands wells.

Q So, based on that, what can you conclude about the location of the channel?

A The channel goes between those two wells.

Q Now, I would ask you to refer to what has been marked Applicant's Exhibit Number Three. This is your cross section A-A', and if you'd like to go to the cross section, I would like you to explain to the Commission what this shows?

A This is the cross section that is marked in red on the Isopach map and it runs approximately through -- well, through this channel with the available well data.

On the righthand side is the Amoco 5 and yellow shows the total sand thickness under these parameters

that are shown on electric log as total sand, gross sand thickness, under the parameters of gross sand thickness.

Q Will you speak louder, please?

A Yes. And this shows that if you correlate these logs you can see identifiable characteristics that tie all three wells together and by projecting them into the location, Mr. Hartman's location, we can estimate an amount of sand that he would hope to penetrate; in the neighborhood of -- about the same amount of thickness as in the "BV" 2.

Q All right, and the data as to the thickness of the pay is also reflected on your Isopach map, which is your Exhibit Number Two?

A Yes, it's been derived from these logs.

Q Now, are the sands encountered in these three wells typical Morrow development in the area?

A No. Most of the Morrow development in this area is not this solid thick sand; it's a broken sand; it has three or four stringers of sand.

Q Are you aware of any other Morrow channel of this character in that general area?

A Not to my knowledge, no, sir.

Q Now, on this log do you show the perforations in each well?

A Yes, sir. The wells are perforated. I've shown the perforations in the borehole to indicate that

on the "SV" 2 they perforated almost all the sand body; on the "SV" 1 almost the sand body; and on the Amoco well, as I stated before, they perforated the very top portion, because there's an oil/water contact indicated here in the log data.

Q. Will you now refer to what has been marked Mr. Hartman's Exhibit Number Four and explain the information contained on this exhibit?

A. Yes, sir. This is the green line on the Isopachous map, which is C-C', running approximately north-south through the other channel that we see in the area.

The common well is this well here, which is the Amoco No. 5, and we go north from there.

As you -- as I explained to you before, the Yates No. 13, this sand is essentially gone. You see a remnant of it.

Q. When you say this sand, which sand are you talking about?

A. The Lower Morrow Sand that is in the channel here. It is essentially gone and this well is not indicated to have perforated any of the Morrow Sand.

As you go on further north you begin to see some development of sands, and this well, the Yates 18, has a thinner section than is in the western channel. The Conoco well has two sections. You can begin to see the shale breakup in it a little bit as you get toward the edge of the

channel, and this well here is the General American No. 9. Again it seems to have a fairly solid clean sand but the net stuff is kind of broken up.

Q How does the quality of the pay in the wells reflected on your cross section C-C' compare with the wells on the A-A' cross section?

A The thickness and the quality of the sand are not -- are inferior.

Q On which one?

A On the eastern cross section, C-C' versus A-A'.

Q Will you now refer to Hartman Exhibit Number Five and review this for the Commission?

A This is cross section B-B', which is marked in blue on the Isopachous map and it is approximately an east-west cross section through -- again we have common wells, the Continental 19 is shown over here to the lefthand side, and we have Mr. Hartman's location, and Exxon's proposed location is listed on here.

Again we're looking at the Lower Morrow Sands on a cursory, preliminary type identification of these examination logs. We see the Continental well with three distinct sands; two have been perforated, one with poor quality and one with quality that can be included in this Isopachous material. And these sands pinchout somewhere. They're not

present in the Pennzoil well; however, there is a -- you can see a thin sand that can be taken across and into the two Yates wells on the west side in the Lower Morrow.

Q Now, Mr. Wambaugh, is it possible for you to project the sand interval from the A-A' cross section into the present cross section?

A Yes, sir. If we take a copy of the log of the ARCO "BV" 2 and place it into location -- may I have a piece of tape, please? This is the log that appears on A-A' and we've, as I said, we've projected those sands, that's a reasonable thing done geologically for interpretation to see what we might find if we take that log and put it over and correlate it in its position, we find Mr. Hartman might expect at this location a similar sand which pinches out to the east, even though the Pennzoil A-24 State Communitized, through their drill stem test, they had some gas and some good pressure, which means that we are closely on the edge, and this again thins out going to the west, as you would expect, and we have this channel thing. We have a thickening of the interval between the Lower Morrow and the Barnett. We also have a thickening of the Lower Morrow at the Chester section, where we have this --

Q Now, in projecting from one cross section to another, as you have, is this a sound geologic practice?

A Yes, sir, this is usually done to antici-

pate. The operator would like to know what he's expected to intercept in his location. This is a normal procedure.

Q Mr. Wambaugh, do you have anything further to add to your testimony on direct?

A No, sir.

Q Were Exhibits One through Five prepared either by you or under your direction and supervision?

A Yes, sir, they were.

MR. CARR: At this time we would offer into evidence Hartman Exhibits One through Five.

MR. RAMEY: Hartman Exhibits One through Five will be admitted.

MR. CARR: I have nothing further on direct, of this witness.

MR. RAMEY: Any questions of the witness?

MR. DRAPER: If it please the Commission, it might be more efficient since we've combined the cases, for ARCO, once the direct on 6927 is completed, to present its direct on 6928, and then allow such cross examination as may then appear necessary.

MR. RAMEY: All right, that's agreeable with the --

MR. CARR: I have no objection to recalling anyone if Mr. Draper wants to examine them at a later time. We may, however, want to reserve the right to cross examine

witnesses in the ARCO case as they are called.

At this time I'd call Charles W. Holmstrom.

CHARLES W. HOLMSTROM

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place of residence?

A Charles Wagner Holmstrom. I live in Midland, Texas.

Q Will you spell your last name, please?

A H-O-L-M-S-T-R-O-M.

Q Mr. Holmstrom, by whom are you employed and in what capacity?

A I'm a geophysical consultant, self-employed.

Q Have you previously testified before this Commission and had your credentials accepted and made a matter of record?

A No.

Q Will you briefly summarize for the Commission your educational background and your work experience?

A I graduated from the University of Okla-

homa in 1958 with a Bachelor's degree in geology. Two years following that I worked for Republic Exploration, a seismic contractor. Following that, I worked for GSI for seven years, a second seismic contractor. The seven years after that I worked for Union Texas Petroleum, a division of Allied Chemical Company in Midland, and since 1974 I've been a consultant.

Q Are you familiar with the general area involved in this case?

A Yes.

Q Are you familiar with Mr. Hartman's application?

A Yes.

MR. CARR: We would tender Mr. Holmstrom as an expert witness in geophysics.

MR. RAMEY: I think he would qualify.

Q Mr. Holmstrom, when were you first employed by Mr. Hartman to prepare seismic data for him concerning the proposed well?

A January, 1990.

Q And what were you employed for? What were you to attempt to establish?

A At that time we talked about shooting two seismic lines and making arrangements with the contractor to have the data shot and processed in an attempt to locate the channel.

Q Were you also employed to try and estab-
lish the width of the channel?

A Yes.

Q Now, Mr. Holmstrom, would you refer to what has been marked for identification as Hartman Exhibit Number Six and explain to the Commission what it is and what it shows?

A This is an Isochron map from the Strawn to the Chester, which is the interval on this seismic line --

Q Okay, now, just a minute. When you say this seismic line, you're referring to your Exhibit Number Seven.

A Yes.

MR. CARR: If we could go off the record a minute.

(Thereupon a discussion was held off the record.)

Q All right, if you'll continue and explain that you're referring to Exhibit Number Seven.

A I'd like to back up just a little bit. Before we started on this project, our idea was to shoot a seismic line through the Mondo 2 "BV" State and a second line through the Pennzoil 124-A with the idea being that if we could see the channel by an anomaly on the line through the Mondo 2 "BV" State and a similar anomaly

on the line through the Pennzoil well, we would know where the channel was. We're going from a position where we know the channel is to a position where it's a wildcat well.

Q Now, before you go on to Exhibit Number Seven, maybe you should briefly explain what an Isochron is, your Exhibit Number Six, what, exactly what is it?

A All right. This is the Isochron from the Strawn to the Chester and it measures the seismic time interval from the orange mark on line two to the yellow mark on line two. And through a channel there should be a thickening of this interval and it should be thinner on each edge.

Q Now, Mr. Holmstrom, how does an Isochron compare with an Isopach map?

A An Isopach measures intervals of equal thickness.

An Isochron map measures intervals of equal time, seismic time, as measured on this seismic cross section.

Q So is it fair to say that an Isochron map is similar to an Isopach map. It's just achieved with a different process?

A Yes.

Q Now, if you will now refer to Exhibit Number Seven, which is the seismic cross section with the overlay, and explain what that is and what that shows?

A The overlay is called a synthetic seismograph. The process is to take a sonic log -- this is the trace of a sonic log.

Q The sonic log is on the --

A Is on the overlay.

Q It's labeled at the top, how?

A It's labeled at the top as interval velocity times 1000.

Q All right.

A And by integrating the sonic log through a seismic computer routine, we make a synthetic seismogram, and the purpose of doing this is to identify the reflections at the well along the seismic line so that we will know where to look for the Morrow channel. This narrows down where you concentrate your data.

Q Now, is it correct, I want to be certain I'm understanding you, that the -- is it your testimony that the reason for relating to the sonic log is to give you something to establish where the top of the Morrow is, where the tops of these different formations actually lie?

A Yes, that's -- that's the purpose that we use the integration of the sonic.

Q Then do you work from this to sort of hang your seismic data?

A Yes. Then the seismic data along this

orange marker on line two, and these intervals measured from the data are transferred to a map and contoured as an Isochron map.

Q Now, if we look at --

MR. RAMEY: Just a minute, Mr. Carr.

MR. CARR: Yes, sir.

MR. RAMEY: Did you say the orange marker on line two or is it a yellow marker on line two?

A No, the orange marker is the Strawn. This is the Strawn on the sonic log, and this is the reflection that corresponds to it. The Strawn marker is shown by the upper orange mark on seismic section line two.

From this integrated sonic log we have now identified the reflection on line two at the Pennzoil location.

The orange mark is the Strawn. The lower yellow mark is the Chester, and the bottom orange mark, Woodford.

Q And these are all indicated on the lefthand side of the --

A Yes, they're indicated on the lefthand side of line two.

Q And if you go across the top of the exhibit, you have placed the location of certain wells, is that correct?

A Yes.

Q They are shown by vertical lines coming down the exhibit?

A The Pennzoil Well 124 is at shot point 44 on line, seismic line two, and Mr. Hartman's location is at shot point 46 on seismic line two.

MR. RAMEY: Now, when you refer to seismic line two, what are you referring to exactly?

A Seismic line two is marked in this area of the border, on the upper lefthand side.

Now, from this data I'd like to go the southern line, this line is through the ARCO well, No. 2 "BV" State.

The 2 "BV" State is located at shot point 32 on seismic line one, the southern seismic line.

ARCO No. 1 "BV" is projected into seismic line one at shot point 35.

As Mr. Wambaugh's displays show, this is the better quality Morrow well with the thickest sand section. If you measure the interval, seismic time interval, from the Strawn to the Chester at the ARCO 1 "BV", it's a longer interval than at the No. 2 "BV", and as you move west along the seismic line out of the channel, it's noticeably thinner.

If you do the same thing on the east side of the channel, it's thinner.

Q So what you've just shown us is the evidence of the geologic anomaly that appeared on the southernmost shot line, that appeared in the ARCO well where you have encountered the channel section?

A Yes. Now, I'd like to make the correlation from the ARCO 1 "EV", the best well, to the south and compare it to Mr. Hartman's location. I think you can see that the Strawn-Chester interval on each seismic line has a similar thickness. Out of the channel to the west the thickness is noticeably less. Out of the channel to the east it is noticeably less.

Q Would you now refer to Mr. Hartman's Exhibit Number Eight and explain what this is?

A Number Eight is another seismic Isochron map measuring the interval from the Strawn to the Woodford, this interval, the Strawn, Woodford, and it has a similar appearance and shows the channel in the same position as the Strawn-Chester Isochron.

So I feel like our technique has found the channel.

MR. RAMEY: Were you referring to Exhibit Eight?

MR. CARR: For clarification let me just state that Exhibit Number Six is the Isochron of the Strawn-Chester.

Exhibit Number Seven is the seismic cross section with the overlay.

Exhibit Number Eight is the seismic cross section of the Strawn-Woodford, the second exhibit with the overlay that the witness testified to, that's Exhibit Eight.

And Exhibit Number Nine is the second or the last Isochron.

MR. PADILLA: Okay, that's what he just testified to, right?

MR. CARR: Right, that's correct, but the last thing actually was Exhibit Number --

MR. RAMEY: Seven was the seismic -- seismic line two and seismic for line one and then Nine is the Strawn-Woodford Isochron.

MR. CARR: That's correct.

Q. Mr. Holmstrom, based on this data where would you recommend that a well to the Morrow be drilled on the south half of Section 24?

A. At the proposed location.

Q. Would you recommend the drilling of a well to the Morrow at any other location in the south half of this section?

A. No.

Q. Would you think it would be prudent to drill a well in, say, Unit O of the south half of this section?

Where the ARCO location is proposed?

A No, I would not recommend a well in that location.

Q Have you shared this seismic data with any other interest owners in the south half of the section?

A Yes. A consultant working for Maralo and Pennzoil has reviewed these data.

Q Mr. Holmstrom, were these -- was this seismic data all prepared by one company?

A No. The seismic cross sections were prepared by GSI and the synthetic seismograms were prepared by GeoSearch Corporation.

Q Do the results obtained by these different companies coincide?

A I think they coincide very well, yes.

Q Now, on these seismic cross sections, is this in fact just raw data that isn't subject -- what you -- when you receive this, this is raw data that has not yet been interpreted, is that correct?

A That's correct.

Q In your opinion does the raw data, absent any interpretation on your part, show the existence of the geologic anomaly where you have placed it?

A Yes, I think it shows an anomaly. Each line shows an anomaly.

Q How reliable is this seismic data?

A I would judge those -- each line to be of good quality for this area.

A Now, was all of this seismic data prepared strictly for the purpose of examining the south half of Section 24?

A Yes. One thing we did, at the time the data was gathered, was shoot it with 330 group intervals just so we would have more detail, working at finding the channel.

Q Was all this work done, no matter what company was involved, was it all done under your supervision and direction?

A Yes.

Q And are the tools that you're using precise enough so that you can with accuracy determine where you have these anomalies?

A Yes, I think they're precise enough to find this type of anomaly.

Q Were all the seismic tests run under identical conditions?

A Yes.

Q Is there any way that this could have been manipulated to move the channel east or west?

A No way that I know of.

Q Now, did you design the program that was

particularly used in this effort?

A Yes.

Q And you designed it for the purpose of locating the channel in this exact area?

A Yes, that was the purpose of this project.

Q And does your seismic data confirm the information that was available from well logs in the area?

A Yes.

Q Now, it shows the channel -- it shows the anomaly. Where exactly is this as you -- between what formations is the anomaly located?

A The anomaly is measured on the maps between the Strawn formation and the Chester.

Q Is there any way it could be above or below this interval? Or above those two -- could it be in the Strawn or in the Chester?

A Well, it's shown on the well logs as between the Strawn and the Chester.

Q Does any anomaly exist immediately to the east of the Pennzoil dry hole in the south half of this section?

A No.

Q Does this data also give you some basis to make an estimate as to the width of the channel that you are dealing with?

A. I estimate the width of the channel to be approximately 1500 feet.

Q Okay, Mr. Holmstrom, would you just now by way of summary, summarize what this data shows?

A. The data were gathered in an attempt to shoot through a known producing channel and to shoot a second line where there was no production, across the proposed location to see if there was a similar anomaly on the northern line, number two.

I think these data show an anomaly on each line and I feel like the project has been successful.

Q Were Exhibits Seven through Nine prepared by you or under your direction and supervision?

A. Yes.

MR. CARR: At this time we would offer Hartman Exhibits Seven through Nine.

MR. RAMEY: Hartman's Exhibits Seven through Nine will be admitted in evidence.

MR. CARR: I have nothing further of this witness on direct.

MR. RAMEY: Any questions of the witness at this time?

MR. CARR: I would call Mr. Bill Aycock.

(There followed a discussion off the record.)

MR. CARR: You're correct. There were four exhibits and we should have said or we failed to move the admission of Exhibit Number Six, which is the first Isochron, and we would do that now.

MR. RAMEY: All right, Exhibit Six will be admitted.

WILLIAM P. AYCOCK

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place of residence?

A William P. Aycock, Midland, Texas.

Q Mr. Aycock, by whom are you employed and in what capacity?

A I'm employed by Mr. Doyle Hartman in connection with this application.

Q Have you previously testified before this Commission and had your credentials accepted and made a matter of record?

A Yes, sir, I have.

Q Are you familiar with the subject area

and the application in this case?

A Yes, sir, I am.

MR. CARR: Are the witness' qualifications acceptable?

MR. RAMEY: Yes, they are.

Q Will you please refer to what has been marked for identification as Applicant's Exhibit Number Ten and explain to the Commission what this is and what it shows?

A Applicant's Exhibit Number Ten is a tabulation with a land map attached which summarizes the three tracts comprising the south half of Section 24, and the ownership in each of those three tracts.

Tract Number One and Tract Number Two are the tracts in which Mr. Hartman has ownership and I would call the Commission's attention, respectfully, to the fact that Tract Number One is the south half of the southwest quarter of Section 24, and Tract Number Two is the northwest quarter of the southwest quarter of Section 24, the two tracts together comprising a gross of 120 acres.

Mr. Hartman owns a total of 100 net acres out of the total of 120 acres, with a total ownership under the whole 320-acre proposed proration unit of 31.25 percent.

Likewise, all of the other working interest owners are listed in each of the tracts with the net acres that they own under each tract and their net acres under the

entire 320-acre unit indicated along the line that is designated with the name of the operator.

It is quite apparent that the largest owners under the south half of 24 are Mr. Hartman and Pennzoil, and that the next largest owner is Inexco.

Q Now, Mr. Aycock, will you refer to what has been marked Exhibit Number Eleven and review the information contained thereon?

A Exhibit Number Eleven is a summary of working interest ownership supporting Unit M as the Morrow drillsite in the south half of 24. Attached to the page of it are the name of each of the operators who were previously indicated as having ownership in the south half of 24; their number of net acres in the south half of 24; their working interest; the form of participation; and the status of their commitment.

The supporting parties, which are documented by inclusions of the statements in writing that Mr. Hartman has received from each of them, are Doyle Hartman with 100 net acres, 31.25 percent working interest; Pennzoil with 100 net acres, with 31.25 percent working interest; we have a letter here dated June 2nd, 1980, from H. W. Hollingshead, Junior, stating that after a review of all the available geological and geophysical data, Pennzoil considers the southwest quarter southwest quarter of Section 24 to be the

preferable Morrow location in the south half of 24, and it is Pennzoil's intention to either join or farmout to your proposed well, and a final management decision should be shortly forthcoming.

The third operator that is listed on the -- under the parties supporting Unit M, is Inexco, with 84.375 net acres, a working interest under the whole 320-acre unit of 26.3672 percent. The indications that Mr. Hartman has, they will either join or farmout. They are participating in the cost of the gathering and interpreting the seismic data as to their interest under the south half of 24, and we do not have any current correspondence from them, but we will present a later summary of all the correspondence, beginning with the time the proposed well was first discussed with ARCO and other parties, and present the entire correspondence from each party.

The Maralo group is the next that Mr. Hartman has indications that will support Unit M as the preferable location in the south half of Section 24. The Maralo group has a 6.25 acre, net acres, which gives them 1.9531 percent. They have indicated they will join. They're waiting on Mary Ralph Lowe to make the final decision. It has been recommended by both their Midland office and their Houston office to her, and it was indicated by Mr. Holmstrom they've had a geophysical consultant review the data that's been pre-

sented here to this Commission on behalf of Maralo.

Now, Tenneco has 1.5625 net acres, a .4883 percent working interest. They have indicated they will join. We have a letter from them in this -- in this exhibit that says that in writing. They're waiting on final management approval.

Conoco has 1.5625 acres, a .4883 percent working interest. They have indicated both verbally and in writing that they will farmout, and they are waiting on final management approval.

In each case, Mr. Hartman has pursued the attempt to voluntarily make an agreement to develop the south half of 24 will authorities diligently, and all of these parties that are listed, for a total of 293.75 acres, which comprises 91.7969 percent of the proposed 320-acre unit, have indicated they will voluntarily cooperate and will either join in the drilling of the well, or they will farmout as to their interest prior to the time that the well is spudded.

MR. RAMEY: Mr. Aycock, one question.

A Yes, sir.

MR. RAMEY: I think you said Continental had agreed in writing, and I don't have a copy of that.

A Well, Mr. Ramey, if you'll wait till we get to the -- I have a -- the last exhibit that I'm going to present is this big packet of correspondence and it has all

the correspondence, and the Conoco letters are contained therein. If you would delay that question until we get there, I think I can answer it.

If you want to go into it now, I'll be glad to pull it out. It's up to you, sir.

MR. RAMEY: No. You just have -- you just have the other letters --

A Yes, sir.

MR. RAMEY: -- in this Exhibit Eleven.

A We have all of them on our last exhibit and we have them in chronological order and we will review each piece of correspondence and we will put into the record the point that we think is -- is cogent and consequential as far as this application is concerned, that each of those pieces of correspondence has in writing.

MR. RAMEY: If you have to.

A Yes, sir, if you wish for us to.

The parties opposing Unit M are ARCO Oil and Gas with 20 acres, a 6.25 percent working interest; and Exxon with 6.25 acres, a 1.9531 percent working interest; a total opposing ownership of 26.25 net acres, or 8.2031 percent of the total anticipated proposed 320-acre unit to be assigned to the well.

Q Mr. Aycock, will you now refer to what has been marked Exhibit Number Twelve and review this for the

Commission?

A. Exhibit Number Twelve is two tabulations and two graphs of shut-in subsurface and surface pressures that have been reported to the Commission by the various operators for wells, both in the entire nearby area, including the single well in the Aid-Morrow, and the nearby wells that -- in the South Empire-Morrow Pool. On the first two pages there is a summary of that information in a tabular form, in chronological order by well, by location, with whether the drill stem tests are measured or calculated pressures, for all wells.

And then immediately behind that for just those wells that are in the immediate vicinity of the proposed location. In both cases it can be established beyond reasonable doubt that the initial subsurface pressure, depending upon the datum for which minor adjustments would have to be made, that are not sufficient to account for the differences in the pressure reported, and certainly the surface pressure differences cannot be accounted for any differences in datums, since they're already observed at consistent datum, it will be observed that the initial surface pressure is between 3100 and about 3260 pounds, and the initial subsurface pressure is between 4260 to 4400 pounds, and the main -- the point in having collected this data was to show that as a function of time all of both the surface and subsurface pressures had been reported to the Commission, at the Artesia office, had been

consistently declining.

There are a few exceptions to this but in general it can be seen that these have been declining. In particular, I would call the Commission's attention to the fact that the initial surface pressure that was reported by the ARCO "BV" 1 was 2936 pounds and the initial subsurface was 4053 pounds, and this is in the vicinity of 200 to 250 pounds less than the initial pressures which have been reported to the Commission by wells which were prior completed either the Single 6 Morrow Well or the nearby wells in the South Empire Morrow Pool.

In addition to that, the initial pressure, the last one that has been reported, according to the files -- by the way, I have a complete copy of all the Artesia District's files for each of the wells in both the South Empire Morrow and the Aid Fields, including dry holes over there, if there is any need to refer to them.

On 12-5-79 a shut-in pressure, shut-in surface pressure of 2254 psig was reported by ARCO on the "BV" State 2, and the subsurface measured pressure was 3178 psi.

These pressures indicate to me that the pressure is declining in the area of the proposed location, and as will be substantiated by later information, the corollary of this is that drainage is probably occurring from the

acreage on which the proposed well is to be located to the south to Section 25.

Q Will you now refer to what has been marked Exhibit Number Thirteen and review the information contained thereon?

A. Exhibit Number Thirteen is a summary of reservoir production information for Morrow Sand wells that are located in the immediate vicinity of the south half of Section 24. This does not comprise all of the South Empire Morrow Field, but just the portion which is immediately adjacent.

Once again, the attempt has been made to accumulate all of the consequential technical engineering parameters that have been reported to the Commission.

I will call the Commission's attention to the fact that located -- each vertical column represents an operator and well. The first line gives the section, the unit number, or the unit designation in which the well is located, the section and township, the next line gives -- pardon me -- gives the completion date and the completion interval.

The next group of data include that that is reported on the NMOCD C-122 Gas Well Potential Test, as well as those parameters which can be readily derived by an engineering -- straightforward engineering analysis of those

test results.

The next group of data are log interpretation results and have a summary for each of the wells of the consequential volumetric parameters that can be derived in a straightforward fashion by an analysis of the logs.

Then I have the estimated mean effective permeability, which has to be derived by combining data that is derived independently from the C-122 test analyses and from the log interpretation results.

The next group of data gives the cumulative production as of March 1st, 1980, which is the latest data that we've been able to procure for both gas and liquids.

The next line gives the estimated ultimate recovery from an approximate extrapolation of the current producing trends to an economic limit, estimated economic limit of 1-million cubic feet of gas per month.

The next line is the estimated original gas in place in MMCF, which is derived by constructing for the wells and for the group of wells, the linear relationship between the ratio of measured subsurface pressure and the consistent compressibility factor as a function of cumulative gas production.

The next to last line is the estimated gas recovery factor, a fraction of the original gas in place, which is derived by comparing the estimated ultimate recovery

from projecting performance trends with the estimated original gas in place that was derived from static pressure studies.

The very last line is the estimated effective drainage area in acres, which is derived by comparing the estimated net pore space by wells in MMCF per acre, with the number of MMCF indicated to be the original gas in place from a study of the pressure performance reported for each well.

I will call the Commission's attention to two consequential factors. Number one, the two ARCO, or Hondo wells, and they're reported both ways in the Commission files that I have, and on this tabulation we've indicated them as the operator to be Hondo Oil and Gas, are very anomalous as to the quality of the pay. As an example, the net effective pay is the fourth line from below where it says log interpretation results on the table.

I'd estimated 81 feet of net effective pay for the "BV" No. 2; 108 feet of net effective pay for the "BV" No. 1; and you can -- a quick perusal of the other numbers will show that the highest net effective pay number for any of the remaining wells is 54 feet, and that's for the Amoco South Empire Deep Unit No. 5, which penetrates the gas/water contact for this -- this Lower Morrow channel reservoir, however it needs to be described.

All the rest of them are considerably

thinner than this. I've indicated the ratio of net effective pay to gross pay, and that also shows that the quality of the two ARCO wells is higher than any of the other nearby wells. I've also shown the original gas in place and there is a mistake on this, a typographical error here. It should be MMCF per acre rather than MCF per acre.

I call the Commission's attention to the fact that I've estimated approximately 70 million cubic feet per acre in place from the log analysis of the State "BV" No. 2; approximately 134 million cubic feet per acre in place from an analysis of the "BV" 1; and the remainder of the wells in the immediate area are much lower than this; some of them as little as 20 percent of these, 10 to 20 percent of these numbers.

The permeability thickness combined with the net effective pay gives an estimate of the mean effective permeability for each of the wells, as derived from an analysis of the C-122 tests and logs.

I call the Commission's attention to the fact that the permeability alone is not as anomalous as are the thicknesses, so it is my conclusion that the reason that the productivity of these wells is so much better than that of any of the rest of the wells in the area, is because the pay thickness is greater, and this combined with an estimated effective permeability of about the same calibre as some of

the others results in a much higher permeability thickness product, and as the Commission is aware, the product of permeability thickness in combination with the available pressure is the determining factor in determining what the true gas deliverability will be.

I also call the Commission's attention to the fact that the estimated ultimate recoveries for the two ARCO wells are as much as seven or eight times those for any of the other wells that are in the nearby area. I've estimated over a half million barrels of condensate will be produced by the two wells, based on the current performance and that would average out to over 250,000 barrels per well, and that's -- that's almost ten times what it is for some of the others, and at least double what it is for the -- for the highest other well in the immediate area.

I've estimated 34 million -- 34 billion, pardon me estimated recovery of gas for the two ARCO wells, and this is -- is almost -- it's about equivalent to -- well, it's more than equivalent to all the rest of the wells that are listed on this table combined.

So I think every piece of information we have says that -- that the two ARCO wells are of abnormal quality, have much, much more favorable gas deliverability characteristics than any of the rest of the wells, and the indications that are available from the data that has been

put into the Commission files are that the recovery will be manyfold greater.

So it is quite apparent that Mr. Hartman, as a prudent operator, would attempt to tap a reservoir with these outstanding characteristics, rather than trying to penetrate some other reservoir that would probably have, based on an analogy with the remaining data that's available, would have greatly inferior original gas in place, and probably gas deliverability, as well.

The map that goes with the tabulation shows not all of the data that's listed, but it shows certain of the pieces of data that we consider consequential. You will note that it's color-keyed for each well, the original gas in place in MMCF per acre, as derived from log analysis, is in yellow; the original gas in place in MMCF, as derived from static pressure studies, is in purple; the permeability thickness product in millidarcy feet is in orange; the cumulative and estimated ultimate recovery for each of the wells, where that information is available; for liquids the cumulatives and ultimates are shown in green; and for gas they are shown in red.

I think the impression that one gets from perusal of the numerical results presented on the table will be borne out areally by referring to the map, and it will once again be quite apparent that the two ARCO wells have such

outstanding characteristics that it would be -- only be prudent for an operator who had invested a large sum of money in a state lease to try to penetrate that reservoir if he believed that the reservoir were present under his lease.

Q Mr. Aycock, how many acres, approximately, could each of the ARCO wells in Section 25 drain?

A The indicated drainage by combining the pressure studies with the log analyses for the two ARCO wells is slightly in excess of 300 acres. From the integrated results of my studies and those of Mr. Holmstrom and Mr. Wambaugh, we estimate that the south half of Section 24 and the north half of Section 25 each have in the vicinity of 100 acres that are gas productive, and the south half of Section 25 has about 115 acres that are productive.

So therefor, the total productive acreage that we estimate for the two ARCO wells would be in the vicinity of 225 net acres, and the engineering studies indicate that they're draining considerably in excess of that, which leads Mr. Hartman to believe that if he does not attempt to penetrate the reservoir, that he believes lies under the southwest quarter of Section 24, and compete in it competitively, that the outstanding quality and the high rates of depletion that are going on for those wells, will lead to depletion of the reserves that underly his property, and he'll be denied the opportunity to recover them.

Q Mr. Aycock, will you identify what has been marked Applicant's Exhibit Number Fourteen?

A Applicant's Exhibit Number Fourteen has a cover of a land map and each of the wells in the entire area, both in the South Empire Pool and in the Mid-Morrow Pool that have been productive, are indicated, as well as Mr. Hartman's proposed location, and behind that you will find tabulations of gas and liquid production, with graphs of the gas production plotted as the log of gas production rate as a function of time.

This is -- this is put into the record as data substantiation for the prior engineering estimates that have already been discussed.

Q Mr. Aycock, will you now refer to what has been marked Applicant's Exhibit Number Fifteen, which is the summary of correspondence, and review this for the Commission, pointing out only things which you think need to be particularly emphasized?

A This exhibit is composed of all of the correspondence that concerns this matter that is in Mr. -- that is Mr. Hartman's file. I have had it arranged in chronological order with the oldest on top proceeding to the youngest on the bottom for purposes of ease of finding each piece of information.

I have, let's see, let me count them and

tell you how many individual pieces of corresponce there are.

There are 33 individual pieces of correspondence, some of which are represented by several pages in this exhibit.

The first piece of information that is listed is a letter from ARCO to Pennzoil, dated December 13th, 1979, referring to the -- a farmout request on the south half of Section 24. They go into the fact that the 40-acres has expired and that ARCO is willing to drill another well on this spacing unit if Pennzoil and the other non-operating parties will allow ARCO to earn all of their rights, and the basis on which they're to earn all those rights was proposed as the difference between 20 percent and 70 percent, and Mr. Hartman understands that that was later modified to 30 percent and 70 percent.

And I think it's consequential that at the time this letter was written that it was ARCO's intention to pursue vigorously the development of the south half of 24, as indicated by the last paragraph of this letter.

The next piece of correspondence that's listed is a letter from James A. Davidson, who represents --

MR. RAMEY: Mr. Aycock, do you think it's necessary to go into all of these? Could you summarize them?

A. No, sir, not unless the Commission desires to. I think they're arranged in a form that -- that the Com-

mission can refer to them at their leisure and if there are any questions I will be glad to answer them or Mr. Carr can contact me, or whatever you all desire.

I don't want to waste your time on something you don't want to fool with, Mr. Ramey.

MR. RAMEY: Well, I think that the gist of the matter is that you've probably contacted all these people and tried to voluntarily form a unit.

A Yes, sir, we've done, as far as I am concerned, as diligent an effort as is humanly possible has been made to try to procure a voluntary communitization of this acreage, and it really comes down to the fact that I can -- I can summarize the whole situation, that ARCO very strongly believes for technical reasons that we're not privy to, that the proposed location is not the optimum one, and Exxon is not interested in developing any of the acreage in Section 24 at all, pending the outcome of their well in Section 23.

I think it's quite apparent that both ARCO and Exxon have other interests in nearby property which are very substantially in excess of those that they have under the captioned property, while Pennzoil and Hartman, et al, do not enjoy such a position.

So the parties are not in the same economic business position with regards to not only where the development of the south half of Section 24 should take place,

but the timing of that development. And, as you probably derived from Mr. Holmstrom's work, and from Mr. Wambaugh's work, all of that work leads to the conclusion that Exxon will probably either drill a dry hole or a very poor quality well, as far as the Lower Morrow section is concerned. There may be some other objective that they have in mind that will lead them to commercial results, but there's no indication that there's any data that would support their chances of penetrating, particularly, this Lower Morrow channel sand at their location are very good at all. In fact, we guess that they might have, based on our interpretation, as much as 20 acres productive in the Lower Morrow channel.

MR. RAMEY: So just briefly, why, these letters, you have agreement with some 91 percent of the working interest owners, with only Exxon and ARCO have not agreed.

A. Yes, sir. Mr. Ramey, I want to be very -- I want to be very explicit in this. We do not have contractual arrangements completed at this time. The reason I say we have agreement is that they have told us that they are in agreement and they have told us that they are preparing it, and there is a letter in here from Mr. Hartman to Continental that I'd like the Commission to review, in which Mr. Hartman makes it very plain that forced pooling is an absolute last resort with him and he does not desire to have to resort to

forced pooling, and for several reasons. Among them are hard feelings, and in addition to that, it's quite frankly, not as economically attractive for those operators who decide to take the considerable risks that are associated with the drilling of this well, in spite of the favorable indications that are present for it, as would be under a voluntary communitization of some kind.

But on the other hand, until such time as those contractual arrangements have been completed, Mr. Hartman has no -- really no way to do anything but to keep everybody on the forced pooling notice, but we don't want the Commission to get the idea that we're coming in here expecting the Commission to do the work that an operator would expect to do.

We think Mr. Hartman, and those of us -- I've been working on this project almost full time for better than two months myself, trying to help him, and I've been -- I have had -- have discussed the situation with representatives of ARCO once and with representatives of Pennzoil twice, participated in those discussions, and we have been plain spoken. We've told them, as far as our engineering and performance data, we laid that all out for them in general terms. We offered to review all the data with them. No one evidenced any interest in reviewing any of this data or trying to come to a really -- a voluntary type arrangement that would pre-

vent us having to impose on the Commission's time with this matter.

The only thing I can say is that in summary of our position, the geologic, the geophysics, and the engineering data all indicate to us that the reservoir that's penetrated by the two ARCO wells and by the Amoco South Empire Deep No. 5 are very anomalously good, and that a prudent operator, if he had reason to be believe that that quality reservoir underlaid any part of the acreage that was under his control, would certainly desire to attempt to complete in that in preference to some other zone for which we neither have what we believe is very solid evidence of its existence, nor of its quality.

In addition to that fact, I want to point out to the Commission, that the proposed location by Mr. Hartman is on acreage that Mr. Hartman, in fact, owns and controls, and if Mr. Hartman is right, then he's made a -- you will note in here when you get to both ARCO and Exxon have AFE's in here, the estimated cost of this well is between $850,000 and $1,200,000. The difference in those two cost estimates revolves around the -- whether or not the well has to be stimulated and whether or not -- to what degree surface equipment is required to sell the gas. Whichever estimate is correct, it is quite apparent that the well will be very expensive and this is not a business venture that can be undertaken

lightly, certainly by Doyle Hartman, who at this time has approaching a half million dollars tied up in the participation in the dry hole and the acreage bonuses that he paid, and certainly not even to someone of ARCO's size and resources is this a venture that's to be undertaken lightly.

Mr. Hartman does not question the fact that ARCO has the strength of their convictions and that they have reasons that to them are compelling to request another location, but Mr. Hartman's position is that the best work that can be done by the technical people that he has access to, as well as the indications that we have from the other operators, is that approximately 90 percent of the total ownership under the south half of Section 24 considers the proposed location preferable to the one proposed by ARCO.

Q Mr. Aycock, did you participate in the decision, the decision-making process which resulted in picking the particular location?

A Yes, sir, and I also encouraged Mr. Hartman to pursue diligent -- once my studies had progressed to the point, it was apparent to me that the ARCO wells were being produced at approximately 10 million cubic feet a day apiece, and that the pressures were indicating a significant rate of decline with respect to time, that if he were going to make any attempt to produce the gas that would be under his acreage, that he better get with it or there would be --

if delays were encountered of as much as six months or a year, it could well be that it would not be an economical venture at that point.

In addition to that fact, Mr. Ramey, you'll note in the correspondence file that Mr. Hartman has made an attempt to find a drilling rig, and I'm sure the Commission is aware that drilling rigs with the capability of drilling to this depth are in a premium position in southeast New Mexico at the present time.

The only drilling contractor that Mr. Hartman considers reputable, and who has a rig that will be available at all -- there's two letters in here from them, it's Kenai Drilling Company, and they point out very specifically that they have a window in time available for one rig, the other one is already committed, and if he does not drill it at that point, they would not have a rig available for him until into 1981.

So what we are requesting is that the Commission consider this matter expeditiously in view of the fact that if a favorable order to Mr. Hartman's application is forthcoming, he will not be able to develop it as rapidly as he would like if the rig is otherwise committed at the time the order is available.

He would like to start drilling this well on or about the first of July, if possible.

Q. Mr. Aycock, when you were picking this location did you rely heavily on the seismic data which was available to you?

A. We relied most heavily on the seismic, but we really attempted to come up with an integrated description of the entire reservoir and base our final decision on that.

Yes, I'd have to say of the technical information that's available, we relied most heavily on the seismic data because the fact that you have independently derived data from two separate companies that are reliable and known, and that you have a geophysicist of demonstrated capability, who is in my opinion a technically conservative person, and by that I mean Mr. Holmstrom is not the type of person who's given to ill advised flights of fancy in advising a client as to what to do in a matter of this kind.

When you take all of that data into account, then it appears that there is a compelling case for diligently pursuing the location that's requested from this Commission for development.

Q. Now, Mr. Aycock, what Mr. Hartman is seeking in this case is approval of a standard proration unit in the Morrow, is that correct?

A. Yes, sir, that's correct.

Q. Have the working interest owners with

acreage that is involved in this application, have the working interest owners been notified of this hearing?

A. I believe that at three separate times everybody involved has been notified and at least two of them have been by certified mail.

Q. And the letters are in this material --

A. Yes, sir, they're in this material that's been presented in our last exhibit.

Q. Has an AFE been submitted to the working interest owners?

A. At least three separate times.

Q. And what are the costs reflected on that AFE?

A. $1,120,000 for a completed well.

Q. In your opinion are these costs in line with what has been charged by other operators in the area?

A. I think in reviewing the difference between the AFE that's been presented by ARCO and by Mr. Hartman to the operators, realizing that, of course, actual costs will be the basis for final settlement, Mr. Hartman prefers to take into account contingencies in his estimates that ARCO apparently does not feel are important enough to be taken into account. That's a matter of technical and professional judgment. and if I were a participant, I would prefer to know what I felt like the up side potential for my economic exposure

could be, and I believe that Mr. Hartman's AFE more nearly reflects this than does ARCO's.

Q Do you consider the drilling of this well to be a high risk venture?

A Yes, sir, I do.

Q Just briefly summarize why you think that.

A Well, I think you're talking about in the vicinity of $800,000 to look at the pay. You have, in spite of the fact that the seismic data has anomalies that are quite apparent that are associated with the wells to the south, you have no guarantee that even if this anomaly is present, that it will be a commercial gas reservoir. That still has to be proven.

I think it would be a prudent business risk to assume that it probably is, if it's as well developed as the seismic data indicate, that it probably is as well developed, because it appears that the anomaly is only associated with -- with the two ARCO wells, which we've already testified we consider an abnormally good quality and reserve, apparent reserve, prospects.

So when you take into account the cost and the fact that the delay in getting this well drilled between the time it was originally discussed in December and now, there have already been two increases in the cost of tubular goods and contract drilling prices have gone up. As

you'll notice from Kenai's letters, had the first rig been available to drill this well, the move-in cost would have been $40,000 less than they are now projected to be.

So what is happening is that as time goes on, it appears that if the reserves are there, as we trust that they are and hope they are, they are probably being drained, and the cost of developing those reserves is going up at a rather rapid rate.

So because of those matters, if anything -- my advice to Mr. Hartman is if you're going to do anything, you'd better do it now. I do not consider the outcome of the Exxon well either on the pro or the con side would necessarily influence his decision.

In the first place, in order to get an adequate evaluation of the Exxon well, you would probably not only have to have it completed and have the data released, but you'd have to have an extended period of production. We could easily be looking at one or two years to accomplish this. By that time, if the reserves are present, they have been substantially, largely drained.

So I think a prudent businessman under these conditions, if he has the resources to take the risk, and he's in the oil and gas business, would choose to go ahead and drill it now, particularly when he has advice from competent explorationists in both the geological and geophysical

disciplines, that they consider that the well ought to be drilled and ought to be drilled at the location that's proposed.

Q. Are you prepared to make a recommendation to the Commission as to the risk factor that should be assessed against those who do not voluntarily --

A. Yes, sir, I think the risk factor should be the maximum.

Q. Have you made an estimate of overhead and administrative costs while drilling and producing this well if it is drilled?

A. We have conformed, we substantially agree with ARCO and we have modified the operating agreement and the gas balancing agreement to agree with what they have proposed, so it will remove that -- that part of any disagreement that would have to be adjudicated by this Commission.

Q. Do you have those figures?

A. Yes, sir, they are included in the correspondence that's been in my last exhibit.

MR. RAMEY: Do you have those right on top of your head?

A. Let me read them to you, Mr. Ramey, because if I quote them to you, I'm liable to quote wrong.

The drilling well rate is $3100 and the producing rate is $310.

Q And these are in line with what is being charged in the area?

A Yes, sir.

Q Do you recommend that these figures be incorporated into any order which results from this hearing?

A Yes, sir, I do.

Q Mr. Hartman would like to be designated operator of the well?

A Yes, sir, he would.

Q Has Mr. Hartman filed an application for permit to drill with this Commission?

A Yes, sir, he has. He filed a C-101 and a C-102 that were received by the Commission on the 29th of April, 1980.

Q Do you happen to know when ARCO filed an application for permit to drill?

A No, sir, I don't, but it was after the 1st of May, according to the information that I have. I don't know the exact date the Commission received it, but the date that Mr. Hartman received it was on May 2nd, 1980. It was dated May 2nd, I beg your pardon.

Q And you have stated that Mr. Hartman hopes to spud the well early in July of this year?

A He would like to, because that's the only time a rig is going to be available for him to drill it

this year.

Q In your opinion will granting this application be in the interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes, sir, I think it will, because the fact that the Empire South No. 5 penetrates the gas/water contact and we have a very narrow but prolific reservoir, says that it is not beyond comprehension that water fingering or coning could occur at some point, and if it were to occur and reduce the ability of ARCO's two wells to drain the reserves, regardless of the correlative rights aspect of it, real waste could occur in that a substantial amount of remaining gas could be trapped and not be available unless other wells were drilled.

As a matter of business practice, if Mr. Hartman is faced with having to drill into a depleted reservoir, or he were faced with any other situation which would not lead him to being in a position to be economically competitive with ARCO and/or Exxon, then he would probably not be in a position, regardless of willingness, he would probably not be in a position of prudent business practice to undertake the risks associated with this well.

Q Were Exhibits Ten through Fifteen prepared by you or have you reviewed them and can testify as to their accuracy?

A YES, SIR.

MR. CARR: At this time we would offer Hartman Exhibits Ten through Fifteen.

MR. RAMEY: Exhibits Ten through Fifteen will be admitted.

MR. CARR: I have nothing further of this witness on direct.

MR. RAMEY: We'll have a little recess.

(Thereupon a recess was taken.)

MR. RAMEY: You may proceed with your presentation, Mr. Draper.

STEVE AREA

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. DRAPER:

Q Please state your name for the record.

A Stephen E. Area.

Q How do you spell your last name?

A A-R-E-A.

Q What is your employment?

A Atlantic Richfield Company, and I'm a landman. My responsibilities include handling contracts, leasing, forming units in New Mexico.

Q How long have you held that position?

A A little over a year.

Q And what is your educational background?

A I've got a law degree from the University of Tulsa in 1978; was admitted to the Bar in early 1979; and during my term -- during law school I was a commercial banking officer for a year.

Q Thank you.

MR. DRAPER: Are Mr. Area's qualifications sufficient?

MR. RAMEY: Yes, they are.

Q Are you familiar with Application Number 6928 by ARCO Oil and Gas Company presently pending before the Oil and Gas Commission?

A Yes, I am.

Q And what is the nature of that application?

A The nature of the application is for compulsory pooling, Eddy County, New Mexico. The pooling of all mineral interests in the Pennsylvanian formation underlying the south half of Section 24, Township 17 South, Range 28 East, to be dedicated to a well to be drilled at a standard

location thereon.

Also to be considered will be the cost of drilling and completing said well and the allocation of the costs thereof, as well as actual operating costs, charges for supervision, designation of applicant as operator of the well, a charge for risk involved in drilling said well.

Q I would ask you to refer to what has been marked as ARCO Exhibit Number One and describe for the Commission what that exhibit consists of.

A This exhibit is entitled Pennsylvanian Ownership and reflects our proposed location of the Pennzoil 24 State Com No. 1, which is to be located 660 from the south line, 1980 from the east line.

This south half proration unit in Section 24 is outlined by a red border, and we also have located on this south half spacing unit the proposed location, as we knew it prior to today, 660 -- 660 from the south, 660 from the west, of Mr. Hartman's unorthodox location.

Also appearing on this exhibit we have outlined -- we have outlined in green the Morrow wells in the area, and that is the circles are enclosed in green. We have also highlighted the dry holes by a star -- by a little circle with a little star points, and a circle around it, and those appear in the south half of 24, referred to as the Pennzoil well in previous conservation.

And, also, up here in Section 23 in the northwest quarter, also the location for the drilling of the Exxon well appears in the east half of Section 23, and we've also included on this exhibit the State acreage that is shown by the word "State" and appearing all of Section 25, all of Section 26, encompasses all of Section 24, and the east half of 23, and I have the State lease numbers that correspond to those tracts.

Section 24 in the south half, in the southwest quarter northeast quarter, State Lease -- State Lease B, as in boy, 5862.

In the northwest of the southwest it's V, as in Victor, 221.

In the south half of the southwest it's LG-6340.

In the southeast quarter it's State Lease G-6251.

In Section 25, Township 17, 28, it's the whole section is encompassed by State Lease 647.

And in Section 23, 17, 28, the east half, it's State Lease LG-6339.

Now, I just want to re-emphasize the common ownership that appears by this plat that reflects the State's interest in 25, 26, the south half of 24, and in fact the north and the south half of 24, and the east half of 23.

Q I would like you now to refer, Mr. Area, to what I've marked as ARCO Exhibit Number Two, and ask you to describe that exhibit.

A This exhibit is entitled Working Interest Owners - Proposed Pennzoil 24 State Com No. 1.

It lists the parties who have an interest in the south half of Section 24; lists the acreage -- acres which they are contributing, and lists the interest if each party were going to join the drilling of the well.

There has been indications from evidently previous testimony, that some of the parties may be interested in farming out to the -- to this well, and that would, of course, increase ARCO's interest in the drilling of the well.

If you would like, I'd be glad to go over the acres contributed and the interests.

Q No, thank you.

A Okay.

Q I would like to move on to ARCO Exhibit Number Three, and ask you to describe that exhibit.

A This exhibit is dated December 13th, 1979, and it was the first attempt after the dry hole was drilled and completed by Pennzoil, the first attempt by anyone to subsequently put together a working interest unit in the south half of 24.

Q How long after the plugging of the dry

hole was that?

A. The dry hole was plugged in May of 1979 and as this letter is dated, it was December 13th when ARCO proposed their standard -- or their location in the south half of 24, and their interest in moving forward to the development of this area.

Q. And Exhibit Number Four?

A. Well, if I --

Q. Oh, go ahead.

A. Well, let me just add one other thing on this Exhibit before we leave it, Exhibit Number Three.

The normal procedure for ARCO in generating a well proposal is to initiate correspondence with parties such as this and a permit, which is later filed for a location, and so forth, is done subsequently to the discussion of the this formation with parties and it's usually a task encountered by the engineers later on down the line when we've got everything firmed up.

Q. Okay, now if you would move on to Exhibit Number Four, and describe that for the Commission?

A. Exhibit Number Four is a letter from Pennzoil, Kenneth Midlock, dated January 7th, whereas he has -- he is forwarding to the working interest owners in this south half the proposal which ARCO had sent to them on December 13th, and you will also note that the net revenue interest was de-

creased and based on the change in the trade that existed between Pennzoil and ARCO. ARCO really just wasn't aware of existing overrides when their December 13th letter had reflected an 80-20 split on the interest, and this 70-30 change reflected that. That's what this letter implies, this change, as well as their submitting to the other co-owners, as we requested.

Q Okay. I would like to at this point in chronological order show you a part of Exhibit Number Fifteen submitted by Mr. Hartman, a letter dated January 25th, 1980, signed by Doyle Hartman, and ask you to look at that and tell us whether ARCO ever received that letter?

A ARCO never received a copy of this January 25th, 1980, letter. This is the first -- today's the first day I've seen it.

Q What is the substance of that letter for those of us that don't have a copy?

A He's mentioning that ARCO has proposed a farmout request to Pennzoil and he proceeds to discuss the status of his position.

He said, let me take another minute to read this, if I may.

Q First, to whom is it addressed?

A It is addressed to all participants in captioned lease, and the captioned lease, it says

Aid Area, south half southwest quarter, and well, from the caption, the only person who has an interest in the south half of the southwest quarter is Mr. Hartman.

Let me just go on to read this, if I can. He mentions the sale in which he has the opportunity to join in the purchase of the tract that ARCO purchased at the lease sale, and asking the other interest owners if they were interested in participating in the purchase, and he also mentions some kind of a -- that they're going to shoot two lines across our lease at approximate cost of $15,000.

We weren't aware that he was going to shoot any lines. As I say, this letter, we did not receive a copy of it.

Q Thank you. Moving on to ARCO Exhibit Number Five, if you have a copy there would you describe what that exhibit consists of?

A This is a letter from Doyle Hartman to all owners in the south half of Section 24, and he is asking everyone to work with ARCO, either join or farmout and hopefully farmout as much interest as possible, so ARCO will be encouraged to drill it.

Q What's the date of that letter?

A This is February 13th, 1980.

Q And does Mr. Hartman suggest a specific well location in that letter?

A. Yes. He suggests a non-standard location in the west half of the southwest quarter.

Q. And does he comment on the consequences of seeking an unorthodox well location?

A. Yes, he does. If I may quote his letter, if ARCO, operator of the offset acreage to the south, refused to grant a waiver and/or opposed this non-standard location at the hearing, approval from the NMOCD would provide for a severe penalty in the form of a highly restricted allowable for the new well. Allowable would be based on a pipeline deliverability test to be performed after completion of the well with the actual allowable to be 25 to 50 percent of the actual test results.

Q. Let me refer you to the next ARCO exhibit, Number Six, and ask you to describe that, if you would, briefly?

A. This is a letter from Doyle Hartman to all working interest owners, and he is asking the working interest owners at this point to just work with him and have him drill the well. This is our first indication that Mr. Hartman is interested in drilling the well himself.

Q. And does Mr. Hartman propose a specific well location?

A. Yes, he does. He states, we are currently staking an 11,000 foot Morrow well to be drilled at a location 660 from the south line, 660 from the west line of Section 24.

Q. What type of a location is that?

A. This is an unorthodox location.

Q. And does Mr. Hartman indicate the geological characteristics of the reservoir he expects to encounter?

A. Yes. I'm quoting again, in our opinion, we are dealing with a narrow but prolific Morrow channel sand, crossing a portion of the west half of Section 24 and the east half of Section 23; therefor, in order to maximize potential of our leasehold interest, as well as to protect the interests of our royalty owners, we propose the following, and he proposes an unorthodox location.

Q. Do you have any idea whether Mr. Hartman's seismic data was available at the time that he proposed the well location?

A. Well, I had a luncheon with Mr. Hartman and Bill Aycock and I believe one other gentleman from Doyle Hartman's company, and at that point in time it was -- he informed us the seismic was still being processed and that he had -- he said he did have seismic but he admitted that it was still being processed at that time, and this was -- this luncheon took place between May 2nd and May 20th.

Q. Let me refer you to a several page document, marked Exhibit Seven, ARCO Exhibit Seven, and ask you in this case, also, to describe the gist of this document.

A. This -- this letter directed to the

working interest owners, the attached list, in the south half of Section 24, ARCO is just re-affirming its continuing intent to drill the well in the south half of Section 24, and we also attach to this an AFE and a joint operating agreement, and we also mentioned in the letter that we -- we are willing to honor Exxon and Inexco's desire to wait for the data from the Exxon well before committing to this, what we consider, a risky well, as most wells in this area are.

Q At this point how long had it been since ARCO had initiated its attempt to reach a voluntary agreement for the development of this south half of Section 24 at its orthodox location?

A Approximately five months.

Q Is this an unusual length of time --

A No.

Q -- for such a procedure to take?

A No, not at all. We have -- because you're waiting on other parties and because you're dealing with a number of parties, the time frame is usually a lot longer than this.

Q Are you personally familiar with the authenticity of ARCO Exhibits One through Seven?

A Yes, I am. They were either prepared by me or under my direction.

MR. DRAPER: I would move the admission

of ARCO Exhibit One through Seven.

MR. RAMEY: ARCO Exhibits One through Seven will be admitted.

Any questions of the witness? Mr. Carr?

CROSS EXAMINATION

BY MR. CARR:

Q. Mr. Area, I'd like to refer you to what is your Exhibit Number Two. I believe you made a statement that there were other people who -- other parties who had indicated an interest in participating with ARCO in the well, and if they did, that that would increase ARCO's interest in drilling the well, is that correct?

A. That's correct.

Q. Who are those other parties?

A. Inexco and Exxon. Inexco and Exxon had said that they wanted to wait till the EXxon well was drilled before making decision in joining or farming out.

And we've had correspondence from, well, from December 13th when we first initiated this correspondence. There was correspondence received from Pennzoil stating that they were willing to farmout to us, and then it switched back and they were reconsidering, and our last correspondence with Pennzoil, on the last correspondence we received from Pennzoil stated that they were not going to make a decision on joining

or farming out until the Exxon well was drilled.

Q What is the interest that ARCO has in the south half of Section 24, what percentage of the working interest?

A 6.25 percent prior to receiving any farm-outs.

Q And what does Exxon have?

A I'll have to look at this. Exxon has 1.9531 percent.

Q And Inexco?

A Inexco, 26.8672 percent.

Q So we're looking at something in the neighborhood of something less than 35 percent of the interest, even if everyone did come forward and has indicated they have an interest.

A Well, you're excluding Pennzoil. Pennzoil's interest is 3.25 percent.

But if you totaled Inexco's and Exxon's you do receive about 27 percent and with ours it would be 35 percent. Pennzoil is another 31 percent.

Q Are you anticipating Pennzoil to participate in the well with you?

A We don't know what their decision is going to be and this is a -- as we mentioned, it's a risky well, and I -- and we understood their position that we're

going to wait for the Exxon well, and having invested their own funds in a dry hole already in this south half, we felt it was very unlikely that they would join us. They would probably farmout.

Q And when did you last communicate with Inexco representatives?

A Oh, let me refer to our correspondence here. On May 12th we received correspondence from Inexco that in essence said Inexco said that they will decide after reviewing the seismic and the hearing, this hearing, the results of this hearing.

Q Are you aware that on that same date Inexco communicated with Mr. Hartman that they were going to participate in the seismic and believed that the proposed -- Mr. Hartman's proposed location was the preferable one?

A Well, if this is the date, same date, May 12th, then I'll have to -- let me pull my correspondence with Inexco. Yeah, May 12th? We do have -- this is this letter I was referring to and they are stating, I quote, on technical, well, if ARCO has data to support their proposed location that was heretofor not available to other co-owners in the area, we would welcome the opportunity to review same and incorporate the information in our interpretation of the area.

Then they go on in the last paragraph, please advise us of the hearing date so we can keep abreast of

the situation, so that we can make a timely decision regarding the joinder or farming out, as well.

Q. Okay, and who is that letter addressed to?

A. It's addressed to Doyle Hartman.

Q. So they are telling him that they would like to know the hearing date so they can make their determination regarding joinder or farmout to him?

A. That's correct.

Q. Do you have correspondence in your file from Pennzoil dated May 8, a letter from Mr. Kenneth Medlock, Landman?

A. May 8th? No, I do not.

Q. Would it surprise you to learn that they wrote -- well, let me -- this is a letter dated May 6th, 1980, which is included in Doyle Hartman Exhibit Number Fifteen. Have you seen that letter before?

A. Let me check. I recall Pennzoil making a statement. Whether it was in the form of correspondence or telephone, I don't -- I don't know, but I don't, in the chronological order we have put this together -- well, here it is, I'm sorry.

It says May 6th, it's the same letter that's included in your file.

Q. And doosn't that letter indicate that

Pennzoil at this time does not intend to farmout or participate with ARCO in a well?

A. Until the Exxon well is drilled, that's correct.

Q Now, I believe that you made reference to a Doyle Hartman letter dated January 25, 1980. This is the letter that makes reference to seismic work, a proposal for seismic work.

Are you a participant with Mr. Hartman in the captioned lease?

A In the south half of Section 24?

Q Yes.

A Well, the captioned lease, as I stated, said the south half of the southwest. We are not a participant in the south half of the southwest.

Q Well, then would it be logical for you to receive a letter addressed to those who participate in the south half of the southwest?

A No, we would not receive any correspondence dealing with the south half of the southwest, and I don't understand --

Q Mr. Hartman is the only working interest owner in the south half of the southwest, is that correct?

A That's correct.

Q Would it surprise you to learn that he

has other people who participate with him in these ventures in terms of financing or --

A. No, it wouldn't surprise me.

Q. And that a letter of this nature to all participants in a lease which is defined as only his lease, would be directed to those individuals and not the other working interest owners in the general vicinity?

A. Yes.

Q. I believe you testified that you'd had some conversation fairly recently, early May, with Mr. Hartman concerning seismic data, and you indicated it wasn't ready at that time.

A. It was still being processed, that's correct.

Q. Now, was Jerry Tweed also at lunch with you that day?

A. That's correct.

Q. And do you recall Jerry Tweed stating that ARCO was also looking at seismic data and formulating their plans?

A. I believe Jerry stated that we had some seismic in the area and I believe that's all Jerry said, and that it was not available.

Q. Now, you testified, your Exhibit Number Five, you read a paragraph from this concerning a penalty that

would be imposed if ARCO objected to an unorthodox location for Mr. Hartman's well.

A. Right.

Q. Could you tell me if the proposed unorthodox location was in fact crowding the ARCO acreage in Section 25?

A. Whether or not it's crowding the acreage?

Q. Is it unorthodox vis-a-vis the south line of their lease?

A. Well, that's more of an engineering decision. I don't make that decision.

Q. You don't know then whether it is unorthodox or not?

A. It appears from the location on the map that the 660-660 was unorthodox. I'm assuming --

Q. If you don't know, that's fine.

A. I don't know that 880 and 1000 is unorthodox.

Q. Now, I believe you indicated using your Exhibit Number Seven, that it was desireable to -- or that this letter states that it is desireable to wait until after the Exxon well is completed before the south half of Section 24 is developed, is that correct?

A. No, that -- I don't believe that was a proper assessment, and I believe that I said that we were

willing to abide by the interests or the feelings of the -- some of the working interest owners that wanted to wait.

We have, all along we were willing to drill the south half of 24 regardless of the events of the Exxon well.

Q And so you're not testifying that you believe it's desireable to wait to develop, then.

A No. ARCO is willing to -- ARCO is willing to go ahead and drill it now, but if the working interest owners in the section, if all of them had wanted to wait on the Exxon well, we would have been amenable to that.

Q If you wait, that would delay actually producing the south half of Section 24, is that correct?

A That's correct, but when you're dealing with a risky well like this is, as much data as you can collect as possible is important in making a decision. There's big money involved.

Q At the present time you have two wells producing from this channel, do you not?

A Well, I know that there's two wells in Section 25, but whether it's in the same channel or not, I don't know.

Q If they are in the same channel, they would be draining the channel as it crosses Section 24, is that correct?

MR. RAMEY: Mr. Carr, you may be asking this witness questions that should be reserved for an engineer.

MR. CARR: Yes, I'll defer those until we have an engineering witness.

A. Okay. I don't know those.

MR. CARR: I have no further questions.

MR. RAMEY: Any other questions? Mr. Kellahin?

MR. KELLAHIN: Yes, Mr. Ramey.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Area, is it?

A. Yes.

Q. You're a landman for ARCO?

A. That's correct.

Q. Did you participate in the preparation and filing of the compulsory pooling application before the Oil Conservation Division?

A. When you say participate, we --

Q. Provided the information to your attorney or --

A. Yes.

Q. -- whoever filed it, the application?

A. Yes, sir.

Q. Do you know of your own knowledge when that application was filed before this Division?

A. No, I don't. Not from personal knowledge, I don't know the date, and such.

Q. Do you know whether or not Pennzoil was included as a non-consenting party in that application?

A. I don't know, no.

Q. To your own knowledge do you know whether or not Pennzoil has agreed in writing to join ARCO in the drilling of the well in the south half of the section?

A. In the last correspondence I received from Pennzoil, they did not decide whether to join or farm out.

Q. So if your application for compulsory pooling is successful, it would have to include Pennzoil?

A. That's correct.

MR. KELLAHIN: I have no further questions.

MR. RAMEY: Mr. Carr?

RECROSS EXAMINATION

BY MR. CARR:

Q. Mr. Area, in regard to your comments concerning the application for permit to drill, I guess I didn't understand it. Did you supply information that was used by ARCO and incorporated into this permit or this appli-

cation?

A. Right. I was -- I was one of probably one or two other people that may have contributed information to it.

Q. I'd like to hand you a copy of an application from the Commission files and ask you if that looks like the application that was filed by ARCO, if you can identify it?

A. Well, I didn't see a copy of this. This is the first I've seen.

Q. Who is it signed by?

A. Our District Drilling Superintendent, whose name I can't read.

Q. What is the date on that?

A. Well, it says received May 12th, and --

Q. Now, I'd like you --

A. -- at the bottom, I guess May 5th is when he signed it.

Q. I'd like you to look at the second page of that, that's the C-102, and there are some questions there about status of the acreage, and I think it says -- makes some reference to whether or not the acreage has been communitized or is being communitized.

A. Okay.

Q. There's a question that says if more than

one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by communitization, unitization, forced pooling, et cetera, and what is your answer to that?

A. No.

Q. And then they ask if it is no, to explain, and what explanation is given?

A. It says, acreage is in the process of being communitized.

Q. Now, is that a correct statement?

A. Well, I guess from a verbatim standpoint, this drilling -- this drilling superintendent may have thought communitized meant, that might be correct, but maybe from a landman's situation, I know that's not correct.

Q. So should it have said that the acreage was subject to forced pooling, or something other than communitization?

A. Probably so.

MR. CARR: I have no further questions.

MR. RAMEY: Any other questions of the witness?

MR. DRAPER: A couple.

MR. RAMEY: Mr. Draper.

REDIRECT EXAMINATION

BY MR. DRAPER:

Q. Mr. Area, who is the first party to try to develop the south half subsequent to the dry hole being plugged in the southwest quarter in May of 1979?

A. Atlantic Richfield, ARCO, was the first one, December 13th.

Q. And has that attempt to develop the south half been pursued diligently?

A. Yes, it has. We have diligently contacted all the parties and followed up with correspondence. The drilling of this well has been very important to us and we -- this was put on the top of my priority list as far as getting the well put together.

Q. And when did Mr. Hartman first surface, with the other owners in the south half, his proposal to drill?

A. I believe it was April 18th is when he indicated he wanted to drill it.

MR. DRAPER: Thank you.

MR. RAMEY: Any other questions? The witness may be excused.

GEORGE B. SCHULTZ

being called as a witness and having been duly sworn upon his

oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. DRAPER:

Q. Please state your name.

A. George B. Schultz. S-C-H-U-L-T-Z.

Q. And your employment?

A. ARCO Oil and Gas Company of Atlantic Richfield Corporation.

Q. Have you previously testified before the Commission so that your credentials are of record with the Commission?

A. No, I have not.

Q. Would you please state your qualifications including your educational background and your work experience?

A. I have a Bachelor's of Physics from DePaul University in Chicago. I have a Master's in geophysics from Stanford University, and two and a half years working experience with ARCO Oil and Gas.

MR. DRAPER: Are the witness' qualifications acceptable to the Commission?

MR. RAMEY: I assume he's familiar with the area in this case?

Q. Would you confirm that?

A. Yes.

MR. RAMEY: He is qualified.

MR. DRAPER: Thank you.

Q Mr. Schultz, has ARCO ever attempted any seismic investigation in the area of the south half of Section 24?

A Yes, we have.

Q And did ARCO ever -- did ARCO in that attempt have any problems with that attempt?

A Yes, we did, and after an extensive period of study, over two and a half years in length, and after a sizeable geophysical expenditure, ARCO Oil and Gas has encountered the following significant problems: Among others, which necessarily make suspect any geophysical interpretation of Lower Pennsylvanian units in this area, number one, and there are four points I'd like to bring out, we have found there to be no seismic marker that can be reliably mapped between the Atoka and the Chester. This severely jeopardizes strat-seis studies where correct identification of events, in our opinion, is of utmost importance.

Number two, we feel that while a unit greater than 45 feet is resolvable with adequate quality seismic data, often the velocity contrast between a sand body and surrounding sedimentary units is so minor that often the units in this zone yield no reflection.

Number three, we recognize there to be

a severe near surface velocity gradient which results in a misleading structural representation of events on seismic data.

And number four, the ambient noise levels are high due to production in the area.

And we've reached a conclusion that is supported by the chief geophysicist of ARCO Oil and Gas, that to date, after extensive seismic efforts, we have found seismic data to be at best inconclusive regarding its usefulness in exploration of lower Pennsylvanian objectives on the Delaware Basin Shelf.

MR. CARR: I'm going to object. If the chief geophysicist for ARCO has these conclusions, he should be here to subject himself to cross examination on it. This is hearsay and I object to it.

Q Mr. Schultz, if you'll testify based on your qualifications as an expert geophysicist of your own personal knowledge and your personal conclusions.

A Yes, I can testify to that same conclusion and the point is well taken. These -- these data are inconclusive.

Q Thank you.

MR. RAMEY: So it's your opinion that the data is inconclusive?

A Yes.

Q Mr. Schultz, would you be so kind as to refer to Hartman Exhibits Six through Nine and comment on those for the Commission?

A Yes. I'd like to comment with regard to some points of interpretation and some testimony that has been made.

The testimony that was made stated that an Isochron is similar to an Isopach and this is essentially true, but there are two critical differences between an Isopach and an Isochron.

The first critical difference is that an Isochron is dependent upon the velocity between the units being mapped, and therefor, if there is a velocity anomaly between those two units, it is,the resultant effect would be to create a spurious increase in reflection time between those units which may have no -- no basis in real geology.

The second problem with an Isochron, and let me state that without velocity control between the two units mapped the resultant Isochron is inconclusive as to the presence of any unit within that Isochron.

The second point I'd like to make is that the Pennsylvanian nonconformity between -- lies between the two units mentioned in the Isochron, the two units used in the interpretation, the Strawn and the Chester, which could create a time thickening between those two events not asso-

ciated with the presence of a -- presence or absence of a channel sand between those two units.

Without submitting any evidence as to the nature of that effect upon the Isochron, that also would be considered to be inconclusive.

The second problem is my -- or another point I'd like to address, would be that a migrated section can affect the structural representation of seismic record section. The two pieces of evidence submitted were not migrated seismic sections. Were they to be migrated, we might see a total shifting of the anomaly as represented laterally along the seismic section, as well as possibly vertically.

When you're doing an Isochron map on seismic data, what you really have is a structural map between two events. You're doing two structure maps and then you're taking a time difference between the two. So that only -- there is more than one event that needs to be properly positioned in time and space to guarantee the correct position of an anomaly.

And it is geophysical knowledge that highs and lows shift around when migrated correctly. We feel that the presence of the existence of a near surface velocity anomaly, as I mentioned in my original four problems that we encountered, could act to create an inaccurate migrated section unless that problem were corrected prior to

migration and this is an industry problem that has not been solved to date.

So the resultant effect would be that a migration would be very difficult to do and produce a correct migrated section.

Mr. Holmstrom used a synthetic seismogram to identify the seismic events on his seismic sections, and he correctly stated the use of a seismic section -- or a synthetic seismogram, excuse me -- and that is to establish a time-depth relationship in the local area, being the seimic events and the sedimentary lithology in the local area.

Now it appeared to me, however, that he may have made some mistakes in identifying the events because the Woodford, the top of the Woodford is the top of a shale and that event would be a velocity decrease, which would appear as a peak on a seismic section.

At the same time the top of the Chester is in increase in velocity, being a limestone, and that event would be a trough on a seismic section.

The two events would be an opposite polarity regardless of the polarity of the seismic section. Mr. Holmstrom has identified both seismic events as being troughs. One of them has to be incorrect.

I mention that we have done extensive seismic work and made extensive, vast seismic expenditures

in the area, and in identifying the anomaly on the seismic section that goes to the proposed location, Mr. Holmstrom projected his synthetic from the "BV" Well onto that seismic section, and we have found that that distance is far too great a distance to be a reliable tie between a seismic section and a synthetic. We feel at ARCO Oil and Gas that a synthetic sould be within 300 feet of the seismic section to reliably identify the events, particularly in an area such as the Lower Pennslyvanian in the Delaware Basin Shelf where the lithology is very complex.

Mr. Holmstrom made a comment that based upon his seismic data he could see the fact that -- I believe I'm stating this correctly -- that the sand body within the "BV" 1 was thicker than the sand body within the "BV" 2. This conflicts with our knowledge of -- with our -- with our knowledge of the capability of seismic data in that we do not believe that the channel itself is necessarily resolvable; therefor, fine differences between the thicknesses of those two channels is highly speculative as coming from seismic data.

It was stated that this well is a high risk venture and that much of the evidence used to locate the position of the Hartman location was based upon seismic data. We agree that it's a high risk venture and we do not feel that seismic data is adequate enough to locate a well in

this complex lithology.

MR. DRAPER: No more questions.

MR. RAMEY: Are there questions of the witness?

MR. CARR: I have some.

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Schultz, you discussed for some time the problems that exist with migrated sections.

A Yes.

Q You understand that we are not dealing with a migrated section here today.

A Yes.

Q All right, so that testimony really doesn't apply to the particular exhibits that were presented, does it?

A Yes, it does. No, that's incorrect. It does apply because a migrated section will move the anomalies as they are presented today.

Q But if you're not dealing with one, how could that apply? We don't have one here.

A No, but we know that as a fact that that does happen.

Q Well --

A. Highs become lows and lows become highs on migrated record sections.

Q. But how does that relate to anything presented here today?

A. It would relate because a well is proposed to being drilled on an anomaly that may move were it migrated. Therefor, the data presented is suspect.

Q. Now you're attacking the validity of relying on seismic work for locating wells.

A. I'm attacking the validity of using seismic data in the Lower Pennsylvanian on the Delaware Basin Shelf.

Q. Now, if you were trying to determine where you should locate a well and you had normal data, well logs, things of that nature, you would not think it valid to look at seismic work to see if it confirms other data that you have available to you?

A. Yes, we would -- we would do that and we have; however, we have found it to be inconclusive.

Q. But it is another tool that is available to you to determine where you should locate a well, is that not correct?

A. We would not base a location on the seismic data.

Q. Would you consider that in making your

determination?

A. We would consider it.

Q. It would be one of a number of factors?

A. That's correct.

Q. If your seismic data confirmed your Isopach -- if your Isochron confirmed your Isopach, wouldn't you think that that would be stronger evidence than either one of them alone?

A. We cannot state that it confirms anything because we feel it is inconclusive.

Q. Now you have been saying that you have a lot of data that could show this, could show that. What do you have with you that would show something?

A. I have no seismic data.

MR. CARR: Thank you.

MR. RAMEY: Any other questions? Mr. Kellahin?

MR. KELLAHIN: Yes, Mr. Ramey.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Schultz, I'm having trouble understanding the thrust of your testimony here today. Am I correct in assuming that ARCO has not used your services or the seismic information in order to establish their proposed loca-

tion, I believe it is 1660 from the south line and 1980 from the east line -- 660, I'm sorry, from the south line and 1980 from the east line of Section 24?

A. No, that is incorrect. Services have been used; however, the geophysical interpretation we have in our company does not dispute the -- does not dispute the engineering evidence to be presented, nor does it confirm it.

Q. I think the answer to my question is yes, then.

A. No, it is not. We --

Q. You have not used your seismic data to support your proposed location in this case.

A. That is correct.

Q. Thank you.

MR. RAMEY: Any other questions? Mr. Draper?

REDIRECT EXAMINATION

BY MR. DRAPER:

Q. Mr. Schultz, you stated that you don't have any seismic data with you today? Why is that?

A. Two reasons, the first is that the data is inconclusive. It neither supports nor condemns the engineering evidence to be presented.

The second is that all current seismic

data in ARCO Oil and Gas is considered proprietary.

Q You mentioned that it's one factor that is looked at in determining well locations. In the scale of priorities, most important to least important, where does that fall in terms of the --

A In this particular location it would be the least important consideration.

MR. DRAPER: No other questions.

MR. KELLAHIN: In light of Mr. Draper's question, I have one further question, Mr Ramey.

RECROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Schultz, you said in response to your attorney's question that your seismic study neither supports nor condemns ARCO's proposed location. May we also assume that your seismic study likewise neither supports nor condemns the Hartman location?

A That would have to be correct.

MR. RAMEY: Any other questions? The witness may be excused, and we'll recess until 1:30.

(Thereupon the noon recess was taken.)

MR. RAMEY: The hearing will come to order. Mr. Draper?

MR. DRAPER: If the Commission please, we call Paul Lindquist, and he has not been sworn.

MR. RAMEY: All right.

(Witness sworn.)

PAUL E. LINDQUIST

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. DRAPER:

Q Please state your name for the Commission.

A Paul E. Lindquist.

Q How is that spelled?

A L-I-N-D-Q-U-I-S-T.

Q And what is your employment, Mr. Lindquist?

A I'm an exploration geologist with Atlantic Richfield.

Q Have you testified before the Commission previously so that your qualifications are of record?

A No, I haven't.

Q. Would you please state those briefly, including your educational background and your work experience, present duties?

A. I got my undergraduate degree from Weaver State College in geology and then went to Texas A&M, where I received a Master's degree in geological oceanography.

I've been with ARCO Oil and Gas since graduation, approximately two and a half years, working in Bakersfield and in the Midland office since August, in the Morrow.

Q. Are you familiar with the particular area in geology that's involved in the present proceeding?

A. Yes, I am.

Q. You are?

A. Yes.

MR. DRAPER: Are the witness' qualifications acceptable?

MR. RAMEY: Consider the witness qualified.

Q. Mr. Lindquist, I would like to direct your attention to the Hartman Exhibit Number One, and Number Two, and ask you to comment on the orientations that are shown on these exhibits.

A. Okay. Contrary to the testimony previously presented, I believe that structure, especially the structure on top of the Middle Morrow, does have a direct bearing on

exploration in the Morrow.

My structure contour map is essentially the same as Mr. Hartman's and I have no disagreement with it at all. Of main -- the main points of contention, especially with the Exhibit Number One, is the fact that he swings his channel sand to the north, veering off of a down dip direction. A channel per se, fluvial channel systems, as this has been presented as, essentially conforms to the depositional dip at the time and flows directly that depositional dip.

In this area the structure as we see it today in the top of the Middle Morrow, such as this map, is believed to be, especially by myself and by other work that I've seen, to be fairly conformable to the structural dip at time of deposition of the Morrow, with the land mass being generally to the northwest and the channels being deposited in a general northwest/southeast orientation.

Mr. Hartman's interpretation in this case does not conform to that. In fact, his very structural contours show a much more likely mode of deposition. I would prefer to -- it makes better geologic sense to me to continue the channel from the South Empire Deep No. 5 to the "BV" 1 and 2, gently curving as the structural contours do to the northeast, swinging south of the two dry holes in Sections 22 and 23 in Section 17 South, Range 28 East.

The orientation on the net sand porosity

Isopach, or Exhibit Two, also shows this curious orientation. They stated that these river channels do not run straight. I might point out to them that river channels don't defy the law of gravity and they flow downhill.

In this case he has taken his own structural contours and violated that concept. He also stated that river channels are not straight, yet he has drawn them straight from the "BV" 1 and 2 to the Amoco South Empire Deep No. 2, and when he runs out of data to the north, he swings it across his location.

I might further suppose that this map and the channel trend on the Exhibit Number One was completed after the examination of the seismic data, and that --

MR. CARR: Objection. Objection. They're making statements here that there's no foundation for. They are matters which are not in evidence and could not be within the knowledge of this witness.

We're perfectly willing to let our witnesses be recalled to establish whatever should be established by cross examination, but to call similar witnesses and try and cross examine our witnesses with independent testimony that is really not supported by anything in evidence, we think is improper.

MR. RAMEY: What did you specifically object to, Mr. Carr?

MR. CARR: I objected to conclusions by this witness that the geological data presented by Mr. Hartman was prepared following review of the seismic data and I believe there's nothing in the record anywhere to support that and no possible way for them to put in evidence to base that conclusion on.

I object to it.

MR. RAMEY: I have to agree with you. Do you wish to say something, Mr. Draper?

MR. DRAPER: Mr. Commissioner, I might just direct a question to the witness that I think will avoid any of that difficulty.

Q Mr. Lindquist, do the contours shown on Exhibit One submitted by Mr. Hartman conform to what you understand to be the depositional pattern in that area?

A Yes, the contours, structural contours do.

Q Is the channel which has been found to be productive here, is it a fluvial type of channel --

A It has been interpreted --

Q -- in your opinion as a geologist?

A It has been interpreted as that by me and several geologists of -- that I've been in contact with.

Q And what is a fluvial channel?

A A fluvial channel is a sub-areal channel

that is deposited flowing basically from a source area down dip to, in this case, a sea or a shoreline.

Q Is it material that's deposited by the flow of water?

A Yes, it is.

Q And does the flow of water take place at right angles to the contours as a --

A Normally they --

Q -- geological rule of thumb?

A Normally --

Q I mean does water run downhill or does it run sideways?

A In this case the obvious answer is the water does run downhill. It runs in a general trend down structural dip.

Q Thank you. Do you have any input and have you had a chance to review the exhibits Eight, Nine, and Ten that Mr. Johnston will be discussing subsequently?

A Yes, I had input into those exhibits.

Q And have you reviewed them in their entirety as to their geological -- as to the geological data that's plotted on those exhibits?

A Yes, I have and they reflect this general swing to the south of the two wells in Section 23 and 22.

Q And do you agree with the geological data

Q Would you state those qualifications, educational background and work experience?

A I have a Bachelor of Science degree in petroleum engineering from the University of Tulsa in 1971. I was employed for fourteen months as a production engineer with Amerada Hess in Seminole, Texas. Subsequently went to work for Atlantic Richfield in Midland; worked for approximately four years in operations and analytical engineering. I worked fifteen months as a staff reservoir engineer in our Dallas reservoir engineering group.

For the last approximately two and a half years I've been an area engineer, first line supervisor, with Atlantic Richfield in Midland.

MR. DRAPER: Are the witness' --

MR. RAMEY: He's qualified.

MR. DRAPER: Thank you.

Q Mr. Johnston, I would like to refer your attention to what has been labeled as ARCO Exhibit Number Eight, and ask you to identify that exhibit and discuss its significance for the matters before the Commission.

A Exhibit Number Eight is a gross sand Isopach on the Morrow Cycle Two.

This shows the proposed standard proration unit that we are seeking in the south half of Section 24 outlined in red. It shows the wells that have penetrated the

that's shown on those exhibits?

A. Yes, I do.

MR. DRAPER: Thank you. No further questions.

MR. RAMEY: Any questions of the witness?

MR. CARR: I don't think we have any questions of the witness. We would reserve the right to recall him for cross examination once we see Exhibits Eight, Nine, and Ten, to which he's testified.

J. W. JOHNSTON

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. DRAPER:

Q. Would you be so kind as to state your name?

A. My name is James W. Johnston.

Q. What is your employment, Mr. Johnston?

A. I'm an area engineer with Atlantic Richfield Company of Midland, Texas.

Q. Have you testified before the Commission previously so that your qualifications are a matterof record?

A. No, I have not.

Pennsylvanian formation, Morrow formation, in the immediate area. There's a legend at the bottom that indicates the status of each well. We have shown in a red color, reddish pink, wells completed in what we call Cycle Three; green wells, the majority of the wells in what we call Cycle Two of the Morrow. There are dry holes exhibited, the Pennzoil Aid State Com No. 1 in the west half of the south half of Section 24 is shown as a dry hole. The Yates "JZ" No. 1 is shown as a dry hole.

There are other wells that are not completed in the Pennsylvanian that are completed in other zones that are also shown on this map.

In addition we have two locations, excuse me, we have our proposed standard location in the east half of the south half of Section 24, 660 from the south line, 1980 from the east line.

We also have shown in Section 23 the location of the Exxon New Mexico "CY" State No. 1, which is currently drilling to a contract depth which should encounter the Morrow.

This exhibit shows an Isopach of what we call the Morrow Cycle Two gross sand, as I said, which is the predominant producing interval in this area.

Q. Would you explain what you mean by the Cycle Two gross sand, please?

A. I'll go further than that. I'd like to

explain -- I'd like to reference the Morrow reservoirs.

These Morrow gas reservoirs in this area are sandstones deposited in fluvial channel systems during early Pennsylvanian time. These systems run in a general northwest to southeast direction that parallels the structural dip, which is to the southeast, as was pointed out earlier.

We've identified four separate sequences of silt stone, sandstones, shales, limestones in the Morrow section that represent successive depositional sequences, and we have log markers on these and we call these cycles one, two, three, and four. Cycle One is the deepest and Four is the shallowest.

In the Empire Deep area, as you can see, most of the production is what we call Cycle Two.

The basis of this mapping is well control and knowledge of regional geology. The gross sand volumes, identified for each well under the location completion marker for each well, were determined from lithology logs, generally gamma ray logs, and sand volumes were determined for each one of these wells. These were mapped, contoured, and the method was consistent for each well. It was an objective technique that we use in the Morrow to identify individual fluvial channels, system fluvial channels, their orientation, their trends, their extent, and things of this nature.

I'd like to point out that this exhibit

shows that there are two separate sand trends that dominate in this area.

The northernmost trend runs, we interpret it to run in a northwest/southeast direction through the major portion of Section 24, particularly the east half of 24, through Section 19 to the east, and Section 30 to the southeast.

We have another sand trend that runs through Section 25, southeast into Section 31. We believe this is a single, thick, narrow fluvial channel that produces presently in three wells, that has produced -- excuse me, let me correct. That has produced in three wells, the ARCO "BV" State Nos. 1 and 2 Wells, and the Amoco Empire South Deep No. 5 Well.

If you'll notice with regard to wells in Section 30 and 36 laterally offsetting this channel, the Amoco South Empire Deep No. 7 in Section 30 is shown as a Cycle Three well. This well penetrated the Morrow Cycle Two and it was dry, noncommercial in Cycle Two. This is the case for the Empire South Deep No. 19 in Section 36, which places an obvious limitation on the lateral extent of this channel. It indicates it to be a very narrow channel in that regard.

In the same regard we have the Pennzoil Aid State Com No. 1 Well in the south half of Section 24, which in a similar manner we also believe places a severe

limitation on the amount of mappable sand from this single fluvial channel crossing the south half of Section 24.

In contrast with that, the volume of sand that we can map in the east half of Section 24, our standard location is designed, and we anticipate encountering sands associated with the northernmost system of fluvial channels that we've mapped, and we believe that any well that would encounter the, what I refer to as the "BV" channel, running through, diagonally through Section 25, would be located in the extreme southwest portion of Section 24, would have associated with it a very limited amount of that particular reservoir.

I'll also note that this map shows green and pink shading associated with this gross sand map, which I shall refer to later on in my testimony.

By way of reference to quality, I'd like to review with you information which indicates the quality of the wells associated with each one of these channels. I'll try not to belabor this.

The well in the north half of Section 30 is the Empire South Deep No. 18. This well has a cumulative of 3.25 billion cubic feet; was completed in June of 1978; in February it was producing 1.38 million cubic feet of gas per day.

The well in the south half of Section 19

was completed in March of 1979. It has a cumulative of 631 million cubic feet of gas per day and a rate in February of 1.1 million cubic feet of gas per day.

The General American Green "B" No. 9 in the north half of Section 9 was completed in July of 1979. It has a cumulative of 1.16 billion cubic feet of gas and a February rate of 2.2 million cubic feet of gas per day.

MR. RAMEY: It's Section 19 instead of 9, isn't it?

A. I beg your pardon. That's correct, Section 19.

Moving over to the west in Section 24, the Pennzoil Aid State No. 1 was drilled in 1971. It's an old well. It has a cumulative, however, of 2.12 billion cubic feet and its current rate is 10 Mcf a day.

Moving down into the channel running through Section 25, what I refer to as the "BV" channel, the Amoco Empire South Deep Unit Well was completed in November, 1974. It's currently temporarily abandoned with a cumulative of 1.6 billion cubic feet.

MR. RAMEY: Which well is that?

A. That's in the north half of Section 31.

Moving to Section 25, ARCO State "BV" No. 1 in the south half of 25. This well was completed in July of 1978. It has a cumulative of 7.2 billion and a current rate

of approximately 10 million cubic feet of gas per day.

In the north half of Section 25 our "BV" No. 2, completed very recently, in December of last year, has a current rate of 10 million cubic feet of gas per day, and a cumulative of 678 million cubic feet of gas per day.

I offer this by way of review of the quality and the nature of the production in each one of these two sand trends.

MR. KELLAHIN: What was the cumulative on the last well?

A 678 million cubic feet of gas per day. That was for the ARCO "BV" No. 2.

MR. KELLAHIN: Was that a per day figure?

A Cumulative of 678 million.

MR. KELLAHIN: Okay.

Q The, as a matter of review, the significance of this exhibit which shows two sand trends based on an objective mapping technique, consideration of the regional geology, shows the -- these are in Cycle Two, mapped in Cycle Two, which is the predominant interval producing here, it shows the channel system running through Section 24, 19, and 30 in the northern part of the map. It shows what we believe to be a single fluvial channel running through Section 25 and Section 31.

Q Does this exhibit agree with the Exhibits

Numbers One and Two submitted by Mr. Hartman?

A. This exhibit does not agree at all with the exhibits presented by Mr. Hartman labeled One and Two. It differs in that Mr. Hartman has the channel swinging to the north after it passes through the northern part of Section 25.

We have this channel oriented in general northwest direction. There is a well drilling in Section 23 which will provide more information this summer on the exact location of the channel in that area.

Additionally, Mr. Hartman has mapped the Empire South Deep No. 19, Continental State 19, and General American Green "B" No. 9 wells in Sections 30 and 19 in a single sand body running approximately due north up into Section 18 to the north of 19.

That is how they differ. We have our sands consistent with what we believe the regional geology is telling us.

Q. Do you have any particular comments on the contours that are shown on his Exhibit Number Two?

A. Yes, I do. With reference to Exhibit Number Two, I see little evidence for closure of the 100-foot and I believe that's 150-foot contour lines closed in the south half of Section 24 on this map.

We have the Pennzoil Aid State Com Well

in the south half of 24, which did not encounter the sand, and little else; nothing else in terms of geology and well control.

Q Was the ARCO Exhibit Number Eight prepared by you or under your direction?

A. Yes.

Q Let me ask you to look at what I have labeled ARCO Exhibit Number Nine and identify that exhibit, if you would, and explain its significance.

A. All right. Exhibit Number Nine is a cross section, constructed with porosity gamma ray logs across the width of the channel system covering portions of Sections 24, 19, and 30, that I spoke of on the previous exhibit.

It includes the General American Green "B" No. 9, which is labeled "A", Conoco 19 Com No. 1, and the Yates Empire South Deep Unit No. 18, "A'".

This also shows the markers we used to identify the cycles, the cycle tops, I might add, since the Cycle Two lies between the Cycle Two and Cycle One lines.

It also shows the completion interval on these wells in the red bars and the major producing sand bodies in these wells.

This exhibit provides evidence which leads us to believe that what we have here is a broad, flat, fluvial channel system. The sands vary in thickness of structure;

however, they are good quality sands, and this is also borne out by the cum and rate numbers which I spoke of on the previous exhibit.

The significance of this exhibit, this is the basis for our well control for mapping the northern channel system, and again, it's the basis for our belief that a well in the south half of Section 24 at a standard location 660 from the south and 1980 from the east lines would encounter similar sands to those exhibited here.

Q I missed what the explanation was for the yellow shaded areas.

A The yellow shaded areas show the major sand bodies that are producing in these wells presently.

Q Was this exhibit prepared by you or under your supervision?

A Yes, it was.

Q Okay. I'm going to ask you to refer to what's been labeled ARCO Exhibit Number Ten.

A ARCO Exhibit Number Ten is another cross section with porosity and gamma ray logs. This cross section runs at a point labeled "B", which is the Pennzoil Aid 24 State Com No. 1 dry hole in the south half of Section 24, down through the ARCO State "BV" Com No. 2 in the north half of 25; southeasterly to the ARCO State "BV" No. 1, and finally to the Empire South Deep Unit No. 5, labeled "B" on

the identification plat.

This also shows the Cycle Two interval that we have identified and the major sand bodies producing in the three wells that are productive.

The completion intervals are shown in red. This exhibit shows us evidence of a very thick -- the log response is very consistent; it indicates to be a very uniform single fluvial channel, running in a northwest/southeast direction from the ARCO "BV" No. 2 to the Empire South Deep No. 5 logs. It shows that the channel is very thick, 80 to 110 feet, and verifies the very prominant northwest/southeast trend that we feel exists in this area, the Morrow Cycle Two channel systems.

To illustrate, you can draw practically a straight line between the ARCO "BV" No. 2 Well and the Empire South Deep No. 5 Well.

Again, with reference to the index map, indication is that this is very narrow, as evidenced by the dry holes in the southwest of Section 30 and northeast of Section 36, dry holes in Cycle Two, by the way, and the Pennzoil dry hole in the south half of Section 24.

This is further evidence that the south half of Section 24 is very limited volumes of this particular fluvial channel sand. I direct your attention to the Pennzoil Aid 24 State Com No. 1. There is no evidence, in our opinion,

that this channel exists in this well. In fact, all we see are some dirty upper Cycle Two sands that also appear in the ARCO State "BV" No. 2, No. 1, and Empire South Deep Unit wells, and these sands were dry, nonproductive in the Morrow in the Pennzoil Aid 24 State Com No. 1.

This exhibit is verification for our belief that this is a single, thick, narrow fluvial channel, and is the basis for our mapping of the same on Exhibit Number Eight.

Q. Mr. Johnston, was this exhibit prepared by you or under your supervision?

A. Yes, it was.

Q. Very good. Let me ask you to look to what has been marked ARCO Exhibit Eleven.

A. ARCO Exhibit Eleven is a table of reservoir pressure data, static reservoir pressure data, that has been obtained from wells in what I have referred to as the "BV" channel. We have three columns in this table, the date the pressure measurement was taken, the well it was taken in, and the reservoir pressure corrected to a consistent datum to take out any error due to elevation differences.

If you'll note, in November, 1974, the original pressure measured in the Empire South Deep Unit -- I believe that's when that well was completed, in that month and year -- shows a pressure of 4293 psi at that subsea datum. We believe this is approximately the original reservoir pres-

sure of this channel. Note that in June of 1978, when the State "BV" No. 1 Well of ARCO was completed in the south half of Section 25, pressure obtained at that time equals 4037 psi at the subject datum. This is evidence of drainage from the Empire South Deep Unit No. 5, pressure depletion of approximately 250 pounds.

We have an intermediate pressure measurement taken in March of 1979 of 3603, and in December of 1979 we completed the State "BV" No. 2. We measured a static pressure on it of 3171. At the same time to check the communication between these wells, we shut in the State "BV" No. 1. It built up to static reservoir pressure in less than fifteen minutes to a level of 4154, which is virtually the same as that measured in the "BV" No. 2.

Now, this evidence -- this is evidence that the reservoir is highly continuous. The distance between the Empire Deep South No. 5 and the ARCO "BV" No. 1 is approximately 6000 feet; evidence of excellent communication along the channel and it demonstrates the capability of a well encountering this channel to drain great lateral distances. It corroborates our concept of the reservoir as being a narrow, prolific,continuous,single fluvial channel sand, and also corroborates the northwest, southeast orientation of this sand.

In contrast, again we have the -- I want

to point out that this communication exists laterally across an area --

MR. KELLAHIN: Which exhibit are you referring to?

A. I'm referring to Exhibit Number Eight, excuse me.

This pressure communication evidenced between the Empire South Deep Unit No. 5 and the ARCO "BV" No. 1 occurred across an area that is offset on either side by wells that were dry in the Morrow Cycle Two, those being the Empire South Deep Unit No. 7 and the Empire South Deep No. 19.

Q. Mr. Johnston, was this Exhibit Number Eleven prepared by you or under your supervision?

A. Yes, it was.

Q. All right. Let me then have you move on to what has been marked as ARCO Exhibit Number Twelve.

A. ARCO Exhibit Number Twelve is a graph. It is a plot of measured reservoir pressure versus a function of time. We call this a Horner plot, and this is used to determine reservoir quality and flow capacity.

In summary, it indicates excellent transmissability, transmissability of 155,957 millidarcy feet per centipoise, which is a measure of flow capacity. The calculated permeability is 50, approximately 50 millidarcies,

which is much greater than we would normally expect for the Morrow.

In summary, this corroborates our belief that the flow capacity of this reservoir is high and a well encountering this system could drain great lateral distances. Great distances.

Q Is the information contained in this exhibit consistent with the previous Exhibit Number Eleven?

A Yes, it is. It confirms it.

Q MR. Johnston, what do -- oh, I don't know if I asked you, on this Exhibit Number Twelve, was this prepared by you or under your supervision?

A Yes, it was.

Q What do the --

A One thing I --

Q Oh, excuse me, I'm sorry.

A One thing I want to mention is that this drill stem test was taken in an open hole interval that covered the channel sand, that was subsequently completed in.

Q What do these exhibits, Eight through Twelve, demonstrate concerning the wisdom of drilling in the southwest quarter of Section 24?

A I'd like to refer back to Exhibit Eight. I had referred earlier to pink and green shading. Using this objective mapping technique and trying to demonstrate

from this where we believe would be the potential productive areas, we noted that with one exception, wells encountering 40 feet of sand, as we have determined it, or less, were dry in Cycle Two. As such, we have shaded along that contour line in what we believe would be the extent of the productive limit in the southeast -- excuse me, correct that -- southwest portion of Section 24. We believe this represents a maximum volume because of the preponderance of evidence that this is a thick, narrow channel, that in all probability crosses only a portion, small portion, of the extreme southwest corner of that section.

Contrast that with Section 24 where we are mapping a considerable volume of sand, again, that we expect to encounter with the standard location at 660 from the south line, 1980 from the east line, Section 24.

In summary, we show a minimal chance of encountering the "BV" Channel Cycle Two reservoir with a well in the southwest portion of this Section 24, and if the well proposed by Mr. Hartman happens to encounter that reservoir, that the expected reservoir volume would be indeed small because of the nature of this channel, as evidenced by well control, pressure data.

Q Again, what would be the effect of granting the Hartman application, will you comment?

A In our opinion the proposed well in the

southwest corner of Section 24, proposed by Mr. Hartman, would likely be dry.

There is a possibility that it would encounter some marginal, other zone production, possibly in the Canyon or Strawn, that would tie up development of the major reserves in the east half for a substantial period of time.

If he encountered the "BV" Channel traversing the southwest portion of Section 24, we believe the evidence shows that there is strong possibility of irreparable drainage from the developed reservoir to the south in Section 25, a very high quality reservoir; believe that he has a small volume under his -- under the south half of Section 24 and that the opportunity for drainage of reserves from Section 25 would be great.

Q. Now, you have heard today that the Hartman application has been amended to adjust the location of that well. Based on their evidence, is that a logical position to move to?

A. In our opinion the granting of the permit for that well could very well constitute economic waste because our interpretation is that the well would likely be dry.

On the other hand, our mapping indicates that a well at the proposed standard location in the east side has a, we believe, a higher chance of encountering pro-

ductive Morrow Cycle Two sands and that the correlative rights of those in the south half of Section 24 would best be served by developing what we believe to be the majority of reservoir volume which we map in the east half of Section 24, of the south half of 24.

Q. And specifically what would your recommendation be?

A. Specifically, I would propose denial of the Hartman application for the unorthodox location; approval of the ARCO pooling application, with the risk to bedetermined on whatever basis the Commission feels is equitable; approval of our standard location in order to provide recovery of what we map as the major reserve in the south half of Section 24, and again, on the basis of protection of correlative rights, we believe this is based on reliable well control and on our knowledge of regional geology that we have employed in this area and have been very successful with.

If the Hartman application is granted we recommend that the allowable should be severely restricted to much less than 25 percent of the deliverability because of the nature of the "BV" reservoir associated with the south half of Section 24.

In closing, I want to pcint out that ARCO Oil and Gas is willing to take the entire risk, based on our interpretation, and that we have a rig that will be

available in July to drill the orthodox location if this application is approved.

MR. DRAPER: I would move at this time for the admission of -- I think we've already admitted ARCO Exhibits One through Seven -- Eight through Twelve, that have been testified to by Mr. Lindquist and Mr. Johnston.

MR. RAMEY: Exhibits Eight through Twelve will be admitted.

Any questions of the witness? Mr. Carr?

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Johnston, I'd like you to refer to your Exhibit Number Eight.

A Yes, sir.

Q The south half of Section 24, you colored part of it pink and part of it green.

A Yes, sir.

Q Would you tell me again what the green shaded area indicates?

A Yes. The green shaded area in the south half of Section 24 indicates what we believe, based on well control and this mapping, to be the maximum volume of productive channel sand at a well in the southwest corner of Section 24 might encounter.

Q. Now, when you are putting together a map of this nature, you're relying on well control in the area, is that correct?

A. Yes, sir.

Q. Now I can see wells to the east and west and south, but now what wells in this area to the north and northeast are you relying on -- northwest, I'm sorry, when you draw these contours?

A. Wells to the north and northwest of what?

Q. Of the south half of Section 24. As you draw this channel I can see how you got wells all the way around to the south and east and west, but when you -- as you move up to the northwest --

A. Uh-huh.

Q. -- there seems to me to be an absence of wells from which you could actually draw data to place these contours.

A. We have four wells that we believe enter into the mapping that you're speaking of and those are the Pennzoil Aid State No. 1 in the north half of Section 24, the General American Green "B" No. 9 in the north half of 19, the Conoco State 19 Com in the south half of 19, and the Yates Empire South Deep No. 18 in the north half of Section 30.

Q. So you're locating the channel as it moves to the northwest based on data you've obtained from wells

gained from the southeast and east.

A. We are locating what we believe is a channel, fluvial channel system.

Q. But you are relying on wells that are to the east and southeast?

A. We're relying on wells to the east and southeast with a control point in the south half of Section 24, the Pennzoil Aid State Com No. 1 dry hole. It is also a control point.

Q. Wouldn't you say you have more controls in the east and southeast than you certainly do to the west and north? And that as that acreage was developed you'd be in a better position to place the channel?

A. We have a well in both the north and south halves of Section 24; north and south halves of Section 19; the north and south halves of Section 30; and the north and south halves of Section 25, and twe believe that's adequate well control for this mapping.

Q. And we would like the Commission to decide whether those are south and east or north and west of the proposed location.

Now, I want to know when you're doing this if you aren't actually analogizing from the data you have and making certain interpreting in the way this structure trends.

A Yes.

Q As an interpretive matter isn't it likely to expect different people to interpret the same data differently?

A We believe this interpretation is consistent, as evidenced by the cross section and our knowledge of regional geology.

Q But my question was, wouldn't different people be likely to interpret it differently?

A I believe that an interpretation has to be reasonable with respect to the knowledge of the regional geology and the available well controls.

Q Is one -- more than one reasonable interpretation possible?

A Yes.

Q Now as I understand the testimony here today, in locating the channel, which we apparently both agree exists in this area somewhere --

A You're speaking of what I call the "BV" channel?

Q The "BV" 1 channel, yes. You have -- my understanding of your testimony is that you have placed this based on the well control in the area.

A Well control as confirmed by reservoir pressure data.

Q. You have not considered seismic work, I gather from your testimony?

A. No.

Q. Okay. Looking at your Exhibits Eleven and Twelve, I believe it was your testimony, and correct me if this is incorrect, that in the "BV" channel there is a potential for a great drainage, lateral drainage?

A. Yes.

Q. Now, Mr. Johnston, if there is great lateral drainage, if there is productive acreage in the southwest quarter of Section 24, how could that acreage be produced without drilling a well in the southwest quarter of Section 24?

A. We believe that the preponderance of productive reservoir in the south half of Section 24 is in the east half and associated with the northern channel system.

Q. Doesn't this exhibit -- didn't you say that this green area was the maximum productive area in the southwest quarter?

A. I said maximum, that's correct.

Q. Yes, and we will take your lines for the purposes of this question, and my question is, how do you produce that acreage without a well?

A. We are concerned with developing what we believe to be the major reserves in the south half of Section

24. If a well --

Q But I didn't ask you that. But I asked a different question. I didn't ask you that and I want you to answer the question that I asked you.

How do you produce that without a well there? Can it be produced absent a well there? I don't see why the question is complicated to understand.

A I believe it's --

MR. DRAPER: I don't think I understand the question.

Q The question is, we have a -- the testimony here is the southwest quarter, the green shaded area, is what in his opinion is the maximum productive acreage in that corner of the section out of the "BV" channel.

MR. DRAPER: You're talking about which part of the south half?

Q I'm talking about the southwest of the south half, which is shaded green on Exhibit Eight.

MR. DRAPER: Okay.

Q And I want to know that, since they apparently have indicated a dry strip through this thing, how the gas under that tract shaded green is going to be produced if no well is drilled there. Can it be produced?

A Let me point out some things.

First of all, we have no well in the east

half of Section 24. We have no well in the southwest of 24.

We are making interpretation based on what we believe is the most reliable geological and well control data. It is our interpretation that there is a minimal chance of encountering that channel in the southwest portion --

Q Well, are you saying --

A -- of Section 24, and that the chance is much greater of encountering productive sands in the east half.

Q Are you saying that what is shaded green in the southwest corner of Section 24 is not productive?

A We believe that would be the absolute maximum that could possibly be productive.

Q It might be productive to that extent?

A It may be. There's a very slight chance it will be.

Q I assume you mean by productive that there is gas under it, that acreage?

A Yes.

Q Will the gas under that acreage be produced from the existing wells in Section 25 if no other well is drilled in the southwest corner?

A Yes.

Q Now, I've noticed the data that you've presented on the wells in the "BV" channel and the present

production rates. Also, the present production rates that you indicated for the wells in Sections 19, 30, generally to the east of the "BV" channel. Is it fair to say that the production obtained out of the -- or the rates of production from the two wells in 25 is about seven times greater than what you're producing from the wells to the east?

A. Well, we're producing about 20 million total, Mr. Carr, from the "BV" Nos. 1 and 2 Wells together. And presently in the wells in the northern channel system, we have a rate of 1.38, 1.08, 2.23 million a day, respectively, 10 Mcf a day.

That would add up to roughly 5 million a day versus 20; about four to one, I believe.

Q. Now if a well was drilled at your proposed standard location in Section 24, wouldn't the gas underlying the southwest quarter, or southwest corner that's the shaded green area, be produced by wells to the south?

A. I'm sorry, could you repeat that question?

Q. If a well was drilled and completed at your proposed location in the south half of Section 24, the entire south half dedicated to it , no other well drilled on it.

A. Yes.

Q. Wouldn't the gas that underlies the southwest corner, which is shaded in green on Exhibit Eight,

wouldn't that gas be produced from the wells in Section 25?

A. Possibly so.

Q. To your knowledge, does Mr. Hartman have any interest or derive any profit from the proceeds of the wells in Section 25?

A. No.

Q. Wouldn't you be draining him and at the same time denying him the right to offset you with counter draining?

A. If Mr. Hartman's location is approved preferentially to ours, we believe that the greatest volume of producable gas in the south half of Section 24 would not be drained by virtue of not having a well at the standard location 660 from the south and 1980 from the east in the south half of Section 24.

Q. And this is based on your interpretation of the structure?

A. That is correct.

Q. Not considering any seismic work.

A. Structure, this is the gross sand Isopach.

Q. Right.

MR. CARR: I have no questions.

MR. RAMEY: Mr. Kellahin?

MR. KELLAHIN: Yes, sir.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Johnston, talking about Exhibit Number Eight, I haven't seen Exhibit Number Eight. Is this Exhibit Number Eight? Is that the same one you're looking at?

A. Yes, it should be Exhibit Number Eight.

Q. Mr. Johnston, I understood that you qualified as a petroleum engineer, sir?

A. Yes, sir.

Q. Would you describe for the Commission your expertise as a geologist and the preparation of the gross Isopach, Exhibit Number Eight?

A. Mr. Callaway?

Q. Yes, sir.

A. I am not a geologist by degree. In the course of my petroleum engineering work I do work along the nature of geology. I work with geologists. I do geological work.

In working the Morrow you have to maintain a very close association between your geologists and engineers to maximize the quality of your interpretation. As such, I am very familiar with the geology in this area.

Q. You and Mr. Lindquist --

A. Lindquist, yes.

Q. Lindquist, work together --

A. Yes.

Q. -- and he's the geologist and --

A. He is one of the geologists and I am one of the engineers.

Q. Based upon your study of the wells, then, you're satisfied that your gross Isopach is true and accurate to the best of your knowledge?

A. Yes.

Q. This Pennzoil dry hole.

A. Yes, in the south half of 24?

Q. Yes, sir, the Aid State Com No. 1 Well?

A. Yes.

Q. Have you examined the log on that well?

A. I have the log included in cross section B-B, yes.

Q. You're satisfied in your opinion as a petroleum engineer that the Morrow zone involved here is in fact absent and the lack of production is not attributed to a mechanical failure reached in that well?

A. The Morrow zone is not absent. The Morrow zone is present, and present within the Morrow section are some dirty, shaley, nonproductive sands in Cycle Two.

Q. If I understood you correctly that if the Morrow sand present was less than 40 feet thick of gross in-

terval, it would not be commercial?

A. That is an observation based on looking at this map. There's one exception to that. Otherwise it's consistent.

Q. Do you attribute the lack of production out of the Pennzoil dry hole to any mechanical difficulty in the completion of that well?

A. I know of nothing associated with the completion of that well that caused it to be noncommercial, no.

To my knowledge pipe was not set on that well, so completion was not attempted.

Q. I don't know the answer. I was just asking.

A. I don't believe it was.

Q. This appears to be a little different than the typical Morrow stringers we encounter in Eddy County, in that it's fluvial in deposition and it appears to have a reasonable uniform development through here, in general terms, is that not true? We don't find a stringer appearing and disappearing in subsequent wells.

A. Which stringer do you refer to?

Q. Well, I thought we were talking about the Morrow Cycle Two.

A. I wouldn't characterize the Morrow Cycle

Two as a stringer.

Q. All right. I am not familiar with the Cycle Two term. I am familiar with referring to the Morrow in different stringers, such as the A, B, and C.

A. Earlier in my testimony I offered an explanation of our interpretation of the Morrow Cycle Two.

Q. Would that equate with any of the letters that I'm familiar with being assigned to the Morrow formation?

A. I'm not familiar with the letters that you have.

Q. All right, sir. It would appear from your testimony, particular the pressure testimony, that as you've indicated, a particular Morrow test here in the area is capable of draining quite a lateral distance, is it not?

A. We find evidence of that in what I've called the "BV" channel.

Q. What would be the amount of gross sand interval attributable to the proposed location that ARCO is suggesting?

A. According to our mapping it would be on the order of approximately 50 feet of gross sand.

Q. The wellspot you have for the Doyle Hartman location, I assume is the 660 location?

This is not the amended location?

A. Yes. Let me explain that that location

was put on there without the knowledge of the amended location that Mr. Carr presented at the front end of this. So yes, that is the 660-660 unorthodox location.

The new location would be to the north and west of that location.

MR. RAMEY: North and east.

A I'm sorry, north and east. I beg your pardon.

Q Could you approximate for us the amount of gross sand interval at the 660 location, as spotted on your map?

A I would say that it would be somewhere between 40 and 50 feet.

This is difficult to determine because, as I said earlier, we're dealing with a narrow, thick, single fluvial channel, and I believe you're either going to hit it or you're not going to hit it, and your chances of hitting it are small.

Q Mr. Johnston, I don't have benefit of the pressure information attributable to each of the wells, but it is my recollection, sir, that the thicker the gross interval encountered in each well, the better that well had produced, is that not true?

A Not necessarily. If you'll notice on Section 25, the "BV" channel, the "BV" No. 1 in the south

half encountered 110 feet of gross sand. The "BV" No. 2 encountered 96 feet, less than 100 feet of gross Cycle Two sand. I believe this is also evidenced on the cross section B-B, Exhibit Number Ten, and yet currently both these wells are capable of delivering in the order of 10 million cubic feet a day.

Q So the ARCO well in -- assigned to the north half of Section 25 is the better of those two wells in Section 25.

A Based on the recent gauge reports that we have, they are producing at similar quantities.

Q How do the quality, the cumulative production of the various Morrow wells to the east of Section 24, how does that productivity of each of those wells compare to the thickness of gross Morrow interval attributed to each of those wells?

A What kind of comparison are you asking about?

Q All right, in Section 19 you've got two wells.

A Yes.

Q You've got one well with 82 feet of pay.

A 82 feet of gross sand.

Q Of gross sand, all right.

You've got one in the south with 67 feet

of gross sand.

A. Yes.

Q. How does the productivity of those two wells compare?

A. The -- I believe I stated earlier that the February rate on the Conoco 19 Com No. 1, the south half, is 1.1 million cubic feet a day with a cumulative production of 631 million cubic feet of gas.

The well in the north half of Section 19, the General American Green "B" No. 9 --

Q. Yes, sir.

A. -- has a cumulative of 1.16 billion and a February rate, February of this year rate of 2.23 million cubuc feet of gas per day. That's --

Q. You'll have to help me out, just reach the answer to the question. Is -- is the well in the north half of 19 a better producer than the well in the south half of 19?

A. In terms of February rate, yes.

Q. I draw the conclusion that for those two wells in 19 the fact that the gross interval in the well in the north is greater than the gross interval to the well in the south, that that accounts for the fact that the well in the north is a better producer.

A. Not necessarily.

Q. All right, why not?

A. Some of the -- some of the sands may be in intervals that are not completed.

Q. As a petroleum engineer, Mr. Johnston, in choosing a location in this area, would it be your preference to lend greater weight to be closer to a producing well as opposed to being in the thicker pay section of this gross Isopach?

A. The consideration behind our standard location 660 from the south, 1980 from the east in the south half of Section 24, was based on mapping, which was in turn based on the well control. It was based on the good quality of the wells in that system. And it was also based on a concern to move to a portion of that system where we would likely encounter fewer sands that had been partically drained by the existing wells in that system.

Q. What portion of the south half of Section 24 do you, in your opinion, believe is already suffered drainage from any of the offset wells?

A. Due to the nature of this system that we see, we feel we have a very good chance of encountering possibly virgin reservoir over there.

Q. Am I correct in understanding that you believe none of the south half of Section 24 has experienced drainage?

A. I didn't say that, no.

Q. That was my question. You said in determining the location --

A. Yes.

Q. -- that you took into consideration the potential for drainage from offset wells.

A. Yes.

Q. I'm trying to decide what portion of the south half of 24 has been subject to drainage.

A. Well, it's our interpretation that a major portion of the sand area that I've shown in pink is likely not been drained.

Q. All right, sir. Was it your recommendation to your management as to this subject location for ARCO? Did you make that recommendation?

A. I was one of the people involved in making this recommendation, yes.

Q. In your opinion that's the optimum location to locate a well in the south half of 24?

A. That is the optimum location for recovery of gas and protection of correlative rights.

Q. Dispite the fact it's in close proximity to that Pennzoil nonproducing well?

A. Yes. As I said before, we -- we've had success with our interpretation techniques in this area and

we feel confident about it.

Q. Wouldn't a better location in the south half of Section 24 be one that was drilled at a depth to encounter a thicker gross sand interval, such as the northeast corner of the proration unit?

A. This gets back to our concerns about possible drainage if you try to move to the extreme northeast corner of the south half of Section 24.

Q. The northeast corner of the south half of 24 would put you in a thicker gross interval,would it not?

A. According to the mapping.

Q. But you've ignored that mapping in determining your proposed location?

A. No, indeed, we have not ignored it. In fact, we have located the well to encounter that channel system in a location that we believe will maximize recovery of the gas reserves in the east half of the south half of Section 24.

Q. Is the well in the north half of 25, that's the ARCO well, I've forgot what its name was --

A. Yes, that's the State "BV" No. 2.

Q. The "BV" No. 2.

A. Yes, sir.

Q. That apparently is the best of the Morrow producers in the area, is it not?

A. The "BV" Nos. 1 and 2 are currently delivering gas at approximately the same rate, and that rate is 10 million cubic feet of gas per day per well, approximately.

Q. Those are the best two wells in the area?

A. In terms of rate, yes.

Q. In terms of cumulative production they are still the best wells in the area?

A. In terms of cumulative production the "BV" No. 2 was just completed in December of last year, and subsequently has not produced as great a volume of gas as several of the other wells in the area.

Q. Does ARCO have any interest in Section 23?

A. I have no knowledge of that.

Q. Do you know -- I see ARCO is the operator of Section 26, are they not?

A. Yes, sir. Yes, sir.

Q. What are your plans to develop that acreage, Mr. Johnston?

A. Our plans to develop that acreage are not the subject of this hearing, Mr. Callaway.

Q. Do you believe that the extent of the Morrow formation developed by the two wells in Section 25 extend on into Section 26?

A. I'm sorry, would you repeat that question?

Q. Yes, sir. You've developed the Morrow formation in Section 25 with two Morrow wells.

A. Yes.

Q. Your map here shows to me that the extent of that Morrow formation extends on into Section 26, does it not?

A. Indeed. I might point out, since you're interested in Section 26, I do know that the interest, working interest situation in Section 26, I believe the royalty interest situation, is identical to that in Section 25. I believe that was pointed out earlier.

Q. So unless a well is drilled in the southwest quarter of the south half of 24, that acreage colored in green is going to be drained by this well in the north half of 25.

A. Again, we see a very, very small chance that the channel would extend, and in that small chance that it did, our map would indicate that it would be a very minimal volume compared to what we have in the east half, which we feel has much greater chance of being productive in the south half of Section 24.

MR. KELLAHIN: Thank you, I have no further questions.

A. Thank you.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Johnston, --

A. Yes, sir.

Q. I think you stated that the channels definitely run in a northeast -- northwest/southeast direction?

A. Well, the channel system, sir, yes, sir, and we have identified the "BV" channel as a single fluvial channel that has this obvious orientation to us.

Q. Have you mapped any other channels in Eddy County that were the same way, or have you ever mapped a channel that didn't meander somewhat?

Change direction?

A. There are some areas where they meander some, but the general direction is predominantly northwest/southeast. We see this in several areas. I don't have evidence to back this up, but in the Carlsbad area and other areas this is quite evident also.

Q. How many -- how many have you actually mapped?

A. How many --

Q. Channels?

A. How many channels have I mapped?

Q Yes. Is this the only one that you've actually mapped?

A No. I've been associated with mapping the Morrow for determining placement of future wells for the last seven months, and we've worked on at least four other areas.

Q And they're all -- where you have channels, why, they all seem to run in one direction?

A They -- they run in a general northwest/southeast trend, yes, sir. They do. And that's due to -- as was pointed out earlier in Mr. Lingquist's testimony -- this is due to the nature of the depositional environment and the structure. These channels run -- water runs downhill. It doesn't run along the side of a hill, and that's what these are, fluvial channels.

So the systems generally tend to run with --

Q You've never mapped one that's run north/south?

A In some areas we have -- we have seen some that -- that deviate somewhat from the northwest/southeast trend, but we seldom see ones that run directly due north/south.

Q But you have --

A And it violates -- because that violates structure, generally, and it's usually due -- if that's the

case, it's usually due to the localized structural influences pulling them in that direction, which we don't have here.

There are other influences acting in other areas, in other words. In this area, I believe it has been shown by Mr. Hartman's Exhibit Number One, the preponderance of data, and we agree with it, that the structure runs northeast/southwest, so the channels run diagonally opposite to that, northwest/southeast.

MR. RAMEY: Thank you. Any other questions of the witness? Mr. Arnold?

CROSS EXAMINATION

BY MR. ARNOLD:

Q I'd like to expand on that a little. Do you mean to tell me that you've never observed a river in nature which ran across structure; that all rivers in nature run down structure?

A I guess I'd have to say that most of the rivers that I've seen follow the laws of gravity and tend to run down structure.

Q What about the San Juan River running out of the San Juan Basin, which dips from west to east and the river runs from east to west?

A I've not seen that river. I'm sorry.

Q I mean, I'm not sure that that's a sound

premise, that rivers always run down structure.

A. Well, let me -- let me re-emphasize that what we're dealing with here is not observations from the surace, as yoiu know, but what we're dealing with here is interpretation of subsurface well control and regional geology.

Q. Well, but I believe in that part of your postulation what you were doing was saying that when that channel formed the stream in which it formed had to be running down structure at that time.

Q. Well, that's the way we feel, that it would -- we feel that it is more probable that that was the case, yes.

Q. But topographic surfaces don't necessarily always correspond to structure.

A. Oh, sure, there will be areas where the structure changes and the direction of a channel will change in relation to that structure.

MR. ARNOLD: Okay, thank you very much.

MR. RAMEY: Any other questions of the witness? He may be excused.

Do you have anything further, Mr. Draper?

MR. DRAPER: Mr. Commissioner, we would just have some cross examination which we haven't dealt with up to this point. Should I proceed with that at this point?

MR. RAMEY: Fifteen minute recess.

MR. DRAPER: Okay.

(Thereupon a recess was taken.)

MR. RAMEY: Mr. Draper.

MR. DRAPER: Mr. Chairman, I would ask that we recall Mr. Wambaugh for cross examination.

DONALD C. WAMBAUGH

being recalled as a witness, testified as follows, to-wit:

CROSS EXAMINATION

BY MR. DRAPER:

Q Mr. Wambaugh, I ask you to look at your Exhibit Number Two, which is labeled Lower Morrow Net Sand Porosity Isopach.

A Yes, sir.

Q Is this an Isopach just of the -- you say net sand here. Does that mean you -- you mapped less than all of the producing sands?

A I'm not sure I understand your question. I derived this from analysis of electric logs, as I said, using in the Lower Morrow what you call your Cycle Two sand, the sands that exhibited on gamma ray 35 API units or less

8 percent porosity or better.

Q. So this would show a smaller amount of sands than a gross sand Isopach.

A. Yes, sir.

Q. And are the sands which would -- are included within gross sands producing sands? Could they be producing sands?

A. Yes.

Q. Okay. Looking at your contour intervals here, now in -- roughly in this channel that seems to be associated with A-A', you have contour lines running longitudinally along that channel until you get up into the south half of Section 24, and there they close off. They don't continue after that.

Now, on what basis did you determine that those contours closed?

A. All right. If you examine cross section A-A', as I said to you this morning, if you project the thicknesses of those sands along this channel, and you project the sand at the location shown in dashed lines on the lefthand side of this cross section, then you can see that there would be approximately the same amount of sand present in that well as there is in the Hondo "BV" No. 2, which I show to be 79 feet, and show that it will be approximately that where the contours will drop off there.

Q In other words, you found -- your electric logs showed contours were actually decreasing in that area?

A Yes, sir, you can see just relative to lines that they look like they possibly are decreasing.

Q All right. Now, looking at this exhibit in connection with the first exhibit, it appears that the three wells that are producing in this A-A' channel are on a down dip trend of the depositional strata here.

A Yes, sir.

Q Is that correct? Okay. Now, it would appear to me that looking at that channel as it's mapped through the control point that we have in the three wells, which is going straight down dip, that if that behavior continues only a small distance further, it carries it straight on in the direction of the well that's presently being drilled by Exxon, or perhaps a little bit bending off not to the north but more to the west, if we're looking at going up dip as we proceed to the north and west.

A I think it's a question of interpretation.

Q Okay, which -- which way does -- which way is up dip as you leave the "BV" 2 control point?

A Well, they're actually nearly on strike because the 124 Aid is a -6852 and the "BV" 2 is a -6843.

Q Well, now if you take the 124 Aid, isn't that essentially on approximately the same contour as the

"BV" 2?

A Yes, sir.

Q In other words, the water that deposited those sands was flowing -- was not flowing downhill but was flowing crossways. Is that the way -- would you agree with that interpretation?

A I agree water flows downhill. I also do not know at the time of deposition what the structural position of the Lower Morrow, which is the map, was. I only know its prsent structural position and my interpretation of where that channel is.

Q Do you have any reason to believe that the present structural position is any different from the position at the time of deposition?

A There have been movements in this basin at times since this deposition, so I have no reason -- I have no way of knowing. I don'tknow.

Q Are you aware of any movements in this particular area?

A No, sir.

Q Looking at that trend there, what we've been referring to as the "BV" channel, we have three control points. The distance here, it appears to me, between the Amoco ESD No. 5 and the "BV" 1 being approximately 6000 feet. Now isn't it a reasonable interpretation that with the con-

tinuation shown by "BV" 2, the reasonable interpretation would be to continue that in a straight line, since that distance that we're extending it towards the direction of the corner of the section there is much -- it's a much smaller distance than the distance between the Amoco and the "BV" 1.

A It's a matter of interpretation.

Q Is it a smaller distance?

A It's a smaller distance, but it's a matter of interpretation of how you --

Q Right. Would it be a reasonable interpretation to have it straight, or would you call that an unreasonable interpretation?

A It depends on the interpreter.

Q Well, I think you can analyze whether an interpretation is reasonable or not without knowing who the person is that did it.

A I think this is a reasonable interpretation.

Q Going straight up from the -- along the -- continuing along the line set by those three well points?

A You have a thinning between this well, the "BV" 1 and the "BV" 2, and this would tend to make me think that this thing bends this way.

You also have, if you go in a direct line, you've got a dry hole over here, so we have assumed it goes

that way.

Q Is that dry hole on a direct line?

A I think it would be.

Q You said that the -- the fact that it was thinning out from the "BV" 1 to the "BV" 2 indicated there was a swing northward.

A Yes, sir.

Q What is the rationale of that?

A Well, you have to draw the contours to the -- you have to honor your control points. Now this one is 95, this one is 79. We'll go ahead and put the 75 on the down side or the thinner side of this one which is 79 because that's the way you contour this.

Q Couldn't you as easily have put it on the other side of the channel; the 79 contour appears on both sides. You chose the side that would swing it north. Why did you choose that side rather than the other? Did you have any articulate -- basis that can be articulated for that?

A No, it's just my interpretation. I examined the data and I drew it and it looked reasonable to me.

Q Okay. Let me turn your attention on the same exhibit. This would be Exhibit Number Two. Looking at what is shownas, I think, as a fluvial channel in line

with the C-C' axis?

A Yes, sir.

Q Is that -- is the line made by that axis at right angles to the contours in this area?

A No.

Q The depositional contours?

A Now would you repeat that question again? I lost you somewhere in there.

Q Is this north/south line at right angles to the depositional contours that are shown on the previous exhibit?

A No, I don't believe so. They run along the strike of this channel.

Q Uh-huh.

A The cross section runs along the strike of this channel.

Q Is that the usual way that waters run, along the strike?

A Yes, sir.

Q Okay. That's all I have, thank you.

MR. RAMEY: Any other questions of the witness? He may be excused.

Will you call another witness?

MR. DRAPER: Mr. Chairman, I would call with your permission, Mr. Holmstrom.

CHARLES W. HOLMSTROM

being called as a witness on recall, testified as follows, to-wit:

CROSS EXAMINATION

BY MR. DRAPER:

Q Mr. Holmstrom, you testified concerning the seismic data that is contained in Exhibits is that Six through Nine?

A Yes.

Q And is it correct that specific data plotted there is unmigrated seismic data?

A That is correct.

Q Is it true that unmigrated seismic data allows a less accurate interpretation than migrated seismic data?

A In some cases, yes.

Q Why did you not migrate this data?

A In -- on this particular seismic problem it is my opinion that these data should not be migrated.

Q And what was the basis of that opinion?

A It was my judgment that these data shouldn't be migrated, especially if the process of migration were attempted. The data we have is only in two dimensions

and I think the most modern techniques are three dimensional migration.

Q But isn't it -- isn't it more essential to migrate data when you're trying to delineate structures of a smaller nature of the type that we're talking about here?

A Not in my opinion.

Q In other words, could it go the other way? In other words, the larger the area you're interpreting the seismic data, the more important it is to migrate?

A Now how is that again?

Q Well, let me state it a little bit more neutrally. Does the size of the structure you're trying to delineate have any effect on your decision whether to migrate your data or not?

A Each case is a separate problem.

Q In other words, the size of the structure, in this case the "BV" channel, is not a factor in your decision?

A What I did do on these data were to keep the group interval at 330 feet between shot points, and I used that technique instead of migration to get fine detail because we were aware that -- or our idea was thatit was a narrow channel.

Q Do you feel that with unmigrated data that the plot of the position of the "BV" channel can be ac-

curate?

A. Yes.

Q. Did Mr. Hartman tell you where to run your seismic tests?

A. Yes.

Q. And where did he tell you to run those?

A. Through the ARCO "BV" 2, through the Pennzoil well, and across his acreage at a drilling location.

Q. Did you run any seismic on the nearby standard location?

A. No.

MR. DRAPER: That's all the questions I have. Thank you.

MR. RAMEY: Any questions?

MR. PADILLA: I have one question.

CROSS EXAMINATION

BY MR. PADILLA:

Q. Mr. Holmstrom, was your study based on a location 660 feet from the west and 660 feet from the south?

A. No. My study was -- the purpose of my study was to determine a drilling location.

Q. Does the change this morning to a location 1000 from the west and 800 from the west affect -- is that

based upon your study?

A. Yes. In my opinion the amended location is more toward the center of the channel than the -- that the location that was announced in the bulletin.

MR. PADILLA: No further questions.

A. The movement of the location was based on the seismic data.

MR. RAMEY: Any other questions of the witness? He may be excused.

MR. DRAPER: Mr. Chairman, with your permission I would call -- recall Mr. Aycock.

MR. RAMEY: Mr. Aycock.

WILLIAM P. AYCOCK

being recalled as a witness, testified as follows, to-wit:

CROSS EXAMINATION

BY MR. DRAPER:

Q. Mr. Aycock, you, in your direct testimony mentioned the interests that had agreed by letter to join in your proposal for developing the south half of Section 24. Were those letters sent based on the newly announced location or on the original 660/660 location?

A. The only change that has been induced by the announcement of the amended location to the prospective

partners of which I am aware is that two of them sent a geophysicist to review the work that Chuck Holmstrom did.

All of the commitments had been received to either participate or to farm out prior to the time that the seismic had -- the data had been collected and had been processed.

Q In other words, those consents were obtained based on the 660/660 location?

A Yes, because that was what was proposed and that was what was advertised, as you're aware.

Q Isn't it going a little bit far to say that they assent to the current location announced today?

A Well, if you're -- if you're asking me if we're getting before this Commission and misrepresenting the facts, I can assure you that we are not.

Q Well, what percentage of the interests have assented to the 800/1000 location?

A I think I presented an exhibit that demonstrates that approximately 90 percent have indicated verbally that contracts are being prepared or management approval has been recommended from the working level to the upper management levels, and we're awaiting those to be returned.

We have been promised in each case that that paper work will be completed prior to the July 1st spud

date in case Hartman's application is successfully considered by this Commission and an order if forthcoming.

Q So what you're saying is that those were based on the 660/660 location?

A Originally they were. When the decision was made to amend the application due to the availability of the improved seismic data, all of the prospective partners were so informed and I am not aware that there was any, as I previously said, the only change of which I am aware, is that Maralo and Pennzoil sent a geophysicist to review the work with Chuck Holmstrom.

Q What was the date on which you determined to change the location?

A The exact date, the discussions, if memory serves me correctly, took place last week, originally, because Chuck would have to be the one to tell you, but as I recall, the final processing of the data was not available until a week ago Tuesday or a week ago Wednesday, as near as I can remember.

Q Do you have any written indication that they also consent to this new location?

A The only consent that I have is what we presented in the -- in the exhibits that you have, and the fact that they've all been notified on at least three separate occasions by certified mail that the hearing was about.

We did not, since the decision to amend the location was reached after the advertisement, then the contact had to be made verbally with each of them.

Q And did you make contact verbally with each?

A There are memos in the file from Mr. Hartman reflecting each of those telephone conversations with each individual at each company.

At my request Conoco was called even though they had previously, in addition to all the others, even though they had previously indicated without qualification that they were going to farm out. My opinion was that it might cause them to change their mind once they knew that there was seismic data which was available and that based upon that data the decision had been made to amend the location. At that point in time the decision had not been made as to the exact amount of the amendment that would be requested.

Q Did you -- did you contact ARCO Oil and Gas Company on that point?

A No.

Q Are they an interest owner?

A An interest owner, but they had also unequivocally indicated that they were -- they had no interest in a location in the southwest corner of Section 24.

Q You stated in your testimony that to pro-

perly evaluate test data or well control data it requires one and a half to two years.

A. No, I did not state that.

I said that an adequate evaluation of the well could take that long, depending upon the diligence with which the drilling and the production were pursued.

If a well were to remain shut in for a significant amount of time, which I have seen happen in both southeastern New Mexico and all over the Permian Basin, it might easily be six months to a year before a gas connection were affected. Past that point in time there would have to be from six months to a year of production data accumulated before a reasonable evaluation could be made.

Q. How long after it begins producing?

A. I said six months to a year is what has been established by most lending institutions as a minimum period that they will consider an evaluation adequate for collateral purposes.

In an independent like Mr. Hartman who is not self finance like the major companies, that becomes a very consequential time frame.

Are you familiar with how long the "BV" 2 has been producing?

A. We have two months of production data as of February 1st, I believe, yes.

Q And in two months you feel that that's sufficient to --

A. It's quite apparent to me that is a matter of technical judgment, but I would agree with your technical witness that it's draining the same reservoir as is the "BV" 1, so I don't -- in my opinion, that period is not required in that case. There are sepcial extenuating circumstances.

Q Okay. So you would modify your statement from --

A. I said could. I didn't say would. I've seen wells stay shutin for an extended period of time beyond what most people would consider acceptable for one reason or an other, and under those conditions the only data that's available, if it's released, is the potential test and the log data. I would not consider that adequate at a step out location to evaluate a well and to give a client advice as to whether -- what my opinion was as to the bearing of that information upon his desire to develop or not develop his nearby property.

Q Isn't it true that one of the reasons that you are moving at this time after only two or three months production from the "BV", is that you'd rather do it now before you get the Exxon data, which might disprove what we've seen here today?

A. Are you asking me or are you telling me?

Q. I'm asking you.

A. No, that is not. I testified originally, if you will recall, that when Mr. Hartman first asked me to take a look at the performance data of the wells, I advised him that if there were any gas that was under his leases, he had better diligently pursue the drilling and completion of a well to recover it or it would likely be gone.

Q. Do you know whether stimulation has been used in this area?

A. Stimulation , in general, other than to repair cement contamination, has in general not been necessary with these wells.

Q. Okay. Let me refer you to your exhibit Fifteen, to the first legal sized sheet on the clip in that exhibit.

I refer your attention to item number eleven, acidizing, fracturing, and perforating.

A. Uh-huh.

Q. Which states $150,000.

A. That's right.

Q. Isn't that an excessive amount for those operations?

A. I believe I testified earlier, if you'll recall, the difference in the ARCO and the Hartman cost estimates were based on Hartman's desire to furnish all the pros-

pective partners with the cost that he was relatively sure would not be exceeded, because his experience as an independent, like most independents, is that participation is frequently decided upon by individuals based upon what their maximum financial exposure could be.

As a consequence, under those conditions, he felt it incumbent to provide them with that type of estimate, so the acidizing, fracturing, perforating expenditures are $112,000 greater on the Hartman AFE than on the ARCO AFE and they are roughly $52,400 greater for the abandon the well equipment category for surface equipment than are the ARCO.

And as I believe I additionally testified of course actual costs would be the basis for any settlement with any partner or for those that are force pooled. So these are simply estimates and are not being promulgated here as final costs.

Q Let's assume you did $150,000 fracing and completion job here. Wouldn't that set up communication, fractures hundreds of feet away from the borehole?

A I'm not prepared to say what it would do under conditions that are unknown at this time. Obviously, the expenditure of any amount of money is on a justification basis. You try to complete the well with as small an expenditure as possible and you're prepared to go to some fur-

ther measures depending upon what your financial capabilities and your faith in your technical capabilities are past that point.

Q Doesn't the magnitude of this number indicate that you anticipate that there would be --

A No, it does not. I've already --

Q -- a need for --

A I've already told you twice the reason it was put in there. I don't know how to answer any more than that.

MR. RAMEY: Mr. Aycock, let him ask the question before you answer it, would you please?

A All right, yes, sir.

Q Doesn't the magnitude of this number, $150,000, indicate that you are anticipating the possibility --

A No, it does not; not necessarily.

Q Let me try it again. Doesn't the magnitude of this item for acidizing, fracturing, and perforating of $150,000 for this one well indicate that you anticipate the possibility of either needing to reach out to productive areas or in any event, to finding yourself in a very poor reservoir?

A It indicates that there is a possibility of requiring expenditures above what would normally be expected in the area to establish commercial production, yes.

MR. DRAPER: That's all I have. Thank you.

MR. RAMEY: Any questions? You may be excused, Mr. Aycock.

A. Thank you.

MR. RAMEY: Do you have anything further, Mr. Draper?

MR. DRAPER: Mr. Chairman, I have only a short closing comment, which I'm not sure whether Mr. Carr is planning to make a short statement or what the situation is.

MR. CARR: And I don't care who goes first but however John would like.

MR. DRAPER: Well, I'm talking, I might as well do that.

I'd just like to summarize briefly for the Commission what I feel are the major points that have come out of the wealth of data that's across our table today.

Now, as an initial point it indicates that ARCO was the first one to attempt to develop the south half of Section 24, preceding Mr. Hartman by a full four months in getting to the other owners and trying to put together the participation and nonparticipation that would go into a voluntary agreement, and that they have continued this effort diligently and do intend, if at all possible, to pro-

ceed with development as outlined in our application, if allowed to.

I would point out that the evidence has shown that the area in which Mr. Hartman would put his well is a very high risk area. They are, as you noted, asking for the maximum risk factor here.

Mr. Aycock has stated it's a very high risk situation, and the fact that they have moved their well today, their proposed location, if you look at the evidence which we have presented, it's even closer to that dry hole, the Penn Aid State Com NO. 1 that was dry, they've moved closer to that than they were before, and they've moved closer to that 40-foot contour that apparently in this area marks the division between producing and nonproducing sand.

I would also point out that they have proposed an unorthodox location in a high risk area that in all probability has very little reserves, especially when you compare it to the east half of that same unit. There was a lot of talk here about a well, if there is a little dip down there in the extreme southwest corner, which possibility we don't deny, then shouldn't Mr. Hartman havethe right to go in there and get that.

Well, that's not really the question that we have been focusing on all day. The question is which location is more likely to produce reserves under the south

half of Section 24, and I think we've shown very reasonably that given the well control data and given the depositional contours that are present, that you do have a northwest trending dry sand area that crosses much of the east half there of the unit.

Now, if Mr. Hartman is allowed to go ahead, and if he were lucky enough to encounter the "BV" channel, which is a prolific channel, it's narrow, it's thick, and it's well documented, this would lead to irreparable drainage of that reservoir on the basis of a very minor ownership, and that it's not a question of how does he get his due share out of there, but whether he can get his well in there and drain areas that are not under the south half of Section 24.

Now he recognizes the high investment, the high risk, that's got to go into this well with the high fracing and completing costs that he has anticipated may be necessary to bootstrap his well into a producer, and that is in spite of the fact that most of the wells in this area, you can say all the wells in this area, had no or at the most very little stimulation in their completion. And certainly none of the "BV" wells in this channel had it.

Now, if he happens to run into a stray zone -- we've been talking about the Cycle Two -- he may run into another zone there and although the Cycle Two zone is

the main producing zone here, he may hit a small producing zone at some other level, say a Cycle Three, or what have you. And this would be equally a disaster for the development of the south half of Section 24, because that would tie up the development of that -- of that unit, where the unit could be much more usefully produced on the east half, that would be impossible with a small producing well down there in the southwest corner.

And I think a very reasonable interpretation of the data indicates that there are significantly greater sands to be tapped on the east half than in the southwest quarter.

Now, if the -- if the Commission were to see fit to approve Mr. Hartman's application, we would request that an allowable -- that the allowable be restricted significantly to much less than 25 percent of the deliverability. Now even this, in our opinion, because of the excessive stimulation that's planned, and because of a large transmissability of the reservoir that they are admittedly trying to encounter, would in all likelihood that limitation on their allowable still be inadequate to protect correlative rights and prevent drainage.

That's all I have.

MR. RAMEY: Mr. Draper, let me go ahead with a question to Mr Johnston. He may answer it from his

seat.

Did you give me any administrative costs while drilling or producing?

MR. JOHNSTON: No, sir, I do not -- I'm not prepared to provide those to you right now.

We can, if you so desire, provide you with those.

MR. RAMEY: I think we're going to have to have those in the event we approve your application.

MR. JOHNSTON: We would be consistent with the figures Mr. Hartman has suggested in his application. We accept the $3200 and --

MR. RAMEY: $3100 and $310?

MR. JOHNSTON: We'd accept that. Consider it provided.

MR. RAMEY: Okay.

MR. JOHNSTON: Thank you.

MR. RAMEY: Mr. Carr, do you have a statement?

MR. CARR: We all know this Commission is charged with the protection of correlative rights and prevention of waste of hydrocarbons.

As correlative rights are defined in our statute, they're defined as the opportunity afforded, so far as is practicable, to do so, to the owner of each property

in the pool to produce his just or equitable share of the reserves under his tract.

Mr. Hartman is before you today asking you to afford him the opportunity to produce the reserves that are under his tract.

There are several aspects of this case. First, the pooling aspect. Mr. Hartman, as the evidence clearly shows, attempted to obtain voluntary joinder in the drilling of a well in the southwest corner of the south half of Section 24. He is prepared to drill a well. He has a right to drill the well at that location. It's on his lease. And he filed his application for permit to drill and notified the Commission that the matter should be set for hearing to pool the acreage.

At a later date ARCO filed an application for permit to drill and attached a C-102 which contained a misrepresentation that the acreage was in the process of being communitized. Now, we're not saying that that was willful, but that was incorrect data, and based on incorrect data that application for permit to drill was approved, and we submit should be set aside.

We submit that Mr. Hartman is entitled under the statute to drill a well in the south half of Section 24 at his proposed location.

Now, you have heard testimony today that

ARCO was the first one to attempt to develop this acreage. I would submit to you that's clearly not true; Pennzoil was, and Mr. Hartman a year ago participated in a well to develop the south half. This is not something that started in December or in January, development of this half section has been going on for an extended period of time.

We were, however, the first party to file an application for permit to drill and to properly request that this matter be set for hearing.

Now, whatever equities come into this, I think that it's clear from the evidence that we represent approximately 90 percent, or will represent, approximately 90 percent of the working interest in the south half of this section. ARCO on the other hand, has 6.25 and maybe will be able to increase that to something around 10 percent.

We submit that the reason we have 90 percent of the working interest ownership interested in participating with Mr. Hartman is because they believe it is prudent to develop the south half of this section with a well where Mr. Hartman is proposing to drill it.

We talk about more reserves. We're not talking about pink versus green, as portrayed on Exhibit Eight. We're talking about the amount of gas under the tract and if you have a very poor Morrow deposit on one side of the section and a tremendous channel sand on the other, you

need to look at the gas that will be produced, not the acreage that is actually involved.

Now, we think that there's also a question involved as to the unorthodox location. The question -- the evidence presented today shows, the Isopach and cross section, that there is a fault running generally in the area of the southwest corner of the south half of Section 24. I think the testimony today clearly shows that where you place your contour lines, exactly, and your well control, is a matter of interpretation. Two geologists today, as an example, will reach different conclusions from the same data. This is an interpretive matter, except in a situation as this one, where you have geophysical data, geophysical data which we submit shows the existence of a geologic anomaly, an anomaly that crosses the south half of Section 24 in such a way as to leave in that proration unit a number of productive acres in that channel which closely correlates with the number of productive acres in that channel which is available to the well immediately to the south of it.

Now I would point out that the Supreme Court of New Mexico in the Jalmat decision stated that the Commission must first determine the extent of correlative rights before the Commission can protect them. In other words, you have to determine, as far as practicable, what reserves are under a tract.

We submit here that the data presented is the best data that could be presented and it shows you very clearly what Mr. Hartman has under the south half of that section, and we're asking you to give Mr. Hartman the opportunity to produce that.

The engineering data that was presented shows that the wells, the ARCO wells in Section 25, are draining over great distances, and Mr. Draper indicated that we're not really concerned about the drainage, apparently, from north to south. What we're concerned about is Mr. Hartman draining Section 25 south of him. I submit to you that if we look at where his well is placed in regard to the south line of his lease, it's back a standard distance from the ARCO property, and that what works one way conversely is also true, and the testimony clearly shows today that the existing wells in Section 25 will drain the gas under 24 unless we're permitted to drill a well there.

I think it's also important to realize that if we don't drill a well, if Hartman doesn't drill a well in the south half of that section, it's going to be produced by ARCO. They'll get it all. They only have 6.25 percent of the well in the south half and they hope to get everyone else to drill wells out of their channel, and we submit that that's a very central part of this entire case.

We do believe that the evidence presented

entitles Mr. Hartman to the order. We think that any way you read the evidence that the percentage of the interest that he represents, the dates of filing, that the equities come up on Mr. Hartman's side in this case, and we submit that if we do not get the order, he's going to be denied the opportunity to protect his correlative rights contrary to the statutory challenge that's directed to this Commission.

MR. RAMEY: Thank you, Mr. Carr. Mr. Kellahin, do you have anything you wish to add?

MR. KELLAHIN: Yes, sir.

Mr. Ramey, I represent Pennzoil Company. As you can see from the evidence, Pennzoil has a substantial interest in the south half of this section. Tabulation shows that the percentage working interest is 31.25 percent, which equals that of Mr. Hartman's personal interest. With Mr. Hartman, Pennzoil has more acreage in the south half than any of the other individual operators, some five times more than ARCO with 6.25 percent working interest.

Pennzoil has authorized me today to inform you that they support Mr. Hartman's location; they believe it's the optimum location within the south half of this proration unit from which to develop his acreage, and that they are opposed to the location requested by ARCO.

We would propose that the application of Mr. Hartman be approved as amended. Our support goes to the

amended location, and we believe that it's a standard location off of the south half line and that it would not drain or substantially damage the interests of ARCO, the offset operator to that well.

We believe that the application must be granted without penalty and without further delay to allow Mr. Hartman to timely commence the well.

MR. RAMEY: Thank you, Mr. Kellahin.

Mr. Flowers?

MR. FLOWERS: Gentlemen, DEPCO has a working interest in Section 25, Township 17 South, Range 28 East, and would like to state its opposition to Application Number 6927 by Doyle Hartman for an unorthodox location in the south half of Section 24, Township 17 South, Range 28 East.

We have looked at the situation and are of the strong opinion that approval of the Hartman application would be contrary to the protection of correlative rights and prevention of waste.

If the Commission sees fit to approve the Hartman application, we would strongly request that an allowable restriction to significantly less than 25 percent of deliverability be imposed.

Respectfully submitted by Lee Flowers.

MR. RAMEY: Thank you, Mr. Flowers.

Mr. Corkill?

MR. CORKILL: Oil Conservation Commission, Energy and Mineral Department, Land Office Building, Santa Fe, New Mexico.

Gentlemen: Husky Oil Company, under the State of New Mexico Lease Number 647-368, which includes Section 25, Township 17 South, Range 28 East, Eddy County, New Mexico, owns a 15.97222 percent working interest in said Section 25. This 15.97222 working interest applies to the following interval: from 500 feet below the top of the San Andres formation to any depth.

Mr. Doyle Hartman has applied for an unorthodox Morrow well to be located 660 from west line and 660 from south line, Section 24, 17 South, 28 East, Eddy County, New Mexico.

Since a Morrow dry hole, Pennzoil, exists at a location 1980 from the west line, 660 from the south line in Section 24, Township 17 South, Range 28 East, Husky Oil Company as an offset working interest owner objects to the proposed unorthodox location.

If the Commission deems it adviseable to grant the unorthodox location, we strongly recommend that a severe allowable restriction be placed on the proposed unorthodox location. The previously mentioned Pennzoil dry hole definitely demonstrates that the entire 320 acre spaced unit is not productive from the Morrow formation. Such an allow-

able restriction should protect the correlative rights and ownership of offset owners.

At the same time, we firmly support Application Number 6928 by ARCO Oil and Gas for the same 320 acre unit utilizing a well in an orthodox location for the reason that it will protect correlative rights and prevent waste.

Husky Oil Company has been an active participant in the development of the deeper gas producing formations in this area since September, 1972.

Respectfully submitted.

Am I allowed to make any other statement?

MR. RAMEY: Certainly.

MR. CORKILL: I just want to make a comment on the seismic. Husky has been in this area since early '72, since the South Empire Deep Well No. 1 was drilled by Midwest. We have participated in probably fifty to sixty wells with a working interest from less than one percent up to 30 to 35 percent.

The operators for our wells have been DEPCO, ARCO, Yates, MEYCO, Gulf, Monsanto, Anadarko, Holly, almost -- seems to be almost everybody that operates in this portion of Eddy County.

To my knowledge no locations have been asked to be changed, or have they come to us with information

indicating that on the basis of seismic should we change our location. We took it as the orthodox spot and that was it.

MR. RAMEY: Thank you. Does anyone have anything further to add in this case?

If not, we will take the case under advisement and the hearing is adjourned.

(Hearing adjourned.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing transcript of hearing before the Oil Conservation Commission was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 6927
Order No. R-6390

APPLICATION OF DOYLE HARTMAN FOR
COMPULSORY POOLING AND AN UNORTHODOX
LOCATION, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on June 5, 1980, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 7th day of July, 1980, the Commission, a quorum being present, having considered the testimony, exhibits and the record, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Doyle Hartman, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, NMPM, South Empire-Morrow Gas Pool, Eddy County, New Mexico.

(3) That the applicant has the right to drill and proposes to drill a well at an unorthodox location 800 feet from the South line and 1000 feet from the West line of said Section 24.

(4) That ARCO Oil and Gas Company, in companion Case No. 6928, requested compulsory pooling of the S/2 of said Section 24 to be dedicated to a well 660 feet from the South line and 1980 feet from the East line of said Section 24.

(5) That ARCO Oil and Gas Company opposed the proposed unorthodox well location sought in this case.

(6) That the preponderance of evidence presented in this case indicated a Morrow formation channel sand containing substantial reserves of hydrocarbons underlies, at a minimum, portions of Sections 24 and 25, Township 17 South, Range 28 East, NMPM, Eddy County, New Mexico.

(7) That ARCO operates two wells in said Section 25, south of the proposed proration unit.

(8) That the ARCO wells in said Section 25 are completed in and producing from said Morrow formation channel sand.

(9) That in said Section 25, the channel trends generally in a northwest-southeast direction.

(10) That geophysical evidence presented indicated that the channel swings in a northerly direction at the south boundary of Section 24, and underlies a substantial portion of the W/2 of said Section 24.

(11) That the wells currently producing gas from this Morrow formation channel sand in Section 25 are draining gas from this channel under Section 24.

(12) That a well drilled at an orthodox location in said Section 24 would be outside the boundaries of said Morrow channel.

(13) That the preponderance of evidence established that there are approximately the same number of productive acres in this Morrow channel sand underlying the S/2 of Section 24 as underlie the N/2 or the S/2 of Section 25, the proration units to the south.

(14) That a well at the proposed unorthodox location would be at a standard location relative to the North and South lines of the S/2 of said Section 24.

(15) That the evidence presented established that Doyle Hartman would gain no advantage over any other producer in the Morrow formation by reason of drilling and producing a well at the proposed unorthodox location.

(16) That approval of Doyle Hartman's proposed well location, without penalty, will afford him the opportunity to drill a well in the channel in the S/2 of Section 24 and to produce the reserves underlying his property thereby preventing waste and protecting his correlative rights.

(17) That there are interest owners in the proposed proration unit who have not agreed to pool their interests.

(18) That to avoid the drilling of unnecessary wells, to protect correlative rights, and to afford to the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the gas in said pool, the subject application should be approved by pooling all mineral interests, whatever they may be, within said unit.

(19) That the applicant should be designated the operator of the subject well and unit.

(20) That any non-consenting working interest owner should be afforded the opportunity to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production.

(21) That any non-consenting working interest owner that does not pay his share of estimated well costs should have withheld from production his share of the reasonable well costs plus an additional 200 percent thereof as a reasonable charge for the risk involved in the drilling of the well.

(22) That any non-consenting interest owner should be afforded the opportunity to object to the actual well costs but that actual well costs should be adopted as the reasonable well costs in the absence of such objection.

(23) That following determination of reasonable well costs, any non-consenting working interest owner that has paid his share of estimated costs should pay to the operator any amount that reasonable well costs exceed estimated well costs and should receive from the operator any amount that paid estimated well costs exceed reasonable well costs.

(24) That $3100.00 per month while drilling and $310.00 per month while producing should be fixed as reasonable charges for supervision (combined fixed rates); that the operator should be authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator should be authorized to withhold from production the proportionate share of actual expenditures required for operating the subject well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(25) That all proceeds from production from the subject well which are not disbursed for any reason should be placed in escrow to be paid to the true owner thereof upon demand and proof of ownership.

(26) That upon the failure of the operator of said pooled unit to commence drilling of the well to which said unit is dedicated on or before September 20, 1980, the order pooling said unit should become null and void and of no effect whatsoever.

IT IS THEREFORE ORDERED:

(1) That all mineral interests, whatever they may be, in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, NMPM, South Empire-Morrow Gas Pool, Eddy County, New Mexico, are hereby pooled to form a standard 320-acre gas spacing and proration unit to be dedicated to a well to be drilled at an unorthodox location 800 feet from the South line and 1000 feet from the West line of said Section 24.

PROVIDED HOWEVER, that the operator of said unit shall commence the drilling of said well on or before the 20th day of September, 1980, and shall thereafter continue the drilling of said well with due diligence to a depth sufficient to test the Pennsylvanian formation;

PROVIDED FURTHER, that in the event said operator does not commence the drilling of said well on or before the 20th day of September, 1980, Order (1) of this order shall be null and void and of no effect whatsoever.

PROVIDED FURTHER, that should said well not be drilled to completion, or abandonment, within 120 days after commencement thereof, said operator shall appear before the Oil Conservation Division and show cause why Order (1) of this order should not be rescinded.

(2) That Doyle Hartman is hereby designated the operator of the subject well and unit.

(3) That after the effective date of this order and within 30 days prior to commencing said well, the operator shall furnish the Division and each known working interest owner in the subject unit an itemized schedule of estimated well costs.

(4) That within 30 days from the date the schedule of estimated well costs is furnished to him, any non-consenting working interest owner shall have the right to pay his share of estimated well costs to the operator in lieu of paying his share of reasonable well costs out of production, and that any such owner who pays his share of estimated well costs as provided above shall remain liable for operating costs but shall not be liable for risk charges.

(5) That the operator shall furnish the Division and each known working interest owner an itemized schedule of actual well costs within 90 days following completion of the well; that if no objection to the actual well costs is received by the Division and the Division has not objected within 45 days following receipt of said schedule, the actual well costs shall be the reasonable well costs; provided however, that if there is an objection to actual well costs within said 45-day period, the Division will determine the reasonable well costs after public notice and hearing.

(6) That within 60 days following determination of reasonable well costs, any non-consenting working interest owner that has paid his share of estimated costs in advance as provided above shall pay to the operator his pro rata share of the amount that reasonable well costs exceed estimated well costs and shall receive from the operator his pro rata share of the amount that estimated well costs exceed reasonable well costs.

(7) That the operator is hereby authorized to withhold the following costs and charges from production:

(A) The pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(B) As a charge for the risk involved in the drilling of the well, 200 percent of the pro rata share of reasonable well costs attributable to each non-consenting working interest owner who has not paid his share of estimated well costs within 30 days from the date the schedule of estimated well costs is furnished to him.

(8) That the operator shall distribute said costs and charges withheld from production to the parties who advanced the well costs.

(9) That $3100.00 per month while drilling and $310.00 per month while producing are hereby fixed as reasonable charges for supervision (combined fixed rates); that the operator is hereby authorized to withhold from production the proportionate share of such supervision charges attributable to each non-consenting working interest, and in addition thereto, the operator is hereby authorized to withhold from production the proportionate share of actual expenditures required for operating such well, not in excess of what are reasonable, attributable to each non-consenting working interest.

(10) That any unsevered mineral interest shall be considered a seven-eighths (7/8) working interest and a one-eighth (1/8) royalty interest for the purpose of allocating costs and charges under the terms of this order.

(11) That any well costs or charges which are to be paid out of production shall be withheld only from the working interests share of production, and no costs or charges shall be withheld from production attributable to royalty interests.

(12) That all proceeds from production from the subject well which are not disbursed for any reason shall be placed in escrow in Eddy County, New Mexico, to be paid to the true owner thereof upon demand and proof of ownership; that the operator shall notify the Division of the name and address of said escrow agent within 90 days from the date of this order.

(13) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year herein-above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

ALEX J. ARMIJO, Member

EMERY C. ARNOLD, Member

JOE D. RAMEY, Member & Secretary

S E A L
fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Re: CASE NO. 6927
ORDER NO. R-6390

Mr. William F. Carr
Campbell and Black
Attorneys at Law
Post Office Box 2208
Santa Fe, New Mexico

Applicant:

Doyle Hartman

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other John B. Draper, Tom Kellahin

RECEIVED
Jul 30 1 15 PM '80
OIL CONSERVATION DIVISION
SANTA FE, N.M.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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

CASE NO. 6928
Order No. R-6391

APPLICATION OF ARCO OIL AND GAS COMPANY FOR COMPULSORY POOLING, EDDY COUNTY, NEW MEXICO.

APPLICATION FOR REHEARING

COMES NOW ARCO OIL AND GAS COMPANY ("Arco") and applies to the Oil Conservation Commission for rehearing of Case No. 6928 and Order No. R-6391, and in support thereof, states as follows:

1. Arco sought an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M, South Empire-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to a well at an orthodox location 660 feet from the South line and 1980 feet from the West line of said Section 24.

2. The Commission entered its Order No. R-6931 July 7, 1980, denying the said application.

3. Arco is adversely affected by Order No. R-6931 for the reasons that the said Order will not prevent waste nor protect correlative rights, as hereinafter shown.

4. Objection is made to Finding No. 4 for the reason that the unorthodox location proposed in Case No. 6927 was only 1,000 feet from the West line of said Section 24, not 1,980 feet from the West line as stated in Finding No. 4.

5. Objection is made to Finding No. 5 for the reason that it is not supported by substantial evidence, in that the evidence did not show the unorthodox location proposed by Doyle Hartman to

be the most favorable for recovering hydrocarbons which underlie Section 24. In addition, this finding relates to all of Section 24, whereas only the S/2 of Section 24 is involved in this application and its companion case.

6. Objection is made to Finding No. 6 for the reason that the application of Doyle Hartman should not have been approved for reasons stated in the Application for Rehearing in case No. 6927.

7. Objection is made to Finding No. 7 for the reason that the application in this case should not have been denied.

WHEREFORE, Arco requests that the Commission grant a rehearing in the above-styled case and that after rehearing, the Commission vacate and set aside its Order No. R-6391 and enter its order approving Application No. 6928.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A.

By John B. Draper
John B. Draper
P.O. Box 2307
Santa Fe, New Mexico 87501

Attorneys for Applicant
Arco Oil and Gas Company

Certificate of Mailing

I hereby certify that I caused to be mailed a true and correct copy of the foregoing pleading to Ernest L. Padilla, Esq., counsel to the Commission and William F. Carr, Esq., counsel for Doyle Hartman, on this 28th day of July, 1980.

John B. Draper

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STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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

CASE NO. 6927
Order No. R-6390

APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO.

APPLICATION FOR REHEARING

COMES NOW ARCO OIL AND GAS COMPANY ("Arco") and applies to the Oil Conservation Commission for rehearing of the above-captioned case and order, and in support thereof, states as follows:

1. The above-styled application of Boyle Hartman ("Hartman") sought an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M., South Empire-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to a well at an unorthodox location 800 feet from the South line and 1,000 feet from the West line of said Section 24.

2. Arco is the owner of a working interest sought to be pooled by the aforesaid application.

3. Arco, in companion Case No. 6928, which was consolidated with the above-styled case for hearing before the Oil Conservation Commission, also sought an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M., South Empire-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to a well at an orthodox location 660 feet from the South line and 1980 feet from the East line of said Section 24.

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4. Arco opposed Hartman's proposed unorthodox well location sought in this case and asked that the application be denied in favor of Arco's application No. 6928.

5. Arco is the operator of the offsetting State "BV" Lease in Section 25, Township 17 South, Range 28 East and therefore sought an allowable restriction against the well proposed to be drilled by Hartman, in the event the application were granted.

6. Order R-6390 approving the above-styled application without an allowable restriction was entered July 7, 1980, contrary to the undisputed evidence that the S/2 of Section 24 was not capable of producing gas underlying the entire tract since a dry hole had already been drilled at a standard location in the W/2 of said unit.

7. Arco is adversely affected by Order No. R-6390 for the reason that the said Order will not prevent waste nor protect correlative rights as hereinafter shown.

8. Evidence supporting Arco's position is now available which was not available at the time of the original hearing, namely, well control data from the Exxon "CY" State No. 1 Well in the neighboring Section 23, Township 17 South, Range 28 East, N.M.P.M. Arco would also present volumetric calculations based upon the production history and pressure data from three wells producing from the "BV" channel, two of which are in Section 25.

9. The preponderance of the evidence presented at the hearing showed that Hartman's proposed unorthodox well would most likely result in a dry hole and constitute significant waste with respect to the economic resources of Arco and other working interest owners in the S/2 of Section 24 or would be insufficient to justify production at such unorthodox location.

10. The preponderance of the evidence also showed that, if the proposed unorthodox well were completed in the "BV" channel it would result in the drainage of gas from the "BV" channel in Section 25, thereby violating Arco's correlative rights, unless production from said well were limited to an allowable restriction of 25% of deliverability or less. Moreover, Hartman's own evidence supports the proposition that any well drilled at an unorthodox location in the S/2 of said Section 24 should be subject to a severe allowable restriction (Hartman Ex. No. 15, Feb. 13, 1980 Letter).

11. Order No. R-6390 lacks sufficient findings of ultimate fact to support it, as required by the statutes and court decisions of the State of New Mexico. Specifically, there is no finding of the ultimate fact required by Section 70-2-17, NMSA 1978, that the proposed well will be drilled to a common source of supply. See, e.g., Fasken v. Oil Conservation Commission, 87 N.M. 292, 294, 532 P.2d 588, 590 (1975).

12. In addition, Order No. R-6390 lacks sufficient findings to disclose the reasoning of the Commission in reaching its ultimate findings, as required by the New Mexico Supreme Court. Id. For instance, there is nothing in the findings of the Commission to indicate upon what basis prevention of waste and protection of correlative rights would result as to anyone other than Hartman. It is clear that the Commission's statutory mandate requires the prevention of waste and the protection of correlative rights by the Commission as to all interested parties.

13. Objection is made to Finding No. 10. Finding No. 10 reads as follows:

> "(10) That geophysical evidence presented indicated that the channel swings in a northerly direction at the south boundary of

> Section 24 and underlies a substantial portion of the W/2 of said Section 24."

The "geophysical evidence" referred to does not constitute substantial evidence, much less a preponderance of the evidence:

> "Substantial evidence" means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.

Grace v. Oil Conservation Commission, 87 N.M. 205, 208, 531 P.2d 939, 942 (1975). The geophysical (seismic) evidence presented by the applicant was not such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. Rather, it was highly speculative, internally inconsistent, unmigrated, inconsistent with well control and thoroughly discredited by opposing expert testimony. Particularly significant is the fact the predictions attributed to the seismic data are not supported by the seismic data presented by Hartman, even if one were to accept that data.

The electric log data submitted by the applicant was equally inconclusive and speculative. Under cross-examination, the Applicant's expert geologist confirmed that he had no basis for his conclusion that the producing channel turned abruptly northward into Hartman's Section 24, but, on the contrary, could just as easily have turned in other directions (Transcript, p. 156).

Furthermore, the swing of the channel in a northerly direction would be contrary to the law of gravity governing the flow of water which deposited the "BV" fluvial channel Hartman is seeking to enter.

14. Objection is made to Finding No. 11. No significant drainage of gas is occurring from under Section 24.

15. Objection is made to Finding No. 13 for the same reasons that Finding No. 10 was objected to. Finding No. 13 also ignores the fact that pay volume, not mere acreage, is the key to

determining reserves and the protection of correlative rights. Even as to pure acreage, there is more in the N/2 of Section 25 than the S/2 of Section 24, even based on Hartman's Exhibit 2.

16. Objection is made to Finding No. 15 for the reason that Hartman would unfairly gain advantage over other producers in the "BV" Morrow formation if he succeeded in drilling a producing well at the proposed unorthodox location because he would drain the N/2 of Section 25, and for that very reason the Commission rules provide for the drilling of wells at standard locations, or provide an allowable restriction when wells are drilled at unorthodox locations.

17. Objection is made to Finding No. 16. Hartman's proposed well should not be allowed without penalty for the same reasons that Finding No. 10 was objected to. If the well is allowed without penalty, the Commission would not prevent waste nor properly protect correlative rights.

18. Objection is made to Finding No. 18 for the reason that the subject application should not be approved. Such approval will not avoid the drilling of unnecessary wills, will not protect correlative rights and will not afford the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the gas in said pool.

19. Objection is made to Finding No. 19 for the reason that Hartman should not be designated operator and the subject well should not be approved.

20. Objections are made to Findings Nos. 20 through 26 for the reason that they are consistent with a granting of the application of Hartman without penalty, which is erroneous, as shown herein.

21. Objection is also made to Order No. R-6390 for the reason that it is inconsistent with Application No. 6928, which should have been granted.

WHEREFORE, Arco respectfully requests the Commission grant a rehearing in the above-styled case and that after rehearing, the Commission vacate and set aside its Order No. R-6930 and enter its order denying the said application or, if approved, subjecting the same to a 25% allowable restriction.

MONTGOMERY & ANDREWS, P.A.

By John B. Draper
John B. Draper
P.O. Box 2307
Santa Fe, New Mexico 87501

Attorneys for Arco Oil and Gas Company

Certificate of Mailing

I hereby certify that I caused to be mailed a true and correct copy of the foregoing pleading to Ernest L. Padilla, Esq., counsel to the Commission and William F. Carr, Esq., counsel for Doyle Hartman, on this 28th day of July, 1980.

John B. Draper

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SANTA FE, N.M.

For

Ernest Padilla

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OIL CONSERVATION DIVISION
SANTA FE

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

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

APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO — Case No. 6927, Order No. R-6390

APPLICATION OF ARCO OIL AND GAS COMPANY FOR COMPULSORY POOLING EDDY COUNTY, NEW MEXICO — Case No. 6928, Order No. R-6391

MOTION OF PENNZOIL COMPANY TO STRIKE

APPLICATIONS FOR REHEARING FILED BY

ARCO OIL AND GAS COMPANY

COMES NOW PENNZOIL COMPANY, and Moves that the New Mexico Oil Conservation Commission strike the Application for Rehearing filed by Arco Oil and Gas Company in the above entitled and captioned cases and as grounds therefore states:

1. Pennzoil Company is an affected party to these cases having appeared with an attorney and having participated in the above referenced cases and hearings in opposition to Arco Oil and Gas Company.

2. That Arco Oil and Gas Company's Applications for Rehearing, filed herein, contain Mr. John B. Draper's certificate of mailing attesting to the mailing to the Commission and to William F. Carr as attorney for Doyle Hartman.

3. That Arco Oil and Gas Company, has failed to provide Pennzoil or its attorneys, Kellahin & Kellahin, with copies of its Applications for Rehearing filed herein.

4. That Rule 1208 of the Rules and Regulations of the New Mexico Oil Conservation Commission requires service of any pleadings, plea, or motion of any character upon all adverse parties or parties who have entered their appearance.

5. That Arco Oil and Gas Company have filed applications for Rehearings based upon orders entered on July 7, 1980.

6. That Arco Oil & Gas Company have filed their applications for Rehearing on July 28, 1980.

7. That Rule 1222 of the Rules and Regulations of the New Mexico Oil Conservation Commission require Applications for Rehearing to be filed within 20 days after the entry of an order.

8. That Arco Oil & Gas Company have filed their Applications for Rehearing, herein, on July 28, 1980 after the expiration of the twenty day period.

9. That Arco Oil and Gas Company have failed to timely file an application for Rehearing and now lack standing to proceed further in this matter.

WHEREFORE PENNZOIL COMPANY, moves that the Applications for Rehearing filed by Arco Oil and Gas Company be dismissed with prejudice.

KELLAHIN & KELLAHIN

By: _____
W. Thomas Kellahin
Kellahin & Kellahin
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285

CERTIFICATE OF MAILING

I hereby certify that I caused to be mailed a true and correct copy of the foregoing pleading to Earnest L. Padilla, Esq., counsel to the Commission, William F. Carr, Esq., counsel for Doyle Hartman, and John B. Draper, Esq., counsel for Arco Oil and Gas Company, on this 29 day of July, 1980.

_____
W. Thomas Kellahin

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OIL CONSERVATION DIVISION
SANTA FE

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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

CASE NO. 6927
Order No. R-6390

APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO.

APPLICATION FOR REHEARING

COMES NOW ARCO OIL AND GAS COMPANY ("Arco") and applies to the Oil Conservation Commission for rehearing of the above-captioned case and order, and in support thereof, states as follows:

1. The above-styled application of Boyle Hartman ("Hartman") sought an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M., South Empire-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to a well at an unorthodox location 800 feet from the South line and 1,000 feet from the West line of said Section 24.

2. Arco is the owner of a working interest sought to be pooled by the aforesaid application.

3. Arco, in companion Case No. 6928, which was consolidated with the above-styled case for hearing before the Oil Conservation Commission, also sought an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M., South Empire-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to a well at an orthodox location 660 feet from the South line and 1980 feet from the East line of said Section 24.

4. Arco opposed Hartman's proposed unorthodox well location sought in this case and asked that the application be denied in favor of Arco's application No. 6928.

5. Arco is the operator of the offsetting State "BV" Lease in Section 25, Township 17 South, Range 28 East and therefore sought an allowable restriction against the well proposed to be drilled by Hartman, in the event the application were granted.

6. Order R-6390 approving the above-styled application without an allowable restriction was entered July 7, 1980, contrary to the undisputed evidence that the S/2 of Section 24 was not capable of producing gas underlying the entire tract since a dry hole had already been drilled at a standard location in the W/2 of said unit.

7. Arco is adversely affected by Order No. R-6390 for the reason that the said Order will not prevent waste nor protect correlative rights as hereinafter shown.

8. Evidence supporting Arco's position is now available which was not available at the time of the original hearing, namely, well control data from the Exxon "CY" State No. 1 Well in the neighboring Section 23, Township 17 South, Range 28 East, N.M.P.M. Arco would also present volumetric calculations based upon the production history and pressure data from three wells producing from the "BV" channel, two of which are in Section 25.

9. The preponderance of the evidence presented at the hearing showed that Hartman's proposed unorthodox well would most likely result in a dry hole and constitute significant waste with respect to the economic resources of Arco and other working interest owners in the S/2 of Section 24 or would be insufficient to justify production at such unorthodox location.

10. The preponderance of the evidence also showed that, if the proposed unorthodox well were completed in the "BV" channel it would result in the drainage of gas from the "BV" channel in Section 25, thereby violating Arco's correlative rights, unless production from said well were limited to an allowable restriction of 25% of deliverability or less. Moreover, Hartman's own evidence supports the proposition that any well drilled at an unorthodox location in the S/2 of said Section 24 should be subject to a severe allowable restriction (Hartman Ex. No. 15, Feb. 13, 1980 Letter).

11. Order No. R-6390 lacks sufficient findings of ultimate fact to support it, as required by the statutes and court decisions of the State of New Mexico. Specifically, there is no finding of the ultimate fact required by Section 70-2-17, NMSA 1978, that the proposed well will be drilled to a common source of supply. See, e.g., Fasken v. Oil Conservation Commission, 87 N.M. 292, 294, 532 P.2d 588, 590 (1975).

12. In addition, Order No. R-6390 lacks sufficient findings to disclose the reasoning of the Commission in reaching its ultimate findings, as required by the New Mexico Supreme Court. Id. For instance, there is nothing in the findings of the Commission to indicate upon what basis prevention of waste and protection of correlative rights would result as to anyone other than Hartman. It is clear that the Commission's statutory mandate requires the prevention of waste and the protection of correlative rights by the Commission as to all interested parties.

13. Objection is made to Finding No. 10. Finding No. 10 reads as follows:

> "(10) That geophysical evidence presented indicated that the channel swings in a northerly direction at the south boundary of

> Section 24 and underlies a substantial portion of the W/2 of said Section 24."

The "geophysical evidence" referred to does not constitute substantial evidence, much less a preponderance of the evidence:

> "Substantial evidence" means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.

Grace v. Oil Conservation Commission, 87 N.M. 205, 208, 531 P.2d 939, 942 (1975). The geophysical (seismic) evidence presented by the applicant was not such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. Rather, it was highly speculative, internally inconsistent, unmigrated, inconsistent with well control and thoroughly discredited by opposing expert testimony. Particularly significant is the fact the predictions attributed to the seismic data are not supported by the seismic data presented by Hartman, even if one were to accept that data.

The electric log data submitted by the applicant was equally inconclusive and speculative. Under cross-examination, the Applicant's expert geologist confirmed that he had no basis for his conclusion that the producing channel turned abruptly northward into Hartman's Section 24, but, on the contrary, could just as easily have turned in other directions (Transcript, p. 156).

Furthermore, the swing of the channel in a northerly direction would be contrary to the law of gravity governing the flow of water which deposited the "BV" fluvial channel Hartman is seeking to enter.

14. Objection is made to Finding No. 11. No significant drainage of gas is occurring from under Section 24.

15. Objection is made to Finding No. 13 for the same reasons that Finding No. 10 was objected to. Finding No. 13 also ignores the fact that pay volume, not mere acreage, is the key to

determining reserves and the protection of correlative rights. Even as to pure acreage, there is more in the N/2 of Section 25 than the S/2 of Section 24, even based on Hartman's Exhibit 2.

16. Objection is made to Finding No. 15 for the reason that Hartman would unfairly gain advantage over other producers in the "BV" Morrow formation if he succeeded in drilling a producing well at the proposed unorthodox location because he would drain the N/2 of Section 25, and for that very reason the Commission rules provide for the drilling of wells at standard locations, or provide an allowable restriction when wells are drilled at unorthodox locations.

17. Objection is made to Finding No. 16. Hartman's proposed well should not be allowed without penalty for the same reasons that Finding No. 10 was objected to. If the well is allowed without penalty, the Commission would not prevent waste nor properly protect correlative rights.

18. Objection is made to Finding No. 18 for the reason that the subject application should not be approved. Such approval will not avoid the drilling of unnecessary wills, will not protect correlative rights and will not afford the owner of each interest in said unit the opportunity to recover or receive without unnecessary expense his just and fair share of the gas in said pool.

19. Objection is made to Finding No. 19 for the reason that Hartman should not be designated operator and the subject well should not be approved.

20. Objections are made to Findings Nos. 20 through 26 for the reason that they are consistent with a granting of the application of Hartman without penalty, which is erroneous, as shown herein.

21. Objection is also made to Order No. R-6390 for the reason that it is inconsistent with Application No. 6928, which should have been granted.

WHEREFORE, Arco respectfully requests the Commission grant a rehearing in the above-styled case and that after rehearing, the Commission vacate and set aside its Order No. R-6930 and enter its order denying the said application or, if approved, subjecting the same to a 25% allowable restriction.

MONTGOMERY & ANDREWS, P.A.

By John B. Draper
John B. Draper
P.O. Box 2307
Santa Fe, New Mexico 87501

Attorneys for Arco Oil and Gas Company

Certificate of Mailing

I hereby certify that I caused to be mailed a true and correct copy of the foregoing pleading to Ernest L. Padilla, Esq., counsel to the Commission and William F. Carr, Esq., counsel for Doyle Hartman, on this 28th day of July, 1980.

John B. Draper

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OIL CONSERVATION DIVISION

STATE OF NEW MEXICO SANTA FE
OIL CONSERVATION COMMISSION

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

CASE NO. 6928
Order No. R-6391

APPLICATION OF ARCO OIL AND GAS COMPANY FOR COMPULSORY POOLING, EDDY COUNTY, NEW MEXICO.

APPLICATION FOR REHEARING

COMES NOW ARCO OIL AND GAS COMPANY ("Arco") and applies to the Oil Conservation Commission for rehearing of Case No. 6928 and Order No. R-6391, and in support thereof, states as follows:

1. Arco sought an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M, South Empire-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to a well at an orthodox location 660 feet from the South line and 1980 feet from the West line of said Section 24.

2. The Commission entered its Order No. R-6931 July 7, 1980, denying the said application.

3. Arco is adversely affected by Order No. R-6931 for the reasons that the said Order will not prevent waste nor protect correlative rights, as hereinafter shown.

4. Objection is made to Finding No. 4 for the reason that the unorthodox location proposed in Case No. 6927 was only 1,000 feet from the West line of said Section 24, not 1,980 feet from the West line as stated in Finding No. 4.

5. Objection is made to Finding No. 5 for the reason that it is not supported by substantial evidence, in that the evidence did not show the unorthodox location proposed by Doyle Hartman to

be the most favorable for recovering hydrocarbons which underlie Section 24. In addition, this finding relates to all of Section 24, whereas only the S/2 of Section 24 is involved in this application and its companion case.

6. Objection is made to Finding No. 6 for the reason that the application of Doyle Hartman should not have been approved for reasons stated in the Application for Rehearing in case No. 6927.

7. Objection is made to Finding No. 7 for the reason that the application in this case should not have been denied.

WHEREFORE, Arco requests that the Commission grant a rehearing in the above-styled case and that after rehearing, the Commission vacate and set aside its Order No. R-6391 and enter its order approving Application No. 6928.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A.

By John B. Draper
John B. Draper
P.O. Box 2307
Santa Fe, New Mexico 87501

Attorneys for Applicant
Arco Oil and Gas Company

Certificate of Mailing

I hereby certify that I caused to be mailed a true and correct copy of the foregoing pleading to Ernest L. Padilla, Esq., counsel to the Commission and William F. Carr, Esq., counsel for Doyle Hartman, on this 28th day of July, 1980.

John B. Draper

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OIL CONSERVATION DIVISION
SANTA FE

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

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

APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO — Case No. 6927, Order No. R-6390

APPLICATION OF ARCO OIL AND GAS COMPANY FOR COMPULSORY POOLING EDDY COUNTY, NEW MEXICO — Case No. 6928, Order No. R-6391

MOTION OF PENNZOIL COMPANY TO STRIKE APPLICATIONS FOR REHEARING FILED BY ARCO OIL AND GAS COMPANY

COMES NOW PENNZOIL COMPANY, and Moves that the New Mexico Oil Conservation Commission strike the Application for Rehearing filed by Arco Oil and Gas Company in the above entitled and captioned cases and as grounds therefore states:

1. Pennzoil Company is an affected party to these cases having appeared with an attorney and having participated in the above referenced cases and hearings in opposition to Arco Oil and Gas Company.

2. That Arco Oil and Gas Company's Applications for Rehearing, filed herein, contain Mr. John B. Draper's certificate of mailing attesting to the mailing to the Commission and to William F. Carr as attorney for Doyle Hartman.

3. That Arco Oil and Gas Company, has failed to provide Pennzoil or its attorneys, Kellahin & Kellahin, with copies of its Applications for Rehearing filed herein.

4. That Rule 1208 of the Rules and Regulations of the New Mexico Oil Conservation Commission requires service of any pleadings, plea, or motion of any character upon all adverse parties or parties who have entered their appearance.

5. That Arco Oil and Gas Company have filed applications for Rehearings based upon orders entered on July 7, 1980.

6. That Arco Oil & Gas Company have filed their applications for Rehearing on July 28, 1980.

7. That Rule 1222 of the Rules and Regulations of the New Mexico Oil Conservation Commission require Applications for Rehearing to be filed within 20 days after the entry of an order.

8. That Arco Oil & Gas Company have filed their Applications for Rehearing, herein, on July 28, 1980 after the expiration of the twenty day period.

9. That Arco Oil and Gas Company have failed to timely file an application for Rehearing and now lack standing to proceed further in this matter.

WHEREFORE PENNZOIL COMPANY, moves that the Applications for Rehearing filed by Arco Oil and Gas Company be dismissed with prejudice.

KELLAHIN & KELLAHIN

By: W. Thomas Kellahin

W. Thomas Kellahin
Kellahin & Kellahin
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285

CERTIFICATE OF MAILING

I hereby certify that I caused to be mailed a true and correct copy of the foregoing pleading to Earnest L. Padilla, Esq., counsel to the Commission, William F. Carr, Esq., counsel for Doyle Hartman, and John B. Draper, Esq., counsel for Arco Oil and Gas Company, on this 29 day of July, 1980.

W. Thomas Kellahin

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OIL CONSERVATION DIVISION
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STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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

APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO	Case No. 6927 Order No. R-6390
APPLICATION OF ARCO OIL AND GAS COMPANY FOR COMPULSORY POOLING, EDDY COUNTY, NEW MEXICO	Case No. 6928 Order No. R-6391

RESPONSE BY ARCO OIL AND GAS COMPANY
TO MOTION OF PENNZOIL COMPANY
TO STRIKE APPLICATIONS FOR REHEARING

COMES NOW ARCO OIL AND GAS COMPANY ("Arco") in response to the Motion of Pennzoil Company to Strike Applications for Rehearing Filed by Arco Oil and Gas Company and requests that the said Motion be denied for the following reasons:

1. Counsel for Pennzoil Company has moved that the Applications for Rehearing filed by Arco be stricken for the reason that he was not immediately served with copies thereof.

2. Counsel for Pennzoil Company has been served with copies of the Applications for Rehearing filed by Arco as shown by the Certificate of Service filed herewith.

3. Commission Rule 1208 has been complied with in both letter and spirit, in that Pennzoil Company was served with copies of the said Applications within two days of the filing with the Commission; and counsel for Pennzoil Company, as a practical matter, had notice of said Applications within hours of their filing with the Commission.

4. Pennzoil Company has suffered no prejudice.

5. The striking of applications for rehearing is clearly an inappropriate remedy for insignificant delays in serving pleadings on other parties.

6. Counsel for Pennzoil Company has also moved that the Applications for Rehearing be stricken for the reason that Arco allegedly failed to timely file the same.

7. Commission Orders R-6390 and R-6391 were entered on July 7, 1980.

8. Section 70-2-25, NMSA 1978, requires that applications for rehearing be filed with the Commission within 20 days of entry of the order. Section 12-2-2(G), NMSA 1978, provides that in computing time with respect to statutory provisions, the first day shall be excluded and the last day included unless the last falls on a Sunday, in which case, the time prescribed shall be extended to include the whole of the following Monday.

9. The twentieth day after entry of Orders R-6390 and R-6391 was Sunday, June 27, 1980, and the time prescribed was therefore extended to include the whole of the following Monday, June 28, 1980.

10. Arco filed its Applications for Rehearing herein on June 28, 1980.

WHEREFORE, ARCO OIL AND GAS COMPANY requests that the Motion of Pennzoil Company to Strike be denied for the reasons hereinabove stated.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A.

By John B. Draper

John B. Draper
P. O. Box 2307
Santa Fe, New Mexico 87501

Attorneys for Arco Oil and Gas Company

CERTIFICATE OF MAILING

I hereby certify that I have caused to be mailed a true and correct copy of the foregoing pleadings to Ernest L. Padilla, Esq., counsel to the Commission; William F. Carr, Esq., counsel for Doyle Hartman; and W. Thomas Kellahin, Esq., counsel for Pennzoil Company, this 31st day of July, 1980.

John B. Draper

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OIL CONSERVATION DIVISION
SANTA FE

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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

APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO — Case No. 6927, Order No. R-6390

APPLICATION OF ARCO OIL AND GAS COMPANY FOR COMPULSORY POOLING, EDDY COUNTY, NEW MEXICO — Case No. 6928, Order No. R-6391

CERTIFICATE OF SERVICE

I hereby certify that I caused to be hand-delivered true and correct copies of the Applications for Rehearing in the above-styled cases to W. Thomas Kellahin on the 30th day of July, 1980.

MONTGOMERY & ANDREWS, P.A.

By John B. Draper
John B. Draper
P. O. Box 2307
Santa Fe, New Mexico 87501

Attorneys for Arco Oil and Gas Company

CERTIFICATE OF MAILING

I hereby certify that I have caused to be mailed a true and correct copy of the foregoing pleading to Ernest L. Padilla, Esq., counsel to the Commission; William F. Carr, Esq., counsel for Doyle Hartman; and W. Thomas Kellahin, Esq., counsel for Pennzoil Company, this 31st day of July, 1980.

John B Draper
John B. Draper

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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OIL CONSERVATION DIVISION
SANTA FE

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

APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO — Case No. 6927, Order No. R-6390

APPLICATION OF ARCO OIL AND GAS COMPANY FOR COMPULSORY POOLING, EDDY COUNTY, NEW MEXICO — Case No. 6928, Order No. R-6391

RESPONSE BY ARCO OIL AND GAS COMPANY TO MOTION OF PENNZOIL COMPANY TO STRIKE APPLICATIONS FOR REHEARING

COMES NOW ARCO OIL AND GAS COMPANY ("Arco") in response to the Motion of Pennzoil Company to Strike Applications for Rehearing Filed by Arco Oil and Gas Company and requests that the said Motion be denied for the following reasons:

1. Counsel for Pennzoil Company has moved that the Applications for Rehearing filed by Arco be stricken for the reason that he was not immediately served with copies thereof.

2. Counsel for Pennzoil Company has been served with copies of the Applications for Rehearing filed by Arco as shown by the Certificate of Service filed herewith.

3. Commission Rule 1208 has been complied with in both letter and spirit, in that Pennzoil Company was served with copies of the said Applications within two days of the filing with the Commission; and counsel for Pennzoil Company, as a practical matter, had notice of said Applications within hours of their filing with the Commission.

4. Pennzoil Company has suffered no prejudice.

5. The striking of applications for rehearing is clearly an inappropriate remedy for insignificant delays in serving pleadings on other parties.

6. Counsel for Pennzoil Company has also moved that the Applications for Rehearing be stricken for the reason that Arco allegedly failed to timely file the same.

7. Commission Orders R-6390 and R-6391 were entered on July 7, 1980.

8. Section 70-2-25, NMSA 1978, requires that applications for rehearing be filed with the Commission within 20 days of entry of the order. Section 12-2-2(G), NMSA 1978, provides that in computing time with respect to statutory provisions, the first day shall be excluded and the last day included unless the last falls on a Sunday, in which case, the time prescribed shall be extended to include the whole of the following Monday.

9. The twentieth day after entry of Orders R-6390 and R-6391 was Sunday, June 27, 1980, and the time prescribed was therefore extended to include the whole of the following Monday, June 28, 1980.

10. Arco filed its Applications for Rehearing herein on June 28, 1980.

WHEREFORE, ARCO OIL AND GAS COMPANY requests that the Motion of Pennzoil Company to Strike be denied for the reasons hereinabove stated.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A.

By John B. Draper

John B. Draper
P. O. Box 2307
Santa Fe, New Mexico 87501

Attorneys for Arco Oil and Gas Company

CERTIFICATE OF MAILING

I hereby certify that I have caused to be mailed a true and correct copy of the foregoing pleadings to Ernest L. Padilla, Esq., counsel to the Commission; William F. Carr, Esq., counsel for Doyle Hartman; and W. Thomas Kellahin, Esq., counsel for Pennzoil Company, this 31st day of July, 1980.

John B. Draper

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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

APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO	Case No. 6927 Order No. R-6390
APPLICATION OF ARCO OIL AND GAS COMPANY FOR COMPULSORY POOLING, EDDY COUNTY, NEW MEXICO	Case No. 6928 Order No. R-6391

CERTIFICATE OF SERVICE

I hereby certify that I caused to be hand-delivered true and correct copies of the Applications for Rehearing in the above-styled cases to W. Thomas Kellahin on the 30th day of July, 1980.

MONTGOMERY & ANDREWS, P.A.

By John B. Draper
John B. Draper
P. O. Box 2307
Santa Fe, New Mexico 87501

Attorneys for Arco Oil and
Gas Company

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John B. Draper
John B. Draper

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

RECEIVED
JUL 3 1 1980
OIL CONSERVATION DIVISION
SANTA FE

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

APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO — Case No. 6927, Order No. R-6390

APPLICATION OF ARCO OIL AND GAS COMPANY FOR COMPULSORY POOLING, EDDY COUNTY, NEW MEXICO — Case No. 6928, Order No. R-6391

RESPONSE BY ARCO OIL AND GAS COMPANY TO MOTION OF PENNZOIL COMPANY TO STRIKE APPLICATIONS FOR REHEARING

COMES NOW ARCO OIL AND GAS COMPANY ("Arco") in response to the Motion of Pennzoil Company to Strike Applications for Rehearing Filed by Arco Oil and Gas Company and requests that the said Motion be denied for the following reasons:

1. Counsel for Pennzoil Company has moved that the Applications for Rehearing filed by Arco be stricken for the reason that he was not immediately served with copies thereof.

2. Counsel for Pennzoil Company has been served with copies of the Applications for Rehearing filed by Arco as shown by the Certificate of Service filed herewith.

3. Commission Rule 1208 has been complied with in both letter and spirit, in that Pennzoil Company was served with copies of the said Applications within two days of the filing with the Commission; and counsel for Pennzoil Company, as a practical matter, had notice of said Applications within hours of their filing with the Commission.

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9. The twentieth day after entry of Orders R-6390 and R-6391 was Sunday, June 27, 1980, and the time prescribed was therefore extended to include the whole of the following Monday, June 28, 1980.

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WHEREFORE, ARCO OIL AND GAS COMPANY requests that the Motion of Pennzoil Company to Strike be denied for the reasons hereinabove stated.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A.

By John B. Draper
John B. Draper
P. O. Box 2307
Santa Fe, New Mexico 87501

Attorneys for Arco Oil and Gas Company

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John B. Draper

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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

APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX LOCATION, EDDY COUNTY, NEW MEXICO	Case No. 6927 Order No. R-6390
APPLICATION OF ARCO OIL AND GAS COMPANY FOR COMPULSORY POOLING, EDDY COUNTY, NEW MEXICO	Case No. 6928 Order No. R-6391

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Santa Fe, New Mexico 87501

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Gas Company

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John B Draper
John B. Draper

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

RECEIVED
JUL 31 1980
OIL CONSERVATION DIVISION
SANTA FE

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APPLICATION OF ARCO OIL AND GAS COMPANY FOR COMPULSORY POOLING, EDDY COUNTY, NEW MEXICO — Case No. 6928, Order No. R-6391

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Respectfully submitted,

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John B. Draper
P. O. Box 2307
Santa Fe, New Mexico 87501

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John B. Draper
John B. Draper

ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0130

Curt Krehbiel
District Landman

December 13, 1979

Pennzoil Company
ATTENTION: Mr. Ken Medlock
Box 1828
Midland, Texas 79702

Subject: Farmout Request
Eddy County, New Mexico

Gentlemen:

Pennzoil as operator drilled a Morrow test in the S/2 of Section 24, T-17-S, R-28-E, Eddy County, New Mexico, which was completed as a dry hole. We understand that 40 acres of this 320 acre spacing unit has since expired. ARCO Oil and Gas Company is willing to drill another Morrow test on this spacing unit if Pennzoil and the other non-operating parties will agree to permit ARCO to earn all of their leasehold interest subject to the retention of the difference between existing burdens and 20% in order for ARCO to have an 80% net revenue interest during payout of such well. At payout Pennzoil and each other party would have the option to convert its overriding royalty interest to a 50% working interest.

We will appreciate your causing this proposal to be considered by the present owners of the remaining 280 acres in the S/2 of Section 24. Your early attention to this proposal is requested as we could conceivably commence this well as early as February 1980.

Yours very truly,

Curt Krehbiel

Curt Krehbiel

CK:bk

Received copy from Pennzoil on 1-8-80.

JAMES A. DAVIDSON
Oil & Gas Properties
P. O. BOX 494
MIDLAND, TEXAS 79702

[915] 682-6482 – OFFICE
694 5472 – RESIDENCE

January 8, 1980

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel
District Landman

Re: Empire Morrow Area
Eddy County, New Mexico

Gentlemen:

We have today received a copy of your letter of December 13, 1979 to Pennzoil Company regarding a Morrow test in S/2 of Section 24, T-17-S, R-28-E.

We would like to call to your attention the fact that the Operating Agreement has terminated and the leases owned by the various parties are no longer subject to the same.

We are considering your proposal but it would be helpful if you would give us an exact location for your proposed Morrow well.

Also, we would like to discuss this entire matter with you before the end of the week.

Very truly yours,

James A. Davidson

JAD/mh

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

January 25, 1980

To: All Participants in Captioned Lease

Re: Aid Area
S/2 SW/4 Section 24,
T-17-E, R-28-E,
Eddy County, New Mexico

Gentlemen:

ARCo has made a farmout request to Pennzoil et al to drill a second Morrow well on S/2 of Section 24 (which is the tract that we participated in the Pennzoil Aid "24" Com No. 1). ARCo apparently is offering the Pennzoil group a 30% gross override with the same to absorb all present royalty so ARCo would receive a 70% net revenue interest with Pennzoil et al to have the option at payout to convert this override to a 50% working interest.

The status of our position is as follows:

1. We have agreed with ARCo to take a one-half (1/2) interest in ARCo's successful bid at the January, 1980 State Land Sale of $ 83,010.00 for the NW/4 SW/4 Section 24.

   Our part will be $ 41,505.00 plus related costs of being present at the Sale to take the bid over ARCo's authority of $ 3,000.00 per acre if it became necessary.

   We need to be advised as soon as possible if you want your proportionate part of this tract.

2. In an effort to attempt to determine whether the BV State Morrow channel sand runs through the S/2 of Section 24, we are going to shoot two lines across our lease at an approximate cost of $ 15,000.00

   We need to be advised as soon as possible if you will participate in this shooting.

Please indicate your wishes by returning one copy of this letter with the second page filled out.

Very truly yours,

Doyle Hartman

1. I (do) (do not) wish to farmout with Pennzoil et al.

2. I (do) (do not) wish to participate in the above noted lease purchase.

3. I (do) (do not) wish to participate in the above noted seismic work.

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

February 13, 1980

All Owners
(Address List Attached)

Re: S/2 Section 24,
T-19-S, R-28-E
(Pennzoil Aid-State No. 1)

Gentlemen:

Please refer to recent correspondence from Arco Oil and Gas Company proposing a farmout covering the above noted Morrow tract.

We are the owners of the S/2 SW/4 of Section 24 which constitutes 25% of the above noted 320-acre tract and believe from various conversations with some of the interested parties in this matter that the location for any future Morrow well on this tract would be in W/2 SW/4 Section 24.

We have also checked with our lawyer in Santa Fe who handles all our New Mexico Oil Conservation Division work who advises as follows:

1. A well in W/2 SW/4 of Section 24 would be situated at a non-standard location under NMOCD rules.

2. Approval for this location could be obtained by receiving written waivers from the offset operators or at a NMOCD hearing.

   If Arco (operator of the offset acreage to the south) refused to grant a waiver and/or opposed this non-standard location at the hearing, approval from the NMOCD would provide for a severe penalty in the form of a highly restricted allowable for the new well. The allowable would be based on a pipeline deliverability test to be performed after completion of the well with the actual allowable to be 25% to 50% of the actual test results.

   This presents a serious problem for us as owners of the S/2 SW/4 of Section 24 (which appears to constitute a significant portion of the recoverable gas reserves in the S/2 of Section 24) since the offsetting Arco BV State No. 1 and 2 in Section 25, T-19-S, R-28-E, are non-prorated wells.

As you can see, the non-prorated wells will severely drain a prorated well drilled at the above noted non-standard location. Based on the foregoing, it appears to us that a decision by the working interest owners in the S/2 Section 24 regarding drilling or farming out is subject to considerations other than simply purely geologic merit.

It is our opinion that it is critical, in order to eliminate any possible opposition to a location in the W/2 SW/4 of Section 24, that Arco receive enough additional interest (by way of a farmout) so that it will agree to drill the well and be the operator.

We urge all parties to reach a decision in this matter as soon as at all possible due to the possible extreme drainage that could be occurring from the producing wells to the south.

Very truly yours,

Doyle Hartman

DH/mh
Enclosure

ADDRESS LIST

Pennzoil Company
P. O. Box 1828
Midland, Texas 79702
Attention: Mr. Mike McCullough

Inexco Oil Company
1100 Milam Building, Suite 1900
Houston, Texas 77002
Attention: Mr. Tom Dodds

Exxon Company, U. S. A.
P. O. Box 1600
Midland, Texas 79702
Attention: Mr. H. Jack Naumann

Maralo, Inc. and Mrs. Erma Lowe
4600 Post Oak Place
Suite 307
Houston, Texas 77027
Attention: Mr. John Burke

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702
Attention: Mr. David M. Goodfellow

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213
Attention: Mr. M. M. Hinze

maralo inc.

February 22, 1980

Pennzoil Company
Post Office Drawer 1828
Midland, Texas 79702

Attention Mr. Kenneth Medlock

Gentlemen:

Subject: ARCO Farmout Request, Aid Field - S/2 Sec. 24, T-17-S, R-28-E, Eddy County, New Mexico - Maralo Lease #3182

We have examined this request and find that M. Ralph Lowe, Inc., Maralo, Inc. and Erma Lowe would participate in drilling the well rather than farming out our interest.

Our records show that our interests in the proposed well are as follows:

M. Ralph Lowe, Inc.	.009765625
Maralo, Inc.	.0048828125
Erma Lowe	.0048828125

Also, please change your records to show that the above Lowe Entities' correct mailing address is 4600 Post Oak Place, Suite 307, Houston, Texas 77027.

Yours very truly,

John R. Burke

John R. Burke
Land Manager

JRB-tw

Copy to:
ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Attention Mr. Curt Krehbiel

4/22/80
TO: Doyle Hartman

Doyle — this is still our position on this well. JRB.

RECEIVED
APR 2 1980

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701
(915) 624-4011

February 28, 1980

Inexco Oil Company
1100 Milam Building, Suite 1900
Houston, Texas 77002

Attention: Mr. Sam Reeves
Land Department

Re: S/2 Section 24,
T-19-S, R-28-E,
Eddy County, New Mexico
(Pennzoil Aid-State No. 1)

Gentlemen:

Reference is made to my letter to you of February 13, 1980, and our subsequent phone conversation regarding ARCo Oil and Gas Company's proposal to drill a Morrow test on the above noted tract.

We have discussed this matter today with ARCo's District Landman (Curt Krehbiel, P. O. Box 1610, Midland, Texas 79702, Phone 915-684-0130) who cannot proceed further until he hears from you by mail or telephone.

It is my understanding that you want to participate as to your interest and I would greatly appreciate your contacting Mr. Krehbiel.

Very truly yours,

Doyle Hartman

DH/mh

bcc: Mr. Curt Krehbiel
ARCo Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

EXXON COMPANY, U.S.A.
POST OFFICE BOX 1600 • MIDLAND, TEXAS 79702

EXPLORATION DEPARTMENT
SOUTHWESTERN DIVISION

March 18, 1980

Re: S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico

Mr. Doyle Hartman
Suite 508
C&K Petroleum Building
Midland, TX 79701

Dear Mr. Hartman:

Your letter dated February 13, 1980, suggested farming out to Arco Oil and Gas Company for an irregular location in the S/2 Section 24. Our company presently has plans to drill a well in the E/2 of Section 23 and we would, therefore, prefer delaying any action on Section 24 until the well in Section 23 has been drilled and evaluated. We will be glad to consider Section 24 at that time.

Thank you for your interest in this matter.

Very truly yours,

H. W. Hugly

HWH:rd

cc: All Owners (see address list)

RECEIVED MAR 19 1980

ADDRESS LIST

Pennzoil Company
P. O. Box 1828
Midland, TX 79702
Attention: Mr. Mike McCullough

Inexco Oil Company
1100 Milam Building, Suite 1900
Houston, TX 77002
Attention: Mr. Tom Dodds

Marald, Inc. and Mrs. Erma Lowe
4600 Post Oak Place
Suite 307
Houston, TX 77027
Attention: Mr. John Burke

Continental Oil Company
P. O. Box 1959
Midland, TX 79702
Attention: Mr. David M. Goodfellow

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, TX 78213
Attention: Mr. M. M. Hinze

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

April 18, 1980

To: All Working Interest Owners
(Address List Attached)

Re: Doyle Hartman No. 1
South Empire State,
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico

Gentlemen:

Reference is made to various correspondence over the past several months regarding the drilling of a 11,000 foot Morrow well on the above described tract.

From various conversations with the larger owners in the subject tract this week, it has become apparent that the drilling of this well is being delayed, which appears to be contrary to the best interests of all concerned.

We own 100 net acres in the S/2 of Section 24 and have paid a considerable amount of money for these leases. Furthermore, we have also participated in an expensive dry hole which has been very valuable in further defining this prospect.

In our opinion, we are dealing with a narrow, but prolific Morrow channel sand crossing a portion of the W/2 of Section 24 and the E/2 of Section 23. Therefore, in order to maximize the potential of our leasehold interests as well as protect the interests of our royalty owners, we propose the following:

(1) We are currently staking an 11,000-foot Morrow well to be drilled at a location of 660' FSL and 660' FWL Section 24 and will file the necessary New Mexico Oil Conservation Division forms as soon as the surveyors plats are available.

(2) We respectfully request that all working interest owners agree to one of the following alternatives:

(a) Participate in the proposed well under a Model-Form Operating Agreement naming the undersigned as operator. AFE and Operating Agreement will be furnished as soon

as possible; or,

(b) Farmout your interest while retaining a gross 30% of 8/8 override absorbing all present royalty out of the override so operator would be assigned a 70% net revenue interest.

At payout, each party to have the option of converting its net part of the override to a 50% working interest. All interests subject to proportionate reduction.

Rights earned limited to 100' below total depth drilled.

Due to the considerable amount of time that has already elapsed in getting this well started, please advise as soon as at all possible regarding your decision to participate or farmout as well as your comments concerning our proposed plan of development including proration unit and location.

Very truly yours,

Doyle Hartman

DH/mh

Address list attached

ADDRESS LIST

Pennzoil Company
P. O. Box 1828
Midland, Texas 79702

Attention: Mr. Mike McCullough

Inexco Oil Company
1100 Milam Building, Suite 1900
Houston, Texas 77002

Attention: Mr. William G. Goodwin

Maralo, Inc. and Mrs. Erma Lowe
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Attention: Mr. John Burke

Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

Attention: Mr. H. W. Hugly

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Attention: Mr. M. M. Hinze

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

April 23, 1980

To: All Working Interest Owners
(Address List Attached)

Re: Doyle Hartman
South Empire State No. 1
S/2 Section 24, T-17-S, R-28-E
South Empire Morrow Field
Eddy County, New Mexico

Gentlemen:

Please refer to our letter to you of April 18, 1980, concerning the above noted well.

We have been informed within the last few days by a couple of owners in the S/2 Section 24 that they are not interested in discussing our proposed South Empire State No. 1 well at this time, and apparently will not agree to participate or farmout.

Therefore, in order to both protect our substantial leasehold investment in the S/2 Section 24, and the interest of our royalty owners (the State of New Mexico) as well as expedite the commencement of a badly needed well in the middle of our national energy crisis, we are doing the following:

(1) Making application for a hearing at the New Mexico Oil Conservation Division (NMOCD) to pool all uncommitted working interests as of the date of the hearing. The anticipated hearing date is May 28, 1980.

(2) Contracting for a rig with Kenai Drilling Company, with the rig to be available in approximately two months.

In this regard, it has come to our attention that rigs for this depth well (11,000') are highly scarce and if we do not proceed as soon as possible, it is very likely that a rig may not be available until the end of the year to drill the proposed well.

We are also preparing an AFE for circulation very soon to all parties,

but due to the time frame involved, we felt that we should notify you of the status of this matter immediately.

In light of the above noted circumstances, please let us hear from you as soon as possible.

Very truly yours,

Doyle Hartman

DH/mh

cc: Campbell and Black, P. A.
P. O. Box 2208
Santa Fe, New Mexico 87501

Attention: Mr. William F. Carr

Mr. William Aycock
308 Wall Towers West
Midland, Texas 79701

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Midland, Texas 79702

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Houston, Texas 77002

Attention: Mr. William G. Goodwin

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P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Attention: Mr. M. M. Hinze

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

NO. OF COPIES RECEIVED		
DISTRIBUTION		
SANTA FE		
FILE		
U.S.G.S.		
LAND OFFICE		
OPERATOR		

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-101
Revised 1-1-65

5A. Indicate Type of Lease: STATE [X] FEE [ ]

5. State Oil & Gas Lease No.: LG-6340

7. Unit Agreement Name:

8. Farm or Lease Name: South Empire State

9. Well No.: 1

10. Field and Pool, or Wildcat: Empire Morrow, South

12. County: Eddy

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work

b. Type of Well: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

OIL WELL [ ] GAS WELL [X] OTHER SINGLE ZONE [X] MULTIPLE ZONE [ ]

2. Name of Operator: Doyle Hartman

3. Address of Operator: P. O. Box 10426, Midland, Texas 79702

4. Location of Well: UNIT LETTER * M LOCATED 660 FEET FROM THE South LINE

AND 660 FEET FROM THE West LINE OF SEC. 24 TWP. 17-S RGE. 28-E NMPM

19. Proposed Depth: 11,000'

19A. Formation: Morrow

20. Rotary or C.T.: Rotary

21. Elevations (Show whether DF, RT, etc.): 3679 G.L.

21A. Kind & Status Plug. Bond: Multi-well Approved

21B. Drilling Contractor: Kenai Drilling Co.

22. Approx. Date Work will start: July 15, 1980

23.

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
26	20" Conductor	94	50	65	Surface
17 1/2	13 3/8	48	420	475	Surface
11	8 5/8	24 & 28	2,600	900	Surface
7 7/8	5 1/2	17	11000	1400	Surface

Note: Any gas to be produced from the subject well to be dedicated to El Paso Natural Gas Company or Transwestern Pipeline Company.

* See note concerning non-standard location on reverse side of C-102.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signed Doyle Hartman Title Operator Date April 26, 1980

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Doyle Hartman	South Empire State	1

Unit Letter	Section	Township	Range	County
M	24	17 South	28 East	Eddy

Actual Footage Location of Well: 660 feet from the South line and 660 feet from the West line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3679.2	Morrow	Empire Morrow, South	320 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

[X] Yes [ ] No If answer is "yes," type of consolidation See Reverse Side

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

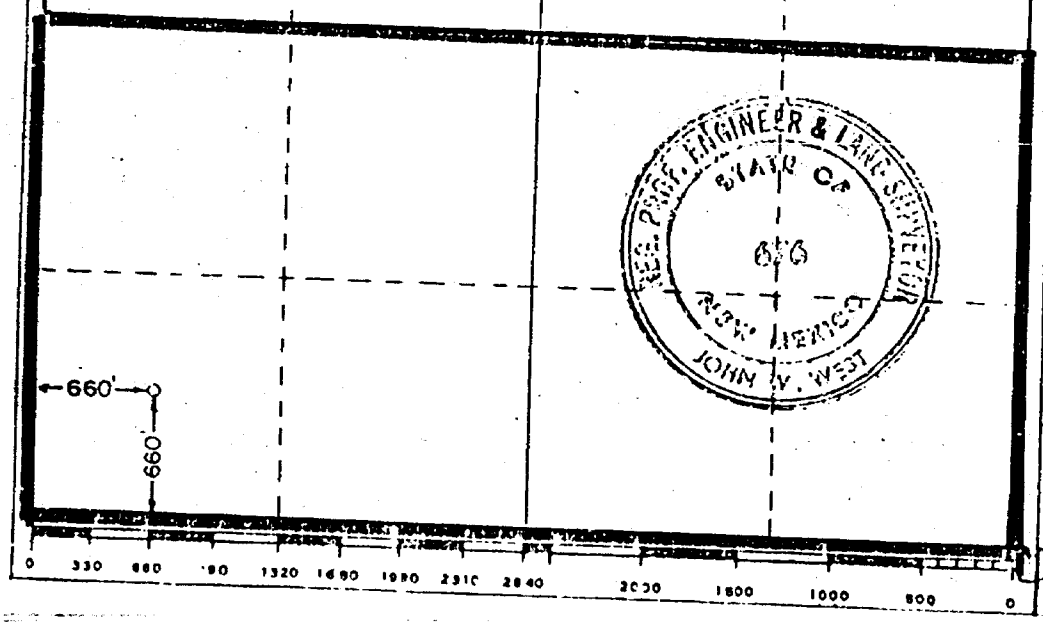
No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

Atlantic Richfield Co. and Doyle Hartman (40 acres)--NW/4 SW/4

Doyle Hartman (80 acres)--S/2 SW/4

Park Weaver (200 acres)--NE/4 SW/4 & SE/4
(Pennzoil--Operating Rights)

All Royalty owned by State of New Mexico



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name: Doyle Hartman

Position: Operator

Company: Individual

Date: April 28, 1980

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: April 21, 1980

Registered Professional Engineer and/or Land Surveyor

Certificate No. JOHN W. WEST 676
PATRICK A. ROMERO 6668
Ronald J. Eidson 3239

Note: An application is being submitted before the New Mexico Oil Conservation Division to pool all unconsolidated interests in the S/2 Section 24, T-17-S, R-28-E, Eddy County, New Mexico, and to request approval for a non-standard location consisting of 660 FSL & 660 FWL Section 24.

No. 112816

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO	NMOCD
STREET AND NO.	P. O. Drawer DD
P.O. STATE AND ZIP CODE	Artesia, New Mexico 88210
POSTAGE	$ .54
CERTIFIED FEE	.80 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	.55 ¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$1.39
POSTMARK OR DATE	4-28-80

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES

PS Form 3800, Apr. 1970

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: New Mexico Oil Conservation Division
P. O. Drawer DD
Artesia, New Mexico 88210

CERTIFIED
No. 112816
MAIL

1

C-101 + 102

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- [x] Show to whom and date delivered..... 55¢
- [ ] Show to whom, date and address of delivery.... ¢
- [ ] RESTRICTED DELIVERY
  Show to whom and date delivered..... ¢
- [ ] RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
NMOCD
P. O. Drawer DD
Artesia, N.M. 88210

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	112816	

(Always obtain signature of addressee or agent)

I have received the article described above
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY APR 1980 POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: CLERK'S INITIALS

☆GPO : 1979 288-848

P 311, Jan. 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

No. 112816

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
NMOCD
STREET AND NO.
P. O. Drawer DD
P.O. STATE AND ZIP CODE
Artesia, New Mexico 88210

POSTAGE			$ .51
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE		.80 ¢
	OPTIONAL SERVICES — SPECIAL DELIVERY		¢
	OPTIONAL SERVICES — RESTRICTED DELIVERY		¢
	OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED		.55 ¢
	OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY		¢
	OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY		¢
	OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY		¢
TOTAL POSTAGE AND FEES			$1.89

POSTMARK OR DATE
4-28-80

PS Form 3800, Apr. 1976

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
ARTESIA DISTRICT OFFICE

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

P.O. DRAWER DD
ARTESIA, NEW MEXICO 88210
(505) ~~746-4884~~ 748-1283

May 5, 1980

Doyle Hartman
Post Office Box 10426
Midland, Texas 79702

Re: South Empire State
#1-M-24-17-28
Eddy County, NM

Gentlemen:

We hereby acknowledge receipt of Forms C-101 and C-102 on the subject well.

However, you did not include the Blow-out Preventer Program. Please submit a BOP diagram.

If you have any questions concerning this matter, please feel free to contact me.

Sincerely,

W. A. Gressett

W. A. Gressett
Supervisor, District II

WAG:ar

RECEIVED MAY 0 6 1980

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

May 9, 1980

Energy and Mineral Department
Oil Conservation Division
P. O. Drawer DD
Artesia, New Mexico 88210

Re: Your letter of May 5, 1980.

Mr. Gressett:

Please find enclosed BOP diagram for our proposed well, South Empire State #1-M-24-17-28, Eddy County, New Mexico.

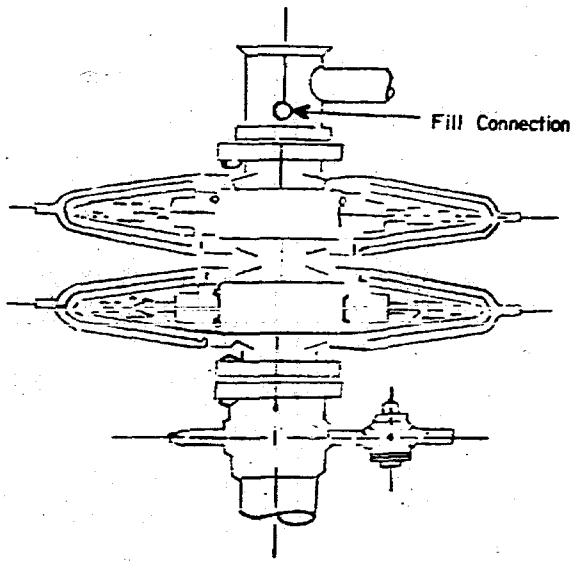
If you have any questions or recommendations please advise.

Regards,

Larry A. Nermyr

LAN/pmb

Enclosures



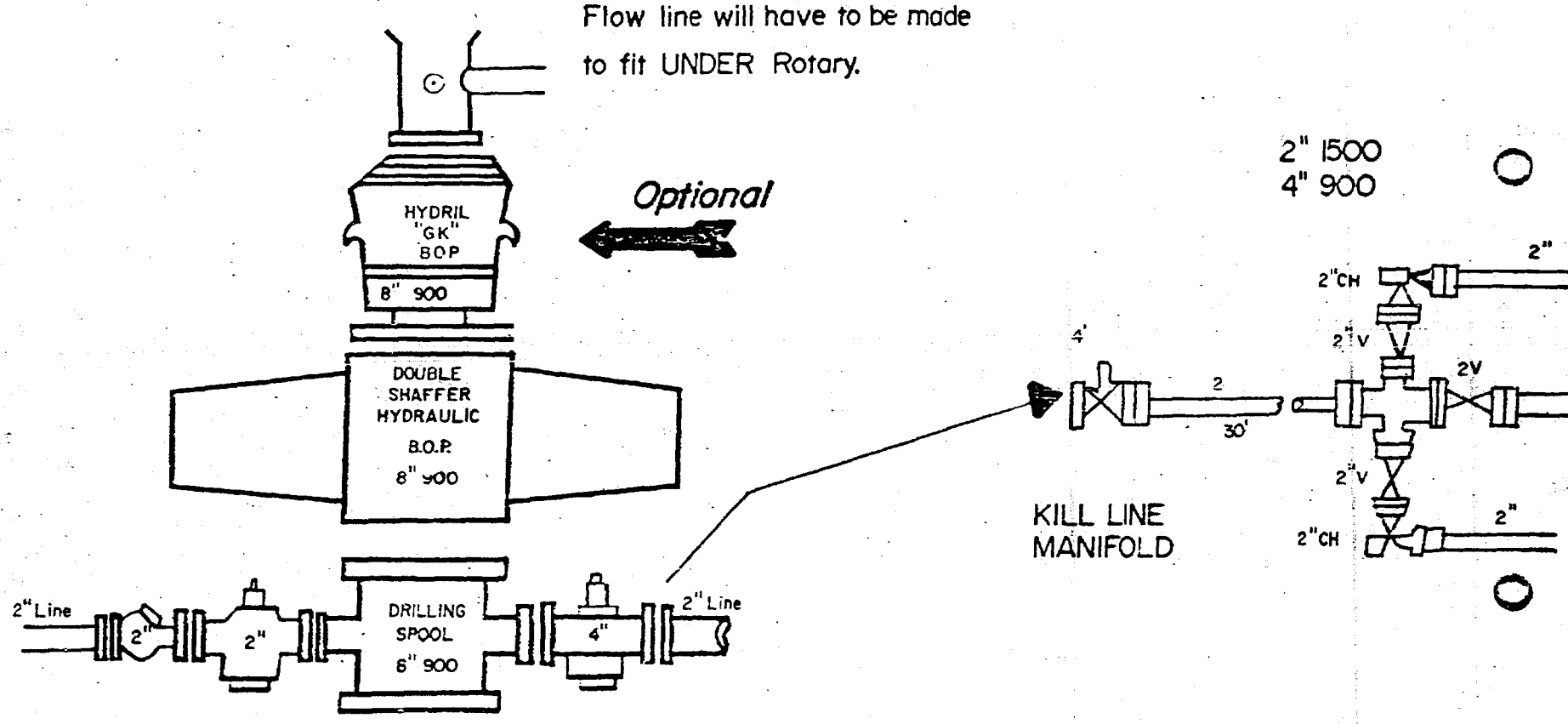
Shaffer Type E Series 900 Hydraulic B.O.P.

3000 PSI WORKING PRESSURE
BLOWOUT PREVENTER HOOK-UP

Series 900 Flanges, or Better.

Note: B.O.P system will meet the conditions of drilling approval required by the U.S.G.S. District Office in Hobbs, New Mexico.

ASE ROTARY TABLE



KENAI
CAPITAN

April 28, 1980

Doyle Hartman
C & K Petroleum Bldg.
Suite 508
Midland, Texas 79701

RE: Marrow Test
Sec. 24, T-17-S, R-28-E,
Eddy County, New Mexico

Dear Sir,

We wish to submit the following tentative bid on the above mentioned well:

Mobilization of rig	$73,000.00*
Daywork with crews	$ 4,900.00*
Daywork without crews	$ 2,500.00*

*plus New Mexico Tax

This bid was figured with Contractor furnishing complete rig, move in cost, rig up ready to do Operator's work, three five man crews, full time toolpusher, after nipple down and rig released tear down and move off.

Operator would furnish road, location, cellar, reserve pits, rathole, mousehole, starting hole, corrosion inhibitor, bits, pit lining, water, brine, chemicals, mud crews, tools, tongs to run casing, casing, casing heads, cement and cement services and other services or materials not listed as furnished by Contractor.

The tentative nature of this bid is two fold. First, the availability of the rig depends on the present Operator releasing the rig after this present well and no prior bids being accepted. Second, the price will reflect any increase in cost for labor and trucking between now and the actual moving in of the rig. If the availability of rigs were such that we could move in withing 20 or 30 days it would not be very hard to give you a more firm bid. But at present there is already trucking cost raises in the making and one contractor has raised wages as of April 27, 1980, so cost will continue to go up month by month.

KENAI DRILLING OF TEXAS, INC. P. O. BOX 6725 ODESSA, TEXAS 79762

Bid -
Doyle Hartman

April 28, 1980

This well was bid with our Rig 28, which will be available on or about August 1, 1980. Please find enclosed an "Equipment List" for this rig.

Thank you for the opportunity of bidding on your drilling work.

Very truly yours,

KENAI DRILLING OF TEXAS, INC.

William C. Smith

William C. Smith
President

WCS:kbo

Enclosure

Kenai
CAPITAN

MAJOR ITEMS OF EQUIPMENT

Rig No. 28

Recommended Dpeth for Drilling - 9,000' - 13,000'

DRAWWORKS:
Brewster Model N-7 w/Parkersburg 40" Double Hydromatic Brake
2 - Model D-379 TA (580 HP) Caterpillar Engines.

MAST:
Bender 127' Pin Type 500,000# Capacity w/11' Substructure

MUD SYSTEM:
National Model C-350 600 HP Forged Steel Fluid End
National Model C-250 300 HP
Overstrom Shaker w/3 HP Electric Motor
3 - 6 x 8 x 40 Mud Pits w/low pressure mud mixing systems.

OVER-HEAD EQUIPMENT:
EMSCO 350 Ton Shorty Block and Hook Combination
National Model P-3 300 Ton Swivel

ROTARY EQUIPMENT:
Brewster Model "RHS" 22" 250 Ton Capacity

WELL CONTROL EQUIPMENT:
Shaffer Series 900 Type 48-E Double Hydraulic B. O. P.
Closing Unit and Accumulators
Flanged Kill Line and Valves
Flanged 4" Valves and Lines with Double 2" Choke Manifold
Upper and Lower Kelly Cocks
Drill Pipe Dart Valve

OPERATIONAL INSTRUMENTS:
Satellite Automatic Driller, Martin Decker 3 Pen Recorder
Martin Decker Torque Gauge, A-1 Sureshot 14 Straight Hole

ELECTRICAL EQUIPMENT:
2 - Caterpillar 3306 135 KW Electric Sets
1 - String of Vapor Proof Lights

WATER STORAGE:
1 - 500 bbl. Horizontal Water Tank

DRILL STRING:
12,000' 4-1/2" O. D. 16.6# Grade E Drill Pipe
Size and number of Drill Collars as required

MISCELLANEOUS EQUIPMENT:
28' Trailer House with beds, kitchen and bath
Other equipment available from yard - as job requires

KENAI DRILLING OF TEXAS, INC. P. O. BOX 6725 ODESSA, TEXAS 79762

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

May 2, 1980

To: All Working Interest Owners
(Address List Attached)

Re: South Empire State No. 1
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico

Gentlemen:

As mentioned in our previous letter to you dated April 18, 1980, we are enclosing two copies of AFE for our proposed South Empire State No. 1, located 660 FSL & 660 FWL Section 24, T-17-S, R-28-E, Eddy County, New Mexico. If this AFE meets with your approval, sign one copy and return it to this office. Upon receipt of a signed AFE, we will forward a Model-Form Operating Agreement. The second copy of the AFE may be retained for your files.

We are now in the process of scheduling a hearing before the full Commission of the New Mexico Oil Conservation Division in Santa Fe concerning our request for non-standard location of 660 FSL & 660 FWL Section 24. We will keep you informed on the progress of this hearing.

If you should have any further information in this regard, please let us hear from you.

Very truly yours,

Doyle Hartman

DH/mh

Enclosures as above

ADDRESS LIST

Pennzoil Company
P. O. Box 1828
Midland, Texas 79702

Attention: Mr. Mike McCullough

Inexco Oil Company
1100 Milam Building
Suite 1900
Houston, Texas 77002

Attention: Mr. William G. Goodwin

Maralo, Inc. and Mrs. Erma Lowe
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Attention: Mr. John Burke

Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

Attention: Mr. H. W. Hugly

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Attention: Mr. M. M. Hinze

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

DETAIL WELL ESTIMATE

LEASE NO. LG-6340 APPR. NO. _____

LEASE NAME South Empire State WELL NO. 1 W. I. _____

COUNTY Eddy STATE New Mexico FIELD Empire Morrow, South

LOCATION: 660 FSL and 660 FWL Section 24, T-17-S, R-28-E

DRILLING INTANGIBLES:	PRODUCER	DRY HOLE
1. Drilling Cost _____ Feet @ _____ Per Foot		
2. Day Work 52 Days at $5000./day	330,000	330,000
Rig Mobilization $73,000.	25,000	25,000
3. Coring Service _____ Well Surveys _____		
4. Testing _____	5,000	5,000
5. Fuel _____ Water _____		
6. Mud and Water Mud Logging _____	26,000	26,000
7. Cementing Service _____ Cement _____ Floats _____	42,800	17,800
8. Company Labor _____ Contract Labor _____	12,000	1,200
9. Digging Pits _____ Filling Pits _____	12,000	12,000
10. Roads & Bridges _____ Dredging & Grading _____	12,000	12,000
11. Acidizing _____ Fracturing _____ Perforating _____	150,000	---
12. Plugging _____		8,000
13. Trucking Cost _____	8,500	2,500
14. Devolopment Superintendence 75 days @ $350.00 /day	26,250	18,200
15. Rental Equipment _____	23,000	18,000
16. Swabbing and Testing 15 days at $1,200.	18,000	---
17. Other Costs Bits	29,100	29,100
Contingence	30,350	15,200
Total Intangibles	750,000	520,000

WELL EQUIPMENT:

18. Casing	500	Ft. of	13 3/8	@	23.368	Per Ft.		
	2,500	Ft. of	8 5/8	@	11.853	Per Ft.		
	11,400	Ft. of	5 1/2	@	12.764	Per Ft.	186,826	41,317
19. Tubing	11,400	Ft. of	2 7/8	@	5.067	Per Ft.	57,764	
20. Casing Head							6,000	6,000
21. Xmas Tree or Pumping Connections							39,000	
22. Pumping Unit								
23. Engine								
24. Sucker Rods								
25. Pump								
26. Tank Battery							7,200	
27. Separator or Dehydration Equip.							32,000	
28. Metering Equipment								
29. Flow Lines							12,500	
30. Other Contingence							10,000	
							18,710	2,683
Total Tangibles							370,000	50,000
TOTAL COST OF WELL							1,120,000	570,000

REMARKS: _____

Originated by Larry A. Neuman Title Engineer Date April 30, 1980

Approved _____ Title _____ Date _____

PS Form 3811, Jan. 1979

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - ☒ Show to whom and date delivered..... 55 ¢
   - ☐ Show to whom, date and address of delivery.... ___ ¢
   - ☐ RESTRICTED DELIVERY
     - Show to whom and date delivered..... ___ ¢
     - ☐ RESTRICTED DELIVERY.
       - Show to whom, date, and address of delivery $ ___

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
   Arco Oil & Gas Co.
   P. O. Box 1610
   Midland, TX 79702

3. ARTICLE DESCRIPTION:
   REGISTERED NO. | CERTIFIED NO. 112809 | INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979 288 848

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

DOYLE HART
Oil Operator
SUITE 508
C & K PETROLEUM B
MIDLAND, TEXAS

No. 112809

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Arco Oil & Gas Co.	
STREET AND NO.: P. O. Box 1610	
P.O. STATE AND ZIP CODE: Midland, TX 79702	
POSTAGE	$ 15
CERTIFIED FEE	80 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED	55 ¢
RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$ 1.50
POSTMARK OR DATE: 5-2-80	

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES

PS Form 3800, Apr. 1976

CERTIFIED
No. 112809
MAIL

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

PS Form 3811, Jan. 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
☒ Show to whom and date delivered..... 55 ¢
☐ Show to whom, date and address of delivery..... ¢
☐ RESTRICTED DELIVERY
Show to whom and date delivered..... ¢
☐ RESTRICTED DELIVERY.
Show to whom, date, and address of delivery.$ ____
(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Arco Oil & Gas Co.
P. O. Box 1610
Midland, TX 79702

3. ARTICLE DESCRIPTION:
REGISTERED NO. | CERTIFIED NO. 112809 | INSURED NO.
(Always obtain signature of addressee or agent)
I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979-288-848

No. 112809

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Arco Oil & Gas Co.
STREET AND NO.
P. O. Box 1610
P.O., STATE AND ZIP CODE
Midland, TX 79702

POSTAGE		$ .15
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE	.80 ¢
	OPTIONAL SERVICES: SPECIAL DELIVERY	¢
	OPTIONAL SERVICES: RESTRICTED DELIVERY	¢
	OPTIONAL SERVICES: RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED	.55 ¢
	OPTIONAL SERVICES: RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY	¢
	OPTIONAL SERVICES: RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
	OPTIONAL SERVICES: RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES		$ 1.50

POSTMARK OR DATE
5-2-80

PS Form 3800, Apr. 1976

CERTIFIED
No. 112809
MAIL

DOYLE HART
Oil Operator
SUITE 508
C & K PETROLEUM B
MIDLAND, TEXAS

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

PS Form 3811, Jan. 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● **SENDER:** Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered..... 55¢
- ☐ Show to whom, date and address of delivery.... ¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered..... ¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Exxon Company, U.S.A.
P. O. Box 1600
Midland, TX 79702

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	112812	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979 288 848

No. 112312
RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Exxon Company, U.S.A.
STREET AND NO.
P. O. Box 1600
P.O. STATE AND ZIP CODE
Midland, TX 79702

POSTAGE	$ .15
CERTIFIED FEE	.80
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
OPTIONAL SERVICES: RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	.55
OPTIONAL SERVICES: RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
OPTIONAL SERVICES: RESTRICTED DELIVERY — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
OPTIONAL SERVICES: RESTRICTED DELIVERY — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$ 1.50
POSTMARK OR DATE	5-2-80

CONSULT POSTMASTER FOR FEES

PS Form 3800, Apr. 1976

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BLDG.
MIDLAND, TEXAS

Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

Attention: Mr. H. W. Hugly

CERTIFIED MAIL
No. 112812

DOYLE HAR
Oil Operator
SUITE 508
C & K PETROLEUM I
MIDLAND, TEXAS

No. 112312

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Exxon Company, U.S.A.	
STREET AND NO.: P. O. Box 1600	
P.O., STATE AND ZIP CODE: Midland, TX 79702	
POSTAGE	$ .15
CERTIFIED FEE	.80
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
OPTIONAL SERVICES — RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED	.55
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$ 1.50
POSTMARK OR DATE: 5-2-80	

CONSULT POSTMASTER FOR FEES

PS Form 3800, Apr. 1976

CERTIFIED
No. 112812
MAIL

PS Form 3811, Jan. 1978 — RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
☒ Show to whom and date delivered..... 55¢
☐ Show to whom, date and address of delivery..... ¢
☐ RESTRICTED DELIVERY
Show to whom and date delivered..... ¢
☐ RESTRICTED DELIVERY.
Show to whom, date, and address of delivery $ ____
(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Exxon Company, U.S.A.
P. O. Box 1600
Midland, TX 79702

3. ARTICLE DESCRIPTION:
REGISTERED NO. | CERTIFIED NO. 112812 | INSURED NO.
(Always obtain signature of addressee or agent)
I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆ GPO : 1979 288 848

Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

Attention: Mr. H. W. Hugly

DOYLE HA
Oil Operat
SUITE 50
C & K PETROLEUM
MIDLAND, TEXA

No. 112814

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Inexco Oil Company	
STREET AND NO. 1100 Milam Bldg. #1900	
P.O. STATE AND ZIP CODE Houston, TX 77002	
POSTAGE	$ .15
CERTIFIED FEE	.80
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	.55 ¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$1.50
POSTMARK OR DATE	5-2-80

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES

PS Form 3800, Apr. 1976

CERTIFIED
No. 112814
MAIL

PS Form 3811, Jan. 1978 — RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - (X) Show to whom and date delivered..... 55¢
   - ☐ Show to whom, date and address of delivery..... ¢
   - ☐ RESTRICTED DELIVERY
     - Show to whom and date delivered..... ¢
     - ☐ RESTRICTED DELIVERY.
     - Show to whom, date, and address of delivery $ ____
   - (CONSULT POSTMASTER FOR FEES)
2. ARTICLE ADDRESSED TO:
   Inexco Oil Company
   1100 Milam Bldg. Suite 1900
   Houston, TX 77002
3. ARTICLE DESCRIPTION:
   REGISTERED NO. | CERTIFIED NO. 112814 | INSURED NO.
   (Always obtain signature of addressee or agent)
   I have received the article described above
   SIGNATURE ☐ Addressee ☐ Authorized agent
4. DATE OF DELIVERY
   POSTMARK
5. ADDRESS (Complete only if requested)
6. UNABLE TO DELIVER BECAUSE:
   CLERK'S INITIALS

☆ GPO : 1979 288 848

Inexco Oil Company
1100 Milam Building
Suite 1900
Houston, Texas 77002

Attention: Mr. William G. Goodwin

DOYLE HA
Oil Operat
SUITE 50
C & K PETROLEUM
MIDLAND, TEXA

No. 112814

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Inexco Oil Company	
STREET AND NO.: 1100 Milam Bldg. #1900	
P.O. STATE AND ZIP CODE: Houston, TX 77002	
POSTAGE	$ .15
CERTIFIED FEE	.80
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	.55¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$1.50
POSTMARK OR DATE: 5-2-80	

CONSULT POSTMASTER FOR FEES

PS Form 3800, Apr. 1976

CERTIFIED
No. 112814
MAIL

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

PS Form 3811, Jan. 1979

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - [X] Show to whom and date delivered ..... .55¢
   - [ ] Show to whom, date and address of delivery ..... ¢
   - [ ] RESTRICTED DELIVERY
     Show to whom and date delivered ..... ¢
     [ ] RESTRICTED DELIVERY.
     Show to whom, date, and address of delivery $ ____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
   Inexco Oil Company
   1100 Milam Bldg. Suite 1900
   Houston, TX 77002

3. ARTICLE DESCRIPTION:
   REGISTERED NO. | CERTIFIED NO. 112814 | INSURED NO.

(Always obtain signature of addressee or agent)
I have received the article described above
SIGNATURE [ ] Addressee [ ] Authorized agent

4. DATE OF DELIVERY

POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

CLERK'S INITIALS

☆GPO : 1979 286-848

Inexco Oil Company
1100 Milam Building
Suite 1900
Houston, Texas 77002

Attention: Mr. William G. Goodwin

DOYLE HAR
Oil Operator
SUITE 50
C & K PETROLEUM
MIDLAND, TEXA

No. 112811

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Continental Oil Company	
STREET AND NO. P. O. Box 1959	
P.O. STATE AND ZIP CODE Midland, TX 79702	
POSTAGE	$ .15
CERTIFIED FEE	.80
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
CONSULT POSTMASTER FOR FEES — OPTIONAL SERVICES — RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED	.55 ¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$1.50
POSTMARK OR DATE: 5-2-80	

PS Form 3800, Apr. 1976

CERTIFIED
No. 112811
MAIL

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

PS Form 3811, Jan. 1979

● SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   ☒ Show to whom and date delivered..... 55 ¢
   ☐ Show to whom, date and address of delivery..... ¢
   ☐ RESTRICTED DELIVERY
   Show to whom and date delivered..... ¢
   ☐ RESTRICTED DELIVERY.
   Show to whom, date, and address of delivery $ ____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Continental Oil Company
P. O. Box 1959
Midland, TX 79702

3. ARTICLE DESCRIPTION:
REGISTERED NO. | CERTIFIED NO. 112811 | INSURED NO.

(Always obtain signature of addressee or agent)
I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆ GPO : 1979-286-848

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

PS Form 3811, Jan. 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
☒ Show to whom and date delivered..... 55 ¢
☐ Show to whom, date and address of delivery.... ¢
☐ RESTRICTED DELIVERY
Show to whom and date delivered..... ¢
☐ RESTRICTED DELIVERY.
Show to whom, date, and address of delivery $ ____
(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Continental Oil Company
P. O. Box 1959
Midland, TX 79702

3. ARTICLE DESCRIPTION:
REGISTERED NO. | CERTIFIED NO. 112811 | INSURED NO.
(Always obtain signature of addressee or agent)
I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO: 1979-288-848

No. 112811

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Continental Oil Company	
STREET AND NO. P. O. Box 1959	
P.O. STATE AND ZIP CODE Midland, TX 79702	
POSTAGE	$ .15
CERTIFIED FEE	.80 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	.55 ¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$ 1.50
POSTMARK OR DATE 5-2-80	

CONSULT POSTMASTER FOR FEES

PS Form 3800, Apr. 1976

CERTIFIED
No. 112811
MAIL

DOYLE HAR
Oil Operator
SUITE 50
C & K PETROLEUM
MIDLAND, TEXA

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

DOYLE HAR
Oil Operator
SUITE 508
C & K PETROLEUM E
MIDLAND, TEXAS

No. 112815
RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO	Pennzoil Company
STREET AND NO.	P. O. Box 1828
P.O. STATE AND ZIP CODE	Midland, TX 79702
POSTAGE	
CERTIFIED FEE	$ .15
SPECIAL DELIVERY	.80 ¢
RESTRICTED DELIVERY	¢
CONSULT POSTMASTER FOR FEES — OPTIONAL SERVICES — RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED	.55 ¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$ 1.50
POSTMARK OR DATE	5-2-80

PS Form 3800, Apr. 1976

CERTIFIED
No. 112815
MAIL

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

PS Form 3811, Jan. 1979

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
☒ Show to whom and date delivered.....55 ¢
☐ Show to whom, date and address of delivery.....55 ¢
☐ RESTRICTED DELIVERY
Show to whom and date delivered.....— ¢
☐ RESTRICTED DELIVERY.
Show to whom, date, and address of delivery.$ —

2. ARTICLE ADDRESSED TO:
Pennzoil Company
P. O. Box 1828
Midland, TX 79702

(CONSULT POSTMASTER FOR FEES)

3. ARTICLE DESCRIPTION:
REGISTERED NO. | CERTIFIED NO. 112815 | INSURED NO.

(Always obtain signature of addressee or agent)
I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

CLERK'S INITIALS

POSTMARK

☆GPO: 1979-288-848

Pennzoil Company
P. O. Box 1828
Midland, Texas 79702

Attention: Mr. Mike McCullough

PS Form 3811, Jan. 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - ☒ Show to whom and date delivered..... 55 ¢
   - ☐ Show to whom, date and address of delivery..... ¢
   - ☐ RESTRICTED DELIVERY
     - Show to whom and date delivered..... ¢
     - ☐ RESTRICTED DELIVERY.
     - Show to whom, date, and address of delivery $ ____
   - (CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
   Pennzoil Company
   P. O. Box 1828
   Midland, TX 79702

3. ARTICLE DESCRIPTION:
   REGISTERED NO. | CERTIFIED NO. 112815 | INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979-288-848

No. 112815

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Pennzoil Company
STREET AND NO.
P. O. Box 1828
P.O. STATE AND ZIP CODE
Midland, TX 79702

POSTAGE		$ .15
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE	.80
OPTIONAL SERVICES	SPECIAL DELIVERY	¢
	RESTRICTED DELIVERY	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	.55¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES		$ 1.50

POSTMARK OR DATE

5-2-80

PS Form 3800, Apr. 1976

CERTIFIED
No. 112815
MAIL

DOYLE HAR
Oil Operator
SUITE 508
C & K PETROLEUM E
MIDLAND, TEXAS

Pennzoil Company
P. O. Box 1828
Midland, Texas 79702

Attention: Mr. Mike McCullough

DOYLE HA
Oil Operat
SUITE 5C
C & K PETROLEUM
MIDLAND, TEXA

No. 112813

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Maralo, Inc.& Erma Lowe	
STREET AND NO: 4600 Post Oak Place #307	
P.O., STATE AND ZIP CODE: Houston, TX 77027	
POSTAGE	$ .15
CERTIFIED FEE	.80
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED	.55¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$ 1.50
POSTMARK OR DATE: 5-2-80	

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES
RETURN RECEIPT SERVICE

PS Form 3800, Apr. 1976

CERTIFIED
No. 112813
MAIL

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

PS Form 3811, Jan. 1979

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - ☒ Show to whom and date delivered.....55 ¢
   - ☐ Show to whom, date and address of delivery....¢
   - ☐ RESTRICTED DELIVERY
     Show to whom and date delivered.....¢
     RESTRICTED DELIVERY.
     Show to whom, date, and address of delivery.$____
   (CONSULT POSTMASTER FOR FEES)
2. ARTICLE ADDRESSED TO:
   Maralo, Inc. & Mrs. Erma Lowe
   4600 Post Oak Place Suite 307
   Houston, TX 77027
3. ARTICLE DESCRIPTION:
   REGISTERED NO. | CERTIFIED NO. 112813 | INSURED NO.
   (Always obtain signature of addressee or agent)
   I have received the article described above.
   SIGNATURE ☐Addressee ☐Authorized agent
4. DATE OF DELIVERY
5. ADDRESS (Complete only if requested)
6. UNABLE TO DELIVER BECAUSE:
   CLERK'S INITIALS

POSTMARK

GPO : 1979-288-848

Maralo, Inc. and Mrs. Erma Lowe
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Attention: Mr. John Burke

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

PS Form 3811, Jan. 1979

● SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - ☒ Show to whom and date delivered..... 55 ¢
   - ☐ Show to whom, date and address of delivery..... ¢
   - ☐ RESTRICTED DELIVERY
     - Show to whom and date delivered..... ¢
     - ☐ RESTRICTED DELIVERY. Show to whom, date, and address of delivery $ ____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
   Maralo, Inc. & Mrs. Erma Lowe
   4600 Post Oak Place Suite 307
   Houston, TX 77027

3. ARTICLE DESCRIPTION:
   REGISTERED NO. | CERTIFIED NO. 112813 | INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

POSTMARK

CLERK'S INITIALS

☆GPO : 1979-288-848

DOYLE HA
Oil Operat
SUITE 5C
C & K PETROLEUM
MIDLAND, TEX

No. 112813

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Maralo, Inc.& Erma Lowe
STREET AND NO: 4600 Post Oak Place #307
P.O. STATE AND ZIP CODE: Houston, TX 77027

POSTAGE		$ .15
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE	.80
	SPECIAL DELIVERY	¢
	RESTRICTED DELIVERY	¢
OPTIONAL SERVICES — RETURN RECEIPT SERVICE	SHOW TO WHOM AND DATE DELIVERED	¢ .55
	SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
	SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
	SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES		$ 1.50

POSTMARK OR DATE
5-2-80

PS Form 3800, Apr. 1976

CERTIFIED
No. 112813
MAIL

Maralo, Inc. and Mrs. Erma Lowe
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Attention: Mr. John Burke

PS Form 3811, Jan. 1978

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - ☒ Show to whom and date delivered..... 55¢
   - ☐ Show to whom, date and address of delivery..... ¢
   - ☐ RESTRICTED DELIVERY
     Show to whom and date delivered..... ¢
   - ☐ RESTRICTED DELIVERY.
     Show to whom, date, and address of delivery.$ ____
   (CONSULT POSTMASTER FOR FEES)
2. ARTICLE ADDRESSED TO:
   Tenneco Oil Company
   6800 Park Ten Blvd.
   San Antonio, TX 78213
3. ARTICLE DESCRIPTION:
   REGISTERED NO. | CERTIFIED NO. 112810 | INSURED NO.
   (Always obtain signature of addressee or agent)
   I have received the articles described above.
   SIGNATURE ☐Addressee ☐Authorized agent
4. DATE OF DELIVERY | POSTMARK
5. ADDRESS (Complete only if requested)
6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1978 256 848

No. 112810

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Tenneco Oil Company	
STREET AND NO.: 6800 Park Ten Blvd.	
P.O. STATE AND ZIP CODE: San Antonio, TX 78213	
POSTAGE	$ .15
CERTIFIED FEE	.80
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED	.55 ¢
RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$ 1.50
POSTMARK OR DATE: 5-2-80	

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES

PS Form 3800, Apr. 1976

CERTIFIED
No. 112810
MAIL

DOYLE HAR
Oil Operator
SUITE 508
C & K PETROLEUM I
MIDLAND, TEXAS

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Attention: Mr. M. M. Hinze

PS Form 3811, Jan. 1978

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

☆GPO : 1978 288 848

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - ☒ Show to whom and date delivered..... 55¢
   - ☐ Show to whom, date and address of delivery.... ___¢
   - ☐ RESTRICTED DELIVERY
     - Show to whom and date delivered..... ___¢
     - ☐ RESTRICTED DELIVERY.
     - Show to whom, date, and address of delivery.$ ___

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
   Tenneco Oil Company
   6800 Park Ten Blvd.
   San Antonio, TX 78213

3. ARTICLE DESCRIPTION:
   REGISTERED NO. | CERTIFIED NO. 112810 | INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

No. 112810

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Tenneco Oil Company	
STREET AND NO.: 6800 Park Ten Blvd.	
P.O. STATE AND ZIP CODE: San Antonio, TX 78213	
POSTAGE	$ .15
CERTIFIED FEE	.80 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED	.55 ¢
RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$1.50
POSTMARK OR DATE: 5-2-80	

CONSULT POSTMASTER FOR FEES — OPTIONAL SERVICES — RETURN RECEIPT SERVICE

PS Form 3800, Apr. 1976

CERTIFIED
No. 112810
MAIL

DOYLE HAR
Oil Operator
SUITE 506
C & K PETROLEUM I
MIDLAND, TEXAS

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Attention: Mr. M. M. Hinze

ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0100

May 2, 1980

WORKING INTEREST OWNERS ADDRESS LIST ATTACHED

Subject: ARCO Oil and Gas Company
Pennzoil 24 State Com #1 Well
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico
NM-4488

Gentlemen:

By letter dated December 13, 1979, to Pennzoil Company, ARCO proposed drilling the subject well and asked that you consider farming out. We are presently enclosing two copies of an Operating Agreement and AFE for your further consideration. We will appreciate those wishing to join signing and returning one copy each of the AFE and JOA. Those wishing to farmout need sign and return only a copy of the JOA. An Exhibit "A" showing the interests of the parties will be prepared and forwarded with copies of other parties' execution pages to complete your files. The agreement will be limited to rights below 2300' beneath the surface to the base of the Morrow formation. The farmout terms will provide for the farming out party to retain a 30% override out of which will be borne existing royalties and overrides with the option to convert the net portion of the retained override to a 50% working interest after payout, all subject to proportionate reduction.

After writing the December 13, 1979 letter, ARCO was advised by letter dated February 14, 1980, that Pennzoil had elected to farmout on the terms offered. By letter dated February 22, John Burke advised that the Lowe interests would participate in drilling the well rather than farming out. By copy of letter dated March 18, we were advised that Exxon was planning to drill in the E/2 of Section 23 and would prefer not to make a decision with regard to our well proposal until their well was completed. By letter dated March 20, Tenneco advised that it would prefer to participate subject to final management approval of the terms of any JOA and AFE. On March 25, Les Tacconi with Inexco advised by telephone that Inexco would prefer not to decide whether to join or farmout until the Exxon well in Section 23 was completed. In view of the position taken by Exxon and Inexco, ARCO was willing to defer its proposed well until the Exxon well was completed. By letter dated April 18, however, Doyle Hartman

RECEIVED MAY 8 1980

entered the picture and proposed a well on the same spacing unit but at an unorthodox location in the SW/4 of the SW/4. We understand he is trying to schedule a hearing this month before the New Mexico Oil and Gas Conservation Commission regarding the unorthodox location and the forced pooling of all interests in the S/2 of Section 24. ARCO intends to oppose the unorthodox location and continue with its plans to drill at the orthodox location in the SE/4 regardless of the outcome of the Exxon well in Section 23.

We are also attaching a schedule showing the interests of the parties in the S/2 of Section 24. ARCO's interest in this well including the farmout from Pennzoil is 37.50%. Should Inexco also elect to farmout, ARCO's interest will increase to 63.87%. A provision covering the farmout and rights to be earned will be included in the Exhibit "A" yet to be prepared.

We will appreciate your early attention to the execution and return of the enclosed JOA and AFE.

Yours very truly,

Curt Krehbiel

Curt Krehbiel

CK:bk

Enclosures

PARTY AND ADDRESS	ACRES	INTEREST
ARCO Oil and Gas Company P. O. Box 1610 Midland, Texas 79702	20.0000	6.2500%
Doyle Hartman 508 C & K Petroleum Building Midland, Texas 79701	100.0000	31.2500%
Pennzoil Company P. O. Drawer 1828 Midland, Texas 79702	100.0000	31.2500%
Inexco Oil Company 1100 Milam Building, Suite 1900 Houston, Texas 77002	84.3750	26.3672%
Exxon Company, U.S.A. P. O. Box 1600 Midland, Texas 79702	6.2500	1.9531%
M. Ralph Lowe, Inc. Erma Lowe Maralo Inc. c/o Maralo Inc. 4600 Post Oak Place Suite 307 Houston, Texas 77027	3.1250 1.5625 1.5625	.9765% .4883 .4883%
Continental Oil Company P. O. Box 1959 Midland, Texas 79702	1.5625	.4883%
Tenneco Oil Company 6800 Park Ten Blvd. Suite 200 North San Antonio, Texas 78213	1.5625	.4883%
	320.0000	100.0000%

Pennzoil Company
ATTENTION: Kenneth Medlock
P. O. Drawer 1828
Midland, Texas 79702

Inexco Oil Company
ATTENTION: William G. Goodwin
1100 Milam Building, Suite 1900
Houston, Texas 77002

Doyle Hartman
508 C & K Petroleum Building
Midland, Texas 79701

Exxon Company, U.S.A.
ATTENTION: H. W. Hugly
P. O. Box 1600
Midland, Texas 79702

M. Ralph Lowe, Inc.
Erma Lowe
Maralo Inc. ATTENTION: John R. Burke
c/o Maralo Inc.
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Continental Oil Company
ATTENTION: David M. Goodfellow
P. O. Box 1959
Midland, Texas 79702

Tenneco Oil Company
ATTENTION: Steve D. King
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

AtlanticRichfieldCompany

Authorization for Expenditure

Title: Penzoil 24 State Com #1: Drill & Equip

[X] Original authorization
[ ] Revision number

Location: 660' FSL & 1980' FEL, Sec. 24, T-17-S, R-28-E, Eddy Co., New Mexico

APPR TD 10,900 OBJ Form Mor

Purpose of authorization
[X] Drilling - New [ ] Recompletion [ ] Workover [ ] Other
[ ] Drill old well deeper
[X] Development ____ %*
[ ] Exploratory ____ %*
* Show percent of total cost applicable to each.
[X] Single [ ] Dual [ ] Three or more

Primary objective of drilling
[ ] Oil only [X] Gas only [ ] Oil and/or gas

Signed (Dist. Eng. and/or Explor. group)

Reason for drilling
[X] Develop reserves [ ] Secondary recovery
[ ] Rate [ ] Replacement
[ ] Comb. reserve & rate [ ] Service
____ % rate

See reverse side

Budget information
Budget (1) ____ Amt. ____
Item (2) ____ Amt. ____

Capital Instabudget dated ____

[ ] Named on Instabudget
Amount capital differs from Instabudget $ ____ Over/(under)

[ ] Substituted for
Amount capital differs from Instabudget $ ____ Over/(under)

[ ] Addition to Instabudget

Current year capital differs from Instabudget current year by $ ____ Over/(under)

Originated by	AFE number
District	**Project identifier**
Permian West	

Field name: Empire South Morrow

Lease record number: NM-4488

Expl. project No.	Field code
Subject to production payment? [ ] Yes [ ] No	**Property code(s)**
Has well plan been prepared? [ ] Yes [ ] No	

Co-owner operator AFE No(s).

Use reverse side if needed

Component AFE No(s)	Description and justification	Account codes	Amounts—in whole dollars only: On hand	Capital	Expense	Total
	Tangible	031		217,000		217,000
	Intangible	037		606,000		606,000
	Total Drilling Cost			823,000		823,000
	Lease Equipment	038		35,000		35,000
	Gross totals			858,000		858,000
Operator	Net Atlantic Richfield share					
Atlantic Richfield ownership decimal	Range requested			Lower		Upper

Payout (years) (AFIT)	% Return (AFIT)	PW ____% (AFIT)	Start date	Completion date	$ Prior year: Capital / Expense	$ Curr. year: Capital / Expense	$ Thereafter: Capital / Expense

Technical audits (check those required)
[ ] Engineering [ ] Exploration [ ] Dallas budget [ ] Evaluation Other [ ] Procedural audits

[ ] Co-owner approval
Signature ____
Company ____

Approvals (check highest level required) Authorized expenditure limit table No. ____

	Date		Date
[ ] District		[ ] Executive vice-president	
[ ] Other		[ ] President/Chairman	
[ ] Regional		[ ] For Board of Directors	
[ ] Senior vice-president			

AFE ID 382 (

Drilling Cost Estimate – Page 1

[X] Original
[ ] Supplement

Atlantic Richfield Company

Well name: Penzoil 24 State Com #1
T.D.: 10,900
Location: 660' FSL & 1980' FEL Sec. 24, T-17-S, R-28-E
District: Permian
Field: Empire South Morrow
Region: Western
Objective: Morrow @ 10,700 ft.
@ ft.

[X] Development
[ ] Exploratory
[ ] Completion
[X] Single
[ ] Dual
[ ] Multiple

Data Processing Information

Trans. Ident.: A F E E
5: 3
A.F.E. Number:
Update code: 1 = Delete, 3 = Add
Original/Revision Indicator: 1 = Original, 2 = Revision

	Dry hole	Completion costs	Detail code (12 13 14)	Total gross dollars (15 16 17 18 19 20 21 22)	Major account (23 24 25 26)
Tangible costs					
1. Tubular goods 20" OD from 0 to 30'	1,000				
" OD from to					
13-3/8" OD from 0 to 650'	14,000				
" OD from to					
8-5/8" OD from 0 to 2650'	28,000				
" OD from to		104,000			
5-1/2" OD from 0 to 10900'		36,000			
2-3/8" OD from 0 to 10700'		14,000	5 0 4		
2. Casinghead and Christmas tree	12,000	30,000	5 0 6		
3. Tubing accessories			5 0 7		
4. Artificial lift accessories		3,000	5 0 8		
5. Unclassified materials	2,000				
Total tangibles	57,000	160,000			
Intangible costs					
6. Testing tubular goods		2,000	5 6 9		
7. Trucking tubular goods	2,000	2,000	5 0 9		
8. Casing accessories	2,000		5 1 2		
9. Site preparation, maint., clean up	8,000		5 1 4		
10. Permits, insurance, damages			5 1 5		
11. Moving expense	32,000		5 1 7		
12. Boat & barge rental			5 1 8		
13. Camp & catering			5 2 2		
14. Boiler			5 2 5		
15. Roads, airstrips & maintenance			5 5 6		
16. Air freight & air transportation			5 2 8		
17. Contract footage drilling ft @ $ / ft.			5 3 2		
Contract daywork (items 18 through 24)					
18. Drilling 41 days @ $ 5000 /day	205,000	5,000	5 3 3		
19. Casing 3 days @ $ 5000 /day	10,000		5 3 4		
20. Fishing days @ $ /day			5 3 6		
21. Lost circ. & flows 1 days @ $ 5000 /day	5,000	10,000	5 3 7		
22. Log test & core 5 days @ $ 5000 /day	15,000		5 3 8		
23. Shut down time days @ $ /day			5 3 9		
24. Completion or plugging days @ $ /day		7,000	5 4 1		
25. Completion unit daywork 7 days @ $ 1000 /hr			5 4 2		
26. Rental: DP, DC, & related tools	1,000		5 4 3		
27. Well control equipment			5 4 7		
28. Drill bits # 1 size 17-1/2	3,000		5 4 8		
# 2 size 12-1/4	16,000				
# 8 size 7-7/8					
# size					

AtlanticRichfieldCompa

Drilling Cost Estimate – Page 2

Well name: Penzoil 24 State Com #1

Estimated by: S. R. Keasler

Date: 3/25/80

Data Processing Information

Tran. Ident. (1 2 3 4): A F E E | (5) | A.F.E. number (6 7 8 9 10 11) | Update code: 1 = delete, 3 = add | Original/revision indicator: 1 = Original, 2 = Revision

Intangible cost (continued)	Dry hole	Completion costs	Detail code (12 13 14)	Total gross dollars (15 16 17 18 19 20 21 22)	Major account (23 24 25)	(26)
29. Fuel, fresh water & drayage	30,000		549			
30. Drilling mud materials & drayage	20,000		551			
31. Drilling mud equipment	7,000		552			
32. Air compressor rental or gas cost			553			
33. Air or gas drlg. accessories & drayage			554			
34. Open hole surveys	50,000		557			
35. Data recording services			558			
36. Wireline formation tester			559			
37. Mud log			560			
38. Cased hole surveys		8,000	561			
39. Perforating fees	(vann)	23,000	562			
40. Sidewall coring			563			
41. Conv. diamond XXXXXXXXXXX 100 ft.	30,000		566			
42. Drill stem tests # 2	4,000		572			
43. [X] Acidize [X] Fracture ____ gal ____ lbs		28,000	577			
44. Cement & fees for casing						
13-3/8 " OD 1000 sacks	13,000					
" OD sacks						
8-5/8 " OD 1500 sacks	18,000					
" OD sacks						
5-1/2 " OD 2300 sacks		23,000				
" OD sacks						
45. Cement & fees for squeezes or plugs			579			
46. Fishing tool rental & drayage			580			
47. Directional drlg. tool rental & drayage			581			
48. Operations - prorate			590			
49. Unclassified tool rental & drayage	3,000	2,000	587			
50. Unclassified drayage & supplies	2,000	1,000	594			
51. Unclassified services & material losses	2,000	2,000	589			
52. Overhead	1,000	1,000	592			
53. Supervision by contract personnel			105			
54. Supervision by A.R.Co. personnel	9,000	2,000	106			
Total intangibles	488,000	118,000				
Total cost (tangibles & intangibles)	545,000	278,000				
Completed well cost (dry hole & comp.)	823,000					

AtlanticRichfieldCompany

Drilling Prognosis

Subject
Penzoil 24 State Com #1
Authorization number

Date
5/1/80

District
Permian - West Area

Location
660' FSL & 1980' FEL, Section 24, T-17-S, R-28-E, Eddy County, New Mexico

Project
To test
Morrow

Depth
Approved
10900

formation

Contract footage
10900

Daywork depth
10900

Casing program:

Surface casing	Position	Length	Cmt.
20" conductor pipe set @ 30' 13.375" OD 8R STC 54.5# K-55	Cmt w/Redi-mix 0-450	450	Circ
Protective string			
8.625" OD 8R STC 28# S-80	0-3500	3500	Circ
Oil string			
Liner			
5.5" OD 8R LTC 17# L-80	0-10900	10900	Circ

Casinghead
13-3/8" X 12" - 900; 900 X 10" - 1500; 10" - 1500 X 6" - 1500

Estimated formation tops

Yates		Bone Springs	3450	Strawn	9650
Queen		Dean	6280	Atoka	10150
Grayburg		Wolfcamp	7550	Morrow	10375
San Andres		Cisco	8800	Chester	10925

Mud program

0	-	450	Spud mud dry drill w/fresh water if
450	-	3500	10# Brine
3500	-	10000	Cut Brine
10000	-	TD	Brine polymer 9.2 - 9.5#/gal. Vis. 34 WL 8-10

Surveys

GR-Sonic	Surface to TD
FDC-CNL-GR	TD - 3000'
DLL-MSFL	TD - 3000'
Dipmeter	Minimum run

Coring

2 50' cores in Morrow Approximately 10,700 depth

Core priority

none

Drill stem tests

1-Cisco, Strawn or Atoka
1-Morrow

Samples

10- intervals from 3000'-TD

Fluid samples

2 qts - analyze locally

Mud logging

2 - man unit, 6400' to TD

Elevations

Type completion

Single gas well

Completion equipment

2-3/8" tbg w/pkr

Signed (District Drilling Superintendent)

Endorsed

District Operations Manager

District Engineer — Date

District Exploitation (geologist) — Date

Approved

District Manager — Date

A.A.P.L. FORM 610 - 1977

MODEL FORM OPERATING AGREEMENT

PENNZOIL 24 STATE COM #1 WELL

OPERATING AGREEMENT

DATED

May 2, 1980,

OPERATOR ATLANTIC RICHFIELD COMPANY

CONTRACT AREA S/2 Section 24, T-17-S, R-28-E,

COUNTY OR PARISH OF EDDY STATE OF NEW MEXICO

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OPERATING AGREEMENT

THIS AGREEMENT, entered into by and between ATLANTIC RICHFIELD COMPANY and PENNZOIL COMPANY, ET AL, hereinafter designated and referred to as "Operator", and the signatory party or parties other than Operator, sometimes hereinafter referred to individually herein as "Non-Operator", and collectively as "Non-Operators",

WITNESSETH:

WHEREAS, the parties to this agreement are owners of oil and gas leases and/or oil and gas interests in the land identified in Exhibit "A", and the parties hereto have reached an agreement to explore and develop these leases and/or oil and gas interests for the production of oil and gas to the extent and as hereinafter provided:

NOW, THEREFORE, it is agreed as follows:

ARTICLE I.
DEFINITIONS

As used in this agreement, the following words and terms shall have the meanings here ascribed to them:

A. The term "oil and gas" shall mean oil, gas, casinghead gas, gas condensate, and all other liquid or gaseous hydrocarbons and other marketable substances produced therewith, unless an intent to limit the inclusiveness of this term is specifically stated.

B. The terms "oil and gas lease", "lease" and "leasehold" shall mean the oil and gas leases covering tracts of land lying within the Contract Area which are owned by the parties to this agreement.

C. The term "oil and gas interests" shall mean unleased fee and mineral interests in tracts of land lying within the Contract Area which are owned by parties to this agreement.

D. The term "Contract Area" shall mean all of the lands, oil and gas leasehold interests and oil and gas interests intended to be developed and operated for oil and gas purposes under this agreement. Such lands, oil and gas leasehold interests and oil and gas interests are described in Exhibit "A".

E. The term "drilling unit" shall mean the area fixed for the drilling of one well by order or rule of any state or federal body having authority. If a drilling unit is not fixed by any such rule or order, a drilling unit shall be the drilling unit as established by the pattern of drilling in the Contract Area or as fixed by express agreement of the Drilling Parties.

F. The term "drillsite" shall mean the oil and gas lease or interest on which a proposed well is to be located.

G. The terms "Drilling Party" and "Consenting Party" shall mean a party who agrees to join in and pay its share of the cost of any operation conducted under the provisions of this agreement.

H. The terms "Non-Drilling Party" and "Non-Consenting Party" shall mean a party who elects not to participate in a proposed operation.

Unless the context otherwise clearly indicates, words used in the singular include the plural, the plural includes the singular, and the neuter gender includes the masculine and the feminine.

ARTICLE II.
EXHIBITS

The following exhibits, as indicated below and attached hereto, are incorporated in and made a part hereof:

[X] A. Exhibit "A", shall include the following information:
- (1) Identification of lands subject to agreement,
- (2) Restrictions, if any, as to depths or formations,
- (3) Percentages or fractional interests of parties to this agreement,
- (4) Oil and gas leases and/or oil and gas interests subject to this agreement,
- (5) Addresses of parties for notice purposes.

[ ] B. Exhibit "B", Form of Lease.

[X] C. Exhibit "C", Accounting Procedure.

[X] D. Exhibit "D", Insurance.

[X] E. Exhibit "E", Gas Balancing Agreement.

[X] F. Exhibit "F", Non-Discrimination and Certification of Non-Segregated Facilities.

If any provision of any exhibit, except Exhibit "E", is inconsistent with any provision contained in the body of this agreement, the provisions in the body of this agreement shall prevail.

ARTICLE III.
INTERESTS OF PARTIES

A. Oil and Gas Interests:

If any party owns an unleased oil and gas interest in the Contract Area, that interest shall be treated for the purpose of this agreement and during the term hereof as if it were a leased interest under the form of oil and gas lease attached as Exhibit "B". As to such interest, the owner shall receive royalty on production as prescribed in the form of oil and gas lease attached hereto as Exhibit "B". Such party shall, however, be subject to all of the provisions of this agreement relating to lessees, to the extent that it owns the lessee interest.

B. Interest of Parties in Costs and Production:

Exhibit "A" lists all of the parties and their respective percentage or fractional interests under this agreement. Unless changed by other provisions, all costs and liabilities incurred in operations under this agreement shall be borne and paid, and all equipment and material acquired in operations on the Contract Area shall be owned by the parties as their interests are shown in Exhibit "A". All production of oil and gas from the Contract Area, subject to the payment of lessor's royalties ~~xxxx

or operating costs which it may have theretofore paid, but there shall be no monetary liability on its part to the other parties hereto for drilling, development, operating or other similar costs by reason of such title failure; and

(b) There shall be no retroactive adjustment of expenses incurred or revenues received from the operation of the interest which has been lost, but the interests of the parties shall be revised on an acreage basis, as of the time it is determined finally that title failure has occurred, so that the interest of the party whose lease or interest is affected by the title failure will thereafter be reduced in the Contract Area by the amount of the interest lost; and

(c) If the proportionate interest of the other parties hereto in any producing well theretofore drilled on the Contract Area is increased by reason of the title failure, the party whose title has failed shall receive the proceeds attributable to the increase in such interests (less costs and burdens attributable thereto) until it has been reimbursed for unrecovered costs paid by it in connection with such well; and

(d) Should any person not a party to this agreement, who is determined to be the owner of any interest in the title which has failed, pay in any manner any part of the cost of operation, development, or equipment, such amount shall be paid to the party or parties who bore the costs which are so refunded; and

(e) Any liability to account to a third party for prior production of oil and gas which arises by reason of title failure shall be borne by the party or parties in the same proportions in which they shared in such prior production; and

(f) No charge shall be made to the joint account for legal expenses, fees or salaries, in connection with the defense of the interest claimed by any party hereto, it being the intention of the parties hereto that each shall defend title to its interest and bear all expenses in connection therewith.

2. Loss by Non-Payment or Erroneous Payment of Amount Due: If, through mistake or oversight, any rental, shut-in well payment, minimum royalty or royalty payment, is not paid or is erroneously paid, and as a result a lease or interest therein terminates, there shall be no monetary liability against the party who failed to make such payment. Unless the party who failed to make the required payment secures a new lease covering the same interest within ninety (90) days from the discovery of the failure to make proper payment, which acquisition will not be subject to Article VIII.B., the interests of the parties shall be revised on an acreage basis, effective as of the date of termination of the lease involved, and the party who failed to make proper payment will no longer be credited with an interest in the Contract Area on account of ownership of the lease or interest which has terminated. In the event the party who failed to make the required payment shall not have been fully reimbursed, at the time of the loss, from the proceeds of the sale of oil and gas attributable to the lost interest, calculated on an acreage basis, for the development and operating costs theretofore paid on account of such interest, it shall be reimbursed for unrecovered actual costs theretofore paid by it (but not for its share of the cost of any dry hole previously drilled or wells previously abandoned) from so much of the following as is necessary to effect reimbursement:

(a) Proceeds of oil and gas, less operating expenses, theretofore accrued to the credit of the lost interest, on an acreage basis, up to the amount of unrecovered costs;

(b) Proceeds, less operating expenses, thereafter accrued attributable to the lost interest on an acreage basis, of that portion of oil and gas thereafter produced and marketed (excluding production from any wells thereafter drilled) which, in the absence of such lease termination, would be attributable to the lost interest on an acreage basis, up to the amount of unrecovered costs, the proceeds of said portion of the oil and gas to be contributed by the other parties in proportion to their respective interests; and

(c) Any monies, up to the amount of unrecovered costs, that may be paid by any party who is, or becomes, the owner of the interest lost, for the privilege of participating in the Contract Area or becoming a party to this agreement.

3. Other Losses: All losses incurred, other than those set forth in Articles IV.B.1. and IV.B.2. above, shall not be considered failure of title but shall be joint losses and shall be borne by all parties in proportion to their interests. There shall be no readjustment of interests in the remaining portion of the Contract Area.

ARTICLE V.
OPERATOR

A. DESIGNATION AND RESPONSIBILITIES OF OPERATOR:

ATLANTIC RICHFIELD COMPANY shall be the Operator of the Contract Area, and shall conduct and direct and have full control of all operations on the Contract Area as permitted and required by, and within the limits of, this agreement. It shall conduct all such operations in a good and workmanlike manner, but it shall have no liability as Operator to the other parties for losses sustained or liabilities incurred, except such as may result from gross negligence or willful misconduct.

B. Resignation or Removal of Operator and Selection of Successor:

1. Resignation or Removal of Operator: Operator may resign at any time by giving written notice thereof to Non-Operators. If Operator terminates its legal existence, no longer owns an interest in the Contract Area, or is no longer capable of serving as Operator, it shall cease to be Operator without any action by Non-Operator, except the selection of a successor. Operator may be removed if it fails or refuses to carry out its duties hereunder, or becomes insolvent, bankrupt or is placed in receivership, by the affirmative vote of two (2) or more Non-Operators owning a majority interest based on ownership as shown on Exhibit "A", and not on the number of parties remaining after excluding the voting interest of Operator. Such resignation or removal shall not become effective until 7:00 o'clock A.M. on the first day of the calendar month following the expiration of ninety (90) days after the giving of notice of resignation by Operator or action by the Non-Operators to remove Operator, unless a successor Operator has been selected and assumes the duties of Operator at an earlier date. Operator, after effective date of resignation or removal, shall be bound by the terms hereof as a Non-Operator. A change of a corporate name or structure of Operator or transfer of Operator's interest to any single subsidiary, parent or successor corporation shall not be the basis for removal of Operator.

2. Selection of Successor Operator: Upon the resignation or removal of Operator, a successor Operator shall be selected by the Parties. The successor Operator shall be selected from the parties owning an interest in the Contract Area at the time such successor Operator is selected. If the Operator that is removed fails to vote or votes only to succeed itself, the successor Operator shall be selected by the affirmative vote of two (2) or more parties owning a majority interest based on ownership as shown on Exhibit "A", and not on the number of parties remaining after excluding the voting interest of the Operator that was removed.

C. Employees:

The number of employees used by Operator in conducting operations hereunder, their selection, and the hours of labor and the compensation for services performed, shall be determined by Operator, and all such employees shall be the employees of Operator.

D. Drilling Contracts:

All wells drilled on the Contract Area shall be drilled on a competitive contract basis at the usual rates prevailing in the area. If it so desires, Operator may employ its own tools and equipment in the drilling of wells, but its charges therefor shall not exceed the prevailing rates in the area and the rate of such charges shall be agreed upon by the parties in writing before drilling operations are commenced, and such work shall be performed by Operator under the same terms and conditions as are customary and usual in the area in contracts of independent contractors who are doing work of a similar nature.

ARTICLE VI.
DRILLING AND DEVELOPMENT

A. Initial Well:

On or before the 1st day of August, 1980, Operator shall commence the drilling of a well for oil and gas at the following location:

660' FSL and 1980' FEL Section 24, T-17-S, R-28-E, Eddy County, New Mexico,

and shall thereafter continue the drilling of the well with due diligence to a depth sufficient to test the Morrow formation or 10,900', whichever is the lesser,

unless granite or other practically impenetrable substance or condition in the hole, which renders further drilling impractical, is encountered at a lesser depth, or unless all parties agree to complete or abandon the well at a lesser depth.

Operator shall make reasonable tests of all formations encountered during drilling which give indication of containing oil and gas in quantities sufficient to test, unless this agreement shall be limited in its application to a specific formation or formations, in which event Operator shall be required to test only the formation or formations to which this agreement may apply.

If, in Operator's judgment, the well will not produce oil or gas in paying quantities, and it wishes to plug and abandon the well as a dry hole, it shall first secure the consent of all parties and shall plug and abandon same as provided in Article VI.E.1. hereof.

B. Subsequent Operations:

1. Proposed Operations: Should any party hereto desire to drill any well on the Contract Area other than the well provided for in Article VI.A., or to rework, deepen or plug back a dry hole drilled at the joint expense of all parties or a well jointly owned by all the parties and not then producing in paying quantities, the party desiring to drill, rework, deepen or plug back such a well shall give the other parties written notice of the proposed operation, specifying the work to be performed, the location, proposed depth, objective formation and the estimated cost of the operation. The parties receiving such a notice shall have thirty (30) days after receipt of the notice within which to notify the parties wishing to do the work whether they elect to participate in the cost of the proposed operation. If a drilling rig is on location, notice of proposal to rework, plug back or drill deeper may be given by telephone and the response period shall be limited to forty-eight (48) hours, exclusive of Saturday, Sunday or legal holidays. Failure of a party receiving such notice to reply within the period above fixed shall constitute an election by that party not to participate in the cost of the proposed operation. Any notice or response given by telephone shall be promptly confirmed in writing.

2. Operations by Less than All Parties: If any party receiving such notice as provided in Article VI.B.1. or VI.E.1. elects not to participate in the proposed operation, then, in order to be entitled to the benefits of this article, the party or parties giving the notice and such other parties as shall elect to participate in the operation shall, within sixty (60) days after the expiration of the notice period of thirty (30) days (or as promptly as possible after the expiration of the forty-eight (48) hour period where the drilling rig is on location, as the case may be) actually commence work on the proposed operation and complete it with due diligence. Operator shall perform all work for the account of the Consenting Parties; provided, however, if no drilling rig or other equipment is on location, and if Operator is a Non-Consenting Party, the Consenting Parties shall either: (a) request Operator to perform the work required by such proposed operation for the account of the Consenting Parties, or (b) designate one (1) of the Consenting Parties as Operator to perform such work. Consenting Parties, when conducting operations on the Contract Area pursuant to this Article VI.B.2., shall comply with all terms and conditions of this agreement.

If less than all parties approve any proposed operation, the proposing party, immediately after the expiration of the applicable notice period, shall advise the Consenting Parties of (a) the total interest of the parties approving such operation, and (b) its recommendation as to whether the Consenting Parties should proceed with the operation as proposed. Each Consenting Party, within forty-eight (48) hours (exclusive of Saturday, Sunday or legal holidays) after receipt of such notice, shall advise the proposing party of its desire to (a) limit participation to such party's interest as shown on Exhibit "A", or (b) carry its proportionate part of Non-Consenting Parties' interest. The proposing party, at its election, may withdraw such proposal if there is insufficient participation, and shall promptly notify all parties of such decision.

The entire cost and risk of conducting such operations shall be borne by the Consenting Parties in the proportions they have elected to bear same under the terms of the preceding paragraph. Consenting Parties shall keep the leasehold estates involved in such operations free and clear of all liens and encumbrances of every kind created by or arising from the operations of the Consenting Parties. If such an operation results in a dry hole, the Consenting Parties shall plug and abandon the well at their sole cost, risk and expense. If any well drilled, reworked, deepened or plugged back under the provisions of this Article results in a producer of oil and/or gas in paying quantities, the Consenting Parties shall complete and equip the well to produce at their sole cost and risk, and the well shall then be turned over to Operator and shall be operated by it at the expense and for the account of the Consenting Parties. Upon commencement of operations for the drilling, reworking, deepening or plugging back of any such well by Consenting Parties in accordance with the provisions of this Article, each Non-Consenting Party shall be deemed to have relinquished to Consenting Parties, and the Consenting Parties shall own and be entitled to receive, in proportion to their respective interests, all of such Non-Consenting Party's interest in the well and share of production therefrom until the proceeds of the sale of such share, calculated at the well, or market value thereof if such share is not sold (after deducting production taxes, royalty, overriding royalty and other interests existing on the effective date hereof, payable out of or measured by the production from such well accruing with respect to such interest until it reverts) shall equal the total of the following:

(a) 100% of each such Non-Consenting Party's share of the cost of any newly acquired surface equipment beyond the wellhead connections (including, but not limited to, stock tanks, separators, treaters, pumping equipment and piping), plus 100% of each such Non-Consenting Party's share of the cost of operation of the well commencing with first production and continuing until each such Non-Consenting Party's relinquished interest shall revert to it under other provisions of this Article, it being agreed that each Non-Consenting Party's share of such costs and equipment will be that interest which would have been chargeable to each Non-Consenting Party had it participated in the well from the beginning of the operation; and

(b) 300 % of that portion of the costs and expenses of drilling reworking, deepening, or plugging back, testing and completing, after deducting any cash contributions received under Article VIII.C., and

300% of that portion of the cost of newly acquired equipment in the well (to and including the well-head connections), which would have been chargeable to such Non-Consenting Party if it had participated therein.

Gas production attributable to any Non-Consenting Party's relinquished interest upon such Party's election, shall be sold to its purchaser, if available, under the terms of its existing gas sales contract. Such Non-Consenting Party shall direct its purchaser to remit the proceeds receivable from such sale direct to the Consenting Parties until the amounts provided for in this Article are recovered from the Non-Consenting Party's relinquished interest. If such Non-Consenting Party has not contracted for sale of its gas at the time such gas is available for delivery, or has not made the election as provided above, the Consenting Parties shall own and be entitled to receive and sell such Non-Consenting Party's share of gas as hereinabove provided during the recoupment period.

During the period of time Consenting Parties are entitled to receive Non-Consenting Party's share of production, or the proceeds therefrom, Consenting Parties shall be responsible for the payment of all production, severance, gathering and other taxes, and all royalty, overriding royalty and other burdens applicable to Non-Consenting Party's share of production.

In the case of any reworking, plugging back or deeper drilling operation, the Consenting Parties shall be permitted to use, free of cost, all casing, tubing and other equipment in the well, but the ownership of all such equipment shall remain unchanged; and upon abandonment of a well after such reworking, plugging back or deeper drilling, the Consenting Parties shall account for all such equipment to the owners thereof, with each party receiving its proportionate part in kind or in value, less cost of salvage.

Within sixty (60) days after the completion of any operation under this Article, the party conducting the operations for the Consenting Parties shall furnish each Non-Consenting Party with an inventory of the equipment in and connected to the well, and an itemized statement of the cost of drilling, deepening, plugging back, testing, completing, and equipping the well for production; or, at its option, the operating party, in lieu of an itemized statement of such costs of operation, may submit a detailed statement of monthly billings. Each month thereafter, during the time the Consenting Parties are being reimbursed as provided above, the Party conducting the operations for the Consenting Parties shall furnish the Non-Consenting Parties with an itemized statement of all costs and liabilities incurred in the operation of the well, together with a statement of the quantity of oil and gas produced from it and the amount of proceeds realized from the sale of the well's working interest production during the preceding month. In determining the quantity of oil and gas produced during any month, Consenting Parties shall use industry accepted methods such as, but not limited to, metering or periodic well tests. Any amount realized from the sale or other disposition of equipment newly acquired in connection with any such operation which would have been owned by a Non-Consenting Party had it participated therein shall be credited against the total unreturned costs of the work done and of the equipment purchased, in determining when the interest of such Non-Consenting Party shall revert to it as above provided; and if there is a credit balance, it shall be paid to such Non-Consenting party.

If and when the Consenting Parties recover from a Non-Consenting Party's relinquished interest the amounts provided for above, the relinquished interests of such Non-Consenting Party shall automatically revert to it, and, from and after such reversion, such Non-Consenting Party shall own the same interest in such well, the material and equipment in or pertaining thereto, and the production therefrom as such Non-Consenting Party would have been entitled to had it participated in the drilling, reworking, deepening or plugging back of said well. Thereafter, such Non-Consenting Party shall be charged with and shall pay its proportionate part of the further costs of the operation of said well in accordance with the terms of this agreement and the Accounting Procedure, attached hereto.

Notwithstanding the provisions of this Article VI.B.2., it is agreed that without the mutual consent of all parties, no wells shall be completed in or produced from a source of supply from which a well located elsewhere on the Contract Area is producing, unless such well conforms to the then-existing well spacing pattern for such source of supply.

The provisions of this Article shall have no application whatsoever to the drilling of the initial well described in Article VI.A. except (a) when Option 2, Article VII.D.1., has been selected, or (b) to the reworking, deepening and plugging back of such initial well, if such well is or thereafter shall prove to be a dry hole or non-commercial well, after having been drilled to the depth specified in Article VI.A.

C. Right to Take Production in Kind:

Each party shall have the right to take in kind or separately dispose of its proportionate share of all oil and gas produced from the Contract Area, exclusive of production which may be used in development and producing operations and in preparing and treating oil for marketing purposes and production unavoidably lost. Any extra expenditure incurred in the taking in kind or separate disposition by any party of its proportionate share of the production shall be borne by such party. Any

party taking its share of production in kind shall be required to pay for only its proportionate share of such part of Operator's surface facilities which it uses.

Each party shall execute such division orders and contracts as may be necessary for the sale of its interest in production from the Contract Area, and, except as provided in Article VII.B., shall be entitled to receive payment direct from the purchaser thereof for its share of all production.

In the event any party shall fail to make the arrangements necessary to take in kind or separately dispose of its proportionate share of the oil and gas produced from the Contract Area, Operator shall have the right, subject to the revocation at will by the party owning it, but not the obligation, to purchase such oil and gas or sell it to others at any time and from time to time, for the account of the non-taking party at the best price obtainable in the area for such production. Any such purchase or sale by Operator shall be subject always to the right of the owner of the production to exercise at any time its right to take in kind, or separately dispose of, its share of all oil and gas not previously delivered to a purchaser. Any purchase or sale by Operator of any other party's share of oil and gas shall be only for such reasonable periods of time as are consistent with the minimum needs of the industry under the particular circumstances, but in no event for a period in excess of one (1) year. Notwithstanding the foregoing, Operator shall not make a sale, including one into interstate commerce, of any other party's share of gas production without first giving such other party thirty (30) days notice of such intended sale.

In the event one or more parties' separate disposition of its share of the gas causes split-stream deliveries to separate pipelines and/or deliveries which on a day-to-day basis for any reason are not exactly equal to a party's respective proportionate share of total gas sales to be allocated to it, the balancing or accounting between the respective accounts of the parties shall be in accordance with any Gas Balancing Agreement between the parties hereto, whether such Agreement is attached as Exhibit "E", or is a separate Agreement.

D. Access to Contract Area and Information:

Each party shall have access to the Contract Area at all reasonable times, at its sole risk to inspect or observe operations, and shall have access at reasonable times to information pertaining to the development or operation thereof, including Operator's books and records relating thereto. Operator, upon request, shall furnish each of the other parties with copies of all forms or reports filed with governmental agencies, daily drilling reports, well logs, tank tables, daily gauge and run tickets and reports of stock on hand at the first of each month, and shall make available samples of any cores or cuttings taken from any well drilled on the Contract Area. The cost of gathering and furnishing information to Non-Operator, other than that specified above, shall be charged to the Non-Operator that requests the information.

E. Abandonment of Wells:

1. Abandonment of Dry Holes: Except for any well drilled pursuant to Article VI.B.2., any well which has been drilled under the terms of this agreement and is proposed to be completed as a dry hole shall not be plugged and abandoned without the consent of all parties. Should Operator, after diligent effort, be unable to contact any party, or should any party fail to reply within forty-eight (48) hours (exclusive of Saturday, Sunday or legal holidays) after receipt of notice of the proposal to plug and abandon such well, such party shall be deemed to have consented to the proposed abandonment. All such wells shall be plugged and abandoned in accordance with applicable regulations and at the cost, risk and expense of the parties who participated in the cost of drilling of such well. Any party who objects to the plugging and abandoning such well shall have the right to take over the well and conduct further operations in search of oil and/or gas subject to the provisions of Article VI.B.

2. Abandonment of Wells that have Produced: Except for any well which has been drilled or reworked pursuant to Article VI.B.2. hereof for which the Consenting Parties have not been fully reimbursed as therein provided, any well which has been completed as a producer shall not be plugged and abandoned without the consent of all parties. If all parties consent to such abandonment, the well shall be plugged and abandoned in accordance with applicable regulations and at the cost, risk and expense of all the parties hereto. If, within thirty (30) days after receipt of notice of the proposed abandonment of such well, all parties do not agree to the abandonment of any well, those wishing to continue its operation shall tender to each of the other parties its proportionate share of the value of the well's salvable material and equipment, determined in accordance with the provisions of Exhibit "C", less the estimated cost of salvaging and the estimated cost of plugging and abandoning. Each abandoning party shall assign to the non-abandoning parties, without warranty, express or implied, as to title or as to quantity, quality, or fitness for use of the equipment and material, all of its interest in the well and related equipment, together with its interest in the leasehold estate as to, but only as to, the interval or intervals of the formation or formations then open to production. If the interest of the abandoning party is or includes an oil and gas interest, such party shall execute and deliver to the non-abandoning party or parties an oil and gas lease, limited to the interval or intervals of the formation or formations then open to production, for a term of one year and so long thereafter as oil and/or gas is produced from the interval or inter-

vals of the formation or formations covered thereby, such lease to be on the form attached as Exhibit "B". The assignments or leases so limited shall encompass the "drilling unit" upon which the well is located. The payments by, and the assignments or leases to, the assignees shall be in a ratio based upon the relationship of their respective percentages of participation in the Contract Area to the aggregate of the percentages of participation in the Contract Area of all assignees. There shall be no readjustment of interest in the remaining portion of the Contract Area.

Thereafter, abandoning parties shall have no further responsibility, liability, or interest in the operation of or production from the well in the interval or intervals then open other than the royalties retained in any lease made under the terms of this Article. Upon request, Operator shall continue to operate the assigned well for the account of the non-abandoning parties at the rates and charges contemplated by this agreement, plus any additional cost and charges which may arise as the result of the separate ownership of the assigned well.

ARTICLE VII.
EXPENDITURES AND LIABILITY OF PARTIES

A. Liability of Parties:

The liability of the parties shall be several, not joint or collective. Each party shall be responsible only for its obligations, and shall be liable only for its proportionate share of the costs of developing and operating the Contract Area. Accordingly, the liens granted among the parties in Article VII.B. are given to secure only the debts of each severally. It is not the intention of the parties to create, nor shall this agreement be construed as creating, a mining or other partnership or association, or to render the parties liable as partners.

B. Liens and Payment Defaults:

Each Non-Operator grants to Operator a lien upon its oil and gas rights in the Contract Area, and a security interest in its share of oil and/or gas when extracted and its interest in all equipment, to secure payment of its share of expense, together with interest thereon at the rate provided in the Accounting Procedure attached hereto as Exhibit "C". To the extent that Operator has a security interest under the Uniform Commercial Code of the State, Operator shall be entitled to exercise the rights and remedies of a secured party under the Code. The bringing of a suit and the obtaining of judgment by Operator for the secured indebtedness shall not be deemed an election of remedies or otherwise affect the lien rights or security interest as security for the payment thereof. In addition, upon default by any Non-Operator in the payment of its share of expense, Operator shall have the right, without prejudice to other rights or remedies, to collect from the purchaser the proceeds from the sale of such Non-Operator's share of oil and/or gas until the amount owed by such Non-Operator, plus interest has been paid. Each purchaser shall be entitled to rely upon Operator's written statement concerning the amount of any default. Operator grants a like lien and security interest to the Non-Operators to secure payment of Operator's proportionate share of expense.

If any party fails or is unable to pay its share of expense within sixty (60) days after rendition of a statement therefor by Operator, the non-defaulting parties, including Operator, shall, upon request by Operator, pay the unpaid amount in the proportion that the interest of each such party bears to the interest of all such parties. Each party so paying its share of the unpaid amount shall, to obtain reimbursement thereof, be subrogated to the security rights described in the foregoing paragraph.

C. Payments and Accounting:

Except as herein otherwise specifically provided, Operator shall promptly pay and discharge expenses incurred in the development and operation of the Contract Area pursuant to this agreement and shall charge each of the parties hereto with their respective proportionate shares upon the expense basis provided in the Accounting Procedure attached hereto as Exhibit "C". Operator shall keep an accurate record of the joint account hereunder, showing expenses incurred and charges and credits made and received.

Operator, at its election, shall have the right from time to time to demand and receive from the other parties payment in advance of their respective shares of the estimated amount of the expense to be incurred in operations hereunder during the next succeeding month, which right may be exercised only by submission to each such party of an itemized statement of such estimated expense, together with an invoice for its share thereof. Each such statement and invoice for the payment in advance of estimated expense shall be submitted on or before the 20th day of the next preceding month. Each party shall pay to Operator its proportionate share of such estimate within fifteen (15) days after such estimate and invoice is received. If any party fails to pay its share of said estimate within said time, the amount due shall bear interest as provided in Exhibit "C" until paid. Proper adjustment shall be made monthly between advances and actual expense to the end that each party shall bear and pay its proportionate share of actual expenses incurred, and no more.

D. Limitation of Expenditures:

1. Drill or Deepen: Without the consent of all parties, no well shall be drilled or deepened, except any well drilled or deepened pursuant to the provisions of Article VI.B.2. of this Agreement, it being understood that the consent to the drilling or deepening shall include:

[ ] Option No. 1: All necessary expenditures for the drilling or deepening, testing, completing and equipping of the well, including necessary tankage and/or surface facilities.

[X] Option No. 2: All necessary expenditures for the drilling or deepening and testing of the well. When such well has reached its authorized depth, and all tests have been completed, Operator shall give immediate notice to the Non-Operators who have the right to participate in the completion costs. The parties receiving such notice shall have forty-eight (48) hours (exclusive of Saturday, Sunday and legal holidays) in which to elect to participate in the setting of casing and the completion attempt. Such election, when made, shall include consent to all necessary expenditures for the completing and equipping of such well, including necessary tankage and/or surface facilities. Failure of any party receiving such notice to reply within the period above fixed shall constitute an election by that party not to participate in the cost of the completion attempt. If one or more, but less than all of the parties, elect to set pipe and to attempt a completion, the provisions of Article VI.B.2. hereof (the phrase "reworking, deepening or plugging back" as contained in Article VI.B.2. shall be deemed to include "completing") shall apply to the operations thereafter conducted by less than all parties.

2. Rework or Plug Back: Without the consent of all parties, no well shall be reworked or plugged back except a well reworked or plugged back pursuant to the provisions of Article VI.B.2. of this agreement, it being understood that the consent to the reworking or plugging back of a well shall include consent to all necessary expenditures in conducting such operations and completing and equipping of said well, including necessary tankage and/or surface facilities.

3. Other Operations: Operator shall not undertake any single project reasonably estimated to require an expenditure in excess of TWENTY FIVE THOUSAND AND NO/100---- Dollars ($ 25,000.00) except in connection with a well, the drilling, reworking, deepening, completing, recompleting, or plugging back of which has been previously authorized by or pursuant to this agreement; provided, however, that, in case of explosion, fire, flood or other sudden emergency, whether of the same or different nature, Operator may take such steps and incur such expenses as in its opinion are required to deal with the emergency to safeguard life and property but Operator, as promptly as possible, shall report the emergency to the other parties. If Operator prepares "Authority for Expenditures" for its own use, Operator, upon request, shall furnish copies of its "Authority for Expenditures" for any single project costing in excess of FIFTEEN THOUSAND AND NO/100 - - - - - - - Dollars ($ 15,000.00).

E. Royalties, Overriding Royalties and Other Payments:

Each party shall pay or deliver, or cause to be paid or delivered, all royalties to the extent of three-sixteenths (3/16ths) due on its share of production and shall hold the other parties free from any liability therefor. If the interest of any party in any oil and gas lease covered by this agreement is subject to any royalty, overriding royalty, production payment, or other charge over and above the aforesaid royalty, such party shall assume and alone bear all such obligations and shall account for or cause to be accounted for, such interest to the owners thereof.

No party shall ever be responsible, on any price basis higher than the price received by such party, to any other party's lessor or royalty owner; and if any such other party's lessor or royalty owner should demand and receive settlements on a higher price basis, the party contributing such lease shall bear the royalty burden insofar as such higher price is concerned.

F. Rentals, Shut-in Well Payments and Minimum Royalties:

Rentals, shut-in well payments and minimum royalties which may be required under the terms of any lease shall be paid by the party or parties who subjected such lease to this agreement at its or their expense. In the event two or more parties own and have contributed interests in the same lease to this agreement, such parties may designate one of such parties to make said payments for and on behalf of all such parties. Any party may request, and shall be entitled to receive, proper evidence of all such payments. In the event of failure to make proper payment of any rental, shut-in well payment or minimum royalty through mistake or oversight where such payment is required to continue the lease in force, any loss which results from such non-payment shall be borne in accordance with the provisions of Article IV.B.2.

Operator shall notify Non-Operator of the anticipated completion of a shut-in gas well, or the shutting in or return to production of a producing gas well, at least five (5) days (excluding Saturday, Sunday and holidays), or at the earliest opportunity permitted by circumstances, prior to taking such action, but assumes no liability for failure to do so. In the event of failure by Operator to so notify Non-Operator, the loss of any lease contributed hereto by Non-Operator for failure to make timely payments

of any shut-in well payment shall be borne jointly by the parties hereto under the provisions of Article IV.B.3.

G. Taxes:

Beginning with the first calendar year after the effective date hereof, Operator shall render for ad valorem taxation all property subject to this agreement which by law should be rendered for such taxes, and it shall pay all such taxes assessed thereon before they become delinquent. Prior to the rendition date, each Non-Operator shall furnish Operator information as to burdens (to include, but not be limited to, royalties, overriding royalties and production payments) on leases and oil and gas interests contributed by such Non-Operator. If the assessed valuation of any leasehold estate is reduced by reason of its being subject to outstanding excess royalties, overriding royalties or production payments, the reduction in ad valorem taxes resulting therefrom shall inure to the benefit of the owner or owners of such leasehold estate, and Operator shall adjust the charge to such owner or owners so as to reflect the benefit of such reduction. Operator shall bill other parties for their proportionate share of all tax payments in the manner provided in Exhibit "C".

If Operator considers any tax assessment improper, Operator may, at its discretion, protest within the time and manner prescribed by law, and prosecute the protest to a final determination, unless all parties agree to abandon the protest prior to final determination. During the pendency of administrative or judicial proceedings, Operator may elect to pay, under protest, all such taxes and any interest and penalty. When any such protested assessment shall have been finally determined, Operator shall pay the tax for the joint account, together with any interest and penalty accrued, and the total cost shall then be assessed against the parties, and be paid by them, as provided in Exhibit "C".

Each party shall pay or cause to be paid all production, severance, gathering and other taxes imposed upon or with respect to the production or handling of such party's share of oil and/or gas produced under the terms of this agreement.

H. Insurance:

At all times while operations are conducted hereunder, Operator shall comply with the Workmen's Compensation Law of the State where the operations are being conducted; provided, however, that Operator may be a self-insurer for liability under said compensation laws in which event the only charge that shall be made to the joint account shall be an amount equivalent to the premium which would have been paid had such insurance been obtained. Operator shall also carry or provide insurance for the benefit of the joint account of the parties as outlined in Exhibit "D", attached to and made a part hereof. Operator shall require all contractors engaged in work on or for the Contract Area to comply with the Workmen's Compensation Law of the State where the operations are being conducted and to maintain such other insurance as Operator may require.

In the event Automobile Public Liability Insurance is specified in said Exhibit "D", or subsequently receives the approval of the parties, no direct charge shall be made by Operator for premiums paid for such insurance for Operator's fully owned automotive equipment.

ARTICLE VIII.
ACQUISITION, MAINTENANCE OR TRANSFER OF INTEREST

A. Surrender of Leases:

The leases covered by this agreement, insofar as they embrace acreage in the Contract Area, shall not be surrendered in whole or in part unless all parties consent thereto.

However, should any party desire to surrender its interest in any lease or in any portion thereof, and other parties do not agree or consent thereto, the party desiring to surrender shall assign, without express or implied warranty of title, all of its interest in such lease, or portion thereof, and any well, material and equipment which may be located thereon and any rights in production thereafter secured, to the parties not desiring to surrender it. If the interest of the assigning party includes an oil and gas interest, the assigning party shall execute and deliver to the party or parties not desiring to surrender an oil and gas lease covering such oil and gas interest for a term of one year and so long thereafter as oil and/or gas is produced from the land covered thereby, such lease to be on the form attached hereto as Exhibit "B". Upon such assignment, the assigning party shall be relieved from all obligations thereafter accruing, but not theretofore accrued, with respect to the acreage assigned and the operation of any well thereon, and the assigning party shall have no further interest in the lease assigned and its equipment and production other than the royalties retained in any lease made under the terms of this Article. The parties assignee shall pay to the party assignor the reasonable salvage value of the latter's interest in any wells and equipment on the assigned acreage. The value of all material shall be determined in accordance with the provisions of Exhibit "C", less the estimated cost of salvaging and the estimated cost of plugging and abandoning. If the assignment is in favor of more than one party, the assigned interest shall

be shared by the parties assignee in the proportions that the interest of each bears to the interest of all parties assignee.

Any assignment or surrender made under this provision shall not reduce or change the assignor's or surrendering parties' interest, as it was immediately before the assignment, in the balance of the Contract Area; and the acreage assigned or surrendered, and subsequent operations thereon, shall not thereafter be subject to the terms and provisions of this agreement.

B. Renewal or Extension of Leases:

If any party secures a renewal of any oil and gas lease subject to this Agreement, all other parties shall be notified promptly, and shall have the right for a period of thirty (30) days following receipt of such notice in which to elect to participate in the ownership of the renewal lease, insofar as such lease affects lands within the Contract Area, by paying to the party who acquired it their several proper proportionate shares of the acquisition cost allocated to that part of such lease within the Contract Area, which shall be in proportion to the interests held at that time by the parties in the Contract Area.

If some, but less than all, of the parties elect to participate in the purchase of a renewal lease, it shall be owned by the parties who elect to participate therein, in a ratio based upon the relationship of their respective percentage of participation in the Contract Area to the aggregate of the percentages of participation in the Contract Area of all parties participating in the purchase of such renewal lease. Any renewal lease in which less than all parties elect to participate shall not be subject to this agreement.

Each party who participates in the purchase of a renewal lease shall be given an assignment of its proportionate interest therein by the acquiring party.

The provisions of this Article shall apply to renewal leases whether they are for the entire interest covered by the expiring lease or cover only a portion of its area or an interest therein. Any renewal lease taken before the expiration of its predecessor lease, or taken or contracted for within six (6) months after the expiration of the existing lease shall be subject to this provision; but any lease taken or contracted for more than six (6) months after the expiration of an existing lease shall not be deemed a renewal lease and shall not be subject to the provisions of this agreement.

The provisions in this Article shall apply also and in like manner to extensions of oil and gas leases.

C. Acreage or Cash Contributions:

While this agreement is in force, if any party contracts for a contribution of cash toward the drilling of a well or any other operation on the Contract Area, such contribution shall be paid to the party who conducted the drilling or other operation and shall be applied by it against the cost of such drilling or other operation. If the contribution be in the form of acreage, the party to whom the contribution is made shall promptly tender an assignment of the acreage, without warranty of title, to the Drilling Parties in the proportions said Drilling Parties shared the cost of drilling the well. If all parties hereto are Drilling Parties and accept such tender, such acreage shall become a part of the Contract Area and be governed by the provisions of this agreement. If less than all parties hereto are Drilling Parties and accept such tender, such acreage shall not become a part of the Contract Area. Each party shall promptly notify all other parties of all acreage or money contributions it may obtain in support of any well or any other operation on the Contract Area.

If any party contracts for any consideration relating to disposition of such party's share of substances produced hereunder, such consideration shall not be deemed a contribution as contemplated in this Article VIII.C.

D. Subsequently Created Interest:

Notwithstanding the provisions of Article VIII.E. and VIII.G., if any party hereto shall, subsequent to execution of this agreement, create an overriding royalty, production payment, or net proceeds interest, which such interests are hereinafter referred to as "subsequently created interest", such subsequently created interest shall be specifically made subject to all of the terms and provisions of this agreement, as follows:

1. If non-consent operations are conducted pursuant to any provision of this agreement, and the party conducting such operations becomes entitled to receive the production attributable to the interest out of which the subsequently created interest is derived, such party shall receive same free and clear of such subsequently created interest. The party creating same shall bear and pay all such subsequently created interests and shall indemnify and hold the other parties hereto free and harmless from any and all liability resulting therefrom.

2. If the owner of the interest from which the subsequently created interest is derived (1) fails to pay, when due, its share of expenses chargeable hereunder, or (2) elects to abandon a well under provisions of Article VI.E. hereof, or (3) elects to surrender a lease under provisions of Article VIII.A. hereof, the subsequently created interest shall be chargeable with the pro rata portion of all expenses hereunder in the same manner as if such interest were a working interest. For purposes of collecting such chargeable expenses, the party or parties who receive assignments as a result of (2) or (3) above shall have the right to enforce all provisions of Article VII.B. hereof against such subsequently created interest.

E. Maintenance of Uniform Interest:

For the purpose of maintaining uniformity of ownership in the oil and gas leasehold interests covered by this agreement, and notwithstanding any other provisions to the contrary, no party shall sell, encumber, transfer or make other disposition of its interest in the leases embraced within the Contract Area and in wells, equipment and production unless such disposition covers either:

1. the entire interest of the party in all leases and equipment and production; or

2. an equal undivided interest in all leases and equipment and production in the Contract Area.

Every such sale, encumbrance, transfer or other disposition made by any party shall be made expressly subject to this agreement, and shall be made without prejudice to the right of the other parties.

If, at any time the interest of any party is divided among and owned by four or more co-owners, Operator, at its discretion, may require such co-owners to appoint a single trustee or agent with full authority to receive notices, approve expenditures, receive billings for and approve and pay such party's share of the joint expenses, and to deal generally with, and with power to bind, the co-owners of such party's interests within the scope of the operations embraced in this agreement; however, all such co-owners shall have the right to enter into and execute all contracts or agreements for the disposition of their respective shares of the oil and gas produced from the Contract Area and they shall have the right to receive, separately, payment of the sale proceeds hereof.

F. Waiver of Right to Partition:

If permitted by the laws of the state or states in which the property covered hereby is located, each party hereto owning an undivided interest in the Contract Area waives any and all rights it may have to partition and have set aside to it in severalty its undivided interest therein.

~~G. Preferential Right to Purchase:~~

Should any party desire to sell all or any part of its interests under this agreement, or its rights and interests in the Contract Area, it shall promptly give written notice to the other parties, with full information concerning its proposed sale, which shall include the name and address of the prospective purchaser (who must be ready, willing and able to purchase), the purchase price, and all other terms of the offer. The other parties shall then have an optional prior right, for a period of ten (10) days after receipt of the notice, to purchase on the same terms and conditions the interest which the other party proposes to sell; and, if this optional right is exercised, the purchasing parties shall share the purchased interest in the proportions that the interest of each bears to the total interest of all purchasing parties. However, there shall be no preferential right to purchase in those cases where any party wishes to mortgage its interests, or to dispose of its interests by merger, reorganization, consolidation, or sale of all or substantially all of its assets to a subsidiary or parent company or to a subsidiary of a parent ~~company, or to any company in which any one party owns a majority of the stock.~~

ARTICLE IX.
INTERNAL REVENUE CODE ELECTION

This agreement is not intended to create, and shall not be construed to create, a relationship of partnership or an association for profit between or among the parties hereto. Notwithstanding any provisions herein that the rights and liabilities hereunder are several and not joint or collective, or that this agreement and operations hereunder shall not constitute a partnership, if, for Federal income tax purposes, this agreement and the operations hereunder are regarded as a partnership, each party hereby affected elects to be excluded from the application of all of the provisions of Subchapter "K", Chapter 1, Subtitle "A", of the Internal Revenue Code of 1954, as permitted and authorized by Section 761 of the Code and the regulations promulgated thereunder. Operator is authorized and directed to execute on behalf of each party hereby affected such evidence of this election as may be required by the Secretary of the Treasury of the United States or the Federal Internal Revenue Service, including specifically, but not by way of limitation, all of the returns, statements, and the data required by Federal Regulations 1.761. Should there be any requirement that each party hereby affected give further evidence of this election, each such party shall execute such documents and furnish such other evidence as may be required by the Federal Internal Revenue Service or as may be necessary to evidence this election. No

such party shall give any notices or take any other action inconsistent with the election made hereby. If any present or future income tax laws of the state or states in which the Contract Area is located or any future income tax laws of the United States contain provisions similar to those in Subchapter "K", Chapter 1, Subtitle "A", of the Internal Revenue Code of 1954, under which an election similar to that provided by Section 761 of the Code is permitted, each party hereby affected shall make such election as may be permitted or required by such laws. In making the foregoing election, each such party states that the income derived by such party from Operations hereunder can be adequately determined without the computation of partnership taxable income.

ARTICLE X.
CLAIMS AND LAWSUITS

Operator may settle any single damage claim or suit arising from operations hereunder if the expenditure does not exceed FIVE THOUSAND AND NO/100 - - - - - - - - - - - - - - - Dollars ($ 5,000.00) and if the payment is in complete settlement of such claim or suit. If the amount required for settlement exceeds the above amount, the parties hereto shall assume and take over the further handling of the claim or suit, unless such authority is delegated to Operator. All costs and expense of handling, settling, or otherwise discharging such claim or suit shall be at the joint expense of the parties. If a claim is made against any party or if any party is sued on account of any matter arising from operations hereunder over which such individual has no control because of the rights given Operator by this agreement, the party shall immediately notify Operator, and the claim or suit shall be treated as any other claim or suit involving operations hereunder.

ARTICLE XI.
FORCE MAJEURE

If any party is rendered unable, wholly or in part, by force majeure to carry out its obligations under this agreement, other than the obligation to make money payments, that party shall give to all other parties prompt written notice of the force majeure with reasonably full particulars concerning it; thereupon, the obligations of the party giving the notice, so far as they are affected by the force majeure, shall be suspended during, but no longer than, the continuance of the force majeure. The affected party shall use all reasonable diligence to remove the force majeure situation as quickly as practicable.

The requirement that any force majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes, lockouts, or other labor difficulty by the party involved, contrary to its wishes; how all such difficulties shall be handled shall be entirely within the discretion of the party concerned.

The term "force majeure", as here employed, shall mean an act of God, strike, lockout, or other industrial disturbance, act of the public enemy, war, blockade, public riot, lightning, fire, storm, flood, explosion, governmental action, governmental delay, restraint or inaction, unavailability of equipment, and any other cause, whether of the kind specifically enumerated above or otherwise, which is not reasonably within the control of the party claiming suspension.

ARTICLE XII.
NOTICES

All notices authorized or required between the parties, and required by any of the provisions of this agreement, unless otherwise specifically provided, shall be given in writing by United States mail or Western Union telegram, postage or charges prepaid, or by teletype, and addressed to the party to whom the notice is given at the addresses listed on Exhibit "A". The originating notice given under any provision hereof shall be deemed given only when received by the party to whom such notice is directed, and the time for such party to give any notice in response thereto shall run from the date the originating notice is received. The second or any responsive notice shall be deemed given when deposited in the United States mail or with the Western Union Telegraph Company, with postage or charges prepaid, or when sent by teletype. Each party shall have the right to change its address at any time, and from time to time, by giving written notice hereof to all other parties.

ARTICLE XIII.
TERM OF AGREEMENT

This agreement shall remain in full force and effect as to the oil and gas leases and/or oil and gas interests subjected hereto for the period of time selected below; provided, however, no party hereto shall ever be construed as having any right, title or interest in or to any lease, or oil and gas interest contributed by any other party beyond the term of this agreement.

[ ] Option No. 1: So long as any of the oil and gas leases subject to this agreement remain or are continued in force as to any part of the Contract Area, whether by production, extension, renewal or otherwise, and/or so long as oil and/or gas production continues from any lease or oil and gas interest.

[X] Option No. 2: In the event the well described in Article VI.A., or any subsequent well drilled under any provision of this agreement, results in production of oil and/or gas in paying quantities, this agreement shall continue in force so long as any such well or wells produce, or are capable of production, and for an additional period of 180 days from cessation of all production; provided, however, if, prior to the expiration of such additional period, one or more of the parties hereto are engaged in drilling or reworking a well or wells hereunder, this agreement shall continue in force until such operations have been completed and if production results therefrom, this agreement shall continue in force as provided herein. In the event the well described in Article VI.A., or any subsequent well drilled hereunder, results in a dry hole, and no other well is producing, or capable of producing oil and/or gas from the Contract Area, this agreement shall terminate unless drilling or reworking operations are commenced within 180 days from the date of abandonment of said well.

It is agreed, however, that the termination of this agreement shall not relieve any party hereto from any liability which has accrued or attached prior to the date of such termination.

ARTICLE XIV.
COMPLIANCE WITH LAWS AND REGULATIONS

A. Laws, Regulations and Orders:

This agreement shall be subject to the conservation laws of the state in which the committed acreage is located, to the valid rules, regulations, and orders of any duly constituted regulatory body of said state; and to all other applicable federal, state, and local laws, ordinances, rules, regulations, and orders.

B. Governing Law:

The essential validity of this agreement and all matters pertaining thereto, including, but not limited to, matters of performance, non-performance, breach, remedies, procedures, rights, duties and interpretation or construction, shall be governed and determined by the law of the state in which the Contract Area is located. If the Contract Area is in two or more states, the law of the state where most of the land in the Contract Area is located shall govern.

ARTICLE XV.
OTHER PROVISIONS

(a) It is recognized by the parties hereto that in addition to each party's share of working interest production as shown in Exhibit "A", such party shall have the right, subject to existing contracts, to market the royalty gas attributable to each lease which it contributes to the Unit Area and to receive payments due for such royalty gas produced from or allocated to such lease or leases. It is agreed that, regardless of whether each party markets or contracts for its share of gas, including the royalty gas under the leases which it contributed to the Unit, such party agrees to pay or cause to be paid to the royalty owners under its lease or leases the proceeds attributable to their respective royalty interest and to hold all other parties harmless for its failure to do so. If a lease is owned in undivided interests, the leasehold owners under such lease shall designate a single party to receive and to pay or cause to be paid all royalty due under such lease and to hold all other parties hereto harmless for failure to do so.

(b) Each Non-Operator shall have a lien on the working interest of Operator in the Unit Area and on the oil and gas produced therefrom and on the proceeds thereof to secure the payment of any amount that may be at any time become due and payable by Operator to such Non-Operator under the terms of this agreement, together with interest thereon as provided in Section 8 hereof.

ARTICLE XVI.
MISCELLANEOUS

This agreement shall be binding upon and shall inure to the benefit of the parties hereto and to their respective heirs, devisees, legal representatives, successors and assigns.

This instrument may be executed in any number of counterparts, each of which shall be considered an original for all purposes.

IN WITNESS WHEREOF, this agreement shall be effective as of 2nd day of May, 1980.

OPERATOR

ATLANTIC RICHFIELD COMPANY

By: _____
Attorney-in-Fact

NON-OPERATORS

PENNZOIL COMPANY

By: _____

INEXCO OIL COMPANY

By: _____

EXXON CORPORATION

By: _____

CONTINENTAL OIL COMPANY

By: _____

TENNECO OIL COMPANY

By: _____

MARALO INC.

By: _____

RALPH M. LOWE, INC.

By: _____

_____
Erma Lowe

_____
Doyle Hartman

THE STATE OF TEXAS

COUNTY OF MIDLAND

BEFORE ME, the undersigned authority, on this day personally appeared _____, Attorney-in-Fact for ATLANTIC RICHFIELD COMPANY, a corporation, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed same as the act and deed of said ATLANTIC RICHFIELD COMPANY, for the purposes and considerations and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this _____ day of _____, 19____.

_____
Notary Public

CORPORATION ACKNOWLEDGMENT

STATE OF_____
COUNTY OF_____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared_____ _____, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said PENNZOIL COMPANY, a corporation, and that _____he_____executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the_____day of_____A.D., 19_____.

_____
NOTARY PUBLIC

CORPORATION ACKNOWLEDGMENT

STATE OF_____
COUNTY OF_____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared_____ _____, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said INEXCO OIL COMPANY, a corporation, and that _____he_____ executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the_____day of_____A.D., 19_____.

_____
NOTARY PUBLIC

PERSONAL ACKNOWLEDGMENT

STATE OF_____
COUNTY OF_____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared_____ ERMA LOWE _____ known to me to be the person_____whose name_____subscribed to the foregoing instrument, and acknowledged to me that _____he_____ executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the_____day of_____A.D., 19_____.

_____
NOTARY PUBLIC

CORPORATION ACKNOWLEDGMENT

STATE OF_____
COUNTY OF_____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared_____, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said EXXON CORPORATION, a corporation, and that __he__ executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the_____day of_____A.D., 19_____.

_____
NOTARY PUBLIC

CORPORATION ACKNOWLEDGMENT

STATE OF_____
COUNTY OF_____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared_____, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said CONTINENTAL OIL COPANY, a corporation, and that __he__ executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the_____day of_____A.D., 19_____.

_____
NOTARY PUBLIC

CORPORATION ACKNOWLEDGMENT

STATE OF_____
COUNTY OF_____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared_____, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said TENNECO OIL COMPANY, a corporation, and that __he__ executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the_____day of_____A.D., 19_____.

_____
NOTARY PUBLIC

PERSONAL ACKNOWLEDGMENT

STATE OF_____
COUNTY OF_____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared_____, known to me to be the person____ whose name_____subscribed to the foregoing instrument, and acknowledged to me that _____he_____ executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the_____day of_____A.D., 19_____.

_____
NOTARY PUBLIC

CORPORATION ACKNOWLEDGMENT

STATE OF_____
COUNTY OF_____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared_____, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said MARALO INC., a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the_____day of_____A.D., 19_____.

_____
NOTARY PUBLIC

CORPORATION ACKNOWLEDGMENT

STATE OF_____
COUNTY OF_____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared_____, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said RALPH M. LOWE, INC., a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the_____day of_____A.D., 19_____.

_____
NOTARY PUBLIC

CORPORATION ACKNOWLEDGMENT

STATE OF_____
COUNTY OF_____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared_____, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said_____, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the_____day of_____A.D., 19_____.

_____
NOTARY PUBLIC

PERSONAL ACKNOWLEDGMENT

STATE OF_____
COUNTY OF_____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared DOYLE HARTMAN, known to me to be the person whose name subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the_____day of_____A.D., 19_____.

_____
NOTARY PUBLIC

Recommended by the Council of Petroleum Accountants Societies of North America

COPAS

EXHIBIT "C"

Attached to and made a part of Operating Agreement dated May 2, 1980, between ATLANTIC RICHFIELD COMPANY, Operator, and PENNZOIL COMPANY, et al, Non-operators

ACCOUNTING PROCEDURE
JOINT OPERATIONS

I. GENERAL PROVISIONS

1. Definitions

"Joint Property" shall mean the real and personal property subject to the agreement to which this Accounting Procedure is attached.

"Joint Operations" shall mean all operations necessary or proper for the development, operation, protection and maintenance of the Joint Property.

"Joint Account" shall mean the account showing the charges paid and credits received in the conduct of the Joint Operations and which are to be shared by the Parties.

"Operator" shall mean the party designated to conduct the Joint Operations.

"Non-Operators" shall mean the parties to this agreement other than the Operator.

"Parties" shall mean Operator and Non-Operators.

"First Level Supervisors" shall mean those employees whose primary function in Joint Operations is the direct supervision of other employees and/or contract labor directly employed on the Joint Property in a field operating capacity.

"Technical Employees" shall mean those employees having special and specific engineering, geological or other professional skills, and whose primary function in Joint Operations is the handling of specific operating conditions and problems for the benefit of the Joint Property.

"Personal Expenses" shall mean travel and other reasonable reimbursable expenses of Operator's employees.

"Material" shall mean personal property, equipment or supplies acquired or held for use on the Joint Property.

"Controllable Material" shall mean Material which at the time is so classified in the Material Classification Manual as most recently recommended by the Council of Petroleum Accountants Societies of North America.

2. Statement and Billings

Operator shall bill Non-Operators on or before the last day of each month for their proportionate share of the Joint Account for the preceding month. Such bills will be accompanied by statements which identify the authority for expenditure, lease or facility, and all charges and credits, summarized by appropriate classifications of investment and expense except that items of Controllable Material and unusual charges and credits shall be separately identified and fully described in detail.

3. Advances and Payments by Non-Operators

Unless otherwise provided for in the agreement, the Operator may require the Non-Operators to advance their share of estimated cash outlay for the succeeding month's operation. Operator shall adjust each monthly billing to reflect advances received from the Non-Operators.

Each Non-Operator shall pay its proportion of all bills within fifteen (15) days after receipt. If payment is not made within such time, the unpaid balance shall bear interest monthly at the rate of twelve percent (12%) per annum or the maximum contract rate permitted by the applicable usury laws in the state in which the Joint Property is located, whichever is the lesser, plus attorney's fees, court costs, and other costs in connection with the collection of unpaid amounts.

4. Adjustments

Payment of any such bills shall not prejudice the right of any Non-Operator to protest or question the correctness thereof; provided, however, all bills and statements rendered to Non-Operators by Operator during any calendar year shall conclusively be presumed to be true and correct after twenty-four (24) months following the end of any such calendar year, unless within the said twenty-four (24) month period a Non-Operator takes written exception thereto and makes claim on Operator for adjustment. No adjustment favorable to Operator shall be made unless it is made within the same prescribed period. The provisions of this paragraph shall not prevent adjustments resulting from a physical inventory of Controllable Material as provided for in Section V.

5. Audits

A. Non-Operator, upon notice in writing to Operator and all other Non-Operators, shall have the right to audit Operator's accounts and records relating to the Joint Account for any calendar year within the twenty-four (24) month period following the end of such calendar year; provided, however, the making of an audit shall not extend the time for the taking of written exception to and the adjustments of accounts as provided for in Paragraph 4 of this Section I. Where there are two or more Non-Operators, the Non-Operators shall make every reasonable effort to conduct joint or simultaneous audits in a manner which will result in a minimum of inconvenience to the Operator. Operator shall bear no portion of the Non-Operators' audit cost incurred under this paragraph unless agreed to by the Operator.

6. Approval by Non-Operators

Where an approval or other agreement of the Parties or Non-Operators is expressly required under other sections of this Accounting Procedure and if the agreement to which this Accounting Procedure is attached contains no contrary provisions in regard thereto, Operator shall notify all Non-Operators of the Operator's proposal, and the agreement or approval of a majority in interest of the Non-Operators shall be controlling on all Non-Operators.

II. DIRECT CHARGES

Operator shall charge the Joint Account with the following items:

1. Rentals and Royalties

Lease rentals and royalties paid by Operator for the Joint Operations.

2. Labor

A. (1) Salaries and wages of Operator's field employees directly employed on the Joint Property in the conduct of Joint Operations.

(2) Salaries of First Level Supervisors in the field.

(3) Salaries and wages of Technical Employees directly employed on the Joint Property if such charges are excluded from the Overhead rates.

B. Operator's cost of holiday, vacation, sickness and disability benefits and other customary allowances paid to employees whose salaries and wages are chargeable to the Joint Account under Paragraph 2A of this Section II. Such costs under this Paragraph 2B may be charged on a "when and as paid basis" or by "percentage assessment" on the amount of salaries and wages chargeable to the Joint Account under Paragraph 2A of this Section II. If percentage assessment is used, the rate shall be based on the Operator's cost experience.

C. Expenditures or contributions made pursuant to assessments imposed by governmental authority which are applicable to Operator's costs chargeable to the Joint Account under Paragraphs 2A and 2B of this Section II.

D. Personal Expenses of those employees whose salaries and wages are chargeable to the Joint Account under Paragraph 2A of this Section II.

3. Employee Benefits

Operator's current costs of established plans for employees' group life insurance, hospitalization, pension, retirement, stock purchase, thrift, bonus, and other benefit plans of a like nature, applicable to Operator's labor cost chargeable to the Joint Account under Paragraphs 2A and 2B of this Section II shall be Operator's actual cost not to exceed twenty per cent (20%).

4. Material

Material purchased or furnished by Operator for use on the Joint Property as provided under Section IV. Only such Material shall be purchased for or transferred to the Joint Property as may be required for immediate use and is reasonably practical and consistent with efficient and economical operations. The accumulation of surplus stocks shall be avoided.

5. Transportation

Transportation of employees and Material necessary for the Joint Operations but subject to the following limitations:

A. If Material is moved to the Joint Property from the Operator's warehouse or other properties, no charge shall be made to the Joint Account for a distance greater than the distance from the nearest reliable supply store, recognized barge terminal, or railway receiving point where like material is normally available, unless agreed to by the Parties.

B. If surplus Material is moved to Operator's warehouse or other storage point, no charge shall be made to the Joint Account for a distance greater than the distance to the nearest reliable supply store, recognized barge terminal, or railway receiving point unless agreed to by the Parties. No charge shall be made to the Joint Account for moving Material to other properties belonging to Operator, unless agreed to by the Parties.

C. In the application of Subparagraphs A and B above, there shall be no equalization of actual gross trucking cost of $200 or less excluding accessorial charges.

6. Services

The cost of contract services, equipment and utilities provided by outside sources, except services excluded by Paragraph 9 of Section II and Paragraph 1. ii of Section III. The cost of professional consultant services and contract services of technical personnel directly engaged on the Joint Property if such charges are excluded from the Overhead rates. The cost of professional consultant services or contract services of technical personnel not directly engaged on the Joint Property shall not be charged to the Joint Account unless previously agreed to by the Parties.

7. Equipment and Facilities Furnished by Operator

A. Operator shall charge the Joint Account for use of Operator owned equipment and facilities at rates commensurate with costs of ownership and operation. Such rates shall include costs of maintenance, repairs, other operating expense, insurance, taxes, depreciation, and interest on investment not to exceed eight per cent (8%) per annum. Such rates shall not exceed average commercial rates currently prevailing in the immediate area of the Joint Property.

B. In lieu of charges in Paragraph 7A above, Operator may elect to use average commercial rates prevailing in the immediate area of the Joint Property less 20%. For automotive equipment, Operator may elect to use rates published by the Petroleum Motor Transport Association.

8. Damages and Losses to Joint Property

All costs or expenses necessary for the repair or replacement of Joint Property made necessary because of damages or losses incurred by fire, flood, storm, theft, accident, or other cause, except those resulting from Operator's gross negligence or willful misconduct. Operator shall furnish Non-Operator written notice of damages or losses incurred as soon as practicable after a report thereof has been received by Operator.

9. Legal Expense

Expense of handling, investigating and settling litigation or claims, discharging of liens, payment of judgments and amounts paid for settlement of claims incurred in or resulting from operations under the agreement or necessary to protect or recover the Joint Property, except that no charge for services of Operator's legal staff or fees or expense of outside attorneys shall be made unless previously agreed to by the Parties. All other legal expense is considered to be covered by the overhead provisions of Section III unless otherwise agreed to by the Parties, except as provided in Section I, Paragraph 3.

COPY

10. Taxes

All taxes of every kind and nature assessed or levied upon or in connection with the Joint Property, the operation thereof, or the production therefrom, and which taxes have been paid by the Operator for the benefit of the Parties.

11. Insurance

Net premiums paid for insurance required to be carried for the Joint Operations for the protection of the Parties. In the event Joint Operations are conducted in a state in which Operator may act as self-insurer for Workmen's Compensation and/or Employers Liability under the respective state's laws, Operator may, at its election, include the risk under its self-insurance program and in that event, Operator shall include a charge at Operator's cost not to exceed manual rates.

12. Other Expenditures

Any other expenditure not covered or dealt with in the foregoing provisions of this Section II, or in Section III, and which is incurred by the Operator in the necessary and proper conduct of the Joint Operations.

III. OVERHEAD

1. Overhead - Drilling and Producing Operations

i. As compensation for administrative, supervision, office services and warehousing costs, Operator shall charge drilling and producing operations on either:

(XX) Fixed Rate Basis, Paragraph 1A, or
( ) Percentage Basis, Paragraph 1B.

Unless otherwise agreed to by the Parties, such charge shall be in lieu of costs and expenses of all offices and salaries or wages plus applicable burdens and expenses of all personnel, except those directly chargeable under Paragraph 2A, Section II. The cost and expense of services from outside sources in connection with matters of taxation, traffic, accounting or matters before or involving governmental agencies shall be considered as included in the Overhead rates provided for in the above selected Paragraph of this Section III unless such cost and expense are agreed to by the Parties as a direct charge to the Joint Account.

ii. The salaries, wages and Personal Expenses of Technical Employees and/or the cost of professional consultant services and contract services of technical personnel directly employed on the Joint Property shall (') shall not (X) be covered by the Overhead rates.

A. Overhead - Fixed Rate Basis

(1) Operator shall charge the Joint Account at the following rates per well per month:

Drilling Well Rate $ 3100.00
Producing Well Rate $ 310.00

(2) Application of Overhead - Fixed Rate Basis shall be as follows:

(a) Drilling Well Rate

[1] Charges for onshore drilling wells shall begin on the date the well is spudded and terminate on the date the drilling or completion rig is released, whichever is later, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days.

[2] Charges for offshore drilling wells shall begin on the date when drilling or completion equipment arrives on location and terminate on the date the drilling or completion equipment moves off location or rig is released, whichever occurs first, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days

[3] Charges for wells undergoing any type of workover or recompletion for a period of five (5) consecutive days or more shall be made at the drilling well rate. Such charges shall be applied for the period from date workover operations, with rig, commence through date of rig release, except that no charge shall be made during suspension of operations for fifteen (15) or more consecutive days.

(b) Producing Well Rates

[1] An active well either produced or injected into for any portion of the month shall be considered as a one-well charge for the entire month.

[2] Each active completion in a multi-completed well in which production is not commingled down hole shall be considered as a one-well charge providing each completion is considered a separate well by the governing regulatory authority.

[3] An inactive gas well shut in because of overproduction or failure of purchaser to take the production shall be considered as a one-well charge providing the gas well is directly connected to a permanent sales outlet.

[4] A one-well charge may be made for the month in which plugging and abandonment operations are completed on any well.

[5] All other inactive wells (including but not limited to inactive wells covered by unit allowable, lease allowable, transferred allowable, etc.) shall not qualify for an overhead charge.

(3) The well rates shall be adjusted as of the first day of April each year following the effective date of the agreement to which this Accounting Procedure is attached. The adjustment shall be computed by multiplying the rate currently in use by the percentage increase or decrease in the average weekly earnings of Crude Petroleum and Gas Production Workers for the last calendar year compared to the calendar year preceding as shown by the index of average weekly earnings of Crude Petroleum and Gas Fields Production Workers as published by the United States Department of Labor, Bureau of Labor Statistics, or the equivalent Canadian index as published by Statistics Canada, as applicable. The adjusted rates shall be the rates currently in use, plus or minus the computed adjustment.

B. Overhead - Percentage Basis

(1) Operator shall charge the Joint Account at the following rates:

(a) Development

_____ Percent (%) of the cost of Development of the Joint Property exclusive of costs provided under Paragraph 9 of Section II and all salvage credits.

(b) Operating

_____ Percent (%) of the cost of Operating the Joint Property exclusive of costs provided under Paragraphs 1 and 9 of Section II, all salvage credits, the value of injected substances purchased for secondary recovery and all taxes and assessments which are levied, assessed and paid upon the mineral interest in and to the Joint Property.

(2) Application of Overhead - Percentage Basis shall be as follows:
For the purpose of determining charges on a percentage basis under Paragraph 1B of this Section III, development shall include all costs in connection with drilling, redrilling, deepening or any remedial operations on any or all wells involving the use of drilling crew and equipment; also, preliminary expenditures necessary in preparation for drilling and expenditures incurred in abandoning when the well is not completed as a producer, and original cost of construction or installation of fixed assets, the expansion of fixed assets and any other project clearly discernible as a fixed asset, except Major Construction as defined in Paragraph 2 of this Section III. All other costs shall be considered as Operating.

2. Overhead - Major Construction

To compensate Operator for overhead costs incurred in the construction and installation of fixed assets, the expansion of fixed assets, and any other project clearly discernible as a fixed asset required for the development and operation of the Joint Property, Operator shall either negotiate a rate prior to the beginning of construction, or shall charge the Joint Account for Overhead based on the following rates for any Major Construction project in excess of $ 50,000 :

A. 5 % of total costs if such costs are more than $ 50,000 but less than $ 500,000 ; plus

B. 3 % of total costs in excess of $ 500,000 but less than $1,000,000; plus

C. 2 % of total costs in excess of $1,000,000.

Total cost shall mean the gross cost of any one project. For the purpose of this paragraph, the component parts of a single project shall not be treated separately and the cost of drilling and workover wells shall be excluded.

3. Amendment of Rates

The Overhead rates provided for in this Section III may be amended from time to time only by mutual agreement between the Parties hereto if, in practice, the rates are found to be insufficient or excessive.

IV. PRICING OF JOINT ACCOUNT MATERIAL PURCHASES, TRANSFERS AND DISPOSITIONS

Operator is responsible for Joint Account Material and shall make proper and timely charges and credits for all material movements affecting the Joint Property. Operator shall provide all Material for use on the Joint Property; however, at Operator's option, such Material may be supplied by the Non-Operator. Operator shall make timely disposition of idle and/or surplus Material, such disposal being made either through sale to Operator or Non-Operator, division in kind, or sale to outsiders. Operator may purchase, but shall be under no obligation to purchase, interest of Non-Operators in surplus condition A or B Material. The disposal of surplus Controllable Material not purchased by the Operator shall be agreed to by the Parties.

1. Purchases

Material purchased shall be charged at the price paid by Operator after deduction of all discounts received. In case of Material found to be defective or returned to vendor for any other reason, credit shall be passed to the Joint Account when adjustment has been received by the Operator.

2. Transfers and Dispositions

Material furnished to the Joint Property and Material transferred from the Joint Property or disposed of by the Operator, unless otherwise agreed to by the Parties, shall be priced on the following bases exclusive of cash discounts:

A. New Material (Condition A)

(1) Tubular goods, except line pipe, shall be priced at the current new price in effect on date of movement on a maximum carload or barge load weight basis, regardless of quantity transferred, equalized to the lowest published price f.o.b. railway receiving point or recognized barge terminal nearest the Joint Property where such Material is normally available.

(2) Line Pipe

(a) Movement of less than 30,000 pounds shall be priced at the current new price, in effect at date of movement, as listed by a reliable supply store nearest the Joint Property where such Material is normally available.

(b) Movement of 30,000 pounds or more shall be priced under provisions of tubular goods pricing in Paragraph 2A (1) of this Section IV.

(3) Other Material shall be priced at the current new price, in effect at date of movement, as listed by a reliable supply store or f.o.b. railway receiving point nearest the Joint Property where such Material is normally available.

B. Good Used Material (Condition B)

Material in sound and serviceable condition and suitable for reuse without reconditioning:

(1) Material moved to the Joint Property

(a) At seventy-five percent (75%) of current new price, as determined by Paragraph 2A of this Section IV.

(2) Material moved from the Joint Property

(a) At seventy-five percent (75%) of current new price, as determined by Paragraph 2A of this Section IV, if Material was originally charged to the Joint Account as new Material, or

(b) at sixty-five percent (65%) of current new price, as determined by Paragraph 2A of this Section IV, if Material was originally charged to the Joint Account as good used Material at seventy-five percent (75%) of current new price.

The cost of reconditioning, if any, shall be absorbed by the transferring property.

C. Other Used Material (Condition C and D)

(1) Condition C

Material which is not in sound and serviceable condition and not suitable for its original function until after reconditioning shall be priced at fifty percent (50%) of current new price as determined by Paragraph 2A of this Section IV. The cost of reconditioning shall be charged to the receiving property, provided Condition C value plus cost of reconditioning does not exceed Condition B value.

(2) Condition D

All other Material, including junk, shall be priced at a value commensurate with its use or at prevailing prices. Material no longer suitable for its original purpose but usable for some other purpose, shall be priced on a basis comparable with that of items normally used for such other purpose. Operator may dispose of Condition D Material under procedures normally utilized by the Operator without prior approval of Non-Operators.

D. Obsolete Material

Material which is serviceable and usable for its original function but condition and/or value of such Material is not equivalent to that which would justify a price as provided above may be specially priced as agreed to by the Parties. Such price should result in the Joint Account being charged with the value of the service rendered by such Material.

E. Pricing Conditions

(1) Loading and unloading costs may be charged to the Joint Account at the rate of fifteen cents (15¢) per hundred weight on all tubular goods movements, in lieu of loading and unloading costs sustained, when actual hauling cost of such tubular goods are equalized under provisions of Paragraph 5 of Section II.

(2) Material involving erection costs shall be charged at applicable percentage of the current knocked-down price of new Material.

3. Premium Prices

Whenever Material is not readily obtainable at published or listed prices because of national emergencies, strikes or other unusual causes over which the Operator has no control, the Operator may charge the Joint Account for the required Material at the Operator's actual cost incurred in providing such Material, in making it suitable for use, and in moving it to the Joint Property; provided notice in writing is furnished to Non-Operators of the proposed charge prior to billing Non-Operators for such Material. Each Non-Operator shall have the right, by so electing and notifying Operator within ten days after receiving notice from Operator, to furnish in kind all or part of his share of such Material suitable for use and acceptable to Operator.

4. Warranty of Material Furnished by Operator

Operator does not warrant the Material furnished. In case of defective Material, credit shall not be passed to the Joint Account until adjustment has been received by Operator from the manufacturers or their agents.

V. INVENTORIES

The Operator shall maintain detailed records of Controllable Material.

1. Periodic Inventories, Notice and Representation

At reasonable intervals, Inventories shall be taken by Operator of the Joint Account Controllable Material. Written notice of intention to take inventory shall be given by Operator at least thirty (30) days before any inventory is to begin so that Non-Operators may be represented when any inventory is taken. Failure of Non-Operators to be represented at an inventory shall bind Non-Operators to accept the inventory taken by Operator.

2. Reconciliation and Adjustment of Inventories

Reconciliation of a physical inventory with the Joint Account shall be made, and a list of overages and shortages shall be furnished to the Non-Operators within six months following the taking of the inventory. Inventory adjustments shall be made by Operator with the Joint Account for overages and shortages, but Operator shall be held accountable only for shortages due to lack of reasonable diligence.

3. Special Inventories

Special Inventories may be taken whenever there is any sale or change of interest in the Joint Property. It shall be the duty of the party selling to notify all other Parties as quickly as possible after the transfer of interest takes place. In such cases, both the seller and the purchaser shall be governed by such inventory.

4. Expense of Conducting Periodic Inventories

The expense of conducting periodic Inventories shall not be charged to the Joint Account unless agreed to by the Parties.

EXHIBIT "D"

ATTACHED TO AND MADE A PART OF OPERATING AGREEMENT
DATED May 2, 19 80, BETWEEN

PROPOSED INSURANCE EXHIBIT TO BE ATTACHED
AND MADE A PART OF OPERATING AGREEMENT

ADDITIONAL INSURANCE PROVISIONS

OPERATOR, during the terms of this Agreement, shall carry specific insurances for the benefit and at the expense of the parties hereto as follows:

Worker's Compensation Insurance as contemplated by the laws of the state in which operations will be conducted, and Employers' Liability Insurance with limits of $100,000.

OPERATOR shall require contractors and subcontractors performing work for the joint account to provide such insurance as deemed necessary by OPERATOR in relation to the work to be performed by said contractors and subcontractors.

Liability, except that covered by the above specified insurance, against any of the parties hereto for damages to property of third persons or injury to or death of third persons arising out of the joint operations, including expenses incurred in defending claims or actions asserting liability of this character, shall be borne severally and not jointly by the parties hereto in proportion to their respective undivided interests in the joint operation. Any party hereto individually may acquire such additional insurance as it desires to protect itself against any liability not covered by the above specified insurance at its own cost. All insurance purchased individually by a party to this agreement shall contain a waiver by the insurance company of all rights of subrogation in favor of the parties to this agreement.

No other insurances shall be carried by operator for the joint account unless mutually agreed to in writing by the parties hereto. All losses not covered by the above specified insurances shall be borne by the parties in proportion to their interest in the venture at the time of any loss.

Inasmuch as OPERATOR has agreed with each party to this agreement to acquire, construct, operate and maintain the joint account operations on a cost basis without profit to OPERATOR, each such party hereby releases from all claims for loss by or damage to, such party arising out of, in connection with, or as an incident to, any act or omission, including negligence (but excluding gross negligence, willful misconduct, or intentional breach of any provisions of the operating agreement) of OPERATOR or, to the extent of OPERATOR'S legal liability, its employees, agents or contractors, in acquiring, operating or maintaining the joint account; provided this release shall not apply to OPERATOR'S pro-rata share of the cost and expenses as otherwise provided in this agreement. The obligations of each party under this agreement are several and not joint with any other party hereto.

OPERATOR shall promptly notify non-operators of any loss, damage or claim not covered by insurance carried by OPERATOR for the joint account. Except as authorized by Section 26 and by this Exhibit "D", OPERATOR shall not make any charge to the joint account for insurance premiums.

EXHIBIT "E"

GAS BALANCING AGREEMENT
FOR GAS WELL PRODUCTION

Attached to and made a part of the Operating Agreement between ATLANTIC RICHFIELD COMPANY, operator, and PENNZOIL COMPANY, ET AL, Non-operators

The parties to the Operating Agreement to which this Gas Balancing Agreement is attached own the working interest in the gas rights underlying the Joint Property covered by such agreement and are entitled to share in the percentages as stated in the Operating Agreement.

In accordance with the terms of the Operating Agreement, each party thereto has the right to take its share of gas produced from the Unit Area and market the same. In the event any of the parties hereto does not market its share of gas or has contracted to sell its share of gas produced from the Joint Property to a purchaser which, at any time while this agreement is in effect fails to take the share of gas attributable to the interest of such party, the terms of this storage agreement shall automatically become effective.

1.

During any period or periods when the market of a party is not sufficient to take that party's full share of the gas produced from the Joint Property, or its purchaser is unable to take its share of gas produced from the Joint Property, the other party or parties shall be entitled to produce from said Joint Property (and take or deliver to a purchaser), each month, all or a part of that portion of the allowable gas production assigned to such Joint Property by the regulatory body having jurisdiction. That party shall be entitled to take and deliver to its or their purchaser all of such gas production, provided; however, that no party shall be entitled to take or deliver to a purchaser gas production in excess of 200% (percent) of its share of the allowable gas production assigned thereto by the regulatory body having jurisdiction, unless that party has gas in storage or unless the other parties mutually agree to a greater percentage. All parties hereto shall share in and own the liquid hydrocarbons recovered from such gas by primary separation equipment in accordance with their respective interests and subject to the terms of the above described Operating Agreement.

2.

Each party unable to market its share of the gas produced, and taking less than its full share of the gas produced shall be credited with gas in storage equal to its share of the gas produced under this agreement, less such party's share of the gas taken, gas used in Joint Property operations, vented, or lost. Each party taking gas shall furnish the Joint Property operator a monthly statement of gas taken. The operator of the Joint Property will maintain a running account of the gas balance between the parties hereto and will furnish each party monthly statements showing the total quantity of gas produced, the amount thereof used in Joint Property operations, vented or lost, and the total quantity of gas delivered to markets. Measurement of gas for over and under production shall be accomplished by use of sales meters, and lease measurement shall be in accordance with AGA requirements.

3.

After written notice to the operator, any party may at any time begin taking or delivering to its purchaser its full share of the gas produced from said Joint Property (less any used in Joint operations, vented, or lost). To allow for the recovery of gas in storage and to balance the gas account of the parties in accordance with their respective interests, a party with gas in storage shall be entitled to take or deliver to a purchaser its full share of gas produced from said Joint Property (less any used in Joint operations, vented, or lost) plus an amount determined by multiplying fifty percent (50%) of the interest of the party or parties without gas in storage by a fraction, the numerator of which is the interest in the Joint Property of such party with gas in storage and the denominator of which is the total percentage interest in the Joint Property of all parties with gas in storage.

4.

Nothing herein shall be construed to deny any party the right, from time to time to produce and take or deliver to its purchaser its full share of the allowable gas production to meet the deliverability tests required by its purchaser. Each party, shall at all times, use its best efforts to regulate its takes and deliveries from said Joint Property so that said Joint Property will not be shut-in for over producing the allowable assigned thereto by the regulatory body having jurisdiction.

5.

During the terms of this agreement, while gas is being produced from the Joint Property, each party shall make settlement with its own respective royalty owners (and the term "royalty owners" shall include owners of royalties, overriding royalties, production payments and similar interests), based on such royalty owner's respective interests in the Joint Property and on total volumes of gas produced, saved and taken or delivered to purchasers. Each party hereto agrees to hold each other party harmless from any and all claims for royalty payments asserted by royalty owners to whom each party is accountable.

6.

Each party producing and taking or delivering gas to its purchaser shall pay, or cause to be paid, all production taxes due on such gas.

7.

In the event production of gas from said Joint Property shall be discontinued before the gas account is balanced, a complete balancing will be made between the parties for gas remaining in storage. In making such settlement, the party or parties with gas remaining in storage will be paid by the other party or parties a sum of money equal to that which said other party or parties received, less applicable taxes heretofore paid, for the latest delivery of a volume of gas equal to that for which settlement is made. The operator shall be responsible for determining the final accounting of the underproduction and overproduction and the amounts due to be paid to, or by, each party.

8.

This agreement shall remain in force and effect as long as the operating agreement, to which it is attached, and shall inure to the benefit of and be binding upon the parties hereto, their successors, legal representatives and assigns.

9.

Nothing herein shall change or affect each party's obligations to pay its proportionate share of all costs and liabilities incurred in Joint operations, as its share thereof is set forth in the above-described Operating Agreement.

10.

The provisions of this agreement shall be applied to each well and/or each formation separately as if each well and/or formation was a separate well and covered by separate but identical agreements.

11.

Notwithstanding any foregoing provisions hereof, each party failing to commence marketing or taking its share of the produced gas (in whole or in part) within six months from date of commencement of marketing or taking of its or their share by another party or parties agrees to accept, at the election of such other party or parties and in lieu of credit for gas in storage, a cash adjustment based on the actual revenues received and attributable to the underages as they occur from date of first deliveries by the party or parties owing the underages. This paragraph, however, is not to apply to any underages of a party accruing from and after the date such party first commences marketing or taking its share of the gas (in whole or in part).

EXHIBIT "F"

EQUAL EMPLOYMENT OPPORTUNITY PROVISION

During the performance of this contract, the Operator (meaning and referring separately to each party hereto) agrees as follows:

(1) The Operator will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Operator will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Operator agrees to post in conspicuous places, available to employees and applicants for employment notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Operator will in all solicitations or advertisements for employees placed by or on behalf of the Operator, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

(3) The Operator will send to each labor union or representative of workers with which Operator has a collective bargaining agreement or other contract or understanding, a notice to be provided, advising the said labor union or workers' representatives of the Operator's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Operator will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The Operator will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to Operator's books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the Operator's non-compliance with the non-discrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the Operator may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The Operator will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Operator will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that in the event the Operator becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Operator may request the United States to enter into such litigation to protect the interests of the United States.

Operator acknowledges that Operator may be required to file Standard Form 100 (EEO-1) promulgated jointly by the Office of Federal Contract Compliance, the Equal Employment Opportunity Commission and Plans for Progress with the appropriate agency within 30 days of the date of contract award if such report has not been filed for the current year and otherwise comply with or file such other compliance reports as may be required under Executive Order 11246, as amended and Rules and Regulations adopted thereunder.

Operator further acknowledges that Operator may be required to develop a written affirmative action compliance program as required by the Rules and Regulations approved by the Secretary of Labor under authority of Executive Order 11246 and supply each other party hereto with a copy of such program if so requested.

CERTIFICATION OF NONSEGREGATED FACILITIES

By entering into this contract, the Operator certifies that Operator does not and will not maintain or provide for Operator's employees any segregated facilities at any of Operator's establishments, and that Operator does not and will not permit Operator's employees to perform their services at any location, under Operator's control, where segregated facilities are maintained. The Operator agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means, but is not limited to, any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom or otherwise. Operator further agrees that (except where Operator has obtained identical certifications from proposed contractors and subcontractors for specific time periods) Operator will obtain identical certifications from proposed contractors and subcontractors prior to the award of contracts or subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause; that Operator will retain such certifications in Operator's files and that Operator will forward the following notice to such proposed contractors and subcontractors (except where the proposed contractors or subcontractors have submitted identical certifications for specific time periods): Notice to prospective contractors and subcontractors of requirement for certifications of nonsegregated facilities. A Certificate of Nonsegregated Facilities must be submitted prior to the award of a contract or subcontract exceeding $10,000 which is no exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each contract and subcontract or for all contracts and subcontracts during a period (i.e., quarterly, semiannually, or annually).

PENNZOIL COMPANY
POST OFFICE DRAWER 1828 • MIDLAND, TEXAS 79702 • (915) 682-7316

May 6, 1980

ARCO Oil & Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

Re: S/2 Section 24, 17S - 28E
Eddy County, New Mexico
Aid Area

Gentlemen:

Pennzoil Company has decided not to farmout nor participate in a well, as to its interest, in the S/2 Section 24 until after Exxon has completed its proposed well in Section 23, 17S - 28E.

Very truly yours,

K. Medlock

Kenneth Medlock
Landman

KM:ks

cc: Address list attached

RECEIVED MAY 0 7 1980

AID AREA

ADRESS LIST

ARCO Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Doyle Hartman
508 C & K Petroleum Building ← THIS COPY FOR
Midland, Texas 79701

Inexco Oil Company
1100 Milam Building, Suite 1900
Houston, Texas 77002

Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

M. Ralph Lowe, Inc.
Erma Lowe
Maralo Inc.
c/o Maralo Inc.
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

South Empire State #1

El Paso NATURAL GAS COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978

PHONE: 915-543-2600

May 8, 1980

Mr. Doyle Hartman
Suite 508
C&K Petroleum Building
Midland, Texas 79701

Re: South Empire State No. 1 Well
S/2 Section 24, T17S, R28E
Eddy County, New Mexico

Dear Mr. Hartman:

This is to confirm our telephone conversation of May 8, 1980 in which we advised that El Paso has a gathering system in close proximity to the captioned well.

We are interested in purchasing any commercial quantities of gas which you may develop; and, as a measure of our interest, we have initiated right-of-way acquisition so that we may be in a position to offer a prompt connection in the event we are successful in contracting for your gas production.

We will appreciate your consideration of our proprosal to purchase your gas and will furnish appropriate contracts for your consideration at your request.

Very truly yours,

Richard P. Landon

For: Dale E. Lockett
Coordinator, Gas Purchases

DEL:RPJ:1
cc: Mr. H. O. Whitt, Midland
Mr. C. L. Ward, Midland

RECEIVED MAY 12 1980

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

May 9, 1980

Pennzoil Company
P. O. Box 1828
Midland, Texas 79702

Attention: Mr. H. W. Hollingshead

Re: Doyle Hartman
South Empire-State No. 1,
S/2 Section 24, T-17-S, R-28-E,
Eddy County, New Mexico

Gentlemen:

Reference is made to our meeting today regarding the status of the above noted well.

It is our understanding that you will recommend the following farmout based on us proceeding as fast as possible to both docket an NMOCD hearing requesting a non-standard Morrow location for our proposed South Empire State No. 1 (including compulsory pooling) and contracting for a rig:

1. Pennzoil to farmout its interest in the above described 320-acre tract with Doyle Hartman as operator to commence an 11,000-foot Morrow well 660' FSL and 660' FWL Section 24.

2. Completion of the well as a commercial producer from any formation after adequately evaluating the Morrow formation to earn all rights from surface to 100' below total depth drilled.

3. Pennzoil to retain a gross 30% of 8/8 override, absorbing all present royalty and burdens out of this override so operator would be assigned a 70% net revenue interest.

   At payout of all costs of drilling, completing, equipping and operating the well, Pennzoil to have the option of converting its net part of the override to a 50% working interest.

   Pennzoil's override and working interest shall be subject to proportionate reduction.

We also discussed the matter of prompt commencement of our proposed well without regard to the outcome of Exxon's proposed well in Section 23, and finally concluded that a spud date of August 1, 1980 would appear reasonable. However, this spud date is subject to a possible extension which would be granted only after you were both provided a copy of a signed drilling contract and the extension became necessary due to either an unforeseen delay in the rig moving on location or to our encountering a delay in receiving the NMOCD order.

Thank you for your consideration and please let me hear from you in this regard.

Very truly yours,

Doyle Hartman

DH/mh

cc: Mr. Ron Butterworth
Pennzoil Company
Midland, Texas

4

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

May 9, 1980

To: All Working Interest Owners
(Address List Attached)

Re: Doyle Hartman
South Empire State No. 1
S/2 Section 24, T-17-S, R-28-E,
Eddy County, New Mexico

Gentlemen:

Please refer to our various correspondence regarding the above noted well.

In this regard, Pennzoil Company has today agreed to recommend for final management approval the following farmout of its interest in the S/2 of Section 24:

1. Doyle Hartman as operator to commence an 11,000-foot Morrow well 660' FSL and 660' FWL of Section 24.

2. Completion of the well as a commercial producer from any formation after adequately evaluating the Morrow formation to earn all rights from surface to 100' below total depth drilled.

3. Pennzoil to retain a gross 30% of 8/8 override, absorbing all present royalty and burdens out of this override so operator would be assigned a 70% net revenue interest.

   At payout of all costs of drilling, completing, equipping and operating the well, Pennzoil to have the option of converting its net part of the override to a 50% working interest.

   Pennzoil's override and working interest shall be subject to proportionate reduction.

The above farmout is also subject to our proceeding as promptly as possible to docket that necessary NMOCD hearing previously discussed in our past correspondence and contracting for a rig. This requirement is exactly in line with our thinking.

We would therefore very much appreciate the remaining working interest

participants in the S/2 Section 24 agreeing to either participate or farmout as outlined above. In this regard, it should be noted that neither Continental nor Tenneco have answered any of our past correspondence and we need to hear from these companies also. Maralo, Inc. and Mrs. Erma Lowe have previously indicated they would participate in the well.

Thank you for your consideration and please let us hear from you as soon as possible.

Very truly yours,

Doyle Hartman

DH/mh

ADDRESS LIST

Pennzoil Company
P. O. Box 1828
Midland, Texas 79702

Attention: Mr. Kenneth Medlock

Inexco Oil Company
1100 Milam Building
Suite 1900
Houston, Texas 77002

Attention: Mr. Eldon Bush
Mr. Les Taconi

Maralo, Inc.
Mrs. Erma Lowe
M. Ralph Lowe, Inc.
c/o Maralo, Inc.
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Attention: Mr. John Burke

Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

Attention: Mr. H. W. Hugly

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Attention: Mr. Steve D. King

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

INEXCO OIL COMPANY

May 12, 1980

Doyle Hartman
508 C & K Petroleum Building
Midland, Texas 79701

Re: S/2 Section 24-17S, 28E
Eddy County, New Mexico
South Empire-Aid Cisco Area
NM 111

Dear Mr. Hartman:

Please be advised that Inexco Oil Company wishes to participate for its pro rata share of the seismic program you are presently undertaking in the referenced area. Our 26%+ share of the $20,000.00 program should be around $5,300.00.

After we have reviewed this new data and also had a chance to review the outcome of your hearing with the State of New Mexico Oil and Gas Conservation Commission, particularly if any penalties are imposed as to allowables because of the unorthodox location, Inexco shall advise you of its desire to join in the drilling of a well or farm out.

Our technical staff agrees that from the presently available data, the unorthodox location proposed by you appears to be the preferable location. If ARCO has data to support their proposed location that has heretofore not been available to the other owners in the area, we would welcome the opportunity to review same and incorporate the information into our interpretation of the area.

By copy of this letter I am asking Eldon Busch of Reservoir Department to contact you to make arrangements for Inexco to obtain copies of your seismic data.

Please advise us of the hearing date in order that we can keep abreast of the situation and be able to make a timely decision regarding joinder or farmout for the well.

Very truly yours,

L. J. Tacconi
Area Landman

LJT/ph

cc: Addressee list attached

RECEIVED MAY 16 1980

1100 MILAM BUILDING · SUITE 1900 · HOUSTON, TEXAS 77002 · (713) 651-3300

ADDRESS LIST

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Midland, Texas 79702

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P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

CAMPBELL AND BLACK, P.A.
LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR

POST OFFICE BOX 2208
JEFFERSON PLACE
SANTA FE, NEW MEXICO 87501
TELEPHONE (505) 988-4421

May 14, 1980

Mr. Joe D. Ramey
Director
Oil Conservation Division
New Mexico Department of
Energy & Minerals
Post Office Box 2088
Santa Fe, New Mexico 87501

HAND DELIVERED

Re: Application of Doyle Hartman for Compulsory Pooling and an Unorthodox Well Location, Eddy County, New Mexico

Dear Mr. Ramey:

Enclosed herewith in triplicate is the application of Doyle Hartman in the above-referenced case. Mr. Hartman requests that this case be included on the docket for the Commission hearing scheduled for June 5, 1980. We are requesting a full Commission hearing in this matter due to the fact that Mr. Hartman has a rig available on or about July 1 to drill the Morrow test well which is the subject of this case. We understand that Arco Oil and Gas Company will oppose this application and that, in any event, this case will eventually require a Commission hearing. We, therefore, believe that setting the matter for June 5 will avoid unnecessary delays in obtaining a final Commission order and will eliminate the possibility of an additional hearing in this matter.

On April 26, 1980, Mr. Hartman filed a C-101 and C-102 for the subject well. He noted on these forms that an application for a hearing to pool this acreage and to approve the non-standard location was being filed with the Division. Mr. Hartman owns the S/2 SW/4 of Section 24 and also owns 50% of Unit L. Arco owns the remaining 20 acres in Unit L. Mr. Hartman is proposing to drill his acreage. We do not know of any other acreage in the S/2 of 24 which currently is owned by Arco. We do, however, believe that Arco will file a similar application with the Oil Conservation Division proposing a well in Unit O. We, therefore, request that

BEFORE THE

OIL CONSERVATION COMMISSION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION OF DOYLE HARTMAN FOR COMPULSORY POOLING AND AN UNORTHODOX WELL LOCATION, EDDY COUNTY, NEW MEXICO

CASE _____

APPLICATION

Comes now, DOYLE HARTMAN, by and through his undersigned attorneys and, as provided by Section 70-2-17, New Mexico Statutes Annotated, 1978 Compilation, hereby makes application for an order pooling all of the mineral interests in the Pennsylvanian formation in and under the S/2 of Section 24, Township 17 South, Range 28 East, N.M.P.M., Eddy County, New Mexico, and in support thereof would show the Commission:

1. Applicant is the owner of 31.25% of the working interest in and under the S/2 of Section 24, and applicant has the right to drill thereon.

2. Applicant proposes to dedicate the above-referenced pooled unit to a well to be drilled at an unorthodox location 660 feet from the South and West lines of said Section 24.

3. Applicant has sought and obtained either voluntary agreement for pooling or farmout from all other working interest owners in the S/2 of said Section 24 except the following:

Pennzoil Company Post Office Box 1828 Midland, Texas 79702	31.2500%

neither application for permit to drill be approved pending hearing. We hope that the cases will be heard on the same date and intend to request that the cases be consolidated for the purposes of hearing since they involve the same issues.

Your attention to our request is appreciated.

Very truly yours,

William F. Carr

WFC:lr

Enclosures

cc: Mr. Doyle Hartman

Inexco Oil Company 1100 Milam Building Suite 1900 Houston, Texas 77002	26.3672%
Maralo, Inc. Mrs. Erma Lowe M. Ralph Lowe, Inc. c/o Maralo, Inc. 4600 Post Oak Place Suite 307 Houston, Texas 77027	.4883% .4883% .9765%
Exxon Company, U.S.A. Post Office Box 1600 Midland, Texas 79702	1.9531%
Continental Oil Company Post Office Box 1959 Midland, Texas 79702	.4883%
Tenneco Oil Company 6800 Park Ten Boulevard Suite 200 North San Antonio, Texas 78213	.4883%
Arco Oil and Gas Company Post Office Box 1610 Midland, Texas 79702	6.2500%

4. Said pooling of interest and well completion will avoid the drilling of unnecessary wells, will prevent waste and will protect correlative rights.

5. In order to permit the applicant to obtain its just and fair share of the oil and gas underlying the subject lands, the mineral interest should be pooled, and applicant should be designated the operator of the well to be drilled.

WHEREFORE, applicant prays that this application be set for hearing before the full Oil Conservation Commission, and that after notice and hearing as required by law the Commission enter its order (1) pooling the lands, including provisions designating the applicant as operator of the well, providing for applicant to recover its costs of drilling, equipping and

completing the well, its costs of supervision while drilling, and after completion, including overhead charges, and a risk factor for the risk assumed by the applicant in drilling, completing and equipping the well and (2) approving the unorthodox location for the proposed well and (3) making such other and further provisions as may be proper in the premises.

Respectfully submitted,

CAMPBELL AND BLACK, P.A.

By William F. Carr

William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87501
Attorneys for Applicant

Docket No. 17-80

Dockets Nos. 19-80 and 20-80 are tentatively set for June 25 and July 9, 1980. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: COMMISSION HEARING - THURSDAY - JUNE 5, 1980

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

CASE 6927: Application of Doyle Hartman for compulsory pooling and an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South and West lines of said Section 24. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6928: Application of ARCO Oil and Gas Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 24, Township 17 South, Range 28 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

****

Docket No. 16-80

DOCKET: EXAMINER HEARING - WEDNESDAY - JUNE 4, 1980

9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

CASE 6803: (Continued from April 23, 1980, Examiner Hearing)

In the matter of the hearing called by the Oil Conservation Division on its own motion to permit EPROC Associates, Hartford Accident and Indemnity Company, and all other interested parties to appear and show cause why its Monsanto State B Well No. 1 located in Unit E of Section 2, Township 30 North, Range 16 West, San Juan County, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6906: Application of Amoco Production Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its South Mattix Unit Well No. 39 located in Unit G of Section 15, Township 24 South, Range 37 East, to produce oil from the Fowler-Upper Yeso and Fowler-Drinkard Pools thru parallel strings of tubing.

CASE 6907: Application of Amoco Production Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Myers B Federal Well No. 28 located in Unit M of Section 9, Township 24 South, Range 37 East, to produce gas from the Jalmat and Langlie Mattix Pools thru parallel strings of tubing.

CASE 6908: Application of Estoril Producing Corporation for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Curry State Well No. 1, a Pennsylvanian test to be drilled 660 feet from the North and East lines of Section 22, Township 23 South, Range 34 East, Antelope Ridge Field, the N/2 of said Section 22 to be dedicated to the well.

CASE 6909: Application of El Paso Natural Gas Company for downhole commingling, Rio Arriba County, New Mexico, Applicant, in the above-styled cause, seeks approval for the downhole commingling of Basin-Dakota and Largo-Gallup production in the wellbore of its Rincon Unit Well No. 164 located in Unit L of Section 2, Township 26 North, Range 7 West.

CASE 6896: (Continued from May 21, 1980, Examiner Hearing)

Application of Aminoil USA, Inc. for compulsory pooling and an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp and Pennsylvanian formations underlying the S/2 of Section 10, Township 24 South, Range 28 East, to be dedicated to a well to be drilled at an unorthodox location 2080 feet from the South line and 1773 feet from the East line of said Section 10. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6910: Application of Grace Petroleum Corporation for four compulsory poolings, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Gallup formation underlying four 40-acre proration units, being the SE/4 NE/4, the SE/4 NW/4, and the NW/4 NW/4 of Section 28, and the SW/4 SE/4 of Section 29, all in Township 24 North, Range 7 West, each to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the wells, and a charge for risk involved in drilling said wells.

CASE 6911: Application of Grace Petroleum Corporation for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Gallup formation underlying the NE/4 NW/4 of Section 11, Township 23 North, Range 7 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6912: Application of Southland Royalty Company for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its State "14" Comm. Well No. 1 located in Unit E of Section 14, Township 19 South, Range 29 East, Turkey Track Field, to produce gas from the Morrow and Atoka formations thru tubing and the casing-tubing annulus, respectively

CASE 6913: Application of Kerr-McGee Corporation for an unorthodox well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its State F Well No. 14 to be drilled 1310 feet from the North line and 1330 feet from the West line of Section 2, Township 8 South, Range 33 East, Chaveroo-San Andres Pool.

CASE 6914: Application of Wilson Oil Company for a non-standard proration unit and unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 320-acre non-standard gas proration unit comprising the S/2 of Section 29, Township 20 South, Range 36 East, North Osudo-Morrow Gas Pool, to be dedicated to its State JD Well No. 1 at an unorthodox location 1650 feet from the South line and 1980 feet from the West line of said Section 29.

CASE 6915: Application of Jake L. Hamon for a non-standard gas proration unit and an unorthodox well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 320-acre non-standard gas proration unit comprising the S/2 of Section 8, Township 20 South, Range 36 East, North Osudo-Morrow Gas Pool, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South line and 1980 feet from the West line of said Section 8.

CASE 6916: Application of Petro-Lewis Corporation for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of the Drinkard and Blinebry production in the wellbore of its State DC Well No. 1, a quadruple completion located in Unit F of Section 19, Township 21 South, Range 37 East.

CASE 6917: Application of Yates Petroleum Corporation for an NGPA determination, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks a new onshore reservoir determination for its Goat Roper "LP" Com. Well No. 1 located in Unit P of Section 30, Township 17 South, Range 26 East.

CASE 6918: Application of Yates Petroleum Corporation for downhole commingling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Upper Penn and Morrow gas production in the wellbore of its Kennedy "JQ" Com. Well No. 1 located in Unit H of Section 33, Township 17 South, Range 26 East, Kennedy Farms Field.

CASE 6919: Application of Yates Petroleum Corporation for downhole commingling or consolidation of two pools, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Wolfcamp and Penn gas production in the wellbore of its Anderson State "CS" Com. Well No. 1-Y located in Unit G of Section 14, and its Fordinkus State "HZ" Com. Well No. 1 located in Unit [illegible] of Section 22, both in Township 18 South, Range 24 East, or, in the alternative, the consolidation of the Fordinkus-Cisco Gas Pool and the Penasco Draw Permo-Penn Gas Pool into one Permo-Penn gas pool to include the above-described wells.

CASE 6920: Application of Yates Petroleum Corporation for a dual completion and unorthodox well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its 5 Mile Draw Federal Well No. 1 to produce from the Pennsylvanian and Abo formations thru the tubing and casing-tubing annulus, respectively; applicant also seeks approval for the unorthodox location of said well in the Abo formation 800 feet from the South line and 2100 feet from the East line of Section 34, Township 6 South, Range 25 East, the SE/4 of the section to be dedicated to the well.

CASE 6903: (Continued from May 21, 1980, Examiner Hearing)

Application of Harvey E. Yates Company for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Pennsylvanian-Mississippian test well to be drilled 660 feet from the South line and 990 feet from the East line of Section 33, Township 13 South, Range 36 East, the S/2 of said Section 33 to be dedicated to the well.

CASE 6904: (Continued from May 21, 1980, Examiner Hearing)

Application of Harvey E. Yates Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the McDonald Unit Area, comprising 1,440 acres, more or less, of fee lands in Townships 13 and 14 South, Range 36 East.

CASE 6921: Application of Harvey E. Yates Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp-Mississippian formations underlying the S/2 of Section 33, Township 13 South, Range 36 East, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South and East lines of Section 33. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6922: Application of Harvey E. Yates Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp-Pennsylvanian formations underlying the E/2 of Section 24, Township 18 South, Range 28 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6923: Application of Harvey E. Yates Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Cayton-Austin Unit Area, comprising 960 acres, more or less, of State and fee lands in Township 14 South, Range 36 East.

CASE 6924: Application of Caribou Four Corners, Inc. for two unorthodox oil well locations, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of two wells to be drilled, the first being 860 feet from the North line and 2090 feet from the West line, and the second being 910 feet from the North line and 395 feet from the West line, both in Section 13, Township 29 North, Range 15 West, Cha Cha-Gallup Oil Pool, the E/2 and the W/2, respectively, of the NW/4 of said Section 13 to be dedicated to the wells.

CASE 6925: Application of Caribou Four Corners, Inc. for two exceptions to Rule 306, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Rule 306 of the Division Rules and Regulations to permit the permanent flaring of gas from its Kirtland Wells Nos. 1 and 2, located in Units A and B, respectively, of Section 13, Township 29 North, Range 15 West.

CASE 6889: (Readvertised)

Application of Belco Petroleum Corporation for directional drilling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to directionally drill a well, the surface location of which is 1980 feet from the North line and 920 feet from the West line of Section 36, Township 22 South, Range 30 East, in such a manner as to bottom it at an unorthodox location within 660 feet of a point 1320 feet from the North line and 2640 feet from the West line of said Section 36 in the Morrow formation, the N/2 of said Section 36 to be dedicated to the well.

CASE 6896: (Continued from May 21, 1980, Examiner Hearing)

Application of John E. Schalk for a non-standard gas proration unit and an unorthodox gas well location, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard Blanco Mesaverde gas proration unit comprising the NE/4 of Section 8, Township 25 North, Range 3 West, to be dedicated to his Gulf Well No. 2 to be drilled at an unorthodox location 1925 feet from the North line and 790 feet from the East line of said Section 8.

CASE 6926: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating, contracting vertical limits, and extending horizontal limits of certain pools in Chaves, Eddy, and Lea Counties, New Mexico:

(a) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Pennsylvanian production and designated as the Arkansas Junction-Pennsylvanian Pool. The discovery well is Rex Alcorn Bobbi Well No. 1Y located in Unit J of Section 20, Township 18 South, Range 36 East, NMPM. Said pool would comprise:

TOWNSHIP 18 SOUTH, RANGE 36 EAST, NMPM
Section 20: SE/4

(b) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Delaware production and designated as the Avalon-Delaware Pool. The discovery well is MWJ Producing Company State GW Well No. 1 located in Unit K of Section 36, Township 20 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 27 EAST, NMPM
Section 36: SW/4

(c) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Delaware production and designated as the East Burton-Delaware Pool. The discovery well is J. C. Williamson TOG Federal Well No. 1 located in Unit F of Section 16, Township 20 South, Range 29 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 29 EAST, NMPM
Section 16: NW/4

(d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the Dog Canyon-Strawn Gas Pool. The discovery well is Harvey E. Yates Company Gates Federal Deep Well No. 1 located in Unit P of Section 6, Township 17 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 6: S/2

(e) CREATE a new pool in Chaves County, New Mexico, classified as an oil pool for San Andres production and designated as the South Double L-San Andres Pool. The discovery well is McClellan Oil Corporation Mark Federal Well No. 1 located in Unit I of Section 30, Township 15 South, Range 30 East, NMPM. Said pool would comprise:

TOWNSHIP 15 SOUTH, RANGE 30 EAST, NMPM
Section 30: SE/4

(f) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Grayburg production and designated as the Empire-Grayburg Gas Pool. The discovery well is Carl A. Schellinger West Federal Well No. 1 located in Unit G of Section 14, Township 17 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM
Section 14: NE/4

(g) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Morrow production and designated as the North Hume-Morrow Gas Pool. The discovery well is Bass Enterprises Production Company Bass 36 State Well No. 1 located in Unit E of Section 36, Township 15 South, Range 34 East, NMPM. Said pool would comprise:

TOWNSHIP 15 SOUTH, RANGE 34 EAST, NMPM
Section 36: W/2

(h) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Atoka production and designated as the Lusk-Atoka Gas Pool. The discovery well is Phillips Petroleum Company Lusk Deep Unit A Com Well No. 13 located in Unit K of Section 18, Township 19 South, Range 32 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
Section 18: S/2

(i) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Morrow production and designated as the Milepost-Morrow Gas Pool. The discovery well is Exxon Corporation Scheidt Federal Well No. 1 located in Unit L of Section 30, Township 26 South, Range 26 East, NMPM. Said pool would comprise:

TOWNSHIP 26 SOUTH, RANGE 25 EAST, NMPM
Section 36: N/2 N/2 and Lots, 1, 2, 3, and 4

TOWNSHIP 26 SOUTH, RANGE 26 EAST, NMPM
Section 30: S/2
Section 31: N/2 NW/4 and Lots 3 and 4

(j) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Atoka production and designated as the Turkey Track-Atoka Gas Pool. The discovery well is Tenneco Oil Company State HL 11 Well No. 1 located in Unit N of Section 11, Township 19 South, Range 29 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 10: E/2
Section 11: S/2

(k) CONTRACT the vertical limits of the East Grama Ridge-Bone Springs Pool to the interval from 10,472 feet to 10,900 feet as found on the type log for the Getty Oil Company State 35 Well No. 1 located in Unit K of Section 35, Township 21 South, Range 34 East, NMPM, and redesignate said pool as the East Grama Ridge-Lower Bone Springs Pool.

(l) EXTEND the Airstrip-Upper Bone Springs Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM
Section 25: W/2 SW/4
Section 26: SE/4

(m) EXTEND the Atoka-Yeso Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 26 EAST, NMPM
Section 33: NW/4 and N/2 S/2

(n) EXTEND the Brunson-Fusselman Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM
Section 8: SE/4

(o) EXTEND the Buckeye-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM
Section 9: NW/4

(p) EXTEND the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM
Section 13: W/2
Section 14: E/2

(q) EXTEND the Catclaw Draw-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 26 EAST, NMPM
Section 34: S/2

TOWNSHIP 21 SOUTH, RANGE 25 EAST, NMPM
Section 2: Lots 1 through 8

(r) EXTEND the Chaveroo-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 32 EAST, NMPM
Section 34: NE/4

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Section 3: SW/4

(s) EXTEND the Cinta Roja-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 35 EAST, NMPM
Section 4: All

(t) EXTEND the South Corbin-Strawn Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM
Section 29: N/2
Section 30: N/2

(u) EXTEND the South Corbin-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM
Section 28: W/2

(v) EXTEND the Crooked Creek-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 24 EAST, NMPM
Section 8: S/2

(w) EXTEND the South Empire-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 29 EAST, NMPM
Section 17: All

(x) EXTEND the East Grama Ridge-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 34 EAST, NMPM
Section 12: W/2

(y) EXTEND the Hat Mesa-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 32 EAST, NMPM
Section 10: W/2

(z) EXTEND the Henshaw Queen-Grayburg-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 30 EAST, NMPM
Section 11: SW/4 SW/4
Section 14: S/2 and W/2 NW/4
Section 15: E/2 SE/4

(aa) EXTEND the Hobbs-Drinkard Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 38 EAST, NMPM
Section 4: SE/4

(bb) EXTEND the Indian Flats-Delaware Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 2: N/2 NE/4

(cc) EXTEND the South Kemnitz Atoka-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 29: W/2

(dd) EXTEND the Logan Draw-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM
Section 19: N/2 NE/4 and SE/4 NE/4

(ee) EXTEND the Middle Lynch Yates-Seven Rivers Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 34 EAST, NMPM
Section 21: E/2 SW/4

(ff) EXTEND the Penasco Draw San Andres-Yeso Associated Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 25 EAST, NMPM
Section 31: SW/4

(gg) EXTEND the East Red Lake Queen-Grayburg Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 28 EAST, NMPM
Section 25: S/2 S/2
Section 26: S/2 SE/4 and SE/4 SW/4
Section 36: N/2 NW/4

(hh) EXTEND the North Shugart-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 17: S/2

(ii) EXTEND the Tomahawk-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 31 EAST, NMPM
Section 25: SE/4

(jj) EXTEND the Turkey Track Seven Rivers-Queen-Grayburg Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 9: E/2 NE/4

(kk) EXTEND the North Vacuum-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM
Section 17: NW/4

(ll) EXTEND the Winchester-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 3: All

(mm) EXTEND the Winchester-Upper Pennsylvanian Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 30: W/2

****

Docket No. 18-80

DOCKET: EXAMINER HEARING - THURSDAY - JUNE 19, 1980

9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for July, 1980, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for July, 1980, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

MEMO TO FILE

Re: South Empire State No. 1

Today I talked with Mr. Steve King with Tenneco concerning their position related to our South Empire State No. 1. Mr. King informed me that Tenneco's staff had just finished reviewing the Morrow geology in the South Empire area and concurred with our proposed location of 660 FSL and 660 FWL Section 24 for the South Empire State No. 1, and based on their findings state they would therefore like to participate with us in the drilling of the subject well. He also informed me that he would issue a letter indicating Tenneco's position in the very near future.

cc: Bill Carr
Bill Aycock
Buddy Davidson

Doyle Hartman

May 15, 1980

Tenneco Interest: 1.5625 acres
0.4883%

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

MEMO TO FILE

Re: South Empire State No. 1

Today I talked by phone to Dave Goodfellow with Conoco concerning their position related to our proposed South Empire State No. 1. Mr. Goodfellow stated that since Conoco had such a small interest, it would farmout its interest to either Doyle Hartman or Arco and that Conoco would prefer receiving a larger initial ORRI from the farmoutee with no subsequent backin as compared to the previously proposed 30% ORRI less current burdens until payout with a 50% backin after payout. I informed Mr. Goodfellow that we would attempt to meet his request by sending them an amended farmout request providing for the larger initial ORRI and no backin.

cc: Bill Carr
Bill Aycock
Buddy Davidson

Doyle Hartman

May 15, 1980

Conoco interest: 1.5625 acres
0.4883%

Hear

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

May 19, 1980

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

Re: Proposed South Empire State No. 1
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico

Gentlemen:

Reference is made to our various prior correspondence concerning the above noted well and our telephone conversation Thursday, May 15, 1980.

In view of the fact that Conoco's interest is very small and in order to not burden Conoco with bookkeeping on an extremely small back-in after payout, I would like to propose the following farmout:

1. Operator to drill a Morrow test as outlined in prior correspondence to you.

2. Completion of the well as one capable of producing in paying quantities to earn Conoco's interest in the S/2 of Section 24, limited from surface to 100 feet below total depth drilled.

3. Conoco to retain a gross 40% of 8/8 override, absorbing all present royalty and other burdens out of this override, so operator would be assigned a 60% net revenue interest.

I would much prefer that Conoco farmout rather than be force-pooled. As a matter of policy, I would rather not have to rely on force-pooling since it generally causes bad feelings irrespective of the outcome of this type of hearing. Also, it would be much better to be able to report to the New Mexico Oil Conservation Division that Conoco supports our position at least to the extent of farming out.

Thank you for your consideration and please let me hear from you.

Very truly yours,

Doyle Hartman

DH/mh

Kenai
CAPITAN

May 19, 1980

Doyle Hartman
C & K Petroleum Bldg.
Suite 508
Midland, Texas 79701

RE: Marrow Test
Sec. 24, T-17-S, R-28-E,
Eddy County, New Mexico

Dear Sir,

We wish to amend the bid letter dated April 28, 1980, for the drilling of the above referenced well.

As stated in the letter the bid was tentative because of rig availablilty. Our Rig #28 now has been taken by prior bidding for the rest of 1980 and will not be available for the work.

However, at the present time our Rig #15 is drilling in the Pyote, Texas area. This rig shall have a window for one well in its schedule sometime between June 15, and July 1, 1980.

All articles of the bid letter remain unchanged except the mobilization of the rig will read $40,000.00.

As the drilling load has picked up in the area, all of our rigs are committed for long term work. Only by getting a window of this kind, can we offer you a rig to drill your well. We need to know at your earliest convenience as to the acceptance of this bid so that the rig may be scheduled for you. As things now stand we may not have another opening this year.

Please find enclosed an "Equipment List" for this rig.

Thank you for the opportunity of bidding on your drilling work.

Very truly yours,

KENAI DRILLING OF TEXAS, INC.

William C. Smith

William C. Smith
President

WCS:kbo

Enclosure

Kenai
CAPITAN

MAJOR ITEMS of EQUIPMENT

Rig No. 15

Recommended Depth for Drilling 9,000' - 11,000'

DRAWWORKS:
Emsco Model G-500 w/Parkersburg 36 Hydromatic Brake, and
2 - Model D-353 TA (400 HP) Caterpillar Engines

MAST:
L. C. Moore 131' 485,000# Capacity w/11' Substructure

MUD SYSTEM:
National Model C-350 Pump (Forged Steel Fluid End)
Gaso Model 2652 w/Caperpillar D-342 Engine
Link Belt Vibrating 4 x 5 Shale Shaker
3 - 5 x 8 x 30 Steel Mud Pits with guns and jets

OVER-HEAD EQUIPMENT:
Emsco Model RA 4-36 250 Ton Traveling Block
Brewster Model 6 BSX 210 Ton Swivel
B. J. Model 4200 200 Ton Triplex Hook

ROTARY EQUIPMENT:
National Ideal MS 20-1/2" 300 Ton Rotary Table

WELL CONTROL EQUIPMENT:
Shaffer 10" Series 900 Type LWS Double Hydraulic B.O.P.
Closing Unit and Accumulator
Flanged Kill Line and Valves
Flanged 4" Valves and Lines with Double 2" Choke Manifold
Upper and Lower Kelly Cocks
Drill Pipe Dart Valve

OPERATIONAL INSTRUMENTS:
Bell Automatic Driller, Martin-Decker 3 Pen Recordergraph, Martin-Decker Torque Gauge, A-1 Sureshot 14°

ELECTRICAL SYSTEM:
Ford 256 30 KW Electric Set
String of Rig-O-Lite Vapor Proof Lights

WATER STORAGE:
500 bbl. Horizontal Water Tank

DRILLING STRING:
4" O. D. Grade E Drill Pipe (11,000')
Size and number required of Drill Collars and Subs

MISCELLANEOUS EQUIPMENT:
35' Trailer House with beds, kitchen and bath
Other equipment available from yard as job requires

5.28.80

Tenneco's Mr Miller called wanting-wig July 1st for rest of year 7600' well at Plains - will let him know Fri ~~June~~ June 6th -

Bill Smith

Tenneco Oil
Exploration and Production
A Tenneco Company

Southwestern Division

6800 Park Ten Blvd • Suite 200 North
San Antonio, Texas 78213
(512) 734-8161

May 20, 1980

Mr. Doyle Hartman
Suite 508, C&K, Petroleum Building
Midland, Texas 79701

RE: South Empire State #1
S/2 Section 24, T17S-R28E
Eddy County, New Mexico

Dear Mr. Hartman:

Reference is made to your letters concerning the above acreage and your attempts to secure approval of a non-standard drilling location for a Morrow test. Tenneco Oil Company has studied the geology in the active area and has decided to participate, as to our net interest in the referenced acreage, in the drilling of the Morrow test.

This election to participate is, of course, subject to your securing approval of the non-standard location and also, subject to final management approval of the terms of any operating agreement and any AFE proposed by you as operator.

Please forward your proposed operating agreement when ready for our consideration. If I may be of any further assistance, please feel free to contact me.

Very truly yours,

TENNECO OIL COMPANY

By: Steve D. King
Landman

SDK:ph

cc: Working Interest List

RECEIVED MAY 2 2 1980 111A 12/78

Pennzoil Company
ATTENTION: Kenneth Medlock
P. O. Drawer 1828
Midland, Texas 79702

Inexco Oil Company
ATTENTION: William G. Goodwin
1100 Milam Building, Suite 1900
Houston, Texas 77002

Doyle Hartman
508 C & K Petroleum Building
Midland, Texas 79701

Exxon Company, U.S.A.
ATTENTION: H. W. Hugly
P. O. Box 1600
Midland, Texas 79702

M. Ralph Lowe, Inc.
Erma Lowe
Maralo Inc. ATTENTION: John R. Burke
c/o Maralo Inc.
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Continental Oil Company
ATTENTION: David M. Goodfellow
P. O. Box 1959
Midland, Texas 79702

Tenneco Oil Company
ATTENTION: Steve D. King
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

MEMO TO FILE

May 28, 1980

Re: South Empire State No. 1

Today I talked by phone to Mr. Vern Hines, geologist with Maralo, Inc. in Midland. He indicated that he has recommended that his Houston management give strong consideration to joining us in the drilling of our well at 660 FSL & 660 FWL Section 24, T-17-S, R-28-E, Eddy County, New Mexico, as opposed to joining Arco in the drilling of their proposed well at 660 FSL & 1980 FEL Section 24.

Doyle Hartman

MEMO TO FILE

May 28, 1980

Today I talked to Mr. John Burke with Maralo's Houston Office. He indicated he has received Vern Hines of Maralo's Midland office recommendation that Maralo join us in the drilling of our proposed Empire State No. 1 at our proposed location of the SW/4 SW/4 Section 24, T-17-S, R-28-E, and would probably get us a letter to this effect after their weekly management meeting on Thursday, May 29.

Doyle Hartman

MEMO TO FILE

May
~~April 28~~, 1980

Today I talked to Dave Goodfellow with Continental and he indicated he is recommending to upper management that Conoco farmout its interest in the S/2 Section 24, T-17-S, R-28-E, Eddy County, New Mexico to Doyle Hartman as per the terms of our farmout letter dated May 19, 1980. He also indicated he would attempt to get us a letter to this effect if possible.

Doyle Hartman

MEMO TO FILE

May 30, 1980

Re: South Empire State No. 1

Today I talked to John Burke with Maralo about the results of their weekly management meeting yesterday concerning our proposed South Empire State No. 1 Morrow test located SW/4 SW/4 Section 24, T-17-S, R-28-E, Eddy County, New Mexico. He informed me that they were not able to hold their weekly meeting due to Mary Ralph Lowe being unable to attend and indicated that their final approval would probably be forthcoming at their next weekly management meeting scheduled for June 5. However, he did indicate that our proposed location has received the full recommendation of the Maralo Staff and that the outcome of the decision to join was essentially cut and dried at this point.

Doyle Hartman

PENNZOIL COMPANY
WESTERN DIVISION

MIDLAND DISTRICT: GIBRALTAR SAVINGS BUILDING • (915) 682-7316
MAILING ADDRESS: P. O. DRAWER 1828 MIDLAND, TEXAS 79702

H. W. HOLLINGSHEAD, JR.
District Manager

June 2, 1980

Mr. Doyle Hartman
508 C&K Petroleum Building
Midland, Texas 79701

Re: Proposed 11,000' Morrow Test
(South Empire Morrow Pool)
SW/4 SW/4 Section 24, T-17-S,
R-28-E
Eddy County, New Mexico

Dear Mr. Hartman:

In reference to your proposed 11,000-feet Morrow test in the South Empire Morrow Pool, please be advised that Pennzoil, after a review of all available geological and geophysical data, considers the SW/4 SW/4 Section 24 to be the preferable Morrow location in the S/2 Section 24. It is Pennzoil's intention to either join or farmout to your proposed well and a final management decision should be shortly forthcoming.

We shall appreciate your keeping us informed of any new information with regard to your proposed well.

Very truly yours,

H. W. Hollingshead, Jr.

HWH:cb

DOYLE HARTMAN
Oil Operator
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

(915) 684-4011

June 3, 1980

All Working Interest Participants
(Address List Attached)
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico

Re: Operating Agreement and AFE
Doyle Hartman
South Empire State No. 1
S/2 Section 24, T-17-S, R-28-E
Eddy County, New Mexico

Gentlemen:

Please find enclosed two copies of a Model Form Operating Agreement (Revised 1977) plus an additional set of AFE's covering the S/2 Section 24, T-17-S, R-28-E, Eddy County, New Mexico which pertain to our recently proposed South Empire State No. 1 Morrow test in the SW/4 SW/4 Section 24. On June 5, 1980, we will go before the New Mexico Oil Conservation Division (Case No. 6927) to request approval for our proposed Morrow location plus pooling of all presently uncommitted Pennsylvanian interests in the S/2 Section 24.

Since an order approving both our non-standard location and pooling application is anticipated very shortly after the subject hearing, please return one executed copy of the enclosed operating agreement and AFE at your earliest convenience. If you have any further questions concerning our operation agreement or AFE, do not hesitate to contact us.

Very truly yours,

Doyle Hartman

DH/mh

ADDRESS LIST

Pennzoil Company
P. O. Box 1828
Midland, Texas 79702

Attention: Mr. Kenneth Medlock

Inexco Oil Company
1100 Milam Building
Suite 1900
Houston, Texas 77002

Attention: Mr. Eldon Bush

Maralo, Inc.
Mrs. Erma Lowe
M. Ralph Lowe, Inc.
c/o Maralo, Inc.
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Attention: Mr. John Burke

Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

Attention: Mr. H. W. Hugly

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Attention: Mr. Steve D. King

Atlantic Richfield Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

DETAIL WELL ESTIMATE

LEASE NO. LG-6340 APPR. NO. _____

LEASE NAME South Empire State WELL NO. 1 W. I. _____

COUNTY Eddy STATE New Mexico FIELD Empire Morrow, South

LOCATION: 660 FSL and 660 FWL Section 24, T-17-S, R-28-E

DRILLING INTANGIBLES:	PRODUCER	DRY HOLE
1. Drilling Cost _____ Feet @ _____ Per Foot		
2. Day Work 52 Days at $5000./day		
Rig Mobilization $73,000.	330,000	330,000
3. Coring Service _____ Well Surveys	25,000	25,000
4. Testing _____		
	5,000	5,000
5. Fuel _____ Water _____		
6. Mud and Water Mud Logging _____	26,000	26,000
7. Cementing Service _____ Cement _____ Floats _____	42,800	17,300
8. Company Labor _____ Contract Labor _____	12,000	1,200
9. Digging Pits _____ Filling Pits _____	12,000	12,000
10. Roads & Bridges _____ Dredging & Grading _____	12,000	12,000
11. Acidizing _____ Fracturing _____ Perforating _____	150,000	---
12. Plugging _____		8,000
13. Trucking Cost _____	8,500	2,500
14. Development Superintendence 75 days @ $ 350.00 /day	26,250	18,200
15. Rental Equipment _____	23,000	18,000
16. Swabbing and Testing 15 days at $1,200.	18,000	---
17. Other Costs Bits	29,100	29,100
Contingence	30,350	15,200
Total Intangibles	750,000	520,000

WELL EQUIPMENT:

18. Casing 500 Ft. of 13 3/8 @ 23.368 Per Ft.			
2,500 Ft. of 8 5/8 @ 11.853 Per Ft.			
11,400 Ft. of 5 1/2 @ 12.764 Per Ft.	186,826	41,317	
19. Tubing 11,400 Ft. of 2 7/8 @ 5.067 Per Ft.	57,764		
20. Casing Head _____	6,000	6,000	
21. Xmas Tree or Pumping Connections _____	39,000		
22. Pumping Unit _____			
23. Engine _____			
24. Sucker Rods _____			
25. Pump _____			
26. Tank Battery _____	7,200		
27. Separator or Dehydration Equip. _____	32,000		
28. Metering Equipment _____			
29. Flow Lines _____	12,500		
30. Other Contingence	10,000		
	18,710	2,683	
Total Tangibles	370,000	50,000	
TOTAL COST OF WELL	1,120,000	570,000	

REMARKS: _____

Originated by Larry A. Neumyer Title Engineer Date April 30, 1980

Approved _____ Title _____ Date _____

A.A.P.L. FORM 610 - 1977

MODEL FORM OPERATING AGREEMENT

OPERATING AGREEMENT

DATED

May 30, 1980,

OPERATOR DOYLE HARTMAN

CONTRACT AREA South Empire State No. 1

S/2 Section 24, T-17-S, R-28-E

COUNTY ~~OR PARISH~~ OF Eddy STATE OF New Mexico

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AMERICAN ASSOCIATION OF PETROLEUM LANDMEN
APPROVED FORM A.A.P.L. NO 610 - 1977 REVISED
MAY BE ORDERED DIRECTLY FROM THE PUBLISHER
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OPERATING AGREEMENT

THIS AGREEMENT, entered into by and between DOYLE HARTMAN and PENNZOIL COMPANY, INEXCO OIL COMPANY, TENNECO OIL COMPANY, et al, hereinafter designated and referred to as "Operator", and the signatory party or parties other than Operator, sometimes hereinafter referred to individually herein as "Non-Operator", and collectively as "Non-Operators".

WITNESSETH:

WHEREAS, the parties to this agreement are owners of oil and gas leases and/or oil and gas interests in the land identified in Exhibit "A", and the parties hereto have reached an agreement to explore and develop these leases and or oil and gas interests for the production of oil and gas to the extent and as hereinafter provided:

NOW, THEREFORE, it is agreed as follows:

ARTICLE I.
DEFINITIONS

As used in this agreement, the following words and terms shall have the meanings here ascribed to them:

A. The term "oil and gas" shall mean oil, gas, casinghead gas, gas condensate, and all other liquid or gaseous hydrocarbons and other marketable substances produced therewith, unless an intent to limit the inclusiveness of this term is specifically stated.

B. The terms "oil and gas lease", "lease" and "leasehold" shall mean the oil and gas leases covering tracts of land lying within the Contract Area which are owned by the parties to this agreement.

C. The term "oil and gas interests" shall mean unleased fee and mineral interests in tracts of land lying within the Contract Area which are owned by parties to this agreement.

D. The term "Contract Area" shall mean all of the lands, oil and gas leasehold interests and oil and gas interests intended to be developed and operated for oil and gas purposes under this agreement. Such lands, oil and gas leasehold interests and oil and gas interests are described in Exhibit "A".

E. The term "drilling unit" shall mean the area fixed for the drilling of one well by order or rule of any state or federal body having authority. If a drilling unit is not fixed by any such rule or order, a drilling unit shall be the drilling unit as established by the pattern of drilling in the Contract Area or as fixed by express agreement of the Drilling Parties.

F. The term "drillsite" shall mean the oil and gas lease or interest on which a proposed well is to be located.

G. The terms "Drilling Party" and "Consenting Party" shall mean a party who agrees to join in and pay its share of the cost of any operation conducted under the provisions of this agreement.

H. The terms "Non-Drilling Party" and "Non-Consenting Party" shall mean a party who elects not to participate in a proposed operation.

Unless the context otherwise clearly indicates, words used in the singular include the plural, the plural includes the singular, and the neuter gender includes the masculine and the feminine.

ARTICLE II.
EXHIBITS

The following exhibits, as indicated below and attached hereto, are incorporated in and made a part hereof:

[X] A. Exhibit "A", shall include the following information:
  (1) Identification of lands subject to agreement,
  (2) Restrictions, if any, as to depths or formations,
  (3) Percentages or fractional interests of parties to this agreement,
  (4) Oil and gas leases and/or oil and gas interests subject to this agreement,
  (5) Addresses of parties for notice purposes.

[ ] B. Exhibit "B", Form of Lease.

[X] C. Exhibit "C", Accounting Procedure.

[X] D. Exhibit "D", Insurance.

[X] E. Exhibit "E", Gas Balancing Agreement.

[X] F. Exhibit "F", Non-Discrimination and Certification of Non-Segregated Facilities.

If any provision of any exhibit, except Exhibit "E", is inconsistent with any provision contained in the body of this agreement, the provisions in the body of this agreement shall prevail.

ARTICLE III.
INTERESTS OF PARTIES

A. Oil and Gas Interests:

If any party owns an unleased oil and gas interest in the Contract Area, that interest shall be treated for the purpose of this agreement and during the term hereof as if it were a leased interest under the form of oil and gas lease attached as Exhibit "B". As to such interest, the owner shall receive royalty on production as prescribed in the form of oil and gas lease attached hereto as Exhibit "B". Such party shall, however, be subject to all of the provisions of this agreement relating to lessees, to the extent that it owns the lessee interest.

B. Interest of Parties in Costs and Production:

Exhibit "A" lists all of the parties and their respective percentage or fractional interests under this agreement. Unless changed by other provisions, all costs and liabilities incurred in operations under this agreement shall be borne and paid, and all equipment and material acquired in operations on the Contract Area shall be owned by the parties as their interests are shown in Exhibit "A". All production of oil and gas from the Contract Area, subject to the payment of lessor's royalties ~~which will be borne by the Joint Account~~, shall also be owned by the parties in the same manner during the term hereof; provided, however, this shall not be deemed an assignment or cross-assignment of interests covered hereby.

ARTICLE IV.
TITLES

A. Title Examination:

Title examination shall be made on the drillsite of any proposed well prior to commencement of drilling operations or, if the Drilling Parties so request, title examination shall be made on the leases and or oil and gas interests included, or planned to be included, in the drilling unit around such well. The opinion will include the ownership of the working interest, minerals, royalty, overriding royalty and production payments under the applicable leases. At the time a well is proposed, each party contributing leases and or oil and gas interests to the drillsite, or to be included in such drilling unit, shall furnish to Operator all abstracts (including Federal Lease Status Reports), title opinions, title papers and curative material in its possession free of charge. All such information not in the possession of or made available to Operator by the parties, but necessary for the examination of title, shall be obtained by Operator. Operator shall cause title to be examined by attorneys on its staff or by outside attorneys. Copies of all title opinions shall be furnished to each party hereto. The cost incurred by Operator in this title program shall be borne as follows:

[ ] Option No. 1: Costs incurred by Operator in procuring abstracts and title examination (including preliminary, supplemental, shut-in gas royalty opinions and division order title opinions) shall be a part of the administrative overhead as provided in Exhibit "C," and shall not be a direct charge, whether performed by Operator's staff attorneys or by outside attorneys.

[X] Option No. 2: Costs incurred by Operator in procuring abstracts and fees paid outside attorneys for title examination (including preliminary, supplemental, shut-in gas royalty opinions and division order title opinions) shall be borne by the Drilling Parties in the proportion that the interest of each Drilling Party bears to the total interest of all Drilling Parties as such interests appear in Exhibit "A". Operator shall make no charge for services rendered by its staff attorneys or other personnel in the performance of the above functions.

Each party shall be responsible for securing curative matter and pooling amendments or agreements required in connection with leases or oil and gas interests contributed by such party. The Operator shall be responsible for the preparation and recording of Pooling Designations or Declarations as well as the conduct of hearings before Governmental Agencies for the securing of spacing or pooling orders. This shall not prevent any party from appearing on its own behalf at any such hearing.

No well shall be drilled on the Contract Area until after (1) the title to the drillsite or drilling unit has been examined as above provided, and (2) the title has been approved by the examining attorney or title has been accepted by all of the parties who are to participate in the drilling of the well.

B. Loss of Title:

1. Failure of Title: Should any oil and gas interest or lease, or interest therein, be lost through failure of title, which loss results in a reduction of interest from that shown on Exhibit "A", this agreement, nevertheless, shall continue in force as to all remaining oil and gas leases and interests, and

(a) The party whose oil and gas lease or interest is affected by the title failure shall bear alone the entire loss and it shall not be entitled to recover from Operator or the other parties any development

or operating costs which it may have theretofore paid, but there shall be no monetary liability on its part to the other parties hereto for drilling, development, operating or other similar costs by reason of such title failure; and

(b) There shall be no retroactive adjustment of expenses incurred or revenues received from the operation of the interest which has been lost, but the interests of the parties shall be revised on an acreage basis, as of the time it is determined finally that title failure has occurred, so that the interest of the party whose lease or interest is affected by the title failure will thereafter be reduced in the Contract Area by the amount of the interest lost; and

(c) If the proportionate interest of the other parties hereto in any producing well theretofore drilled on the Contract Area is increased by reason of the title failure, the party whose title has failed shall receive the proceeds attributable to the increase in such interests (less costs and burdens attributable thereto) until it has been reimbursed for unrecovered costs paid by it in connection with such well; and

(d) Should any person not a party to this agreement, who is determined to be the owner of any interest in the title which has failed, pay in any manner any part of the cost of operation, development, or equipment, such amount shall be paid to the party or parties who bore the costs which are so refunded; and

(e) Any liability to account to a third party for prior production of oil and gas which arises by reason of title failure shall be borne by the party or parties in the same proportions in which they shared in such prior production; and

(f) No charge shall be made to the joint account for legal expenses, fees or salaries, in connection with the defense of the interest claimed by any party hereto, it being the intention of the parties hereto that each shall defend title to its interest and bear all expenses in connection therewith.

2. Loss by Non-Payment or Erroneous Payment of Amount Due: If, through mistake or oversight, any rental, shut-in well payment, minimum royalty or royalty payment, is not paid or is erroneously paid, and as a result a lease or interest therein terminates, there shall be no monetary liability against the party who failed to make such payment. Unless the party who failed to make the required payment secures a new lease covering the same interest within ninety (90) days from the discovery of the failure to make proper payment, which acquisition will not be subject to Article VIII.B., the interests of the parties shall be revised on an acreage basis, effective as of the date of termination of the lease involved, and the party who failed to make proper payment will no longer be credited with an interest in the Contract Area on account of ownership of the lease or interest which has terminated. In the event the party who failed to make the required payment shall not have been fully reimbursed, at the time of the loss, from the proceeds of the sale of oil and gas attributable to the lost interest, calculated on an acreage basis, for the development and operating costs theretofore paid on account of such interest, it shall be reimbursed for unrecovered actual costs theretofore paid by it (but not for its share of the cost of any dry hole previously drilled or wells previously abandoned) from so much of the following as is necessary to effect reimbursement:

(a) Proceeds of oil and gas, less operating expenses, theretofore accrued to the credit of the lost interest, on an acreage basis, up to the amount of unrecovered costs;

(b) Proceeds, less operating expenses, thereafter accrued attributable to the lost interest on an acreage basis, of that portion of oil and gas thereafter produced and marketed (excluding production from any wells thereafter drilled) which, in the absence of such lease termination, would be attributable to the lost interest on an acreage basis, up to the amount of unrecovered costs, the proceeds of said portion of the oil and gas to be contributed by the other parties in proportion to their respective interests; and

(c) Any monies, up to the amount of unrecovered costs, that may be paid by any party who is, or becomes, the owner of the interest lost, for the privilege of participating in the Contract Area or becoming a party to this agreement.

3. Other Losses: All losses incurred, other than those set forth in Articles IV.B.1. and IV.B.2. above, shall not be considered failure of title but shall be joint losses and shall be borne by all parties in proportion to their interests. There shall be no readjustment of interests in the remaining portion of the Contract Area.

ARTICLE V.
OPERATOR

A. DESIGNATION AND RESPONSIBILITIES OF OPERATOR:

DOYLE HARTMAN shall be the Operator of the Contract Area, and shall conduct and direct and have full control of all operations on the Contract Area as permitted and required by, and within the limits of, this agreement. It shall conduct all such operations in a good and workmanlike manner, but it shall have no liability as Operator to the other parties for losses sustained or liabilities incurred, except such as may result from gross negligence or willful misconduct.

B. Resignation or Removal of Operator and Selection of Successor:

1. Resignation or Removal of Operator: Operator may resign at any time by giving written notice thereof to Non-Operators. If Operator terminates its legal existence, no longer owns an interest in the Contract Area, or is no longer capable of serving as Operator, it shall cease to be Operator without any action by Non-Operator, except the selection of a successor. Operator may be removed if it fails or refuses to carry out its duties hereunder, or becomes insolvent, bankrupt or is placed in receivership, by the affirmative vote of two (2) or more Non-Operators owning a majority interest based on ownership as shown on Exhibit "A", and not on the number of parties remaining after excluding the voting interest of Operator. Such resignation or removal shall not become effective until 7:00 o'clock A.M. on the first day of the calendar month following the expiration of ninety (90) days after the giving of notice of resignation by Operator or action by the Non-Operators to remove Operator, unless a successor Operator has been selected and assumes the duties of Operator at an earlier date. Operator, after effective date of resignation or removal, shall be bound by the terms hereof as a Non-Operator. A change of a corporate name or structure of Operator or transfer of Operator's interest to any single subsidiary, parent or successor corporation shall not be the basis for removal of Operator.

2. Selection of Successor Operator: Upon the resignation or removal of Operator, a successor Operator shall be selected by the Parties. The successor Operator shall be selected from the parties owning an interest in the Contract Area at the time such successor Operator is selected. If the Operator that is removed fails to vote or votes only to succeed itself, the successor Operator shall be selected by the affirmative vote of two (2) or more parties owning a majority interest based on ownership as shown on Exhibit "A", and not on the number of parties remaining after excluding the voting interest of the Operator that was removed.

C. Employees:

The number of employees used by Operator in conducting operations hereunder, their selection, and the hours of labor and the compensation for services performed, shall be determined by Operator, and all such employees shall be the employees of Operator.

D. Drilling Contracts:

All wells drilled on the Contract Area shall be drilled on a competitive contract basis at the usual rates prevailing in the area. If it so desires, Operator may employ its own tools and equipment in the drilling of wells, but its charges therefor shall not exceed the prevailing rates in the area and the rate of such charges shall be agreed upon by the parties in writing before drilling operations are commenced, and such work shall be performed by Operator under the same terms and conditions as are customary and usual in the area in contracts of independent contractors who are doing work of a similar nature.

ARTICLE VI.
DRILLING AND DEVELOPMENT

A. Initial Well:

On or before the 1st day of August, 1980, Operator shall commence the drilling of a well for oil and gas at the following location:

SW/4 SW/4 Section 24, T-17-S, R-28-E, Eddy County, New Mexico

and shall thereafter continue the drilling of the well with due diligence to a depth sufficient to test the Morrow formation or 11,000', whichever is lesser,

unless granite or other practically impenetrable substance or condition in the hole, which renders further drilling impractical, is encountered at a lesser depth, or unless all parties agree to complete or abandon the well at a lesser depth.

Operator shall make reasonable tests of all formations encountered during drilling which give indication of containing oil and gas in quantities sufficient to test, unless this agreement shall be limited in its application to a specific formation or formations, in which event Operator shall be required to test only the formation or formations to which this agreement may apply.

If, in Operator's judgment, the well will not produce oil or gas in paying quantities, and it wishes to plug and abandon the well as a dry hole, it shall first secure the consent of all parties and shall plug and abandon same as provided in Article VI.E.1. hereof.

B. Subsequent Operations:

1. Proposed Operations: Should any party hereto desire to drill any well on the Contract Area other than the well provided for in Article VI.A., or to rework, deepen or plug back a dry hole drilled at the joint expense of all parties or a well jointly owned by all the parties and not then producing in paying quantities, the party desiring to drill, rework, deepen or plug back such a well shall give the other parties written notice of the proposed operation, specifying the work to be performed, the location, proposed depth, objective formation and the estimated cost of the operation. The parties receiving such a notice shall have thirty (30) days after receipt of the notice within which to notify the parties wishing to do the work whether they elect to participate in the cost of the proposed operation. If a drilling rig is on location, notice of proposal to rework, plug back or drill deeper may be given by telephone and the response period shall be limited to forty-eight (48) hours, exclusive of Saturday, Sunday or legal holidays. Failure of a party receiving such notice to reply within the period above fixed shall constitute an election by that party not to participate in the cost of the proposed operation. Any notice or response given by telephone shall be promptly confirmed in writing.

2. Operations by Less than All Parties: If any party receiving such notice as provided in Article VI.B.1. or VI.E.1. elects not to participate in the proposed operation, then, in order to be entitled to the benefits of this article, the party or parties giving the notice and such other parties as shall elect to participate in the operation shall, within sixty (60) days after the expiration of the notice period of thirty (30) days (or as promptly as possible after the expiration of the forty-eight (48) hour period where the drilling rig is on location, as the case may be) actually commence work on the proposed operation and complete it with due diligence. Operator shall perform all work for the account of the Consenting Parties; provided, however, if no drilling rig or other equipment is on location, and if Operator is a Non-Consenting Party, the Consenting Parties shall either: (a) request Operator to perform the work required by such proposed operation for the account of the Consenting Parties, or (b) designate one (1) of the Consenting Parties as Operator to perform such work. Consenting Parties, when conducting operations on the Contract Area pursuant to this Article VI.B.2., shall comply with all terms and conditions of this agreement.

If less than all parties approve any proposed operation, the proposing party, immediately after the expiration of the applicable notice period, shall advise the Consenting Parties of (a) the total interest of the parties approving such operation, and (b) its recommendation as to whether the Consenting Parties should proceed with the operation as proposed. Each Consenting Party, within forty-eight (48) hours (exclusive of Saturday, Sunday or legal holidays) after receipt of such notice, shall advise the proposing party of its desire to (a) limit participation to such party's interest as shown on Exhibit "A", or (b) carry its proportionate part of Non-Consenting Parties' interest. The proposing party, at its election, may withdraw such proposal if there is insufficient participation, and shall promptly notify all parties of such decision.

The entire cost and risk of conducting such operations shall be borne by the Consenting Parties in the proportions they have elected to bear same under the terms of the preceding paragraph. Consenting Parties shall keep the leasehold estates involved in such operations free and clear of all liens and encumbrances of every kind created by or arising from the operations of the Consenting Parties. If such an operation results in a dry hole, the Consenting Parties shall plug and abandon the well at their sole cost, risk and expense. If any well drilled, reworked, deepened or plugged back under the provisions of this Article results in a producer of oil and/or gas in paying quantities, the Consenting Parties shall complete and equip the well to produce at their sole cost and risk, and the well shall then be turned over to Operator and shall be operated by it at the expense and for the account of the Consenting Parties. Upon commencement of operations for the drilling, reworking, deepening or plugging back of any such well by Consenting Parties in accordance with the provisions of this Article, each Non-Consenting Party shall be deemed to have relinquished to Consenting Parties, and the Consenting Parties shall own and be entitled to receive, in proportion to their respective interests, all of such Non-Consenting Party's interest in the well and share of production therefrom until the proceeds of the sale of such share, calculated at the well, or market value thereof if such share is not sold (after deducting production taxes, royalty, overriding royalty and other interests existing on the effective date hereof, payable out of or measured by the production from such well accruing with respect to such interest until it reverts) shall equal the total of the following:

(a) 100% of each such Non-Consenting Party's share of the cost of any newly acquired surface equipment beyond the wellhead connections (including, but not limited to, stock tanks, separators, treaters, pumping equipment and piping), plus 100% of each such Non-Consenting Party's share of the cost of operation of the well commencing with first production and continuing until each such Non-Consenting Party's relinquished interest shall revert to it under other provisions of this Article, it being agreed that each Non-Consenting Party's share of such costs and equipment will be that interest which would have been chargeable to each Non-Consenting Party had it participated in the well from the beginning of the operation; and

(b) 300 % of that portion of the costs and expenses of drilling, reworking, deepening, or plugging back, testing and completing, after deducting any cash contributions received under Article VIII.C., and

300% of that portion of the cost of newly acquired equipment in the well (to and including the well-head connections), which would have been chargeable to such Non-Consenting Party if it had participated therein.

Gas production attributable to any Non-Consenting Party's relinquished interest upon such Party's election, shall be sold to its purchaser, if available, under the terms of its existing gas sales contract. Such Non-Consenting Party shall direct its purchaser to remit the proceeds receivable from such sale direct to the Consenting Parties until the amounts provided for in this Article are recovered from the Non-Consenting Party's relinquished interest. If such Non-Consenting Party has not contracted for sale of its gas at the time such gas is available for delivery, or has not made the election as provided above, the Consenting Parties shall own and be entitled to receive and sell such Non-Consenting Party's share of gas as hereinabove provided during the recoupment period.

During the period of time Consenting Parties are entitled to receive Non-Consenting Party's share of production, or the proceeds therefrom, Consenting Parties shall be responsible for the payment of all production, severance, gathering and other taxes, and all royalty, overriding royalty and other burdens applicable to Non-Consenting Party's share of production.

In the case of any reworking, plugging back or deeper drilling operation, the Consenting Parties shall be permitted to use, free of cost, all casing, tubing and other equipment in the well, but the ownership of all such equipment shall remain unchanged; and upon abandonment of a well after such reworking, plugging back or deeper drilling, the Consenting Parties shall account for all such equipment to the owners thereof, with each party receiving its proportionate part in kind or in value, less cost of salvage.

Within sixty (60) days after the completion of any operation under this Article, the party conducting the operations for the Consenting Parties shall furnish each Non-Consenting Party with an inventory of the equipment in and connected to the well, and an itemized statement of the cost of drilling, deepening, plugging back, testing, completing, and equipping the well for production; or, at its option, the operating party, in lieu of an itemized statement of such costs of operation, may submit a detailed statement of monthly billings. Each month thereafter, during the time the Consenting Parties are being reimbursed as provided above, the Party conducting the operations for the Consenting Parties shall furnish the Non-Consenting Parties with an itemized statement of all costs and liabilities incurred in the operation of the well, together with a statement of the quantity of oil and gas produced from it and the amount of proceeds realized from the sale of the well's working interest production during the preceding month. In determining the quantity of oil and gas produced during any month, Consenting Parties shall use industry accepted methods such as, but not limited to, metering or periodic well tests. Any amount realized from the sale or other disposition of equipment newly acquired in connection with any such operation which would have been owned by a Non-Consenting Party had it participated therein shall be credited against the total unreturned costs of the work done and of the equipment purchased, in determining when the interest of such Non-Consenting Party shall revert to it as above provided; and if there is a credit balance, it shall be paid to such Non-Consenting party.

If and when the Consenting Parties recover from a Non-Consenting Party's relinquished interest the amounts provided for above, the relinquished interests of such Non-Consenting Party shall automatically revert to it, and, from and after such reversion, such Non-Consenting Party shall own the same interest in such well, the material and equipment in or pertaining thereto, and the production therefrom as such Non-Consenting Party would have been entitled to had it participated in the drilling, reworking, deepening or plugging back of said well. Thereafter, such Non-Consenting Party shall be charged with and shall pay its proportionate part of the further costs of the operation of said well in accordance with the terms of this agreement and the Accounting Procedure, attached hereto.

Notwithstanding the provisions of this Article VI.B.2., it is agreed that without the mutual consent of all parties, no wells shall be completed in or produced from a source of supply from which a well located elsewhere on the Contract Area is producing, unless such well conforms to the then-existing well spacing pattern for such source of supply.

The provisions of this Article shall have no application whatsoever to the drilling of the initial well described in Article VI.A. except (a) when Option 2, Article VII.D.1., has been selected, or (b) to the reworking, deepening and plugging back of such initial well, if such well is or thereafter shall prove to be a dry hole or non-commercial well, after having been drilled to the depth specified in Article VI.A.

C. Right to Take Production in Kind:

Each party shall have the right to take in kind or separately dispose of its proportionate share of all oil and gas produced from the Contract Area, exclusive of production which may be used in development and producing operations and in preparing and treating oil for marketing purposes and production unavoidably lost. Any extra expenditure incurred in the taking in kind or separate disposition by any party of its proportionate share of the production shall be borne by such party. Any

party taking its share of production in kind shall be required to pay for only its proportionate share of such part of Operator's surface facilities which it uses.

Each party shall execute such division orders and contracts as may be necessary for the sale of its interest in production from the Contract Area, and, except as provided in Article VII.B., shall be entitled to receive payment direct from the purchaser thereof for its share of all production.

In the event any party shall fail to make the arrangements necessary to take in kind or separately dispose of its proportionate share of the oil and gas produced from the Contract Area, Operator shall have the right, subject to the revocation at will by the party owning it, but not the obligation, to purchase such oil and gas or sell it to others at any time and from time to time, for the account of the non-taking party at the best price obtainable in the area for such production. Any such purchase or sale by Operator shall be subject always to the right of the owner of the production to exercise at any time its right to take in kind, or separately dispose of, its share of all oil and gas not previously delivered to a purchaser. Any purchase or sale by Operator of any other party's share of oil and gas shall be only for such reasonable periods of time as are consistent with the minimum needs of the industry under the particular circumstances, but in no event for a period in excess of one (1) year. Notwithstanding the foregoing, Operator shall not make a sale, including one into interstate commerce, of any other party's share of gas production without first giving such other party thirty (30) days notice of such intended sale.

In the event one or more parties' separate disposition of its share of the gas causes split-stream deliveries to separate pipelines and/or deliveries which on a day-to-day basis for any reason are not exactly equal to a party's respective proportionate share of total gas sales to be allocated to it, the balancing or accounting between the respective accounts of the parties shall be in accordance with any Gas Balancing Agreement between the parties hereto, whether such Agreement is attached as Exhibit "E", or is a separate Agreement.

D. Access to Contract Area and Information:

Each party shall have access to the Contract Area at all reasonable times, at its sole risk to inspect or observe operations, and shall have access at reasonable times to information pertaining to the development or operation thereof, including Operator's books and records relating thereto. Operator, upon request, shall furnish each of the other parties with copies of all forms or reports filed with governmental agencies, daily drilling reports, well logs, tank tables, daily gauge and run tickets and reports of stock on hand at the first of each month, and shall make available samples of any cores or cuttings taken from any well drilled on the Contract Area. The cost of gathering and furnishing information to Non-Operator, other than that specified above, shall be charged to the Non-Operator that requests the information.

E. Abandonment of Wells:

1. Abandonment of Dry Holes: Except for any well drilled pursuant to Article VI.B.2., any well which has been drilled under the terms of this agreement and is proposed to be completed as a dry hole shall not be plugged and abandoned without the consent of all parties. Should Operator, after diligent effort, be unable to contact any party, or should any party fail to reply within forty-eight (48) hours (exclusive of Saturday, Sunday or legal holidays) after receipt of notice of the proposal to plug and abandon such well, such party shall be deemed to have consented to the proposed abandonment. All such wells shall be plugged and abandoned in accordance with applicable regulations and at the cost, risk and expense of the parties who participated in the cost of drilling of such well. Any party who objects to the plugging and abandoning such well shall have the right to take over the well and conduct further operations in search of oil and/or gas subject to the provisions of Article VI.B.

2. Abandonment of Wells that have Produced: Except for any well which has been drilled or reworked pursuant to Article VI.B.2. hereof for which the Consenting Parties have not been fully reimbursed as therein provided, any well which has been completed as a producer shall not be plugged and abandoned without the consent of all parties. If all parties consent to such abandonment, the well shall be plugged and abandoned in accordance with applicable regulations and at the cost, risk and expense of all the parties hereto. If, within thirty (30) days after receipt of notice of the proposed abandonment of such well, all parties do not agree to the abandonment of any well, those wishing to continue its operation shall tender to each of the other parties its proportionate share of the value of the well's salvable material and equipment, determined in accordance with the provisions of Exhibit "C", less the estimated cost of salvaging and the estimated cost of plugging and abandoning. Each abandoning party shall assign to the non-abandoning parties, without warranty, express or implied, as to title or as to quantity, quality, or fitness for use of the equipment and material, all of its interest in the well and related equipment, together with its interest in the leasehold estate as to, but only as to, the interval or intervals of the formation or formations then open to production. If the interest of the abandoning party is or includes an oil and gas interest, such party shall execute and deliver to the non-abandoning party or parties an oil and gas lease, limited to the interval or intervals of the formation or formations then open to production, for a term of one year and so long thereafter as oil and/or gas is produced from the interval or inter-

vals of the formation or formations covered thereby, such lease to be on the form attached as Exhibit "B". The assignments or leases so limited shall encompass the "drilling unit" upon which the well is located. The payments by, and the assignments or leases to, the assignees shall be in a ratio based upon the relationship of their respective percentages of participation in the Contract Area to the aggregate of the percentages of participation in the Contract Area of all assignees. There shall be no readjustment of interest in the remaining portion of the Contract Area.

Thereafter, abandoning parties shall have no further responsibility, liability, or interest in the operation of or production from the well in the interval or intervals then open other than the royalties retained in any lease made under the terms of this Article. Upon request, Operator shall continue to operate the assigned well for the account of the non-abandoning parties at the rates and charges contemplated by this agreement, plus any additional cost and charges which may arise as the result of the separate ownership of the assigned well.

ARTICLE VII.
EXPENDITURES AND LIABILITY OF PARTIES

A. Liability of Parties:

The liability of the parties shall be several, not joint or collective. Each party shall be responsible only for its obligations, and shall be liable only for its proportionate share of the costs of developing and operating the Contract Area. Accordingly, the liens granted among the parties in Article VII.B. are given to secure only the debts of each severally. It is not the intention of the parties to create, nor shall this agreement be construed as creating, a mining or other partnership or association, or to render the parties liable as partners.

B. *Liens and Payment Defaults:*

Each Non-Operator grants to Operator a lien upon its oil and gas rights in the Contract Area, and a security interest in its share of oil and or gas when extracted and its interest in all equipment, to secure payment of its share of expense, together with interest thereon at the rate provided in the Accounting Procedure attached hereto as Exhibit "C". To the extent that Operator has a security interest under the Uniform Commercial Code of the State, Operator shall be entitled to exercise the rights and remedies of a secured party under the Code. The bringing of a suit and the obtaining of judgment by Operator for the secured indebtedness shall not be deemed an election of remedies or otherwise affect the lien rights or security interest as security for the payment thereof. In addition, upon default by any Non-Operator in the payment of its share of expense, Operator shall have the right, without prejudice to other rights or remedies, to collect from the purchaser the proceeds from the sale of such Non-Operator's share of oil and or gas until the amount owed by such Non-Operator, plus interest has been paid. Each purchaser shall be entitled to rely upon Operator's written statement concerning the amount of any default. Operator grants a like lien and security interest to the Non-Operators to secure payment of Operator's proportionate share of expense.

If any party fails or is unable to pay its share of expense within sixty (60) days after rendition of a statement therefor by Operator, the non-defaulting parties, including Operator, shall, upon request by Operator, pay the unpaid amount in the proportion that the interest of each such party bears to the interest of all such parties. Each party so paying its share of the unpaid amount shall, to obtain reimbursement thereof, be subrogated to the security rights described in the foregoing paragraph.

C. Payments and Accounting:

Except as herein otherwise specifically provided, Operator shall promptly pay and discharge expenses incurred in the development and operation of the Contract Area pursuant to this agreement and shall charge each of the parties hereto with their respective proportionate shares upon the expense basis provided in the Accounting Procedure attached hereto as Exhibit "C". Operator shall keep an accurate record of the joint account hereunder, showing expenses incurred and charges and credits made and received.

Operator, at its election, shall have the right from time to time to demand and receive from the other parties payment in advance of their respective shares of the estimated amount of the expense to be incurred in operations hereunder during the next succeeding month, which right may be exercised only by submission to each such party of an itemized statement of such estimated expense, together with an invoice for its share thereof. Each such statement and invoice for the payment in advance of estimated expense shall be submitted on or before the 20th day of the next preceding month. Each party shall pay to Operator its proportionate share of such estimate within fifteen (15) days after such estimate and invoice is received. If any party fails to pay its share of said estimate within said time, the amount due shall bear interest as provided in Exhibit "C" until paid. Proper adjustment shall be made monthly between advances and actual expense to the end that each party shall bear and pay its proportionate share of actual expenses incurred, and no more.

D. Limitation of Expenditures:

1. Drill or Deepen: Without the consent of all parties, no well shall be drilled or deepened, except any well drilled or deepened pursuant to the provisions of Article VI.B.2. of this Agreement, it being understood that the consent to the drilling or deepening shall include:

[ ] Option No. 1: All necessary expenditures for the drilling or deepening, testing, completing and equipping of the well, including necessary tankage and/or surface facilities.

[X] Option No. 2: All necessary expenditures for the drilling or deepening and testing of the well. When such well has reached its authorized depth, and all tests have been completed, Operator shall give immediate notice to the Non-Operators who have the right to participate in the completion costs. The parties receiving such notice shall have forty-eight (48) hours (exclusive of Saturday, Sunday and legal holidays) in which to elect to participate in the setting of casing and the completion attempt. Such election, when made, shall include consent to all necessary expenditures for the completing and equipping of such well, including necessary tankage and/or surface facilities. Failure of any party receiving such notice to reply within the period above fixed shall constitute an election by that party not to participate in the cost of the completion attempt. If one or more, but less than all of the parties, elect to set pipe and to attempt a completion, the provisions of Article VI.B.2. hereof (the phrase "reworking, deepening or plugging back" as contained in Article VI.B.2. shall be deemed to include "completing") shall apply to the operations thereafter conducted by less than all parties.

2. Rework or Plug Back: Without the consent of all parties, no well shall be reworked or plugged back except a well reworked or plugged back pursuant to the provisions of Article VI.B.2. of this agreement, it being understood that the consent to the reworking or plugging back of a well shall include consent to all necessary expenditures in conducting such operations and completing and equipping of said well, including necessary tankage and/or surface facilities.

3. Other Operations: Operator shall not undertake any single project reasonably estimated to require an expenditure in excess of Twenty Five Thousand and 00/100 Dollars ($ 25,000.00) except in connection with a well, the drilling, reworking, deepening, completing, recompleting, or plugging back of which has been previously authorized by or pursuant to this agreement; provided, however, that, in case of explosion, fire, flood or other sudden emergency, whether of the same or different nature, Operator may take such steps and incur such expenses as in its opinion are required to deal with the emergency to safeguard life and property but Operator, as promptly as possible, shall report the emergency to the other parties. If Operator prepares "Authority for Expenditures" for its own use, Operator, upon request, shall furnish copies of its "Authority for Expenditures" for any single project costing in excess of Fifteen Thousand and 00/100 Dollars ($ 15,000.00).

~~**E. Royalties, Overriding Royalties and Other Payments:**~~

~~Each party shall pay or deliver, or cause to be paid or delivered, all royalties to the extent of three-sixteenths (3/16ths) due on its share of production and shall hold the other parties free from any liability therefor. If the interest of any party in any oil and gas lease covered by this agreement is subject to any royalty, overriding royalty, production payment, or other charge over and above the aforesaid royalty, such party shall assume and alone bear all such obligations and shall account for or cause to be accounted for, such interest to the owners thereof.~~

~~No party shall ever be responsible, on any price basis higher than the price received by such party, to any other party's lessor or royalty owner; and if any such other party's lessor or royalty owner should demand and receive settlements on a higher price basis, the party contributing such lease shall bear the royalty burden insofar as such higher price is concerned.~~

F. Rentals, Shut-in Well Payments and Minimum Royalties:

Rentals, shut-in well payments and minimum royalties which may be required under the terms of any lease shall be paid by the party or parties who subjected such lease to this agreement at its or their expense. In the event two or more parties own and have contributed interests in the same lease to this agreement, such parties may designate one of such parties to make said payments for and on behalf of all such parties. Any party may request, and shall be entitled to receive, proper evidence of all such payments. In the event of failure to make proper payment of any rental, shut-in well payment or minimum royalty through mistake or oversight where such payment is required to continue the lease in force, any loss which results from such non-payment shall be borne in accordance with the provisions of Article IV.B.2.

Operator shall notify Non-Operator of the anticipated completion of a shut-in gas well, or the shutting in or return to production of a producing gas well, at least five (5) days (excluding Saturday, Sunday and holidays), or at the earliest opportunity permitted by circumstances, prior to taking such action, but assumes no liability for failure to do so. In the event of failure by Operator to so notify Non-Operator, the loss of any lease contributed hereto by Non-Operator for failure to make timely payments

of any shut-in well payment shall be borne jointly by the parties hereto under the provisions of Article IV.B.3.

G. Taxes:

Beginning with the first calendar year after the effective date hereof, Operator shall render for ad valorem taxation all property subject to this agreement which by law should be rendered for such taxes, and it shall pay all such taxes assessed thereon before they become delinquent. Prior to the rendition date, each Non-Operator shall furnish Operator information as to burdens (to include, but not be limited to, royalties, overriding royalties and production payments) on leases and oil and gas interests contributed by such Non-Operator. If the assessed valuation of any leasehold estate is reduced by reason of its being subject to outstanding excess royalties, overriding royalties or production payments, the reduction in ad valorem taxes resulting therefrom shall inure to the benefit of the owner or owners of such leasehold estate, and Operator shall adjust the charge to such owner or owners so as to reflect the benefit of such reduction. Operator shall bill other parties for their proportionate share of all tax payments in the manner provided in Exhibit "C".

If Operator considers any tax assessment improper, Operator may, at its discretion, protest within the time and manner prescribed by law, and prosecute the protest to a final determination, unless all parties agree to abandon the protest prior to final determination. During the pendency of administrative or judicial proceedings, Operator may elect to pay, under protest, all such taxes and any interest and penalty. When any such protested assessment shall have been finally determined, Operator shall pay the tax for the joint account, together with any interest and penalty accrued, and the total cost shall then be assessed against the parties, and be paid by them, as provided in Exhibit "C".

Each party shall pay or cause to be paid all production, severance, gathering and other taxes imposed upon or with respect to the production or handling of such party's share of oil and/or gas produced under the terms of this agreement.

H. Insurance:

At all times while operations are conducted hereunder, Operator shall comply with the Workmen's Compensation Law of the State where the operations are being conducted; provided, however, that Operator may be a self-insurer for liability under said compensation laws in which event the only charge that shall be made to the joint account shall be an amount equivalent to the premium which would have been paid had such insurance been obtained. Operator shall also carry or provide insurance for the benefit of the joint account of the parties as outlined in Exhibit "D", attached to and made a part hereof. Operator shall require all contractors engaged in work on or for the Contract Area to comply with the Workmen's Compensation Law of the State where the operations are being conducted and to maintain such other insurance as Operator may require.

In the event Automobile Public Liability Insurance is specified in said Exhibit "D", or subsequently receives the approval of the parties, no direct charge shall be made by Operator for premiums paid for such insurance for Operator's fully owned automotive equipment.

ARTICLE VIII.
ACQUISITION, MAINTENANCE OR TRANSFER OF INTEREST

A. Surrender of Leases:

The leases covered by this agreement, insofar as they embrace acreage in the Contract Area, shall not be surrendered in whole or in part unless all parties consent thereto.

However, should any party desire to surrender its interest in any lease or in any portion thereof, and other parties do not agree or consent thereto, the party desiring to surrender shall assign, without express or implied warranty of title, all of its interest in such lease, or portion thereof, and any well, material and equipment which may be located thereon and any rights in production thereafter secured, to the parties not desiring to surrender it. If the interest of the assigning party includes an oil and gas interest, the assigning party shall execute and deliver to the party or parties not desiring to surrender an oil and gas lease covering such oil and gas interest for a term of one year and so long thereafter as oil and/or gas is produced from the land covered thereby, such lease to be on the form attached hereto as Exhibit "B". Upon such assignment, the assigning party shall be relieved from all obligations thereafter accruing, but not theretofore accrued, with respect to the acreage assigned and the operation of any well thereon, and the assigning party shall have no further interest in the lease assigned and its equipment and production other than the royalties retained in any lease made under the terms of this Article. The parties assignee shall pay to the party assignor the reasonable salvage value of the latter's interest in any wells and equipment on the assigned acreage. The value of all material shall be determined in accordance with the provisions of Exhibit "C", less the estimated cost of salvaging and the estimated cost of plugging and abandoning. If the assignment is in favor of more than one party, the assigned interest shall

be shared by the parties assignee in the proportions that the interest of each bears to the interest of all parties assignee.

Any assignment or surrender made under this provision shall not reduce or change the assignor's or surrendering parties' interest, as it was immediately before the assignment, in the balance of the Contract Area; and the acreage assigned or surrendered, and subsequent operations thereon, shall not thereafter be subject to the terms and provisions of this agreement.

B. Renewal or Extension of Leases:

If any party secures a renewal of any oil and gas lease subject to this Agreement, all other parties shall be notified promptly, and shall have the right for a period of thirty (30) days following receipt of such notice in which to elect to participate in the ownership of the renewal lease, insofar as such lease affects lands within the Contract Area, by paying to the party who acquired it their several proper proportionate shares of the acquisition cost allocated to that part of such lease within the Contract Area, which shall be in proportion to the interests held at that time by the parties in the Contract Area.

If some, but less than all, of the parties elect to participate in the purchase of a renewal lease, it shall be owned by the parties who elect to participate therein, in a ratio based upon the relationship of their respective percentage of participation in the Contract Area to the aggregate of the percentages of participation in the Contract Area of all parties participating in the purchase of such renewal lease. Any renewal lease in which less than all parties elect to participate shall not be subject to this agreement.

Each party who participates in the purchase of a renewal lease shall be given an assignment of its proportionate interest therein by the acquiring party.

The provisions of this Article shall apply to renewal leases whether they are for the entire interest covered by the expiring lease or cover only a portion of its area or an interest therein. Any renewal lease taken before the expiration of its predecessor lease, or taken or contracted for within six (6) months after the expiration of the existing lease shall be subject to this provision; but any lease taken or contracted for more than six (6) months after the expiration of an existing lease shall not be deemed a renewal lease and shall not be subject to the provisions of this agreement.

The provisions in this Article shall apply also and in like manner to extensions of oil and gas leases.

C. Acreage or Cash Contributions:

While this agreement is in force, if any party contracts for a contribution of cash toward the drilling of a well or any other operation on the Contract Area, such contribution shall be paid to the party who conducted the drilling or other operation and shall be applied by it against the cost of such drilling or other operation. If the contribution be in the form of acreage, the party to whom the contribution is made shall promptly tender an assignment of the acreage, without warranty of title, to the Drilling Parties in the proportions said Drilling Parties shared the cost of drilling the well. If all parties hereto are Drilling Parties and accept such tender, such acreage shall become a part of the Contract Area and be governed by the provisions of this agreement. If less than all parties hereto are Drilling Parties and accept such tender, such acreage shall not become a part of the Contract Area. Each party shall promptly notify all other parties of all acreage or money contributions it may obtain in support of any well or any other operation on the Contract Area.

If any party contracts for any consideration relating to disposition of such party's share of substances produced hereunder, such consideration shall not be deemed a contribution as contemplated in this Article VIII.C.

D. Subsequently Created Interest:

Notwithstanding the provisions of Article VIII.E. and VIII.G., if any party hereto shall, subsequent to execution of this agreement, create an overriding royalty, production payment, or net proceeds interest, which such interests are hereinafter referred to as "subsequently created interest", such subsequently created interest shall be specifically made subject to all of the terms and provisions of this agreement, as follows:

1. If non-consent operations are conducted pursuant to any provision of this agreement, and the party conducting such operations becomes entitled to receive the production attributable to the interest out of which the subsequently created interest is derived, such party shall receive same free and clear of such subsequently created interest. The party creating same shall bear and pay all such subsequently created interests and shall indemnify and hold the other parties hereto free and harmless from any and all liability resulting therefrom.

2. If the owner of the interest from which the subsequently created interest is derived (1) fails to pay, when due, its share of expenses chargeable hereunder, or (2) elects to abandon a well under provisions of Article VI.E. hereof, or (3) elects to surrender a lease under provisions of Article VIII.A. hereof, the subsequently created interest shall be chargeable with the pro rata portion of all expenses hereunder in the same manner as if such interest were a working interest. For purposes of collecting such chargeable expenses, the party or parties who receive assignments as a result of (2) or (3) above shall have the right to enforce all provisions of Article VII.B. hereof against such subsequently created interest.

E. Maintenance of Uniform Interest:

For the purpose of maintaining uniformity of ownership in the oil and gas leasehold interests covered by this agreement, and notwithstanding any other provisions to the contrary, no party shall sell, encumber, transfer or make other disposition of its interest in the leases embraced within the Contract Area and in wells, equipment and production unless such disposition covers either:

1. the entire interest of the party in all leases and equipment and production; or

2. an equal undivided interest in all leases and equipment and production in the Contract Area.

Every such sale, encumbrance, transfer or other disposition made by any party shall be made expressly subject to this agreement, and shall be made without prejudice to the right of the other parties.

If, at any time the interest of any party is divided among and owned by four or more co-owners, Operator, at its discretion, may require such co-owners to appoint a single trustee or agent with full authority to receive notices, approve expenditures, receive billings for and approve and pay such party's share of the joint expenses, and to deal generally with, and with power to bind, the co-owners of such party's interests within the scope of the operations embraced in this agreement; however, all such co-owners shall have the right to enter into and execute all contracts or agreements for the disposition of their respective shares of the oil and gas produced from the Contract Area and they shall have the right to receive, separately, payment of the sale proceeds hereof.

F. Waiver of Right to Partition:

If permitted by the laws of the state or states in which the property covered hereby is located, each party hereto owning an undivided interest in the Contract Area waives any and all rights it may have to partition and have set aside to it in severalty its undivided interest therein.

~~**Preferential Right to Purchase:**~~

~~Should any party desire to sell all or any part of its interests under this agreement or its rights and interests in the Contract Area, it shall promptly give written notice to the other parties, with full information concerning its proposed sale, which shall include the name and address of the prospective purchaser (who must be ready, willing and able to purchase), the purchase price, and all other terms of the offer. The other parties shall then have an optional prior right, for a period of ten (10) days after receipt of the notice, to purchase on the same terms and conditions the interest which the other party proposes to sell; and, if this optional right is exercised, the purchasing parties shall share the purchased interest in the proportions that the interest of each bears to the total interest of all purchasing parties. However, there shall be no preferential right to purchase in those cases where any party wishes to mortgage its interests, or to dispose of its interests by merger, reorganization, consolidation, or sale of all or substantially all of its assets to a subsidiary or parent company or to a subsidiary of a parent company, or to any company in which any one party owns a majority of the stock.~~

ARTICLE IX.
INTERNAL REVENUE CODE ELECTION

This agreement is not intended to create, and shall not be construed to create, a relationship of partnership or an association for profit between or among the parties hereto. Notwithstanding any provisions herein that the rights and liabilities hereunder are several and not joint or collective, or that this agreement and operations hereunder shall not constitute a partnership, if, for Federal income tax purposes, this agreement and the operations hereunder are regarded as a partnership, each party hereby affected elects to be excluded from the application of all of the provisions of Subchapter "K", Chapter 1, Subtitle "A", of the Internal Revenue Code of 1954, as permitted and authorized by Section 761 of the Code and the regulations promulgated thereunder. Operator is authorized and directed to execute on behalf of each party hereby affected such evidence of this election as may be required by the Secretary of the Treasury of the United States or the Federal Internal Revenue Service, including specifically, but not by way of limitation, all of the returns, statements, and the data required by Federal Regulations 1.761. Should there be any requirement that each party hereby affected give further evidence of this election, each such party shall execute such documents and furnish such other evidence as may be required by the Federal Internal Revenue Service or as may be necessary to evidence this election. No

such party shall give any notices or take any other action inconsistent with the election made hereby. If any present or future income tax laws of the state or states in which the Contract Area is located or any future income tax laws of the United States contain provisions similar to those in Subchapter "K", Chapter 1, Subtitle "A", of the Internal Revenue Code of 1954, under which an election similar to that provided by Section 761 of the Code is permitted, each party hereby affected shall make such election as may be permitted or required by such laws. In making the foregoing election, each such party states that the income derived by such party from Operations hereunder can be adequately determined without the computation of partnership taxable income.

ARTICLE X.
CLAIMS AND LAWSUITS

Operator may settle any single damage claim or suit arising from operations hereunder if the expenditure does not exceed Five Thousand and 00/100---------- Dollars ($ 5,000.00) and if the payment is in complete settlement of such claim or suit. If the amount required for settlement exceeds the above amount, the parties hereto shall assume and take over the further handling of the claim or suit, unless such authority is delegated to Operator. All costs and expense of handling, settling, or otherwise discharging such claim or suit shall be at the joint expense of the parties. If a claim is made against any party or if any party is sued on account of any matter arising from operations hereunder over which such individual has no control because of the rights given Operator by this agreement, the party shall immediately notify Operator, and the claim or suit shall be treated as any other claim or suit involving operations hereunder.

ARTICLE XI.
FORCE MAJEURE

If any party is rendered unable, wholly or in part, by force majeure to carry out its obligations under this agreement, other than the obligation to make money payments, that party shall give to all other parties prompt written notice of the force majeure with reasonably full particulars concerning it; thereupon, the obligations of the party giving the notice, so far as they are affected by the force majeure, shall be suspended during, but no longer than, the continuance of the force majeure. The affected party shall use all reasonable diligence to remove the force majeure situation as quickly as practicable.

The requirement that any force majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes, lockouts, or other labor difficulty by the party involved, contrary to its wishes; how all such difficulties shall be handled shall be entirely within the discretion of the party concerned.

The term "force majeure", as here employed, shall mean an act of God, strike, lockout, or other industrial disturbance, act of the public enemy, war, blockade, public riot, lightning, fire, storm, flood, explosion, governmental action, governmental delay, restraint or inaction, unavailability of equipment, and any other cause, whether of the kind specifically enumerated above or otherwise, which is not reasonably within the control of the party claiming suspension.

ARTICLE XII.
NOTICES

All notices authorized or required between the parties, and required by any of the provisions of this agreement, unless otherwise specifically provided, shall be given in writing by United States mail or Western Union telegram, postage or charges prepaid, or by teletype, and addressed to the party to whom the notice is given at the addresses listed on Exhibit "A". The originating notice given under any provision hereof shall be deemed given only when received by the party to whom such notice is directed, and the time for such party to give any notice in response thereto shall run from the date the originating notice is received. The second or any responsive notice shall be deemed given when deposited in the United States mail or with the Western Union Telegraph Company, with postage or charges prepaid, or when sent by teletype. Each party shall have the right to change its address at any time, and from time to time, by giving written notice hereof to all other parties.

ARTICLE XIII.
TERM OF AGREEMENT

This agreement shall remain in full force and effect as to the oil and gas leases and/or oil and gas interests subjected hereto for the period of time selected below; provided, however, no party hereto shall ever be construed as having any right, title or interest in or to any lease, or oil and gas interest contributed by any other party beyond the term of this agreement.

[ ] Option No. 1. So long as any of the oil and gas leases subject to this agreement remain or are continued in force as to any part of the Contract Area, whether by production, extension, renewal or otherwise, and/or so long as oil and/or gas production continues from any lease or oil and gas interest.

[X] Option No. 2: In the event the well described in Article VI.A., or any subsequent well drilled under any provision of this agreement, results in production of oil and or gas in paying quantities, this agreement shall continue in force so long as any such well or wells produce, or are capable of production, and for an additional period of 180 days from cessation of all production; provided, however, if, prior to the expiration of such additional period, one or more of the parties hereto are engaged in drilling or reworking a well or wells hereunder, this agreement shall continue in force until such operations have been completed and if production results therefrom, this agreement shall continue in force as provided herein. In the event the well described in Article VI.A., or any subsequent well drilled hereunder, results in a dry hole, and no other well is producing, or capable of producing oil and or gas from the Contract Area, this agreement shall terminate unless drilling or reworking operations are commenced within 180 days from the date of abandonment of said well.

It is agreed, however, that the termination of this agreement shall not relieve any party hereto from any liability which has accrued or attached prior to the date of such termination.

ARTICLE XIV.
COMPLIANCE WITH LAWS AND REGULATIONS

A. Laws, Regulations and Orders:

This agreement shall be subject to the conservation laws of the state in which the committed acreage is located, to the valid rules, regulations, and orders of any duly constituted regulatory body of said state; and to all other applicable federal, state, and local laws, ordinances, rules, regulations, and orders.

B. Governing Law:

The essential validity of this agreement and all matters pertaining thereto, including, but not limited to, matters of performance, non-performance, breach, remedies, procedures, rights, duties and interpretation or construction, shall be governed and determined by the law of the state in which the Contract Area is located. If the Contract Area is in two or more states, the law of the state where most of the land in the Contract Area is located shall govern.

ARTICLE XV.
OTHER PROVISIONS

A. It is recognized by the parties hereto that in addition to each party's share of working interest production as shown in Exhibit "A", such party shall have the right, subject to existing contracts, to market the royalty gas attributable to each lease which it contributes to the Unit Area and to receive payments due for such royalty gas produced from or allocated to such lease or leases. It is agreed that, regardless of whether each party markets or contracts for its share of gas, including the royalty gas under the leases which it contributed to the Unit, such party agrees to pay or cause to be paid to the royalty owners under its lease or leases the proceeds attributable to their respective royalty interest and to hold all other parties harmless for its failure to do so. If a lease is owned in undivided interests, the leasehold owners under such lease shall designate a single party to receive and to pay or cause to be paid all royalty due under such lease and to hold all other parties hereto harmless for failure to do so.

B. Each Non-Operator shall have a lien on the working interest of Operator in the Unit Area and on the oil and gas produced therefrom and on the proceeds therof to secure the payment of any amount that may at any time become due and payable by Operator to such Non-Operator under the terms of this agreement, together with interest thereon as provided in Section 8 hereof.

ARTICLE XVI.
MISCELLANEOUS

This agreement shall be binding upon and shall inure to the benefit of the parties hereto and to their respective heirs, devisees, legal representatives, successors and assigns.

This instrument may be executed in any number of counterparts, each of which shall be considered an original for all purposes.

IN WITNESS WHEREOF, this agreement shall be effective as of 30th day of May, 19 80.

OPERATOR

DOYLE HARTMAN

NON-OPERATORS

PENNZOIL COMPANY

By: _____

INEXCO OIL COMPANY

By: _____

TENNECO OIL COMPANY

By: _____

CONTINENTAL OIL COMPANY

By: _____

MARALO, INC.

By: _____

M. RALPH LOWE, INC.

By: _____

_____ Erma Lowe

EXXON CORPORATION

_____ By: _____

ATLANTIC RICHFIELD COMPANY

_____ By: _____

STATE OF TEXAS

COUNTY OF MIDLAND

BEFORE ME, the undersigned authority, on this day personally appeared DOYLE HARTMAN, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____ A.D., 19 _____.

_____
Notary Public

CORPORATION ACKNOWLEDGEMENT

STATE OF _____

COUNTY OF _____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared _____ known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Pennzoil Company, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____ A.D., 19_____.

_____
Notary Public

CORPORATION ACKNOWLEDGEMENT

STATE OF _____

COUNTY OF _____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared _____ known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Inexco Oil Company, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____ A.D., 19_____.

_____
Notary Public

CORPORATION ACKNOWLEDGEMENT

STATE OF _____

COUNTY OF _____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared _____ known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Tenneco Oil Company, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____ A.D., 19_____.

_____
Notary Public

CORPORATION ACKNOWLEDGEMENT

STATE OF _____

COUNTY OF _____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared _____ known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Continental Oil Company, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____ A.D., 19_____.

_____
Notary Public

CORPORATION ACKNOWLEDGEMENT

STATE OF _____

COUNTY OF _____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared _____ known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Maralo, Inc., a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____ A.D., 19_____.

_____
Notary Public

CORPORATION ACKNOWLEDGEMENT

STATE OF _____

COUNTY OF _____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared _____ known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said M. Ralph Lowe, Inc., a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____ A.D., 19____.

_____
Notary Public

INDIVIDUAL ACKNOWLEDGEMENT

STATE OF _____

COUNTY OF _____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared Erma Lowe, known to me to be the person whose name subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____ A.D., 19____.

_____
Notary Public

CORPORATION ACKNOWLEDGEMENT

STATE OF _____

COUNTY OF _____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared _____ known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Exxon Corporation, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____ A.D., 19____.

_____
Notary Public

CORPORATION ACKNOWLEDGEMENT

STATE OF _____

COUNTY OF _____

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared _____ known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Atlantic Richfield Company, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____ A.D., 19____.

_____
Notary Public

EXHIBIT "A"

Attached to and made a part of DOYLE HARTMAN Operating Agreement dated May 30, 1980, between DOYLE HARTMAN, as Operator and PENNZOIL COMPANY, INEXCO OIL COMPANY, TENNECO OIL COMPANY, et al, Non-Operators.

I. Lands Subject to Operating Agreement:

S/2 of Section 24, Township 17 South, Range 28, East, N.M.P.M, Eddy County, New Mexico, as to those rights and formations from 2300 feet below the surface to 11,000 feet below the surface.

II. Interest of Parties:

Doyle Hartman	31.2500%
Pennzoil Company	31.2500%
Inexco Oil Company	26.3672%
Tenneco Oil Company	.4883%
Continental Oil Company	.4883%
Maralo Inc.	.4883%
M. Ralph Lowe, Inc.	.9765%
Erma Lowe	.4883%
Exxon Company, U.S.A.	1.9531%
Atlantic Richfield Company	6.2500%

III. Addresses of the Parties:

Doyle Hartman
508 C&K Petroleum Bldg.
Midland, Texas 79701

Pennzoil Company
P. O. Drawer 1828
Midland, Texas 79702

Inexco Oil Company
1100 Milam Building, Suite 1900
Houston, Texas 77002

Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Maralo Inc.
M. Ralph Lowe, Inc.
Erma Lowe
c/o Maralo Inc.
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

Atlantic Richfield Company
P. O. Box 1610
Midland, Texas 79702

IV. Leases Subject to Operating Agreement:

1. State Lease No. B-5862 from State of New Mexico to Ralph Gollinger, dated February 10, 1936, insofar as same covers the NE/4 SE/4 Section 24, T-17-S, R-28-E.

2. State Lease No. B-6251 from State of New Mexico to Ed W. Owen, dated April 11, 1936, insofar as same covers the SE/4 Section 24, T-17-S, R-28-E.

3. State Lease No. V-221 from State of New Mexico to Atlantic Richfield Company and Doyle Hartman, dated February 1, 1980, insofar as same covers the NW/4 SW/4 Section 24, T-17-S, R-28-E.

4. State Lease No. LG-6340 from State of New Mexico to James A. Davidson dated February 1, 1979, insofar as same covers the S/2 SW/4 Section 24, T-17-S, R-28-E.

Exhibit "B"

There is no Exhibit "B" to this Operating Agreement.

KraftBill 601, BOX 809 TULSA OK 74101

COPAS -- 1974
Recommended by the Council of Petroleum Accountants Societies of North America

COPAS

EXHIBIT "C"

Attached to and made a part of Operating Agreement dated May 30, 1980 between DOYLE HARTMAN, Operator, and PENNZOIL COMPANY, INEXCO OIL COMPANY, TENNECO OIL COMPANY, et al, Non-Operators

ACCOUNTING PROCEDURE
JOINT OPERATIONS

I. GENERAL PROVISIONS

1. Definitions

"Joint Property" shall mean the real and personal property subject to the agreement to which this Accounting Procedure is attached.

"Joint Operations" shall mean all operations necessary or proper for the development, operation, protection and maintenance of the Joint Property.

"Joint Account" shall mean the account showing the charges paid and credits received in the conduct of the Joint Operations and which are to be shared by the Parties.

"Operator" shall mean the party designated to conduct the Joint Operations.

"Non-Operators" shall mean the parties to this agreement other than the Operator.

"Parties" shall mean Operator and Non-Operators.

"First Level Supervisors" shall mean those employees whose primary function in Joint Operations is the direct supervision of other employees and/or contract labor directly employed on the Joint Property in a field operating capacity.

"Technical Employees" shall mean those employees having special and specific engineering, geological or other professional skills, and whose primary function in Joint Operations is the handling of specific operating conditions and problems for the benefit of the Joint Property.

"Personal Expenses" shall mean travel and other reasonable reimbursable expenses of Operator's employees.

"Material" shall mean personal property, equipment or supplies acquired or held for use on the Joint Property.

"Controllable Material" shall mean Material which at the time is so classified in the Material Classification Manual as most recently recommended by the Council of Petroleum Accountants Societies of North America.

2. Statement and Billings

Operator shall bill Non-Operators on or before the last day of each month for their proportionate share of the Joint Account for the preceding month. Such bills will be accompanied by statements which identify the authority for expenditure, lease or facility, and all charges and credits, summarized by appropriate classifications of investment and expense except that items of Controllable Material and unusual charges and credits shall be separately identified and fully described in detail.

3. Advances and Payments by Non-Operators

Unless otherwise provided for in the agreement, the Operator may require the Non-Operators to advance their share of estimated cash outlay for the succeeding month's operation. Operator shall adjust each monthly billing to reflect advances received from the Non-Operators.

Each Non-Operator shall pay its proportion of all bills within fifteen (15) days after receipt. If payment is not made within such time, the unpaid balance shall bear interest monthly at the rate of twelve percent (12%) per annum or the maximum contract rate permitted by the applicable usury laws in the state in which the Joint Property is located, whichever is the lesser, plus attorney's fees, court costs, and other costs in connection with the collection of unpaid amounts.

4. Adjustments

Payment of any such bills shall not prejudice the right of any Non-Operator to protest or question the correctness thereof; provided, however, all bills and statements rendered to Non-Operators by Operator during any calendar year shall conclusively be presumed to be true and correct after twenty-four (24) months following the end of any such calendar year, unless within the said twenty-four (24) month period a Non-Operator takes written exception thereto and makes claim on Operator for adjustment. No adjustment favorable to Operator shall be made unless it is made within the same prescribed period. The provisions of this paragraph shall not prevent adjustments resulting from a physical inventory of Controllable Material as provided for in Section V.

5. Audits

A. Non-Operator, upon notice in writing to Operator and all other Non-Operators, shall have the right to audit Operator's accounts and records relating to the Joint Account for any calendar year within the twenty-four (24) month period following the end of such calendar year; provided, however, the making of an audit shall not extend the time for the taking of written exception to and the adjustments of accounts as provided for in Paragraph 4 of this Section I. Where there are two or more Non-Operators, the Non-Operators shall make every reasonable effort to conduct joint or simultaneous audits in a manner which will result in a minimum of inconvenience to the Operator. Operator shall bear no portion of the Non-Operators' audit cost incurred under this paragraph unless agreed to by the Operator.

6. Approval by Non-Operators

Where an approval or other agreement of the Parties or Non-Operators is expressly required under other sections of this Accounting Procedure and if the agreement to which this Accounting Procedure is attached contains no contrary provisions in regard thereto, Operator shall notify all Non-Operators of the Operator's proposal, and the agreement or approval of a majority in interest of the Non-Operators shall be controlling on all Non-Operators.

II. DIRECT CHARGES

Operator shall charge the Joint Account with the following items:

1. Rentals and Royalties

Lease rentals and royalties paid by Operator for the Joint Operations.

2. Labor

A. (1) Salaries and wages of Operator's field employees directly employed on the Joint Property in the conduct of Joint Operations.

(2) Salaries of First Level Supervisors in the field.

(3) Salaries and wages of Technical Employees directly employed on the Joint Property if such charges are excluded from the Overhead rates.

B. Operator's cost of holiday, vacation, sickness and disability benefits and other customary allowances paid to employees whose salaries and wages are chargeable to the Joint Account under Paragraph 2A of this Section II. Such costs under this Paragraph 2B may be charged on a "when and as paid basis" or by "percentage assessment" on the amount of salaries and wages chargeable to the Joint Account under Paragraph 2A of this Section II. If percentage assessment is used, the rate shall be based on the Operator's cost experience.

C. Expenditures or contributions made pursuant to assessments imposed by governmental authority which are applicable to Operator's costs chargeable to the Joint Account under Paragraphs 2A and 2B of this Section II.

D. Personal Expenses of those employees whose salaries and wages are chargeable to the Joint Account under Paragraph 2A of this Section II.

3. Employee Benefits

Operator's current costs of established plans for employees' group life insurance, hospitalization, pension, retirement, stock purchase, thrift, bonus, and other benefit plans of a like nature, applicable to Operator's labor cost chargeable to the Joint Account under Paragraphs 2A and 2B of this Section II shall be Operator's actual cost not to exceed twenty per cent (20%).

4. Material

Material purchased or furnished by Operator for use on the Joint Property as provided under Section IV. Only such Material shall be purchased for or transferred to the Joint Property as may be required for immediate use and is reasonably practical and consistent with efficient and economical operations. The accumulation of surplus stocks shall be avoided.

5. Transportation

Transportation of employees and Material necessary for the Joint Operations but subject to the following limitations:

A. If Material is moved to the Joint Property from the Operator's warehouse or other properties, no charge shall be made to the Joint Account for a distance greater than the distance from the nearest reliable supply store, recognized barge terminal, or railway receiving point where like material is normally available, unless agreed to by the Parties.

B. If surplus Material is moved to Operator's warehouse or other storage point, no charge shall be made to the Joint Account for a distance greater than the distance to the nearest reliable supply store, recognized barge terminal, or railway receiving point unless agreed to by the Parties. No charge shall be made to the Joint Account for moving Material to other properties belonging to Operator, unless agreed to by the Parties.

C. In the application of Subparagraphs A and B above, there shall be no equalization of actual gross trucking cost of $200 or less excluding accessorial charges.

6. Services

The cost of contract services, equipment and utilities provided by outside sources, except services excluded by Paragraph 9 of Section II and Paragraph 1. ii of Section III. The cost of professional consultant services and contract services of technical personnel directly engaged on the Joint Property if such charges are excluded from the Overhead rates. The cost of professional consultant services or contract services of technical personnel not directly engaged on the Joint Property shall not be charged to the Joint Account unless previously agreed to by the Parties.

7. Equipment and Facilities Furnished by Operator

A. Operator shall charge the Joint Account for use of Operator owned equipment and facilities at rates commensurate with costs of ownership and operation. Such rates shall include costs of maintenance, repairs, other operating expense, insurance, taxes, depreciation, and interest on investment not to exceed eight per cent (8%) per annum. Such rates shall not exceed average commercial rates currently prevailing in the immediate area of the Joint Property.

B. In lieu of charges in Paragraph 7A above, Operator may elect to use average commercial rates prevailing in the immediate area of the Joint Property less 20%. For automotive equipment, Operator may elect to use rates published by the Petroleum Motor Transport Association.

8. Damages and Losses to Joint Property

All costs or expenses necessary for the repair or replacement of Joint Property made necessary because of damages or losses incurred by fire, flood, storm, theft, accident, or other cause, except those resulting from Operator's gross negligence or willful misconduct. Operator shall furnish Non-Operator written notice of damages or losses incurred as soon as practicable after a report thereof has been received by Operator.

9. Legal Expense

Expense of handling, investigating and settling litigation or claims, discharging of liens, payment of judgments and amounts paid for settlement of claims incurred in or resulting from operations under the agreement or necessary to protect or recover the Joint Property, except that no charge for services of Operator's legal staff or fees or expense of outside attorneys shall be made unless previously agreed to by the Parties. All other legal expense is considered to be covered by the overhead provisions of Section III unless otherwise agreed to by the Parties, except as provided in Section I, Paragraph 3.

10. Taxes

All taxes of every kind and nature assessed or levied upon or in connection with the Joint Property, the operation thereof, or the production therefrom, and which taxes have been paid by the Operator for the benefit of the Parties.

11. Insurance

Net premiums paid for insurance required to be carried for the Joint Operations for the protection of the Parties. In the event Joint Operations are conducted in a state in which Operator may act as self-insurer for Workmen's Compensation and/or Employers Liability under the respective state's laws, Operator may, at its election, include the risk under its self-insurance program and in that event, Operator shall include a charge at Operator's cost not to exceed manual rates.

12. Other Expenditures

Any other expenditure not covered or dealt with in the foregoing provisions of this Section II, or in Section III, and which is incurred by the Operator in the necessary and proper conduct of the Joint Operations.

III. OVERHEAD

1. Overhead - Drilling and Producing Operations

i. As compensation for administrative, supervision, office services and warehousing costs, Operator shall charge drilling and producing operations on either:

(XX) Fixed Rate Basis, Paragraph 1A, or
( ) Percentage Basis, Paragraph 1B.

Unless otherwise agreed to by the Parties, such charge shall be in lieu of costs and expenses of all offices and salaries or wages plus applicable burdens and expenses of all personnel, except those directly chargeable under Paragraph 2A, Section II. The cost and expense of services from outside sources in connection with matters of taxation, traffic, accounting or matters before or involving governmental agencies shall be considered as included in the Overhead rates provided for in the above selected Paragraph of this Section III unless such cost and expense are agreed to by the Parties as a direct charge to the Joint Account.

ii. The salaries, wages and Personal Expenses of Technical Employees and/or the cost of professional consultant services and contract services of technical personnel directly employed on the Joint Property shall ( ) shall not (X) be covered by the Overhead rates.

A. Overhead - Fixed Rate Basis

(1) Operator shall charge the Joint Account at the following rates per well per month:

Drilling Well Rate $ 3100.00
Producing Well Rate $ 310.00

(2) Application of Overhead - Fixed Rate Basis shall be as follows:

(a) Drilling Well Rate

[1] Charges for onshore drilling wells shall begin on the date the well is spudded and terminate on the date the drilling or completion rig is released, whichever is later, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days.

[2] Charges for offshore drilling wells shall begin on the date when drilling or completion equipment arrives on location and terminate on the date the drilling or completion equipment moves off location or rig is released, whichever occurs first, except that no charge shall be made during suspension of drilling operations for fifteen (15) or more consecutive days

[3] Charges for wells undergoing any type of workover or recompletion for a period of five (5) consecutive days or more shall be made at the drilling well rate. Such charges shall be applied for the period from date workover operations, with rig, commence through date of rig release, except that no charge shall be made during suspension of operations for fifteen (15) or more consecutive days.

(b) Producing Well Rates

[1] An active well either produced or injected into for any portion of the month shall be considered as a one-well charge for the entire month.

[2] Each active completion in a multi-completed well in which production is not commingled down hole shall be considered as a one-well charge providing each completion is considered a separate well by the governing regulatory authority.

[3] An inactive gas well shut in because of overproduction or failure of purchaser to take the production shall be considered as a one-well charge providing the gas well is directly connected to a permanent sales outlet.

[4] A one-well charge may be made for the month in which plugging and abandonment operations are completed on any well.

[5] All other inactive wells (including but not limited to inactive wells covered by unit allowable, lease allowable, transferred allowable, etc.) shall not qualify for an overhead charge.

(3) The well rates shall be adjusted as of the first day of April each year following the effective date of the agreement to which this Accounting Procedure is attached. The adjustment shall be computed by multiplying the rate currently in use by the percentage increase or decrease in the average weekly earnings of Crude Petroleum and Gas Production Workers for the last calendar year compared to the calendar year preceding as shown by the index of average weekly earnings of Crude Petroleum and Gas Fields Production Workers as published by the United States Department of Labor, Bureau of Labor Statistics, or the equivalent Canadian index as published by Statistics Canada, as applicable. The adjusted rates shall be the rates currently in use, plus or minus the computed adjustment.

B. Overhead - Percentage Basis

(1) Operator shall charge the Joint Account at the following rates:

(a) Development

_____ Percent (%) of the cost of Development of the Joint Property exclusive of costs provided under Paragraph 9 of Section II and all salvage credits.

(b) Operating

_____ Percent (%) of the cost of Operating the Joint Property exclusive of costs provided under Paragraphs 1 and 9 of Section II, all salvage credits, the value of injected substances purchased for secondary recovery and all taxes and assessments which are levied, assessed and paid upon the mineral interest in and to the Joint Property.

(2) Application of Overhead - Percentage Basis shall be as follows:
For the purpose of determining charges on a percentage basis under Paragraph 1B of this Section III, development shall include all costs in connection with drilling, redrilling, deepening or any remedial operations on any or all wells involving the use of drilling crew and equipment; also, preliminary expenditures necessary in preparation for drilling and expenditures incurred in abandoning when the well is not completed as a producer, and original cost of construction or installation of fixed assets, the expansion of fixed assets and any other project clearly discernible as a fixed asset, except Major Construction as defined in Paragraph 2 of this Section III. All other costs shall be considered as Operating.

2. Overhead - Major Construction

To compensate Operator for overhead costs incurred in the construction and installation of fixed assets, the expansion of fixed assets, and any other project clearly discernible as a fixed asset required for the development and operation of the Joint Property, Operator shall either negotiate a rate prior to the beginning of construction, or shall charge the Joint Account for Overhead based on the following rates for any Major Construction project in excess of $ 50,000 :

A. 5 % of total costs if such costs are more than $ 50,000 but less than $ 500,000 ; plus

B. 3 % of total costs in excess of $ 500,000 but less than $1,000,000; plus

C. 2 % of total costs in excess of $1,000,000.

Total cost shall mean the gross cost of any one project. For the purpose of this paragraph, the component parts of a single project shall not be treated separately and the cost of drilling and workover wells shall be excluded.

3. Amendment of Rates

The Overhead rates provided for in this Section III may be amended from time to time only by mutual agreement between the Parties hereto if, in practice, the rates are found to be insufficient or excessive.

IV. PRICING OF JOINT ACCOUNT MATERIAL PURCHASES, TRANSFERS AND DISPOSITIONS

Operator is responsible for Joint Account Material and shall make proper and timely charges and credits for all material movements affecting the Joint Property. Operator shall provide all Material for use on the Joint Property; however, at Operator's option, such Material may be supplied by the Non-Operator. Operator shall make timely disposition of idle and/or surplus Material, such disposal being made either through sale to Operator or Non-Operator, division in kind, or sale to outsiders. Operator may purchase, but shall be under no obligation to purchase, interest of Non-Operators in surplus condition A or B Material. The disposal of surplus Controllable Material not purchased by the Operator shall be agreed to by the Parties.

1. Purchases

Material purchased shall be charged at the price paid by Operator after deduction of all discounts received. In case of Material found to be defective or returned to vendor for any other reason, credit shall be passed to the Joint Account when adjustment has been received by the Operator.

2. Transfers and Dispositions

Material furnished to the Joint Property and Material transferred from the Joint Property or disposed of by the Operator, unless otherwise agreed to by the Parties, shall be priced on the following bases exclusive of cash discounts:

A. New Material (Condition A)

(1) Tubular goods, except line pipe, shall be priced at the current new price in effect on date of movement on a maximum carload or barge load weight basis, regardless of quantity transferred, equalized to the lowest published price f.o.b. railway receiving point or recognized barge terminal nearest the Joint Property where such Material is normally available.

(2) Line Pipe

(a) Movement of less than 30,000 pounds shall be priced at the current new price, in effect at date of movement, as listed by a reliable supply store nearest the Joint Property where such Material is normally available.

(b) Movement of 30,000 pounds or more shall be priced under provisions of tubular goods pricing in Paragraph 2A (1) of this Section IV.

(3) Other Material shall be priced at the current new price, in effect at date of movement, as listed by a reliable supply store or f.o.b. railway receiving point nearest the Joint Property where such Material is normally available.

B. Good Used Material (Condition B)

Material in sound and serviceable condition and suitable for reuse without reconditioning:

(1) Material moved to the Joint Property

(a) At seventy-five percent (75%) of current new price, as determined by Paragraph 2A of this Section IV.

(2) Material moved from the Joint Property

(a) At seventy-five percent (75%) of current new price, as determined by Paragraph 2A of this Section IV, if Material was originally charged to the Joint Account as new Material, or

(b) at sixty-five percent (65%) of current new price, as determined by Paragraph 2A of this Section IV, if Material was originally charged to the Joint Account as good used Material at seventy-five percent (75%) of current new price.

The cost of reconditioning, if any, shall be absorbed by the transferring property.

C. Other Used Material (Condition C and D)

(1) Condition C

Material which is not in sound and serviceable condition and not suitable for its original function until after reconditioning shall be priced at fifty percent (50%) of current new price as determined by Paragraph 2A of this Section IV. The cost of reconditioning shall be charged to the receiving property, provided Condition C value plus cost of reconditioning does not exceed Condition B value.

(2) Condition D

All other Material, including junk, shall be priced at a value commensurate with its use or at prevailing prices. Material no longer suitable for its original purpose but usable for some other purpose, shall be priced on a basis comparable with that of items normally used for such other purpose. Operator may dispose of Condition D Material under procedures normally utilized by the Operator without prior approval of Non-Operators.

D. Obsolete Material

Material which is serviceable and usable for its original function but condition and/or value of such Material is not equivalent to that which would justify a price as provided above may be specially priced as agreed to by the Parties. Such price should result in the Joint Account being charged with the value of the service rendered by such Material.

E. Pricing Conditions

(1) Loading and unloading costs may be charged to the Joint Account at the rate of fifteen cents (15¢) per hundred weight on all tubular goods movements, in lieu of loading and unloading costs sustained, when actual hauling cost of such tubular goods are equalized under provisions of Paragraph 5 of Section II.

(2) Material involving erection costs shall be charged at applicable percentage of the current knocked-down price of new Material.

3. *Premium* Prices

Whenever Material is not readily obtainable at published or listed prices because of national emergencies, strikes or other unusual causes over which the Operator has no control, the Operator may charge the Joint Account for the required Material at the Operator's actual cost incurred in providing such Material, in making it suitable for use, and in moving it to the Joint Property; provided notice in writing is furnished to Non-Operators of the proposed charge prior to billing Non-Operators for such Material. Each Non-Operator shall have the right, by so electing and notifying Operator within ten days after receiving notice from Operator, to furnish in kind all or part of his share of such Material suitable for use and acceptable to Operator.

4. Warranty of Material Furnished by Operator

Operator does not warrant the Material furnished. In case of defective Material, credit shall not be passed to the Joint Account until adjustment has been received by Operator from the manufacturers or their agents.

V. INVENTORIES

The Operator shall maintain detailed records of Controllable Material.

1. Periodic Inventories, Notice and Representation

At reasonable intervals, Inventories shall be taken by Operator of the Joint Account Controllable Material. Written notice of intention to take inventory shall be given by Operator at least thirty (30) days before any inventory is to begin so that Non-Operators may be represented when any inventory is taken. Failure of Non-Operators to be represented at an inventory shall bind Non-Operators to accept the inventory taken by Operator.

2. Reconciliation and Adjustment of Inventories

Reconciliation of a physical inventory with the Joint Account shall be made, and a list of overages and shortages shall be furnished to the Non-Operators within six months following the taking of the inventory. Inventory adjustments shall be made by Operator with the Joint Account for overages and shortages, but Operator shall be held accountable only for shortages due to lack of reasonable diligence.

3. Special Inventories

Special Inventories may be taken whenever there is any sale or change of interest in the Joint Property. It shall be the duty of the party selling to notify all other Parties as quickly as possible after the transfer of interest takes place. In such cases, both the seller and the purchaser shall be governed by such inventory.

4. Expense of Conducting Periodic Inventories

The expense of conducting periodic Inventories shall not be charged to the Joint Account unless agreed to by the Parties.

EXHIBIT "D"

Attached to and made a part of Operating Agreement dated May 30, 1980 between DOYLE HARTMAN, Operator, and PENNZOIL COMPANY, INEXCO OIL COMPANY, TENNECO OIL COMPANY, et al, Non-Operators

Operator, at all times while operations are conducted hereunder, shall carry, and require its contractors to carry insurance to indemnify, protect and hold the parties hereto harmless as follows;

1. Insurance which shall comply with the Workmen's Compensation, Employers Liability and Occupational Disease laws of the State in which operations hereunder are conducted;

2. Comprehensive general liability insurance with limits of not less than:

   A. Bodily Injury:

      $100,000 per person and $300,000 for each injury and,

   B. Property Damage:

      $100,000 for each injury and $100,000 in the aggregate.

3. Automobile liability insurance with limits of not less than:

   A. $100,000 per person and $300,000 per accident pertaining to bodily injury to, or death of persons; and,

   B. $100,000 per accident pertaining to loss of, or damage to, property.

Upon successful completion of first well, all premiums paid on such insurance shall be charged to the joint account. Except by mutual consent of the parties, no other insurance shall be maintained for the joint account, and all losses not covered by such insurance shall be charged to the joint account.

Operator shall not be liable to Non-Operator (s) for loss suffered on account of the insufficiency of insurance carried, or of the insuror with whom carried, nor shall Operator be liable to Non-Operator (s) for any loss accuruing by reason of Operator's inability to provide or maintain the insurance above mentioned; provided, however, that if at any time during the life of this agreement Operator is unable to obtain or maintain such insurance, Operator shall promptly notify Non-Operator (s) in writing of such fact.

EXHIBIT "E"

GAS BALANCING AGREEMENT
FOR GAS WELL PRODUCTION

Attached to and made a part of the Operating Agreement between DOYLE HARTMAN, Operator, and PENNZOIL COMPANY, INEXCO OIL COMPANY, TENNECO OIL COMPANY, et al, Non-Operators.

The parties to the Operating Agreement to which this Gas Balancing Agreement is attached own the working interest in the gas rights underlying the Joint Property covered by such agreement and are entitled to share in the percentages as stated in the Operating Agreement.

In accordance with the terms of the Operating Agreement, each party thereto has the right to take its share of gas produced from the Unit Area and market the same. In the event any of the parties hereto does not market its share of gas or has contracted to sell its share of gas produced from the Joint Property to a purchaser which, at any time while this agreement is in effect fails to take the share of gas attributable to the interest of such party, the terms of this storage agreement shall automatically become effective.

1.

During any period or periods when the market of a party is not sufficient to take that party's full share of the gas produced from the Joint Property, or its purchaser is unable to take its share of gas produced from the Joint Property, the other party or parties (taking parties) shall be entitled to produce from said Joint Property, (and take or deliver to a purchaser), each month, all of the gas production at prudent rates that the joint property is capable of producing. That the taking party or parties shall be entitled to take and deliver to its or their purchaser(s) all of such gas production, provided; however, that no party shall be entitled to take or deliver to a purchaser gas production in excess of 200% (percent) of its share of any applicable gas allowable assigned thereto in the event the joint property is prorated by the regulatory body having jurisdiction, unless that party has gas in storage or unless the other parties mutually agree to a greater percentage. All parties hereto shall share in and own the liquid hydrocarbons recovered from such gas by primary separation equipment in accordance with their respective interests and subject to the terms of the above described Operating Agreement.

2.

Each party unable to market its share of the gas produced, and taking less than its full share of the gas produced shall be credited with gas in storage equal to its share of the gas produced under this agreement, less such party's share of the gas taken, gas used in Joint Property operations, vented, or lost. Each party taking gas shall furnish the Joint Property operator a monthly statement of gas taken. The operator of the Joint Property will maintain a running account of the gas balance between the parties hereto and will furnish each party monthly statements showing the total quantity of gas produced, the amount thereof used in Joint Property operations, vented or lost, and the total quantity of gas delivered to markets. Measurement of gas for over and under production shall be accomplished by use of sales meters, and lease measurement shall be in accordance with AGA requirements.

3.

After written notice to the operator, any party may at any time begin taking or delivering to its purchaser its full share of the gas produced from said Joint Property (less any used in Joint operations, vented or lost). To allow for the recovery of gas in storage and to balance the gas account of the parties in accordance with their respective interests, a party with gas in storage shall be entitled to take or deliver to a purchaser its full share of gas produced from said Joint Property (less any used in Joint operations, vented, or lost) plus an amount determined by multiplying thirty-five percent (35%) of the interest of the party or parties without gas in storage by a fraction, the numerator of which is the interest in the Joint Property of such party with gas in storage and the denominator of which is the total percentage interest in the Joint Property of all parties with gas in storage.

4.

Nothing herein shall be construed to deny any party the right, from time to time to produce and take or deliver to its purchaser its full share of the allowable gas production to meet the deliverability tests required by its purchaser. Each party, shall at all times, use its best efforts to regulate its takes and deliveries from said Joint Property so that said Joint Property will not be shut-in for over producing the allowable assigned thereto by the regulatory body having jurisdiction.

5.

During the terms of this agreement, while gas is being produced from the Joint Property, each party shall make settlement with its own respective royalty owners (and the term "royalty owners" shall include owners of royalties, overriding royalties, production payments and similar interests), based on such royalty owner's respective interests in the Joint Property and on total volumes of gas produced, saved and taken or delivered to purchasers. Each party hereto agrees to hold each other party harmless from any and all claims for royalty payments asserted by royalty owners to whom each party is accountable.

6.

Each party producing and taking or delivering gas to its purchaser shall pay, or cause to be paid, all production taxes due on such gas.

7.

In the event production of gas from said Joint Property shall be discontinued before the gas account is balanced, a complete balancing will be made between the parties for gas remaining in storage. In making such settlement, the party or parties with gas remaining in storage will be paid by the other party or parties a sum of money equal to that which said other party or parties received, less applicable taxes heretofore paid, for the latest delivery of a volume of gas equal to that for which settlement is made. The operator shall be responsible for determining the final accounting of the underproduction and overproduction and the amounts due to be paid to, or by, each party.

8.

This agreement shall remain in force and effect as long as the operating agreement, to which it is attached, and shall inure to the benefit of and be binding upon the parties hereto, their successors, legal representatives and assigns.

9.

Nothing herein shall change or affect each party's obligations to pay its proportionate share of all costs and liabilities incurred in Joint operations, as its share thereof is set forth in the above-described Operating Agreement.

10.

The provisions of this agreement shall be applied to each well and/or each formation separately as if each well and/or formation was a separate well and covered by separate but identical agreements.

11.

Notwithstanding any foregoing provisions hereof, each party failing to commence marketing or taking its share of the produced gas (in whole or in part) within six months from date of commencement of marketing or taking of its or their share by another party or parties agrees to accept, at the election of such other party or parties and in lieu of credit for gas in storage, a cash adjustment based on the actual revenues received and attributable to the underages as they occur from date of first deliveries by the party or parties owing the underages. This paragraph, however, is not to apply to any underages of a party accruing from and after the date such party first commences marketing or taking its share of the gas (in whole or in part).

EQUAL EMPLOYMENT OPPORTUNITY PROVISION

During the performance of this contract, the Operator (meaning and referring separately to each party hereto) agrees as follows:

(1) The Operator will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Operator will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Operator agrees to post in conspicuous places, available to employees and applicants for employment notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Operator will in all solicitations or advertisements for employees placed by or on behalf of the Operator, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin

(3) The Operator will send to each labor union or representative of workers with which Operator has a collective bargaining agreement or other contract or understanding, a notice to be provided, advising the said labor union or workers' representatives of the Operator's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Operator will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The Operator will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to Operator's books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the Operator's non-compliance with the non-discrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the Operator may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The Operator will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Operator will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that in the event the Operator becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Operator may request the United States to enter into such litigation to protect the interests of the United States.

Operator acknowledges that Operator may be required to file Standard Form 100 (EEO-1) promulgated jointly by the Office of Federal Contract Compliance, the Equal Employment Opportunity Commission and Plans for Progress with the appropriate agency within 30 days of the date of contract award if such report has not been filed for the current year and otherwise comply with or file such other compliance reports as may be required under Executive Order 11246, as amended and Rules and Regulations adopted thereunder.

Operator further acknowledges that Operator may be required to develop a written affirmative action compliance program as required by the Rules and Regulations approved by the Secretary of Labor under authority of Executive Order 11246 and supply each other party hereto with a copy of such program if so requested.

CERTIFICATION OF NONSEGREGATED FACILITIES

By entering into this contract, the Operator certifies that Operator does not and will not maintain or provide for Operator's employees any segregated facilities at any of Operator's establishments, and that Operator does not and will not permit Operator's employees to perform their services at any location, under Operator's control, where segregated facilities are maintained. The Operator agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means, but is not limited to, any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom or otherwise. Operator further agrees that (except where Operator has obtained identical certifications from proposed contractors and subcontractors for specific time periods) Operator will obtain identical certifications from proposed contractors and subcontractors prior to the award of contracts or subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause; that Operator will retain such certifications in Operator's files and that Operator will forward the following notice to such proposed contractors and subcontractors (except where the proposed contractors or subcontractors have submitted identical certifications for specific time periods): Notice to prospective contractors and subcontractors of requirement for certifications of nonsegregated facilities. A Certificate of Nonsegregated Facilities must be submitted prior to the award of a contract or subcontract exceeding $10,000 which is no exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each contract and subcontract or for all contracts and subcontracts during a period (i.e., quarterly, semiannually, or annually).

PS Form 3811, Jan. 1978

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered..... 45¢
- ☐ Show to whom, date and address of delivery....__¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered.....__¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$__

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Inexco Oil Company
1100 Milam Bldg, #1900
Houston, TX 77002

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	112843	

(Always obtain signature of addressee or agent)

I have received the article described above
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1978 288-848

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Inexco Oil Company
1100 Milam Building
Suite 1900
Houston, Texas 77002

Attention: Mr. Eldon Bush

No. 112843

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

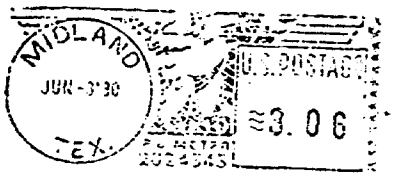
SENT TO
Inexco Oil Company
STREET AND NO.
1100 Milam Bldg, #1900
P.O., STATE AND ZIP CODE
Houston, TX 77002

POSTAGE		$1.81
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE	80¢
	SPECIAL DELIVERY	¢
	RESTRICTED DELIVERY	¢
OPTIONAL SERVICES — RETURN RECEIPT SERVICE	SHOW TO WHOM AND DATE DELIVERED	45¢
	SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
	SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
	SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES		$3.06

POSTMARK OR DATE
6-3-80

PS Form 3800, Apr. 1976

CERTIFIED
No. 112843
MAIL



No. 112843

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Inexco Oil Company	
STREET AND NO.: 1100 Milam Bldg, #1900	
P.O., STATE AND ZIP CODE: Houston, TX 77002	
POSTAGE	$1.81
CERTIFIED FEE	80 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	45 ¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$3.06
POSTMARK OR DATE: 6-3-80	

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES

PS Form 3800, Apr. 1976

CERTIFIED
No. 112843
MAIL

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Inexco Oil Company
1100 Milam Building
Suite 1900
Houston, Texas 77002

Attention: Mr. Eldon Bush

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- [x] Show to whom and date delivered..... 45 ¢
- [ ] Show to whom, date and address of delivery.... ¢
- [ ] RESTRICTED DELIVERY
  Show to whom and date delivered..... ¢
- [ ] RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Atlantic Richfield Co.
P. O. Box 1610
Midland, Texas 79702

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	112848	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979 288-848

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Atlantic Richfield Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

MIDLA
JUN - 9 '8
TEX

No. 112848

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Atlantic Richfield Co.
STREET AND NO
P. O. Box 1610
P.O., STATE AND ZIP CODE
Midland, Texas 79702

POSTAGE		$1.71
CERTIFIED FEE		80 ¢
CONSULT POSTMASTER FOR FEES — OPTIONAL SERVICES	SPECIAL DELIVERY	¢
	RESTRICTED DELIVERY	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	45 ¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
	RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES		$2.96

POSTMARK OR DATE
6-03-80

PS Form 3800, Apr. 1976

CERTIFIED
No. 112848
MAIL

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Atlantic Richfield Company
P. O. Box 1610
Midland, Texas 79702

Attention: Mr. Curt Krehbiel

MIDLAND JUN - 3 '80 TEX.
U.S. POSTAGE
2.96
PB 1 0 7 7 5 2
2024343

No. 112848

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Atlantic Richfield Co.	
STREET AND NO.: P. O. Box 1610	
P.O., STATE AND ZIP CODE: Midland, Texas 79702	
POSTAGE	$1.71
CONSULT POSTMASTER FOR FEES — CERTIFIED FEE	80 ¢
OPTIONAL SERVICES — SPECIAL DELIVERY	¢
OPTIONAL SERVICES — RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	45 ¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$2.96
POSTMARK OR DATE: 6-03-80	

PS Form 3800, Apr. 1976

CERTIFIED
No. 112848
MAIL

PS Form 3811, Jan. 1978

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered..... 45¢
- ☐ Show to whom, date and address of delivery.... ___¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered..... ___¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$ ___

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:

Pennzoil Company
P. O. Box 1828
Midland, Texas 79702

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	112842	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

☆GPO : 1979-288-848

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Pennzoil Company
P. O. Box 1828
Midland, Texas 79702

Attention: Mr. Kenneth Medlock

MIDLAND, TEX. JUN - 3 '80

No. 112842

RECEIPT FOR CERTIFIED

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

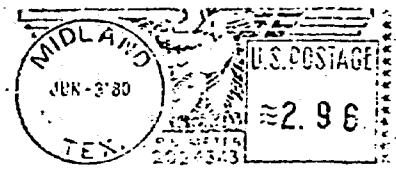
SENT TO
Pennzoil Company
STREET AND NO.
P. O. Box 1828
P.O., STATE AND ZIP CODE
Midland, Texas 79

POSTAGE	$
CERTIFIED FEE	
SPECIAL DELIVERY	
RESTRICTED DELIVERY	
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	
TOTAL POSTAGE AND FEES	$
POSTMARK OR DATE	6-3-80

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES

PS Form 3800, Apr. 1976

CERTIFIED
No. 112842
MAIL



ns 1, 2, and 3.
gress in the "RETURN TO" space on

requested (check one.)
d date delivered..... 45¢
te and address of delivery.... ¢
LIVERY
d date delivered..... ¢
LIVERY,
te, and address of delivery.$

MASTER FOR FEES)
TO:
ny
79702
N:
TIFIED NO. | INSURED NO.
842
ture of addressee or agent)
described above.
e ☐Authorized agent

POSTMARK
ly if requested)
BECAUSE: | CLERK'S INITIALS

☆GPO : 1979-288-848

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Pennzoil Company
P. O. Box 1828
Midland, Texas 79702

Attention: Mr. Kenneth Medlock

No. 112842

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Pennzoil Company	
STREET AND NO.: P. O. Box 1828	
P.O., STATE AND ZIP CODE: Midland, Texas 79702	
POSTAGE	$1.71
CERTIFIED FEE	80 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
OPTIONAL SERVICES — RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED	45 ¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$2.96
POSTMARK OR DATE: 6-3-80	

CONSULT POSTMASTER FOR FEES

PS Form 3800, Apr. 1976

CERTIFIED
No. 112842
MAIL

PS Form 3811, Jan. 1978

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered..... 45¢
- ☐ Show to whom, date and address of delivery....¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered.....¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Maralo, Inc.
4600 Post Oak Pl. #307
Houston, TX 77027

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	112844	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979 288-848

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Maralo, Inc.
Mrs. Erma Lowe
M. Ralph Lowe, Inc.
c/o Maralo, Inc.
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Attention: Mr. John R. Burke

No. 112844

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Maralo, Inc.
STREET AND NO.
4600 Post Oak Pl. #307
P.O., STATE AND ZIP CODE
Houston, Tx 77027

POSTAGE		$1.81
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE	80 ¢
	OPTIONAL SERVICES — SPECIAL DELIVERY	¢
	OPTIONAL SERVICES — RESTRICTED DELIVERY	¢
	OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	45 ¢
	OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
	OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
	OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES		$2.06

POSTMARK OR DATE
6-3-80

PS Form 3800, Apr. 1975

CERTIFIED
No. 112844
MAIL

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Maralo, Inc.
Mrs. Erma Lowe
M. Ralph Lowe, Inc.
c/o Maralo, Inc.
4600 Post Oak Place
Suite 307
Houston, Texas 77027

Attention: Mr. John R. Burke

MIDLAND TEX JUN 3 1980 U.S. POSTAGE $3.06

No. 112844

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Maralo, Inc.	
STREET AND NO.: 4600 Post Oak Pl. #307	
P.O., STATE AND ZIP CODE: Houston, Tx 77027	
POSTAGE	$1.81
CERTIFIED FEE	80 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED	45 ¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$3.06
POSTMARK OR DATE: 6-3-80	

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES
RETURN RECEIPT SERVICE

PS Form 3800, Apr. 1976

CERTIFIED
No. 112844
MAIL

PS Form 3811, Jan. 1979

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.) 45
- [X] Show to whom and date delivered..... ¢
- [ ] Show to whom, date and address of delivery.... ¢
- [ ] RESTRICTED DELIVERY
  Show to whom and date delivered..... ¢
- [ ] RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Exxon Company U.S.A.
P. O. Box 1600
Midland, Texas 79702

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	112845	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

☆GPO : 1979-268-848

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

Attention: Mr. H. W. Hugly

No. 112845

RECEIPT FOR CERTIFIE

NO INSURANCE COVERAGE PRO
NOT FOR INTERNATIONAL

(See Reverse)

SENT TO
Exxon Company U.
STREET AND NO
P. O. Box 1600
P.O. STATE AND ZIP CODE
Midland, Texas

POSTAGE	
CERTIFIED FEE	
SPECIAL DELIVERY	
RESTRICTED DELIVERY	
RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED	
RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	
RETURN RECEIPT SERVICE: SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	
RETURN RECEIPT SERVICE: SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	
TOTAL POSTAGE AND FEES	
POSTMARK OR DATE	6-3-80

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES

PS Form 3800, Apr. 1976

CERTIFIE
No. 112845
MAIL

RETURN TO" space on

(check one.) 45
red..... ¢
ss of delivery... ¢
ed..... ¢
ess of delivery.$
OR FEES)

INSURED NO.

dressee or agent)
above.
rized agent

POSTMARK

CLERK'S INITIALS

☆GPO : 1979-288-848

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Exxon Company, U.S.A.
P. O. Box 1600
Midland, Texas 79702

Attention: Mr. H. W. Hugly

MIDLAND TEX 79701 JUN 3 '80 $2.96

No. 112845

RECEIPT FOR CERTIFIED MAIL

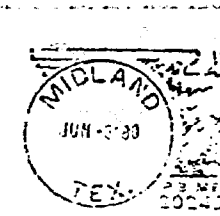
NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Exxon Company U.S.A.	
STREET AND NO.: P. O. Box 1600	
P.O. STATE AND ZIP CODE: Midland, Texas 79702	
POSTAGE	$1.71
CERTIFIED FEE	80 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	45 ¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$2.96
POSTMARK OR DATE: 6-3-80	

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES

PS Form 3800, Apr. 1976

CERTIFIED
No. 112845
MAIL



PS Form 3811, Jan. 1979

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.) 45¢
- ☒ Show to whom and date delivered.....¢
- ☐ Show to whom, date and address of delivery....¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered.....¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Tenneco Oil Company
6800 Park Ten Blvd. # 200 North
San Antonio, Texas 78213

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	112847	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979-288-848

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Attention: Mr. Steve D. King

No. 112347

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

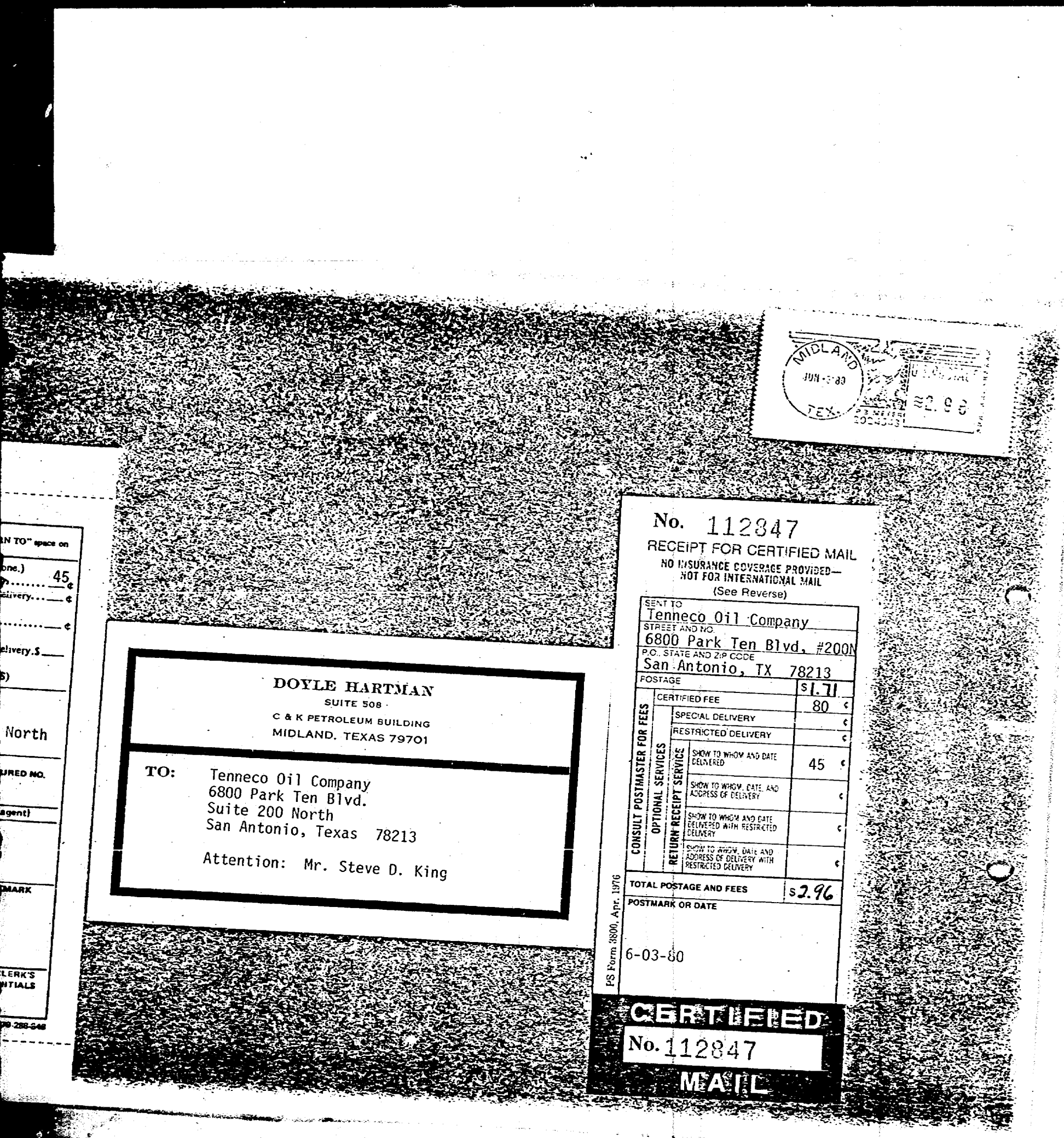
SENT TO
Tenneco Oil Company
STREET AND NO.
6800 Park Ten Blvd, #200N
P.O., STATE AND ZIP CODE
San Antonio, TX 78213

POSTAGE		$1.71
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE	80 ¢
	SPECIAL DELIVERY	¢
	RESTRICTED DELIVERY	¢
OPTIONAL SERVICES — RETURN RECEIPT SERVICE	SHOW TO WHOM AND DATE DELIVERED	45 ¢
	SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
	SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
	SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES		$2.96

POSTMARK OR DATE
6-03-80

PS Form 3800, Apr. 1976

CERTIFIED
No. 112847
MAIL



DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Tenneco Oil Company
6800 Park Ten Blvd.
Suite 200 North
San Antonio, Texas 78213

Attention: Mr. Steve D. King

MIDLAND JUN 5 80 TEX.

No. 112347

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Tenneco Oil Company
STREET AND NO.: 6800 Park Ten Blvd, #200N
P.O., STATE AND ZIP CODE: San Antonio, TX 78213

POSTAGE	$1.71
CERTIFIED FEE	80 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
CONSULT POSTMASTER FOR FEES — OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	45 ¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$2.96
POSTMARK OR DATE	6-03-80

PS Form 3800, Apr. 1976

CERTIFIED
No. 112847
MAIL

PS Form 3811, Jan. 1979

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - ☒ Show to whom and date delivered..... 45¢
   - ☐ Show to whom, date and address of delivery.... ___¢
   - ☐ RESTRICTED DELIVERY
     Show to whom and date delivered..... ___¢
   - ☐ RESTRICTED DELIVERY.
     Show to whom, date, and address of delivery.$ ___

   (CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
   Continental Oil Company
   P. O. Box 1959
   Midland, Texas 79702

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	112846	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979 288-848

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

No. 112846

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Continental Oil Co.	
STREET AND NO.: P. O. Box 1959	
P.O., STATE AND ZIP CODE: Midland, TX 79702	
POSTAGE	$1.71
CERTIFIED FEE	80 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	45 ¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$2.96
POSTMARK OR DATE: 6-3-80	

CONSULT POSTMASTER FOR FEES

PS Form 3800, Apr. 1976

CERTIFIED
No. 112846
MAIL

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

No. 112846

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Continental Oil Co.	
STREET AND NO.: P. O. Box 1959	
P.O., STATE AND ZIP CODE: Midland, TX 79702	
POSTAGE	$1.71
CONSULT POSTMASTER FOR FEES — CERTIFIED FEE	80 ¢
OPTIONAL SERVICES — SPECIAL DELIVERY	¢
OPTIONAL SERVICES — RESTRICTED DELIVERY	¢
OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	45 ¢
OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY	¢
OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
OPTIONAL SERVICES — RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$2.96
POSTMARK OR DATE: 6-3-80	

PS Form 3800, Apr. 1976

CERTIFIED
No. 112846
MAIL

U.S. POSTAGE
82.96

PS Form 3811, Jan. 1979

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- [X] Show to whom and date delivered..... 45¢
- [ ] Show to whom, date and address of delivery.... ¢
- [ ] RESTRICTED DELIVERY
  Show to whom and date delivered..... ¢
- [ ] RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:

Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	112846	

(Always obtain signature of addressee or agent)

I have received the article described above

SIGNATURE ☐Addressee ☐Authorized agent

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979 278-848

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

No. 112846

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO: Continental Oil Co.	
STREET AND NO.: P. O. Box 1959	
P. O. STATE AND ZIP CODE: Midland, TX 79702	
POSTAGE	$1.71
CERTIFIED FEE	80 ¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED	45 ¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$2.96
POSTMARK OR DATE: 6-3-80	

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES
RETURN RECEIPT SERVICE

PS Form 3800, Apr. 1976

CERTIFIED
No. 112846
MAIL

space on

45 ¢

¢

¢

y.S

P NO.

MJ

RK

ERK'S
TIALS

208-648

DOYLE HARTMAN
SUITE 508
C & K PETROLEUM BUILDING
MIDLAND, TEXAS 79701

TO: Continental Oil Company
P. O. Box 1959
Midland, Texas 79702

Attention: Mr. David M. Goodfellow

No. 112846

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Continental Oil Co.
STREET AND NO.
P. O. Box 1959
P.O. STATE AND ZIP CODE
Midland, TX 79702

POSTAGE		$1.71
CERTIFIED FEE		80 ¢
SPECIAL DELIVERY		¢
RESTRICTED DELIVERY		¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED		45 ¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY		¢
RESTRICTED DELIVERY — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY		¢
RESTRICTED DELIVERY — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY		¢
TOTAL POSTAGE AND FEES		$2.96

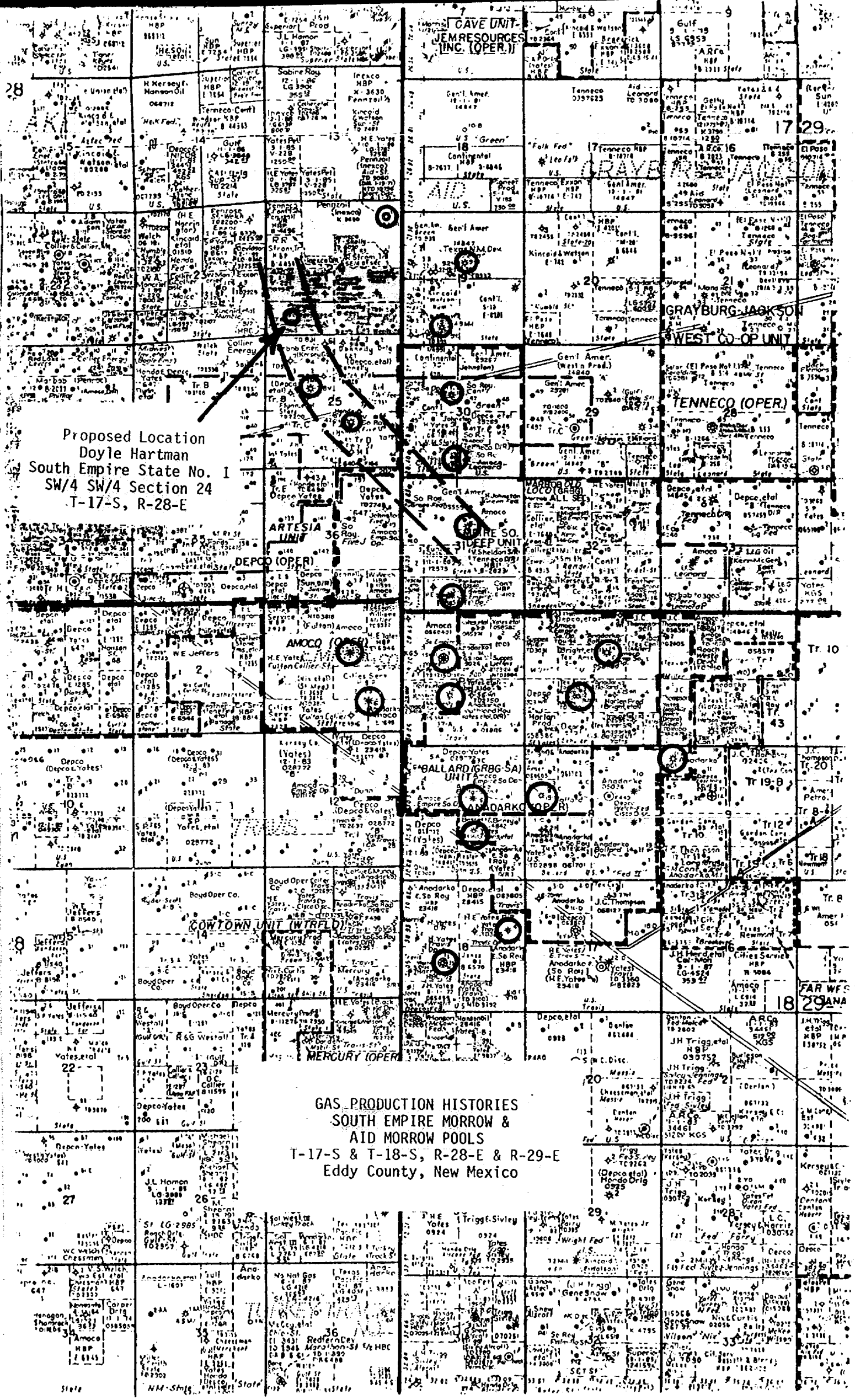
CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES

POSTMARK OR DATE
6-3-80

PS Form 3800, Apr. 1976

U.S. POSTAGE
$2.96

CERTIFIED
No. 112846
MAIL


Proposed Location
Doyle Hartman
South Empire State No. 1
SW/4 SW/4 Section 24
T-17-S, R-28-E
CAVE UNIT-JEM RESOURCES INC. (OPER.)
GRAYBURG-JACKSON
WEST CO-OP UNIT
TENNECO (OPER.)
ARTESIA UNIT
DEPCO (OPER)
AMOCO (OPER)
MARBOB-LOCO (GRBG) ALL SET
SOUTH EMPIRE SO. DEEP UNIT
BALLARD (GRBG-SA) UNIT
ANADARKO (OPER)
COWTOWN UNIT (WTRFLD)
MERCURY (OPER)
GAS PRODUCTION HISTORIES
SOUTH EMPIRE MORROW &
AID MORROW POOLS
T-17-S & T-18-S, R-28-E & R-29-E
Eddy County, New Mexico

Proposed Location
Doyle Hartman
South Empire State No. 1
SW/4 SW/4 Section 24
T-17-S, R-28-E

GAS PRODUCTION HISTORIES
SOUTH EMPIRE MORROW &
AID MORROW POOLS
T-17-S & T-18-S, R-28-E & R-29-E
Eddy County, New Mexico

GAS PRODUCTION HISTORY

Date May 15, 1980

Operator: Pennzoil Company

Well: Aid State Com #1

Location: A-24-17-28

Pool: Aid Morrow (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks:

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual SIP (psia)		
1980	2	455	227	2123.9			
1979	12	8337	695	2123.4			
1978	12	116435	9703	2115.1			
1977	12	112200	9350	1998.7			
1976	12	171798	14316	1886.5			
1975	12	290089	24174	1714.7			
1974	12	237443	19787	1424.6			
1973	12	228467	19039	1187.2			
1972	12	714004	59500	958.7			
1971	5	244709	48942	244.7			

19 79 Detail Summary

Jan.	1036	July	615
Feb.	535	Aug.	693
March	718	Sept.	772
April	790	Oct.	655
May	400	Nov.	874
June	712	Dec.	537

Production (Y-T-D) 455 MCF

Days or Months (Y-T-D) 2 Months

1980 Detail Summary

Jan.	330	July	
Feb.	125	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Avg. Rate (Y-T-D) 227 MCF/Mo.

3-1-80 Cum: 2123.9 MMCF

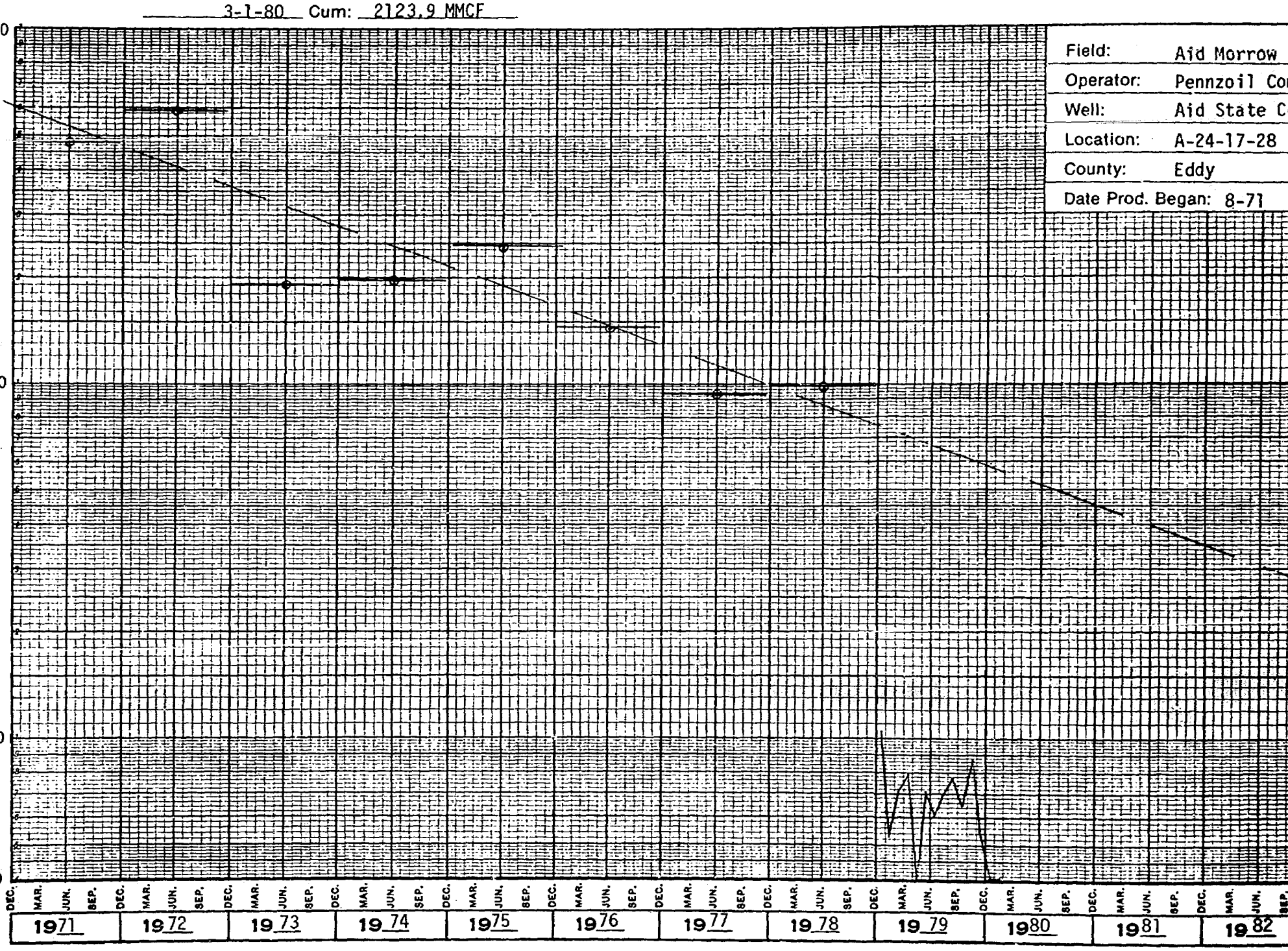
Field:	Aid Morrow
Operator:	Pennzoil Co
Well:	Aid State C
Location:	A-24-17-28
County:	Eddy
Date Prod. Began:	8-71

Gas Production - MCF/month

100,000
10,000
1,000
400

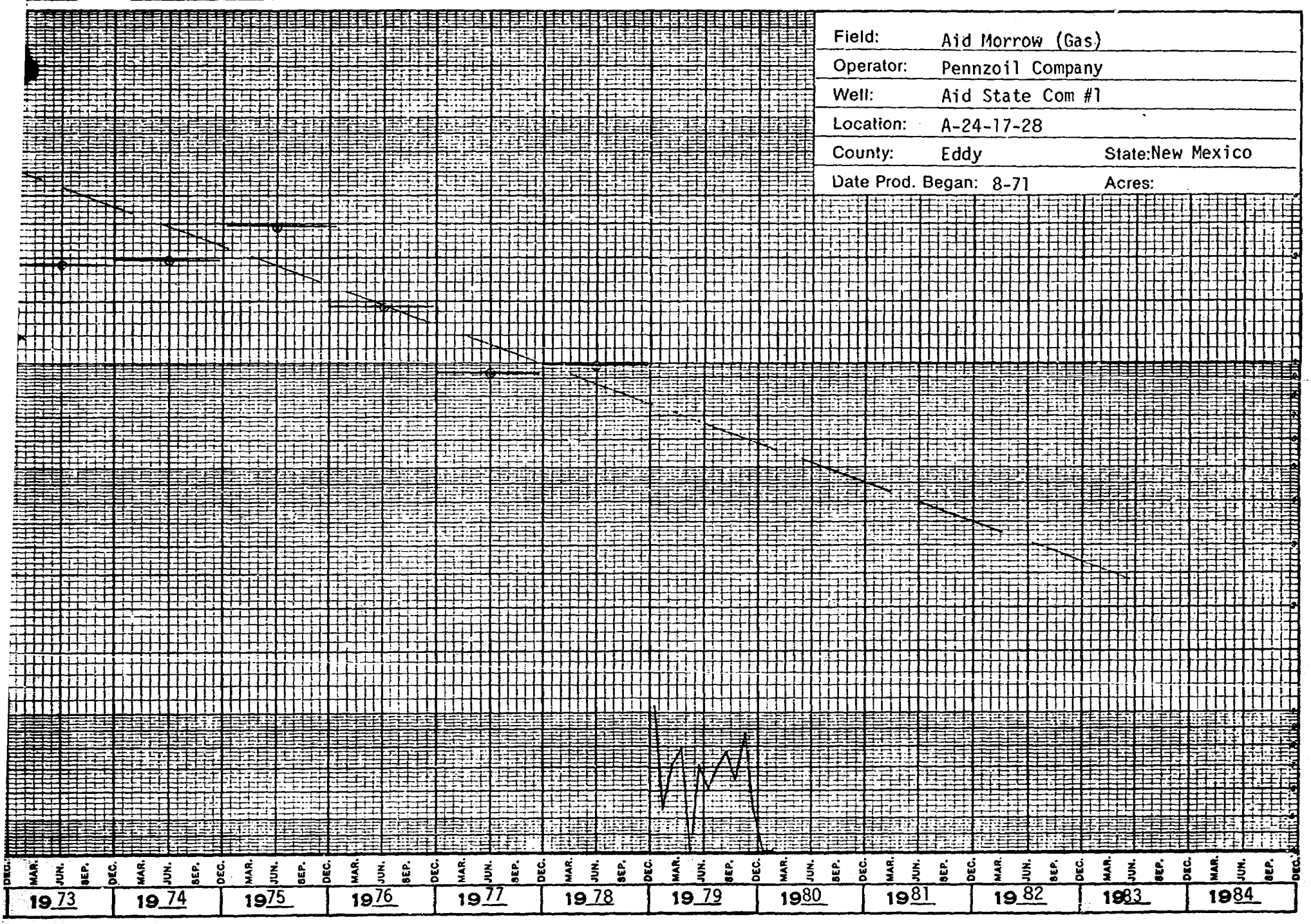
DEC. MAR. JUN. SEP.

19 71 | 19 72 | 19 73 | 19 74 | 19 75 | 19 76 | 19 77 | 19 78 | 19 79 | 19 80 | 19 81 | 19 82



-80 Cum: 2123.9 MMCF

Field:	Aid Morrow (Gas)
Operator:	Pennzoil Company
Well:	Aid State Com #1
Location:	A-24-17-28
County:	Eddy State:New Mexico
Date Prod. Began:	8-71 Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Hondo Oil & Gas Company

Well: State BV #2

Location: F-25-17-28

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 1-80

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo)	Cum. Gas Production (MMCF)	Annual Oil Production (BBLS)	Average Oil Rate (BBLS/Mo.)	Cum. Oil Production (BBLS)
1980	2	542897	271448	542.9	7975	3987	7975

19 Detail Summary

Jan.		July	
Feb.		Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 542897 MCF

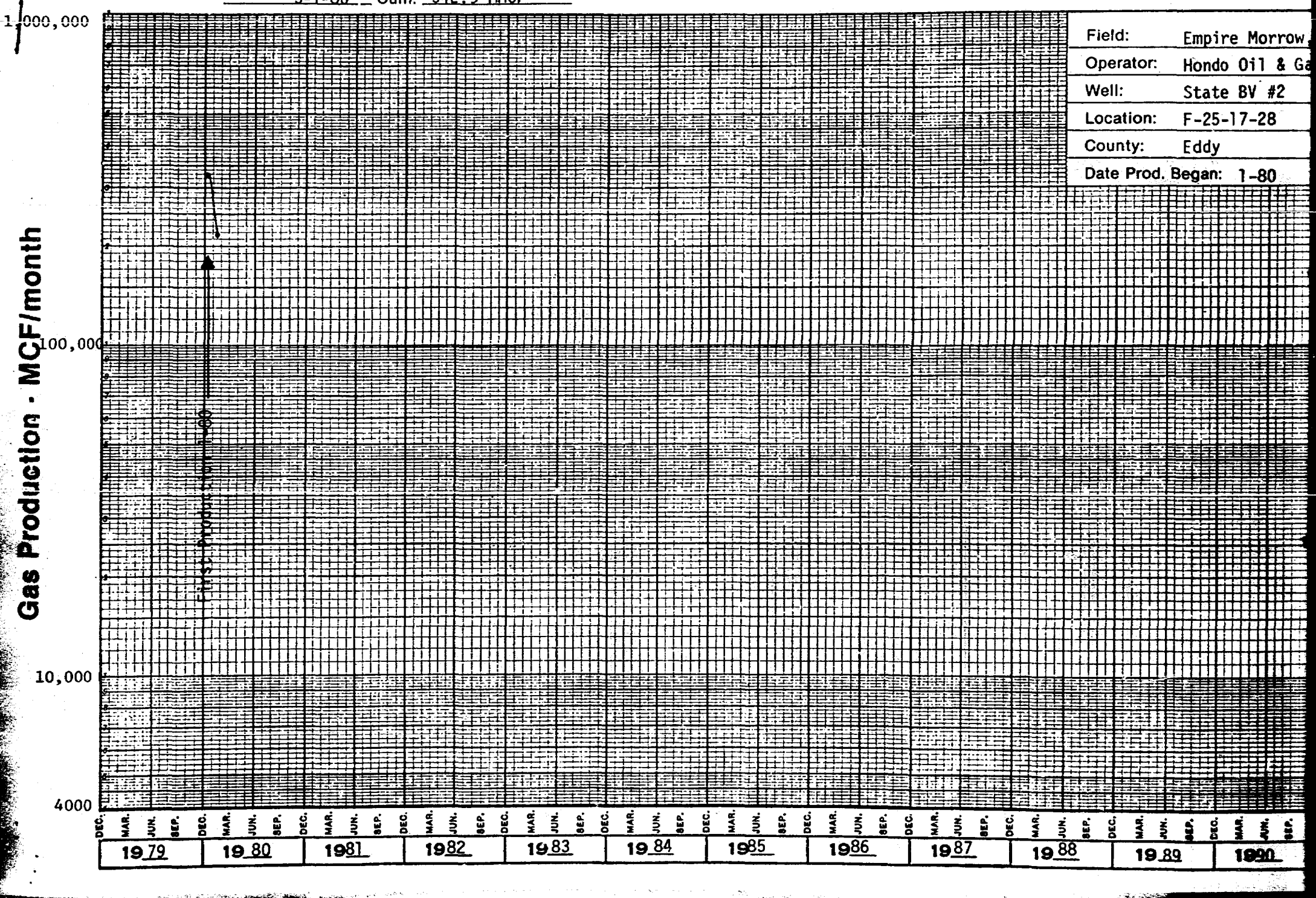
Days or Months (Y-T-D) 2 Months

19 80 Detail Summary

Jan.	326911	July	
Feb.	215986	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Avg. Rate (Y-T-D) 271448 MCF/Mo.

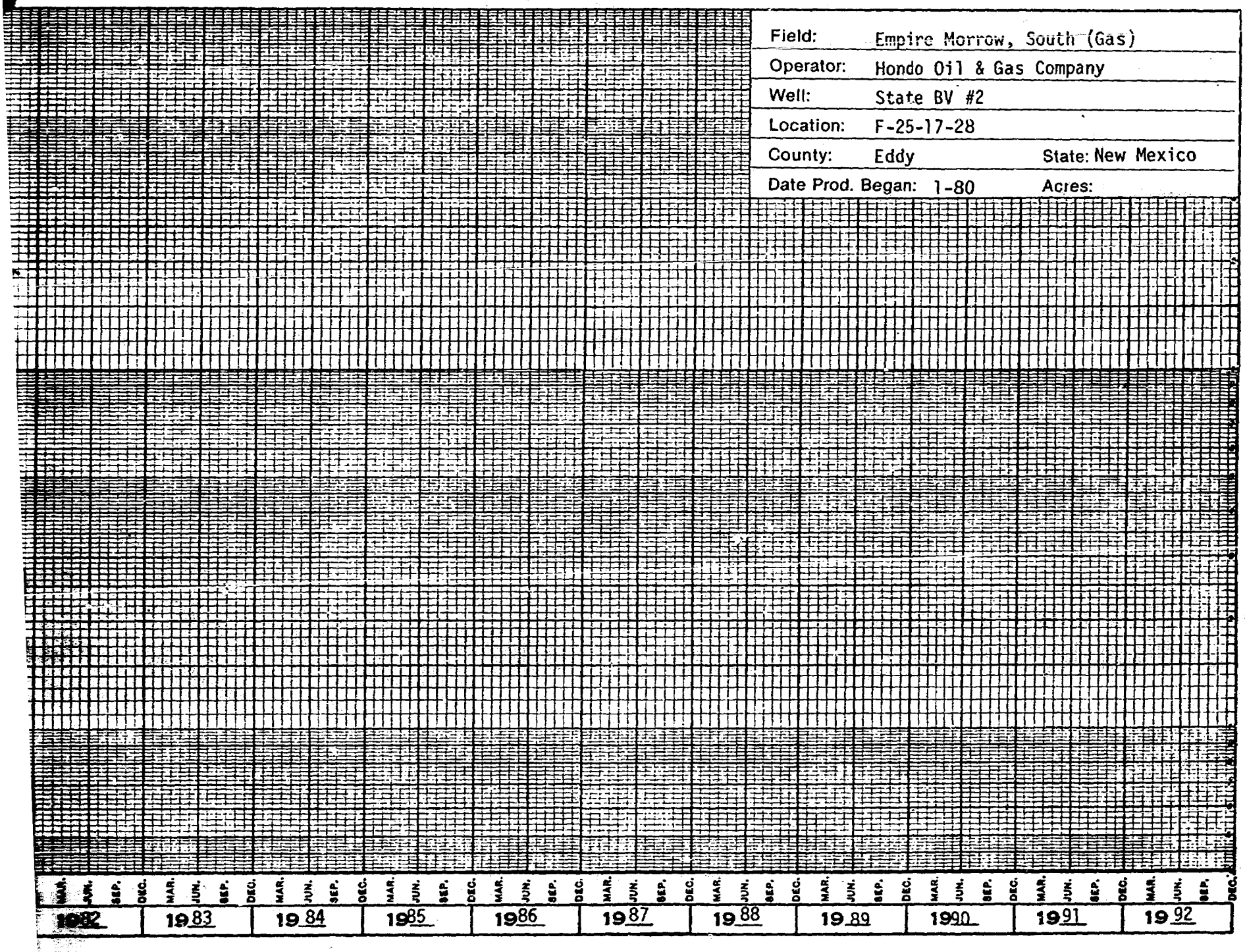
3-1-80 Cum: 542.9 MMCF



Field:	Empire Morrow
Operator:	Hondo Oil & Ga
Well:	State BV #2
Location:	F-25-17-28
County:	Eddy
Date Prod. Began:	1-80

Cum: 542.9 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Hondo Oil & Gas Company
Well:	State BV #2
Location:	F-25-17-28
County:	Eddy State: New Mexico
Date Prod. Began:	1-80 Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Hondo Oil & Gas Company

Well: State BV #1

Location: J-25-17-28

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 7-78

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual Oil Production (BBLS)	Average Oil Rate (BBLS/Mo.)	Cum. Oil Production (BBLS)
1980	2	626454	313227	6542.0	9639	4819	107525
1979	12	4076169	339681	5915.5	66592	5549	97886
1978	6	1839353	306559	1839.3	31294	5216	31294

1979 Detail Summary

Jan.	361118	July	374227
Feb.	350010	Aug.	367270
March	300791	Sept.	344484
April	367181	Oct.	346654
May	345625	Nov.	280433
June	333033	Dec.	305343

1980 Detail Summary

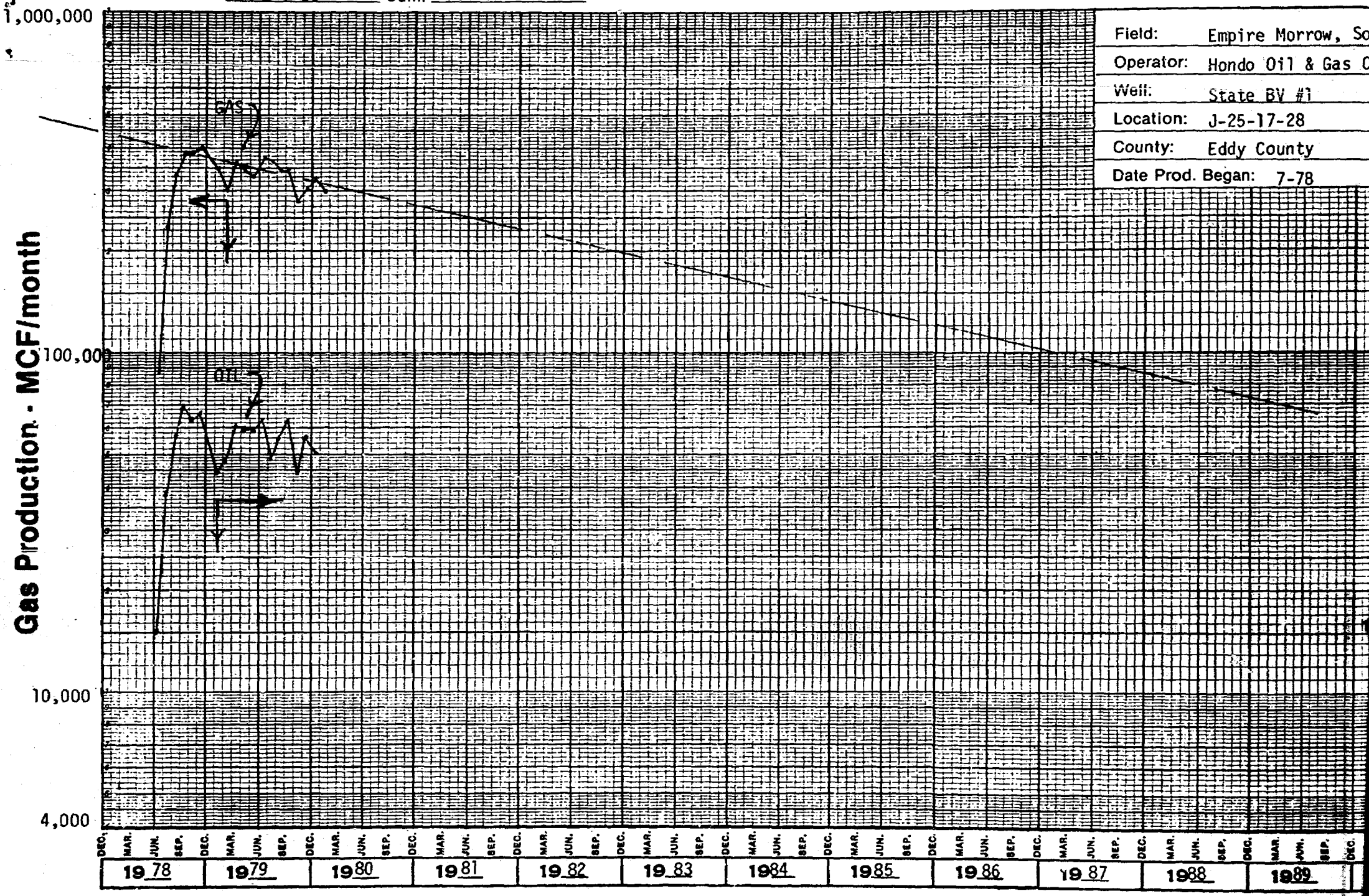
Jan.	326911	July	
Feb.	299543	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 626454 MCF

Days or Months (Y-T-D) 2 Months

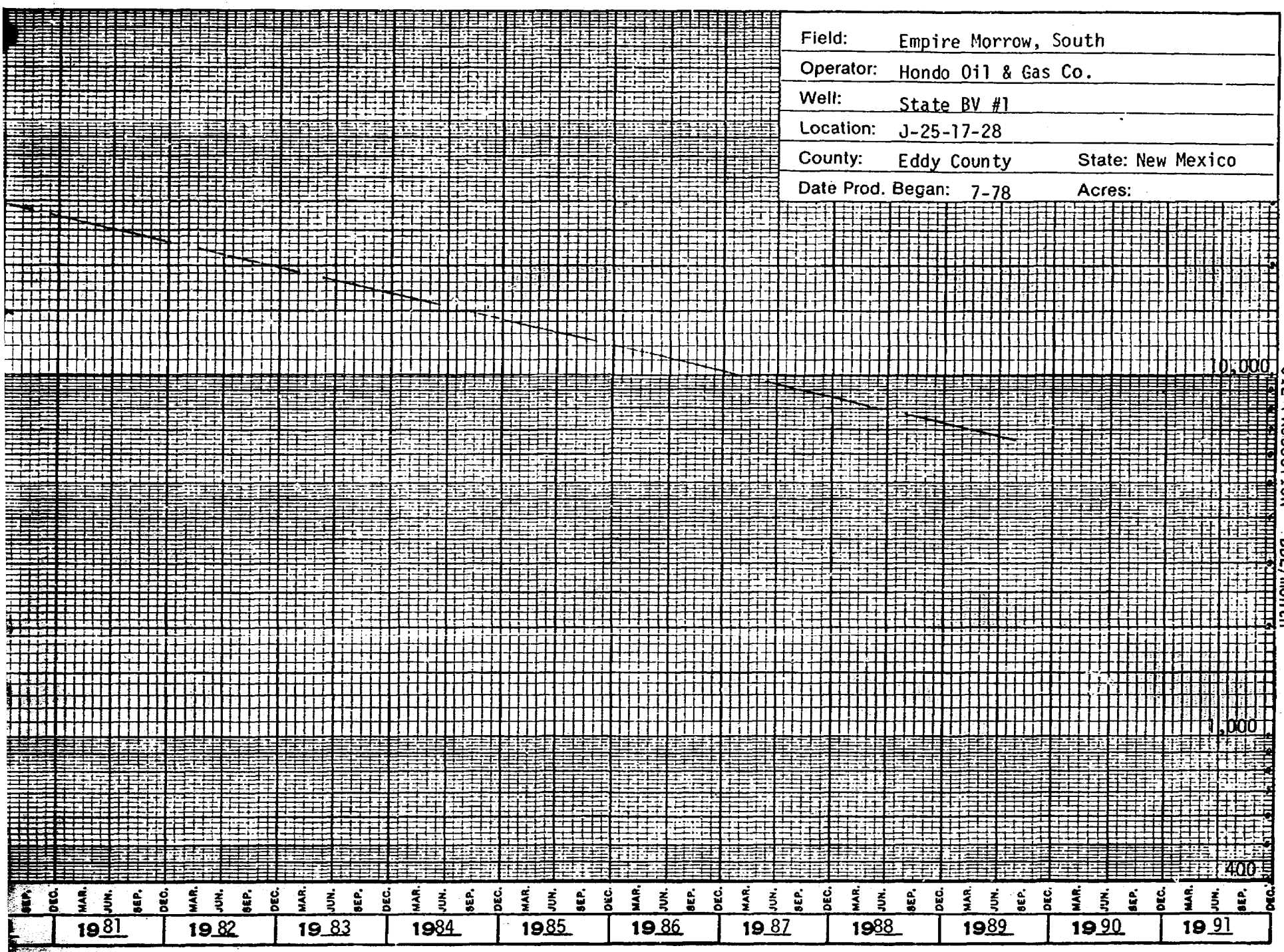
Avg. Rate (Y-T-D) 313227 MCF/Mo.

2-1-80 Cum: 5881.3 MMCF



Field:	Empire Morrow, So
Operator:	Hondo Oil & Gas C
Well:	State BV #1
Location:	J-25-17-28
County:	Eddy County
Date Prod. Began:	7-78

Cum: 5881.3 MMCF



GAS PRODUCTION HISTORY

Date 5-30-80

Operator: General American Oil Co. of Texas

Well: Green "B" No. 9

Location: G-19-17-29

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 7-79.

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/mo.)	Cum. Gas Production (MMCF)	Annual SIP (psia)		
1980	2	214316	107158	1159.9			
1979	6	945592	157599	945.6			

19 79 Detail Summary

Jan.		July	29209
Feb.		Aug.	228881
March		Sept.	196612
April		Oct.	184264
May		Nov.	170217
June		Dec.	136409

19 80 Detail Summary

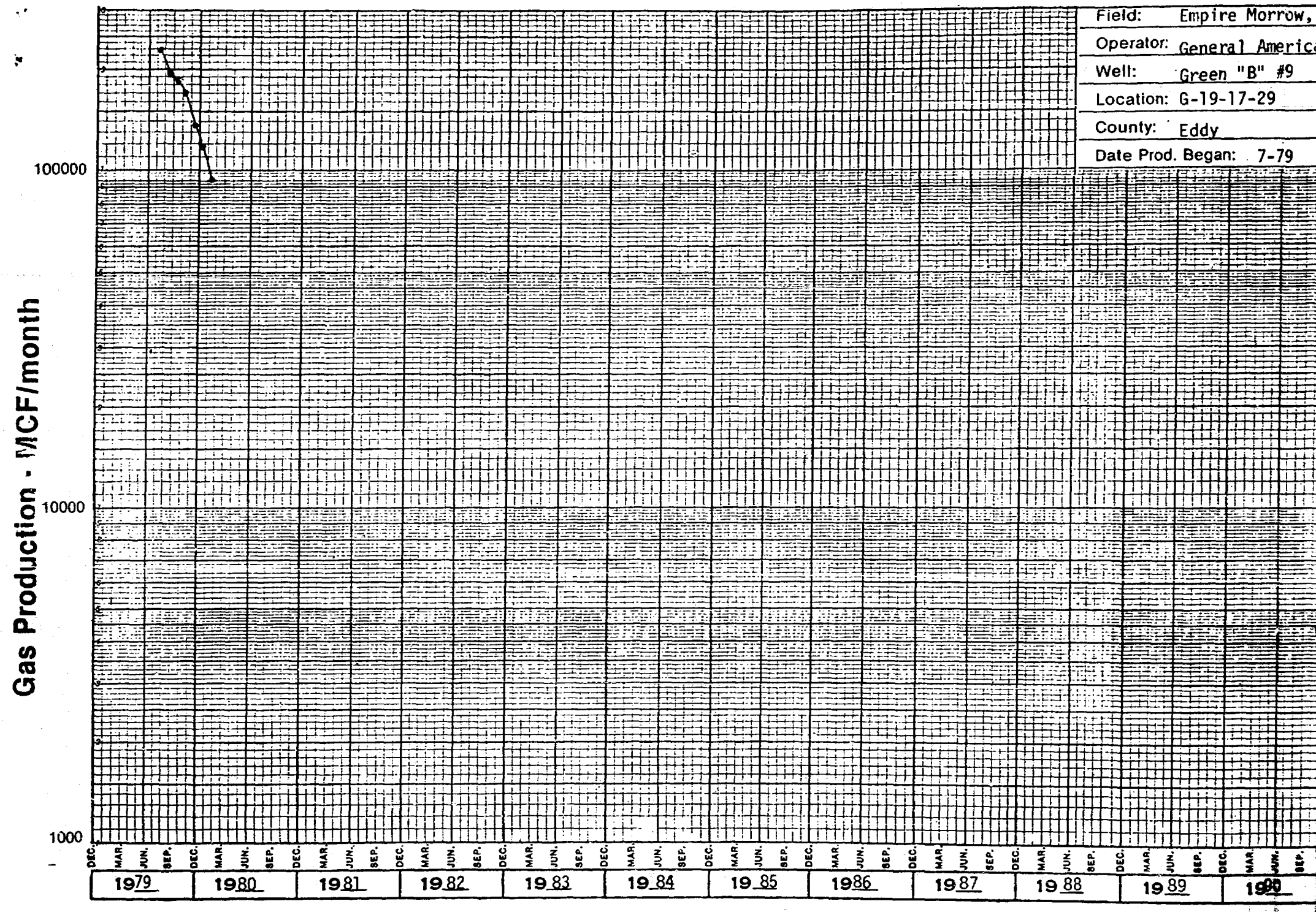
Jan.	119693	July	
Feb.	94623	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 214316 MCF

Days or Months (Y-T-D) 2 mos.

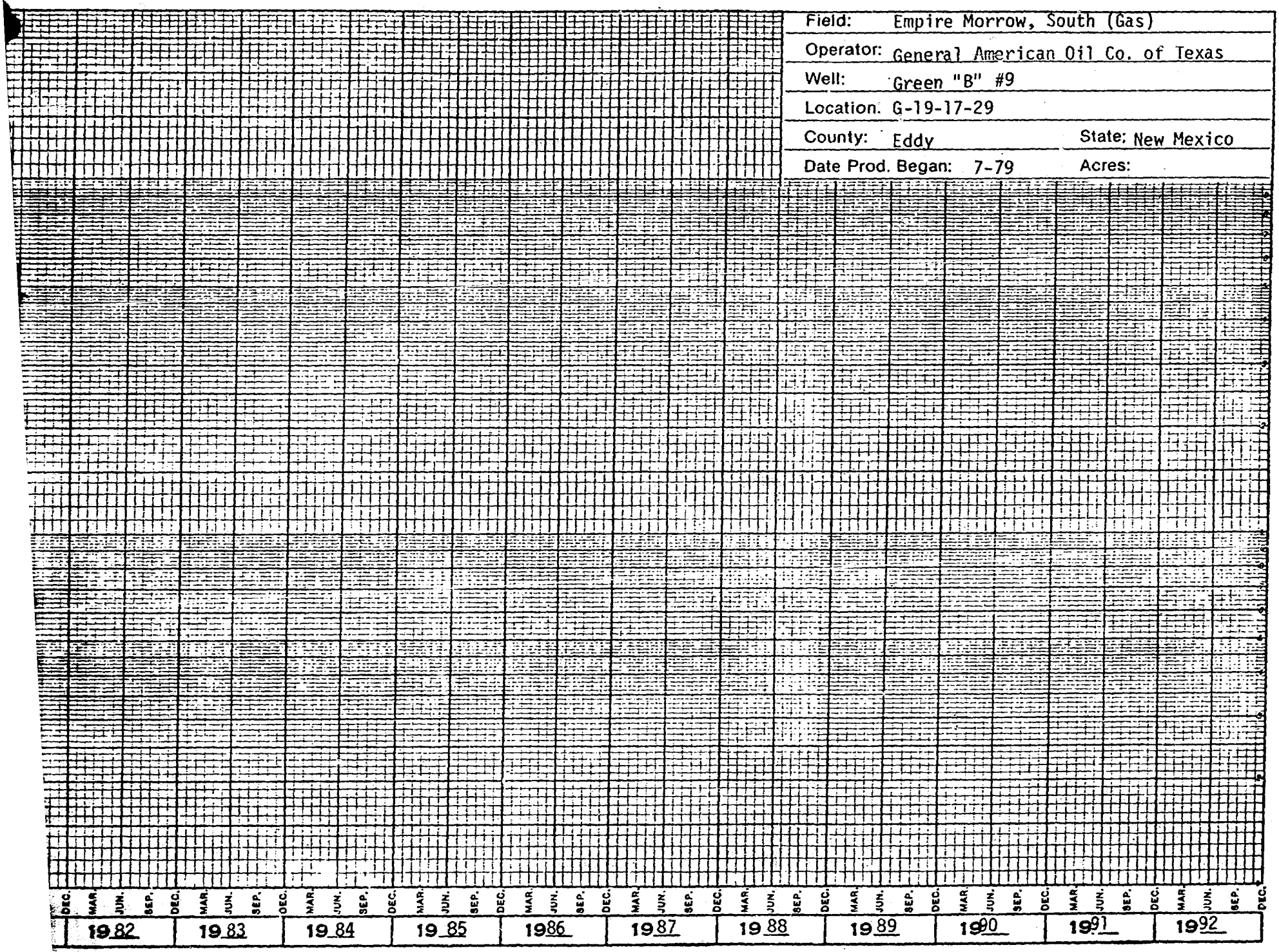
Avg. Rate (Y-T-D) 107158 MCF/mo.

3-1-80 ... 1159.9 MMCF



80 ___ Cum: 1159.9 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	General American Oil Co. of Texas
Well:	Green "B" #9
Location:	G-19-17-29
County:	Eddy — State: New Mexico
Date Prod. Began:	7-79 — Acres:



GAS PRODUCTION HISTORY

Date 5-29-80 Page 1 of 1

Operator: Conoco, Inc.
Well: State "19" Com. #1
Location: N-19-17-29

Pool: Empire Morrow, South (Gas)
Spud Date: Original Completion Date:
Completion Interval (Gas):
Completion Date (Gas): First Production (Gas):
Remarks: First Production 5-79.

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/mo.)	Cum. Gas Production (MMCF)	Annual SIP (psia)		
1980	2	69773	34886	630.2			
1979	8	560423	280211	560.4			

19 79 Detail Summary

Jan.		July	95381
Feb.		Aug.	81987
March		Sept.	79888
April		Oct.	65529
May	47387	Nov.	42793
June	99566	Dec.	47892

Production (Y-T-D) 69773 MCF
Months (Y-T-D) 2 mos.

19 80 Detail Summary

Jan.	38414	July	
Feb.	31359	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Avg. Rate (Y-T-D) 34886 MCF/mo.

3-1-80 Cum. 630.2 MMCF

Field:	Empire Morrow,
Operator:	Conoco, Inc.
Well:	State "19" Com.
Location:	N-19-17-29
County:	Eddy
Date Prod. Began:	5-79

Gas Production - MCF/month

100000
10000
1000

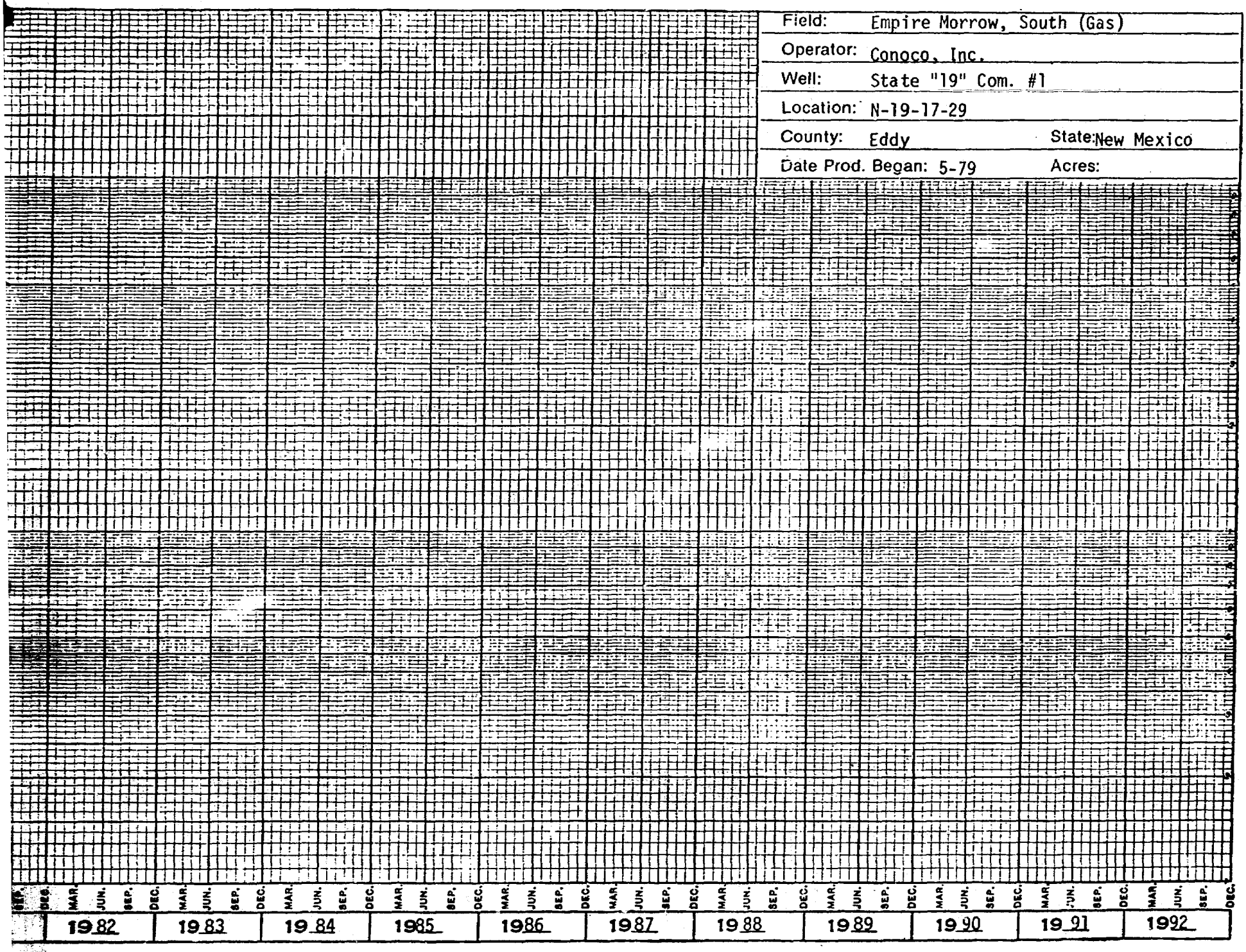
First Production 5-79

DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC.

1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990

Cum. 630.2 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Conoco, Inc.
Well:	State "19" Com. #1
Location:	N-19-17-29
County:	Eddy State: New Mexico
Date Prod. Began:	5-79 Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Harvey E. Yates Company

Well: Empire S. Deep Unit #18

Location: F-30-17-29

Pool: Empire Morrow South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 6-78

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual Oil Production (BBLS)	Average Oil Rate (BBLS/Mo.)	Cum. Oil Production (BBLS)
1980	2	97144	48572	3247.9	453	226	42755
1979	12	2036371	169698	3150.8	23205	1934	42302
1978	7	1114356	159194	1114.4	19097	2728	19097

1979 Detail Summary

Jan.	226148	July	175931
Feb.	198994	Aug.	161343
March	214489	Sept.	140972
April	201013	Oct.	125226
May	192103	Nov.	122349
June	177256	Dec.	100547

1980 Detail Summary

Jan.	72299	July	
Feb.	24845	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

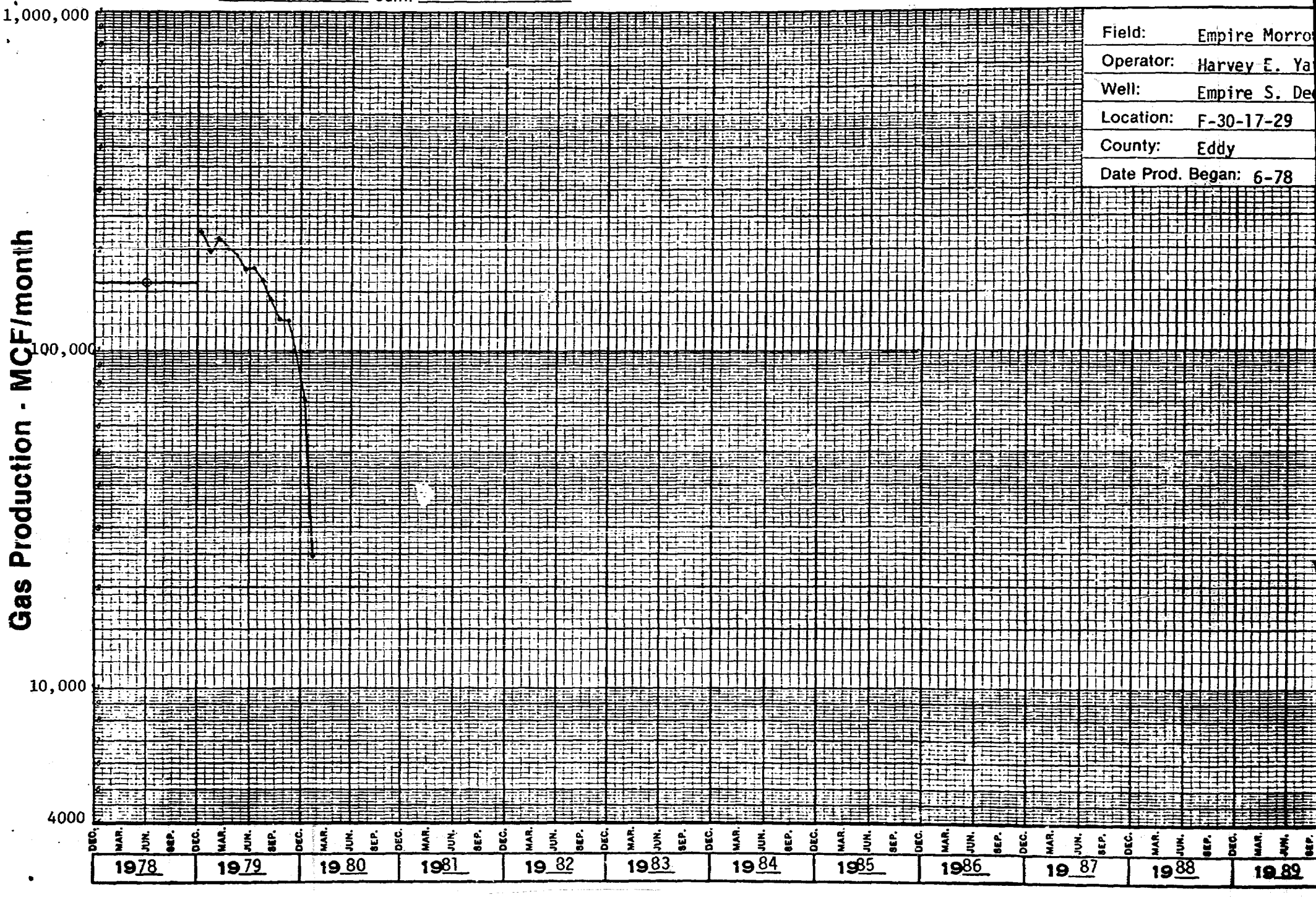
Production (Y-T-D) 97144 MCF

Avg. Rate (Y-T-D) 48572 MCF/Mo.

Days or Months (Y-T-D) 2 Months

F-30-17-29

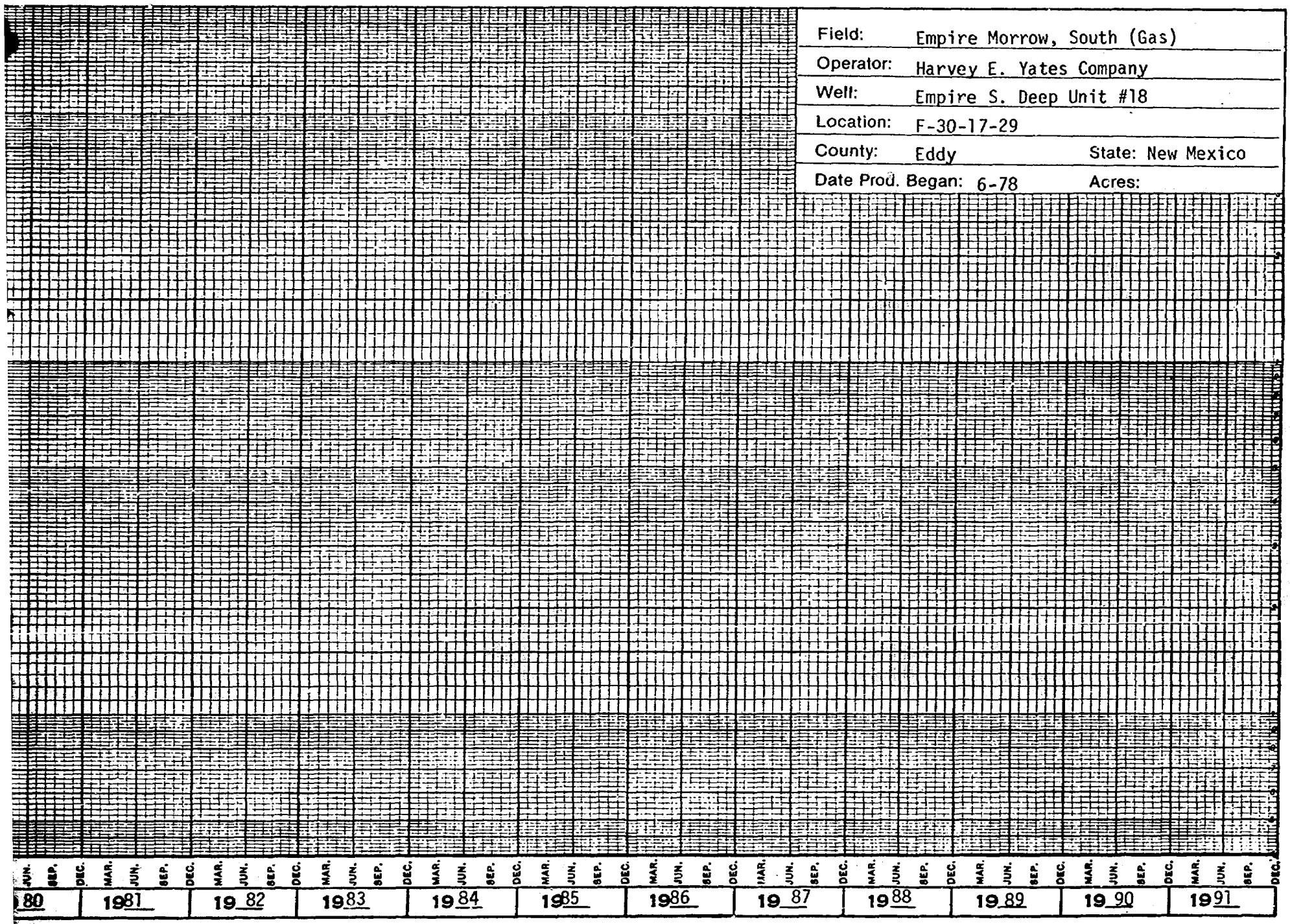
3-1-80 Cum: 3247.9 MMCF



Field:	Empire Morro
Operator:	Harvey E. Ya
Well:	Empire S. De
Location:	F-30-17-29
County:	Eddy
Date Prod. Began:	6-78

Cum: 3247.9 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Harvey E. Yates Company
Well:	Empire S. Deep Unit #18
Location:	F-30-17-29
County:	Eddy State: New Mexico
Date Prod. Began:	6-78 Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Harvey E. Yates Company

Well: Empire S. Deep Unit #13*

Location: N-30-17-29

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 7-77

*Upper Morrow Completion.

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual Oil Production (BBLS)	Average Oil Rate (BBLS/Mo.)	Cum. Oil Production (BBLS)
1980	2	110637	55318	1624.3	3496	1748	71494
1979	12	784055	65338	1513.7	29693	2474	67998
1978	10	717262	71726	729.6	37620	3762	38305
1977	1	12339	12339	12.3	685	685	685

19 79 Detail Summary

Jan.	74788	July	65875
Feb.	66481	Aug.	64303
March	72710	Sept.	61534
April	69512	Oct.	60943
May	67286	Nov.	58627
June	63195	Dec.	58801

1980 Detail Summary

Jan.	57364	July	
Feb.	53273	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 110637 MCF

Avg. Rate (Y-T-D) 55318 MCF/Mo.

Days or Months (Y-T-D) 2 Months

N-30-17-29

3-1-80 Cum: 1624.3 MMCF

Field:	Empire Morrow,
Operator:	Harvey E. Yate
Well:	Empire S. Deep
Location:	N-30-17-29
County:	Eddy
Date Prod. Began:	7-77

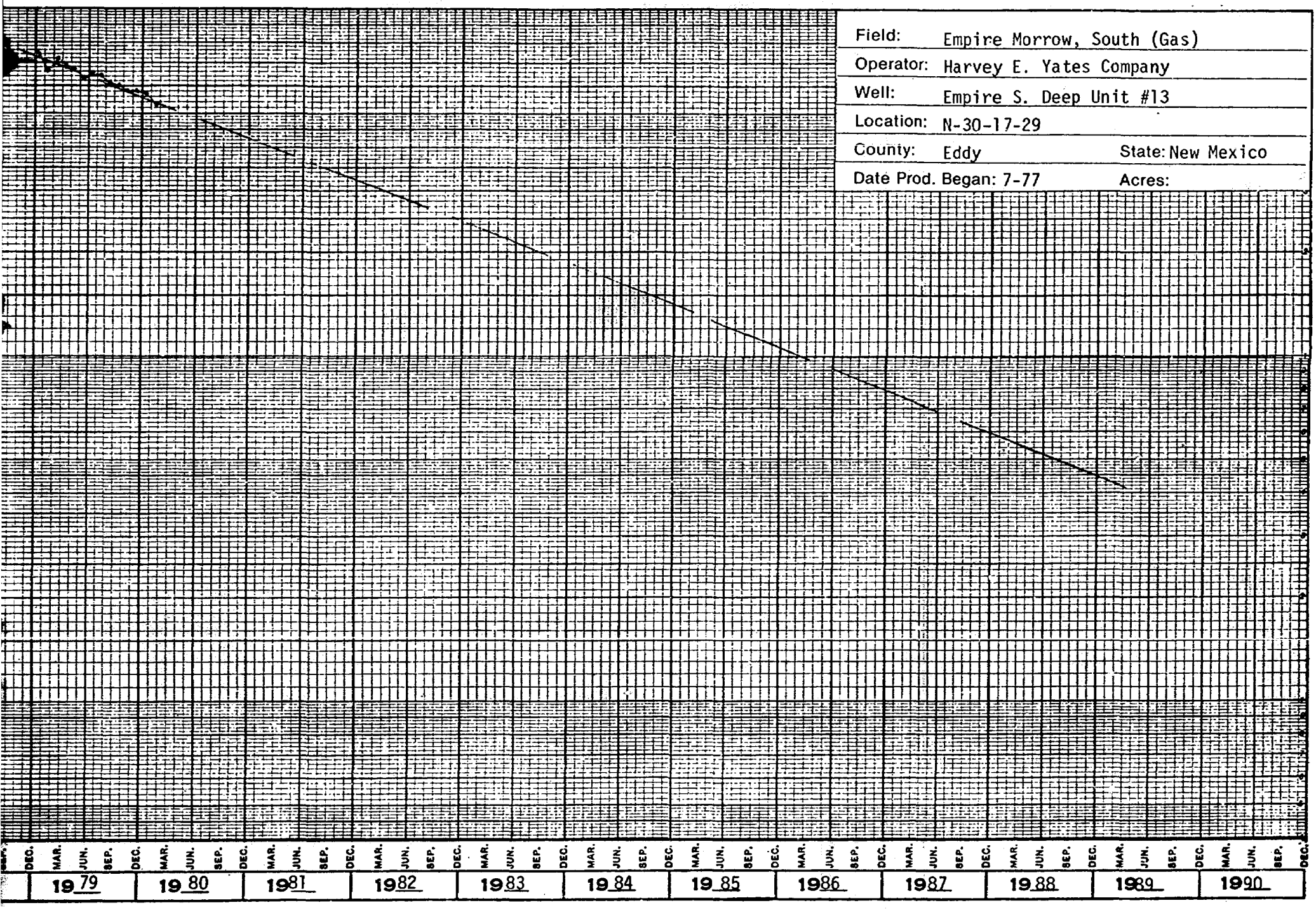
Gas Production - MCF/month

100,000
10,000
1,000
400

DEC. MAR. JUN. SEP.

1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988

3-1-80 Cum: 1624.3 MMCF



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Amoco Production Company
Well: Empire S. Deep Unit #5
Location: G-31-17-29

Pool: Empire Morrow, South (Gas)
Spud Date: Original Completion Date:
Completion Interval (Gas):
Completion Date (Gas): First Production (Gas):
Remarks: First Production 1-75
Last Production 1-80

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual SIP (psia)		
1980	1	311	311	1608.4			
1979	12	244793	20399	1608.1			
1978	12	414272	34523	1363.3			
1977	12	347283	28940	949.0			
1976	12	325967	27164	601.7			
1975	12	275756	22980	275.8			

1979 Detail Summary

Jan.	33978	July	14560
Feb.	34901	Aug.	13297
March	34689	Sept.	10307
April	31116	Oct.	9700
May	25560	Nov.	6219
June	20932	Dec.	9534

1980 Detail Summary

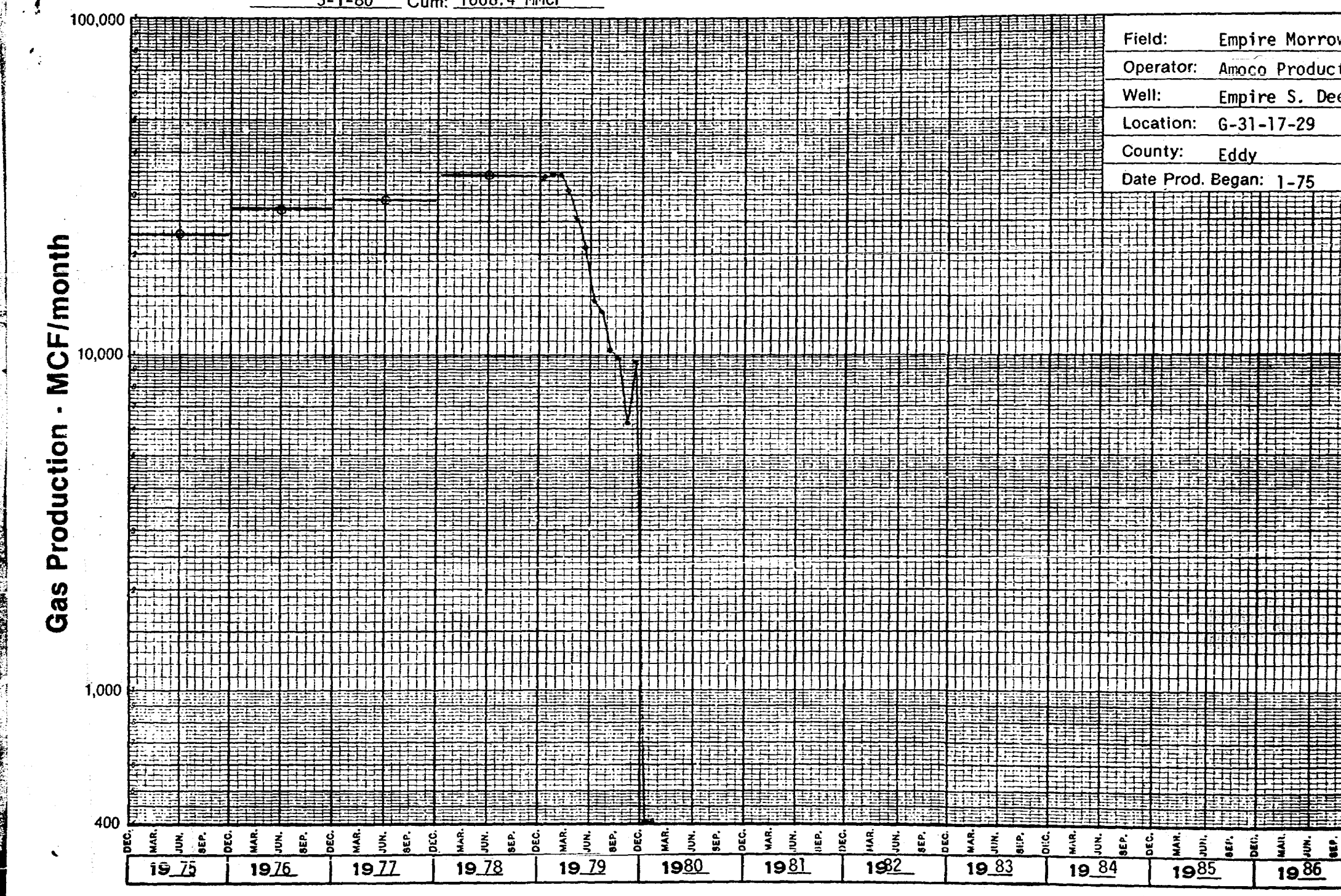
Jan.	311	July	
Feb.	0	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 311 MCF
Days or Months (Y-T-D) 1 Mo.

Avg. Rate (Y-T-D) 311 MCF/Mo.

G-31-17-29

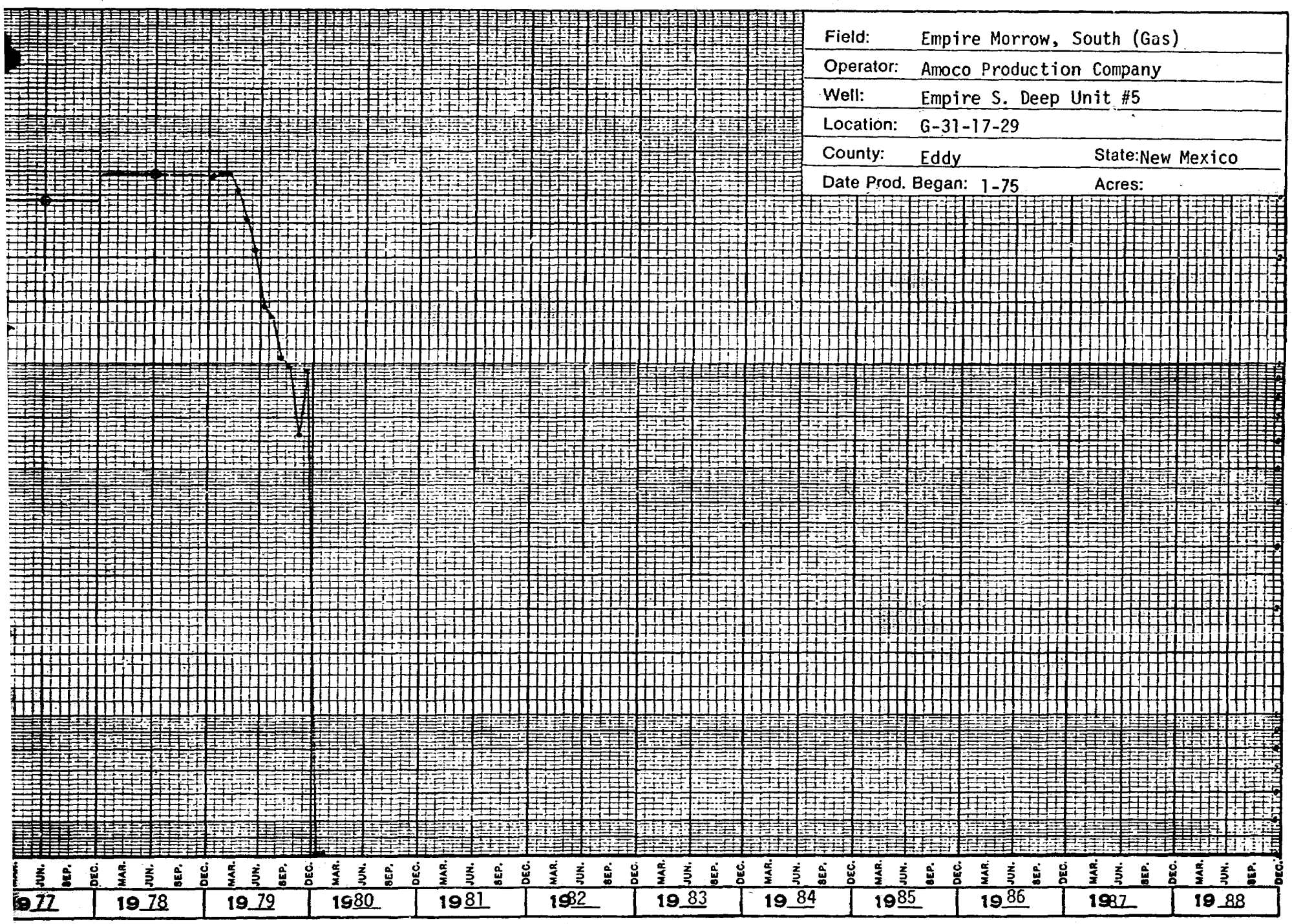
3-1-80 Cum: 1608.4 MMCF



Field:	Empire Morrow
Operator:	Amoco Product
Well:	Empire S. Dee
Location:	G-31-17-29
County:	Eddy
Date Prod. Began:	1-75

-80 Cum: 1608.4 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Amoco Production Company
Well:	Empire S. Deep Unit #5
Location:	G-31-17-29
County:	Eddy State: New Mexico
Date Prod. Began:	1-75 Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980

Operator: Amoco Production Company

Well: Empire S. Deep Unit #3

Location: N-31-17-29

Pool: Empire Morrow, South (Gas)

Spud Date: _____ Original Completion Date: _____

Completion Interval (Gas): _____

Completion Date (Gas): _____ First Production (Gas): _____

Remarks: First Production 8-73

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual SIP (psia)		
1980	2	5876	2938	4761.7			
1979	12	307099	25592	4755.8			
1978	12	649359	54113	4448.7			
1977	12	738336	61528	3799.4			
1976	12	1045812	87151	3061.0			
1975	9	635994	70666	2015.2			
1974	7	916019	130860	1379.2			
1973	5	463219	92644	463.2			

1979 Detail Summary

Jan.	21993	July	18153
Feb.	30306	Aug.	18621
March	35028	Sept.	17862
April	35523	Oct.	19416
May	46432	Nov.	13124
June	34162	Dec.	16479

1980 Detail Summary

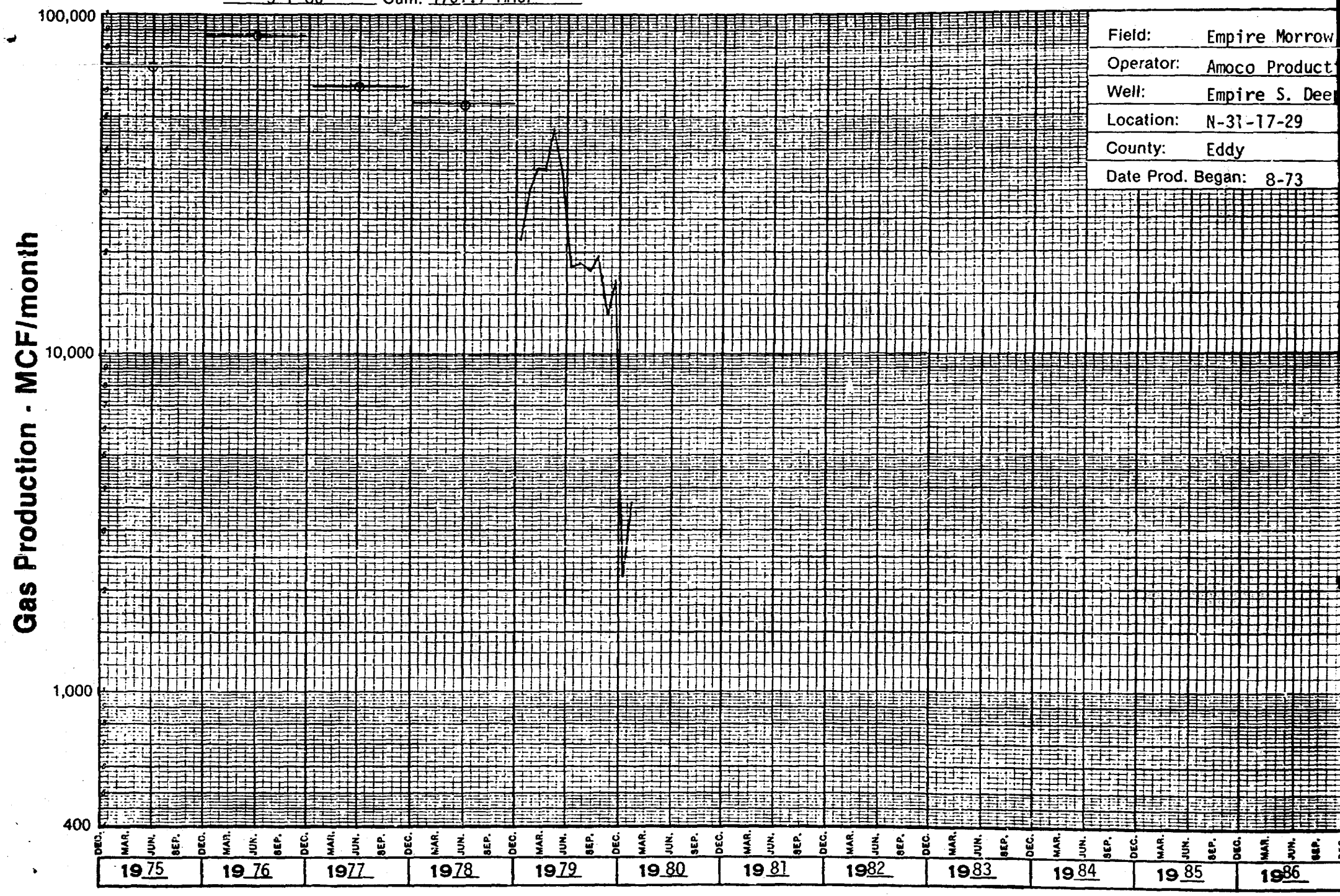
Jan.	2207	July	
Feb.	3669	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 5876 MCF

Days or Months (Y-T-D) 2 Months

Avg. Rate (Y-T-D) 2938 MCF/Mo.

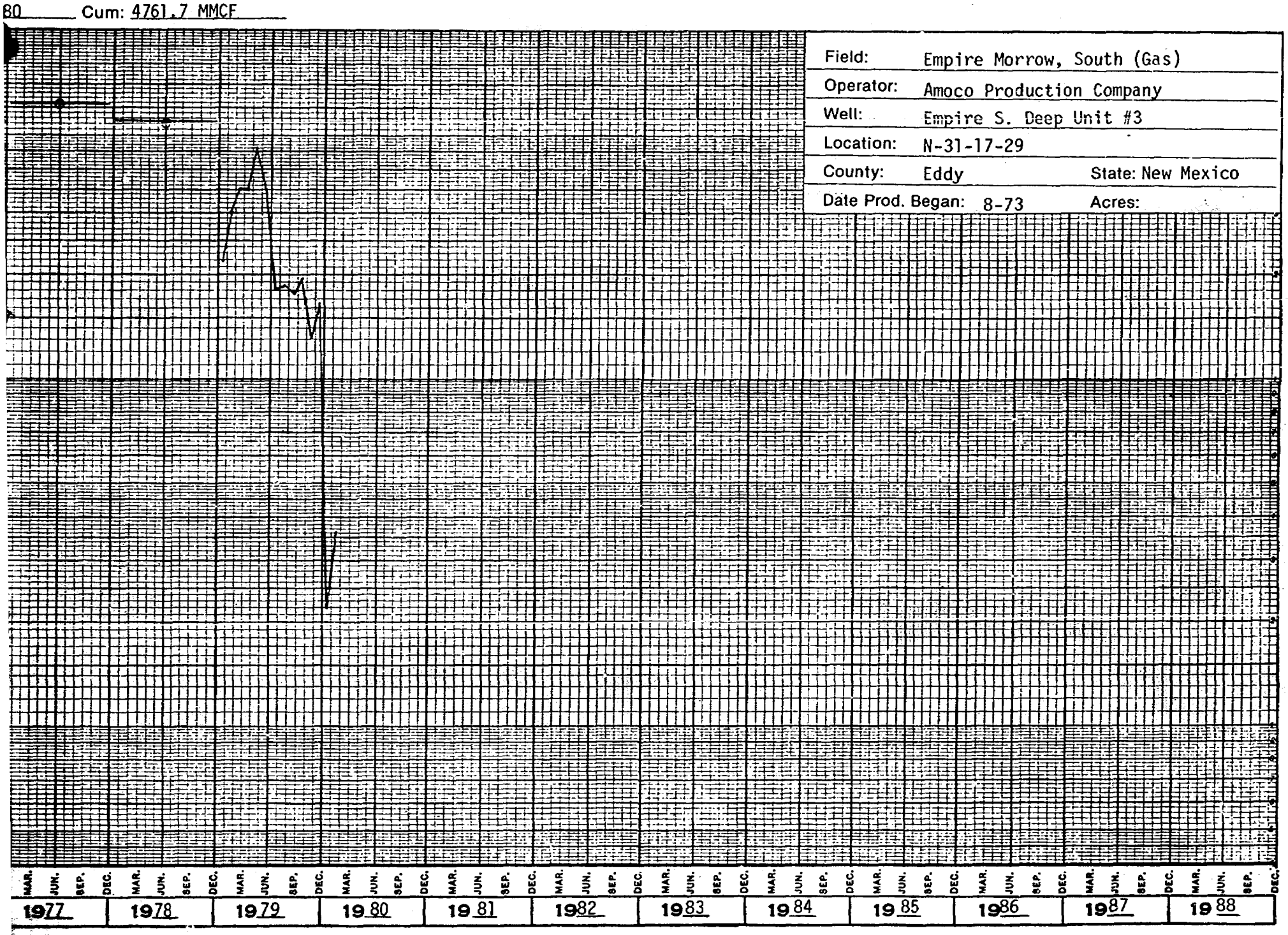
3-1-80 Cum: 4761.7 MMCF



Field:	Empire Morrow
Operator:	Amoco Product
Well:	Empire S. Dee
Location:	N-31-17-29
County:	Eddy
Date Prod. Began:	8-73

80 Cum: 4761.7 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Amoco Production Company
Well:	Empire S. Deep Unit #3
Location:	N-31-17-29
County:	Eddy State: New Mexico
Date Prod. Began:	8-73 Acres:



GAS PRODUCTION HISTORY

Date 5-29-80

Operator: Amoco Prod. Co.

Well: Empire S. Deep Unit #10

Location: G-1-18-28

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 4-77.
Last Production 5-79.

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/mo.)	Cum. Gas Production (MMCF)	Annual SIP (psia)		
1979	5	8412	1682	36.4			
1978	11	16543	1504	28.0			
1977	7	11429	1633	11.4			

19 78 Detail Summary

Jan.	848	July	2094
Feb.	2391	Aug.	1592
March	580	Sept.	2364
April	3547	Oct.	1118
May	399	Nov.	596
June	-0-	Dec.	1014

19 79 Detail Summary

Jan.	1555	July	-0-
Feb.	2222	Aug.	-0-
March	1576	Sept.	-0-
April	2316	Oct.	-0-
May	743	Nov.	-0-
June	-0-	Dec.	-0-

Production (Y-T-D) 8412 MCF

Avg. Rate (Y-T-D) 1682 MCF/mo.

Days or Months (Y-T-D) 5 mos.

6-1-79 Cum: 36.4 MMCF

Gas Production - MCF/month

100,000
10,000
1,000
400

Last Production 5-79.

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1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988

Field:	Empire Morrow,
Operator:	Amoco Prod. Co.
Well:	Empire S. Deep
Location:	G-1-18-28
County:	Eddy
Date Prod. Began:	4-77

9 Cum: 36.4 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Amoco Prod. Co.
Well:	Empire S. Deep Unit #10
Location:	G-1-18-28
County:	Eddy State: New Mexico
Date Prod. Began:	4-77 Acres:

Last Production 5-79.

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79 | 19 80 | 19 81 | 19 82 | 19 83 | 19 84 | 19 85 | 19 86 | 19 87 | 19 88 | 19 89 | 19 90

GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Amoco Production Company

Well: Empire S. Deep Unit #6

Location: O-1-18-28

Pool: Empire South, Morrow (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 3-77

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual Oil Production (BBLS)	Average Oil Rate (BBLS/Mo.)	Cum. Oil Production (BBLS)
1980	2	35992	17996	1045.7	549	274	13930
1979	12	316023	26335	1009.7	3919	327	13381
1978	12	347297	28941	693.7	4170	347	9462
1977	10	346407	34641	346.4	5184	518	5292
1976					108	108	108

19 79 Detail Summary

Jan.	30674	July	28394
Feb.	26576	Aug.	25830
March	25329	Sept.	13414
April	27437	Oct.	33512
May	27231	Nov.	26990
June	19812	Dec.	30824

19 80 Detail Summary

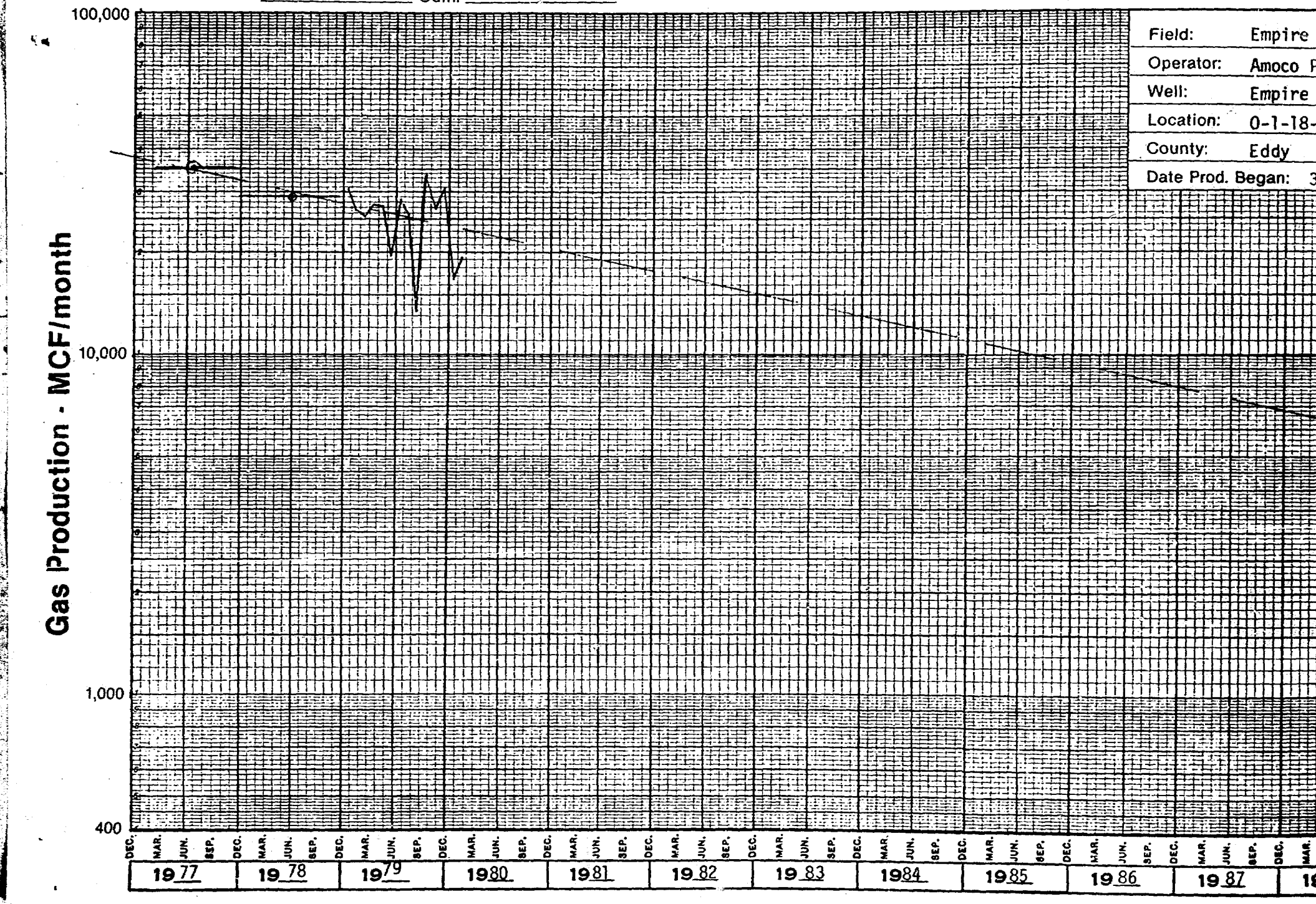
Jan.	16796	July	
Feb.	19196	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 35992 MCF

Days or Months (Y-T-D) 2 Months

Avg. Rate (Y-T-D) 17996 MCF/Mo.

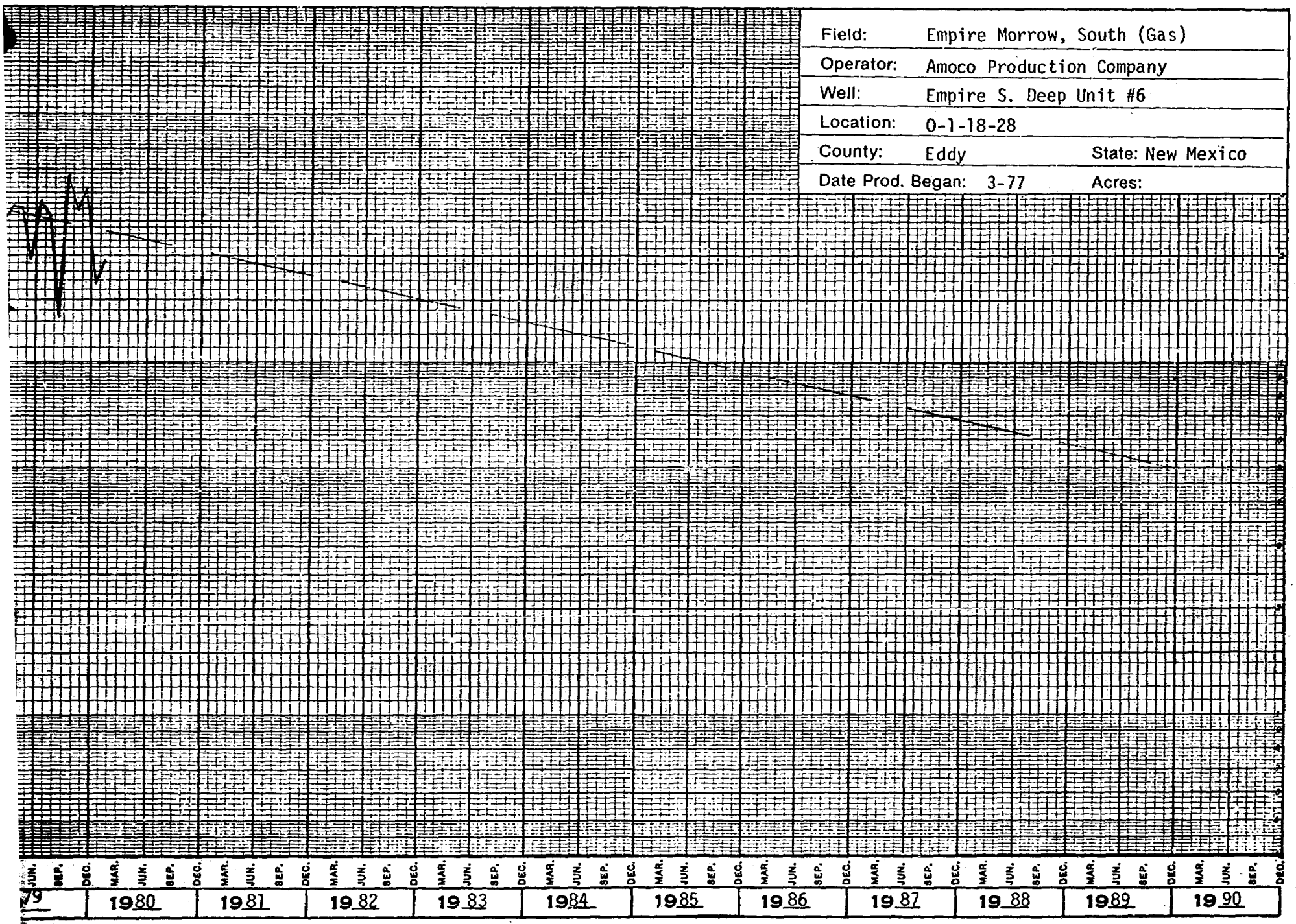
3-1-80 Cum: 1045.7 MMCF



Field:	Empire
Operator:	Amoco P
Well:	Empire
Location:	O-1-18-
County:	Eddy
Date Prod. Began:	3

-80 Cum: 1045.7 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Amoco Production Company
Well:	Empire S. Deep Unit #6
Location:	O-1-18-28
County:	Eddy State: New Mexico
Date Prod. Began:	3-77 Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Amoco

Well: Empire S. Deep Unit #14

Location: G-5-18-29

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 8-77

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual SIP (psia)		
1980	2	582	291	39.1			
1979	12	4260	355	38.5			
1978	10	4609	461	34.2			
1977	5	29597	5919	29.6			

1979 Detail Summary

Jan.	73	July	397
Feb.	0	Aug.	712
March	34	Sept.	137
April	855	Oct.	580
May	85	Nov.	455
June	928	Dec.	4

1980 Detail Summary

Jan.	358	July	
Feb.	224	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 582 MCF

Days or Months (Y-T-D) 2 Months

Avg. Rate (Y-T-D) 291 MCF/Mo.

3-1-89 Cum 33.1 MMcf

Field:	Empire Morrow, Sou
Operator:	Amoco Production C
Well:	Empire S. Deep Uni
Location:	G-5-18-29
County:	Eddy
Date Prod. Began:	8-77

Gas Production - MCF/month

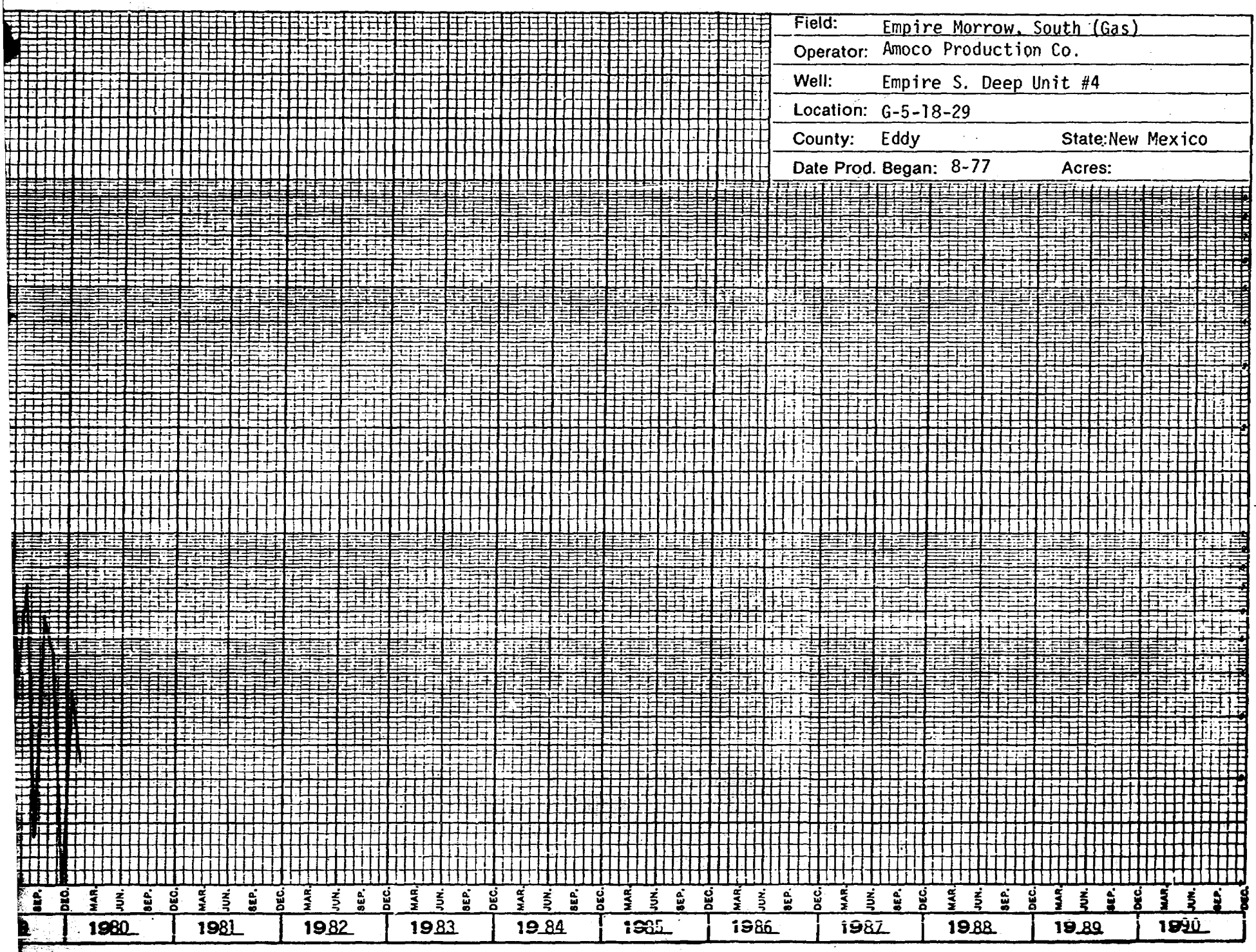
10000
1000
100

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19 77 | 19 78 | 19 79 | 1980 | 1981 | 1982 | 1983 | 19 84 | 1985 | 1986 | 1987 | 1988

1-80 Cum: 39.1 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Amoco Production Co.
Well:	Empire S. Deep Unit #4
Location:	G-5-18-29
County:	Eddy State: New Mexico
Date Prod. Began:	8-77 Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Amoco

Well: Empire S. Deep Unit #12

Location: K-5-18-29

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 2-77

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual Oil Production (BBLS)	Average Oil Rate (BBLS/Mo.)	Cum. Oil Production (BBLS)
1980	2	32280	16140	947.6	425	212	15599
1979	12	225784	18815	915.3	2916	243	15174
1978	12	283003	23584	689.5	4530	377	12258
1977	10	406493	40649	406.5	7728	773	7728

19 79 Detail Summary

Jan.	19582	July	15039
Feb.	16645	Aug.	14232
March	18453	Sept.	19816
April	18559	Oct.	21533
May	18668	Nov.	23147
June	15099	Dec.	25011

19 80 Detail Summary

Jan.	18370	July	
Feb.	13910	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 32280 Avg. Rate (Y-T-D) 16140 MCF/Mo.

Days or Months (Y-T-D) 2 Months

3-1-80 Cum: 947.6 MMCF

Field:	Empire Morrow,
Operator:	Amoco Productio
Well:	Empire S. Deep
Location:	K-5-18-29
County:	Eddy
Date Prod. Began:	2-77

Gas Production - MCF/month

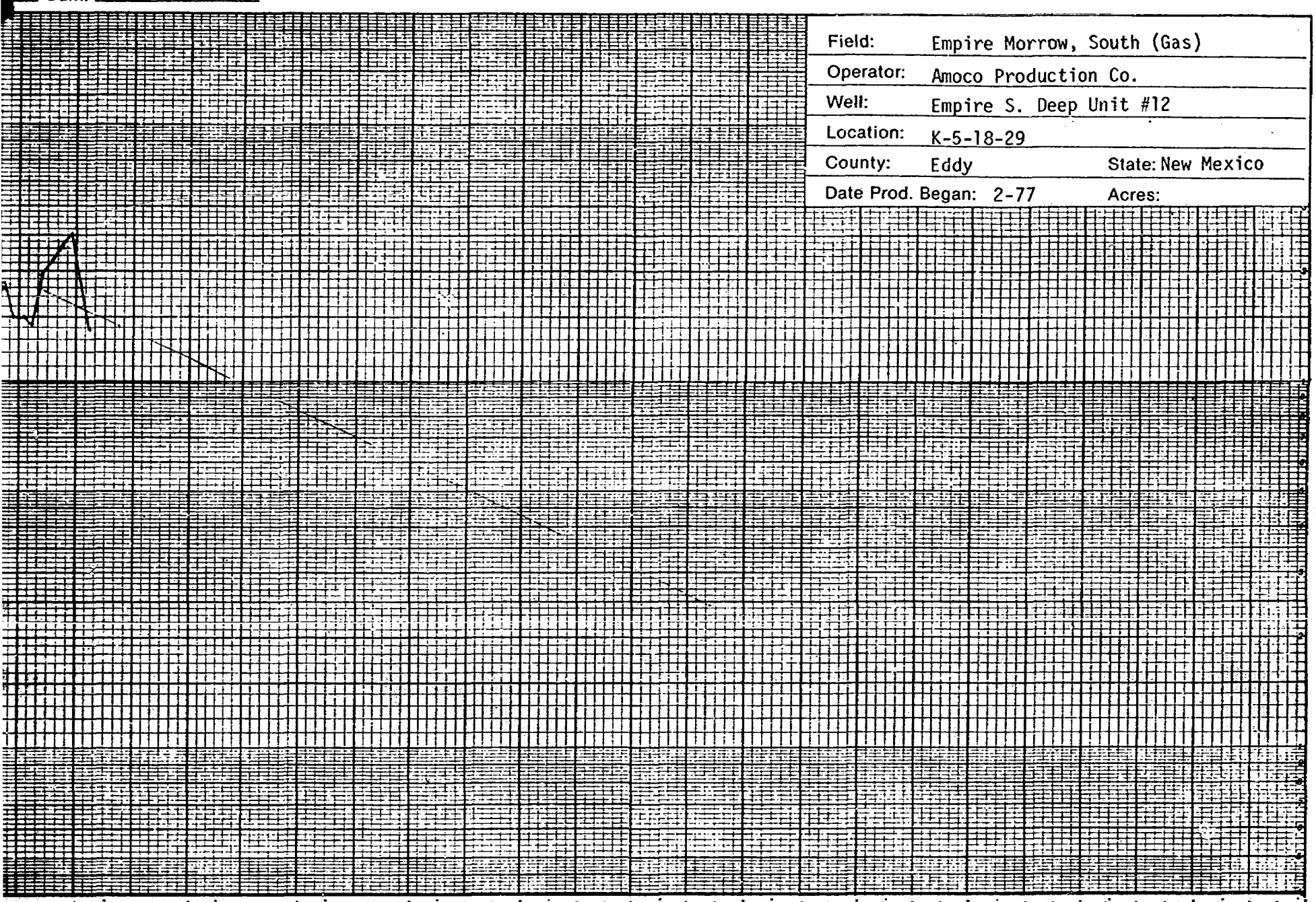
100,000
10,000
1,000
400

DEC. MAR. JUN. SEP.

1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988

Cum: 947.6 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Amoco Production Co.
Well:	Empire S. Deep Unit #12
Location:	K-5-18-29
County:	Eddy State: New Mexico
Date Prod. Began:	2-77 Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Amoco Production Company
Well: Empire S. Deep Unit #1
Location: F-6-18-29

Pool: Empire Morrow, South (Gas)
Spud Date: Original Completion Date:
Completion Interval (Gas):
Completion Date (Gas): First Production (Gas):
Remarks: First Production 9-72

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual Oil Production (BBLS)	Average Oil Rate (BBLS/Mo.)	Cum. Oil Production (BBLS)
1980	2	144356	72178	15232.8	1145	572	239702
1979	12	955190	79599	15088.4	6987	582	238557
1978	12	1131310	94276	14133.2	5955	496	231570
1977	12	1607844	133987	13001.9	14057	1171	225615
1976	12	2165513	180459	11394.0	22103	1842	211558
1975	12	3182806	265234	9228.5	44623	3719	189455
1974	9	1655392	183932	5953.3	33012	3668	144832
1973	12	3539078	294923	4297.9	86379	7198	111820
1972	4	758781	189695	758.8	24440	6110	25441

19 79 Detail Summary

Jan.	109226	July	79515
Feb.	95920	Aug.	77125
March	79218	Sept.	87590
April	74820	Oct.	48209
May	73171	Nov.	61619
June	77090	Dec.	91687

19 80 Detail Summary

Jan.	65815	July	
Feb.	78541	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 144356 MCF
Days or Months (Y-T-D) 2 Months

Avg. Rate (Y-T-D) 72178 MCF/Mo.

3-1-80 Cum: 15232.8 MMCF

1,000,000

100,000

10,000

4000

Gas Production - MCF/month

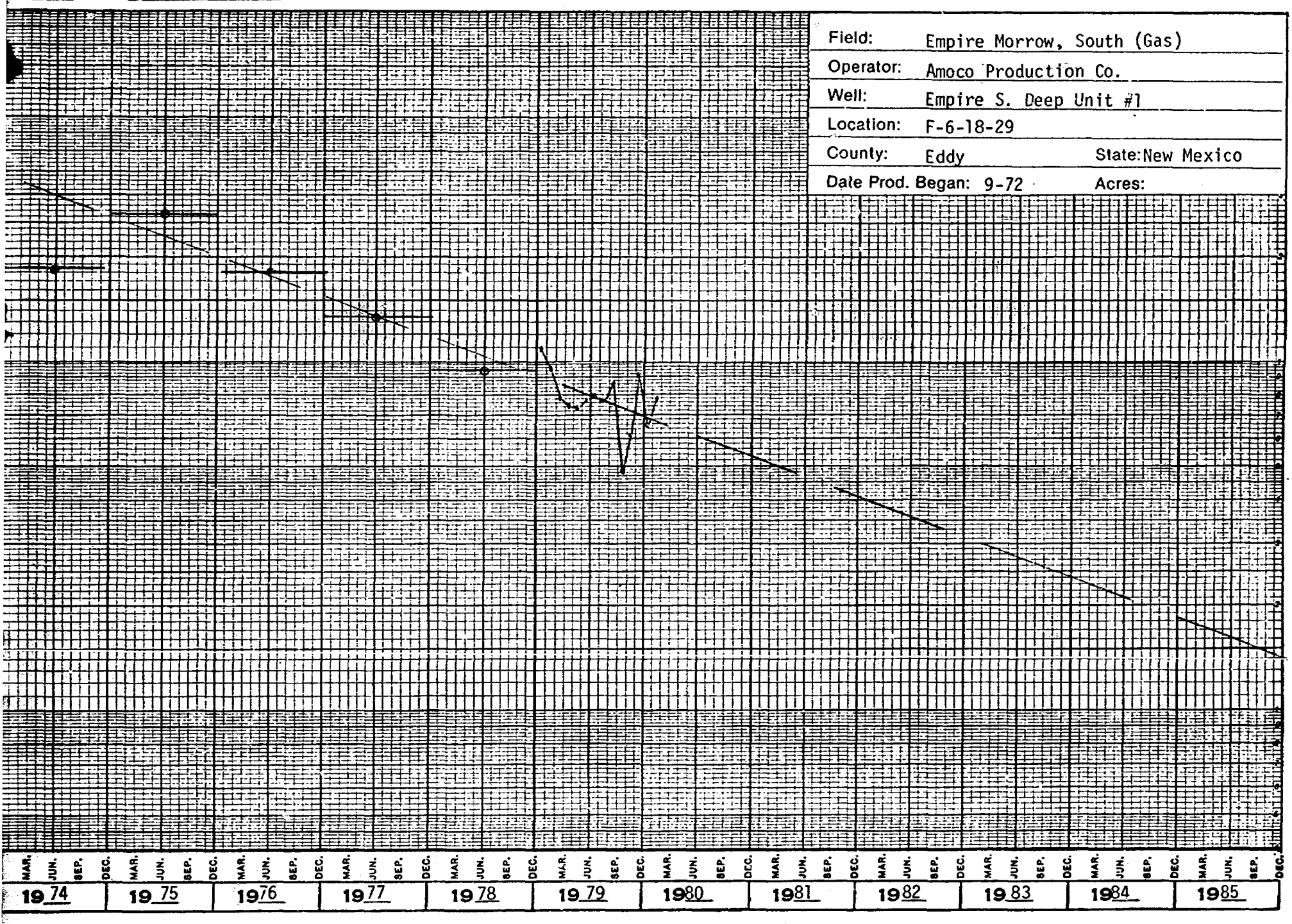
Field:	Empire Morrow,
Operator:	Amoco Productio
Well:	Empire S. Deep
Location:	F-6-18-29
County:	Eddy
Date Prod. Began:	9-72

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19 72 | 19 73 | 19 74 | 19 75 | 19 76 | 19 77 | 19 78 | 19 79 | 1980 | 1981 | 1982 | 1983

Cum: 15232.8 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Amoco Production Co.
Well:	Empire S. Deep Unit #1
Location:	F-6-18-29
County:	Eddy State: New Mexico
Date Prod. Began: 9-72	Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Amoco

Well: Empire S. Deep Unit #2

Location: K-6-18-29

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 9-72

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual SIP (psia)		
1980	2	39807	19903	1282.7			
1979	12	66039	5503	1242.9			
1978	12	92932	7744	1176.9			
1977	12	130939	10912	1084.0			
1976	12	126961	10580	953.0			
1975	12	134415	11201	826.1			
1974	7	199676	28525	691.7			
1973	12	239548	19962	492.0			
1972	4	252429	63107	252.4			

19 79 Detail Summary

Jan.	7616	July	3580
Feb.	5784	Aug.	4745
March	4539	Sept.	10448
April	4363	Oct.	8643
May	3974	Nov.	5498
June	4003	Dec.	2846

19 80 Detail Summary

Jan.	17156	July	
Feb.	22651	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 39807 MCF

Avg. Rate (Y-T-D) 19903 MCF

Days or Months (Y-T-D) 2 Months

3-1-80 Cum: 1282.7

Gas Production - MCF/month

100,000
10,000
1,000
400

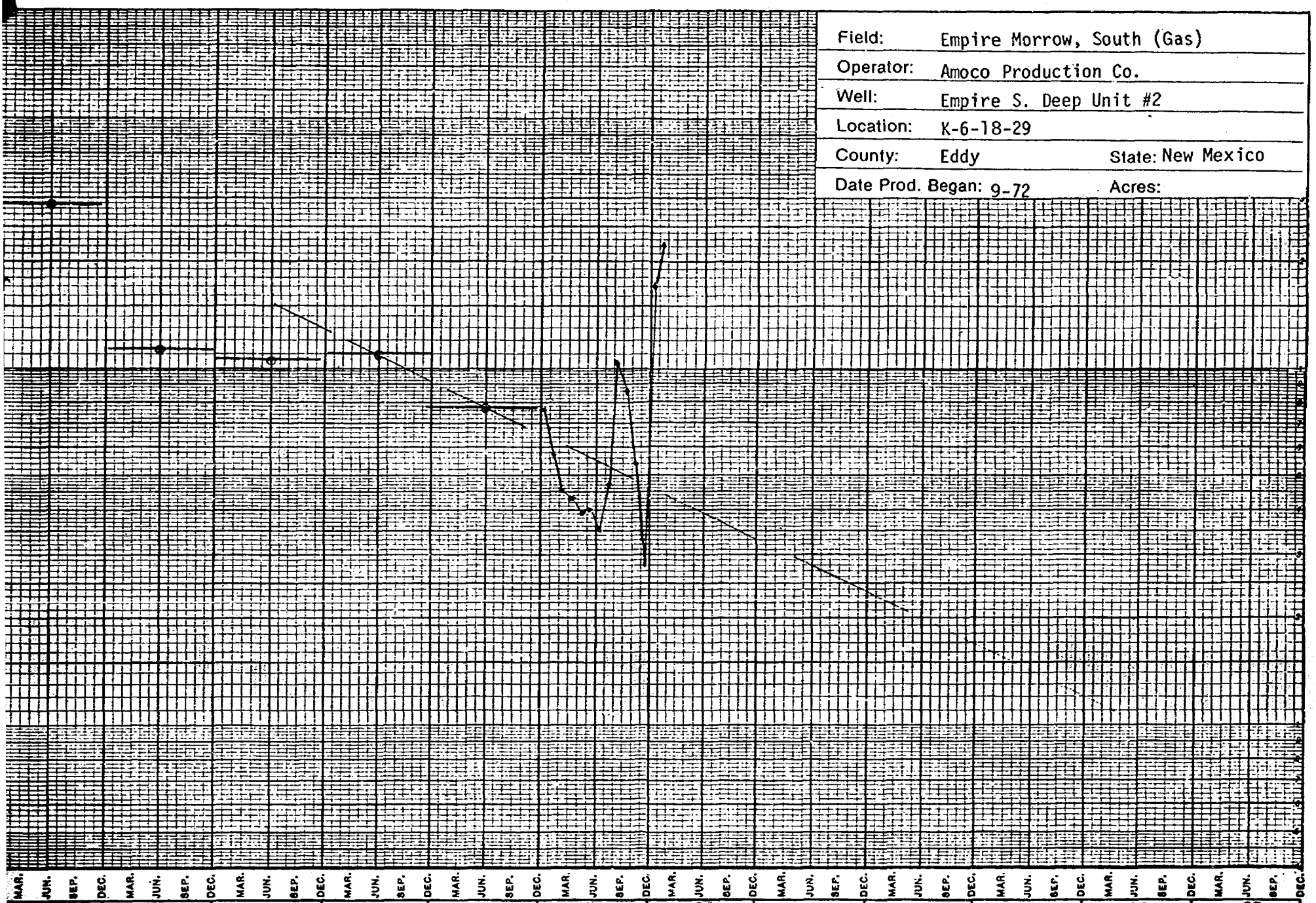
Field:	Empire Morrow
Operator:	Amoco Product
Well:	Empire S. Dee
Location:	K-6-18-29
County:	Eddy
Date Prod. Began:	9-72

DEC. MAR. JUN. SEP.

19 72 | 19 73 | 19 74 | 19 75 | 19 76 | 19 77 | 19 78 | 19 79 | 19 80 | 19 81 | 19 82 | 19 83

Cum: 1282.7

Field:	Empire Morrow, South (Gas)
Operator:	Amoco Production Co.
Well:	Empire S. Deep Unit #2
Location:	K-6-18-29
County:	Eddy State: New Mexico
Date Prod. Began: 9-72	Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Amoco

Well: Empire S. Deep Unit #16

Location: G-7-18-29

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 1-78

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual Oil Production (BBLS)	Average Oil Rate (BBLS/Mo.)	Cum. Oil Production (BBLS)
1980	2	299864	149932	2930.1	1531	765	40956
1979	12	1624341	135362	2630.2	20024	1669	39425
1978	12	1005876	83823	1005.9	19401	1617	19401

19 79 Detail Summary

Jan.	94638	July	183340
Feb.	91741	Aug.	182591
March	121226	Sept.	17045
April	89075	Oct.	172160
May	174377	Nov.	156599
June	182990	Dec.	158559

19 80 Detail Summary

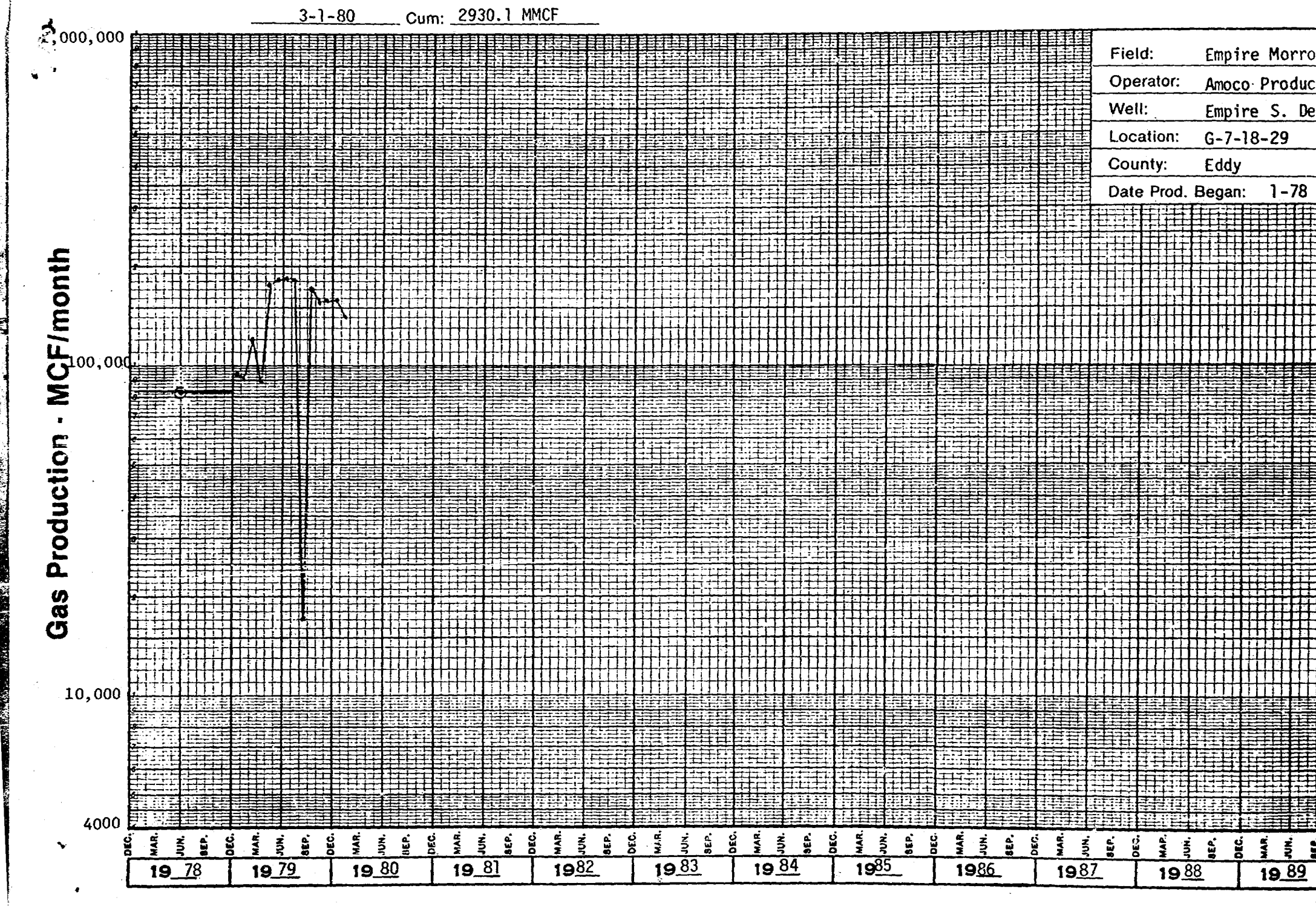
Jan.	159180	July	
Feb.	140684	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 299864 MCF

Avg. Rate (Y-T-D) 149932 MCF/Mo.

Days or Months (Y-T-D) 2 Months

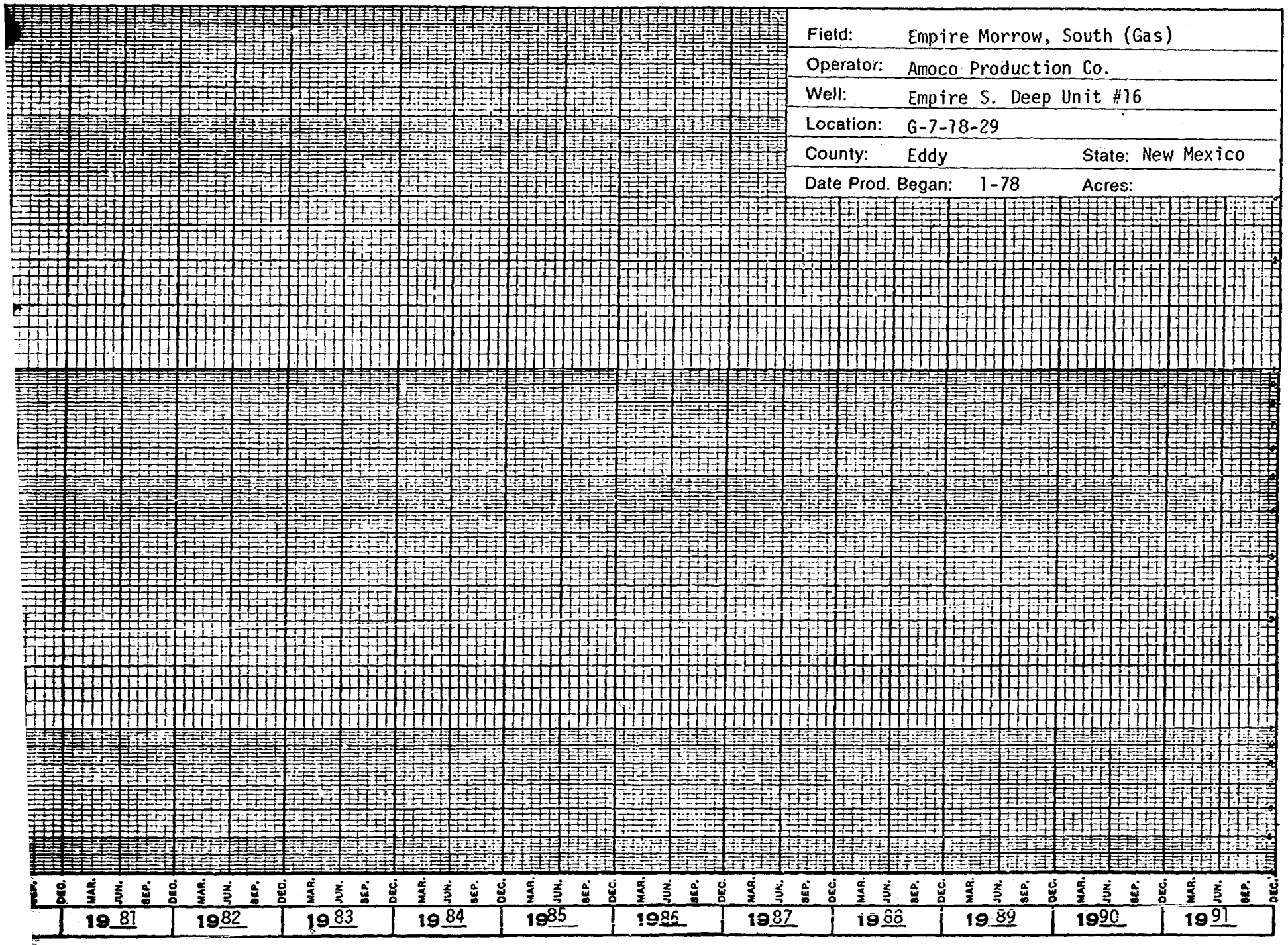
3-1-80 Cum: 2930.1 MMCF



Field:	Empire Morro
Operator:	Amoco Produc
Well:	Empire S. De
Location:	G-7-18-29
County:	Eddy
Date Prod. Began:	1-78

Cum: 2930.1 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Amoco Production Co.
Well:	Empire S. Deep Unit #16
Location:	G-7-18-29
County:	Eddy State: New Mexico
Date Prod. Began:	1-78 Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Harvey E. Yates

Well: Travis Bassett-Birney #1

Location: J-7-18-29

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 3-78

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual Oil Production (BBLS)	Average Oil Rate (BBLS/Mo.)	Cum. Oil Production (BBLS)
1980	2	133961	66980	2264.0	1125	562	31502
1979	12	1109841	92487	2130.0	13258	1105	30377
1978	10	1020152	102015	1020.2	17119	1712	17119

19 79 Detail Summary

Jan.	112023	July	92846
Feb.	100270	Aug.	87576
March	110039	Sept.	82437
April	104678	Oct.	78076
May	100223	Nov.	74791
June	92797	Dec.	74085

19 80 Detail Summary

Jan.	70467	July	
Feb.	63494	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 133961 MCF

Days or Months (Y-T-D) 2 Months

Avg. Rate (Y-T-D) 66980 MCF/Mo.

J-7-18-29

3-1-80 Cum: 2264.0 MMCF

1,000,000

100,000

10,000

4000

Gas Production - MCF/month

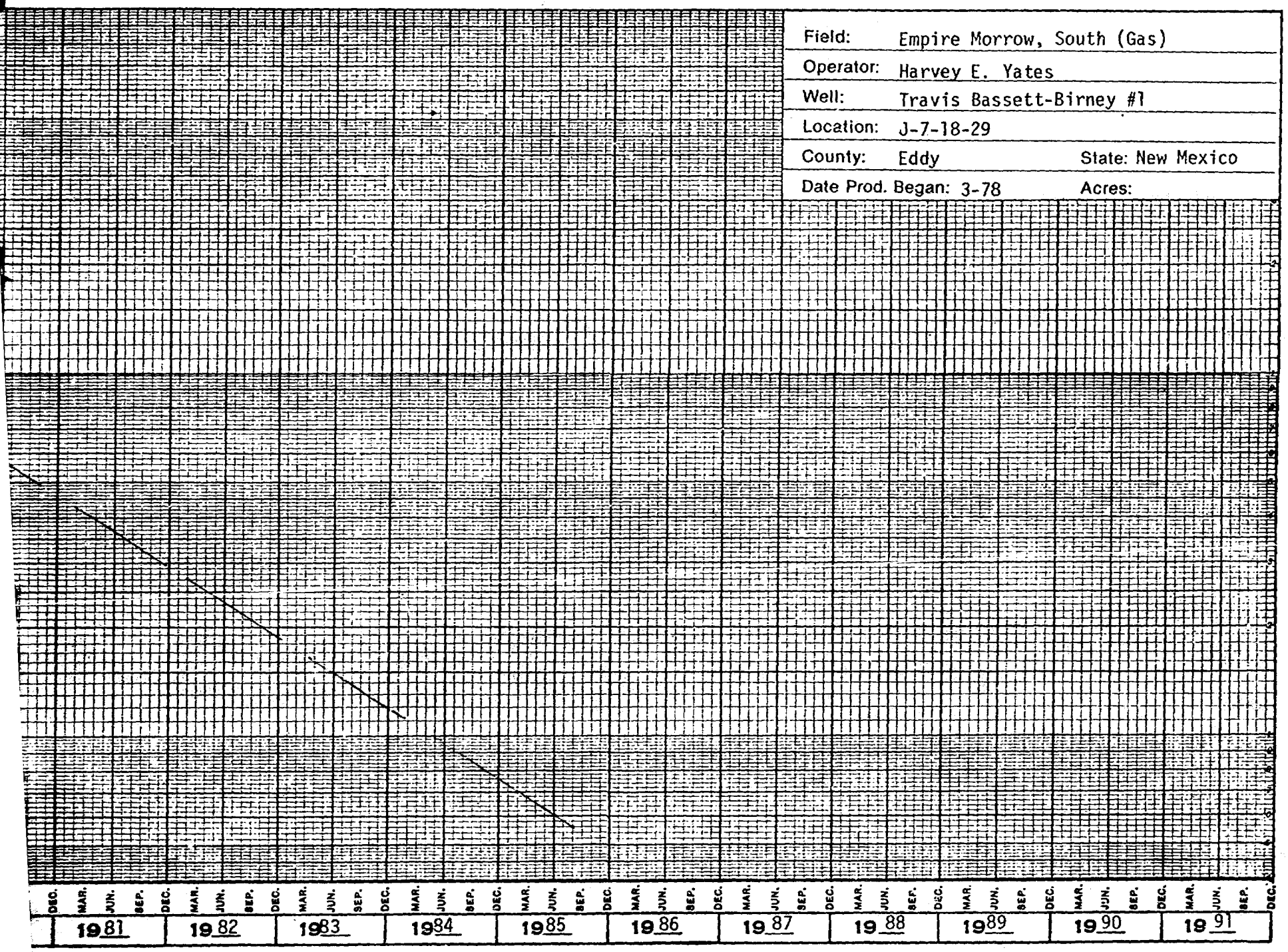
Field:	Empire Morrow,
Operator:	Harvey E. Yates
Well:	Travis Bassett-
Location:	J-7-18-29
County:	Eddy
Date Prod. Began:	3-78

DEC. MAR. JUN. SEP.

19 78 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989

Cum: 2264.0 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Harvey E. Yates
Well:	Travis Bassett-Birney #1
Location:	J-7-18-29
County:	Eddy State: New Mexico
Date Prod. Began:	3-78 Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Harvey E. Yates Company

Well: Travis Deep Unit #1

Location: K-18-18-29

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 1-78

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual Oil Production (BBLS)	Average Oil Rate (BBLS/Mo.)	Cum. Oil Production (BBLS)
1980	2	5545	2772	429.2	8	8	5262
1979	12	113588	9466	423.7	638	53	5254
1978	9	210802	23422	310.1	1856	206	4616

1979 Detail Summary

Jan.	12776	July	7790
Feb.	9186	Aug.	708
March	18730	Sept.	3576
April	24155	Oct.	7052
May	12997	Nov.	4409
June	7615	Dec.	4594

1980 Detail Summary

Jan.	2146	July	
Feb.	3399	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

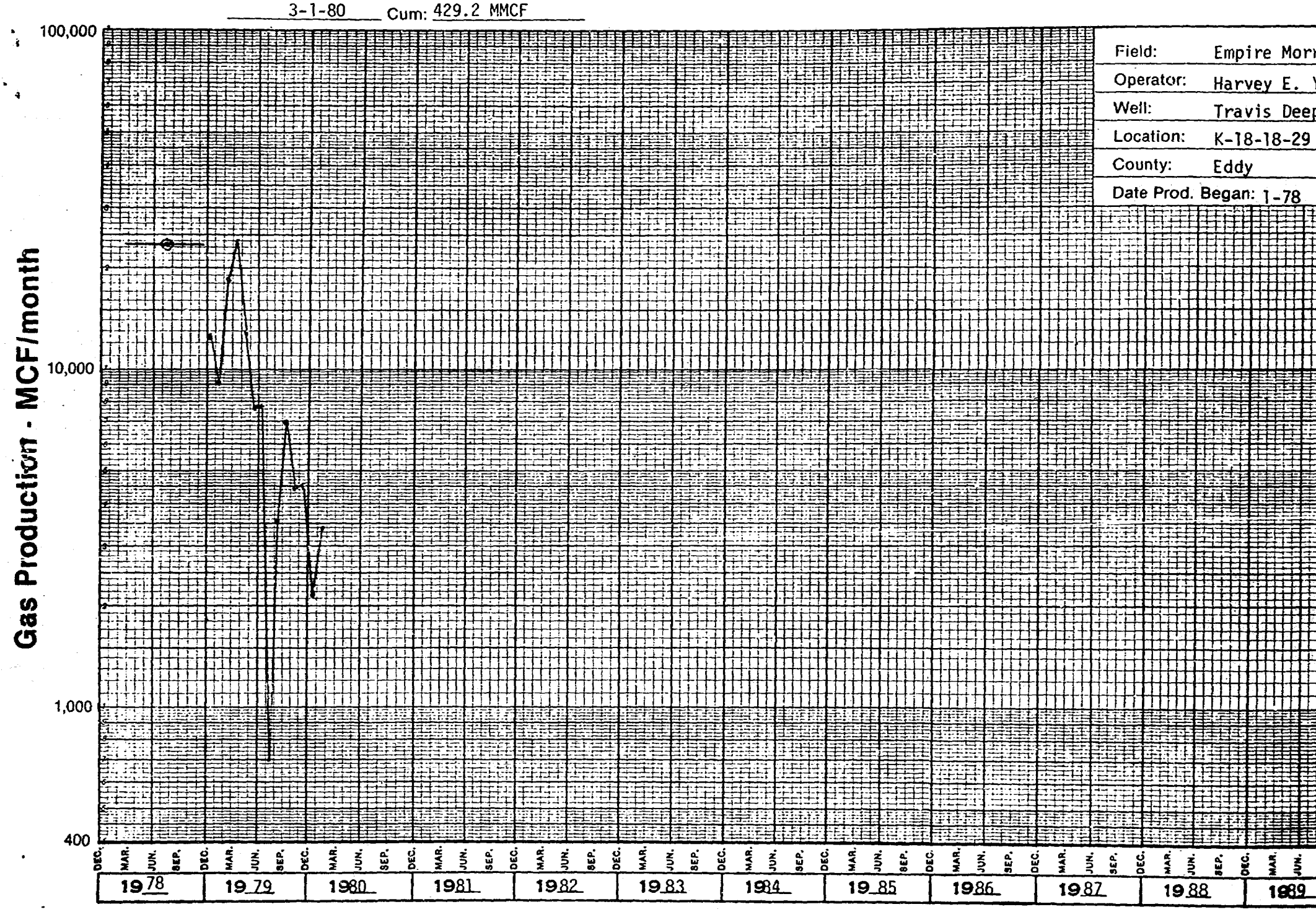
Production (Y-T-D) 5545 MCF

Days or Months (Y-T-D) 2 Months

Avg. Rate (Y-T-D) 2772 MCF/Mo.

K-18-18-29

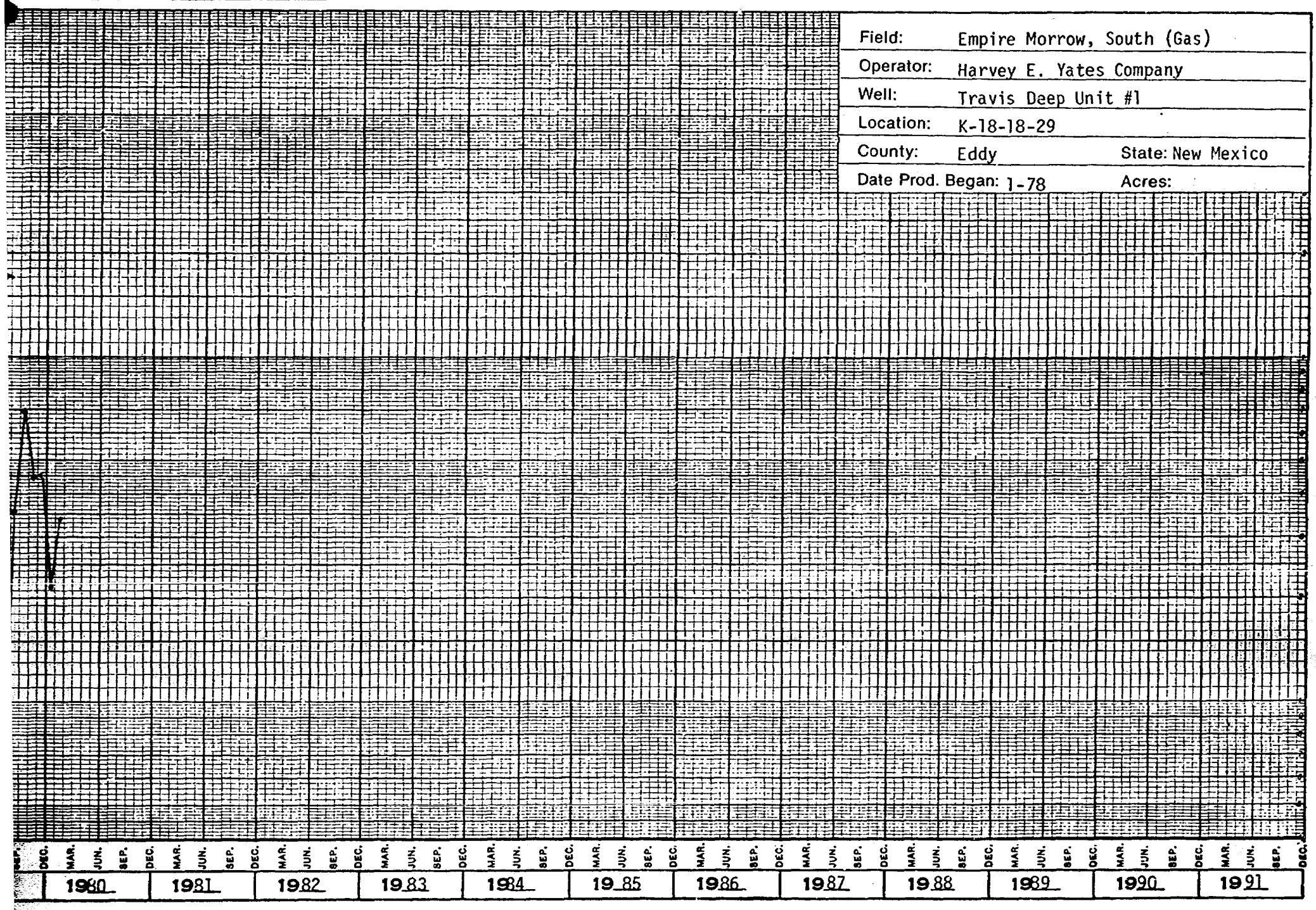
3-1-80 Cum: 429.2 MMCF



Field:	Empire Mor
Operator:	Harvey E.
Well:	Travis Deep
Location:	K-18-18-29
County:	Eddy
Date Prod. Began:	1-78

3-1-80 Cum: 429.2 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Harvey E. Yates Company
Well:	Travis Deep Unit #1
Location:	K-18-18-29
County:	Eddy State: New Mexico
Date Prod. Began:	1-78 Acres:



GAS PRODUCTION HISTORY

Date May 15, 1980 Page 1 of 1

Operator: Amoco

Well: Empire S. Deep Unit #15

Location: E-8-18-29

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 12-77

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/Mo.)	Cum. Gas Production (MMCF)	Annual Oil Production (BBLS)	Average Oil Rate (BBLS/Mo.)	Cum. Oil Production (BBLS)
1980	2	70283	35141	1043.4	547	273	15471
1979	12	520767	43397	973.1	6248	521	14924
1978	12	414877	34573	452.3	7977	665	8676
1977	1	37461	37461	37.5	699	699	699

19 79 Detail Summary

Jan.	43550	July	46076
Feb.	35337	Aug.	46148
March	38353	Sept.	44093
April	40051	Oct.	43876
May	50599	Nov.	42457
June	48654	Dec.	41573

19 80 Detail Summary

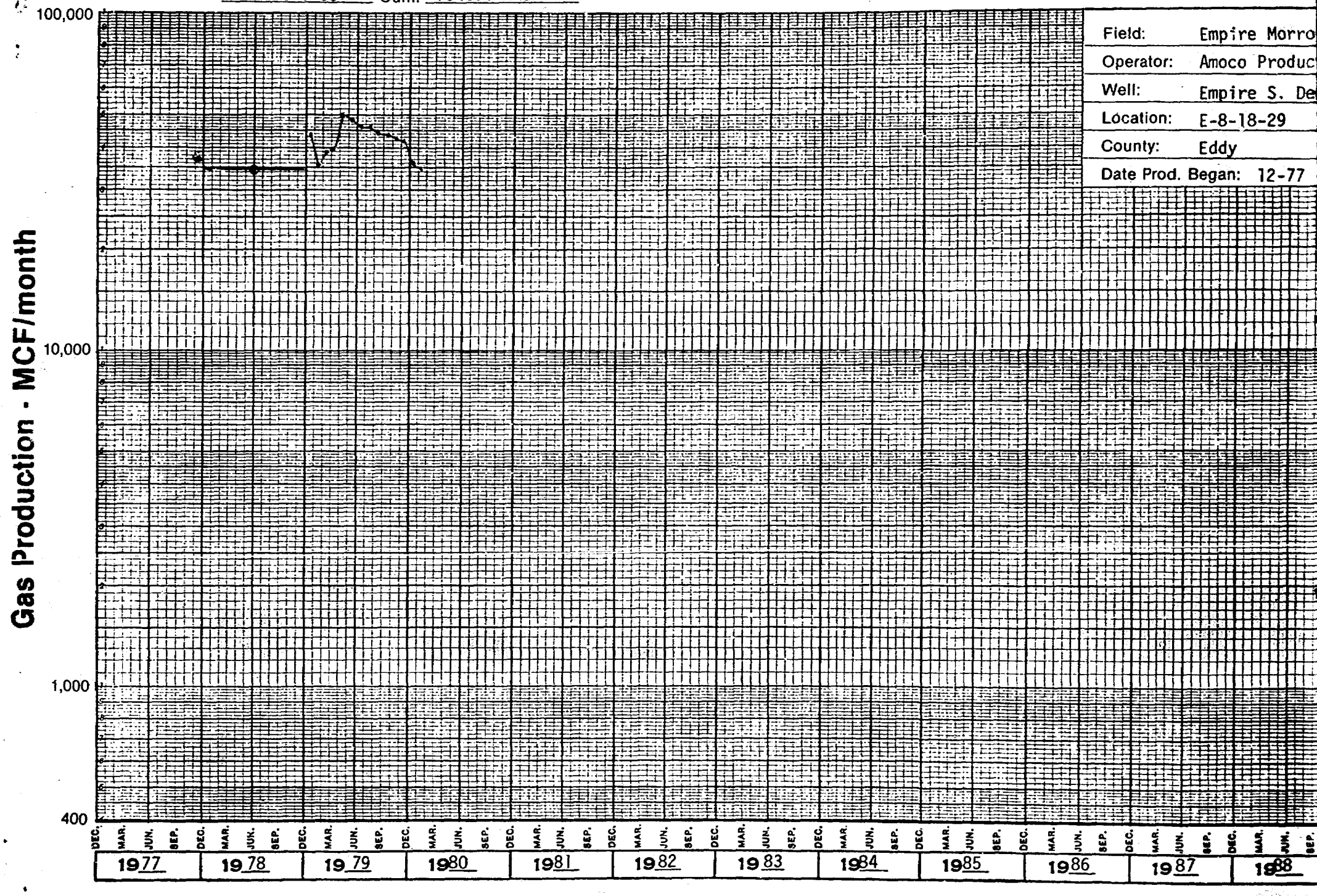
Jan.	35488	July	
Feb.	34795	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 70283 MCF Avg. Rate (Y-T-D) 35141 MCF/Mo.

Days or Months (Y-T-D) 2 Months

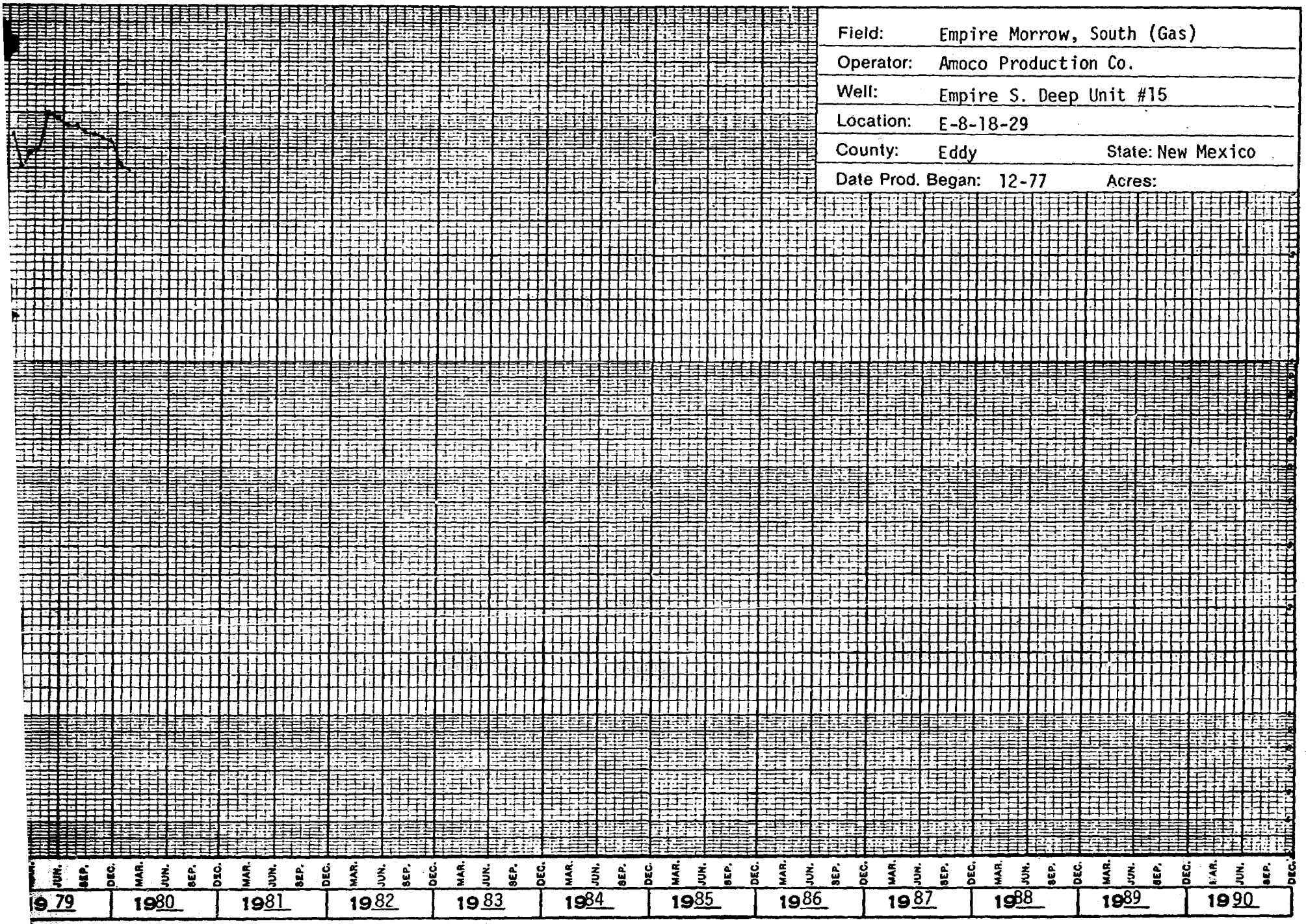
3-1-80 Cum: 1043.4 MMCF

Field:	Empire Morro
Operator:	Amoco Produc
Well:	Empire S. De
Location:	E-8-18-29
County:	Eddy
Date Prod. Began:	12-77



1-80 Cum: 1043.4 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Amoco Production Co.
Well:	Empire S. Deep Unit #15
Location:	E-8-18-29
County:	Eddy State: New Mexico
Date Prod. Began:	12-77 Acres:



GAS PRODUCTION HISTORY

Date 5-30-80 Page 1 of 1

Operator: Harvey E. Yates Co.

Well: Loco Hills Welch No. 1

Location: D-9-18-29

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 8-79.

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/mo.)	Cum. Gas Production (MMCF)	Annual SIP (psia)		
1980	2	44733	22366	165.9			
1979	5	121157	24231	121.2			

19 79 Detail Summary

Jan.		July	
Feb.		Aug.	27614
March		Sept.	27250
April		Oct.	27680
May		Nov.	21440
June		Dec.	17173

19 80 Detail Summary

Jan.	22635	July	
Feb.	22098	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

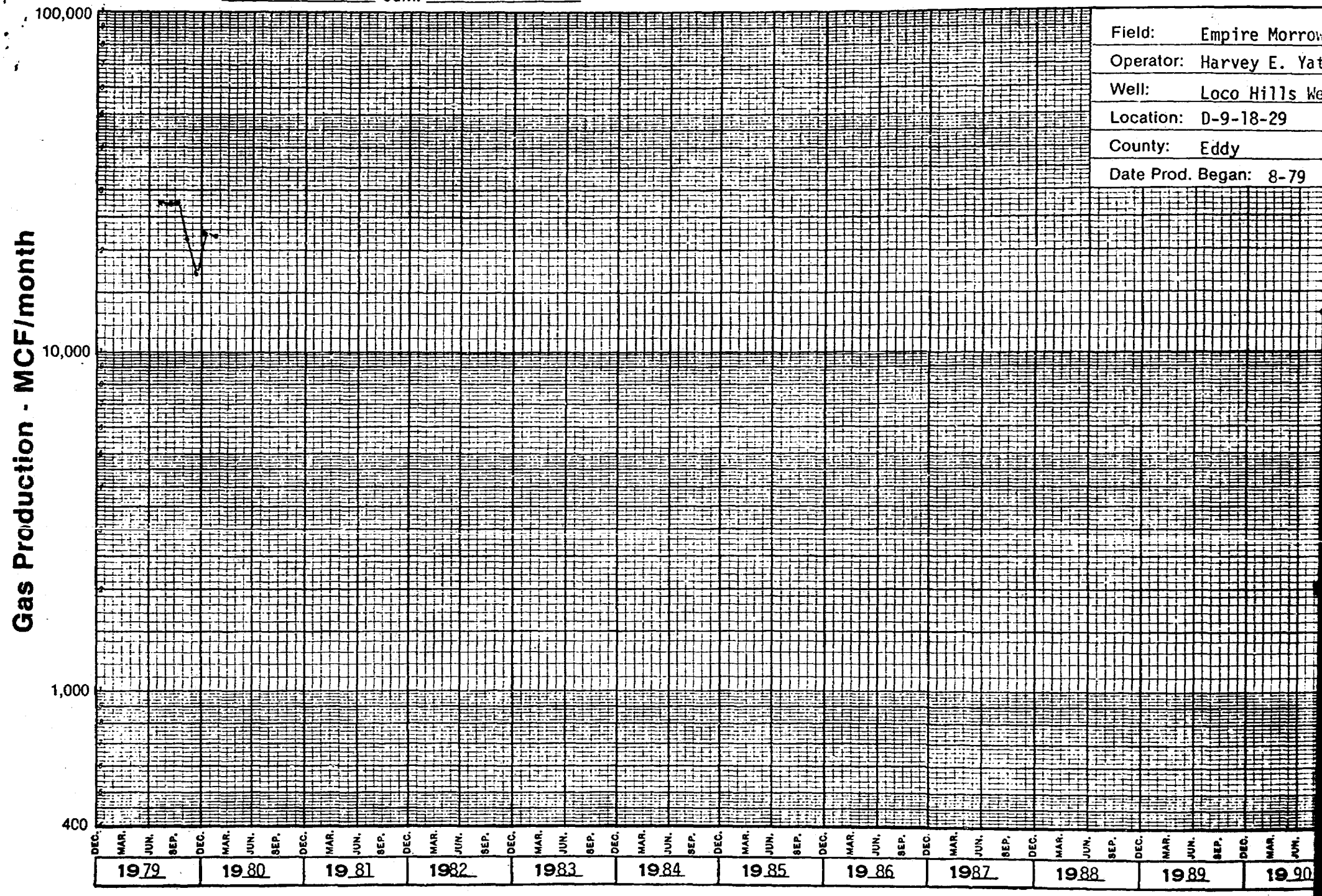
Production (Y-T-D) 44733 MCF

Days or Months (Y-T-D) 2 mos.

Avg. Rate (Y-T-D) 22366 MCF/mo.

D-9-18-29

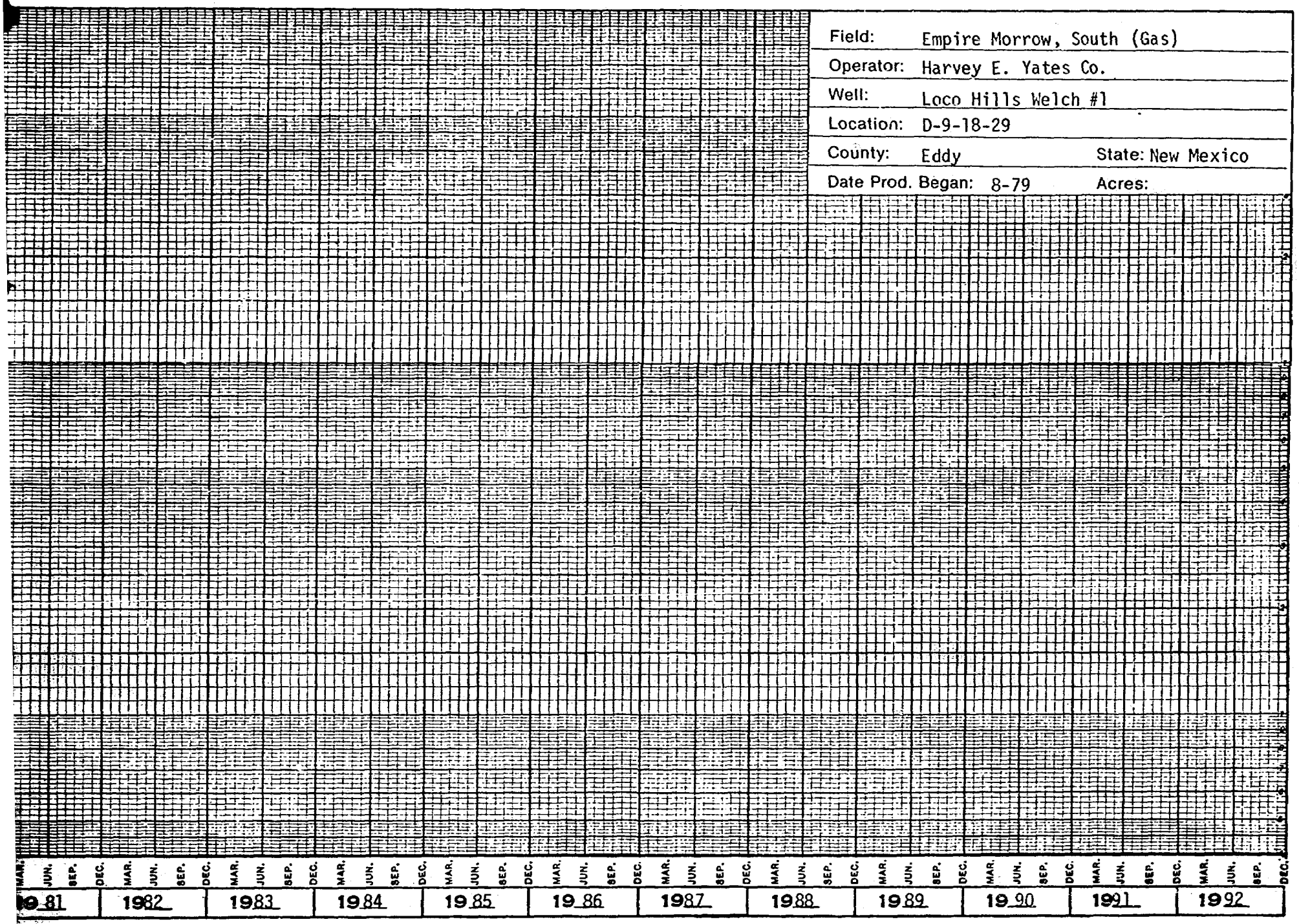
3-1-80 Cum: 165.9 MMCF



Field:	Empire Morrow
Operator:	Harvey E. Yat
Well:	Loco Hills We
Location:	D-9-18-29
County:	Eddy
Date Prod. Began:	8-79

-80 Cum: 165.9 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Harvey E. Yates Co.
Well:	Loco Hills Welch #1
Location:	D-9-18-29
County:	Eddy State: New Mexico
Date Prod. Began:	8-79 Acres:



GAS PRODUCTION HISTORY

Date 5-30-80 Page 1 of 1

Operator: Harvey E. Yates Co.

Well: Travis Deep Com. No. 4

Location: H-18-18-29

Pool: Empire Morrow, South (Gas)

Spud Date: Original Completion Date:

Completion Interval (Gas):

Completion Date (Gas): First Production (Gas):

Remarks: First Production 8-79.

Year	No. of Mos.	Annual Gas Production (MCF)	Avg. Gas Rate (MCF/mo.)	Cum. Gas Production (MMCF)	Annual SIP (psia)		
1980	2	43666	21833	133.0			
1979	5	89263	17852	89.3			

19 79 Detail Summary

Jan.		July	
Feb.		Aug.	11539
March		Sept.	17365
April		Oct.	18589
May		Nov.	18944
June		Dec.	22826

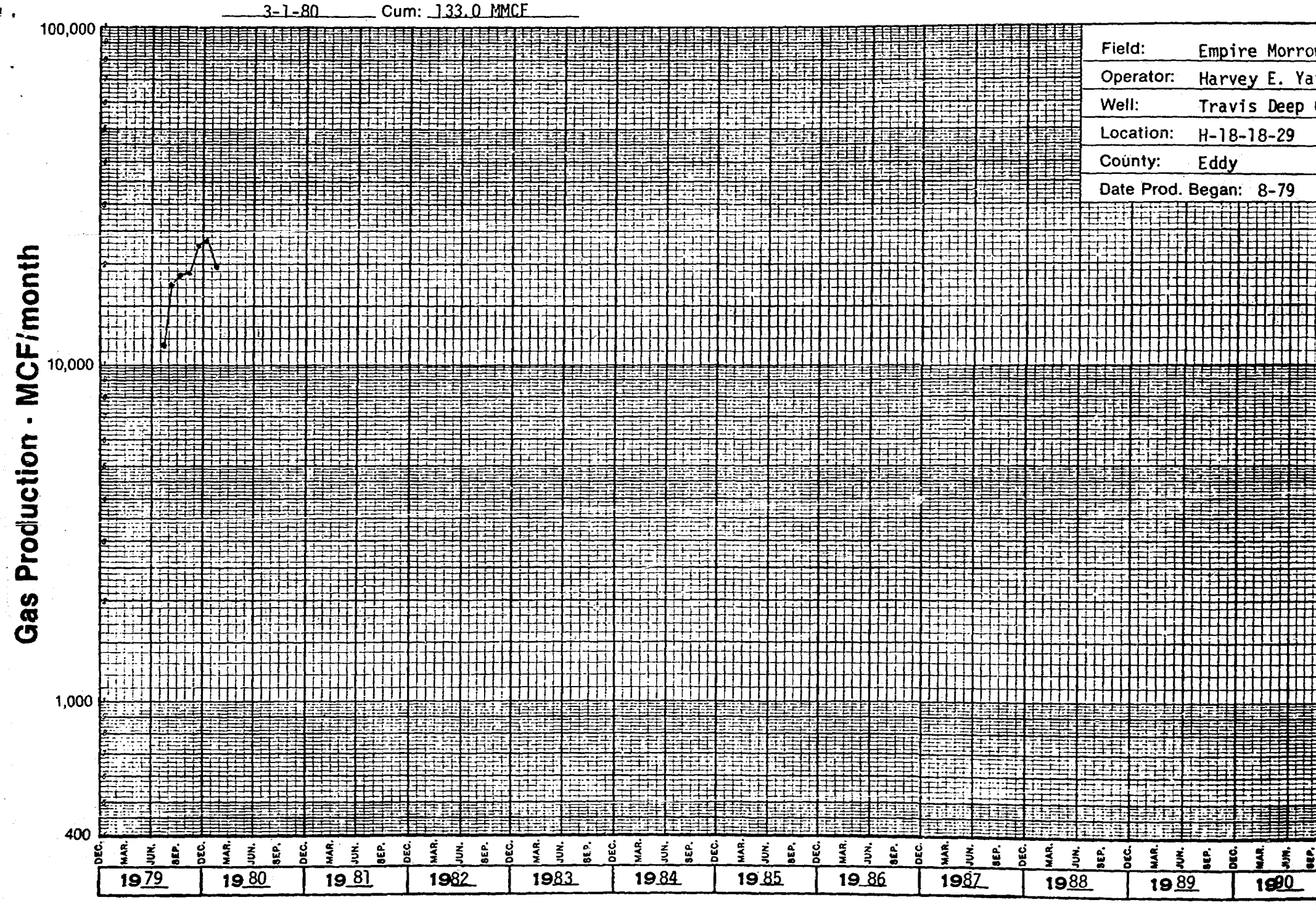
19 80 Detail Summary

Jan.	23742	July	
Feb.	19924	Aug.	
March		Sept.	
April		Oct.	
May		Nov.	
June		Dec.	

Production (Y-T-D) 43666 MCF Avg. Rate (Y-T-D) 21833 MCF/mo.

Days or Months (Y-T-D) 2 mos.

3-1-80 Cum: 133.0 MMCF



Field:	Empire Morrow
Operator:	Harvey E. Ya
Well:	Travis Deep
Location:	H-18-18-29
County:	Eddy
Date Prod. Began:	8-79

0 Cum: 133.0 MMCF

Field:	Empire Morrow, South (Gas)
Operator:	Harvey E. Yates Co.
Well:	Travis Deep Com. #4
Location:	H-18-18-29
County:	Eddy State: New Mexico
Date Prod. Began:	8-79 Acres:

