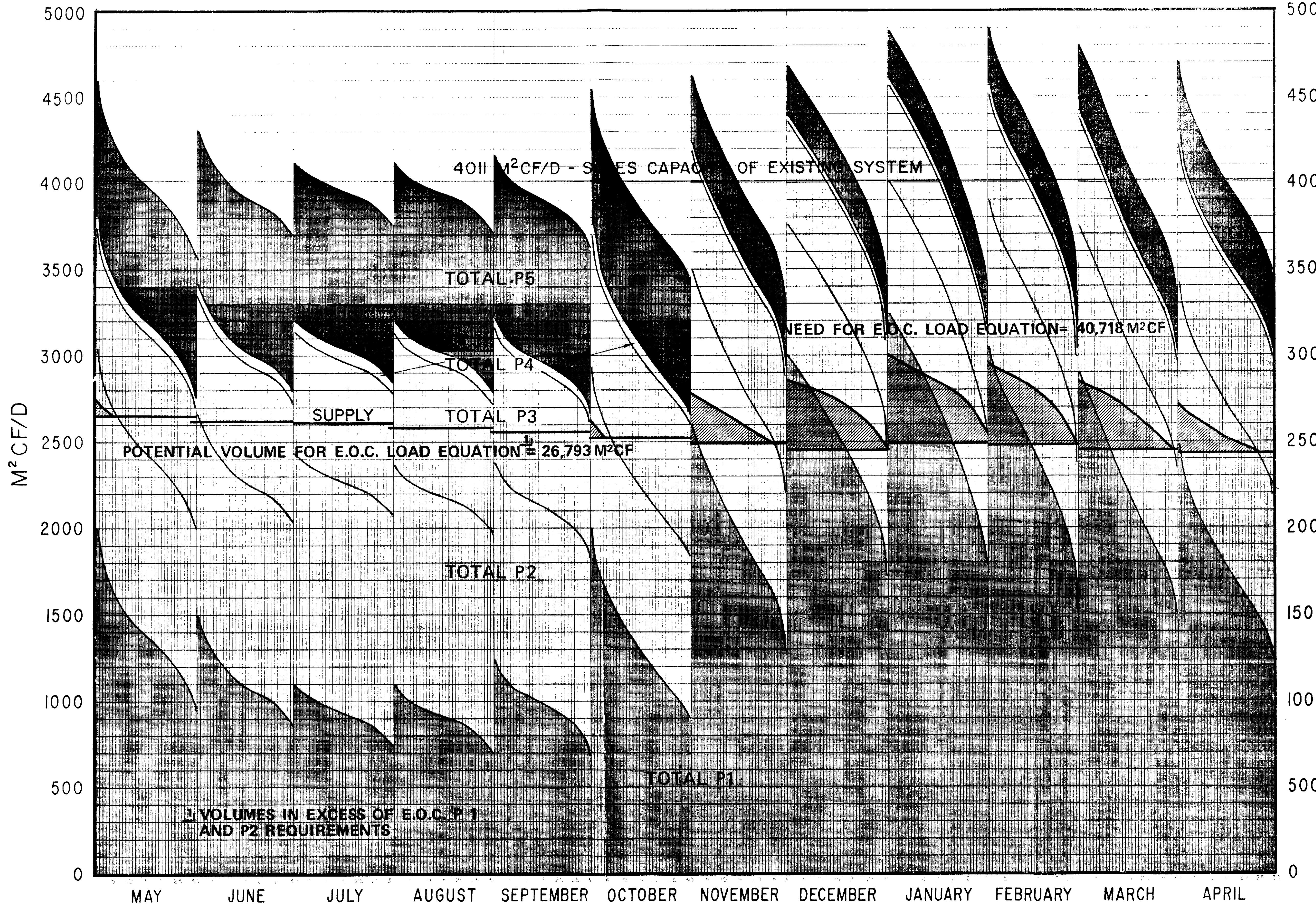
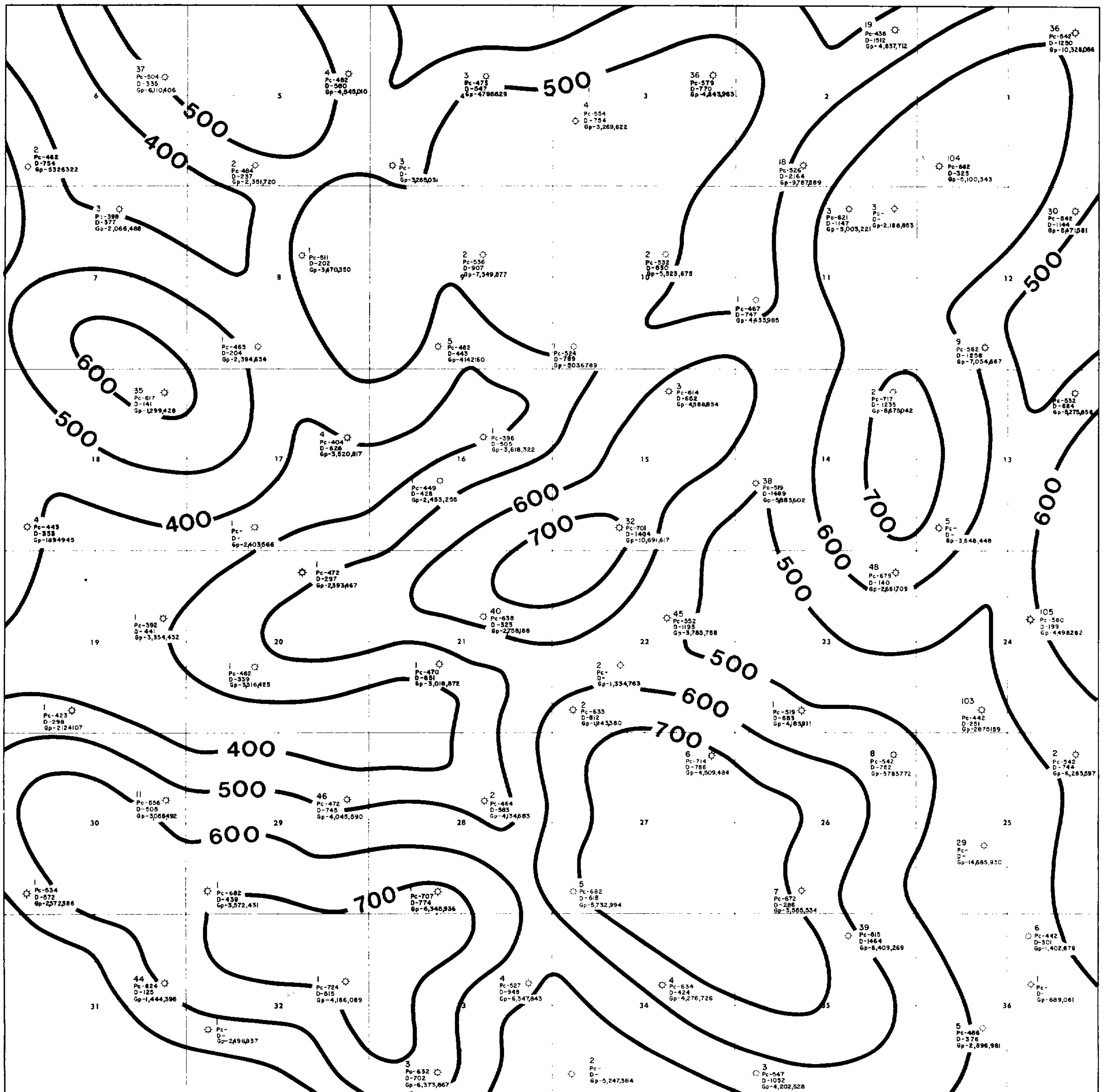
GAS SUPPLY VS. REQUIREMENTS PROJECTION



1976-1977

TOWNSHIP 30 N RANGE 8W COUNTY San Juan STATE New Mexico



LEGEND

Pc-7 DAY SIP, PSIA

D-DELIVERABILITY, MCFD (1973 Report)

Gp-CUM PRODUCTION, MCF (1-1-74)

CONTOUR INTERVAL- 100 PSIA

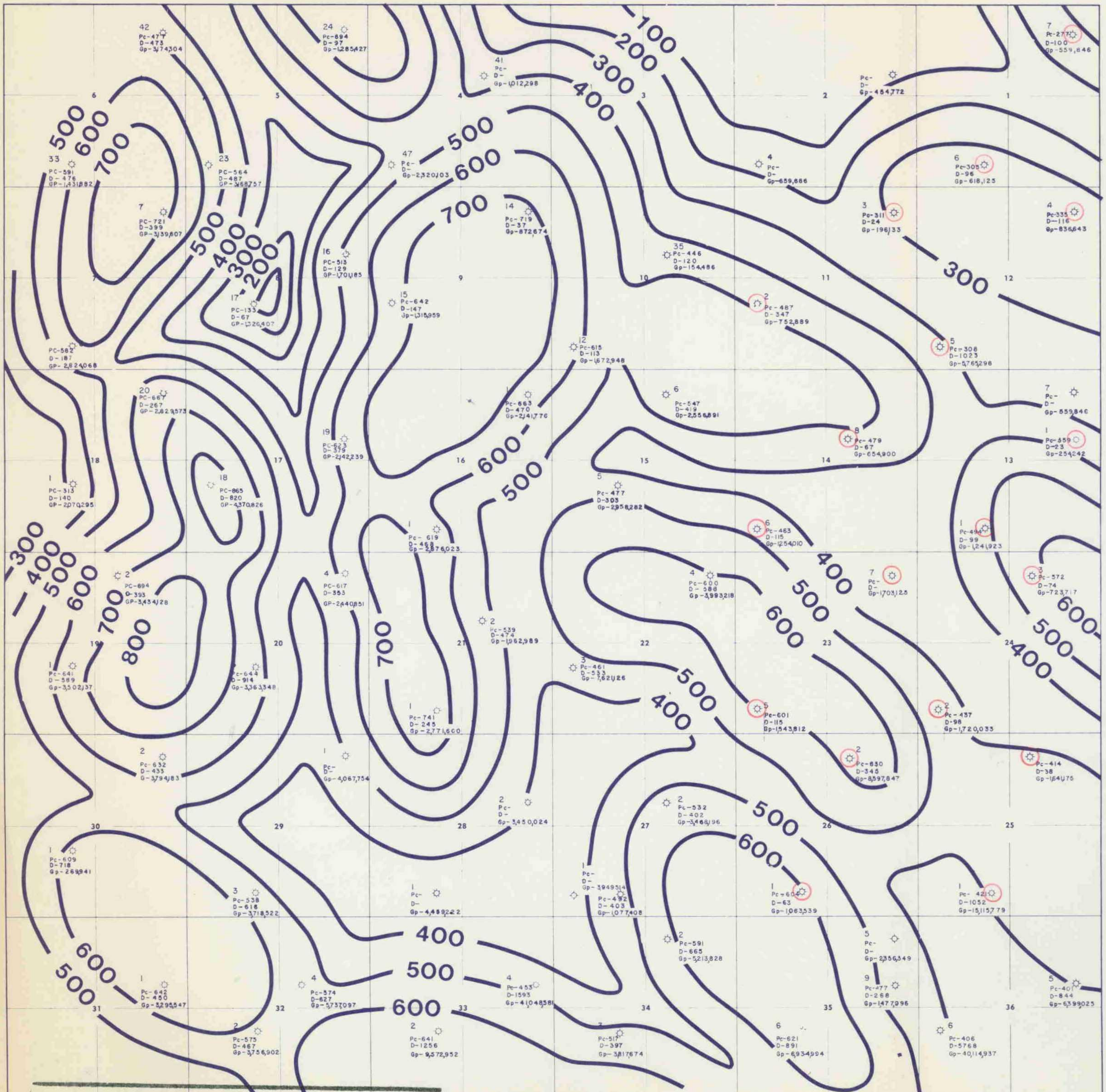
BLANCO MESA VERDE

Isobaric Map

(1973) 7 DAYS SHUT IN PRESSURE SURVEY
(From 1973 Annual Report-
N. Mex. Engineering Committee)

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5264 Exhibit No. 2
Submitted by So. Union Prod. C
Hearing Date

TOWNSHIP **31 N** RANGE **9 W** COUNTY **San Juan** STATE **New Mexico**



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

Case No. 5264 Exhibit No. 3

Submitted b So. Union Prod. C.

Hearing Date

LEGEND

Pc–7 DAY SIP, PSIA

D–DELIVERABILITY, MCFD (1973 Report)

Gp–CUM. PRODUCTION, MCF (1-1-74)

CONTOUR INTERVAL–100 PSIA

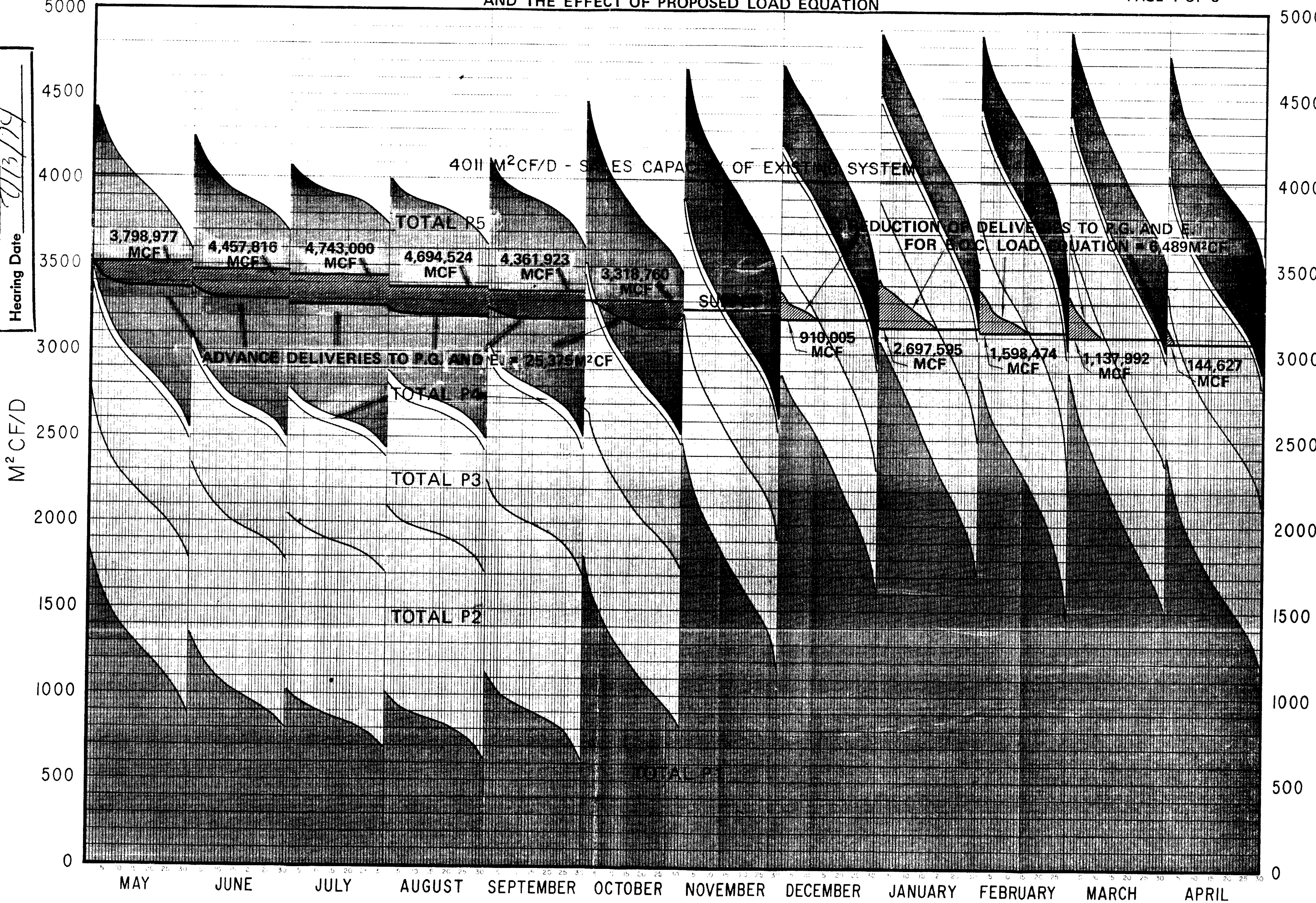
BLANCO MESA VERDE

Isobaric Map

(1973) 7 DAYS SHUT IN PRESSURE SURVEY
(From 1973 Annual Report–
N. Mex. Engineering Committee)

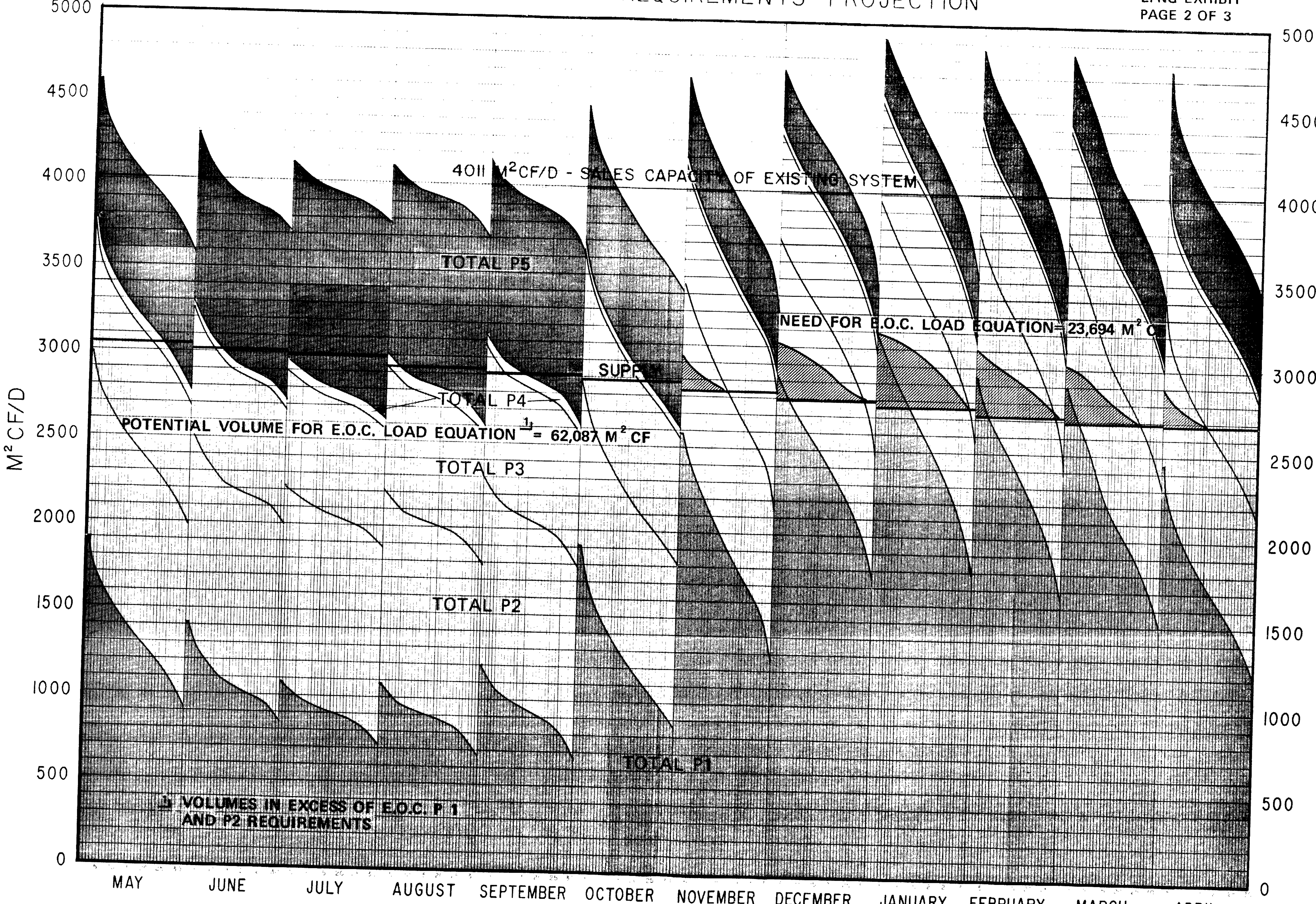
EPNG EXHIBIT No. 12
PAGE 1 OF 3

GAS SUPPLY VS. REQUIREMENTS PROJECTION
AND THE EFFECT OF PROPOSED LOAD EQUATION

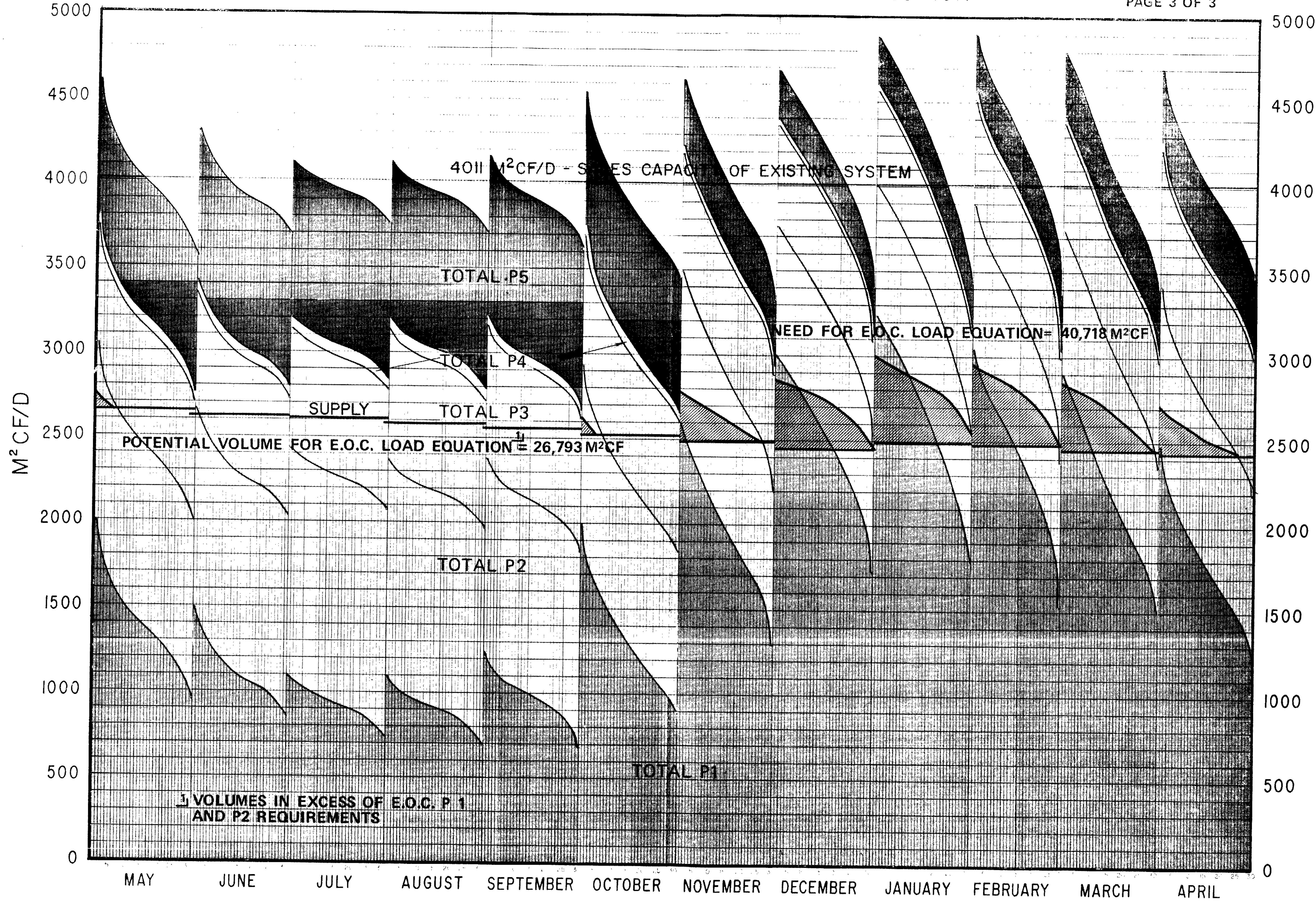


1974-1975

GAS SUPPLY VS. REQUIREMENTS PROJECTION



GAS SUPPLY VS. REQUIREMENTS PROJECTION



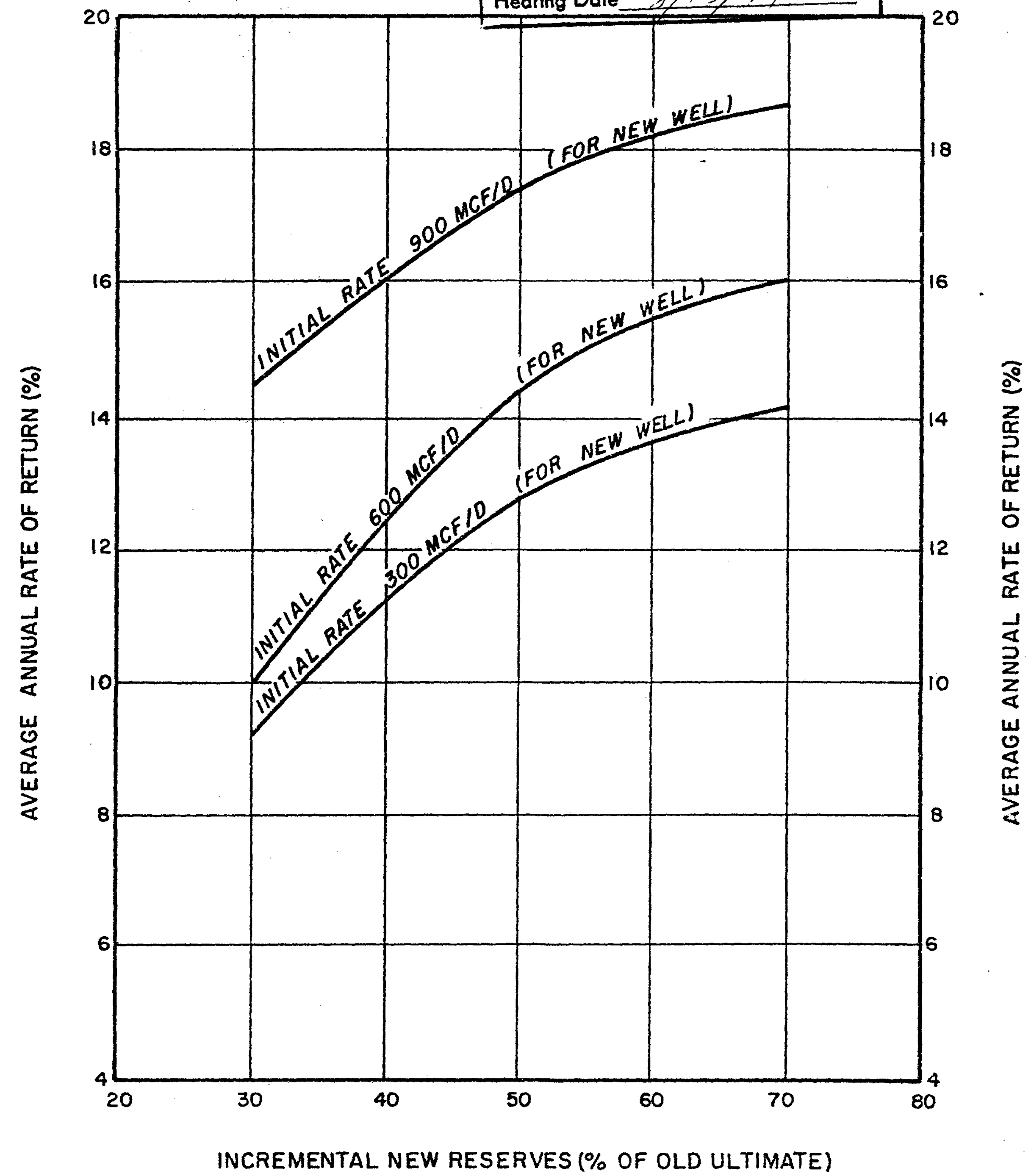
[1] VOLUMES IN EXCESS OF E.O.C. P 1 AND P2 REQUIREMENTS

1976-1977

NEW WELL ECONOMICS
BLANCO MESAVERDE POOL—NEW MEXICO
AVERAGE ANNUAL RATE OF RETURN
VS.
NEW WELL INCREMENTAL RESERVES

MESA EXHIBIT # 2

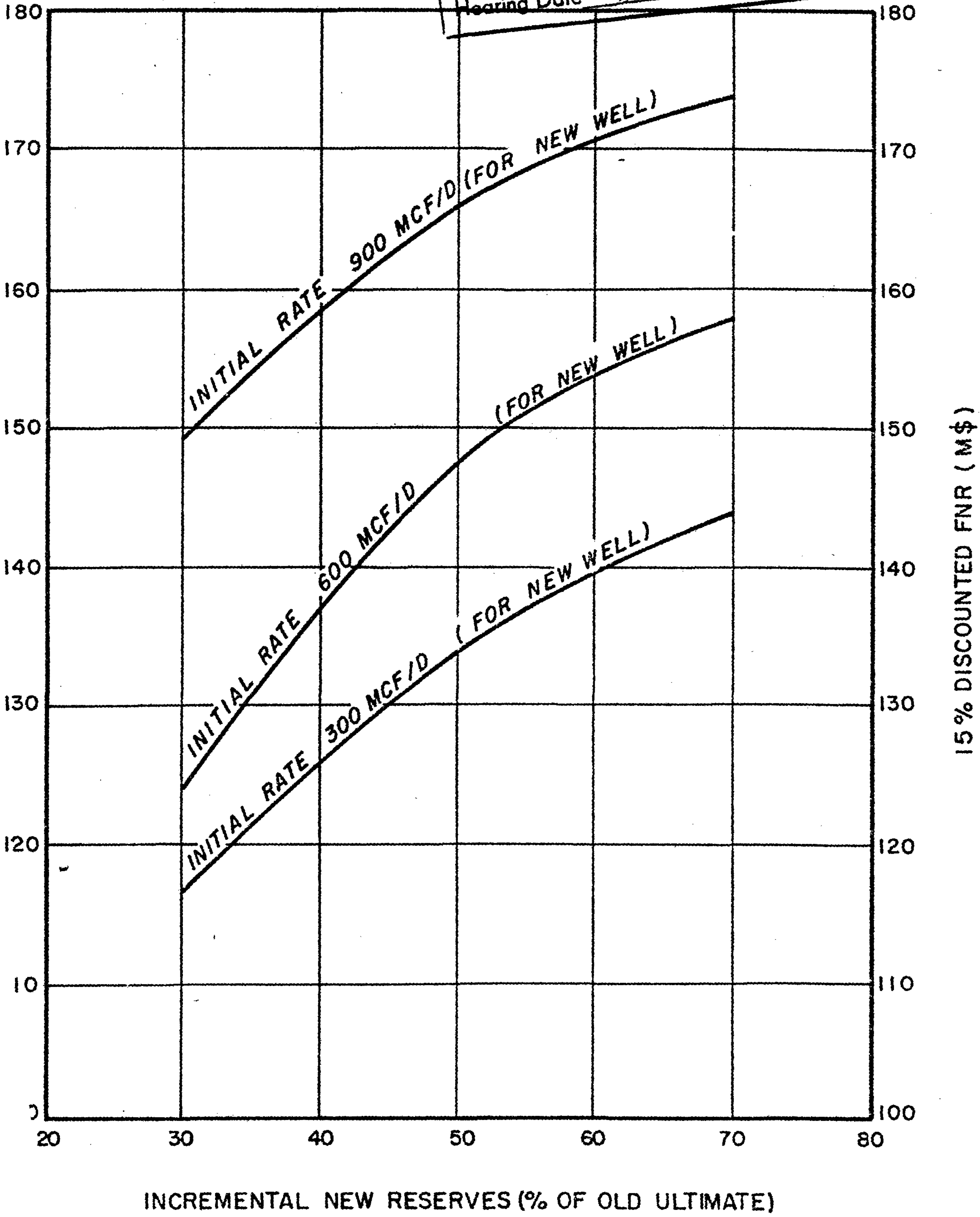
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5264 Exhibit No. 2
Submitted by Mesa
Hearing Date 8/13/74



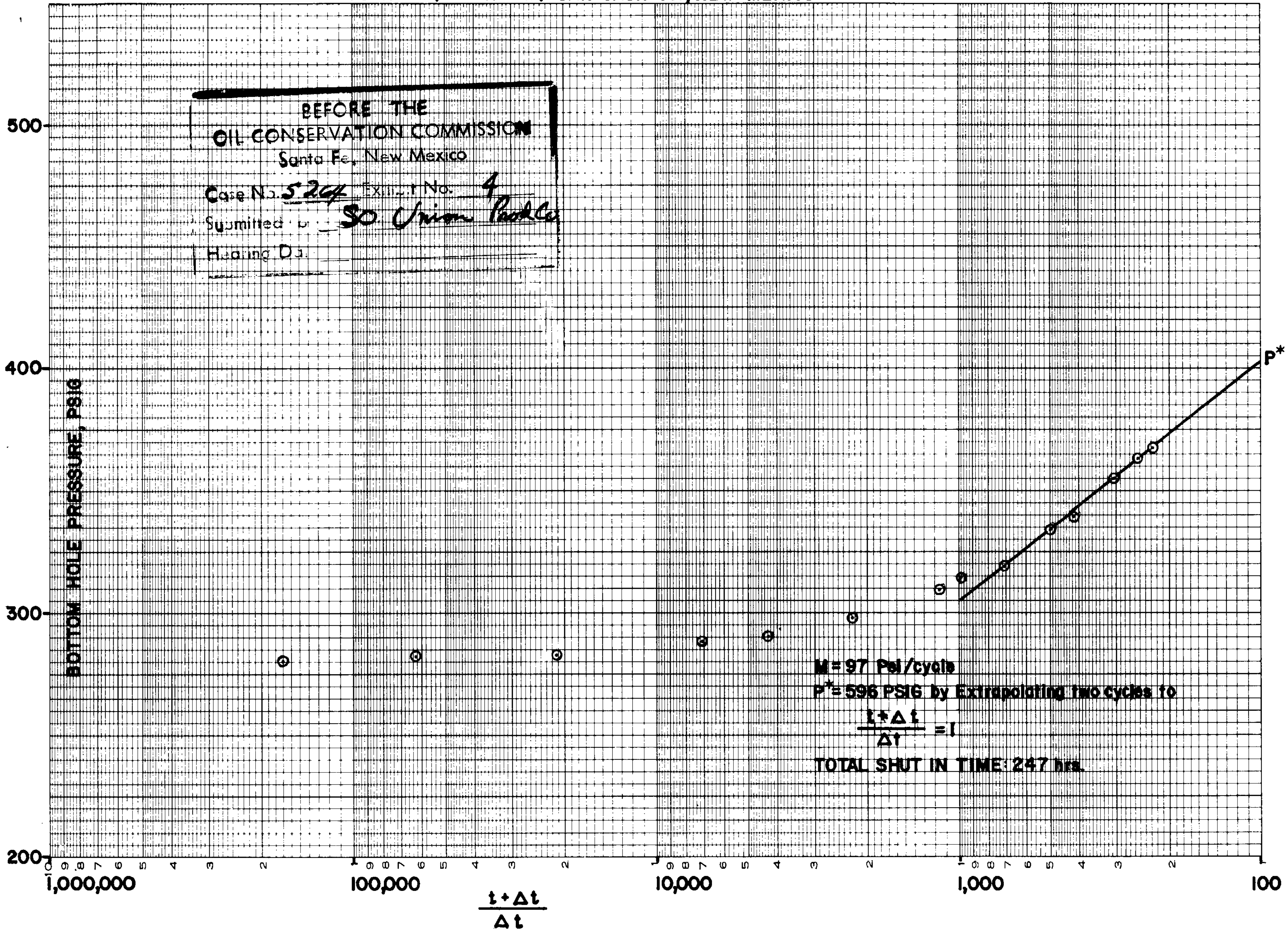
NEW WELL ECONOMICS
CO MESAVERDE POOL—NEW MEXICO
DISCOUNTED FUTURE NET REVENUE
VS.
WELL INCREMENTAL RESERVES

EXHIBIT # 3

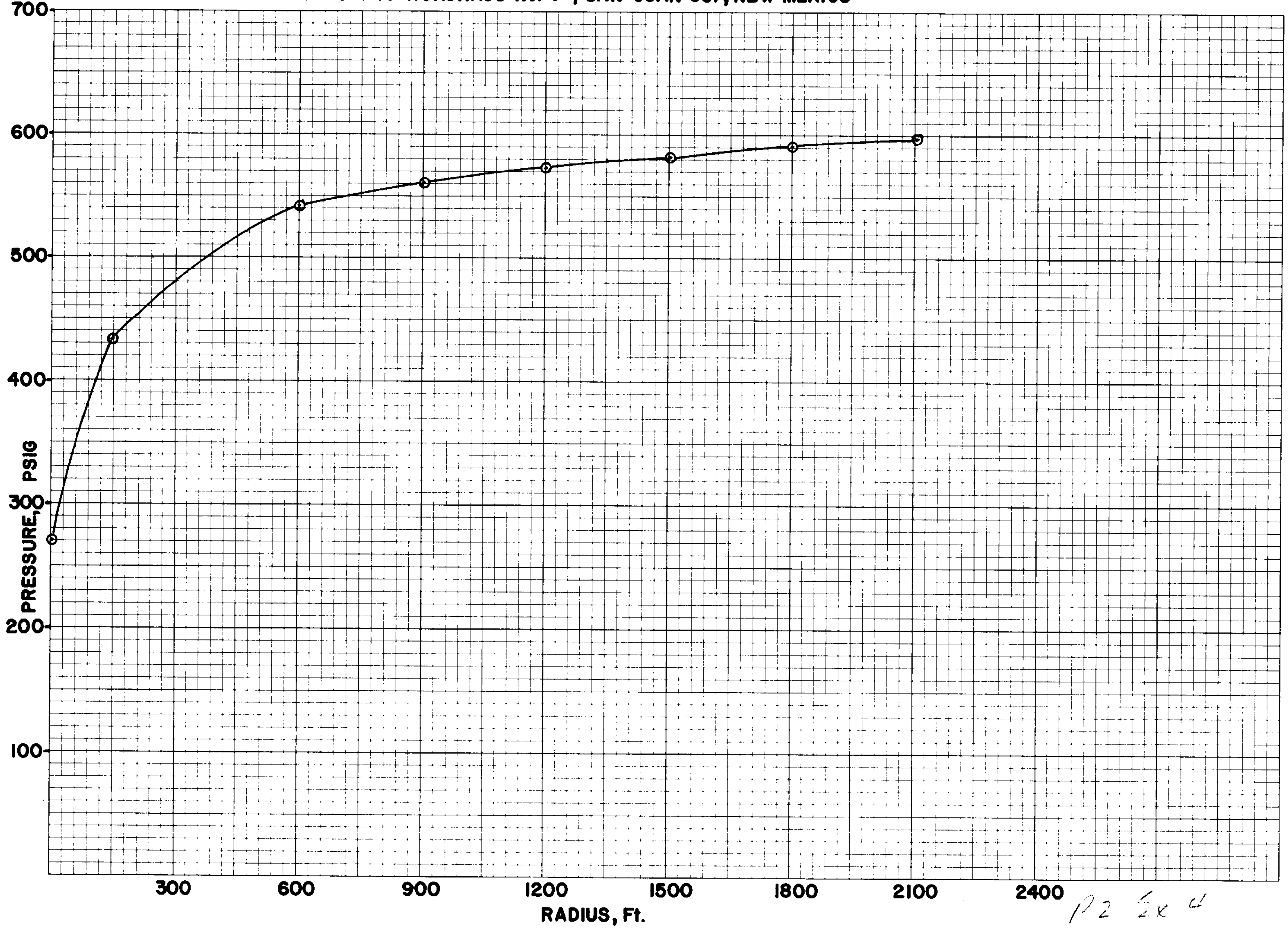
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5264 Exhibit No. 3
Submitted by Mesa
Hearing Date 8-13-74



PRESSURE BUILD UP IN NORDHAUS No. 5 (12-31N-9W) SAN JAUN Co., NEW MEXICO



PRESSURE DISTRIBUTION IN SUPCo NORDHAUS No. 5 , SAN JUAN CO., NEW MEXICO



P2 5x 4

SUPCO EXHIBIT NO. ___

SUPCO NORDHAUS #5
(M - Section 12-31N-9W)
San Juan County, New Mexico

Pi = Initial Reservoir Pressure, 1009 Psig
Well Shut-in on 6-25-74 - Well Shut-in for 31 Days
Cumulative Production = 5,894,591 MCF (As of 6-25-74)

a) Drainage Area = 320 Acres

P* = 596 Psig

$\bar{P}$, Average Reservoir Pressure = 444 Psig

Abandonment Conditions:

Q = 20 MCFD: Line Pressure = 50 Psig

$\bar{P}$, Abandonment = 103 Psig

b) Drainage Area = 160 Acres

P* - 580 Psig (Pressure distribution curve)

$\bar{P}$ = 395 Psig

$\bar{P}$ (abandonment) = 91 Psig

Ultimate recoverable reserves (one well on 320 acres) = 8.75 BCF

Ultimate recoverable reserves (two wells on 320 acres) = 8.92 BCF

Increase in recoverable gas reserves = 0.17 BCF (2.0%)

Reservoir and Fluid Characteristics Used:

K, Formation Permeability = 1.1 MD

h, Formation Thickness = 108 Ft.

Porosity = 0.10;
Viscosity = 0.0133 CP

C = Compressibility, Psi^{-1} (Varying with pressure)

T = 600° R

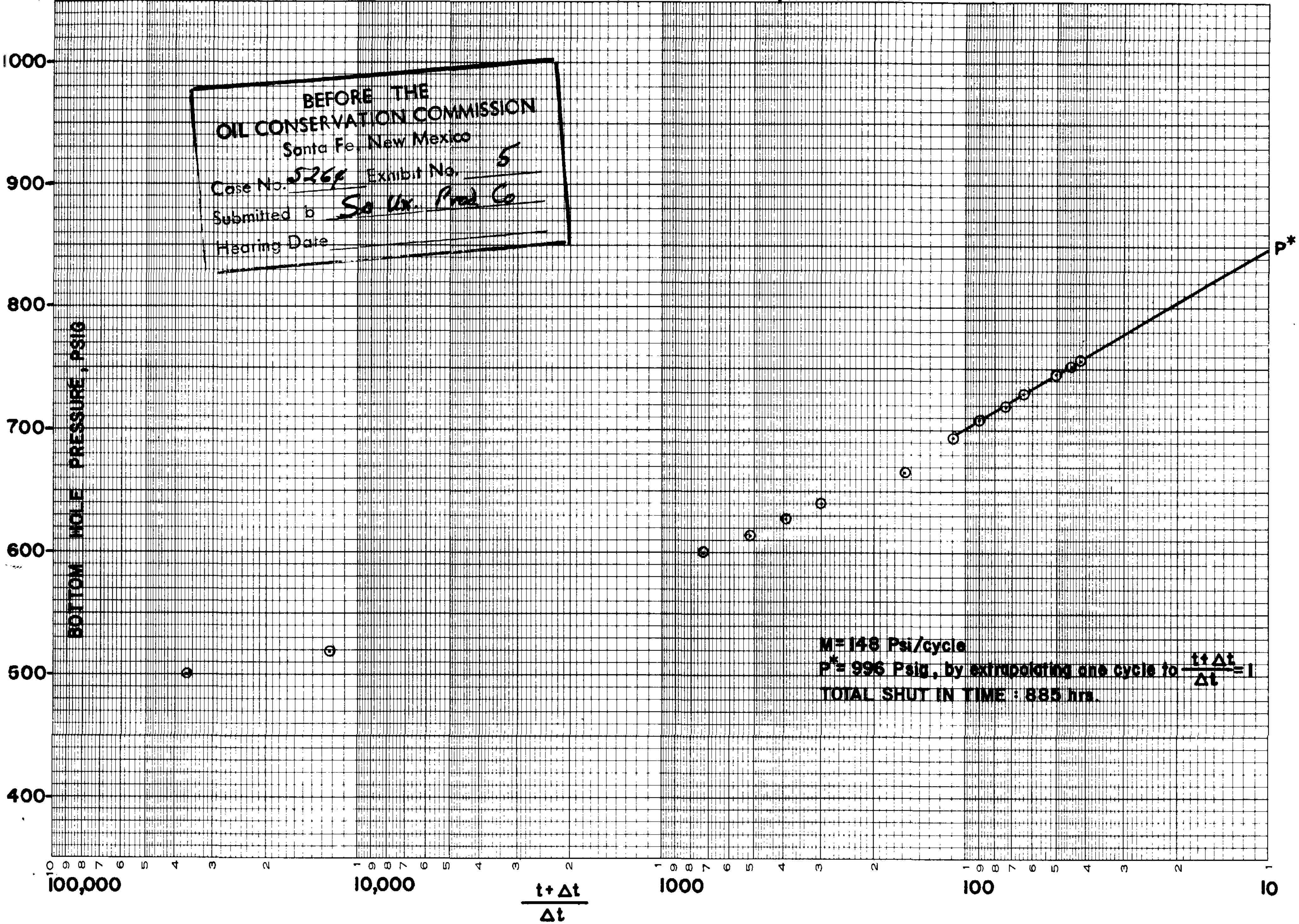
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

Case No. 5264 Exhibit No. 4

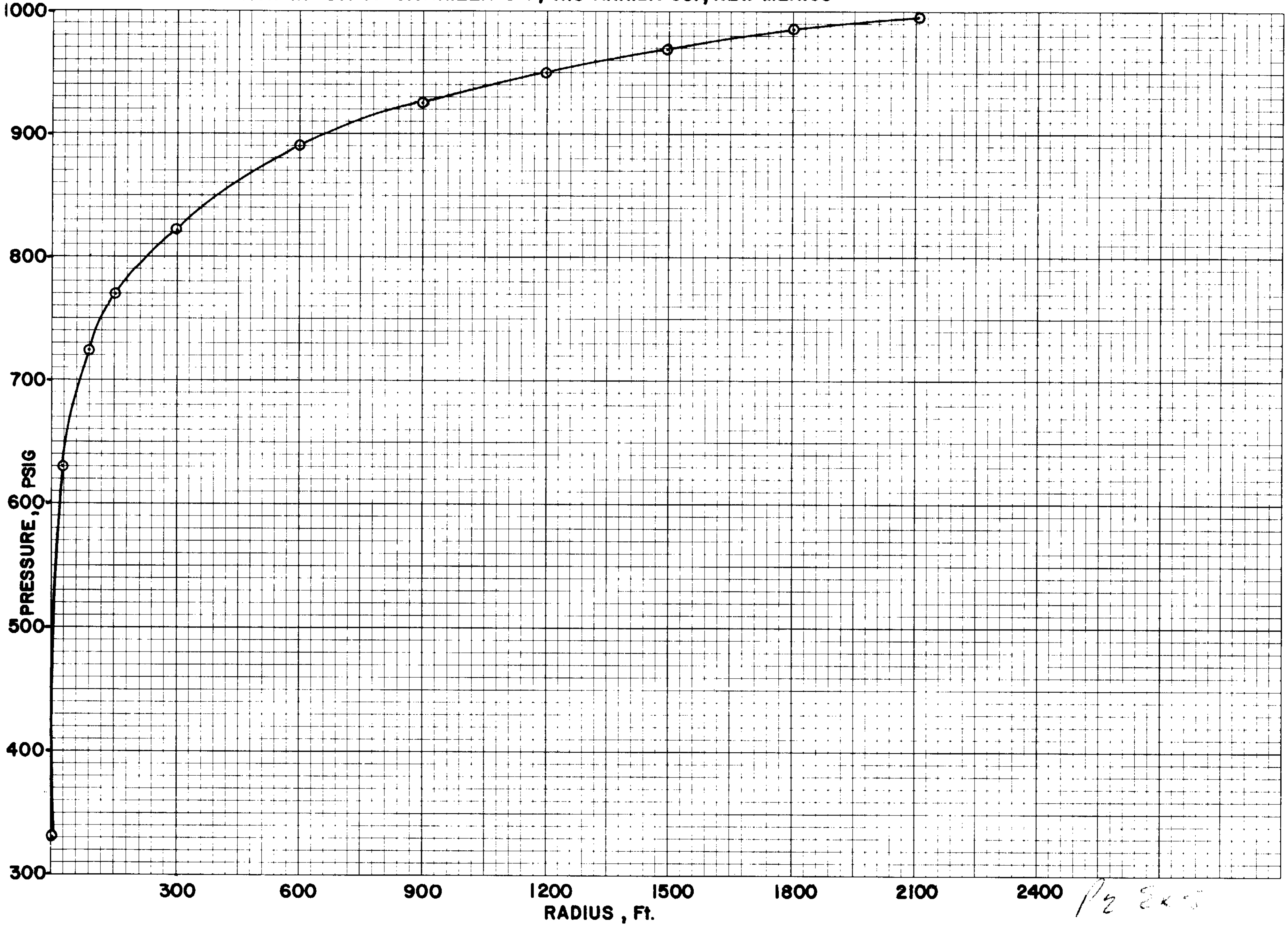
Submitted by SUPCO

Hearing Date 8/14/74

PRESSURE BUILD UP IN SUPCo JICARILLA G-5 (12-26N-5W) RIO ARRIBA CO., NEW MEXICO



PRESSURE DISTRIBUTION IN SUPCo JICARILLA G-5, RIO ARRIBA CO., NEW MEXICO



SUPCO Exhibit No. ______

SUPCO JICARILLA G-5
(L - Section 12-26N-5W)
Rio Arriba County, New Mexico

Pi = Initial Reservoir Pressure, 1325 Psi
Well Shut-in on 7-3-74 - Well Shut-in for 37 Days
Cumulative Production = 1,018,406 MCF (As of 7-3-74)

a) Drainage Area = 320 Acres

P* = 996 Psig

$\bar{P}$ = Average Reservoir Pressure = 888 Psig

Abandonment Conditions:

Q = 20 MCFD; Line Pressure = 50 Psig

$\bar{P}$ (abandonment) = 250 Psig (Radial flow, unsteady state; n = 0.75)

b) Drainage Area = 160 Acres

P* (radius 1489 Ft.) = 967 Psig (Pressure distribution curve)

$\bar{P}$ = 825 Psig

$\bar{P}$ (abandonment) = 207 Psig

Ultimate recoverable reserves (one well on 320 acres) = 3.7 BCF

Ultimate recoverable reserves (two wells on 320 acres) = 3.87 BCF

Increase in recoverable gas reserves = 0.17 BCF (4.6%)

Reservoir and Fluid Characteristics Used:

K, Formation Permeability = 0.436 MD

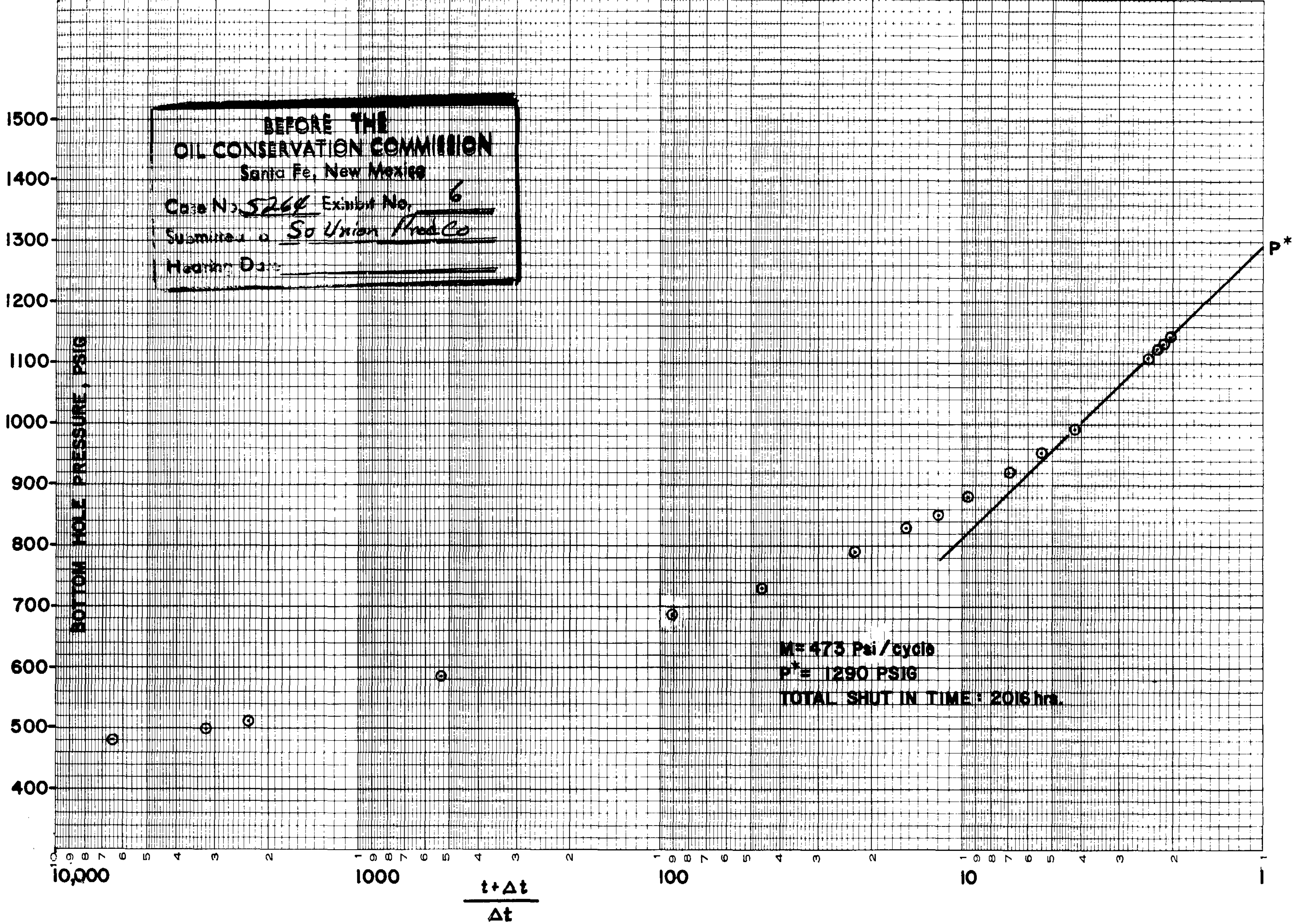
h, Formation Thickness, 96 Ft.

Porosity = 0.10
Viscosity = 0.0133 CP

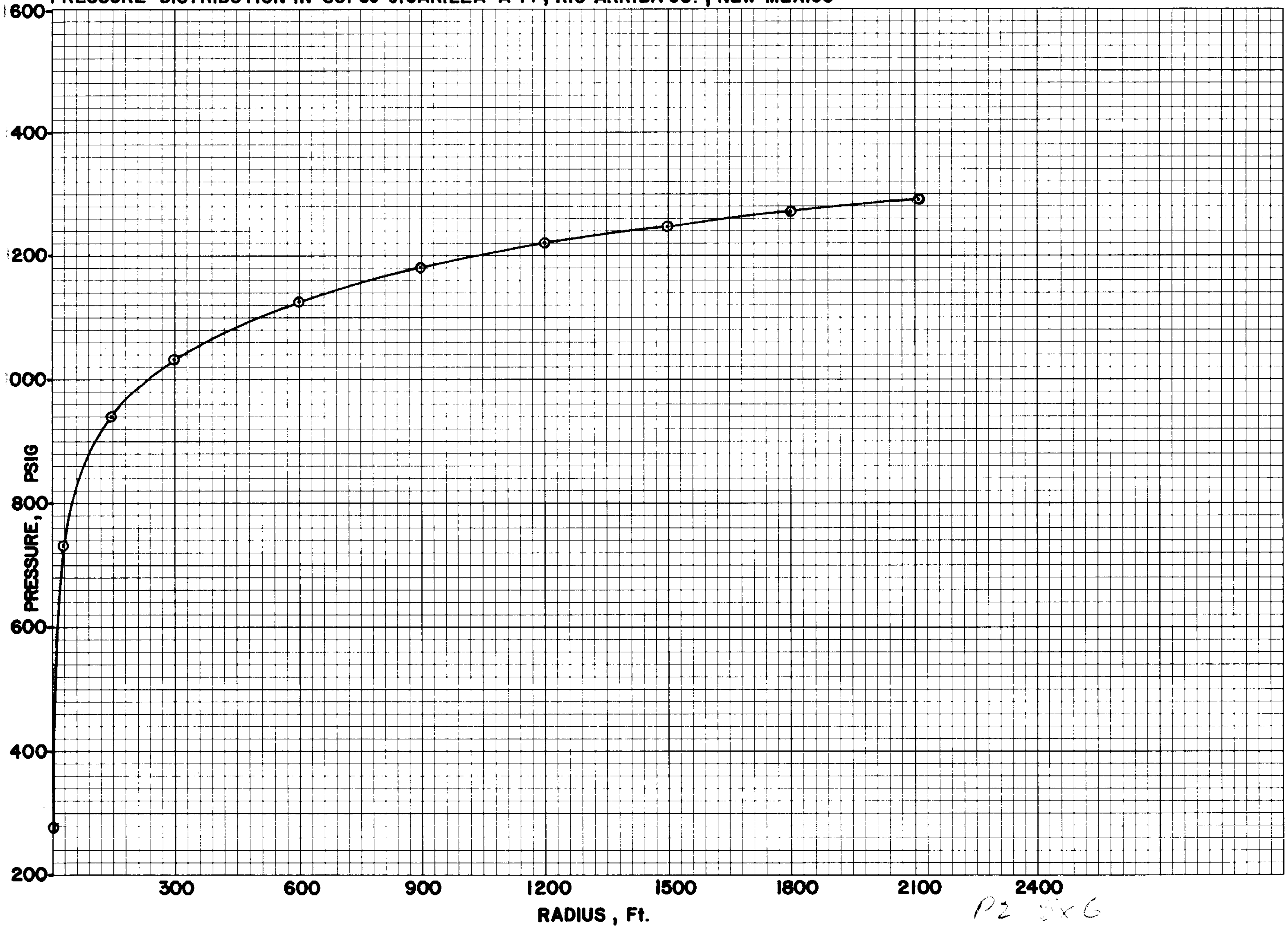
C = Compressibility, Psi^{-1} (Varying with Pressure)

T = 620° R

PRESSURE BUILD UP IN SUPCo JICARILLA A-14 (24-26N-4W), RIO ARRIBA CO., NEW MEXICO



PRESSURE DISTRIBUTION IN SUPCo JICARILLA A-14, RIO ARRIBA CO., NEW MEXICO



P2 5x6

SUPCO Exhibit No. 6

SUPCO JICARILLA A-14
(A - Section 24-26N-4W)
<u>Rio Arriba County, New Mexico</u>

Pi = Initial Reservoir Pressure, 1325 Psig
Well Shut-in on 4-10-74 - Well Shut-in for 84 Days
Cumulative Production = 58,278 MCF (As of 4-10-74)

a) Drainage Area = 320 Acres

P* = 1290 Psig

$\bar{P}$, Average Reservoir Pressure = 1269 Psig

<u>Abandonment Conditions:</u>

Q = 20 MCFD, Line Pressure = 50 psig

$\bar{P}$ abandonment = 456 Psig

b) Drainage Area = 160 Acres

P* = 1245 Psig (Pressure distribution)

$\bar{P}$ = 1224 Psig

$\bar{P}$ abandonment = 240 Psig

Ultimate recoverable reserves (one well on 320 acres) = 660 MMCF

Ultimate recoverable reserves (two wells on 320 acres) = 814 MMCF

Increase in recoverable gas reserves = 154 MMCF (23.3%)

<u>Reservoir and Fluid Characteristics Used:</u>

K, Formation Permeability = 0.122 MD

h, Formation Thickness = 88 Ft.

Porosity = 0.10
Viscosity = 0.0133 CP

T = 620° R

NOTES ON ECONOMIC EVALUATION OF MESAVERDE GAS

Table 1:

a) One producing well on 320 acres.

b) Initial production rate 310 MCFD. Decline rate 7% per year to depletion. Abanonment @ 20 MCFD.

c) Remaining producing life of well estimated at 39 years.

d) Gross revenue based upon 82.5 percent average net interest leases.

e) Price of gas computed @ 24.0¢/MCF plus BTU adjustment (1150 BTU/cu. ft. @ 14.73 psia) and tax reimbursement. Escalation one-half cent per MCF (plus adjustments) every year.

f) Recoverable gas reserves: 1,521,082 MCF

Table 2:

a) Two wells on 320 acres.

b) Initial production rate 540 MCFD allocated equally to two wells. Decline rate 10% per year to depletion. Abandonment @ 20 MCFD/well.

c) Producing life of wells estimated @ 25 years.

d) Gross revenue based upon 82.5 percent average net interest.

e) Price of gas for well No. 1 same as in Table 1. Price of gas for well No. 2 computed @ 43.0¢/MCF plus BTU adjustment (1150 BTU/cu. ft. @ 14.73 psia) and tax reimbursement. Escalation one cent per MCF (plus adjustments) every year.

f) Recoverable gas reserves: 1,836,448 MCF
Increase in reserves: 315,366 MCF

Table 1

ECONOMIC EVALUATION OF MESAVERDE GAS

Basis: One Well on 320 Acres

	Yr.	Gross Prod. MCF	Gross Revenue	Prod. & Ad Val Tax	Operating Costs	Net Operating Revenue
	1	113,150	28,378	2,242	1,200	24,936
	2	105,229	26,912	2,126	1,200	23,586
	3	97,863	25,513	2,016	1,200	22,297
	4	91,013	24,253	1,916	1,200	21,137
	5	84,642	22,974	1,815	1,200	19,959
	6	78,717	21,755	1,719	1,200	18,836
	7	73,207	20,595	1,627	1,200	17,768
	8	68,082	19,490	1,540	1,200	16,750
	9	63,317	18,492	1,461	1,200	15,831
	10	58,884	17,489	1,382	1,200	14,907
	11	54,763	16,536	1,306	1,200	14,030
	12	50,929	15,630	1,235	1,200	13,195
	13	47,364	14,770	1,167	1,200	12,403
	14	44,049	13,991	1,105	1,200	11,686
	15	40,965	13,214	1,044	1,200	10,970
	16	38,097	12,478	986	1,200	10,292
	17	35,430	11,780	931	1,200	9,649
	18	32,951	11,118	878	1,200	9,040
	19	30,644	10,517	831	1,200	8,486
	20	28,499	9,922	784	1,200	7,938
Sub Total		1,237,795	355,807	28,111	24,000	303,696
Remaining 19 Years		283,287	109,879	8,681	22,800	78,398
TOTAL		1,521,082	465,686	36,792	46,800	382,094

Table 2

ECONOMIC EVALUATION OF MESAVERDE GAS
Basis: Two Wells on 320 Acres
Well No. 1 - Existing Well
Well No. 2 - New Well

Yr.	Gross Prod. Well No. 1	Gross Revenue	Prod. & Ad Val Tax	Operating Costs	Net Operating Revenue, Well #1	Gross Prod. Well No. 2	Gross Revenue	Prod. & Ad Val Tax	Operating Costs	Net Operating Revenue, Well #2
1	99,000	24,829	1,961	1,200	21,668	99,000	44,431	3,510	1,200	39,721
2	89,100	22,787	1,800	1,200	19,787	89,100	40,870	3,229	1,200	36,441
3	80,190	20,906	1,652	1,200	18,054	80,190	37,643	2,974	1,200	33,469
4	72,170	19,232	1,519	1,200	16,513	72,170	34,593	2,733	1,200	30,660
5	64,953	17,630	1,393	1,200	15,037	64,953	31,830	2,515	1,200	28,115
6	58,458	16,156	1,276	1,200	13,680	58,458	29,226	2,309	1,200	25,717
7	52,613	14,801	1,169	1,200	12,432	52,613	26,868	2,123	1,200	23,545
8	47,351	13,555	1,071	1,200	11,284	47,351	24,650	1,947	1,200	21,503
9	42,616	12,446	983	1,200	10,263	42,616	22,642	1,789	1,200	19,653
10	38,354	11,391	900	1,200	9,291	38,354	20,757	1,640	1,200	17,917
11	34,519	10,423	823	1,200	8,400	34,519	18,825	1,487	1,200	16,138
12	31,067	9,534	753	1,200	7,581	31,067	17,454	1,379	1,200	14,875
13	27,960	8,719	689	1,200	6,830	27,960	15,985	1,263	1,200	13,522
14	25,164	7,993	631	1,200	6,162	25,164	14,657	1,158	1,200	12,299
15	22,648	7,306	577	1,200	5,529	22,648	13,416	1,060	1,200	11,156
16	20,383	6,676	527	1,200	4,949	20,383	12,276	970	1,200	10,106
17	18,345	6,099	482	1,200	4,417	18,345	11,245	888	1,200	9,157
18	16,510	5,571	440	1,200	3,931	16,150	10,059	795	1,200	8,064
19	14,859	5,099	403	1,200	3,496	14,859	9,402	743	1,200	7,459
20	13,373	4,656	368	1,200	3,088	13,373	8,606	680	1,200	6,726
Sub Total	869,633	245,809	19,417	24,000	202,392	869,633	445,435	35,192	24,000	386,243
Remaining 5 years	48,591	17,595	1,391	6,000	10,203	48,591	32,595	2,574	6,000	24,021
TOTAL	918,224	263,404	20,808	30,000	212,595	918,224	478,030	37,766	30,000	410,264

Table 3

ECONOMIC EVALUATION OF MESAVERDE GAS

	Yr.	Total Net Revenue Well #1 + Well #2	Total Net Revenue Well #1	Increase in Net Revenue
	1	61,389	24,936	36,453
	2	56,228	23,586	32,642
	3	51,523	22,297	29,226
	4	47,173	21,137	26,036
	5	43,152	19,959	23,193
	6	39,397	18,836	20,561
	7	35,977	17,768	18,209
	8	32,787	16,750	16,037
	9	29,916	15,831	14,085
	10	27,208	14,907	12,301
	11	24,538	14,030	10,508
	12	22,456	13,195	9,261
	13	20,352	12,403	7,949
	14	18,461	11,686	6,775
	15	16,685	10,970	5,715
	16	15,055	10,292	4,763
	17	13,574	9,649	3,925
	18	11,995	9,040	2,955
	19	10,955	8,486	2,469
	20	9,814	7,938	1,876
Sub Total		588,635	303,696	284,939
Remaining		34,224	78,398	(44,174)
TOTAL		622,859	382,094	240,765

Investment (A) $154,315

Cumulative Present Worth of Increase in Net Revenue (B) @ 10% ---- $175,506
25% ---- $113,150
40% ---- $ 84,900

Rate of Return (Before Income Tax) ------ 13.0%

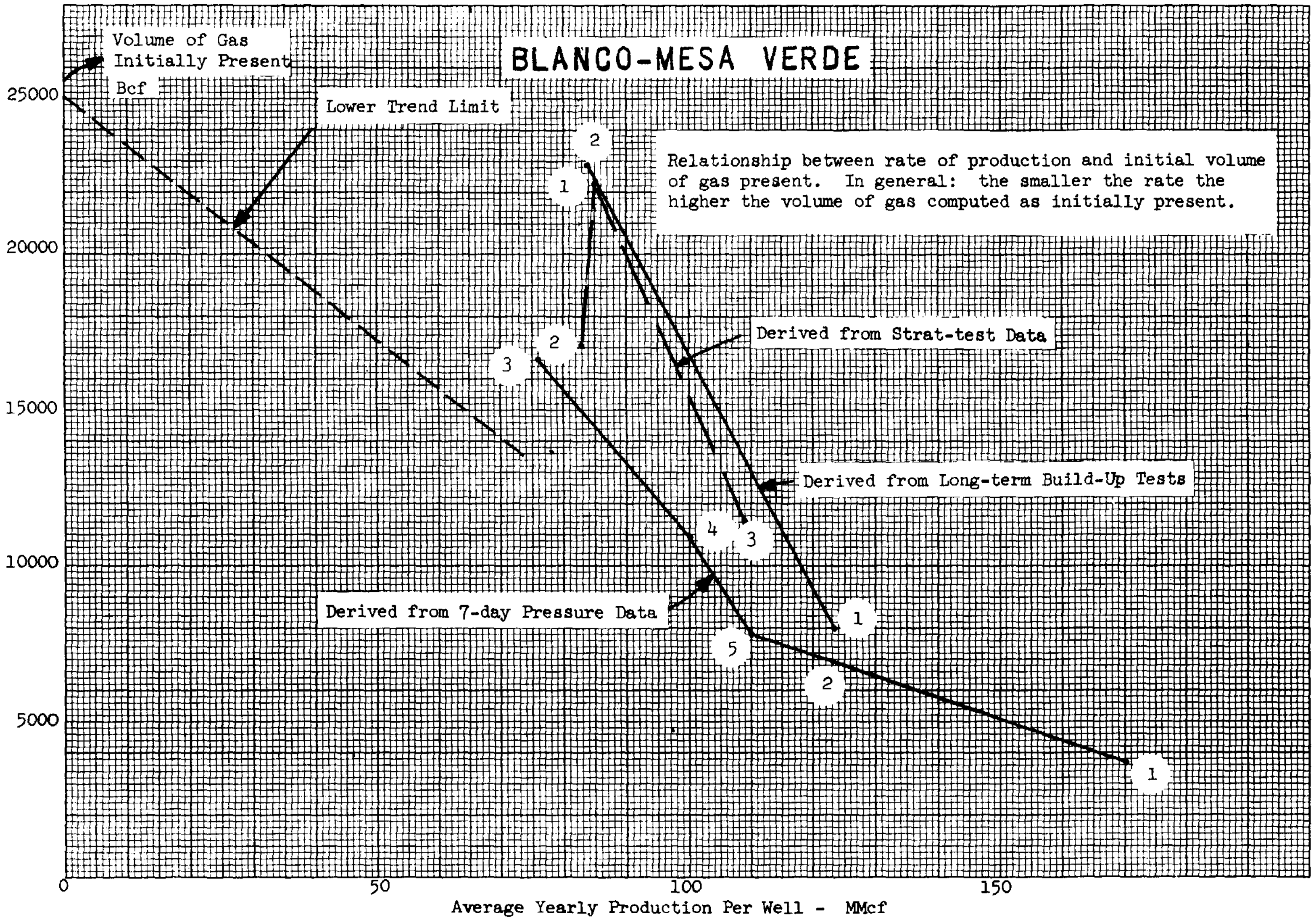


EXHIBIT NO. 21

RELATION BETWEEN RATE OF PRODUCTION AND INDICATED GAS IN PLACE

A - Using 7-day average pressures

Slope	Years Covered	Average Rate per well, MMcF	Indicated gas in place, BCF
1	1953-1957	170	3,700
2	1957-1960	123	6,900
3	1961-1964	76	16,300
4	1965-1969	100	10,900
5	1970-1973	110	7,800

B - Using Long Term BU Tests

1	1956-1961	120	8,000
2	1960-1965	84	22,800

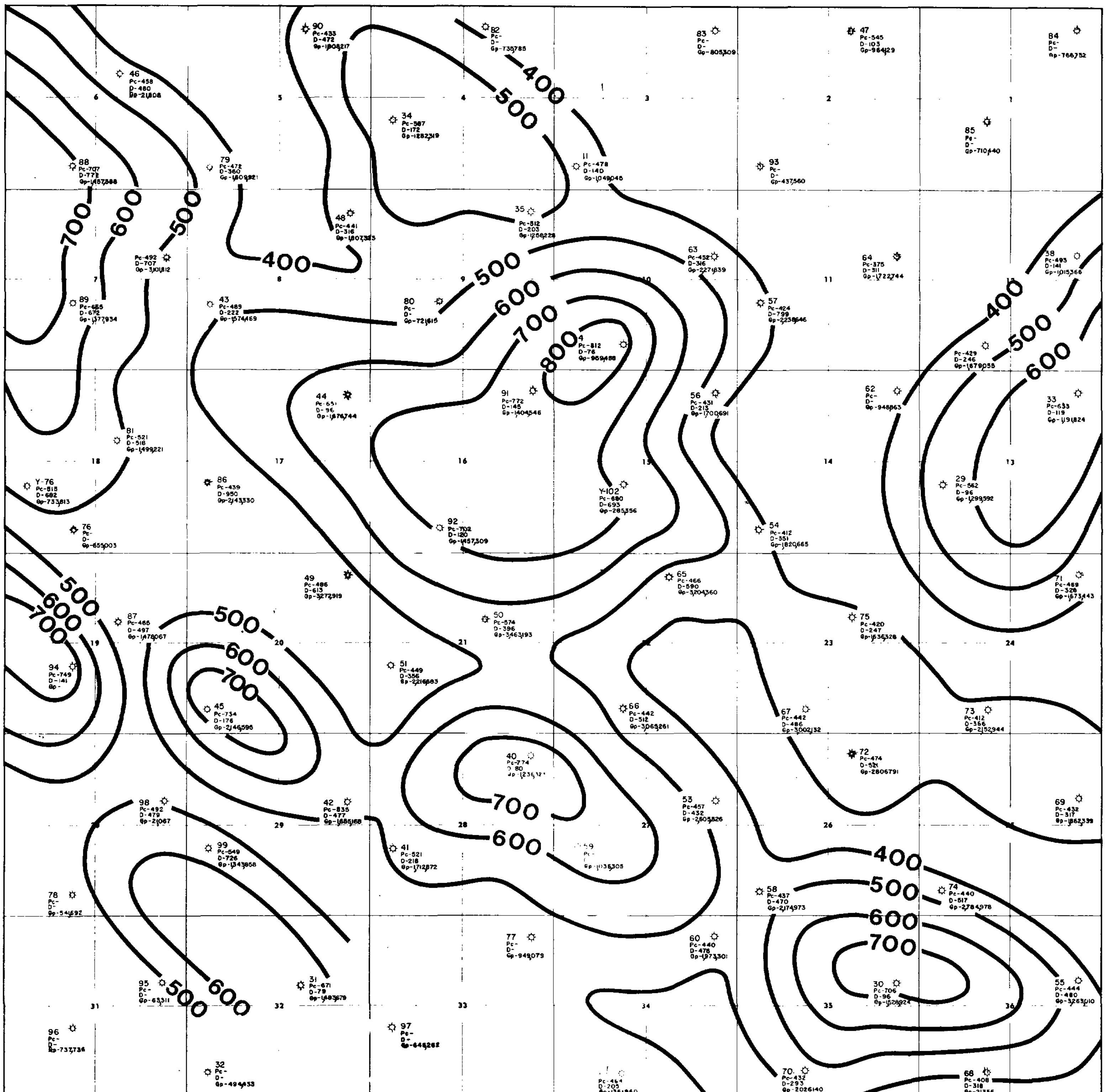
C - Using Strat-tests

1	1959-1964	85	22,200
2	1965-1969	100	17,600
3	1969-1973	109	11,400

21

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5264 Exhibit No. 21
Submitted by El Paso
Hearing Date 7/13/74

TOWNSHIP 29N RANGE 7W COUNTY Rio Arriba STATE New Mexico



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 5264 Exhibit No. 1
Submitted by Su. Vn. R.J.C.
Hearing Date

LEGEND

Pc-7 DAY SIP, PSIA

D-DELIVERABILITY, MCFD (1973 Report)

Gp-CUM. PRODUCTION, MCF (1-1-74)

CONTOUR INTERVAL-100 PSIA

BLANCO MESA VERDE

Isobaric Map

(1973) 7 DAYS SHUT IN PRESSURE SURVEY
(From 1973 Annual Report-
N. Mex. Engineering Committee)