OPEN FILE 84-7

ESTIMATED OIL AND GAS RESERVES FOR ARAPAHOE COUNTY, COLORADO

Compiled by
A. H. Scanlon

Funded by the Department of Local Affairs--
Division of Commerce and Development

Colorado Geological Survey
Department of Natural Resources
State of Colorado
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Acknowledgments

I would like to thank the staff of the Colorado Oil & Gas Conservation Commission (C.O.G.C.C.) who provided considerable assistance during the course of this compilation, and the staff of the Colorado Geological Survey, who assisted in the manuscript preparation.

However, I assume full responsibility for any errors or omissions in these tabulations. Users of this OPEN-FILE REPORT could provide a significant service if they would inform the Colorado Geological Survey of any misinformation or omissions.

This project was completed by the staff of the Colorado Geological Survey as part of a grant from the Department of Local Affairs - Division of Commerce and Development.

A. H. Scanlon
Senior Geologist

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ESTIMATED OIL AND GAS RESERVES FOR ARAPAHOE COUNTY, COLORADO

Introduction

This report is the fifth* in a series of oil and gas reserve investigations undertaken for those counties in which oil and/or gas is currently being produced.

This study involves Arapahoe County, located in northeastern Colorado, just southeast of Denver, within the central portion of the Denver Basin. Arapahoe County covers 799 square miles. In this county, oil and/or gas are produced from, in descending order of age, the D Sand, J Sand and Niobrara Limestone.

There are 35 fields considered active producers as of September 30, 1983. Of these, 33 are classified as oil fields (based on cumulative gas-oil ratio (GOR) of <15:1), and 2 are classified as gas fields (based on cumulative GOR >15:1).

Two of the 33 oil fields are currently undergoing secondary recovery by injected fluids. These projects are listed in Table I, which includes the amount of injected fluid for 1982 and the cumulative amount injected through 1982.

* Refer to:
OPEN-FILE REPORT 84-3: Estimated Oil and Gas Reserves for Washington County, Colorado;
OPEN-FILE REPORT 84-4: Estimated Oil and Gas Reserves for Rio Blanco County, Colorado;
OPEN-FILE REPORT 84-5: Estimated Oil and Gas Reserves for Adams County, Colorado; and
OPEN-FILE REPORT 84-6; Estimated Oil and Gas Reserves for Weld County, Colorado.

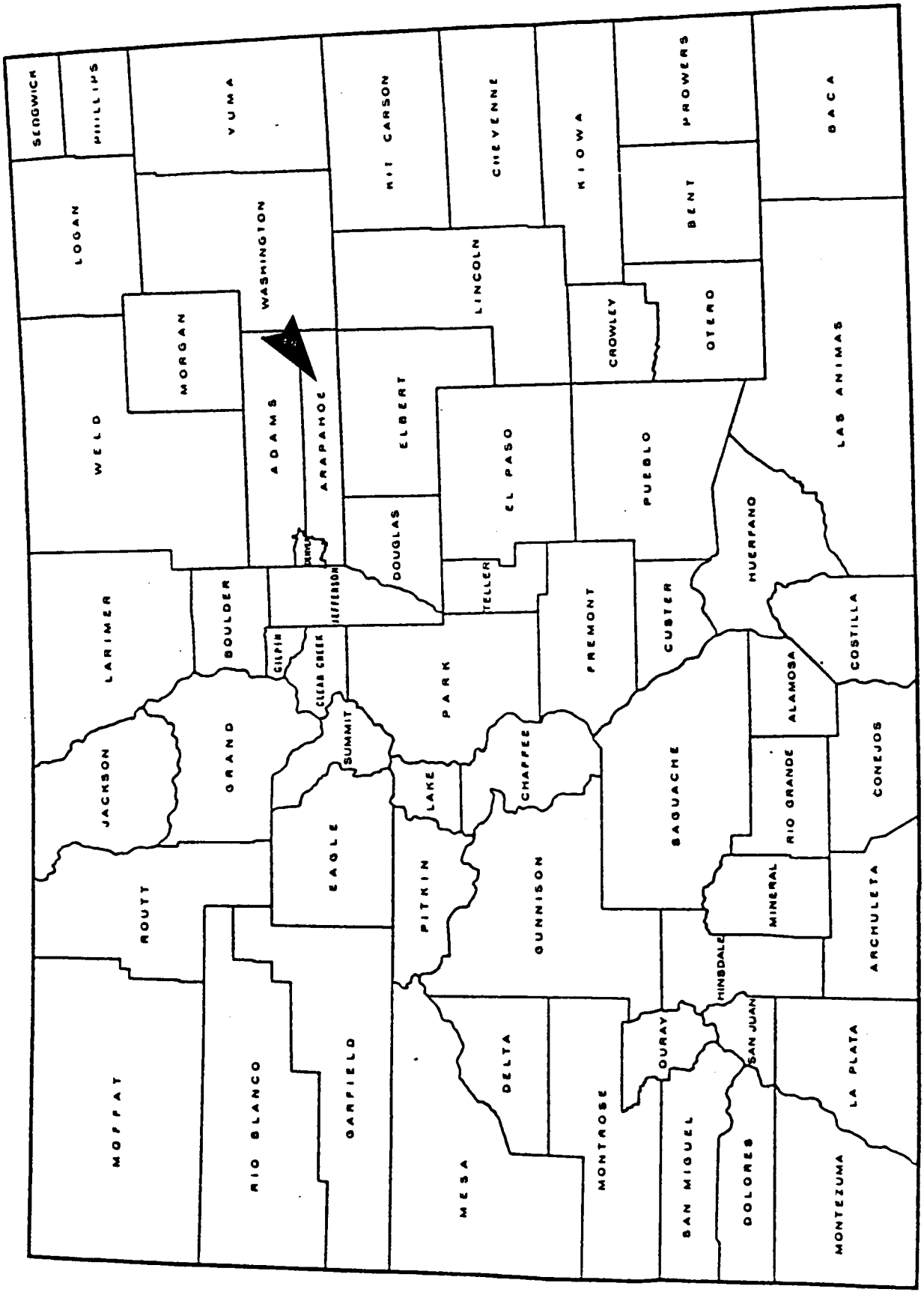

Figure 1. County Location Map

TABLE I

Summary of Secondary Recovery Projects
by Injected Fluids
for Arapahoe County

Field Name/ Horizon	Operator	Initial Inj. Date	Injected Water (bbls) 1982	Cumulative through 1982
Peoria/J-Sand	Amoco Prod. Co.	7-21-73	7,260,739	48,434,244
Poncho/J-Sand	Amoco Prod. Co.	4-18-81	1,406,053	2,766,188

Method of Approach

Production decline curves are plotted for each currently producing horizon within each field, hereafter referred to as a field-horizon. There are 43 production decline curves plotted, one for each field-horizon. Production data were obtained from the C.O.G.C.C. annual production books. These books contain records of yearly production data, dating back to 1952. All production decline curves are plotted as rate (annual production in barrels of oil or MCF of gas) versus time (in years). The rate scale was adjusted to accommodate each field-horizon.

Oil Reserve Calculations

There are 39 oil field-horizons. Production histories have allowed for decline rates to be calculated for 23 of these. The remaining 16 oil field-horizons have not produced for a long enough time (less than 4 years) to determine a reliable decline rate. For the previously mentioned 23 fields, decline rates were determined based on actual past production and recorded, see Table II. These decline rates were then applied to the equation:

$$Rr = \frac{q1 - qf}{-\ln (1-dy)}$$

where: Rr = remaining reserves
q1 = current annual production
qf = final economic production rate (see note below.)
-ln = negative natural log
dy = yearly decline rate (in percent)

The ultimate recoverable was then determined by adding the estimated reserves to the cumulative production. These values are listed in Table II.

Note: the final economic production rate used was one barrel of oil per day per well, for one year; therefore 365 barrels, multiplied by the number of wells needed to keep field production economic. In most cases this was one well. The number of wells used was determined at the discretion of the author.

For associated gas production, estimated reserves were calculated in the same manner as that described in the Gas Reserve Calculations section.

One change was necessary for one of the two fields undergoing water injection. Peoria Field has had a substantial amount of time to level off since injection began in 1973. The historical production decline curve for Poncho Field indicates that the injected fluids are influencing production. In this case, a decline rate was calculated for production from years prior to the initial date of injection and applied to the 1982 annual production.

Gas Reserve Calculations

There are 4 gas field-horizons. Production histories have allowed for decline rates to be calculated for 2 of these. The remaining 2 gas field-horizons have not produced for a long enough time (less than 3 years) to determine a reliable decline rate. Decline rates were determined for the first 2 mentioned field-horizons (see Table II) and applied to the equation:

$$S = \frac{a(1-r^n)}{1-r}$$

Where: S = gas reserves
a = current annual gas production
r = (1-dy) where dy = annual decline rate
n = number of years -- 20 years was used in all cases except where noted in the remarks column of Table II.

Results can be found in Table II.

For the associated oil production, where this production was significant, the same method to determine estimated oil reserves was used, as discussed in the previous section. Whether oil production was considered significant or not was determined by the author. In all cases, if oil production indicated any kind of trend, reserves were calculated. A few cases arose where oil production, though a trend was indicated, did not exceed the economic limit (as discussed previously) of one barrel of oil per day per year, and therefore no reserve estimate was calculated, or an economic limit of zero was used.

Results

The following figures are for those field-horizons for which reserves could be calculated. Estimated oil reserves for Arapahoe County totaled 3,285,087 barrels. Estimated gas reserves for Arapahoe County totaled 12,817,272 MCF. Note that the gas reserve calculations are based on a 20-year projection, therefore they do not account for gas production after the year 2002.

These figures also do not account for production increases due to secondary and/or tertiary recovery not already in progress, or account for undiscovered reserves, nor do they reflect changes in economics or demand.

In four to five years, roughly half of the estimated oil reserves in Arapahoe County will have been produced. Roughly one half of the estimated gas reserves for the next 20-year period are expected to be produced in four to five years.

In this county there are two classes of field-horizons: I) those with a long enough production history to calculate reserves with confidence, and II) those new field-horizons with essentially no production history, or for other reasons, reserves cannot be calculated.

To be able to calculate total county oil and gas reserves, it was necessary to apply the overall decline rates (15.0 percent per year for oil and 16.7 percent per year for gas) obtained from class I field-horizons to the current production from Class II field-horizons.

Using this approach on current production from Class II field-horizons (228,886 Bbls. of oil and 857,303 MCF of gas) additional reserves of 1,329,759 Bbls. of oil and 5,105,709 MCF of gas were obtained. This gives total county reserves (Class I and II) of 4,614,846 Bbls. of oil and 17,922,981 MCF of gas.

To insure that the reserve figures calculated for Class II are reasonable using this method, a comparison was made between the sources (producing horizons) of the Class I and Class II field-horizons. It was determined that there were no significant differences in the sources of production for the two groups. Therefore, it is concluded that the overall decline rates can be applied with confidence.

LIST OF ABBREVIATIONS USED IN TABLE OF RESERVE DATA

'a'	annual gas production
ABD.	abandoned
Approx.	approximate, approximately
Avg.	average, averaged
Bbls.	barrels
B.W.E.	Bottom Water Encrochment
calc.	calculate, calculated
Co.(s)	county (counties)
cond.	condensate
ck.	Creek
Cum.	cumulative
Dak.	Dakota Sandstone
Deplet.	Depletion
dy	annual decline rate
Econ.	Economic
Est.	Estimated
Exp.	Expansion
g	gas
Gas Exp.	Gas Expansion
G.C.E.	Gas Cap Expansion
G.E.	Gas Expansion
GOR	Gas-Oil Ratio
Inc.	Increase, increasing, increased
Inj.	Injection, injected
Lmtd.	Limited
MCF	Thousand cubic feet
Miss.	Mississippian
Mos.	Months
Mtn.	Mountain
N	North
N.P.	New Production or less than five years production, therefore, no reliable annual decline rate could be calculated to apply to the equations to calculate reserves.
No.	number, numbers, North
o	oil
P and A	Plug (ged) and Abandon (ed)
Poss.	Possible
Prod.	Production, produced
Proj.	Projection, projected
q	current annual production of oil
qf	final economic production of oil
react.	reactivated
Rr	Remaining reserves-oil
S	Remaining reserves-gas
S.G.D.	Solution Gas Drive
S.I.(SI)	Shut-in
So	South
W	West
W.D.	Water Drive
Yr or Yrs	Year or years

TABLE II
OPEN-FILE REPORT 84-7
RESERVE DATA FOR ARAPAHOE COUNTY

FIELD NAME/ PROD. HORIZON	GENERAL LOCATION	DATE OF DISCOVERY	TYPE OF DRIVE	dy (in Z)	CUMULATIVE PRODUCTION 12/82 OIL(bbls) (C)Condensate	CUMULATIVE PRODUCTION 12/82 GAS (MCF)	ESTIMATED RESERVES OIL(bbls)	ESTIMATED RESERVES GAS(MCF)	ULTIMATE RECOVERABLE OIL(bbls) (C)Condensate	ULTIMATE RECOVERABLE GAS(MCF) (Bbls)	REMARKS * *See Last Page of TABLE II for Definition of # Code
1.Antler/D	5S-63W	1973		8.0-o 8.0-g	104,831	191,472	17,569	107,001	122,400	298,473	
2.Blackjack/J	4S-57W	1968	W. D.	9.5-o 9.5-g	1,014,915	98,143	74,734	14,227	1,089,649	112,370	
3.Bombing Range/J	4S-63W	1972		5.6-o 14.2-g	115,259 (6,891)	602,599	83,847	158,858	199,106 (6,891)	761,457	
4.Bombing Range/ Niobrara	4S-63W	1983	NOTE: Cum.Prod. thru 9/83		391	568					N.P.
5.Brave/D	5S-64W	1981			2,399	5,027					N.P.
6.Brave/J	5S-64W	1981			9,310	35,867					N.P.
7.Buck/D & J	5S-63W	1983	NOTE: Cum.Prod.		4,547						N.P.
8.Byers/J	4S-62W	1970	thru 9/83	13.3-o 23.0-g	248,617	168,590	20,600	37,611	269,217	206,201	
9.Chalice/J	4S-64W	1982			1,190						N.P.
10.Chinook/D	5S-62W	1976		22.0-o 4.1-g	108,704	509,861	30,717	See Note	139,421	+509,861	dy based on '80-'82 Prod. N. P.
11.Chinook/J	5S-62W	1981			7,471	65,959					
12.Dandy/J	4S-57W	1976		9.5-o	25,771		25,906		51,677		
13.Deadeye/D	6S-62W	1981			2,124						N.P., Also Prod. in Elbert Co.
14.Deadeye/J	6S-62W	1979		20.8-o 24.0-g	42,541	149,876	16,630	43,052	59,171	192,928	Also Prod. in Elbert County
15.Doubletree/J	6S-62W	1978		21.0-o 10.2-g	65,361 (34)	75,770	67,011	175,443	132,372 (34)	251,213	
16.Dragoon/D	3&4S-62W	1971		10.3-o 9.7-g	1,320,556	5,816,510	155,208	1,486,693	1,475,764	7,303,203	Econ. Limit-4 wells
17.Dragoon/J	3&4S-62W	1973			14,618	58,850					Has Been SI Most of Last 6 Yrs. No Calc. Made
18.Electra/J	4S-63W	1981			14,343	283					N.P.
19.Fairway/J	4S-63W	1978		23.8-o	168,224 (2,739)	812,777	241,754	See Note	409,978 (+2,739)	+812,777	
20.Ferret/J	5S-63W	1981			1,684	3,816					N.P.
21.Gambrel/J	4S-63W	1983	Note: Cum.Prod. thru 9/83		(23)	98					N.P.
22.Gazelle/J	4S-63W	1980			14,381 (583)	455,985					N.P.
23.Hombre/J	3S-61W	1971	W. D.	8.7-o 8.0-g	220,770	553,275	112,449	304,088	333,219	857,363	Also Prod. in Adams Co.
24.Lonetree/J	3S-59W	1974	W.D. in J-Channel S.S. in J-Splay	8.0-o 10.0-g	473,925	822,391	323,752	324,876	797,677	1,147,267	Also Prod. in Adams Co.
25.Lowry/J	5S-64&65W	1972	Exp.	8.7-o 13.5-g	1,154,183	2,950,848	369,075	375,496	1,523,258	3,326,344	Econ. Limit-2 wells
26.Peacepipe/D	4&5S-62W	1979	S. G. D.	23.0-o 28.0-g	7,256 (4,761)	128,860	3,390	30,696	10,646 (4,761)	159,556	
27.Peacepipe/J	4&5S-62W	1973	S. G. D.	10.0-o 6.9-g	17,751 (60,063)	3,617,959	22,295	2,247,465	40,046 (+60,063)	5,865,424	

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OPEN-FILE REPORT 84-7
RESERVE DATA FOR ARAPAHOE COUNTY

FIELD NAME/ PROD. HORIZON	GENERAL LOCATION	DATE OF DISCOVERY	TYPE OF DRIVE	dy (in %)	CUMULATIVE PRODUCTION 12/82 OIL(bbls) (C)Condensate	CUMULATIVE PRODUCTION 12/82 GAS (MCF)	ESTIMATED RESERVES OIL(bbls)	ESTIMATED RESERVES GAS(MCF)	ULTIMATE RECOVERABLE OIL(bbls) (C)Condensate	ULTIMATE RECOVERABLE GAS(MCF) (Bbls)	REMARKS * *See Last Page of TABLE II for Definition of * Code
28.Peoria/J	4S-60W	1970		13.7-o 7.3-g	12,287,372 (30,579)	18,142,988	1,035,865	3,699,774	13,323,237 (+30,579)	21,842,762	Econ. Limit-8 wells
29.Peoria No./J	4S-60W	1971	G. C. E. & S. D.	7.3-o 8.2-g	807,906 (5,055)	2,856,298	306,141	214,038	1,114,047 (5,055)	3,070,336	
30.Pintail/J	4S-64W	1981			797	1,824					N.P.
31.Pollen/J	4S-62W	1980	S. G. D.		199,202	933,117					N.P.
32.Poncho/J	4S-59W	1971	Fluid Exp. & S. G. D.	10.0-o 19.6-g	582,822	813,958	211,972	173,642	794,794	987,600	Also Prod. in Adams Co.
33.Poncho So./J	4S-59W	1973		12.7-o 5.2-g	42,440	16,433	34,686	10,299	77,126	26,732	
34.Pronghorn/J	5S-62W	1972		14.8-o 15.7-g	77,775 (20,130)	1,384,719	33,402	2,808,046	111,177 (+20,130)	4,192,765	
35.Puma/J	5S-61W	1981			33,752	165,639					N.P.
36.Quill/J	4S-62W	1979			244,622	661,965					N.P.
37.Razor/J	5S-64W	1981			5,111	1,387					N.P.
38.Roman Nose/J	3&4S-58W	1968	S. G. D., Fluid Exp., Poss. Water Encroachment	12.2-o 10.1-g	294,035	92,953	15,625	22,891	309,660	115,844	Also Prod. in Adams Co.
39.Roughneck/J	4S-58W	1981			34,558						N.P.
40.Sidewinder/D	4S-62W	1973	S. G. D.	20.9-o 21.0-g	76,395	621,116	6,210	229,288	82,605	850,404	
41.Sidewinder/D&J	4S-62W	1975	S. G. D.	10.6-o 26.9-g	74,842	97,872	33,744	62,469	108,586	160,341	
42.Sidewinder/J	4S-62W	1973	S. G. D.	16.5-o 21.5-g	179,910 (9,270)	3,544,818	38,248	291,309	218,158 (9,270)	3,836,127	
43.Snowbird/J	4S-57W	1973		10.6-o	14,227		4,257		18,484		

COUNTY TOTAL OF ESTIMATED RESERVES

3,285,087 Barrels
12,817,272 MCF

Reference List

Colorado Oil and Gas Conservation Commission Production Records and Injected Fluids - Water and/or Gas-File.

Crouch, M.C., III, editor, 1982 Oil and Gas Fields of Colorado, Nebraska and Adjacent Areas: Rocky Mountain Association of Geologists, vols. I and II, 791 pp.

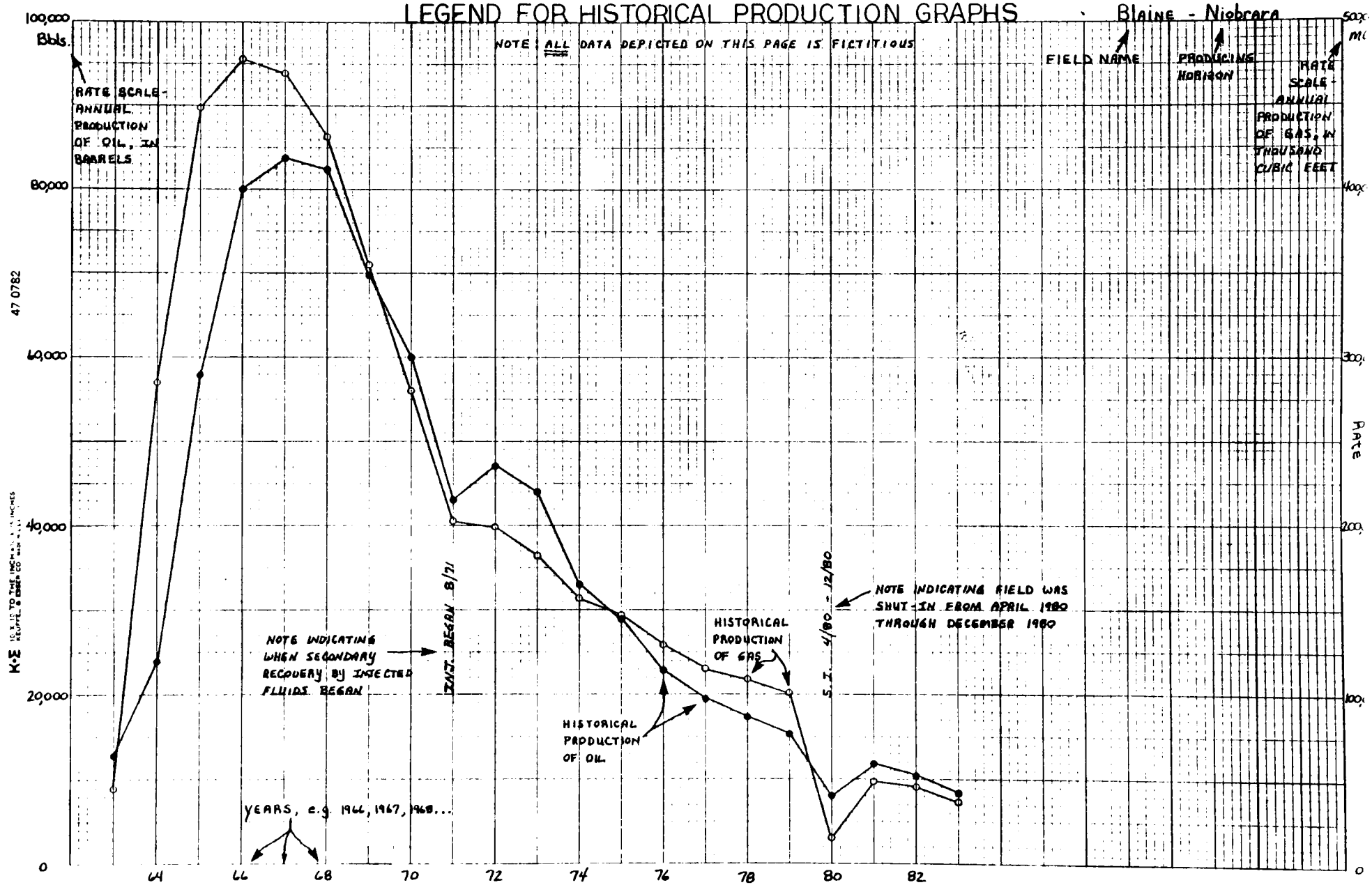
Haun, J.D., Cardwell, A.L., Herrod, W.H. and Cronoble, J.M., 1976. Oil and Gas Reserves of Colorado in Colorado School of Mines Research Institute, Mineral Industries Bulletin, v. 19, #5.

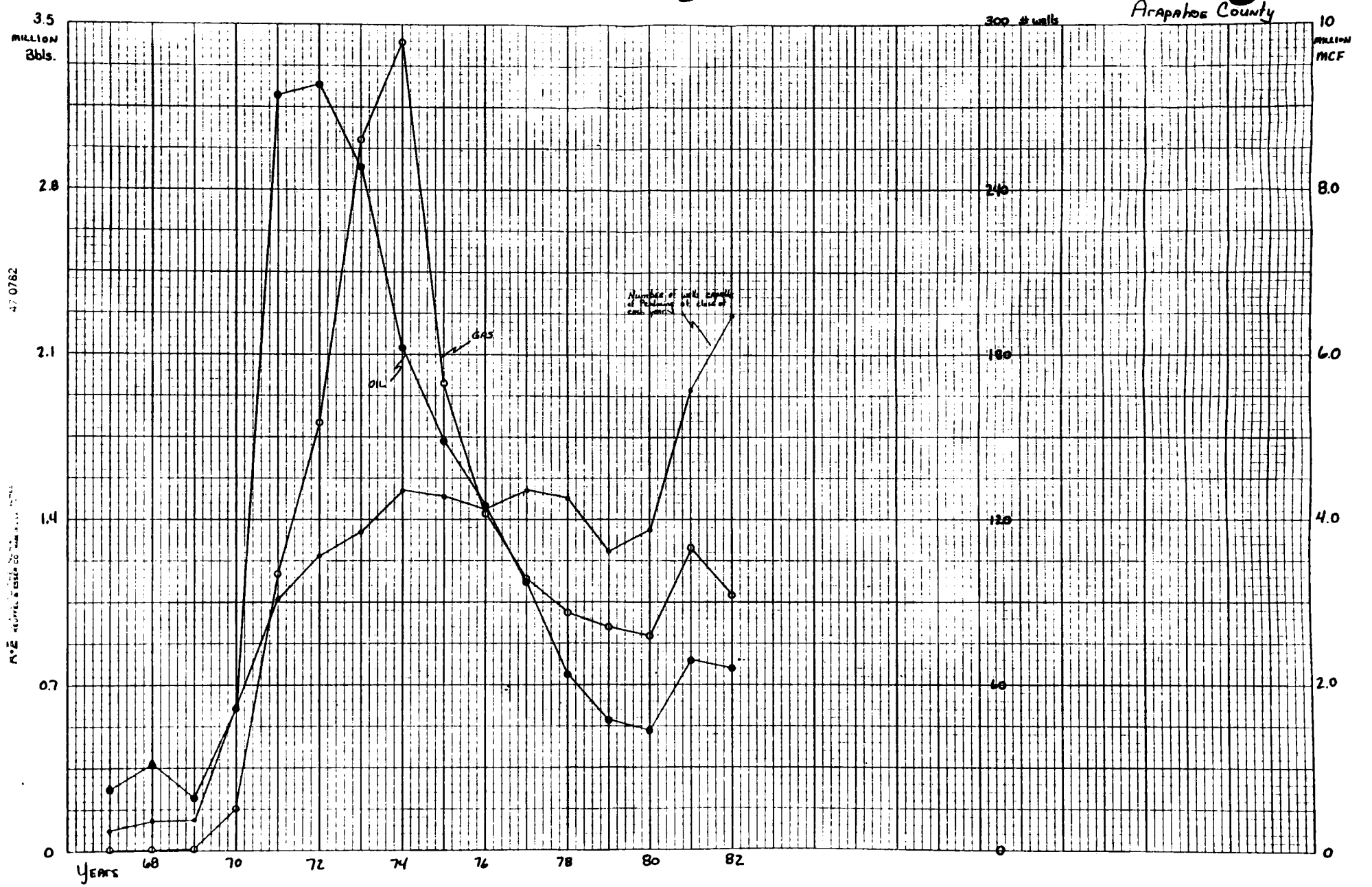
Parker, J.M., editor, 1961 Oil and Gas Field volume: Colorado-Nebraska: Rocky Mountain Association of Geologists, 389 pp.

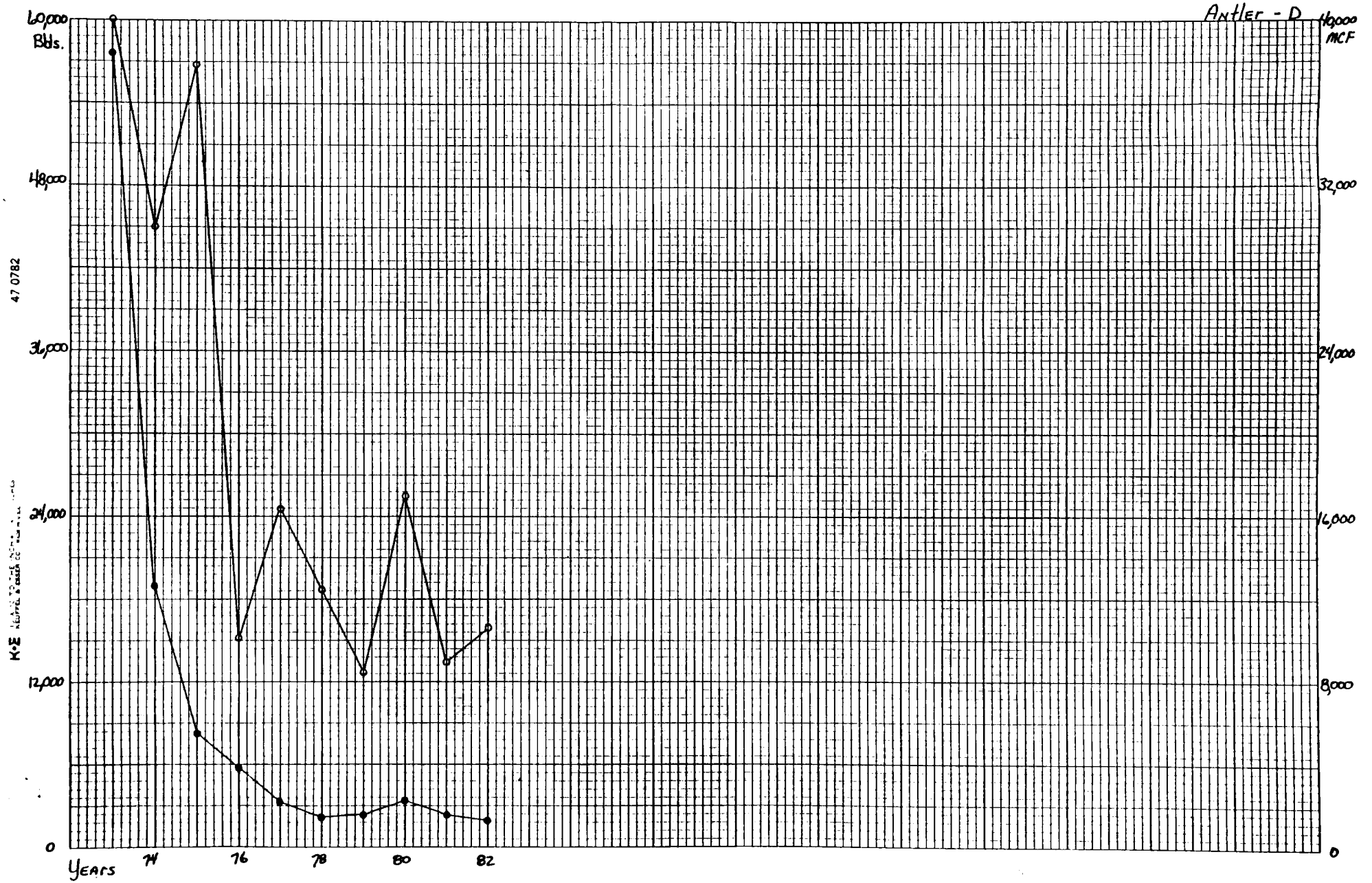
Appendix I

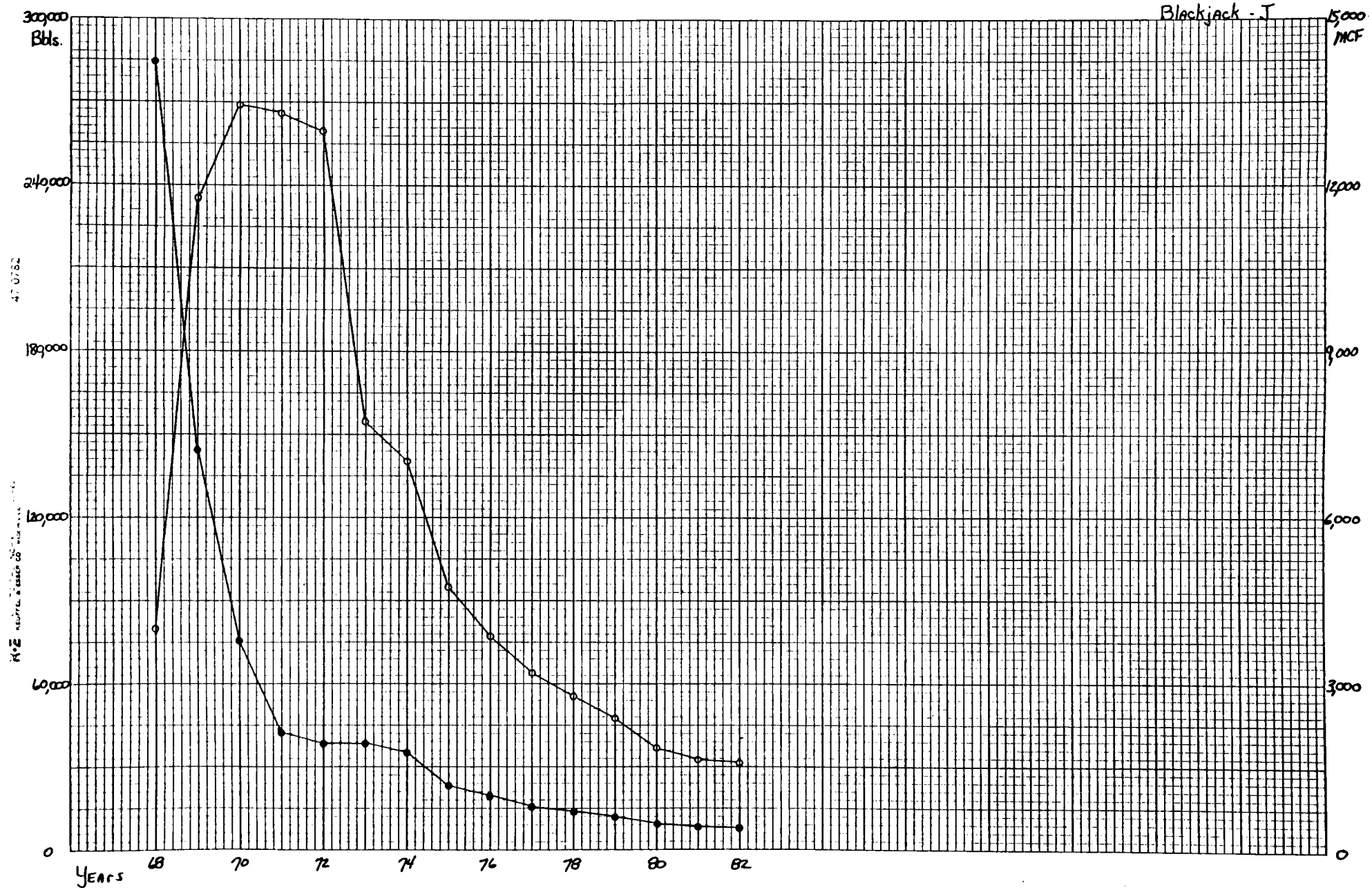
Historical production decline curve graphs for Arapahoe County. These graphs are presented in alphabetical order by Field name and then by producing horizons within each field.

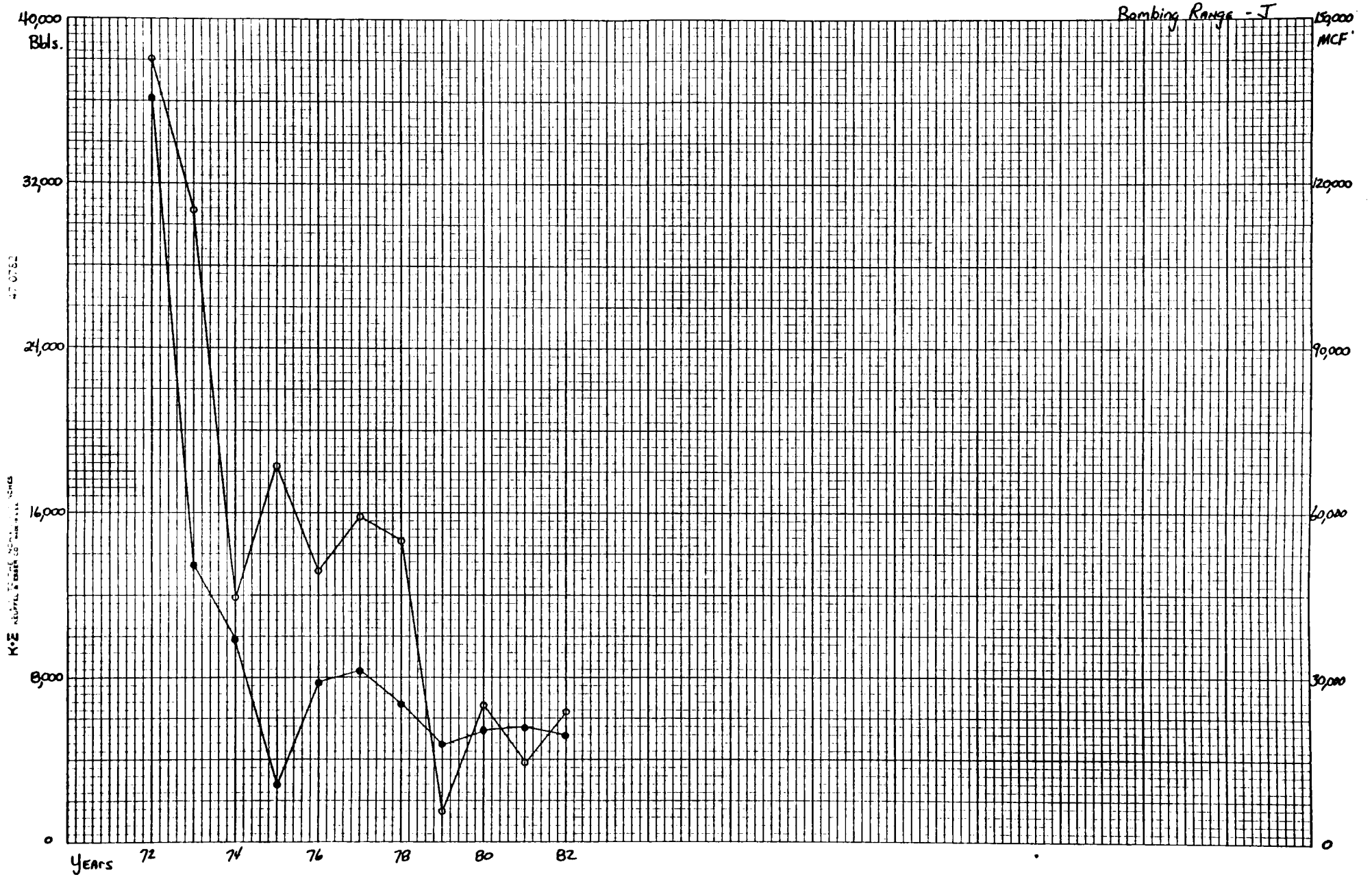
Note that only those fields actively producing as of 9-30-83 are included. Abandoned fields or field-horizons are not included.

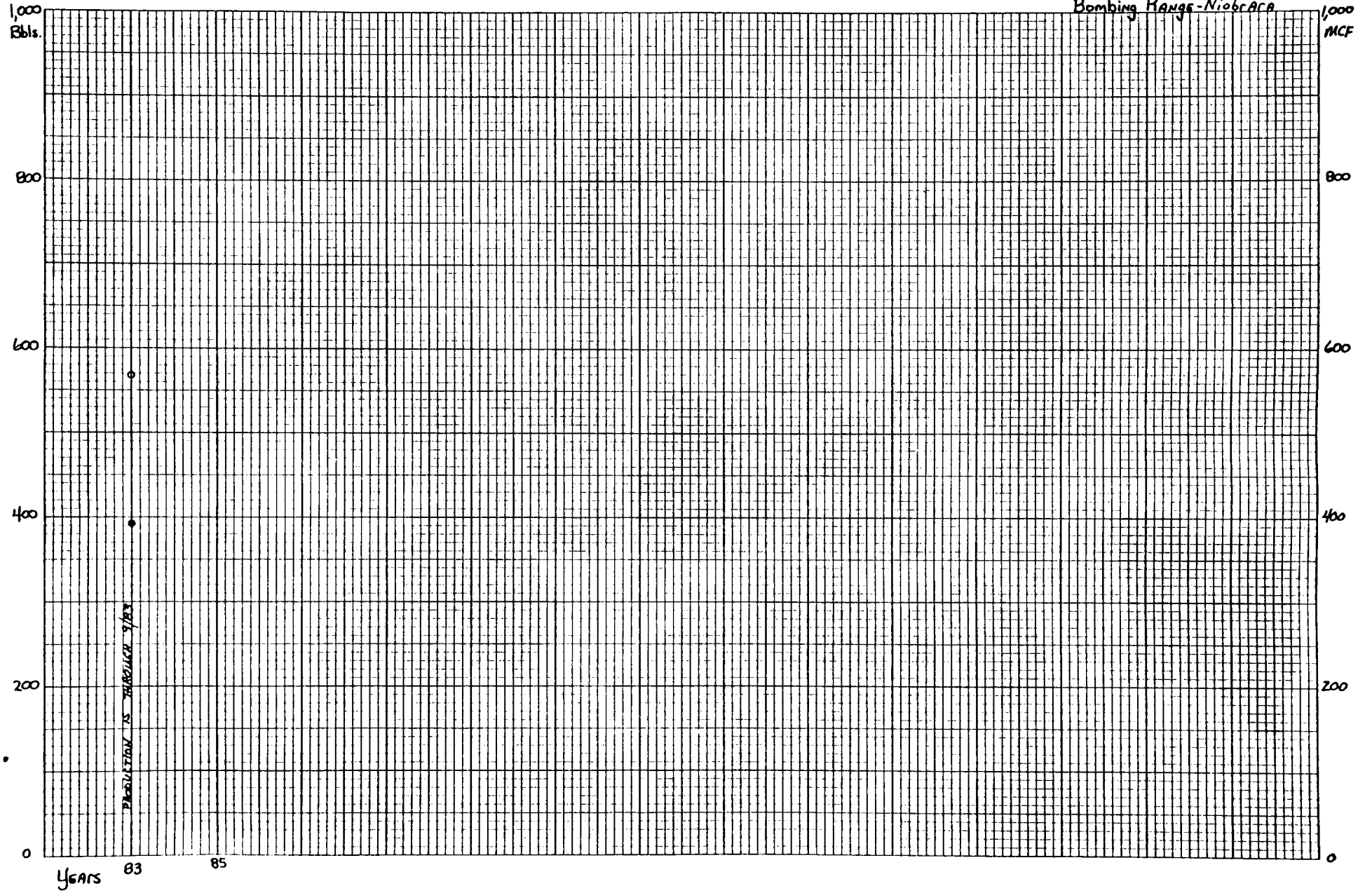

LEGEND FOR HISTORICAL PRODUCTION GRAPHS
Blaine - Niobrara
NOTE: ALL DATA DEPICTED ON THIS PAGE IS FICTITIOUS
FIELD NAME
PRODUCING HORIZON
RATE SCALE - ANNUAL PRODUCTION OF OIL, IN BARRELS
RATE SCALE - ANNUAL PRODUCTION OF GAS, IN THOUSAND CUBIC FEET
100,000 Bbls.
80,000
60,000
40,000
20,000
0
500 M
400
300
200
100
0
Rate
47 0782
K·E
INT. BEGAN 8/71
S.I. 4/80 - 12/80
NOTE INDICATING WHEN SECONDARY RECOVERY BY INJECTED FLUIDS BEGAN
NOTE INDICATING FIELD WAS SHUT-IN FROM APRIL 1980 THROUGH DECEMBER 1980
HISTORICAL PRODUCTION OF GAS
HISTORICAL PRODUCTION OF OIL
YEARS, e.g. 1966, 1967, 1968...
64
66
68
70
72
74
76
78
80
82

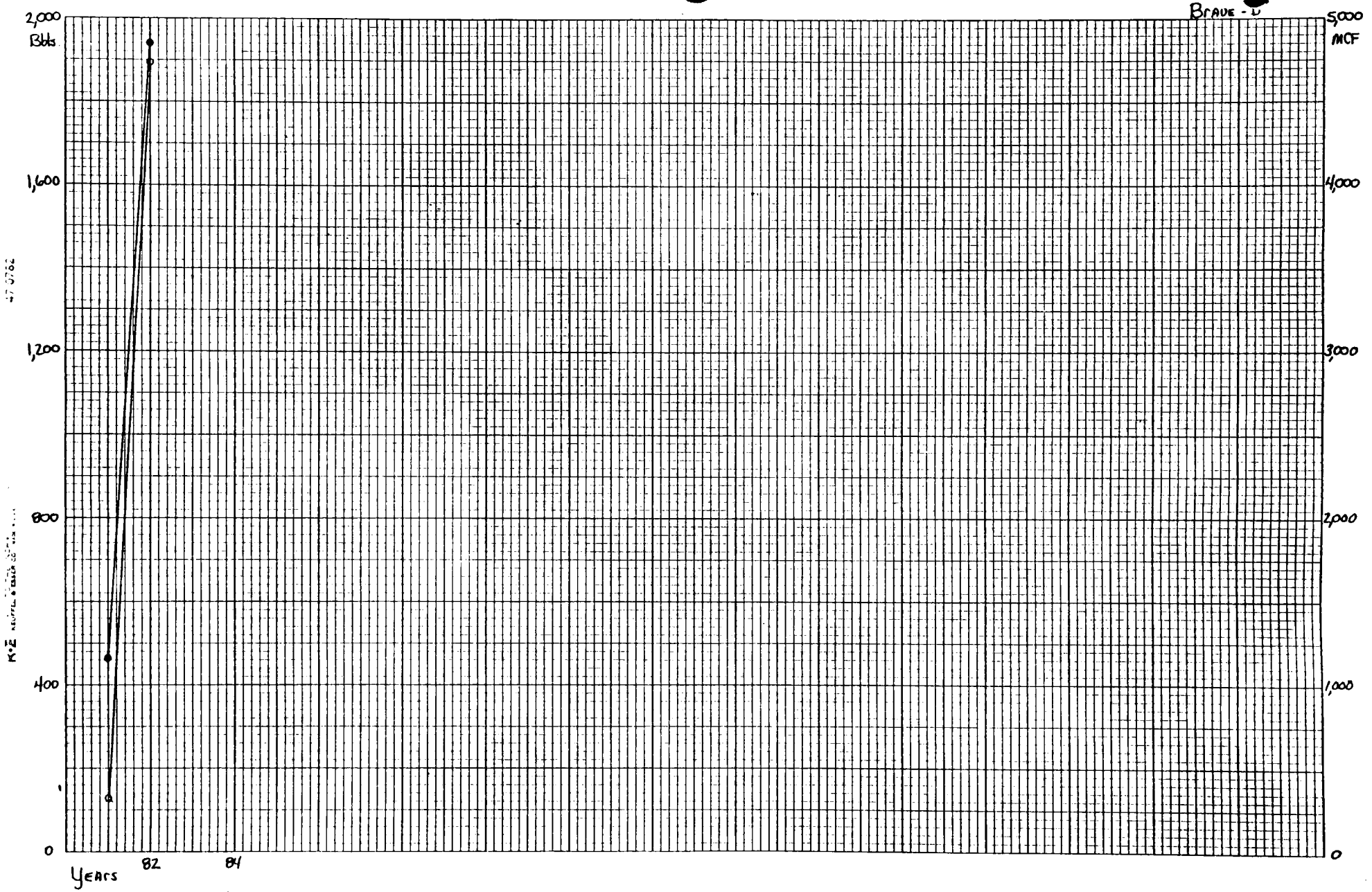

Arapahoe County
3.5
MILLION
Bbls.
2.8
2.1
1.4
0.7
0
300 # wells
240
180
120
60
0
10
MILLION
MCF
8.0
6.0
4.0
2.0
0
GAS
OIL
Number of wells capable of Producing at close of each year
Years
68
70
72
74
76
78
80
82

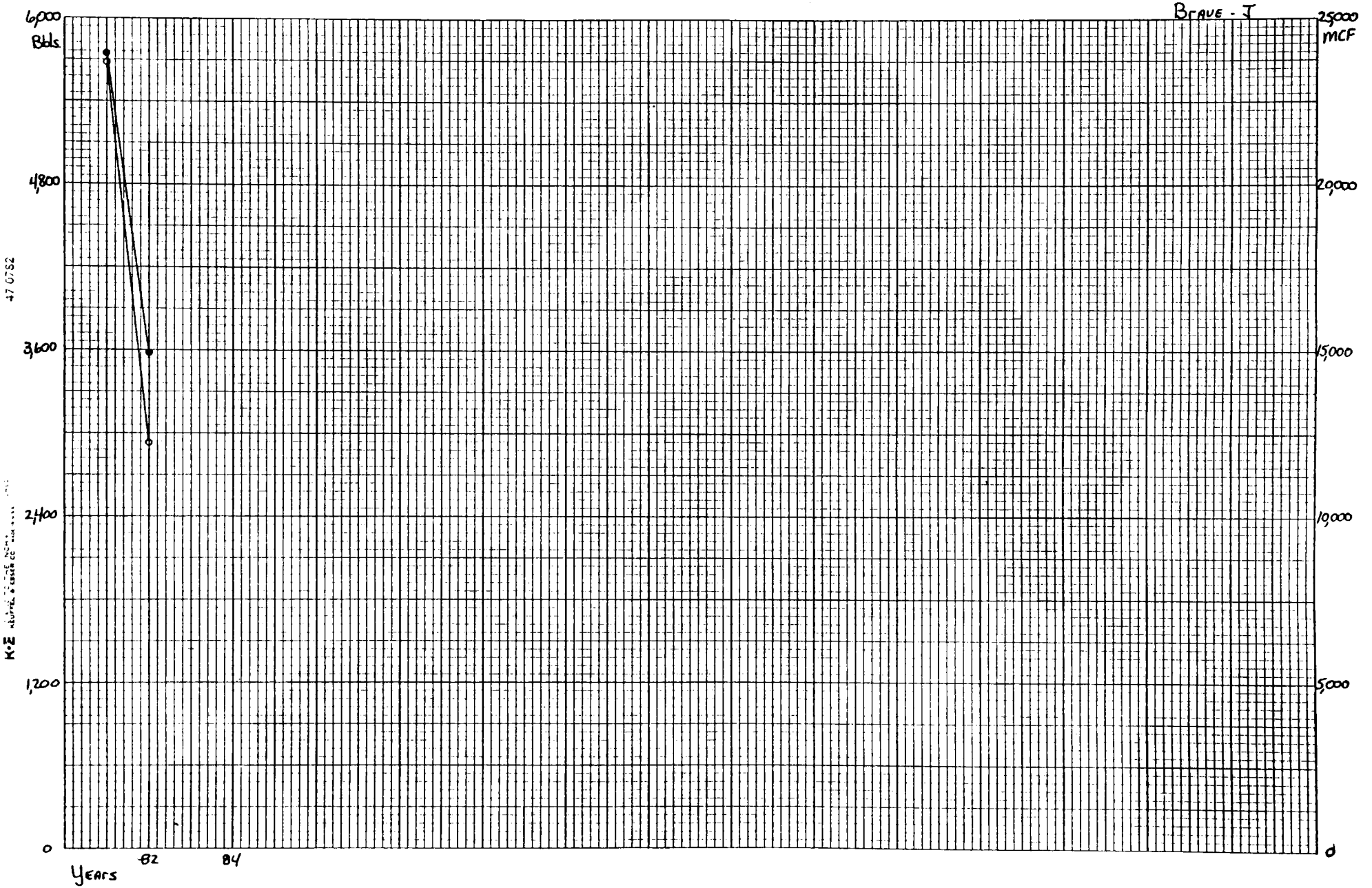

Antler - D
60,000 Bbls.
48,000
36,000
24,000
12,000
0
48,000 MCF
32,000
24,000
16,000
8,000
0
Years
74
76
78
80
82
47 0782
K&E

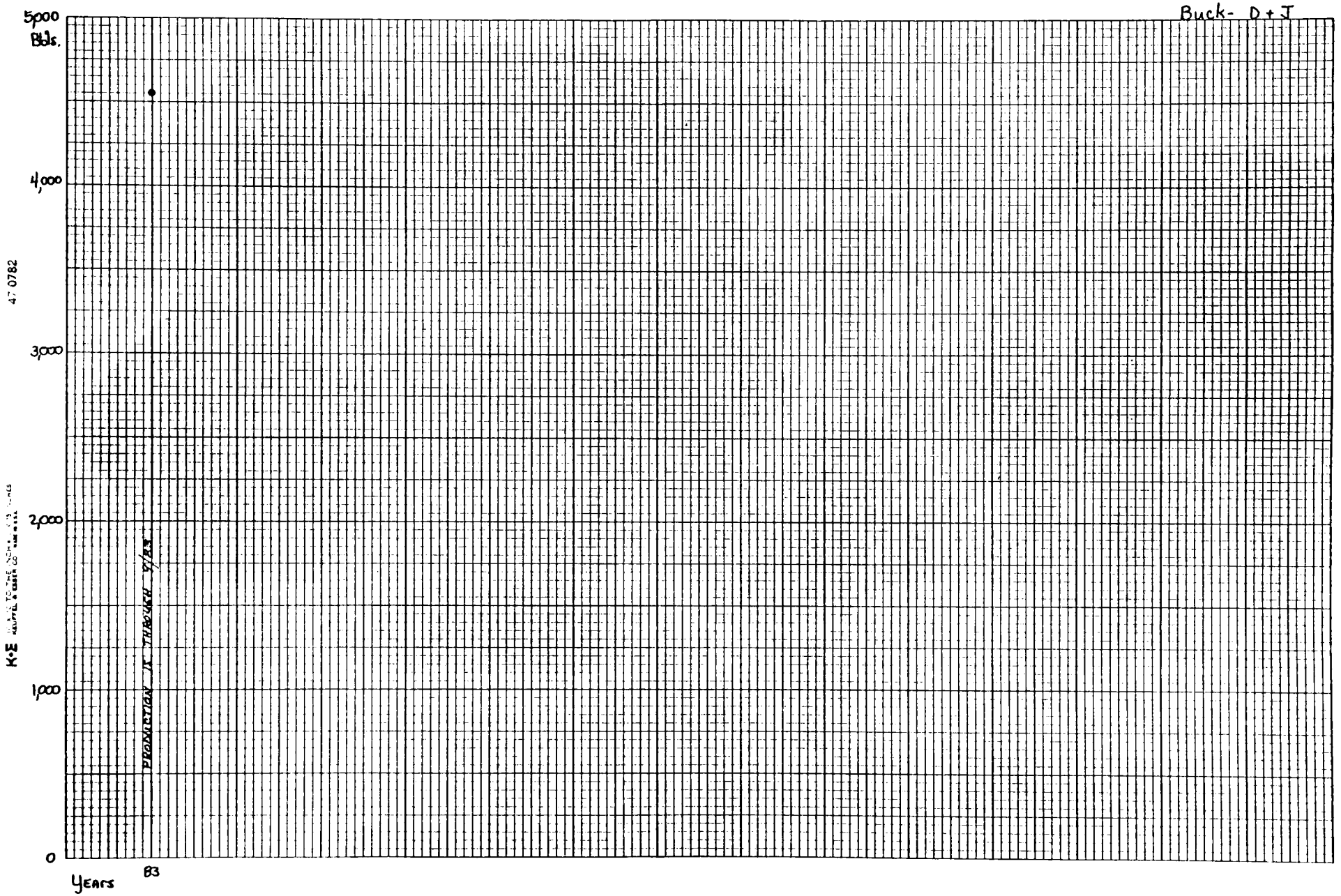

Blackjack - J
300,000 Bbls.
240,000
180,000
120,000
60,000
0
15,000 MCF
12,000
9,000
6,000
3,000
0
68
70
72
74
76
78
80
82
Years

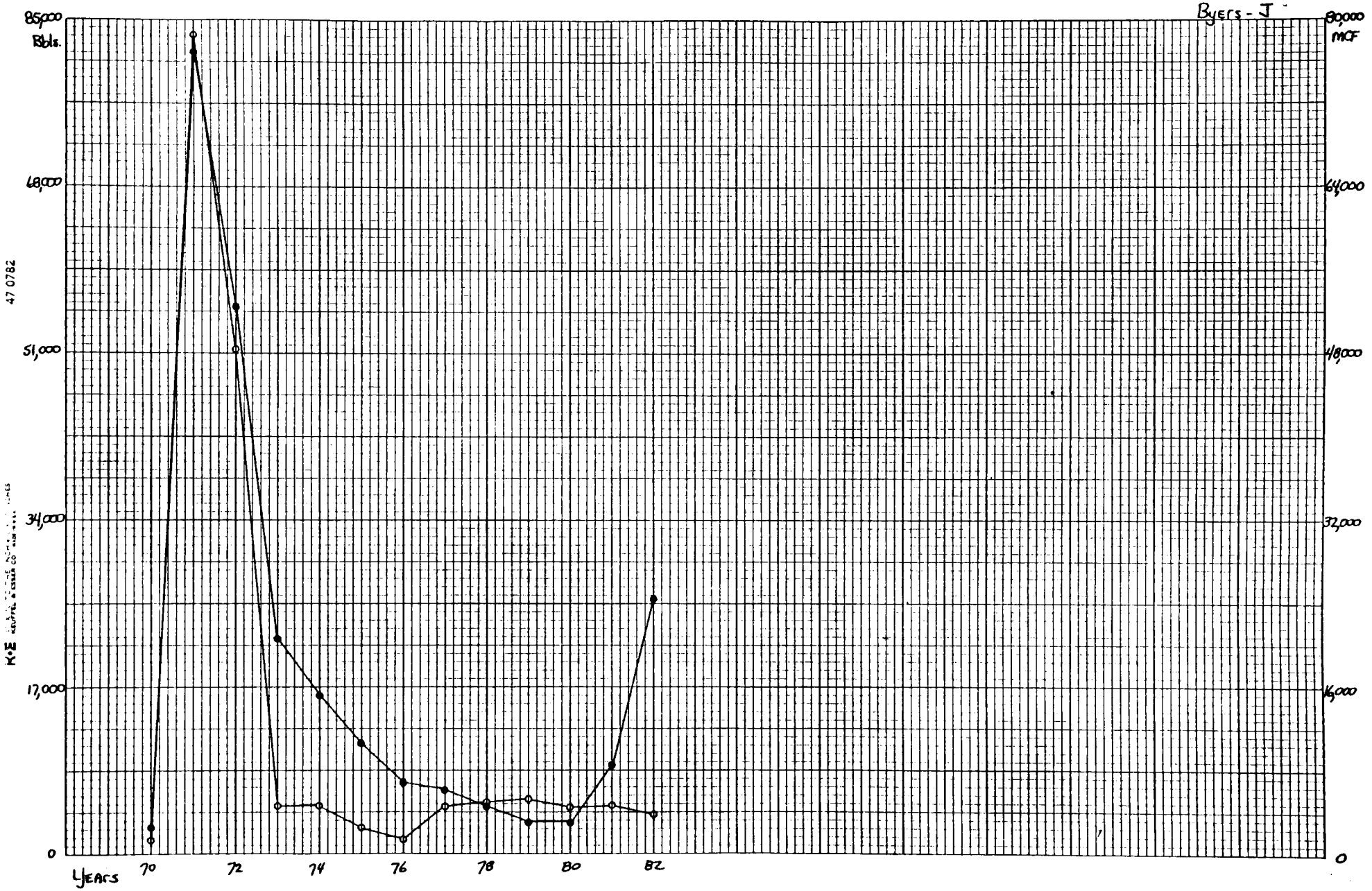

Bombing Range - J
40,000
Bbls.
32,000
24,000
16,000
8,000
0
159,000
MCF
120,000
90,000
60,000
30,000
0
Years
72
74
76
78
80
82

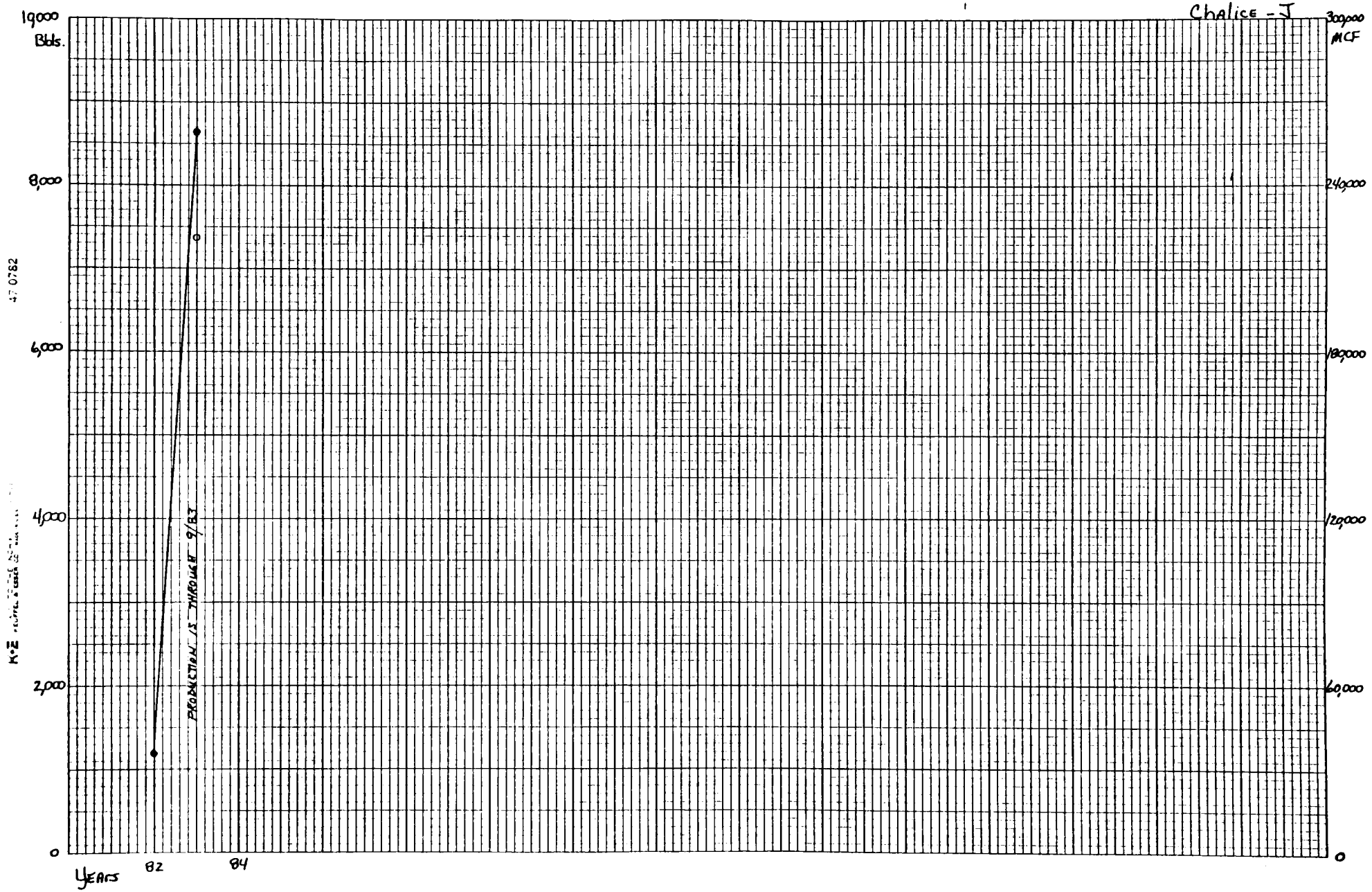

Bombing Range-Niobrara
1,000 Bbls.
800
600
400
200
0
1,000 MCF
800
600
400
200
0
Years
83
85
PRODUCTION IS THROUGH 9/83

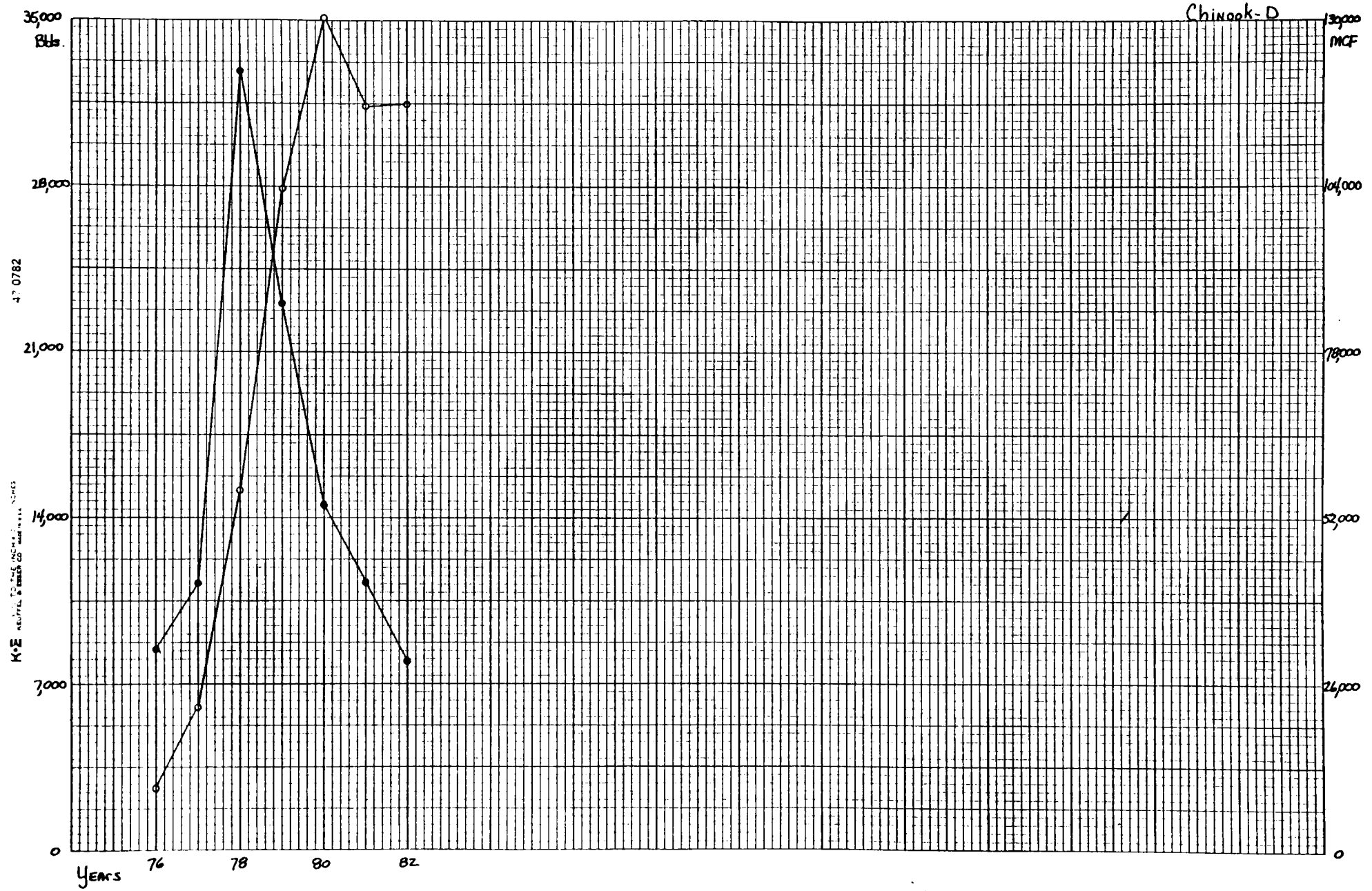

BRAVE - D
2,000
Bbls
1,600
1,200
800
400
1
0
5,000
MCF
4,000
3,000
2,000
1,000
0
82
84
Years

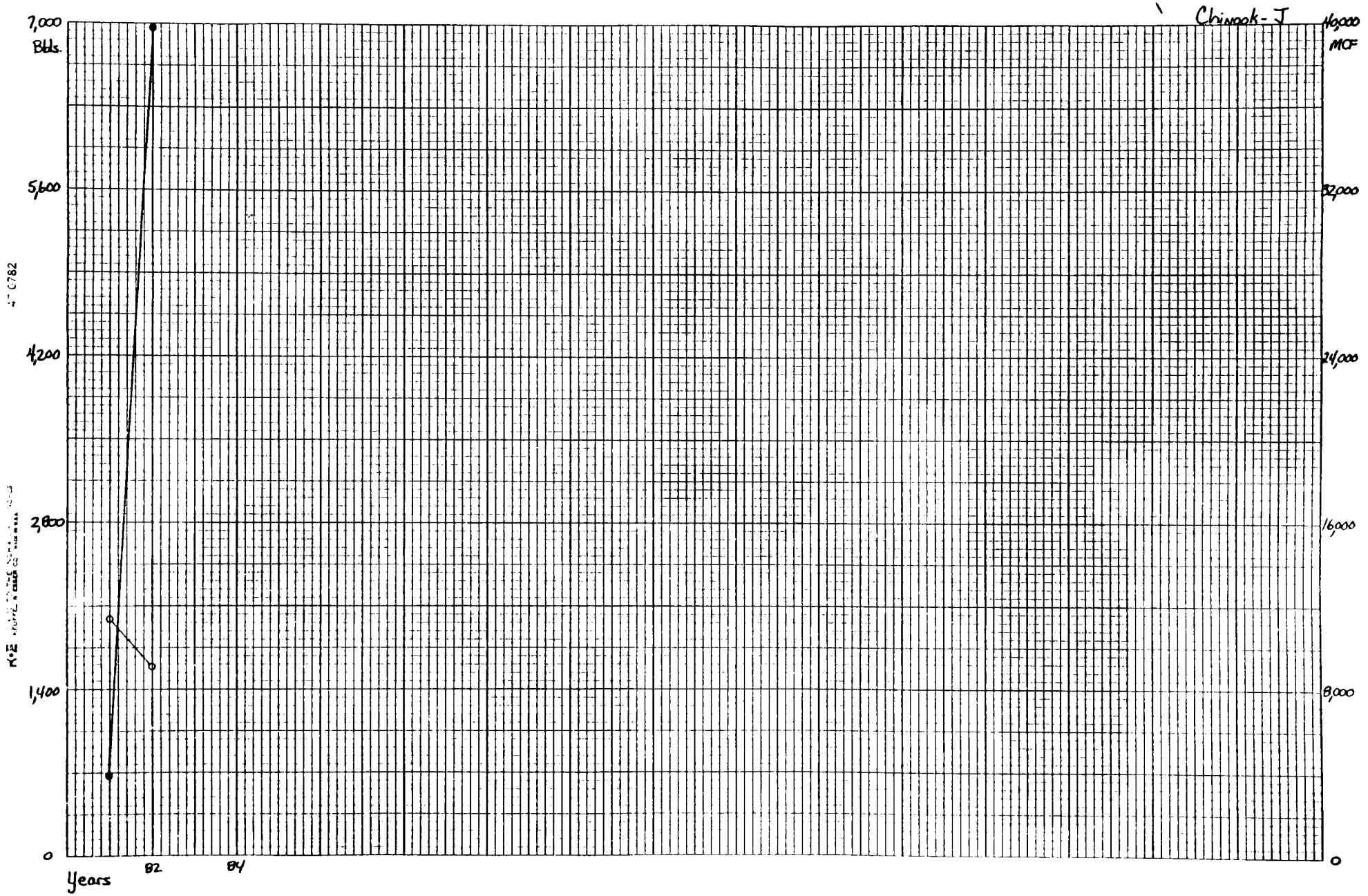

BRAVE - I
6,000
Bbls.
4,800
3,600
2,400
1,200
0
25000
MCF
20,000
15,000
10,000
5,000
0
82
84
YEARS
47 0782
K·E


Buck- D + J
5000
Bbls.
4,000
3,000
2,000
1,000
0
YEARS
83
PRODUCTION IN THROUGH 9/83
47 0782
K·E

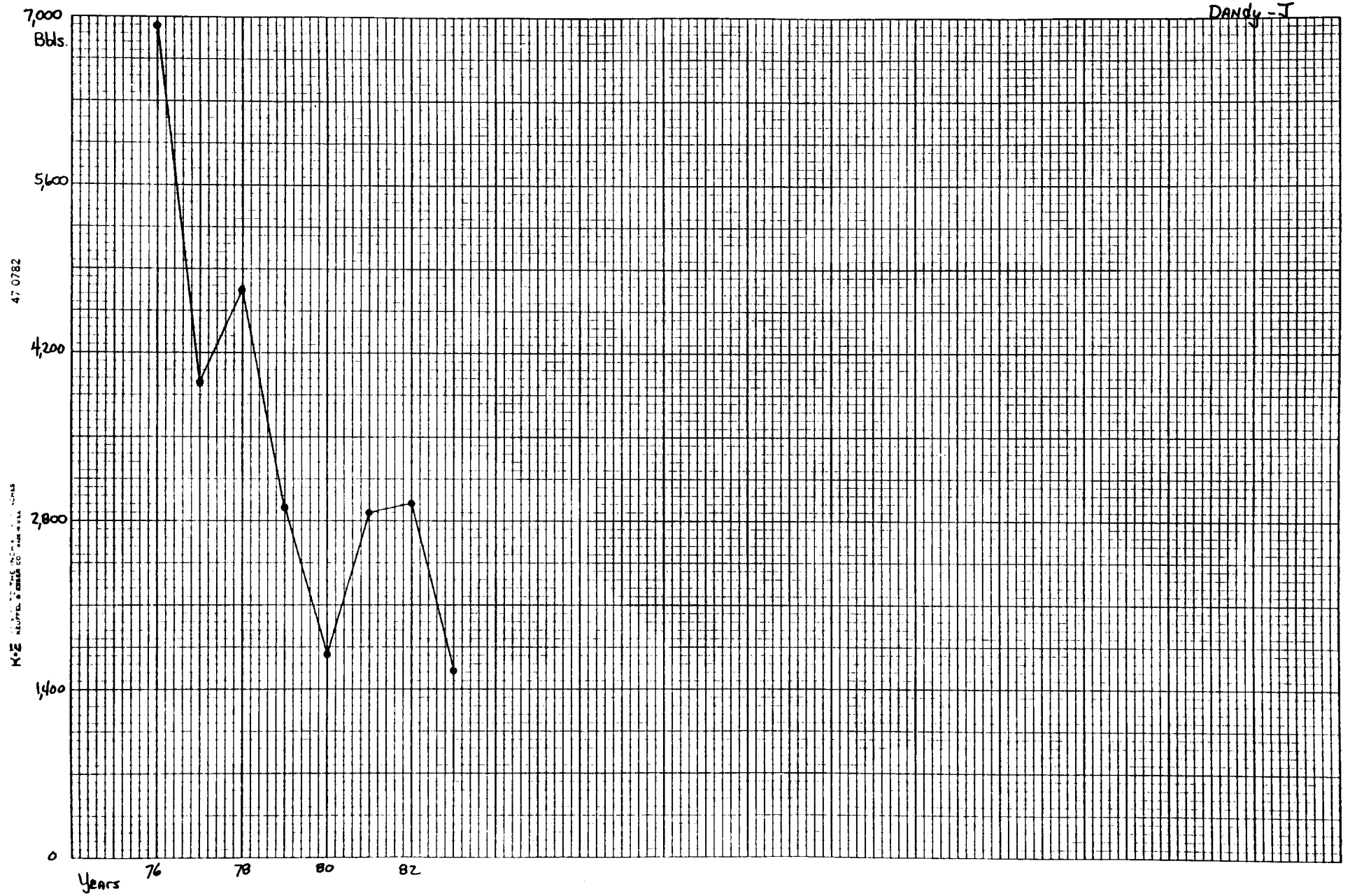

Byers - J
85,000
Bbls.
68,000
51,000
34,000
17,000
0
80,000
MCF
64,000
48,000
32,000
16,000
0
YEARS
70
72
74
76
78
80
82
47 0782
K+E

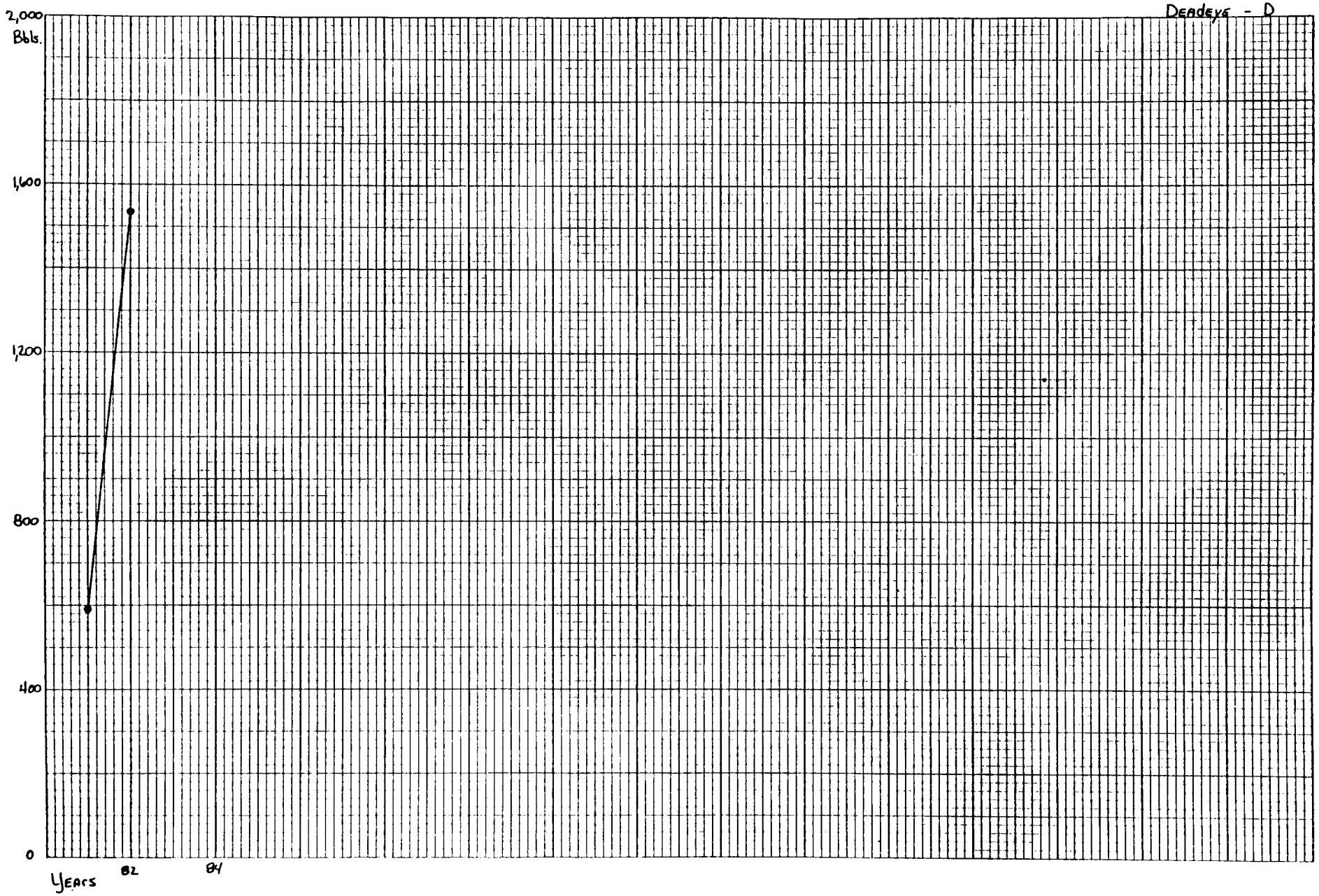

Chalice - J
19000
Bbls.
8,000
6,000
4,000
2,000
0
300,000
MCF
240,000
180,000
120,000
60,000
0
PRODUCTION TO THROUGH 9/83
82
84
YEARS

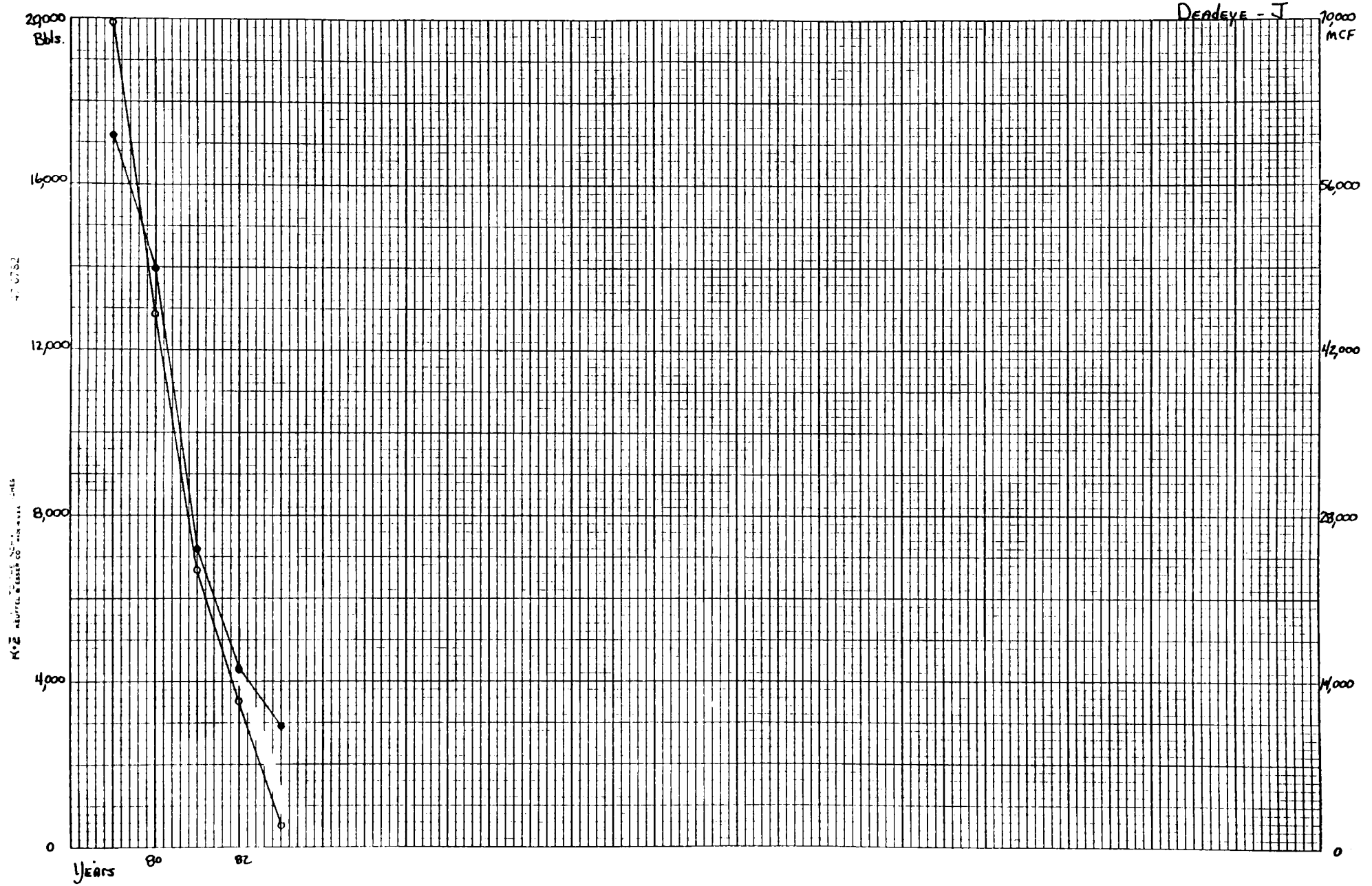

Chinook-D
35,000
Bbls.
28,000
21,000
14,000
7,000
0
130,000
MCF
104,000
78,000
52,000
26,000
0
Years
76
78
80
82
47 0782
K&E

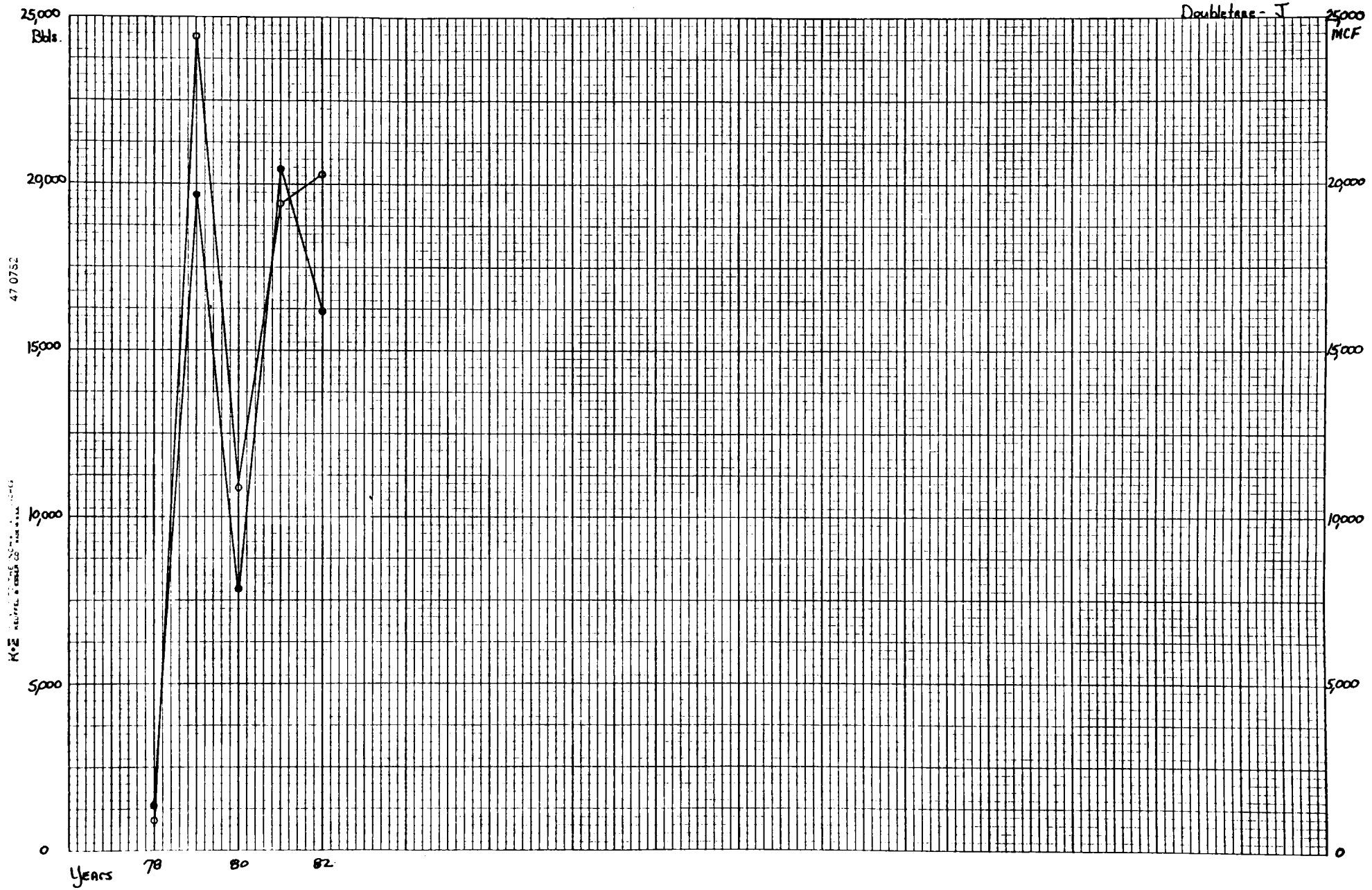

Chinook-J
7,000
Bbls.
5,600
4,200
2,800
1,400
0
Years
82
84
40,000
MCF
32,000
24,000
16,000
8,000
0

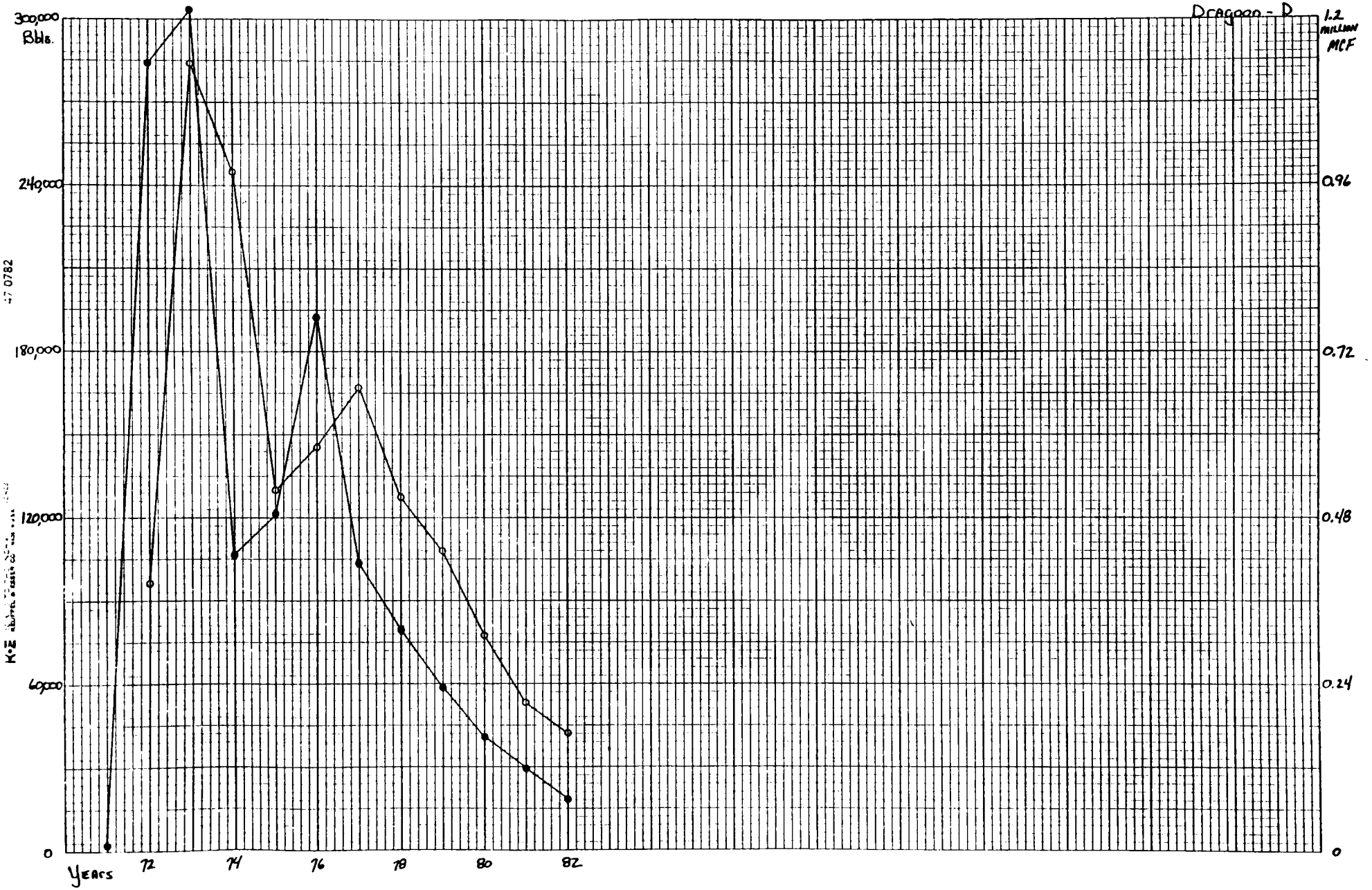
DANDY - J

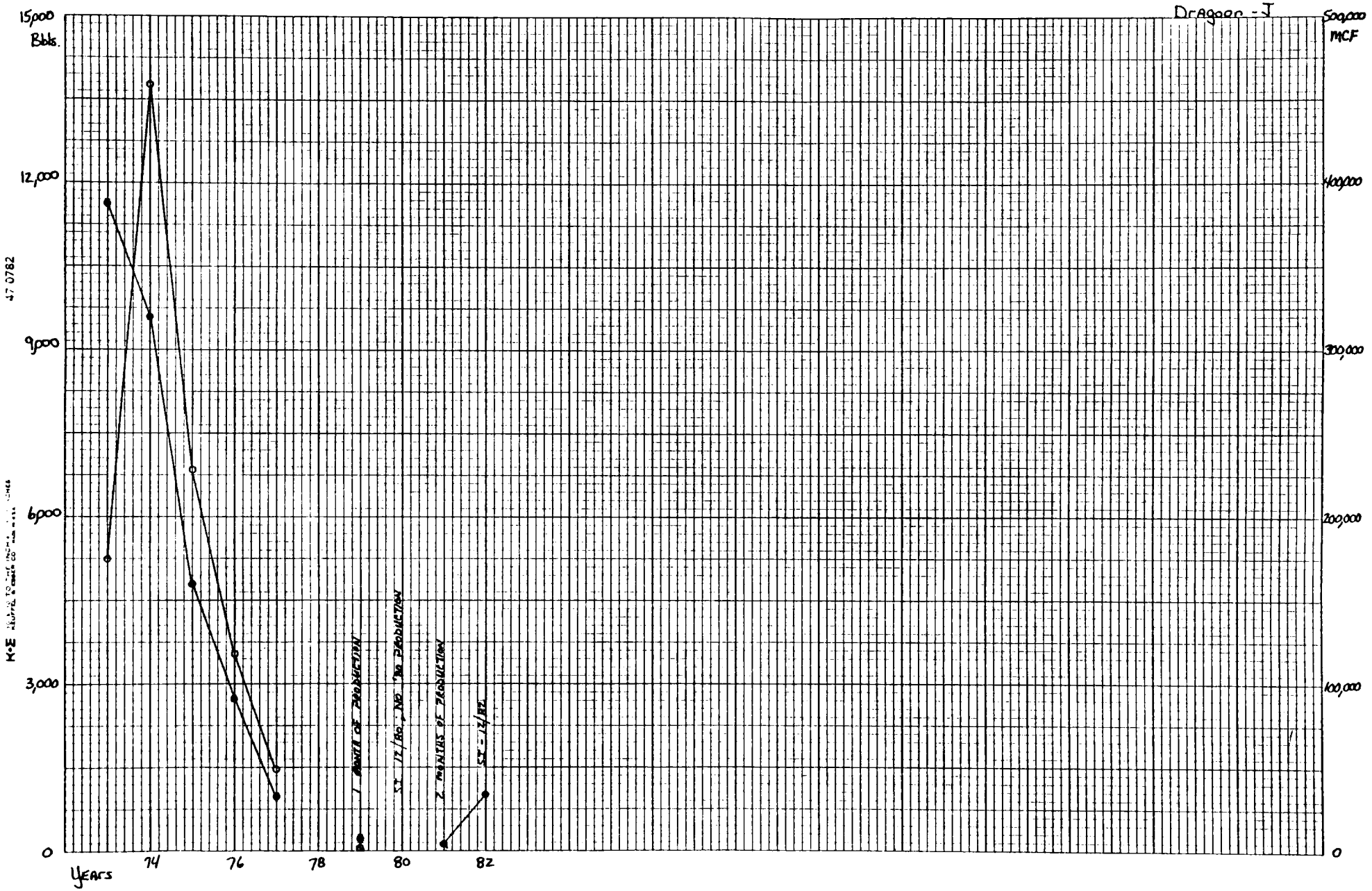


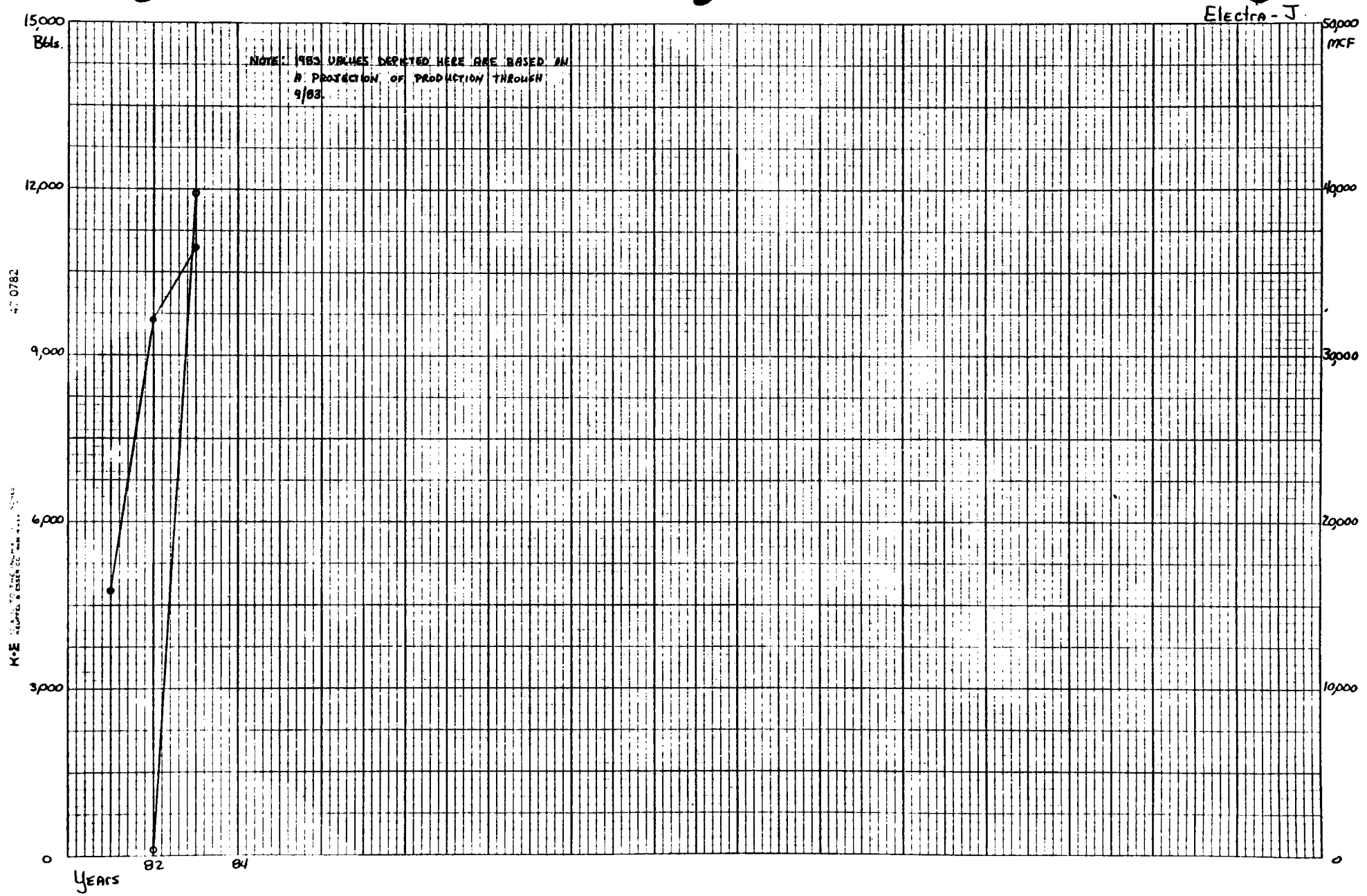

Deadeye - D
2,000
Bbls.
1,600
1,200
800
400
0
Years
82
84

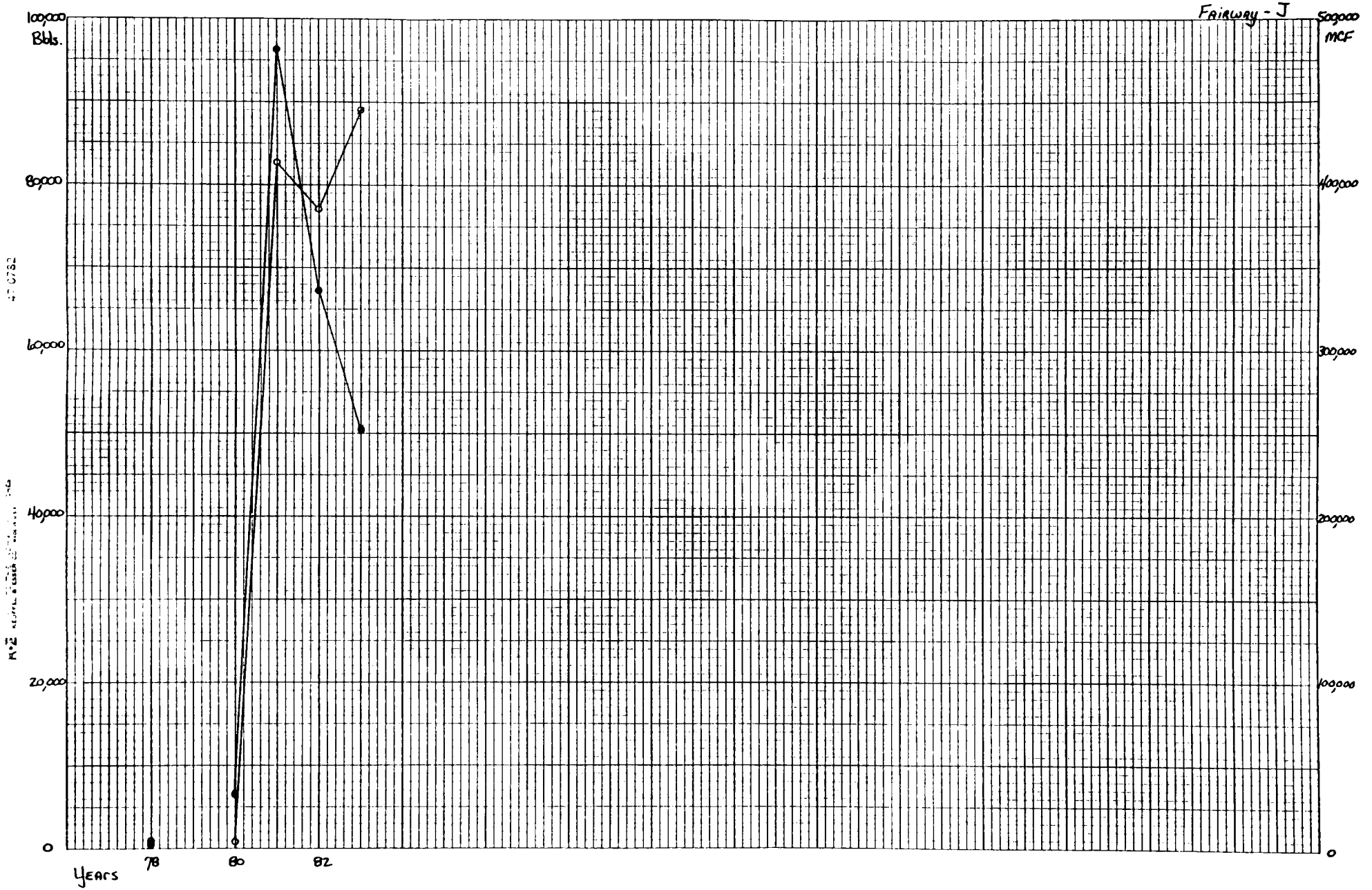

DEADEYE - J
20,000 Bbls.
16,000
12,000
8,000
4,000
0
70,000 MCF
56,000
42,000
28,000
14,000
0
Years
80
82

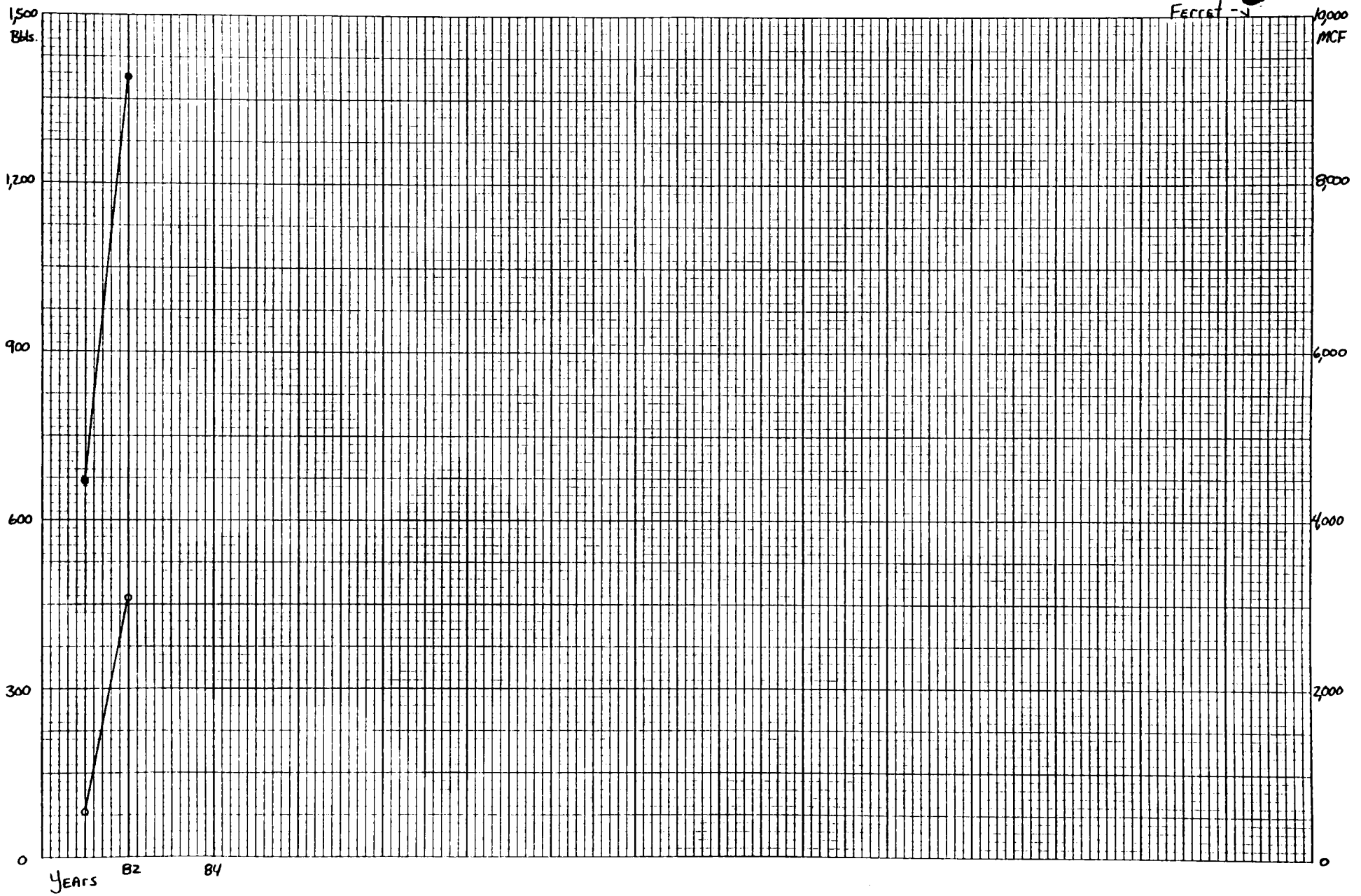

Doubletree - J
25,000
Bbls.
25000
MCF
20,000
20,000
15,000
15,000
10,000
10,000
5,000
5,000
0
0
Years
78
80
82

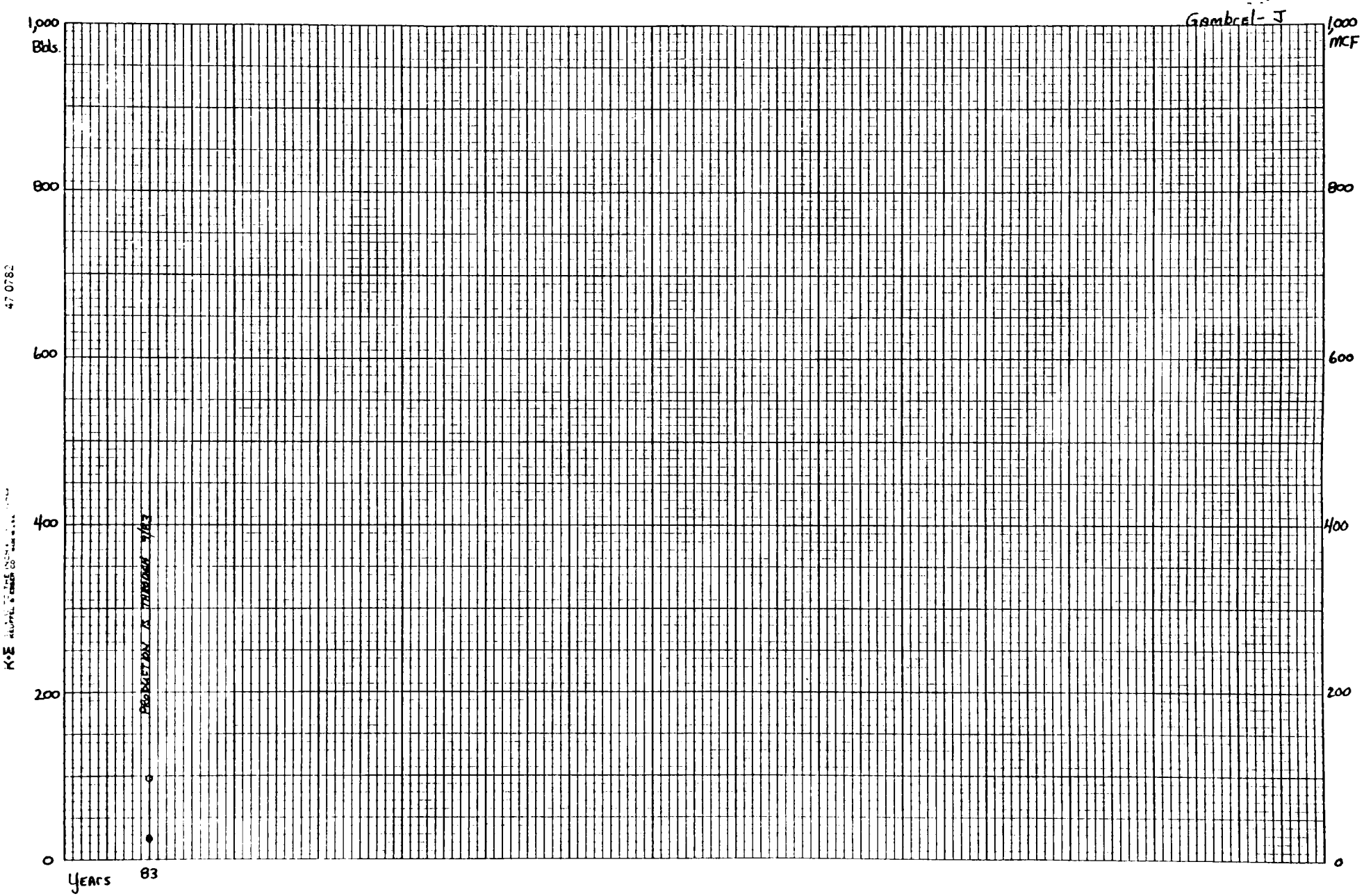

Dragon - D
300,000 Bbls.
240,000
180,000
120,000
60,000
0
1.2 million MCF
0.96
0.72
0.48
0.24
0
Years
72
74
76
78
80
82

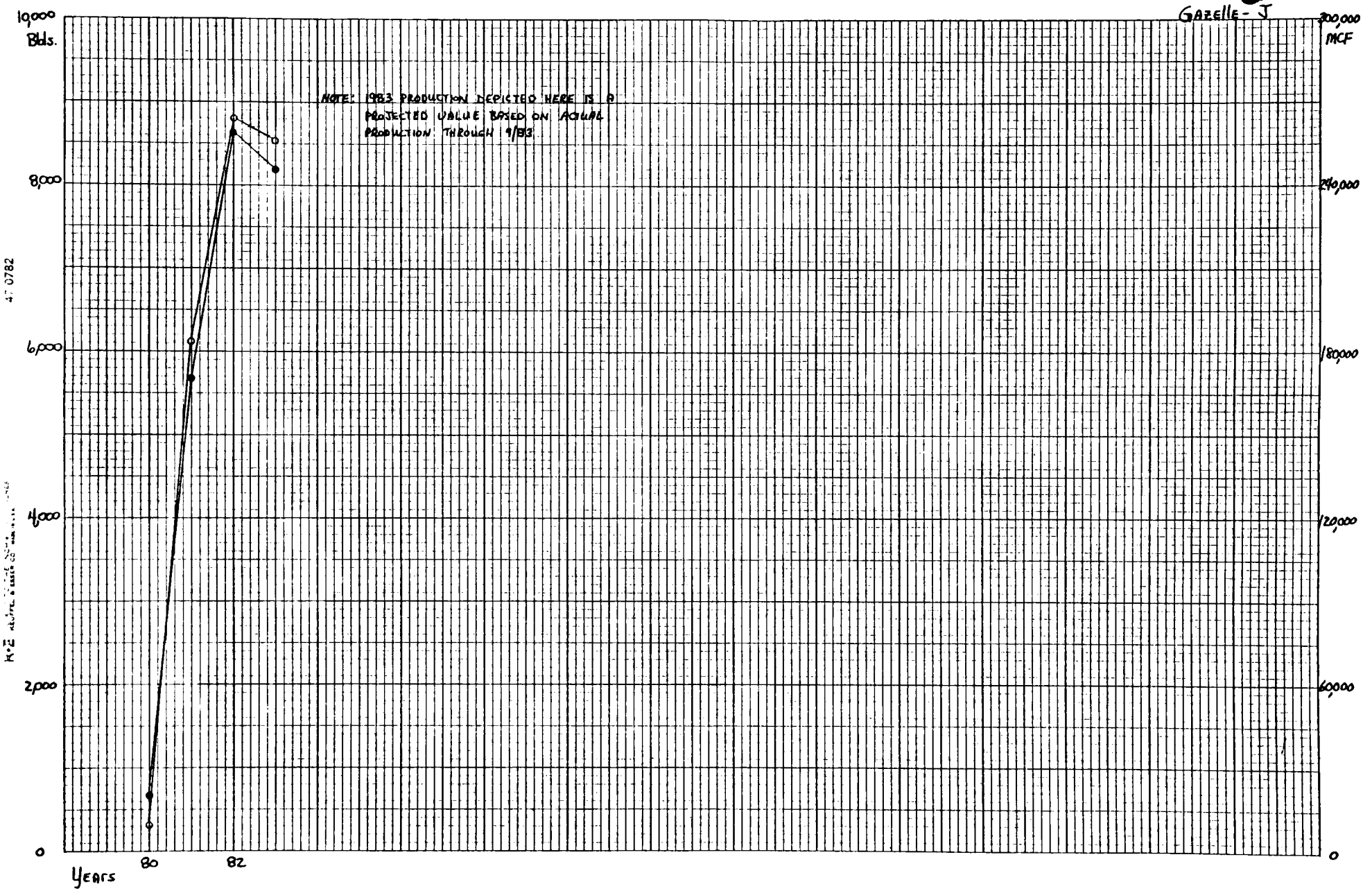

Dragoon - J
15,000
Bbls.
12,000
9,000
6,000
3,000
0
500,000
MCF
400,000
300,000
200,000
100,000
0
Years
74
76
78
80
82
1 MONTH OF PRODUCTION
12/80 - 1/81 NO PRODUCTION
2 MONTHS OF PRODUCTION
12/81 - 1/82
47 0782
K+E

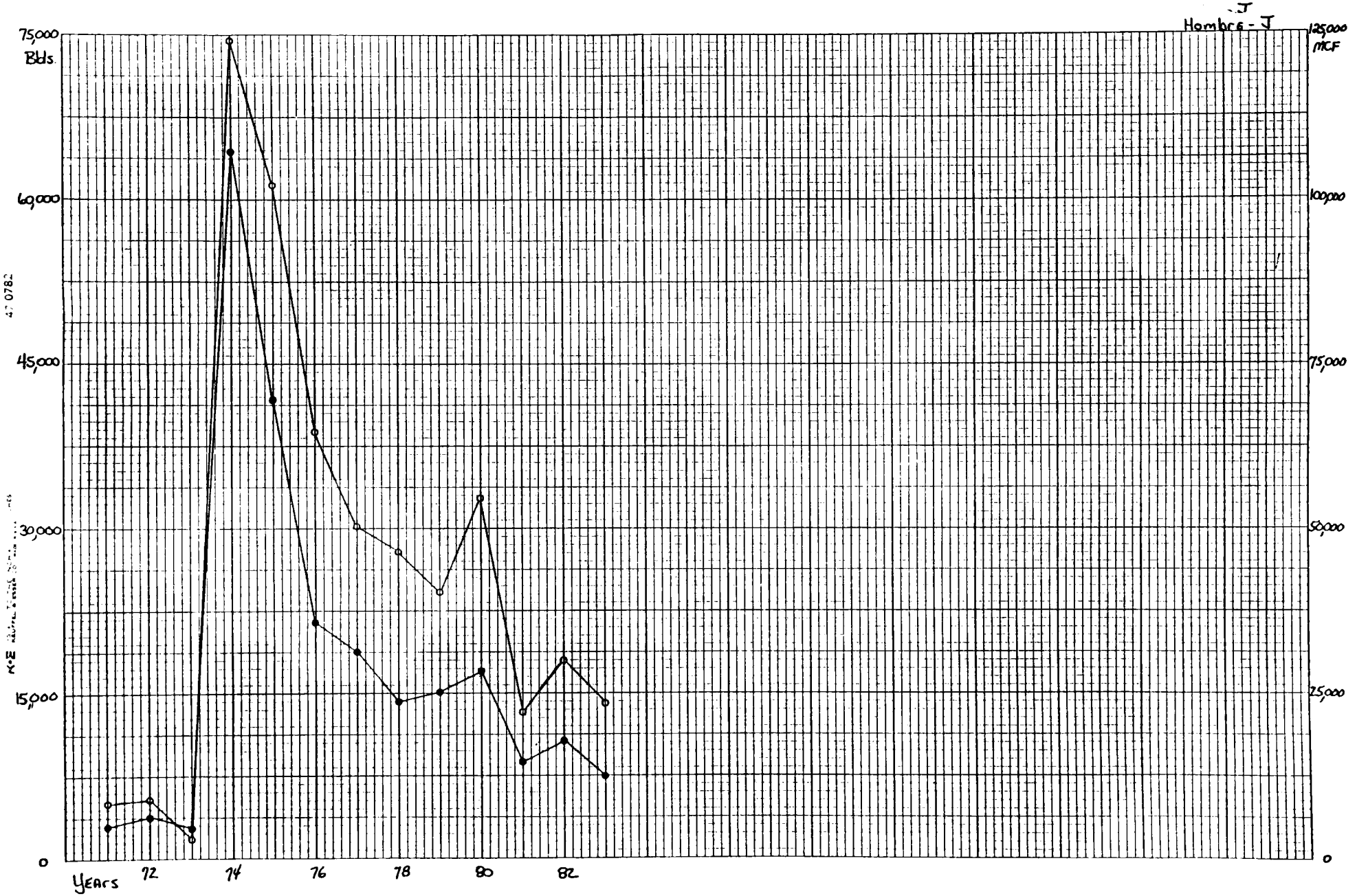

Electra - J
15,000 Bbls.
12,000
9,000
6,000
3,000
0
50,000 MCF
40,000
30,000
20,000
10,000
0
NOTE: 1983 VALUES DEPICTED HERE ARE BASED ON A PROJECTION OF PRODUCTION THROUGH 9/83.
82
84
YEARS
47 0782
K+E

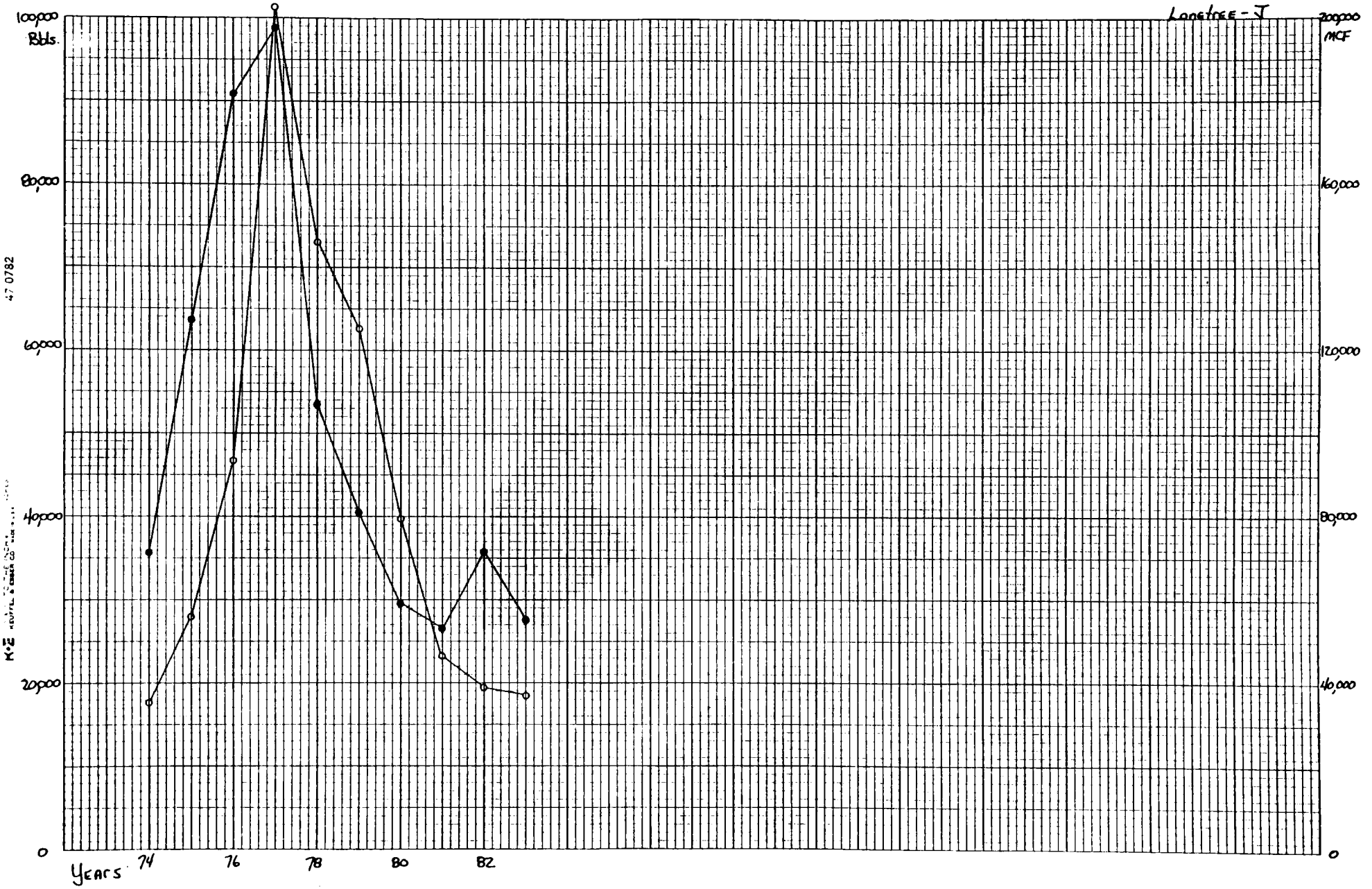

Fairway - J
100,000 Bbls.
80,000
60,000
40,000
20,000
0
500,000 MCF
400,000
300,000
200,000
100,000
0
78
80
82
Years

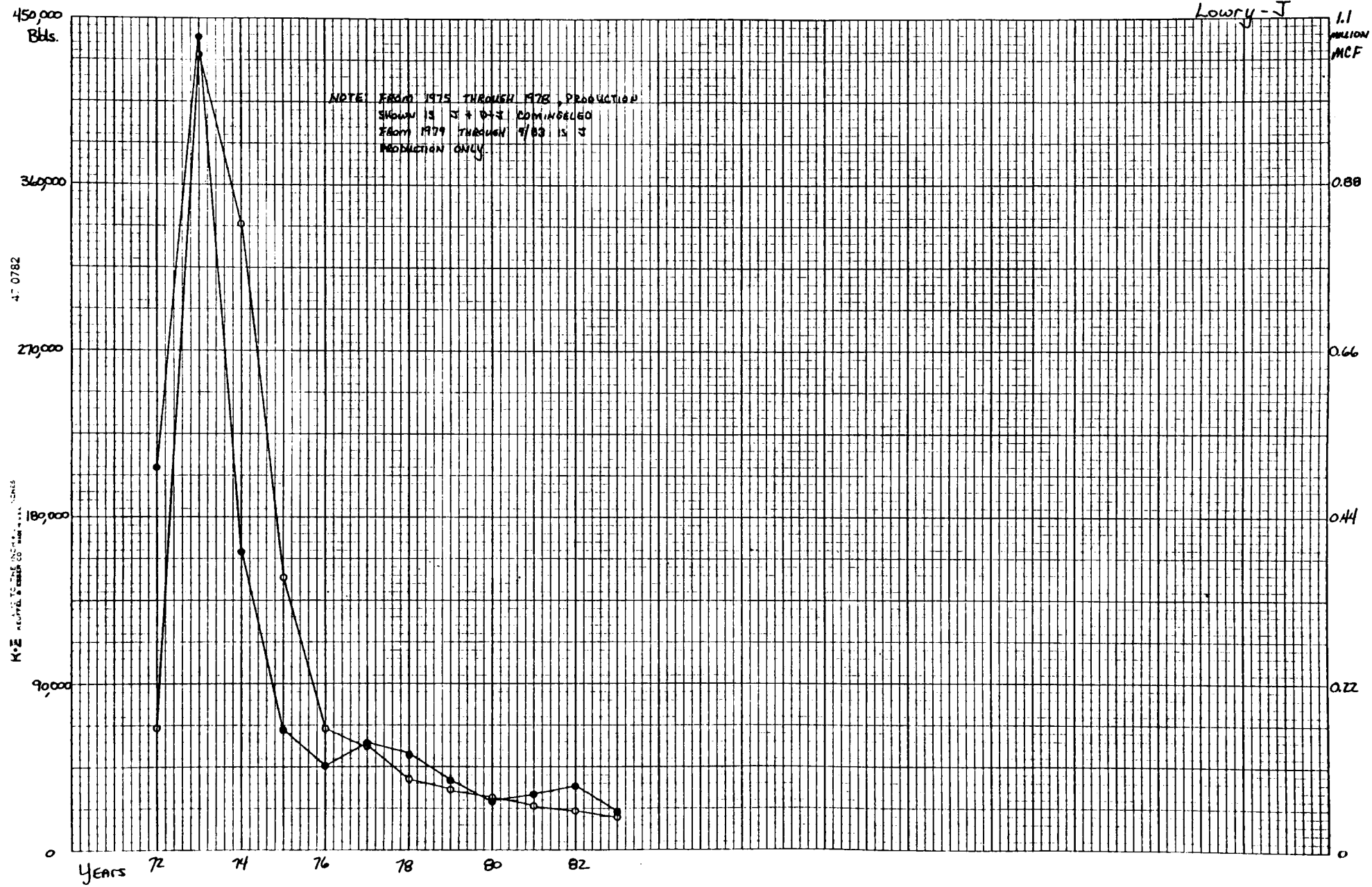

1,500
Bbls.
1,200
900
600
300
0
Years
82
84
Fercst →
10,000
MCF
8,000
6,000
4,000
2,000
0

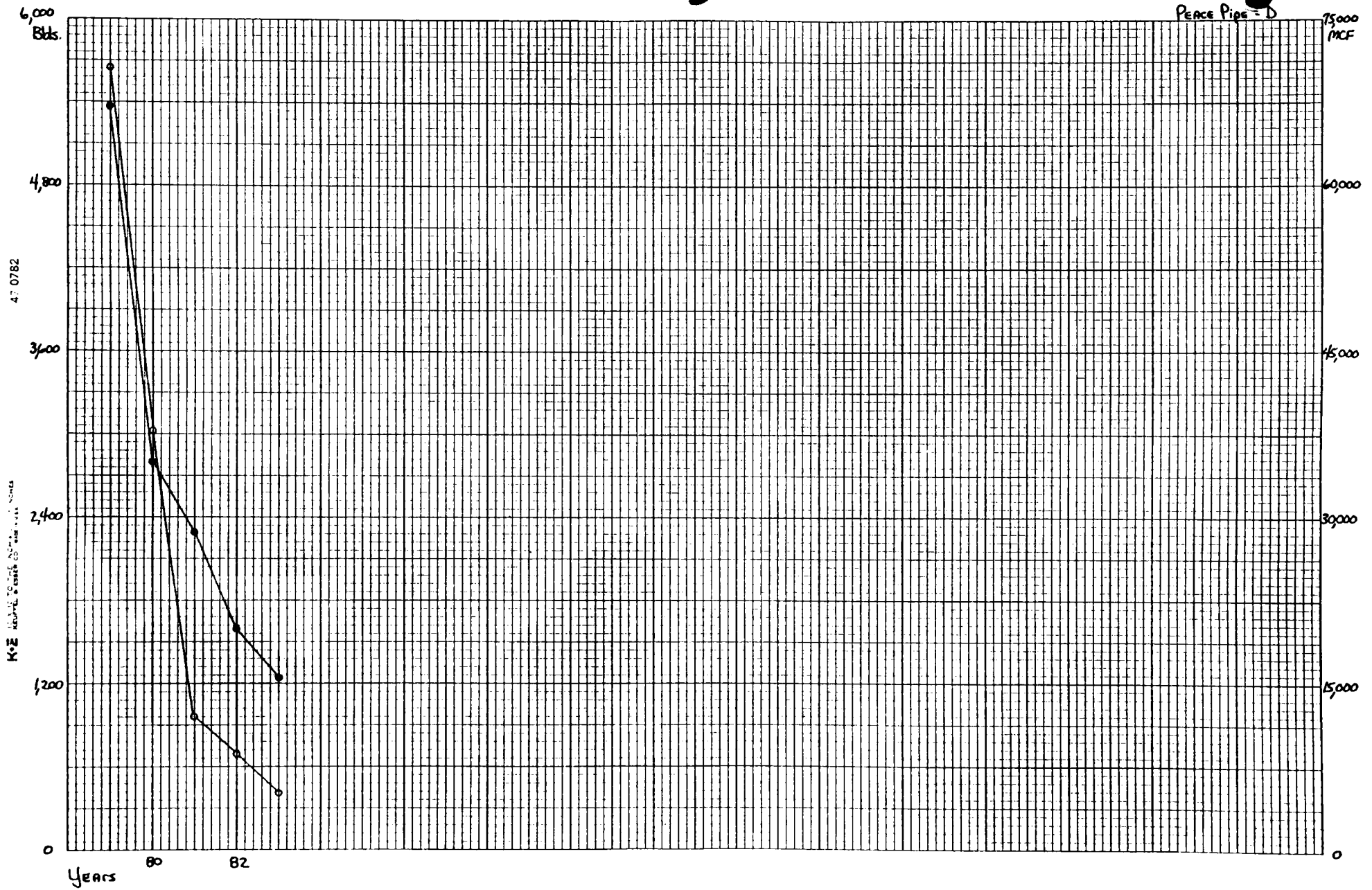

Gambrel-J
1,000 Bbls.
800
600
400
200
0
1,000 MCF
800
600
400
200
0
Years
83
47 0782

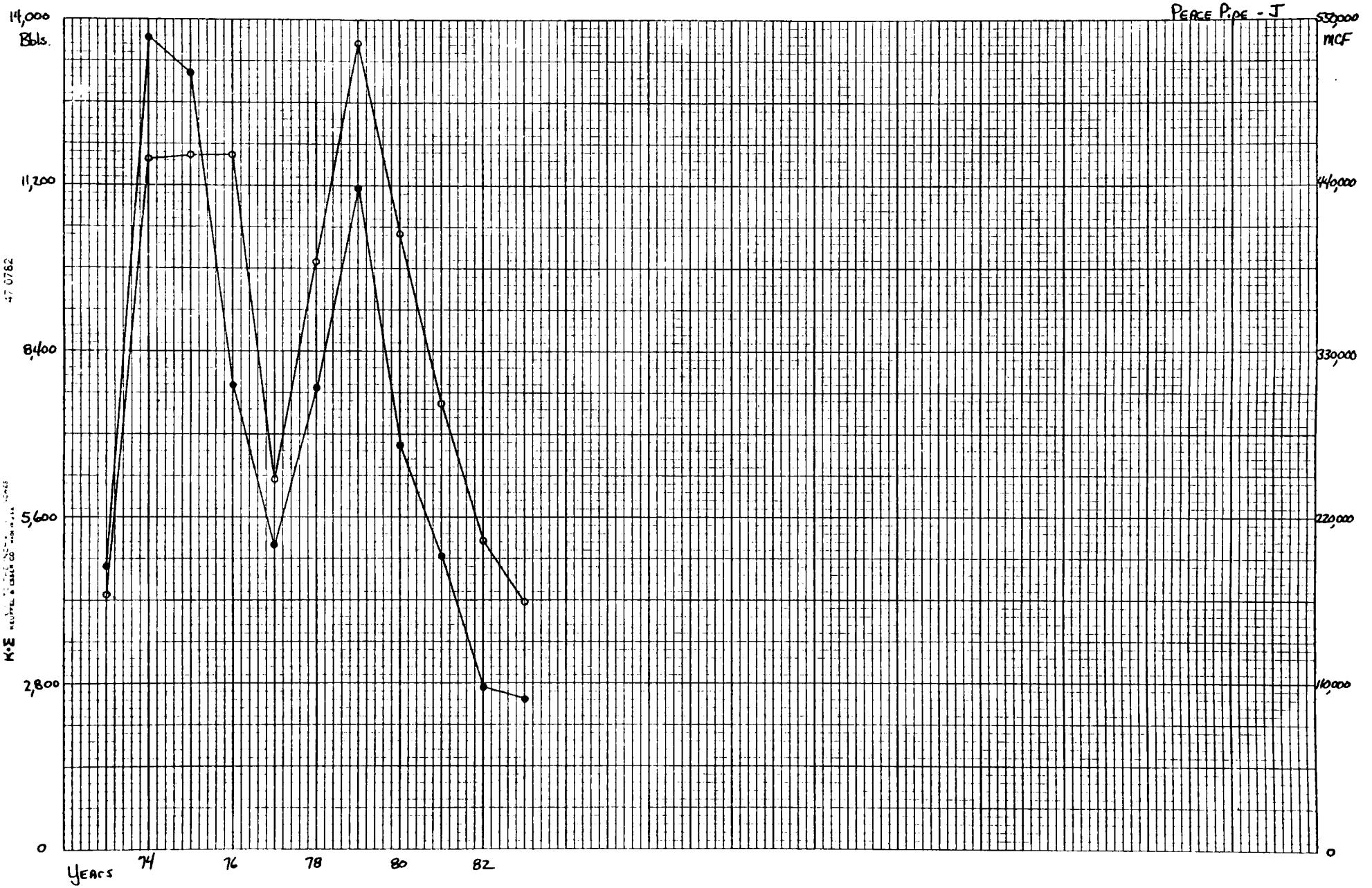

GAZELLE - J
10,000
Bbls.
8,000
6,000
4,000
2,000
0
300,000
MCF
240,000
180,000
120,000
60,000
0
NOTE: 1983 PRODUCTION DEPICTED HERE IS A PROJECTED VALUE BASED ON ACTUAL PRODUCTION THROUGH 9/83
80
82
Years

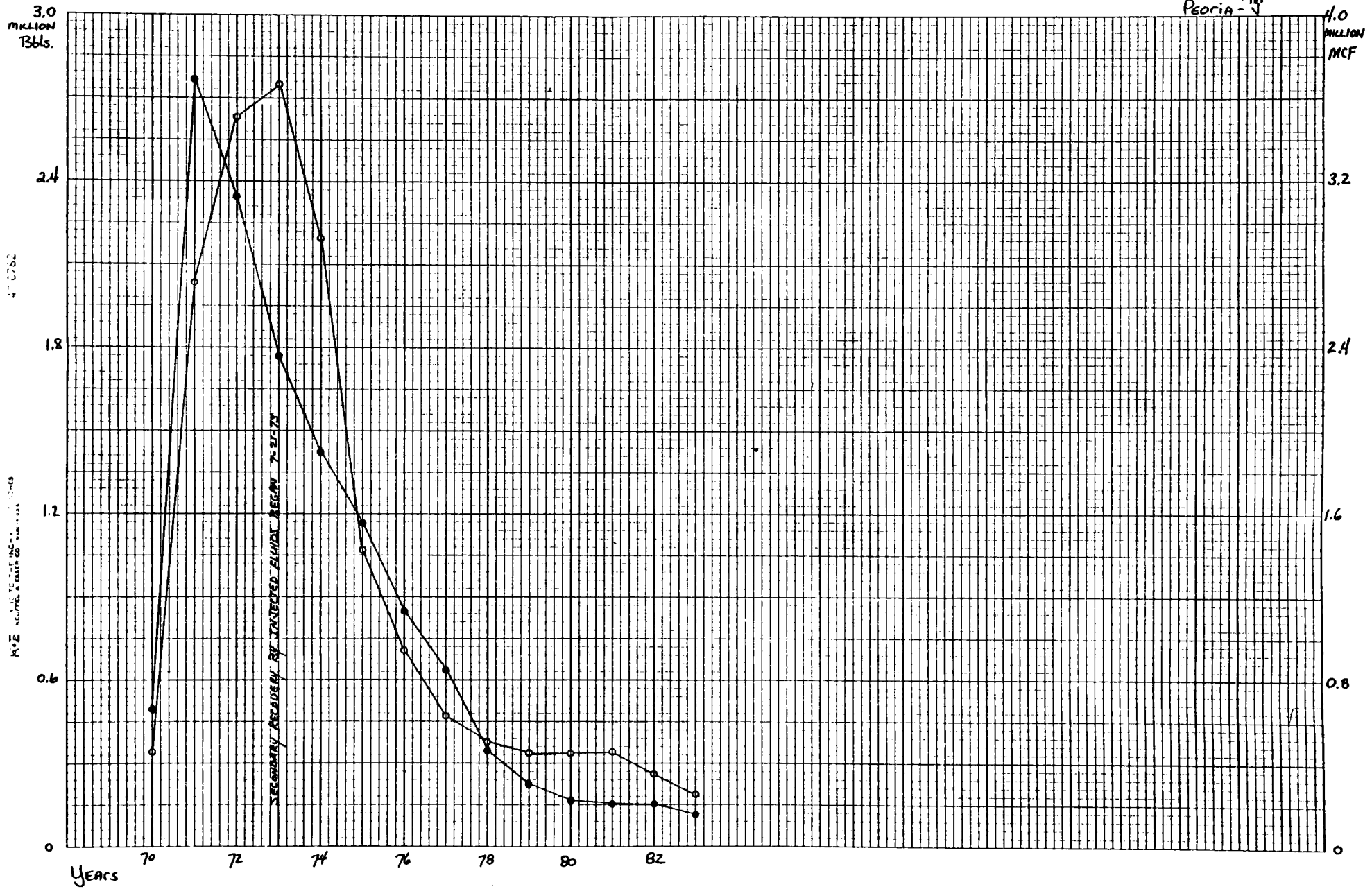

Hombre - J
75,000
Bbls.
60,000
45,000
30,000
15,000
0
125,000
MCF
100,000
75,000
50,000
25,000
0
Years
72
74
76
78
80
82


Longtree - J
100,000
Bbls.
80,000
60,000
40,000
20,000
0
200,000
MCF
160,000
120,000
80,000
40,000
0
Years
74
76
78
80
82
47 0782
K+E

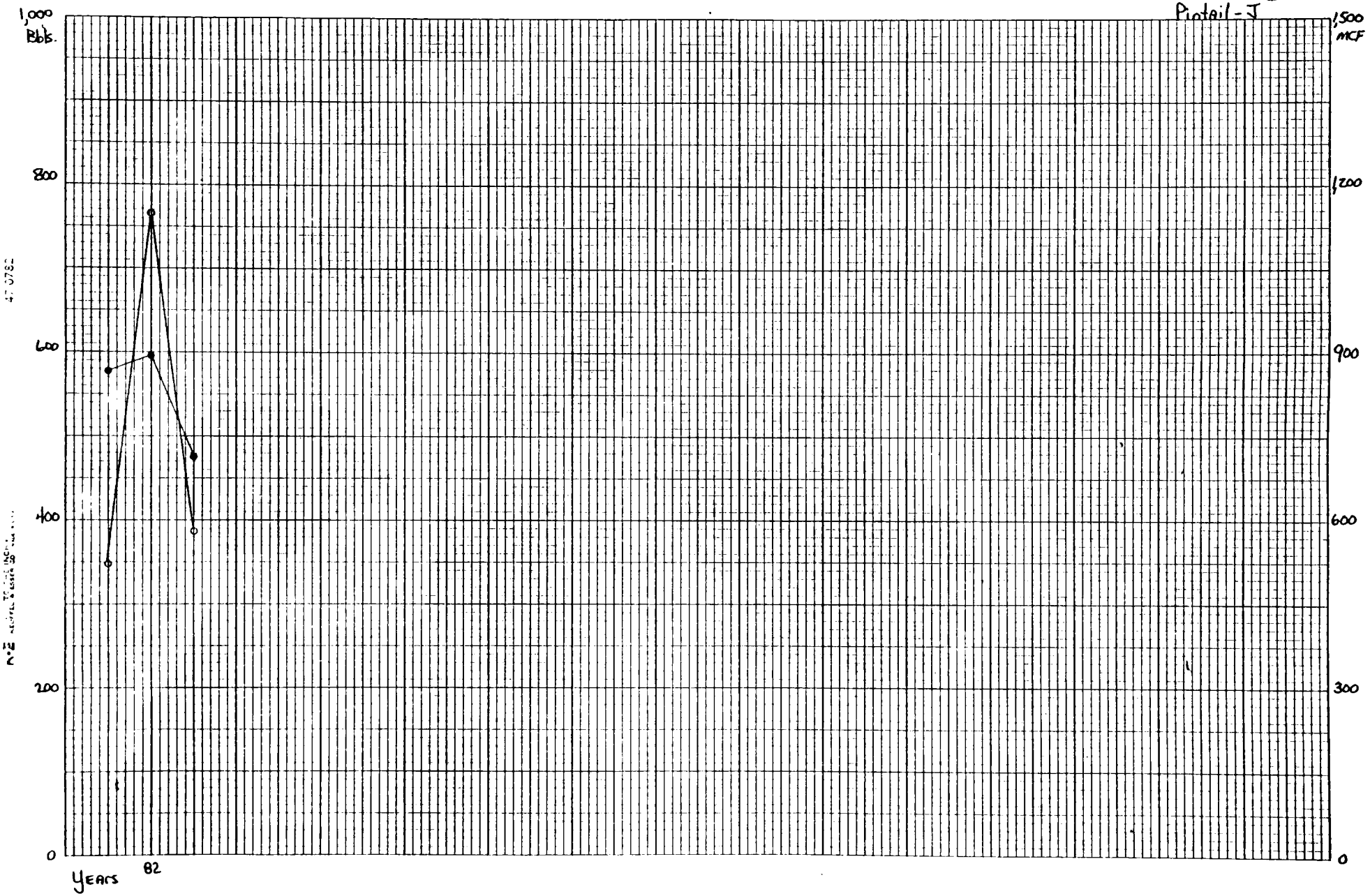

Lowry - J
450,000 Bbls.
360,000
270,000
180,000
90,000
0
1.1 MILLION MCF
0.88
0.66
0.44
0.22
0
NOTE: FROM 1975 THROUGH 1978, PRODUCTION SHOWN IS A + D+Z COMMINGELED
FROM 1979 THROUGH 9/83 IS A PRODUCTION ONLY.
47 0782
K+E
YEARS 72 74 76 78 80 82

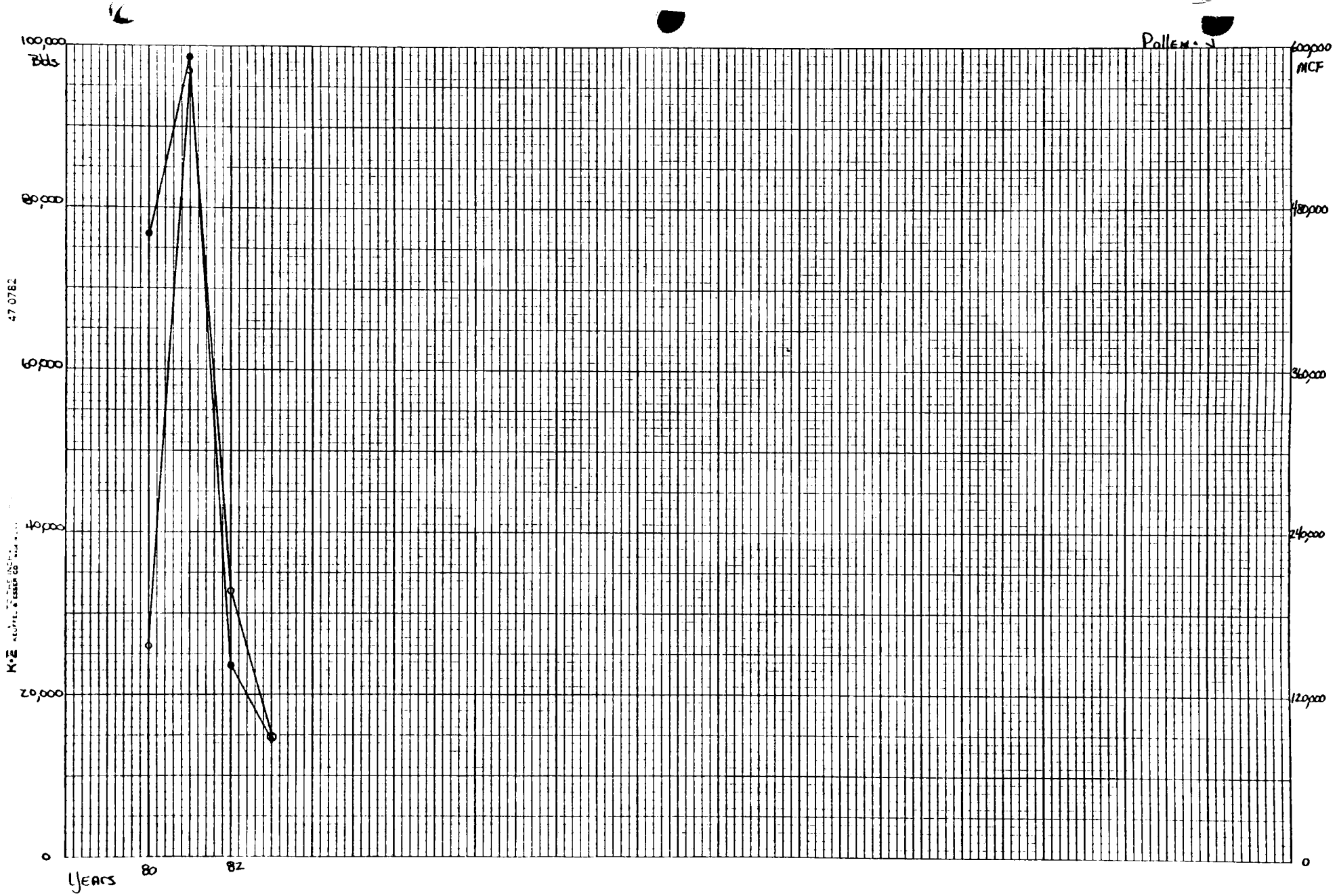

PEACE PIPE - D
6,000 Bbls.
4,800
3,600
2,400
1,200
0
75,000 MCF
60,000
45,000
30,000
15,000
0
80
82
Years
47 0782
K+E

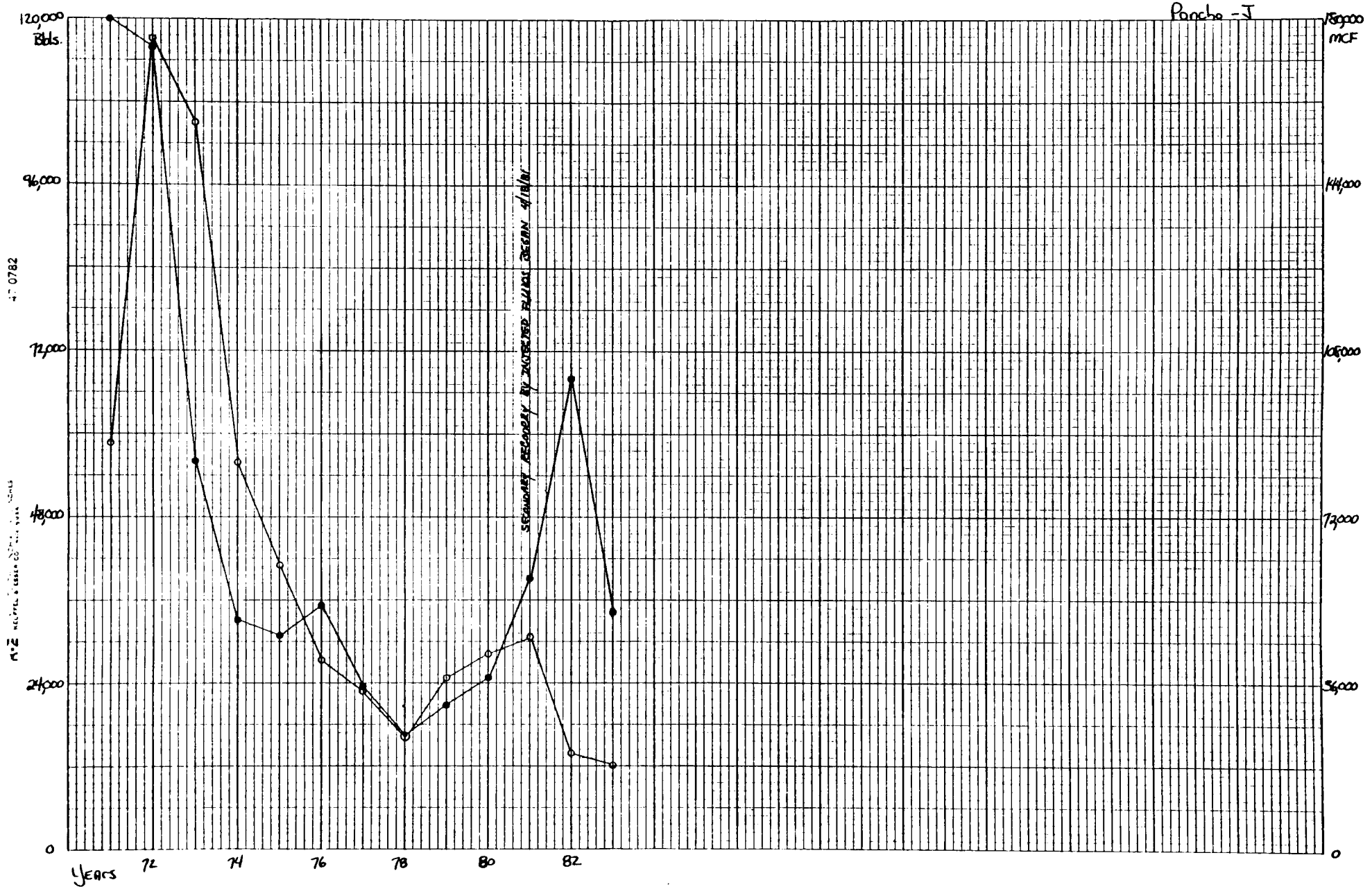

PEACE PIPE - J
14,000
Bbls.
11,200
8,400
5,600
2,800
0
550,000
MCF
440,000
330,000
220,000
110,000
0
YEARS
74
76
78
80
82
47 0762
K+E

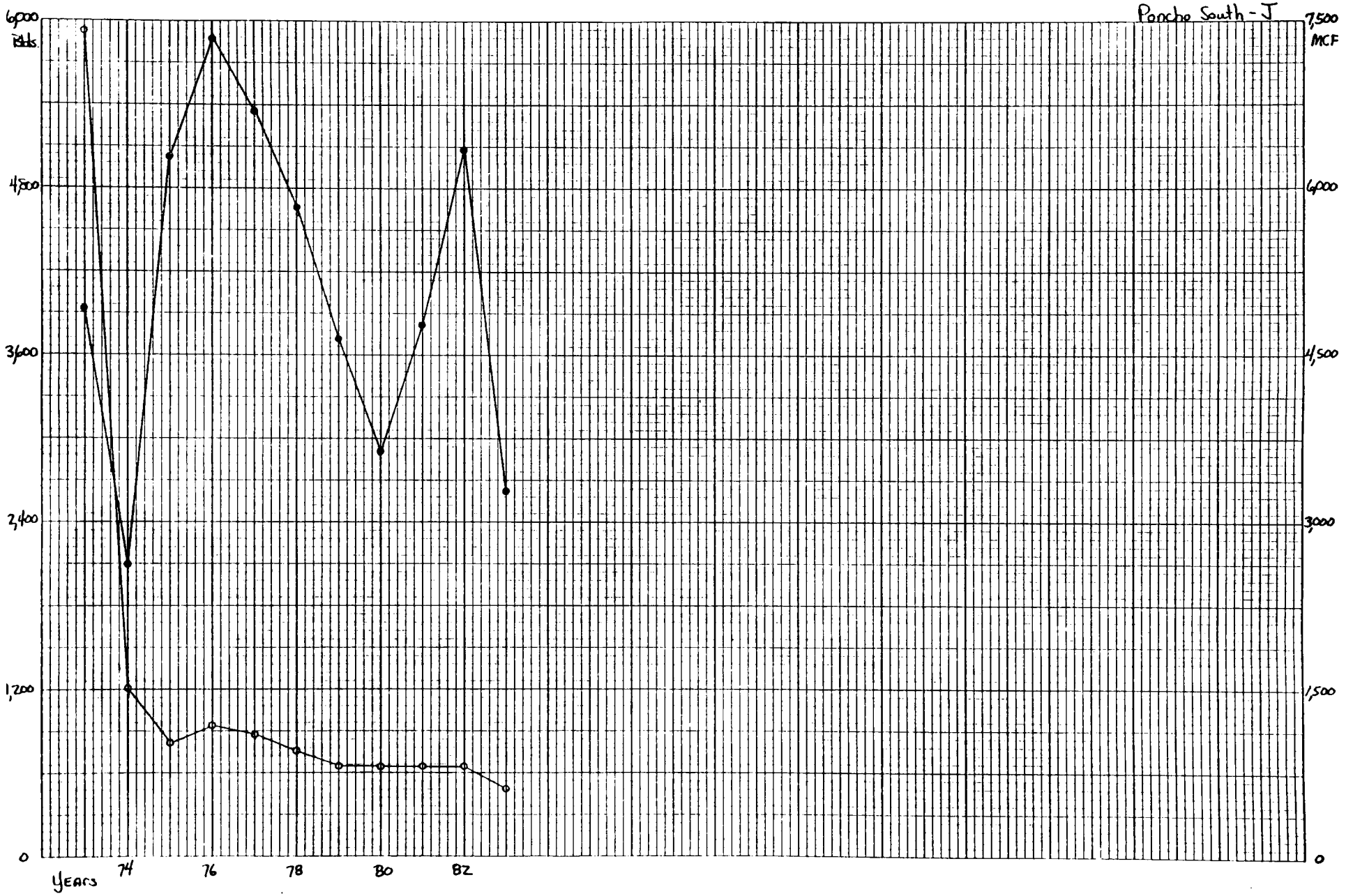

Peoria - Hp
3.0
MILLION
Bbls.
2.4
1.8
1.2
0.6
0
4.0
MILLION
MCF
3.2
2.4
1.6
0.8
0
SECONDARY RECOVERY BY INJECTED FLUID BEGAN 7-1-71
70
72
74
76
78
80
82
Years

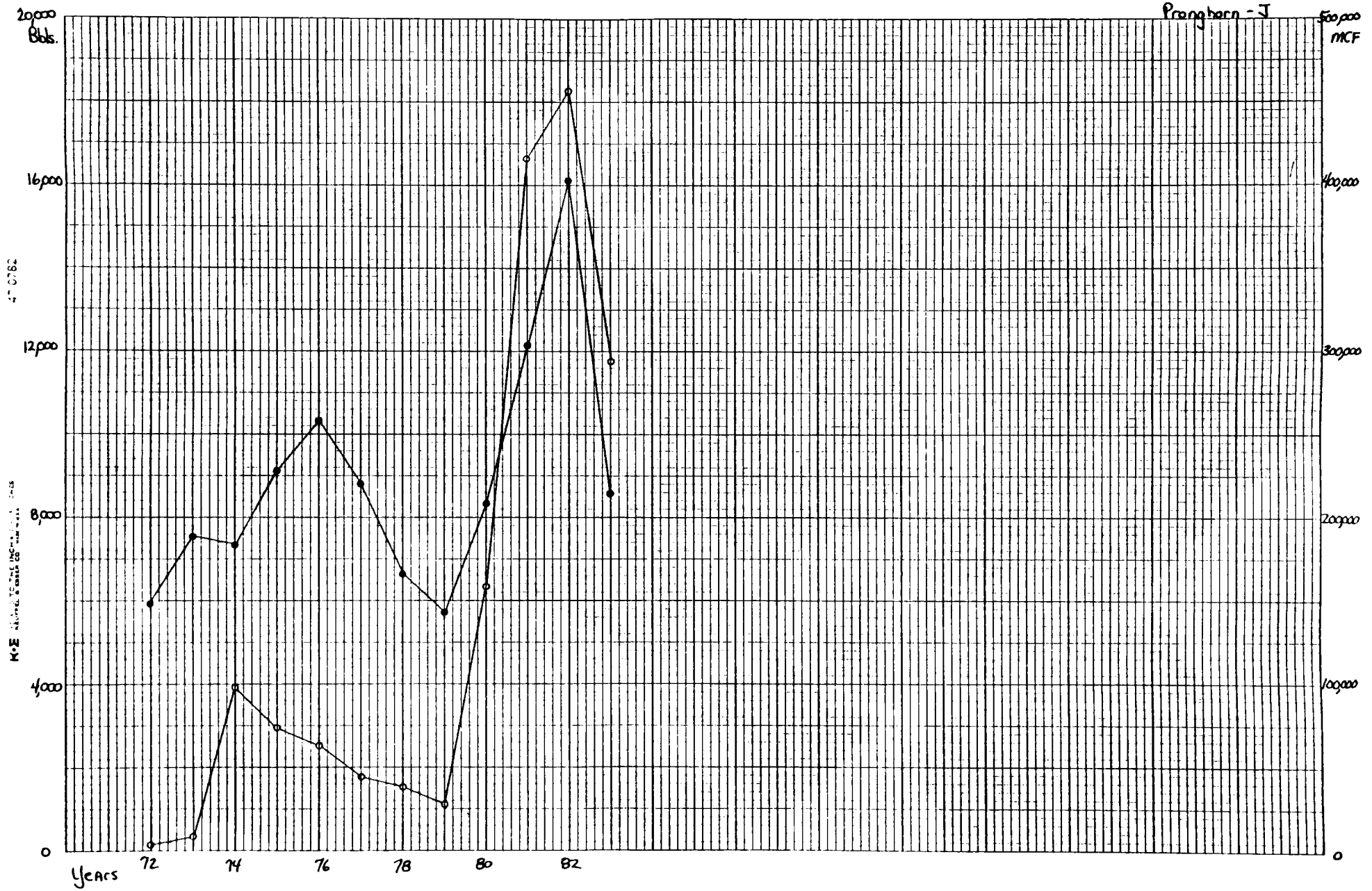

Peoria North - J
120,000
Bbls.
96,000
72,000
48,000
24,000
0
325,000
MCF
260,000
195,000
130,000
65,000
0
Years
72
74
76
78
80
82
47 0782
K·E

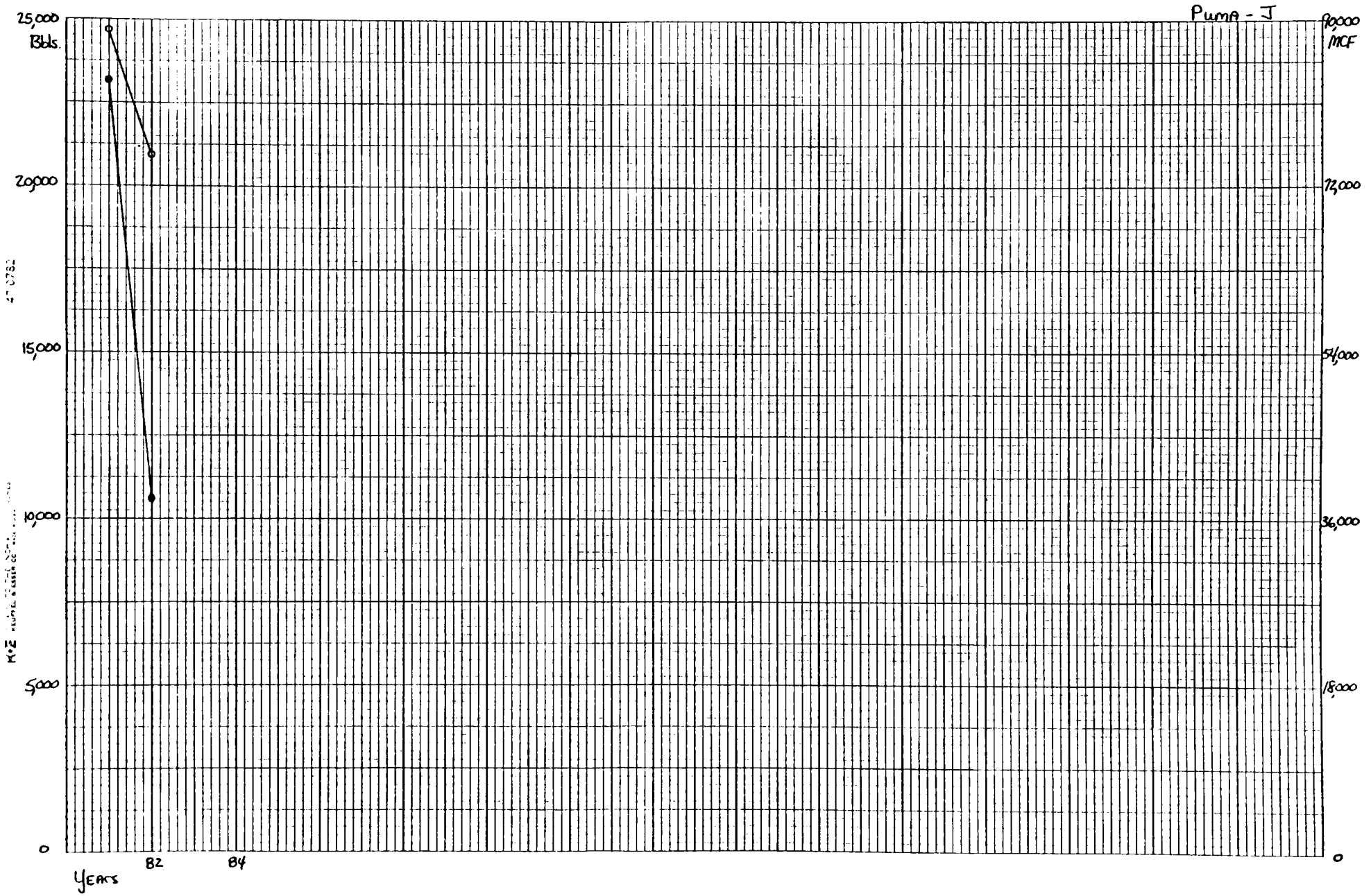

Pintail-J
1,000 Bbls.
800
600
400
200
0
1,500 MCF
1,200
900
600
300
0
Years
82

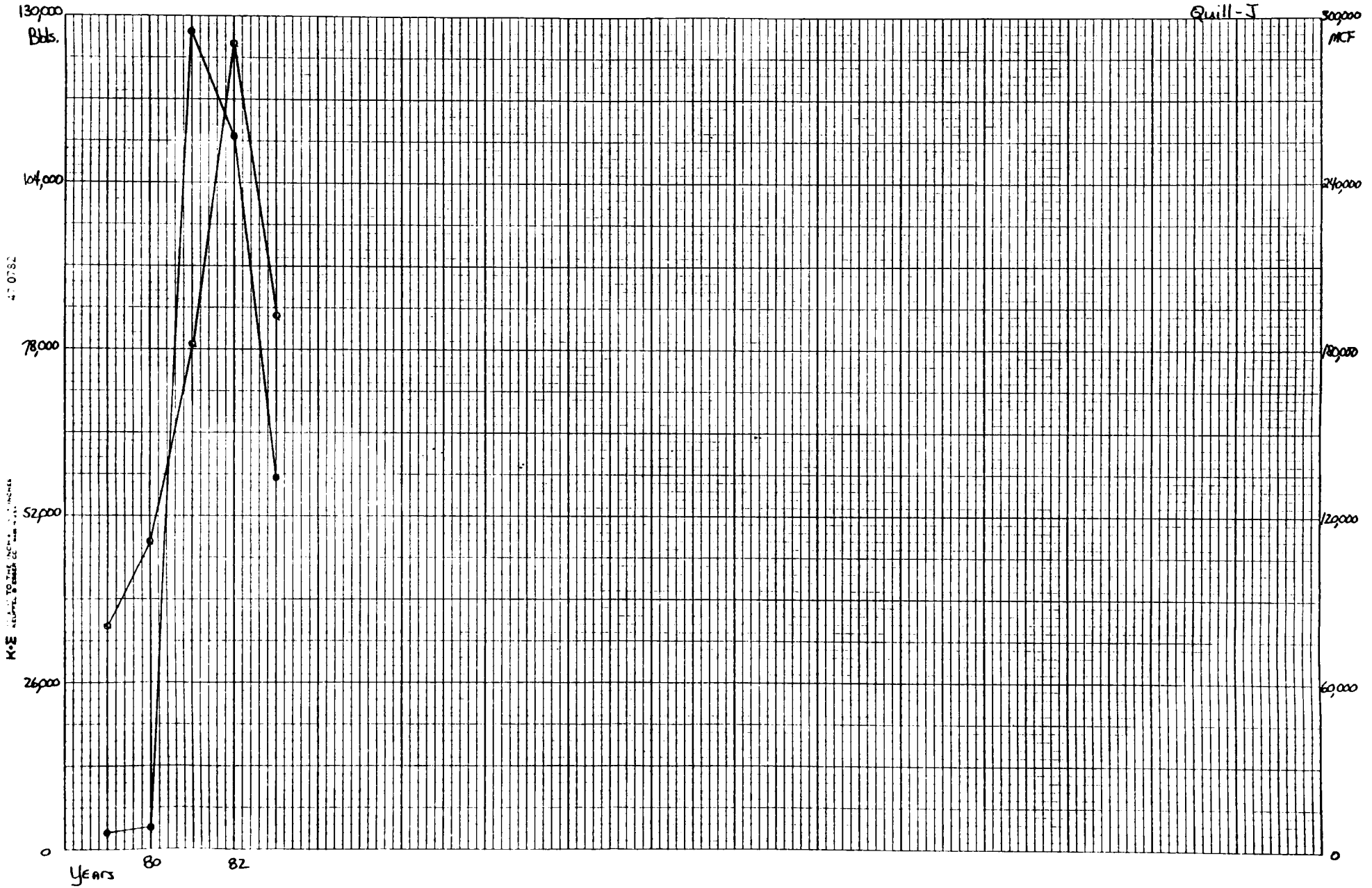

Pallen #1
100,000
Bbls
80,000
60,000
40,000
20,000
0
600000
MCF
480,000
360,000
240,000
120,000
0
80
82
YEARS
47 0782
K·E

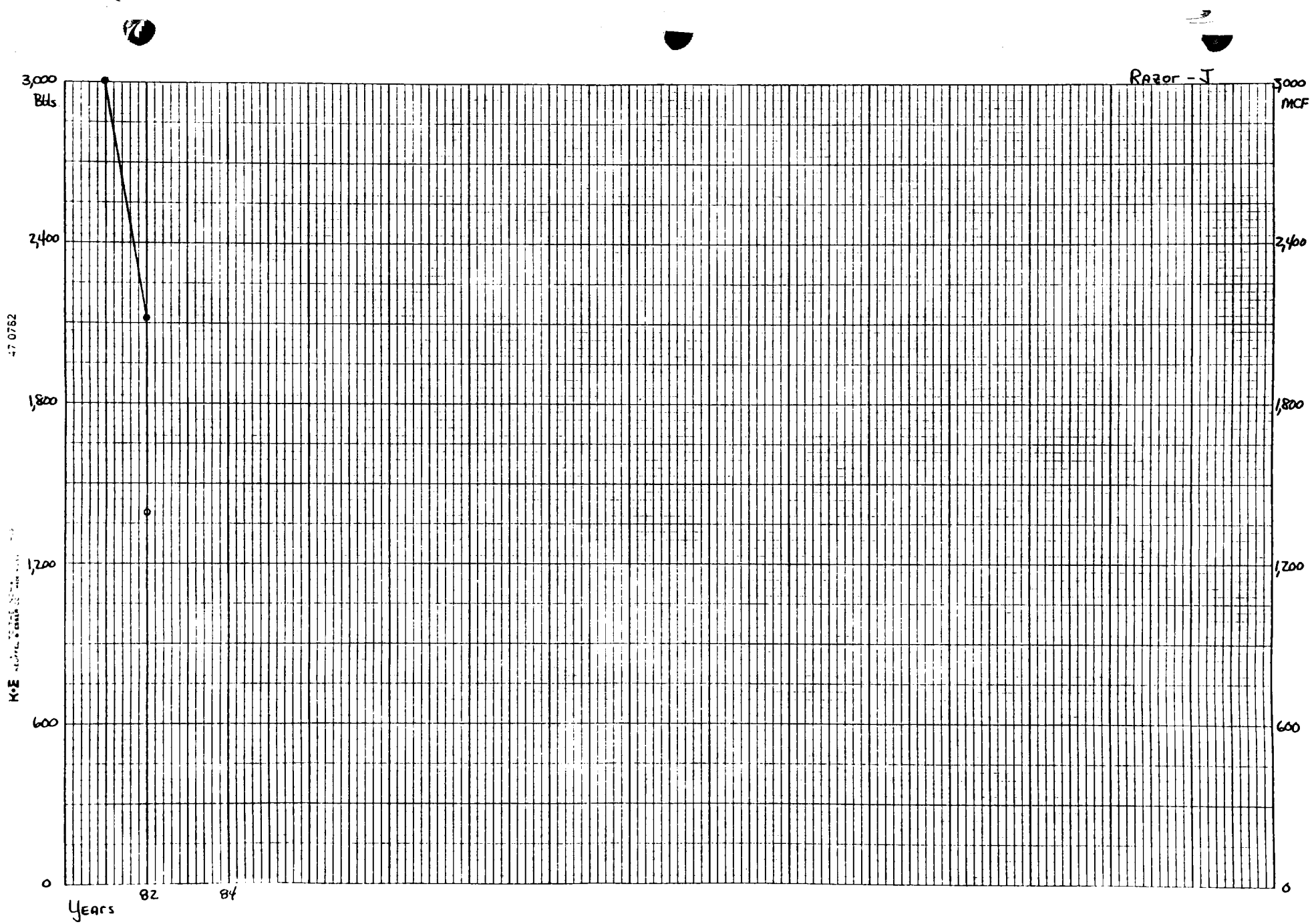

Pancho - J
120,000 Bbls.
96,000
72,000
48,000
24,000
0
150,000 MCF
144,000
108,000
72,000
36,000
0
YEARS
72
74
76
78
80
82
SECONDARY RECOVERY BY INCREASED FLUID INTAKE 4/1/81


Poncho South - J
6,000
Bbls.
4,500
3,600
2,400
1,200
0
7,500
MCF
6,000
4,500
3,000
1,500
0
Years
74
76
78
80
82

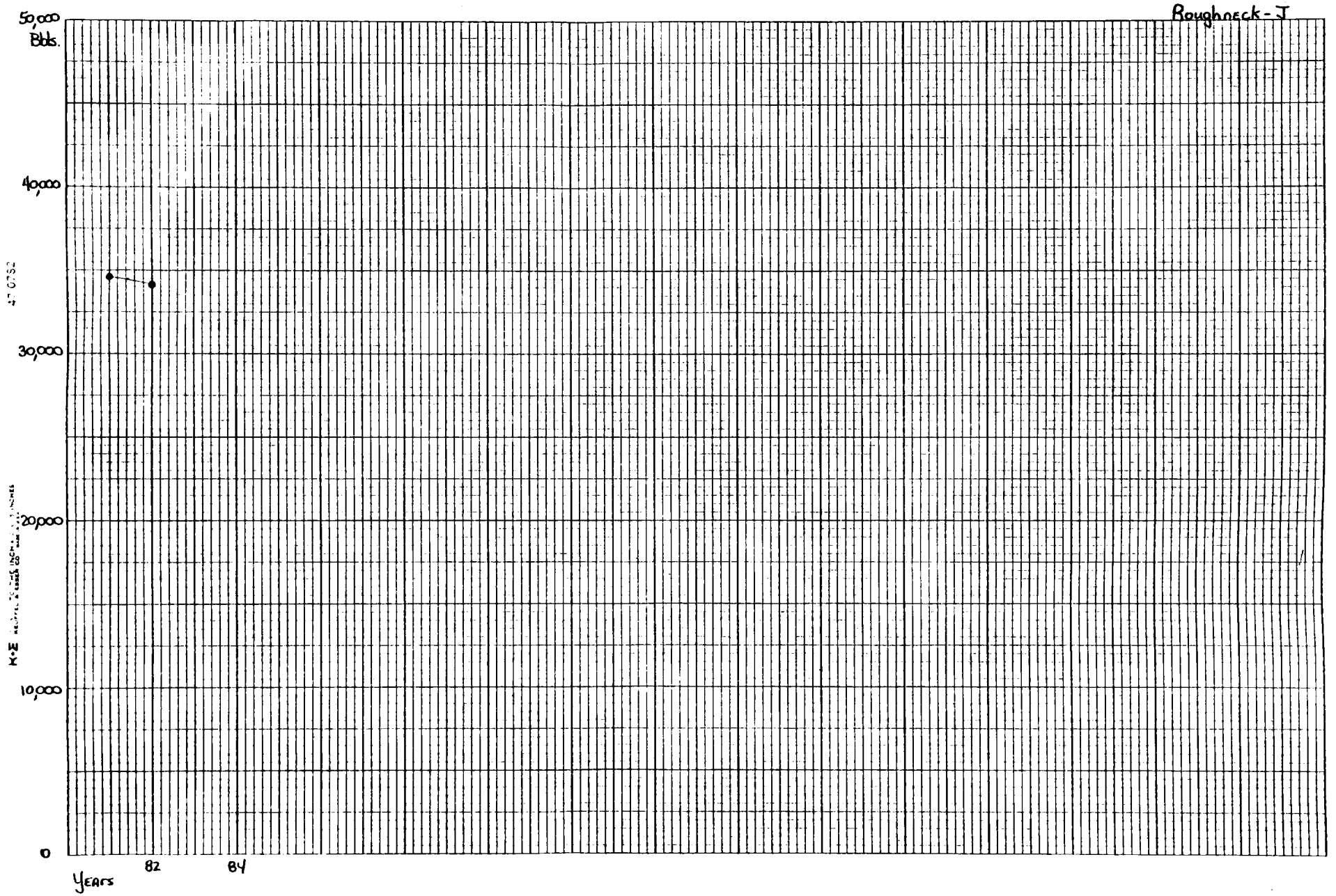

Pronghorn - J
20,000
Bbls.
16,000
12,000
8,000
4,000
0
500,000
MCF
400,000
300,000
200,000
100,000
0
Years
72
74
76
78
80
82

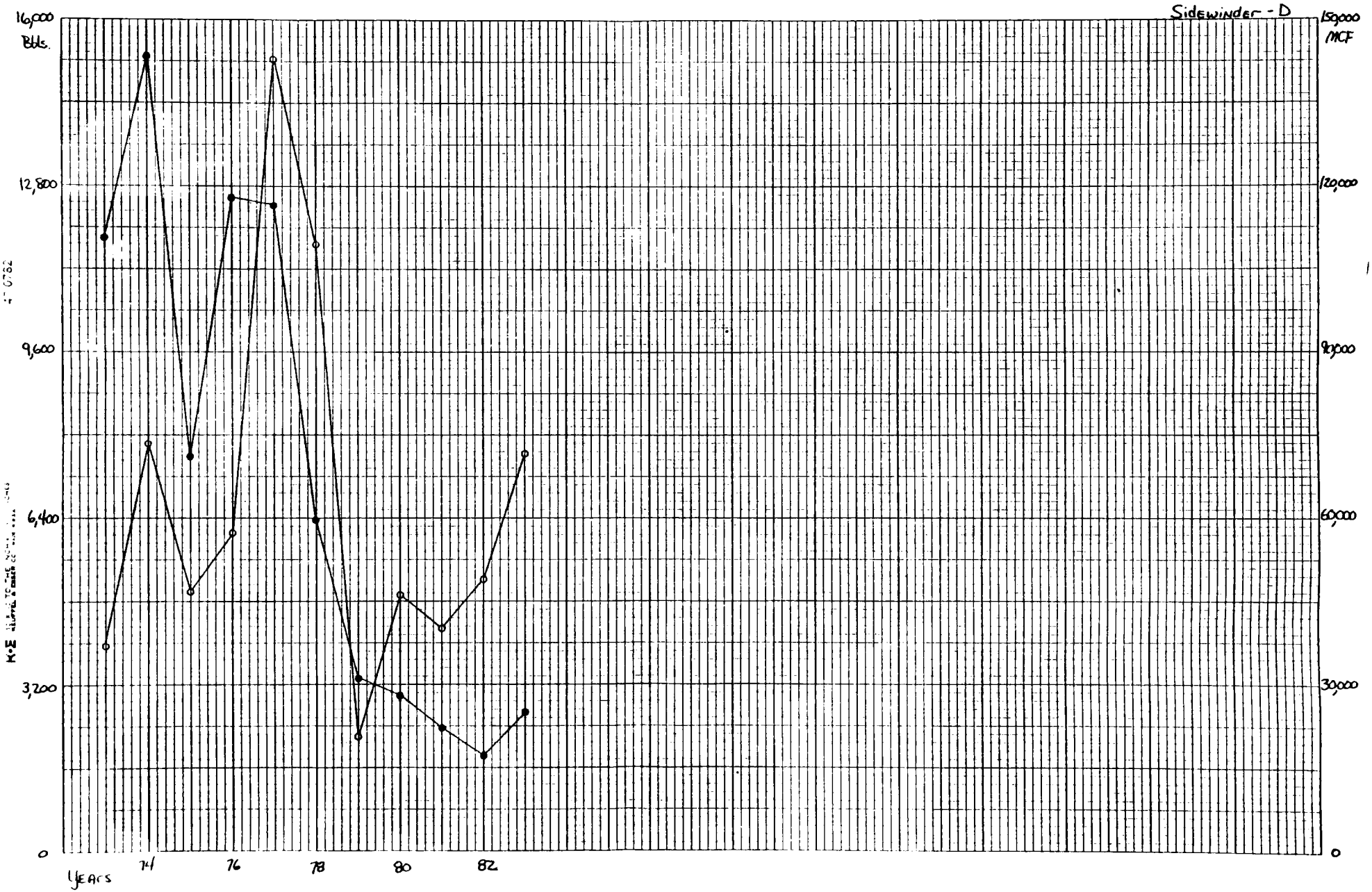

Puma - J
25,000
Bbls.
20,000
15,000
10,000
5,000
0
90,000
MCF
72,000
54,000
36,000
18,000
0
82
84
YEARS

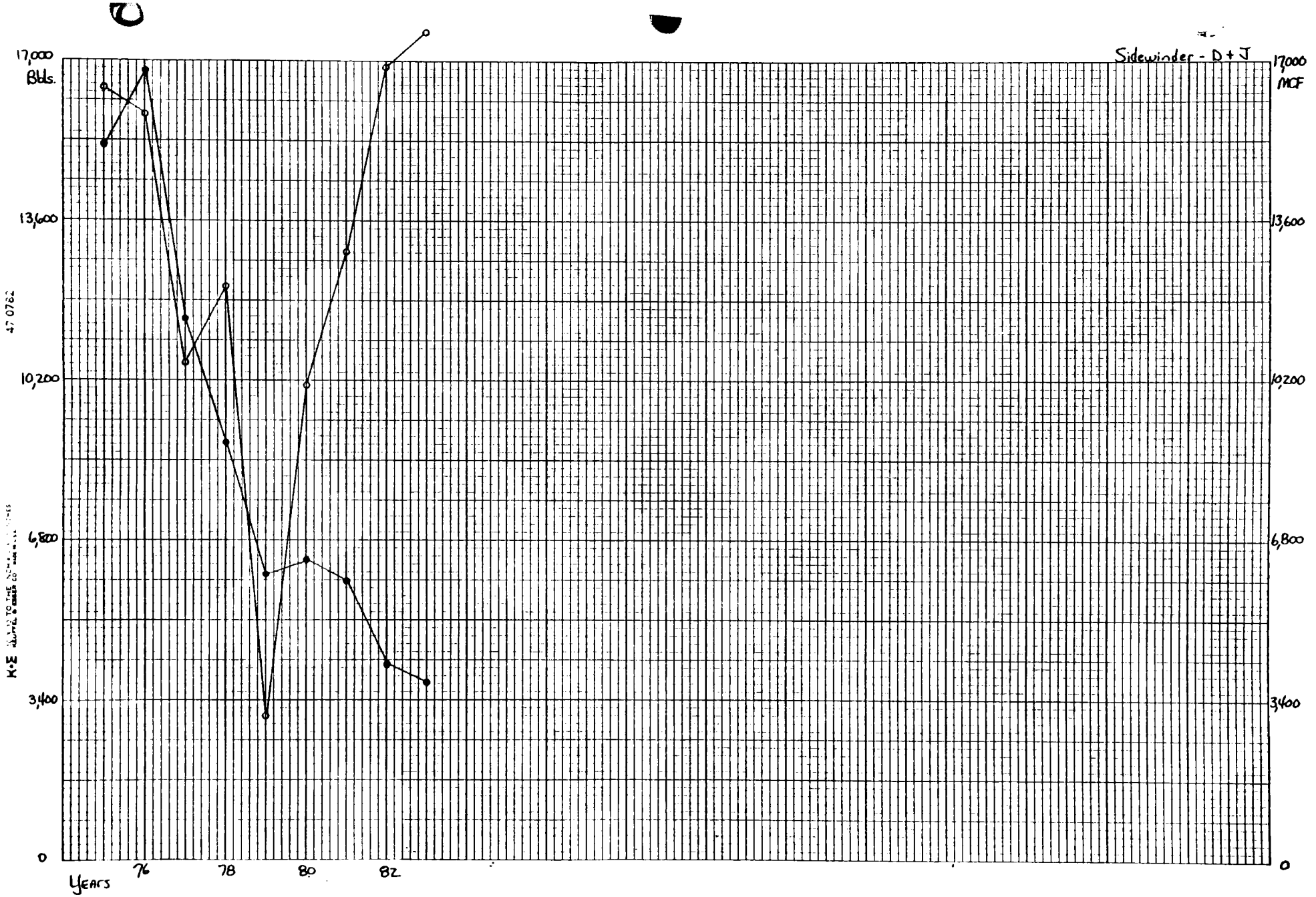

Quill-J
130,000
Bbls.
104,000
78,000
52,000
26,000
0
300,000
MCF
240,000
180,000
120,000
60,000
0
Years
80
82

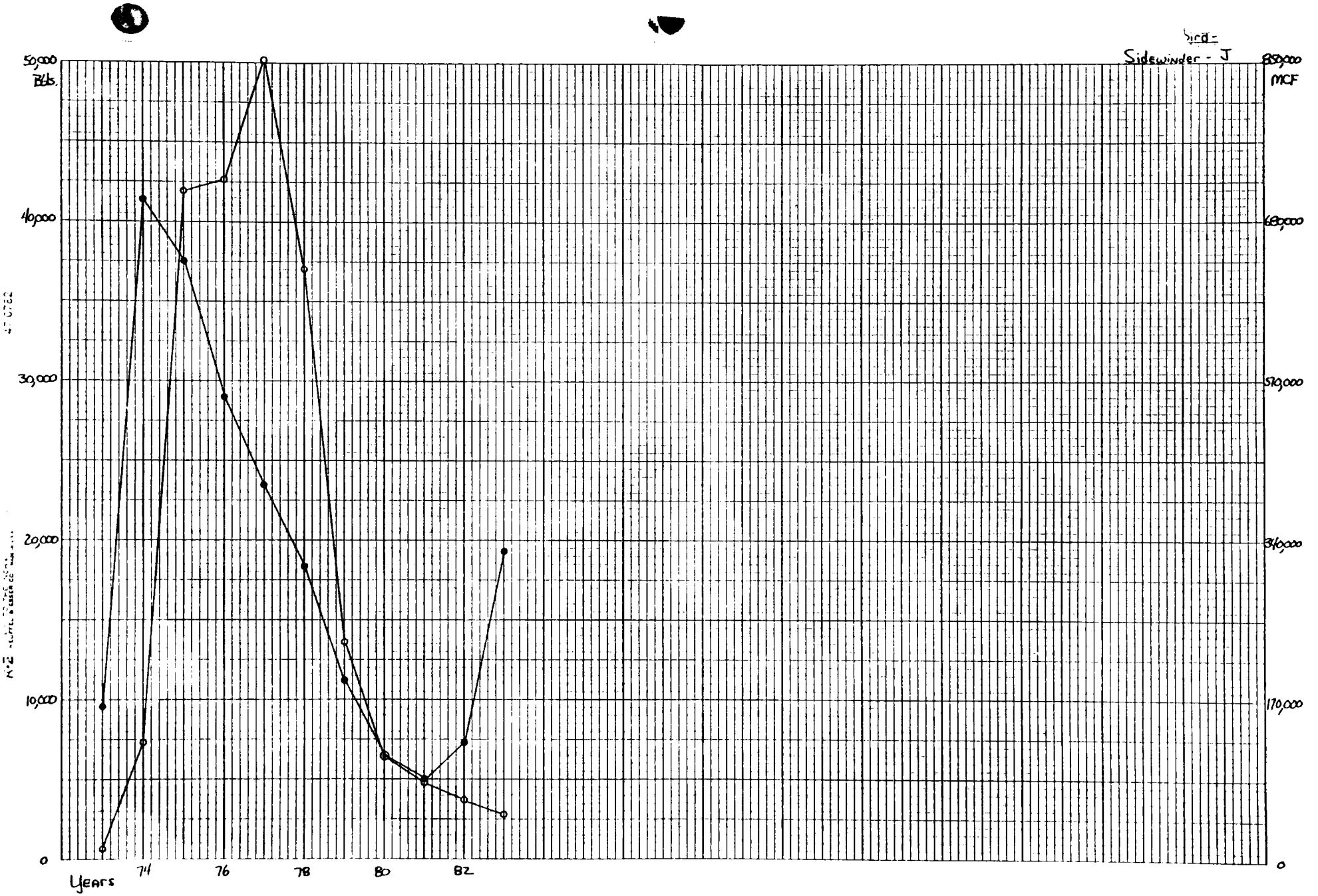

Razor - J
3,000
Bbls
2,400
1,800
1,200
600
0
3000
MCF
2,400
1,800
1,200
600
0
82
84
Years

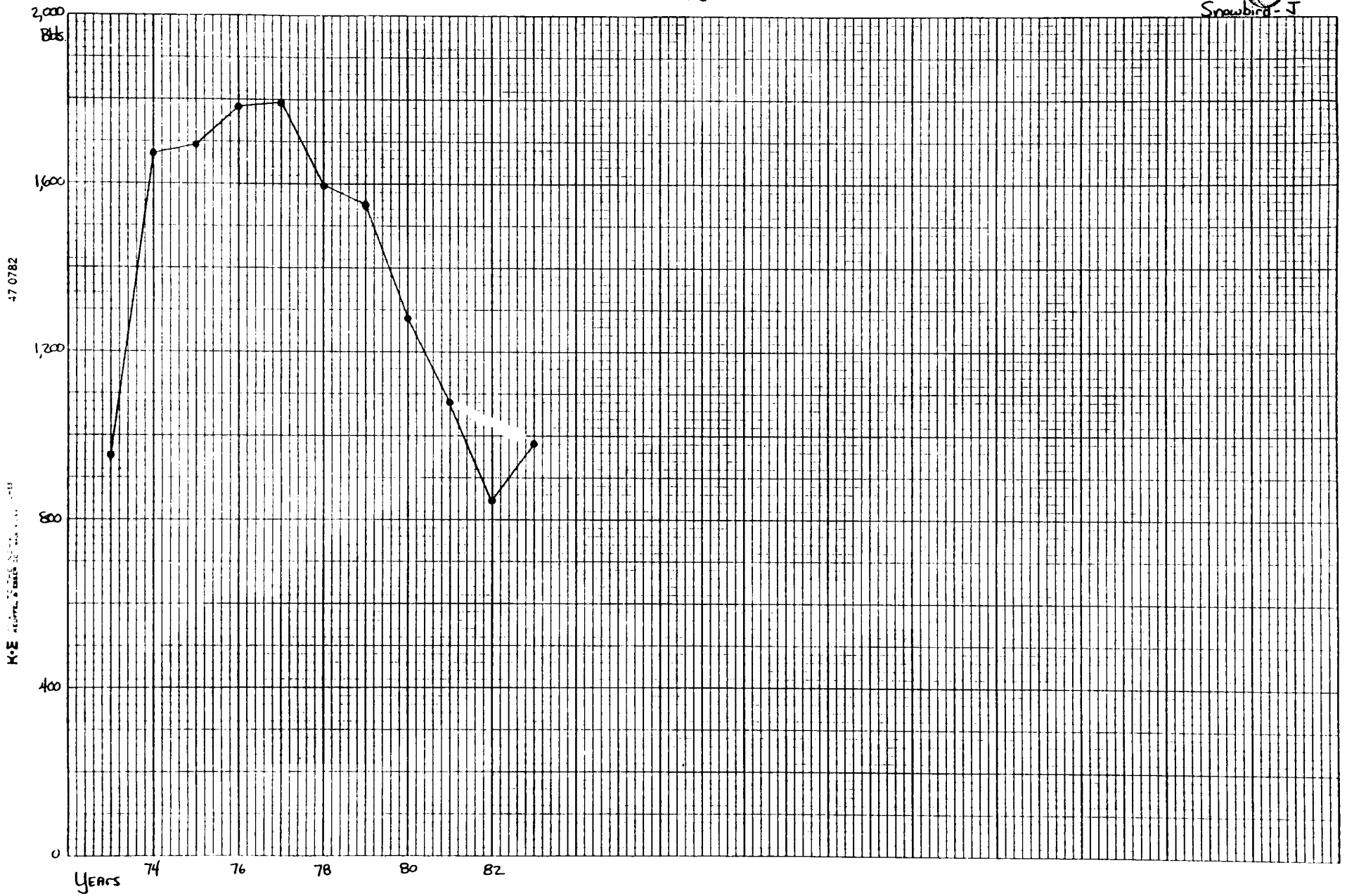

Roman Nose - J
75,000
Bbls
60,000
45,000
30,000
15,000
0
16,000
MCF
12,800
9,600
6,400
3,200
0
Years
68
70
72
74
76
78
80
82


Roughneck - J
50,000
Bbls.
40,000
30,000
20,000
10,000
0
82
84
Years


Sidewinder - D
16,000 Bbls.
12,800
9,600
6,400
3,200
0
150,000 MCF
120,000
90,000
60,000
30,000
0
Years
74
76
78
80
82


Sidewinder - D + J
17,000 Bbls.
13,600
10,200
6,800
3,400
0
17,000 MCF
13,600
10,200
6,800
3,400
0
Years
76
78
80
82
K·E


Sidewinder - J
50,000
Bbls.
40,000
30,000
20,000
10,000
0
850,000
MCF
680,000
510,000
340,000
170,000
0
Years
74
76
78
80
82


Snowbird - J
2,000
Bbls
1,600
1,200
800
400
0
YEARS
74
76
78
80
82
47 0782
K·E

Other Publications

INFORMATION SERIES 16--Oil and Gas fields of Colorado: Statistical Data through 1981.
MAP SERIES 22--Oil and Gas fields map of Colorado. 1983, (1:500,000).
OPEN-FILE REPORT 84-3: Estimated Oil and Gas Reserves for Washington County, Colorado;
OPEN-FILE REPORT 84-4: Estimated Oil and Gas Reserves for Rio Blanco County, Colorado.
OPEN-FILE REPORT 84-5: Estimated Oil and Gas Reserves for Adams County, Colorado;
OPEN-FILE REPORT 84-6: Estimated Oil and Gas Reserves for Weld County, Colorado;
OPEN-FILE REPORT 84-7: Estimated Oil and Gas Reserves for Arapahoe County, Colorado;
OPEN-FILE REPORT 84-8: Estimated Oil and Gas Reserves for Baca County, Colorado.
OPEN-FILE REPORT 84-9: Estimated Oil and Gas Reserves for Cheyenne County, Colorado.
OPEN-FILE REPORT 84-10: Estimated Oil and Gas Reserves for Garfield County, Colorado;
OPEN-FILE REPORT 84-11: Estimated OIl and Gas Reserves for La Plata County, Colorado;
OPEN-FILE REPORT 84-12: Estimated Oil and Gas Reserves for Moffat County, Colorado;
OPEN-FILE REPORT 84-13: Estimated Oil and Gas Reserves for Elbert County, Colorado;
OPEN-FILE REPORT 84-14: Estimated Oil and Gas Reserves for Mesa County, Colorado;
OPEN-FILE REPORT 84-15: Estimated Oil and Gas Reserves for Routt County, Colorado;
OPEN-FILE REPORT 84-16: Estimated Oil and Gas Reserves for Yuma County, Colorado.

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