OPEN FILE 84-6

ESTIMATED OIL AND GAS RESERVES FOR WELD COUNTY, COLORADO

Compiled by
A. H. Scanlon

Funded by the Colorado Oil and Gas Conservation Commission
and the Department of Local Affairs--
Division of Commerce and Development

Colorado Geological Survey
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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 C.O.G.C.C. and 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 WELD COUNTY, COLORADO

Introduction

This report is the fourth* 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 Weld County, located in northeastern Colorado, within the west-central Denver Basin. Weld county covers 4,033 square miles. In this county, oil and/or gas are produced from, in descending order of age, the Sussex Sandstone, Shannon Sandstone, Niobrara Limestons, Timpas Limestone, Fort Hays Limestone, Codell Sandstone, Greenhorn Limestone, Dakota Sandstone, D Sand, J Sand, and the Lyons Sandstone.

There are 107 fields considered active producers as of December 31, 1982. Of these, 87 are classified as oil fields (based on cumulative gas-oil ratio (GOR) of <15:1), and 20 are classified as gas fields (based on cumulative GOR >15:1).

Three of the 87 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; and
OPEN-FILE REPORT 84-5: Estimated Oil and Gas Reserves for Adams County, Colorado.

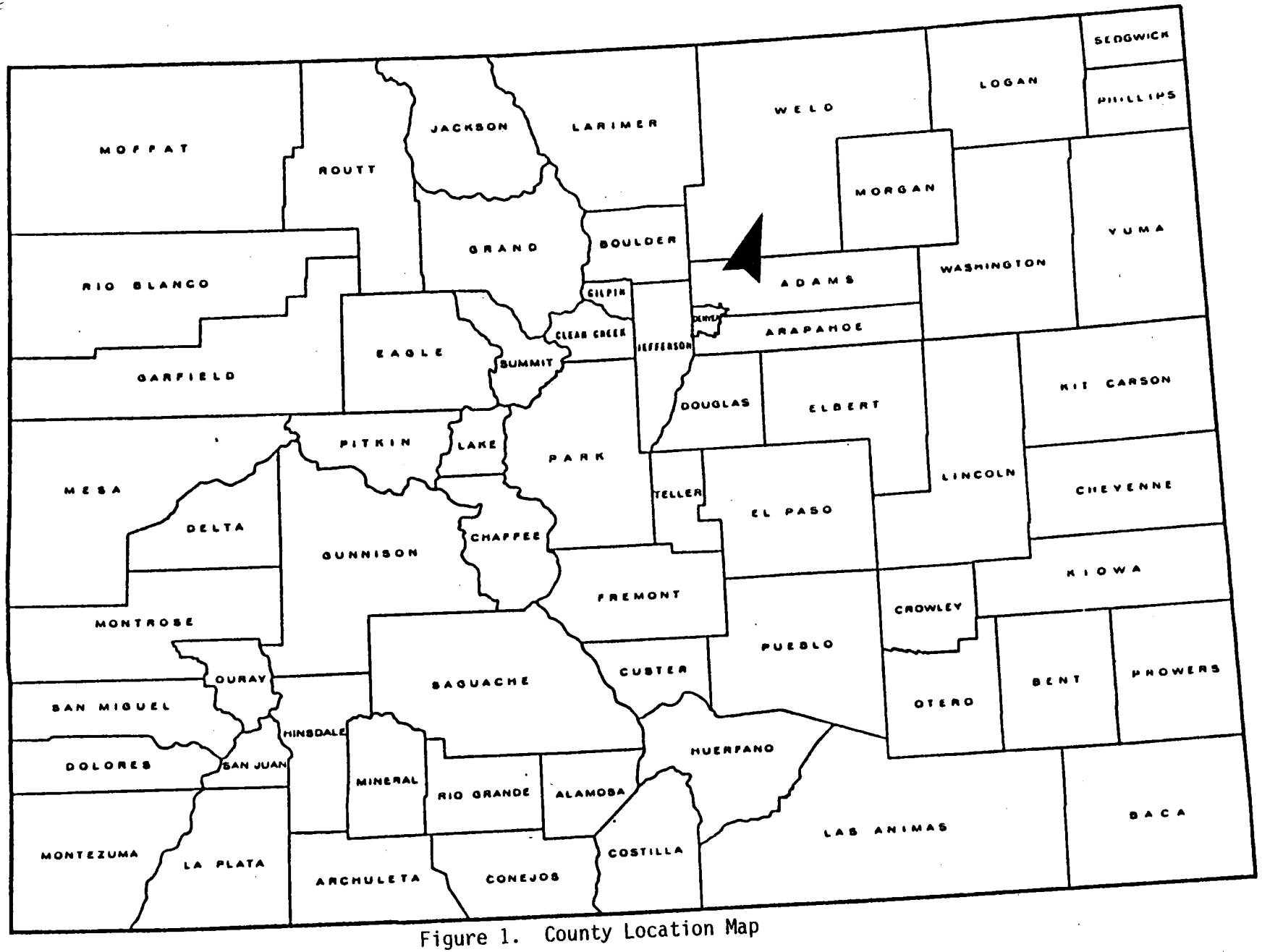

Figure 1. County Location Map

TABLE I

Summary of Secondary Recovery Projects
by Injected Fluids
for Weld County

Field Name/ Horizon	Operator	Initial Inj. Date	Injected Water (bbls) 1982	Cumulative through 1982
Lanyard Field/ D Sand	MGF Oil Corp.	6-14-78	1,352,084	4,217,824
Pierce Field Lyons Sandstone	Chevron	6-28-66	1,005,146	24,500,455
Spindle Field/ Nessu/S. Brown	AMOCO	4-14-75	91,922	753,351
Spindle Field/ Sussex/Nessu	AMOCO	11-10-81	153,570	158,183

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 141 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 113 oil field-horizons. Production histories have allowed for decline rates to be calculated for 52 of these. The remaining 61 field-horizons have not produced for a long enough time (less than 3 years) to determine a reliable decline rate. For the previously mentioned 52 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.

No adjustments were necessary for the three fields undergoing water injection. They have all had a substantial amount of time to level off since injection began, therefore not affecting the current decline rates calculated.

Gas Reserve Calculations

There are 28 gas field-horizons. Production histories have allowed for decline rates to be calculated for 18 of these. The remaining 10 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 18 previously mentioned gas-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 Weld County totaled 19,022,683 barrels. Estimated gas reserves for Weld County totaled 450,083,794 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 three to four years, roughly half of the estimated oil reserves in Weld 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 five to six 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 (15.3 percent per year for oil and 13.35 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 (869,612 Bbls. of oil and 5,691,640 MCF of gas) additional reserves of 5,105,020 Bbls. of oil and 40,206,485 MCF of gas were obtained. This gives total county reserves (Class I and II) of 19,892,295 Bbls. of oil and 490,290,479 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 was one significant difference in the sources of production for the two groups.

Class II field-horizons have some production from the Codell Sandstone, while Class I field-horizons have no Codell Sandstone production. All other sources are very similar. As the decline rates applied are only slightly higher than normal, the Class II codell production is included with reasonable 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 84-6
RESERVE DATA FOR WELD COUNTY

FIELD NAME/ PROD. HORIZON	GENERAL LOCATION	DATE OF DISCOVERY	TYPE OF DRIVE	dy (in %)	CUMULATIVE PRODUCTION 12/31/82 OIL(bbls) ()Condensate (Bbls.)	CUMULATIVE PRODUCTION 12/31/82 GAS(MCF)	ESTIMATED RESERVES OIL(bbls)	ESTIMATED RESERVES GAS(MCF)	ULTIMATE RECOVERABLE OIL(bbls) ()Condensate (Bbls.)	ULTIMATE RECOVERABLE GAS(MCF)	REMARKS * *See Last Page of TABLE II for Definition of * Code
1.Acrobat/D	7N-59W	1981			915	8,300					N.P.
2.Anvil/D	7N-58W	1982			29,196	159,993					N.P.
3.Aristocrat/ Sussex	3N-65W	1978		17.0-o 17.2-g	132,521 (56,472)	5,047,370	190,421	6,163,739	322,942 (56,472)	11,211,109	Economic Limit-6 wells
4.BannerLakes/D	1S-64W	1981	S. G. D.		342,539	2,368,740					N.P.
5.BannerLakes/J	1S-64W	1982	S. G. D.		3,705	8,927					N.P. Also Prod. in Adams Co.
6.Barbwire/J	1N-63W	1982			218 (9,309)	147,834					N.P.
7.Baseline/D	1S-64W	1980	S. G. D.		2,386	10,368					N.P. Also Prod. in Adams Co.
8.BattleCanyon/J	11N-56W	1953	S. G. D.	19.7-o 12.3-g	951,809 (9,084)	3,209,187	17,739	236,226	969,548 (9,084)	3,445,413	
9.BaxterLake/ Niobrara	4N-68W	1964			1,652	1,986					N.P.-Prod. in '64, '65, '82
10.BaxterLake/ Codell-Lyons	4N-68W	1981			10,974 (2,002)	12,060					N.P.
11.BlackHollow/ Lyons	7N-66W	1953		7.1-o 9.7-g	10,245,018	329,594	481,204	1,713	10,726,222	331,307	
12.Bluebell/D	7N-58W	1982			(2,613)	61,690					N.P.
13.Bluebell/J	7N-58W	1975		17.0-o	56,892	8,589	29,872		86,764	+8,589	Gas Prod. Unstable
14.Border/J	12N-56W	1967	S. G. D.		1,189,678	1,887,359	207,434	198,310	1,397,112	2,085,669	
15.Bounty/J	8N-57W	1963		10.3-o	95,472	67,852	10,350		105,822	+67,852	
16.Bracewell/ Codell	6N-66W	1981			3,700	5,270					N.P.
17.Bracewell/ Shannon	6N-66W	1982			1,186	1,589					P.N.L.E.
18.Buckingham/D	8N-59W	1950	S. G. D.	4.3-o 13.1-g	483,649	1,252,010	57,313	28,478	540,962	1,280,488	
19.Buckingham West/D	8N-60W	1955	S. G. D.	5.9-o	420,053	352,735	3,519		423,572	+352,753	
20.Cable/J	1N-63W	1982			481	660					P.N.L.E.
21.Calumet/D	3N-61W	1980			3,422	1,545					P.N.L.E.
22.CoalBank Ck/ Codell	7N-66W	1982			1,439	10					P.N.L.E.
23.CottonValley/ D	9N-56W	1955			694	5,897					Prod.'55-61,'82 P.N.L.E.
24.Countyline/D	7N-59W	1981			32,456	204,185					P.N.L.E.
25.Crow/D	8N-60W	1956		22.4-o	10,339	20	39,329		49,668	+20	
26.Dearfield/J	4N-62W	1981			4,948	22,117					P.N.L.E.
27.Empire/Greenhorn	3N-61W	1953		13.0-o	791		108		899		Econ. Limit -0- wells
28.Enigma/J	7N-57W	1978			5,404	5,736					N.P.
29.Ermine/J	11N-59W	1981			561						N.P. Also Prod. in Morgan Co.

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30.Fury/J	12N-61W	1970		5.5-o 3.5-g	100,459	50,422	53,721	2,402	154,180	52,824	
31.Grail/D	7N-58W	1957	S. G. D.	15.2-o 31.5-g	211,229	326,501	153,953	327,744	365,182	654,245	
32.Granny/D	9N-56W	1981			1,641	76,710					N.P.
33.Greasewood/D	6N-61W	1930	S. G. D.	7.2-o 12.7-g	1,034,180	1,079,284	56,127	269,790	1,090,307	1,347,094	
34.Greaswood So./D	6N-61W	1954	S. G. D.	8.8-o 22.0-g	184,641	866,378	34,554	212,204	219,195	1,078,582	
35.Greeley/Codell	6N-65W	1982			(1,706)	2,488					N.P.
36.Hambert/Codell	4N-65W	1981	S. G. D.; W. D.		4,075 (3,626)	141,929					N.P.
37.Hambert/Sussex	4N-65W	1975		13.2-o 12.6-g	322,906 (153,017)	26,091,808	356,094	26,357,884	679,000 (+153,017)	52,449,692	
38.Heart/Codell	9N-61W	1981			1,704						N.P.
39.Heart/Ft.Hays	9N-61W	1982			627						N.P.
40.Heart/Niobrara	9N-61W	1982			1,835						N.P.
41.Hereford/J	12N-62W	1973			2,509						Prod.'73,P&A '74, Prod.'81,'82. N.P.
42.Horsecreek/D	1N-64W	1980	S. G. D.		30,723	62,833					N.P.
43.Icon/J	10N-59W	1980			(1,181)	40,048					N.P.
44.Impala/J	12N-63W	1981			1,880	4,453					N.P.
45.IndianCave/J	11N-56W	1964		7.1-o 12.1-g	217,709	699,936	8,025	30,727	225,734	730,663	
46.Jackpot/D	6N-59W	1955	S. G. D.; Water Inj.	21.4-o	728,371	848,776	84,216		812,587	+848,776	Also Prod. in Morgan Co.
47.Jasper/D	12N-57W	1959		7.7-o 14.0-g	115,033	874,541	11,182	61,749	126,215	936,290	
48.Jasper/J	12N-57W	1969		4.0-o 13.1-g	238,741	566,810	102,200	35,120	340,941	601,930	
49.Johnstown/ Shannon	4N-67W	1972		8.1-o 7.8-g	26,831	10,755	1,492	12,178	28,323	22,933	
50.Jupiter/J	10N-61W	1980			2,981 (158)						N.P.
51.Keota/J	9N-61W	1951	S. G. D.	3.7-o	1,226,454	598,576	80,818		1,307,272	598,576	
52.Kiowa Ck./D	2N-61W	1976		36.1-o 10.0-g	3,185 (10,960)	904,067	634	424,823	3,819 (+10,960)	1,328,890	
53.Kiowa Ck./J	2N-61W	1957	Gas Exp. & W.D.	24.3-g	2,389 (7,967)	2,006,252		24,626	2,389 (7,967)	2,030,878	
54.Krauthead/D	1S-64W	1980	S. G. D.		913	960					N. P.
55.Lanyard/D	2N-62W	1974	S. G. D.	19.2-o 19.7-g	2,610,891	4,279,658	949,777	421,308	3,560,668	4,700,966	Also Prod. in Adams Co. Inj. Began 6/78- D Sand
56.LaPoudre/ Sussex	6N-67W	1981			15,261						N. P.

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57.LaPoudre So/ Codell	6N-66W	1982			1,046						N. P.
58.LaPoudre So/ Sussex	6N-66W	1981			42,910						N. P.
59.Lake Canal/D	6N-67W	1981			743						N. P.
60.Lakeside/D	1N-64W	1981			7,690	63,595					N. P.
61.Lakeside/J	1N-64W	1982			194	402					N. P.
62.Loan/D	7N-59W	1957		7.8-o	305,019 (401)		5,184		310,203 (+401)		Also Prod. in Morgan Co.
63.Lost Ck./D	3N-62W	1957	S. G. D.	17.0-o 13.3-g	981,830	3,144,411	29,035	246,665	1,010,865	3,391,076	
64.Lost Ck./J	3N-62W	1975	Gas Exp.	5.3-g	263 (17,858)	6,240,284		5,989,789	+263 (+17,858)	12,230,073	
65.Lost Creek/ J+Dakota	3N-62W	1981			(197)	56,815					N. P.
66.Loveland/J	5N-68W	1950		17.4-o 23.5-g	9,495	14,611	5,210	16,306	14,705	30,917	Also Prod. in Larimer County
67.Loveland/ Lyons	5N-68W	1982			814						N. P.
68.Loveland/ Niobrara	5N-68W	1964		11.6-o 15.3-g	85,010	303,199	178,072	237,778	263,082	540,977	
69.Loveland/ Timpas/ Niobrara/ Codell	5N-68W	1979			32,547	108,904					N. P.
70.Maverick/ Niobrara	7N-61W	1982			944						N. P.
71.May/J	12N-56W	1956	S. G. D.	6.8-o	422,743	446,587	21,144		443,887	446,587	
72.McKenzie/J	9N-56W	1956		11.3-g	(3,271)	234,016		138,452	(+3,271)	372,468	
73.MonahanLakes/J	3N-62W	1977		26.0-o 14.8-g	5,541 (7,450)	928,563	2,238	325,870	7,779 (+7,450)	1,254,433	
74.MonahanLakes/ Niobrara	3N-62W	1980			786 (7)	500					N. P.
75.Morningside/D	7N-60W	1977			36 (686)	115,397					Prod.'77,'80,'81,'82 N. P.
76.Mustang/D	12N-58W	1962		4.8-o 8.6-g	470,860	910,437	70,339	28,148	541,199	938,585	
77.NewRaymer/J	7N-58W	1960		7.7-o 7.6-g	291,803	239,464	3,956	23,408	295,795	262,872	
78.NE Riverside II/D	5N-61W	1980	S. G. D.		271,754 (2,860)	1,243,872					N. P.
79.New Windsor/ Lyons	7N-67W	1956		8.3-o 11.7-g	857,071	28,124	52,627	1,908	909,698	30,032	
80.New Windsor/ Sussex	7N-67W	1957		6.3-o	250,545	13,139	102,425		352,970	13,139	

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81.No. Riverside/ Niobrara	5N-61W	1981			2,059						N. P.
82.Nunn/Codell	8N-66W	1981			485						N. P.
83.Oasis/D	7N-56W	1981			27,403						N. P.
84.Omar/D	3N-61W	1982			1,031	990					N. P.
85.PawneeButtes/J	10N-59W	1981			1,625						N. P.
86.Pierce/Lyons	8N-66W	1955		9.2-o 16.7-g	10,147,342	492,154	976,677	5,425	11,124,019	497,579	
87.Pike/Ft.Hays	3N-61W	1975		13.3-o	81		273		354		Econ. Limit-0-wells
88.Pommel/D	8N-59W	1975			(2,885)	224,736					Prod.'80,'81,'82. P.N.L.E.
89.Prospect/J	1N-62W	1971		6.9-g	7,961 (563)	273,289		204,444	+7,961 (+563)	477,733	
90.Quirt/J	11N-57W	1980			(289)	29,689					P.N.L.E.
91.Rattlesnake/D	11N-56W	1981			2,300	13,821					P.N.L.E.
92.Rattlesnake/J	11N-56W	1967		5.3-o 11.8-g	88,615 (118)	420,849	21,375	100,449	109,990	521,298	
93.Reward/D	2N-61W	1972			10,986	51,877	4,802	See Note			Econ. Limit Oil based on 0.5 Bbls/day; Gas-erratic Prod. Can't obtain reasonable dy
94.Roadside/J	11N-56W	1981			7,183	578					N. P.
95.Rodeo Bull-Fighter/J	1N-64W	1982			843						N. P.
96.Roggen/D	2N-63W	1953	S. G. D. & Water Inj.	9.5-o 8.5-g	1,692,412	5,002,081	106,511	555,076	1,798,923	5,557,157	
97.Roggen/D&J	2N-63W	1979			4,687	53,560					N. P.
98.Roggen/J	2N-63W	1976	S. G. D.	11.7-o 10.8-g	757,254 (52,840)	11,061,514	227,228	9,721,654	984,482 (52,840)	20,783,168	
99.Roggen/Timpas	2N-63W	1980			885	396					N. P.
100.Rush Creek/ D	11N-56W	1954		13.3-g	(38,081)	4,902,552		82,932	(+38,081)	4,985,484	
101.Scabbard/D	1N-63W	1974			23,345	90,842					Prod.'74-'76,P&A '77, Prod.'81,'82. N. P.
102.Scabbard/J	1N-63W	1975		22.7-o 23.0-g	16,594	328,271	7,041	113,544	23,635	441,815	
103.SevenCross/J	8N-61W	1981			11,357 (456)	29,285					P.N.L.E.
104.Sheehan/J	1N-63W	1975		19.5-g	(1,029)	48,966	(653)	92,848	(1,682)	141,814	
105.Sleeper/D	12N-56W	1968		10.7-o 11.8-g	468,500	848,388	31,325	133,254	499,825	981,642	
106.Sleeper/D&J	12N-56W	1979		21.0-o 30.0-g	5,629	5,861	2,876	2,974	8,535	8,835	

TABLE II
OPEN-FILE REPORT 84-6
RESERVE DATA FOR WELD COUNTY

FIELD NAME/ PROD. HORIZON	GENERAL LOCATION	DATE OF DISCOVERY	TYPE OF DRIVE	dy ' (in %)	CUMULATIVE PRODUCTION 12/31/82 OIL(bbls) ()Condensate (Bbls.)	GAS(MCF)	ESTIMATED OIL(bbls)	RESERVES GAS(MCF)	ULTIMATE OIL(bbls) ()Condensate (Bbls.)	RECOVERABLE GAS(MCF)	REMARKS * *See Last Page of TABLE II for Definition of * Code
107.Sleeper/J	12N-56W	1974		14.0-o 11.9-g	64,656	228,583	7,333	69,800	71,989	298,383	
108.Sloan/D&J	1N-63W	1974	S. G. D.		38,347	26,414					Prod.'81,'82 N. P.
109.Snowdrift/J	12N-56W	1979			6,291	67					N. P.
110.Sooner/D	8N-58W	1969	G. C. E. with some S. G. D.	15.7-o 7.4-g	49,718 (33,191)	1,943,081	119,812	2,251,277	169,530 (+33,191)	4,194,358	
111.SpaceCity/D	1N-65W	1973		15.7-o 20.0-g	116,811 (141)	1,226,729	1,516	104,595	118,327 (+141)	1,331,324	
112.SpaceCity/J	1N-65W	1976		23.5-o 31.0-g	145,909 (131)	1,482,464	47,775	702,647	193,684 (131)	2,185,111	
113.Spindle/ Shannon-Sussex	2N-67W	1972		13.8-o 10.3-g	36,137,986	173,449,594	13,391,812	120,166,080	49,519,798	293,615,674	Also Prod. in Adams & Boulder Co's.
114.Spruce/D	8N-56W	1982		5.8-o 8.7-g	759	4,633					N. P.
115.Spruce/J	8N-56W	1958		5.8-o 8.7-g	12,934	203,473	18,243	123,211	31,177	326,684	
116.Stage Stop/ Niobrara	1N-68W	1975		10.9-o 23.0-g	12,485	51,276	3,605	2,353	16,090	53,629	
117.Stoneham/D	9N-56W	1952		9.7-g	719 (1,403)	167,486		185,035	719 (+1,403)	352,521	
118.Stoneham So./J	8N-56W	1952		6.4-o	252,060	243,355	29,800		281,860	243,355	
119.Supaha/J	1N-62W	1978		17.7-o 22.6-g	20,482	350,493	6,381		26,863	417,842	
120.Tampa/D	2N-63W	1965		11.8-o 16.7-g	435,526	3,926,702	54,921	368,709	490,447	4,295,411	
121.Terrace/D	10N-59W	1958		4.6-o	121,886	338,357	189,163	See Note	311,049	See Note	Gas Prod. has been Inc. Since it began in'76; No reserves calc.
122.Titan/D	12N-57W	1975		30.0-o 33.0-g	19,568	36,804	572	154	20,140	36,958	
123.Tumbleweed/DD&J	12N-57W	1979			16,373	16,373					N. P.
124.Union Reservoir/ Sussex	2N-68W	1981			1,014						N. P.
125.Valentine/ Sussex	2N-65W	1981			129	21,631					N. P.
126.Vigor/J	12N-57W	1958		6.0-o	54,332	44,981	6,578		60,910	+44,981	
127.Voltage/J	7N-57W	1965		4.7-o	178,602	65,109	79,517		258,119	+65,109	
128.WaiteLake/ Codell	3N-62W	1974			2,172	161					Prod.'81,'82. N.P.
129.WaiteLake/D	3N-62W	1979			172,114 (2,646)	529,644					N. P.
130.WaiteLake/ D&J	3N-62W	1979		25.0-o 22.0-g	10,270	276,961	2,986	140,709	13,256	417,670	

TABLE II
OPEN-FILE REPORT 84-6
RESERVE DATA FOR WELD COUNTY

FIELD NAME/ PROD. HORIZON	GENERAL LOCATION	DATE OF DISCOVERY	TYPE OF DRIVE	dy (in %)	CUMULATIVE PRODUCTION 12/31/82 OIL(bbls) ()Condensate (Bbls.)	CUMULATIVE PRODUCTION 12/31/82 GAS(MCF)	ESTIMATED OIL(bbls)	RESERVES GAS(MCF)	ULTIMATE RECOVERABLE OIL(bbls) ()Condensate (Bbls.)	ULTIMATE RECOVERABLE GAS(MCF)	REMARKS * *See Last Page of TABLE II for Definition of * Code
131. WaiteLake/ Greenhorn	3N-62W	1982			3,021	17,811					N. P.
132. WaiteLake/J	3N-62W	1978		15.6-o 18.0-g	60,620 (8,166)	3,225,692	54,138	3,309,365	114,758 (+8,166)	6,535,057	
133. Wattenberg/ Codell	1N-67W	1981			127,583 (41,333)	1,259,785					N. P.
134. Wattenberg/ J	1N-67W	1972		17.9-o 14.9-g	1,510,559 (1,764,892)	243,511,945	22,577	219,330,306	1,533,136 (+1,764,892)	462,842,251	Also Prod. in Adams & Boulder Co's.
135. Wattenberg/ Niobrara	1N-67W	1976		12.9-g	510	54,724		117,411	+510	172,135	
136. Wattenberg/ Sussex	1N-67W	1971		13.5-o 12.7-g	802 (308)	272,218	637	169,548	1,439 (308)	441,766	Used 0.0 for Econ. Limit
137. WheelerLake/ Shannon	3N-67W	1976			3,020	145					Prod. '76, P&A '78,
138. WhiteButte/J	8N-56W	1954		4.7-o 2.4-g	128,701	27,522	30,619	3,624	159,320	31,146	Prod. '81, '82. N. P.
139. Wigwam/D	1N-62W	1974		9.6-o 11.7-g	286,275	171,475	176,278	141,676	462,553	313,151	Also Prod. in Adams Co.
140. Wildhorse/D	7N-58W	1965			17,863	51,204					Prod. '65-'69, P&A '69,
141. Woodchuck/J	1N-62W	1981			1,737	2,777					Prod. 1982 N. P. N. P.

COUNTY TOTAL OF ESTIMATED RESERVES

230,111	Bbls.
219,762,565	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.

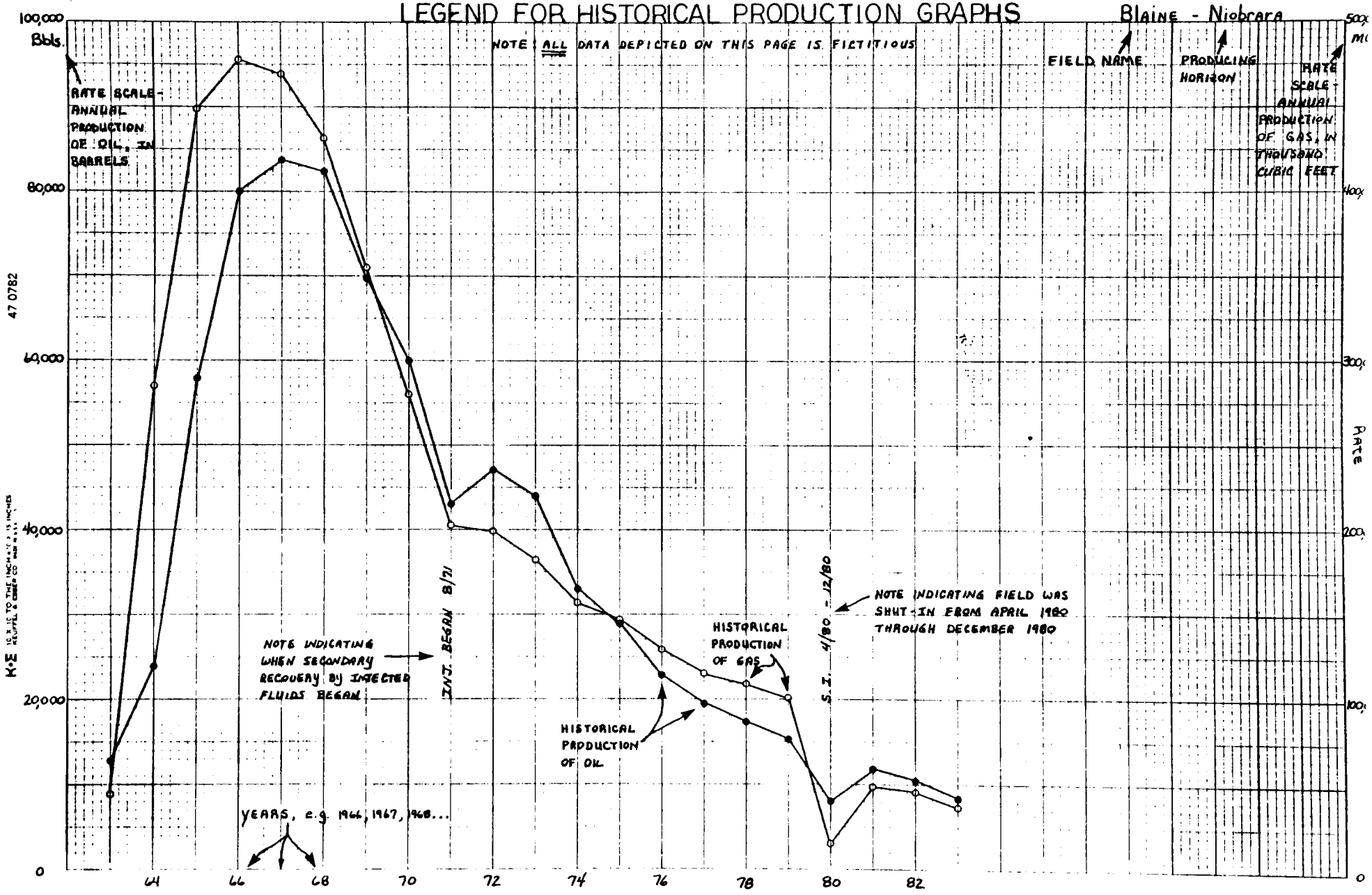
Haun, J.D., Cardwell, A.L., Herrod, W.H. and Cronoble, J.M., 1976. Oil and Gas Reserves of Colorado in Colorado School of Mines Research Institute, Mineral Industries Bulletin, v. 19, #5.

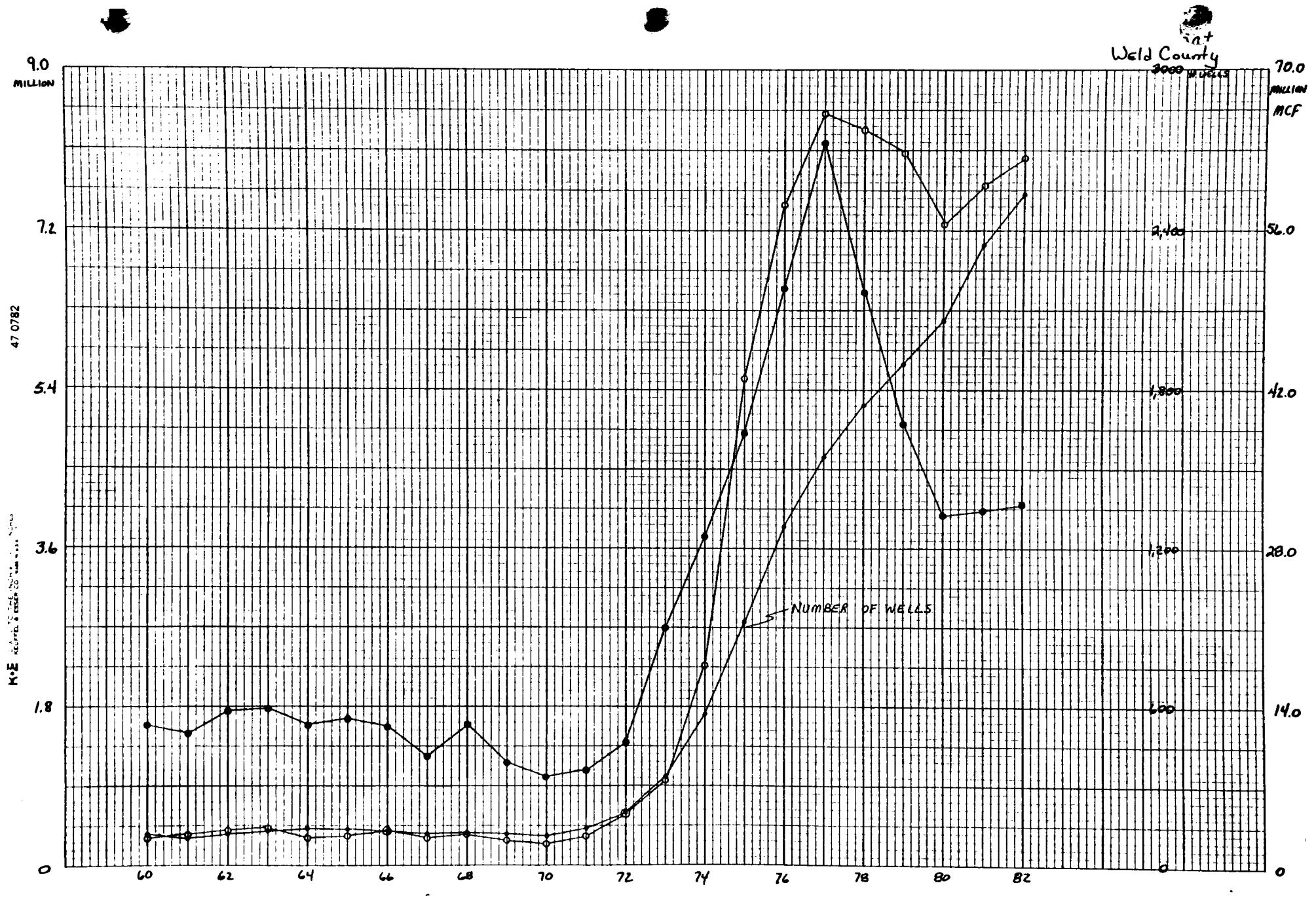
Parker, J.M., editor, 1961 Oil and Gas Field volume: Colorado-Nebraska: Rocky Mountain Association of Geologists, 389 pp.

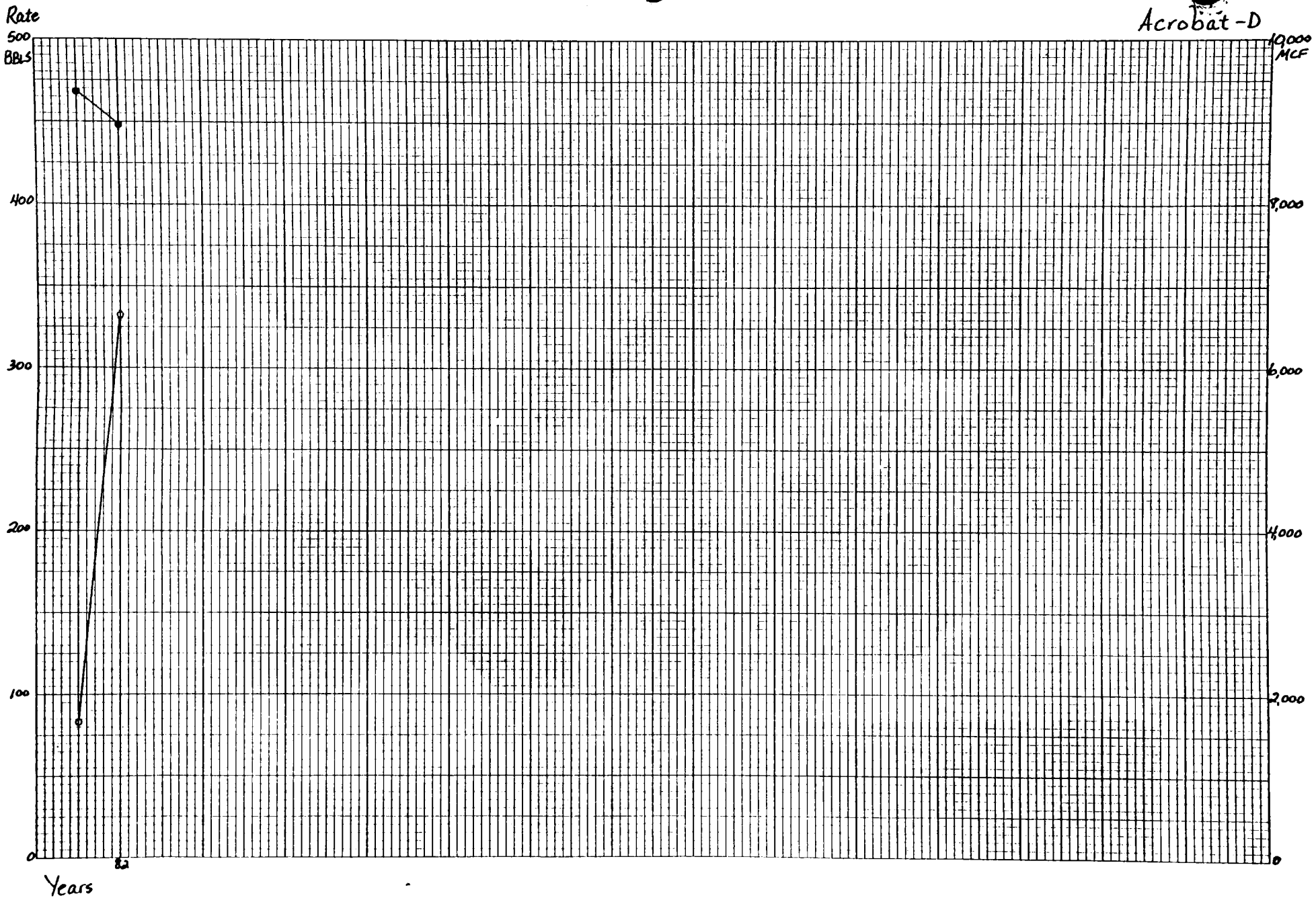
Appendix I

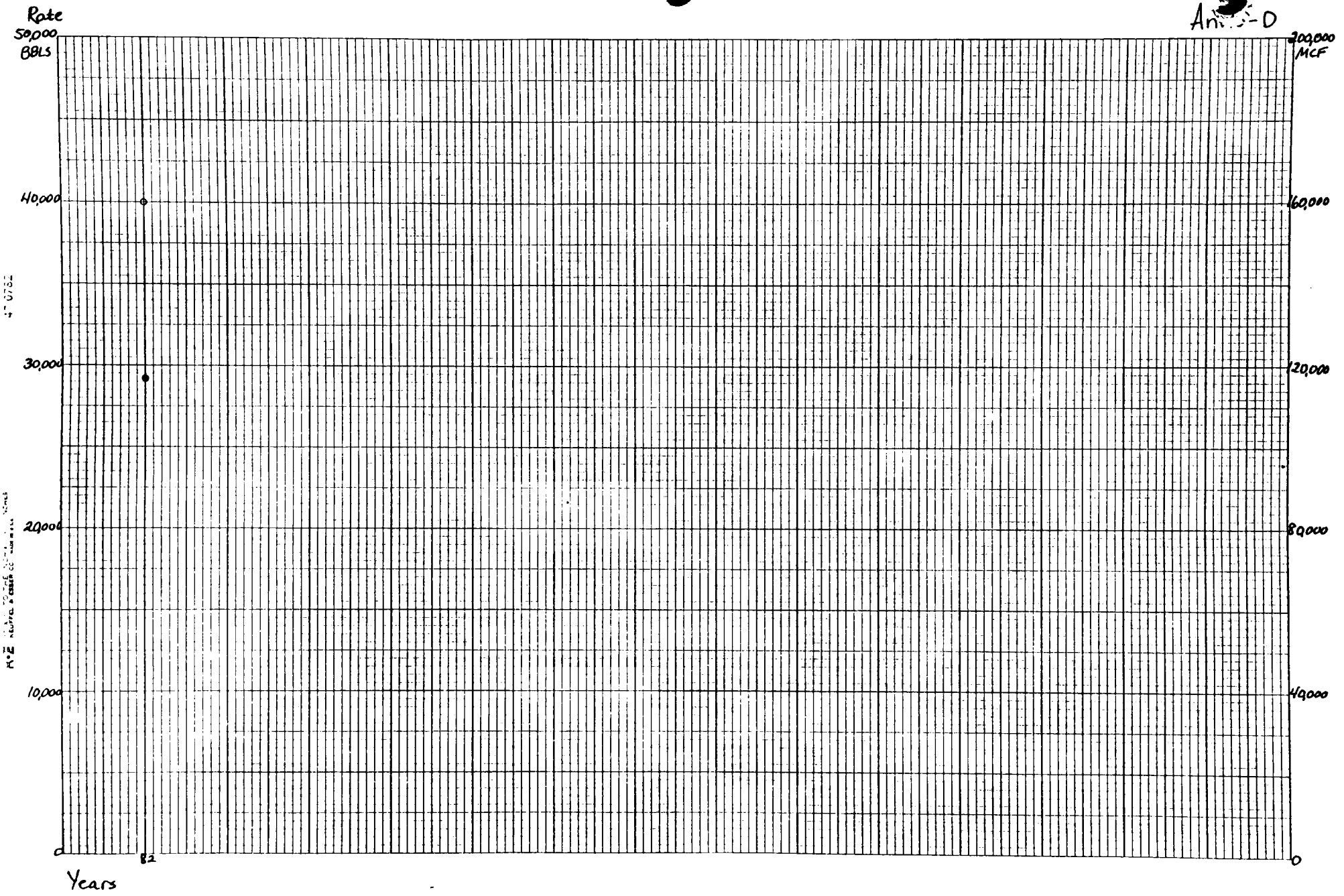
Historical production decline curve graphs for Weld County. These graphs are presented in alphabetical order by Field name and then by producing horizons within each field.

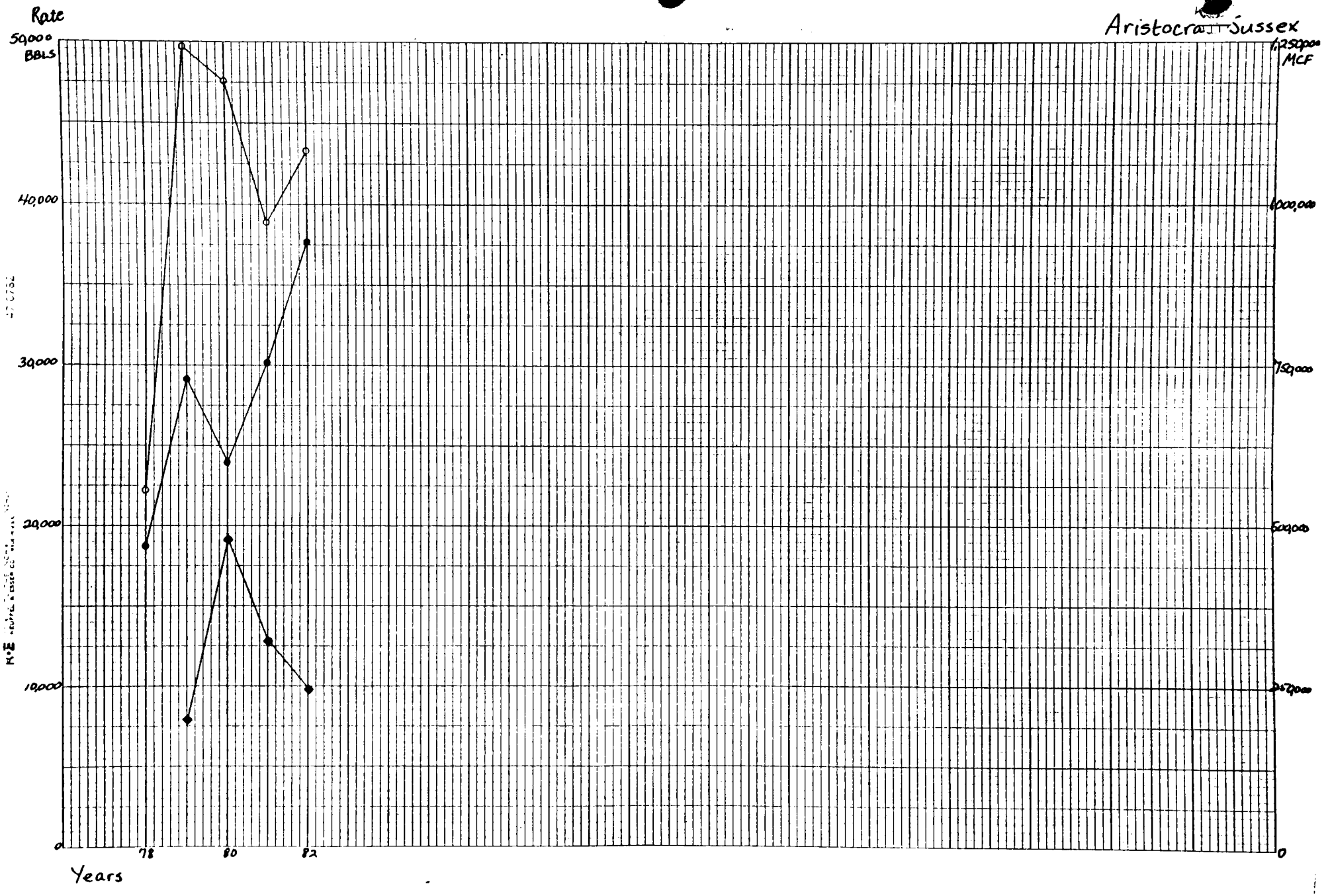
Note that only those fields actively producing as of 12-31-82 are included. Abandoned fields or field-horizons are not included.

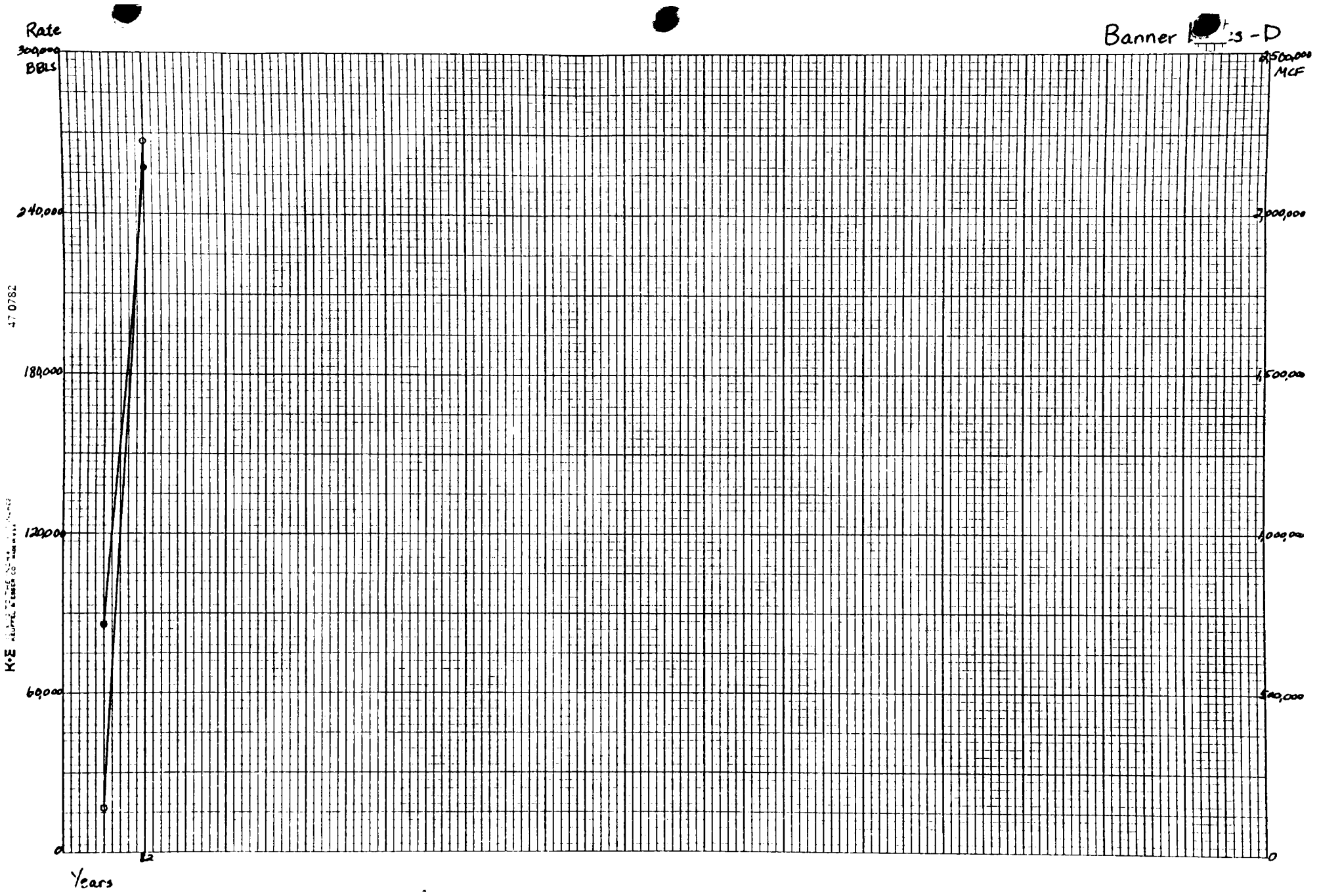

LEGEND FOR HISTORICAL PRODUCTION GRAPHS
NOTE: ALL DATA DEPICTED ON THIS PAGE IS FICTITIOUS
Blaine - Niobrara
FIELD NAME
PRODUCING HORIZON
RATE SCALE - ANNUAL PRODUCTION OF OIL, IN BARRELS
RATE SCALE - ANNUAL PRODUCTION OF GAS, IN THOUSAND CUBIC FEET
100,000 Bbls.
80,000
60,000
40,000
20,000
0
500,000 M
400,000
300,000
200,000
100,000
0
RATE
47 0782
K+E 10 X 10 TO THE INCH 47 X 19 INCHES KEUFFEL & ESSER CO MADE IN U.S.A.
NOTE INDICATING WHEN SECONDARY RECOVERY BY INJECTED FLUIDS BEGAN
INJ. BEGAN 8/71
HISTORICAL PRODUCTION OF OIL
HISTORICAL PRODUCTION OF GAS
S.I. 4/80 - 12/80
NOTE INDICATING FIELD WAS SHUT-IN FROM APRIL 1980 THROUGH DECEMBER 1980
YEARS, e.g. 1966, 1967, 1968...
64
66
68
70
72
74
76
78
80
82

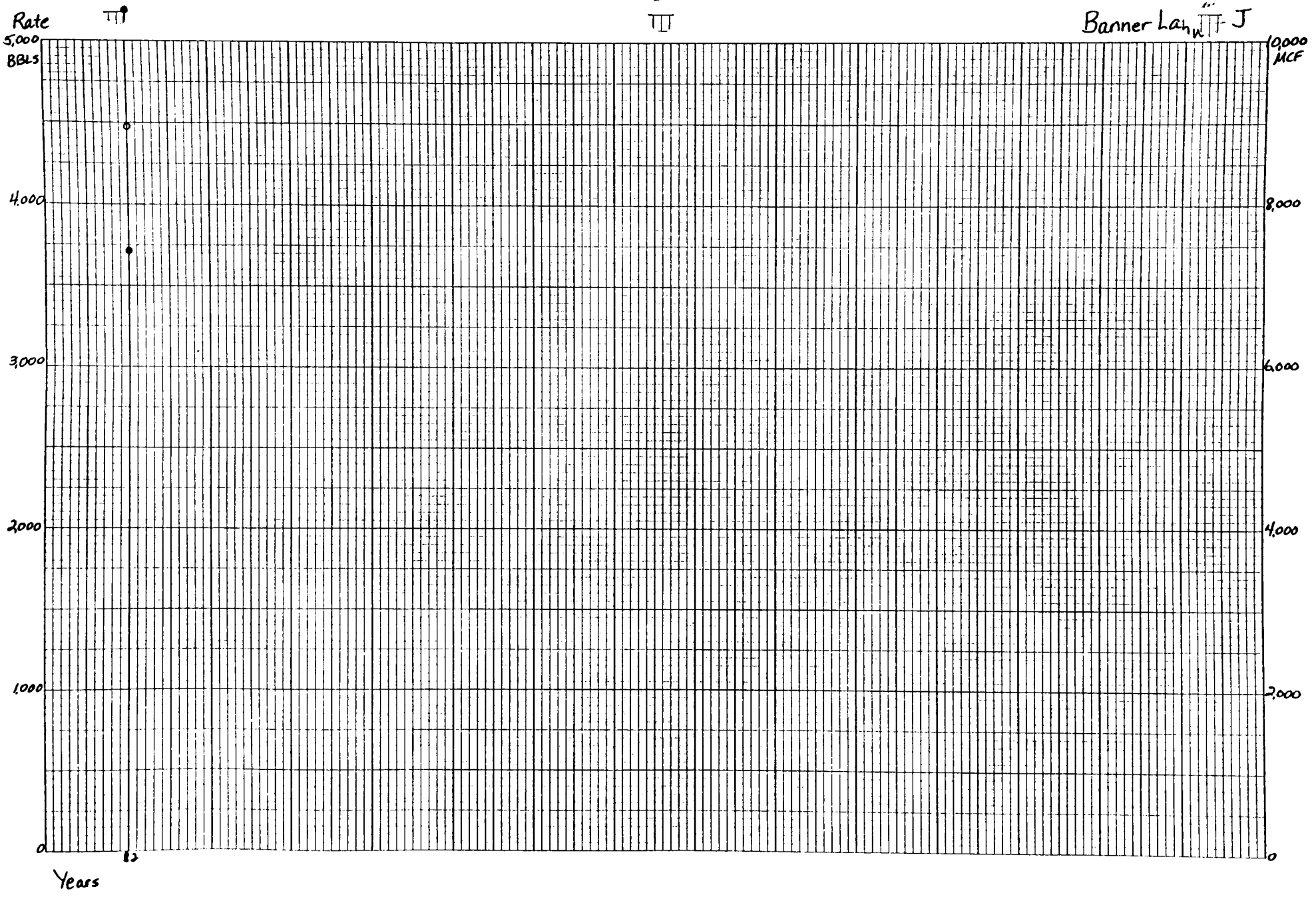

Weld County
9.0
MILLION
7.2
5.4
3.6
1.8
0
70.0
MILLION
MCF
56.0
42.0
28.0
14.0
0
3000 WELLS
2,400
1,800
1,200
600
0
60
62
64
66
68
70
72
74
76
78
80
82
NUMBER OF WELLS
47 0782

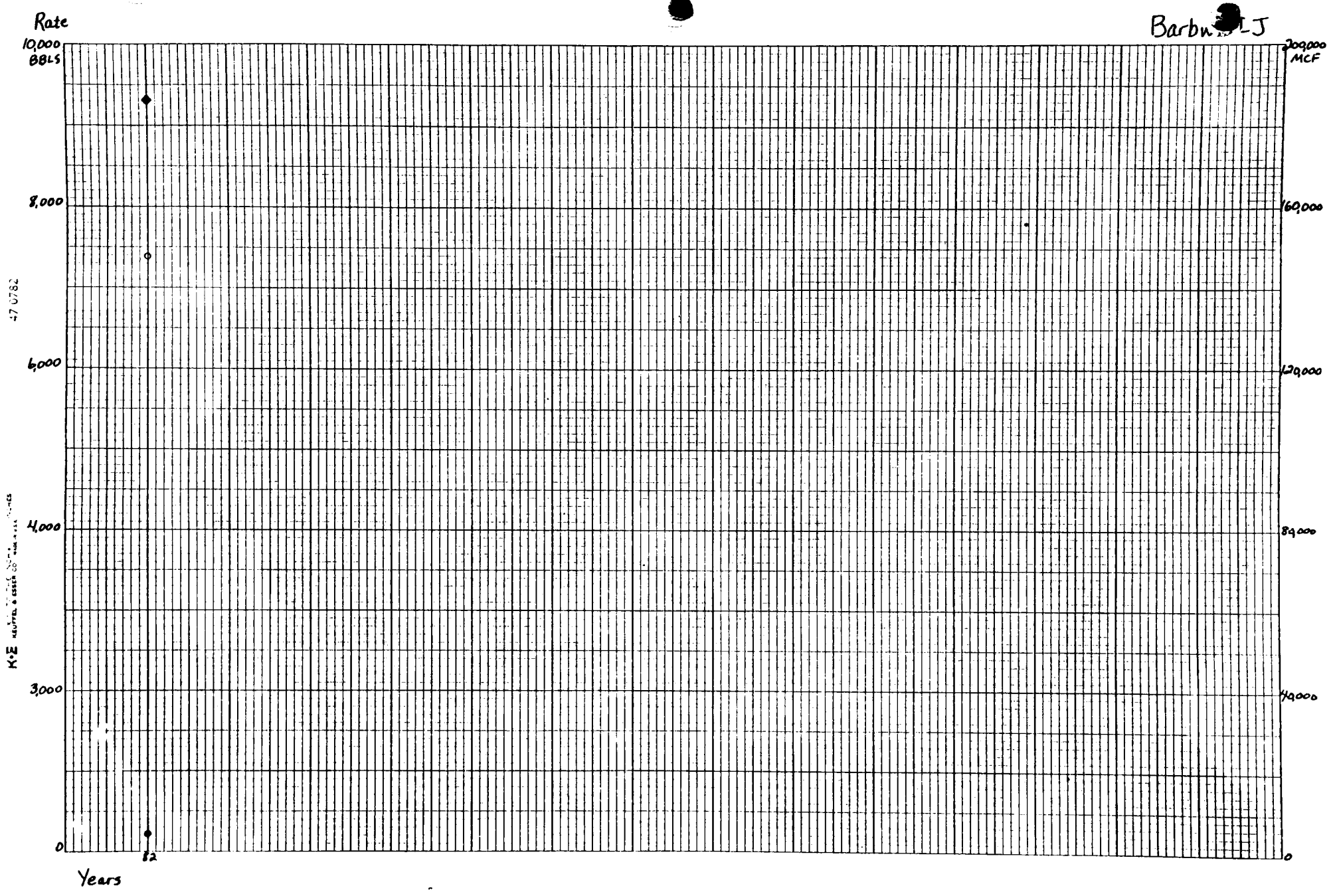

Rate
500
BBLS
400
300
200
100
0
19,000
MCF
8,000
6,000
4,000
2,000
0
8.2
Years
Acrobat-D

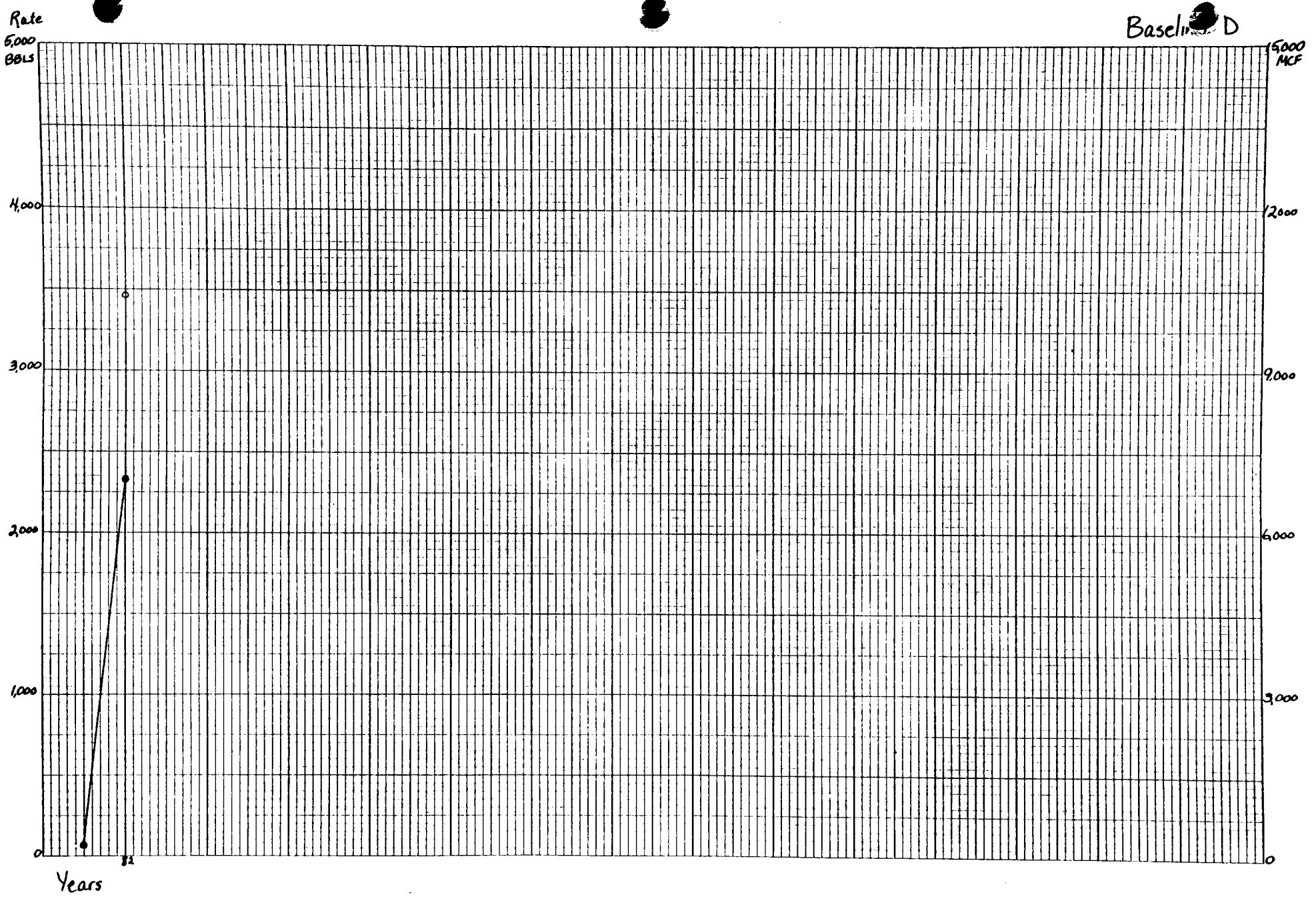

Rate
50,000 BBLS
40,000
30,000
20,000
10,000
0
200,000 MCF
160,000
120,000
80,000
40,000
0
82
Years

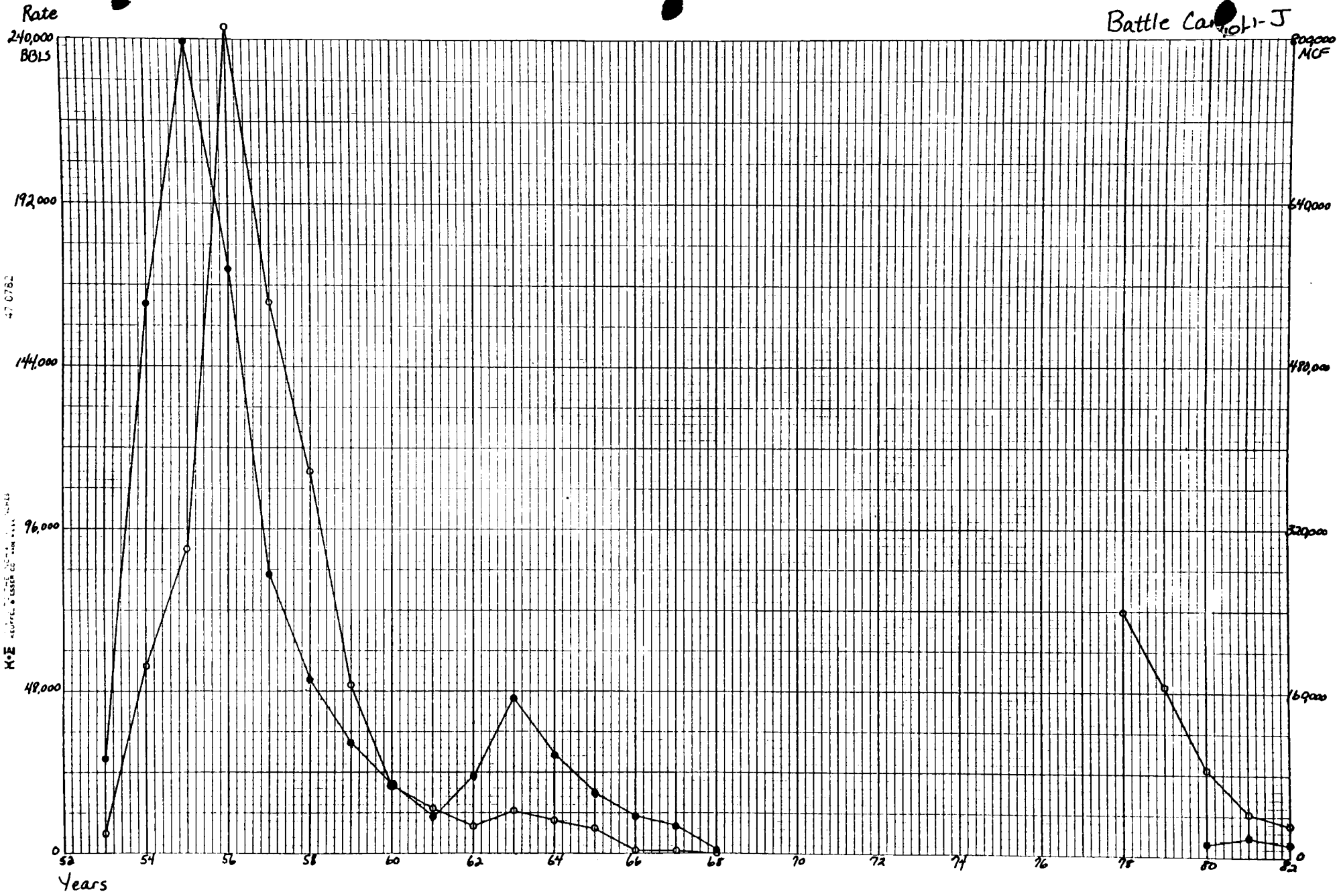

Rate
50,000
BBLS
40,000
30,000
20,000
10,000
0
78
80
82
Years
Aristocrat - Sussex
1,250,000
MCF
1,000,000
750,000
500,000
250,000
0

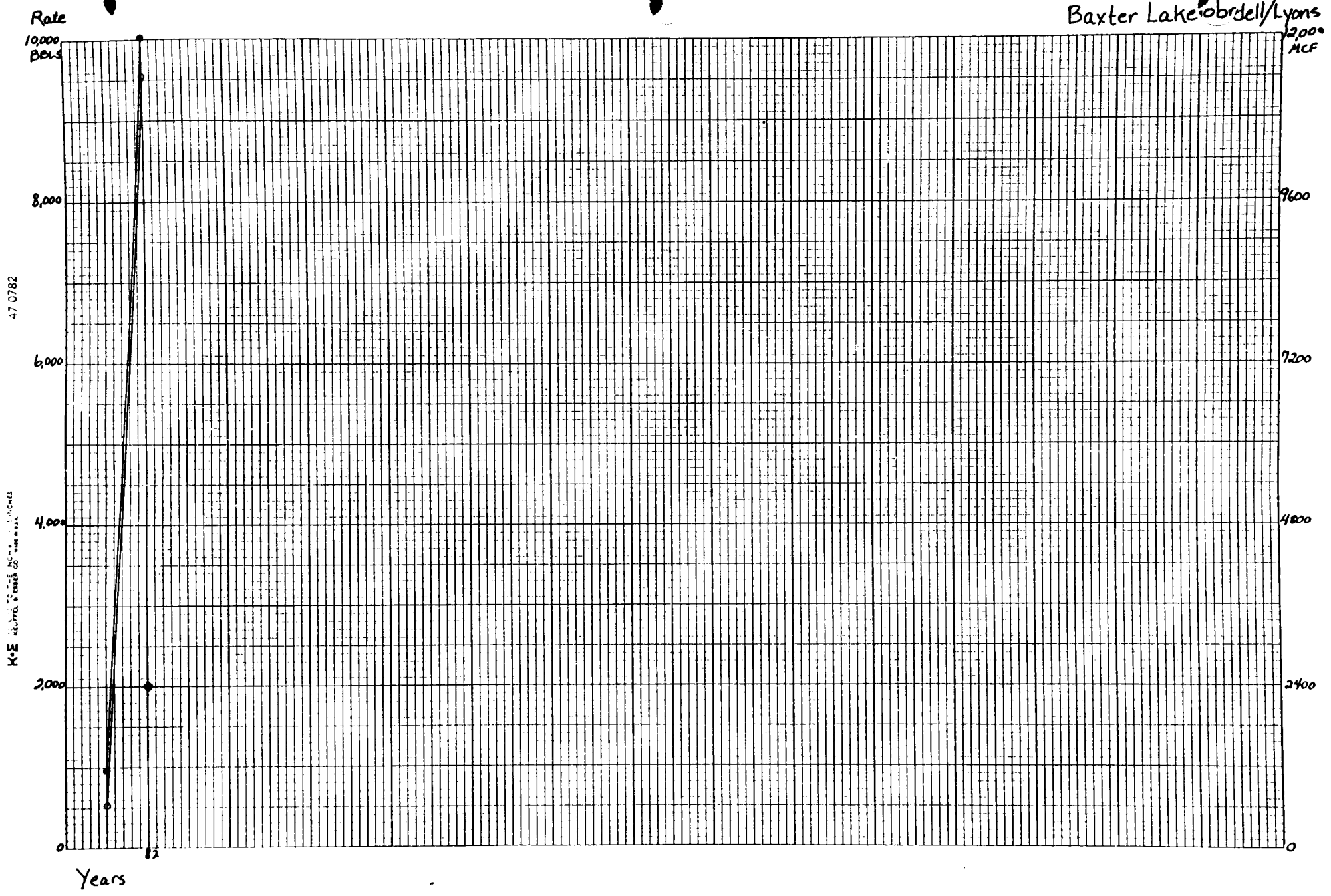

Rate
300,000
BBLS
240,000
180,000
120,000
60,000
0
3,500,000
MCF
2,000,000
1,500,000
1,000,000
500,000
0
L2
Years
Banner
-D
47 0782
K·E

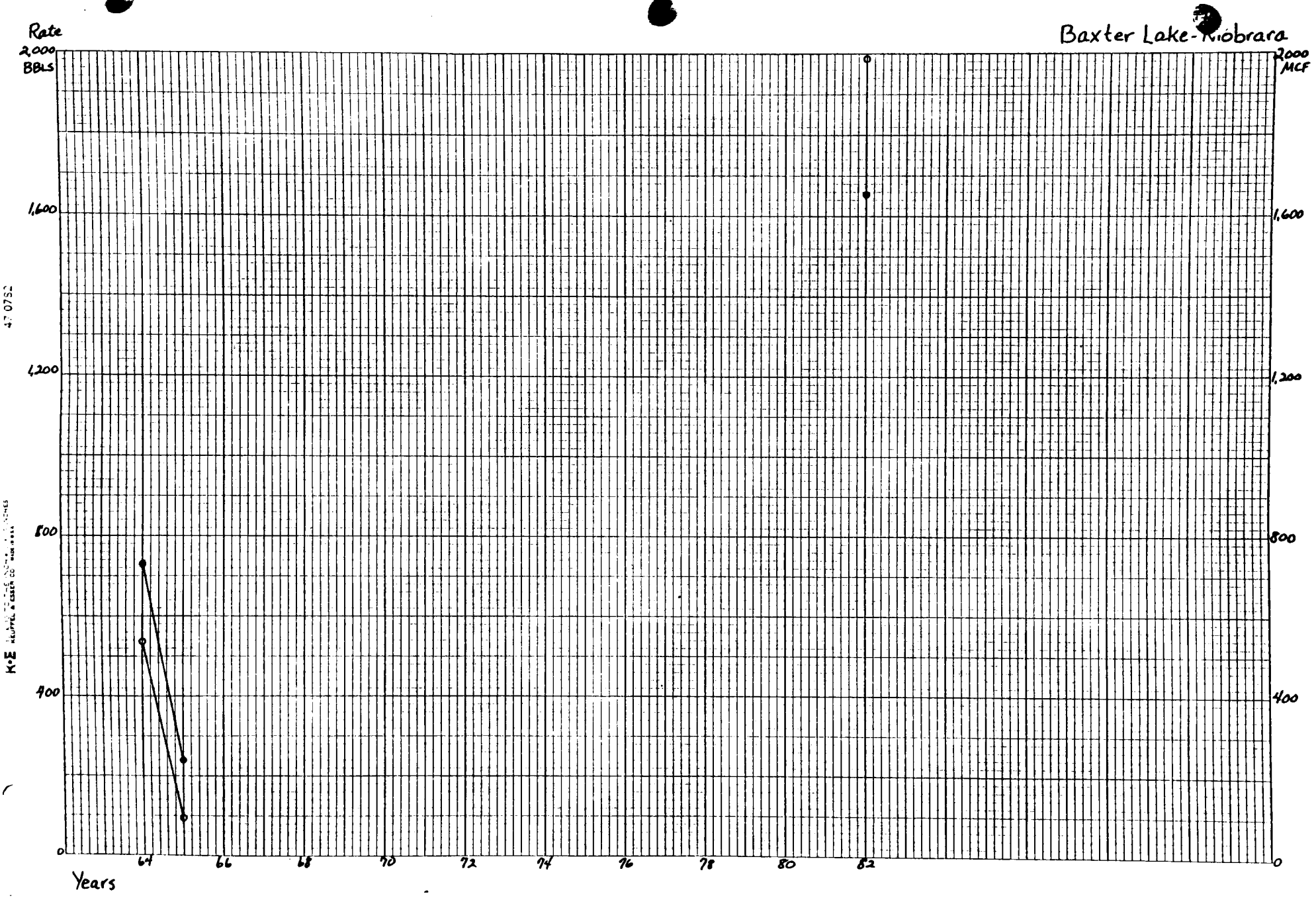

Rate
Banner Lan
J
5,000
BBLS
4,000
3,000
2,000
1,000
0
10,000
MCF
8,000
6,000
4,000
2,000
0
12
Years


Rate
Barbu J
10,000
BBLS
8,000
6,000
4,000
3,000
0
200,000
MCF
160,000
120,000
80,000
40,000
0
12
Years
47 0782
K+E

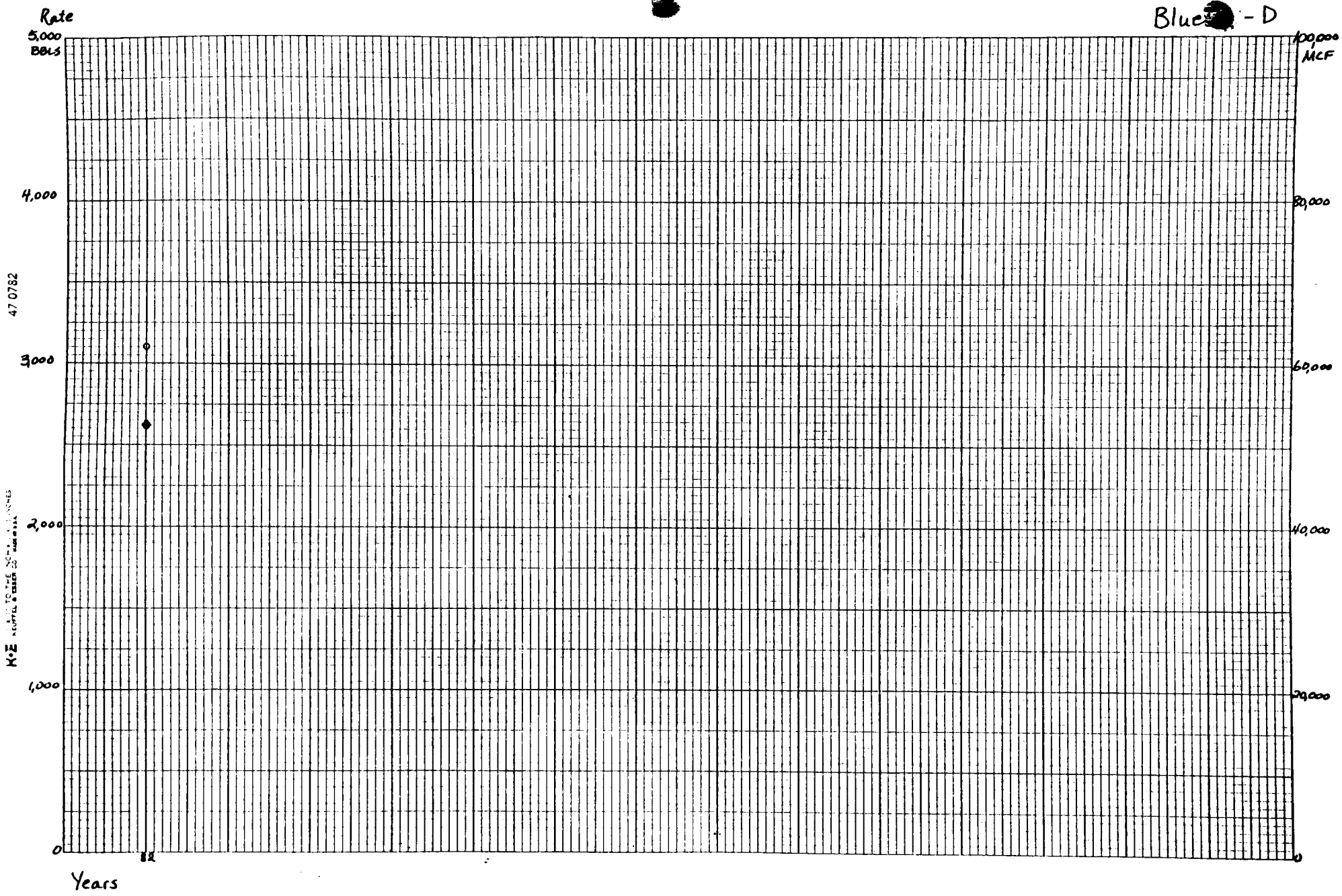

Rate
Baseline D
5,000 BBLS
4,000
3,000
2,000
1,000
0
15,000 MCF
12,000
9,000
6,000
3,000
0
Years

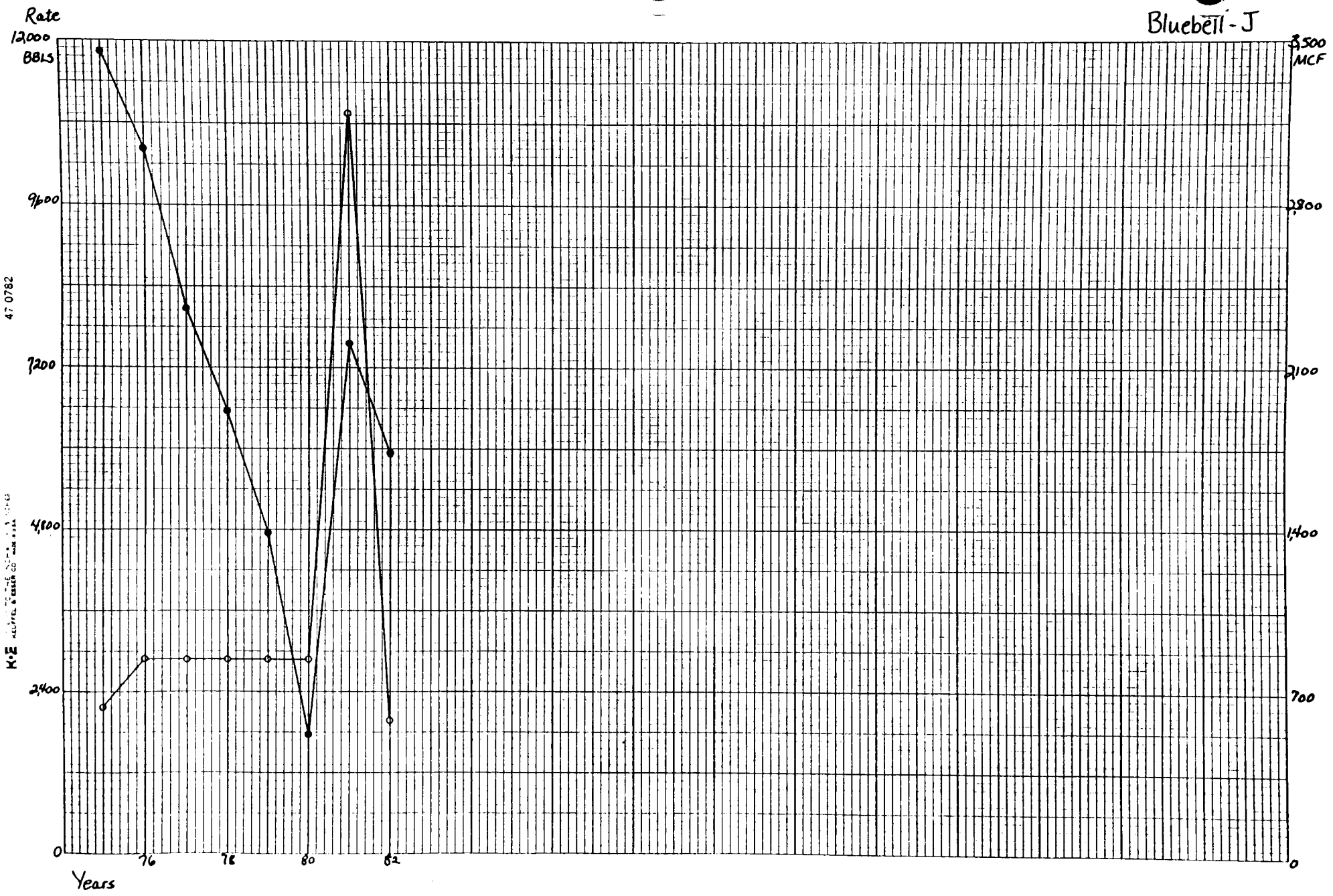

Rate
240,000
BBLS
192,000
144,000
96,000
48,000
0
MCF
640000
480,000
320000
160000
0
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years
Battle Ca
1-J

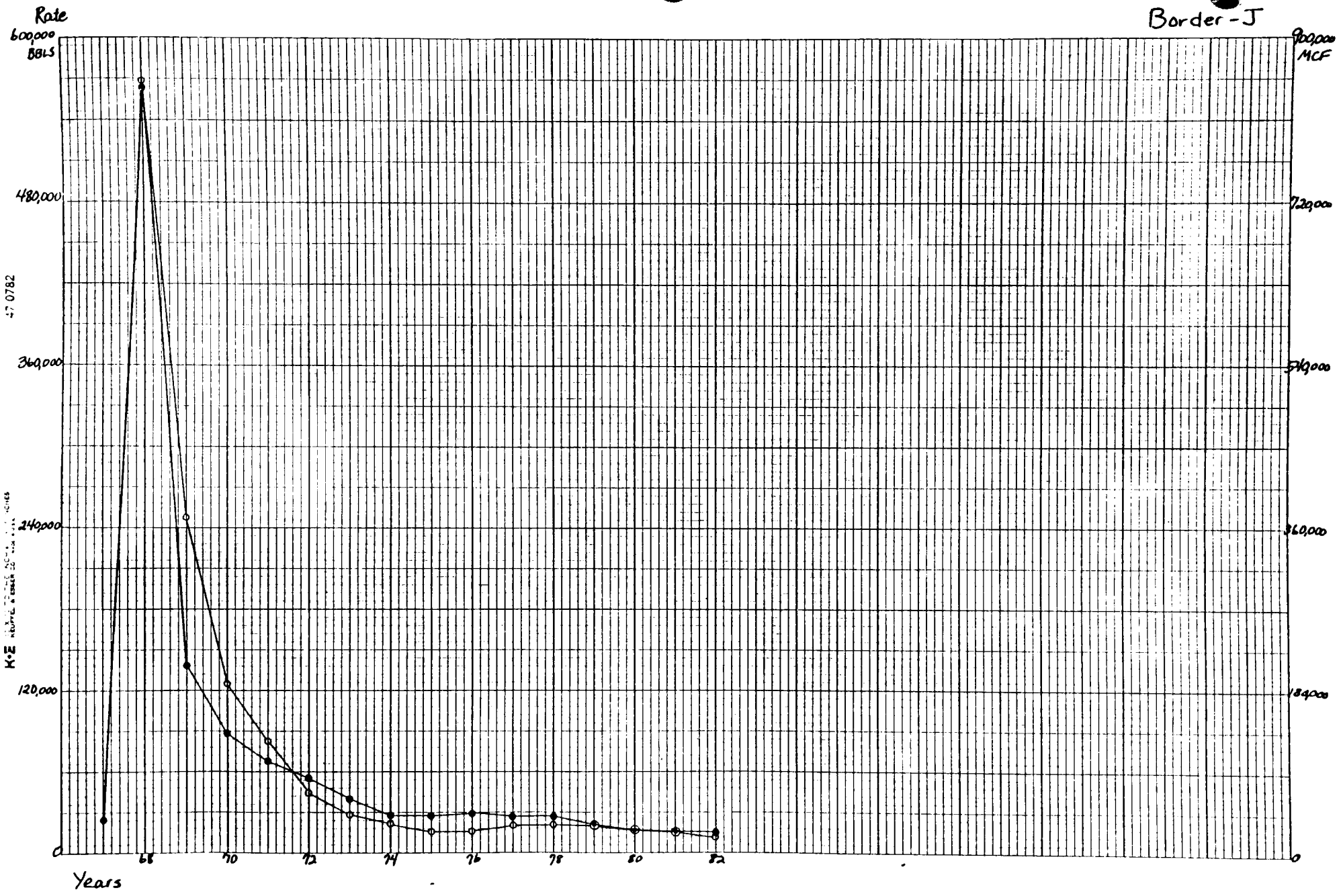

Rate
Baxter Lake Cobrdell/Lyons
10,000 BBLS
8,000
6,000
4,000
2,000
0
12,000 MCF
9600
7200
4800
2400
0
Years
47 0782
K•E


Rate
2,000 BBLS
1,600
1,200
800
400
0
2,000 MCF
1,600
1,200
800
400
0
64
66
68
70
72
74
76
78
80
82
Years
Baxter Lake-Niobrara

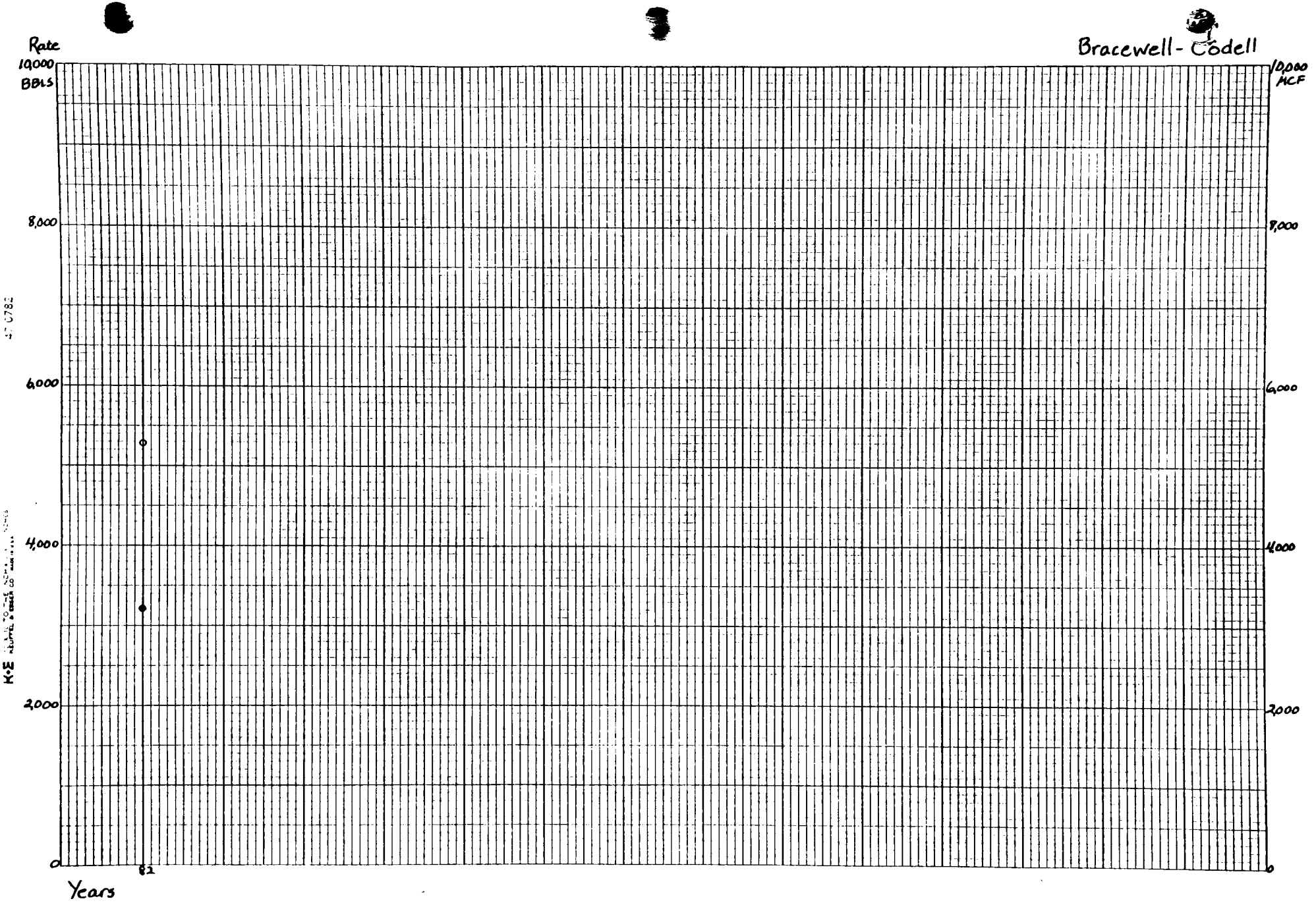

Rate
Black Hollow-Lyons
800,000 BBLS
640,000
480,000
320,000
160,000
0
32,000 MCF
25,600
19,200
12,800
6,400
0
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years

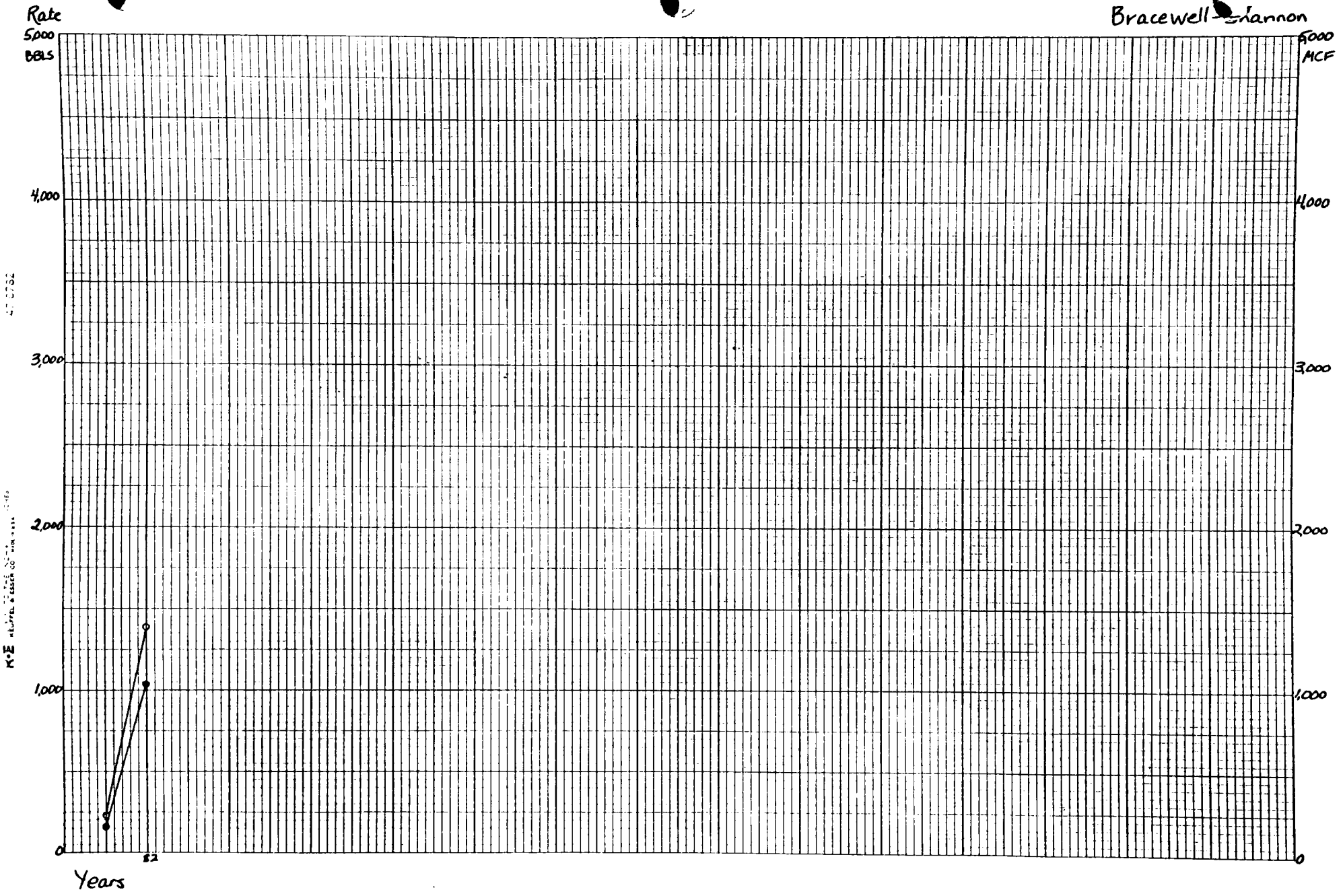

Rate
5,000 BBLS
4,000
3000
2,000
1,000
0
100,000 MCF
80,000
60,000
40,000
20,000
0
47 0782
K&E
Years


Rate
12000
BBLS
9600
7200
4800
2400
0
3500
MCF
2800
2100
1400
700
0
76
78
80
82
Years
Bluebell - J
47 0782
K&E


Rate
600,000
BBLS
480,000
360,000
240,000
120,000
0
900,000
MCF
720,000
540,000
360,000
180,000
0
Border-J
47 0782
K-Z
68
70
72
74
76
78
80
82
Years


Rate
Bounty
20,000 MCF
16,000
12,000
8,000
4,000
0
12,000 BBLS
9,600
7,200
4,800
2,400
0
64
66
68
70
72
74
76
78
80
82
Years


Rate
10,000
BBLS
8,000
6,000
4,000
2,000
0
10,000
MCF
8,000
6,000
4,000
2,000
0
61
Years
Bracewell - Codell


Rate
Bracewell-Shannon
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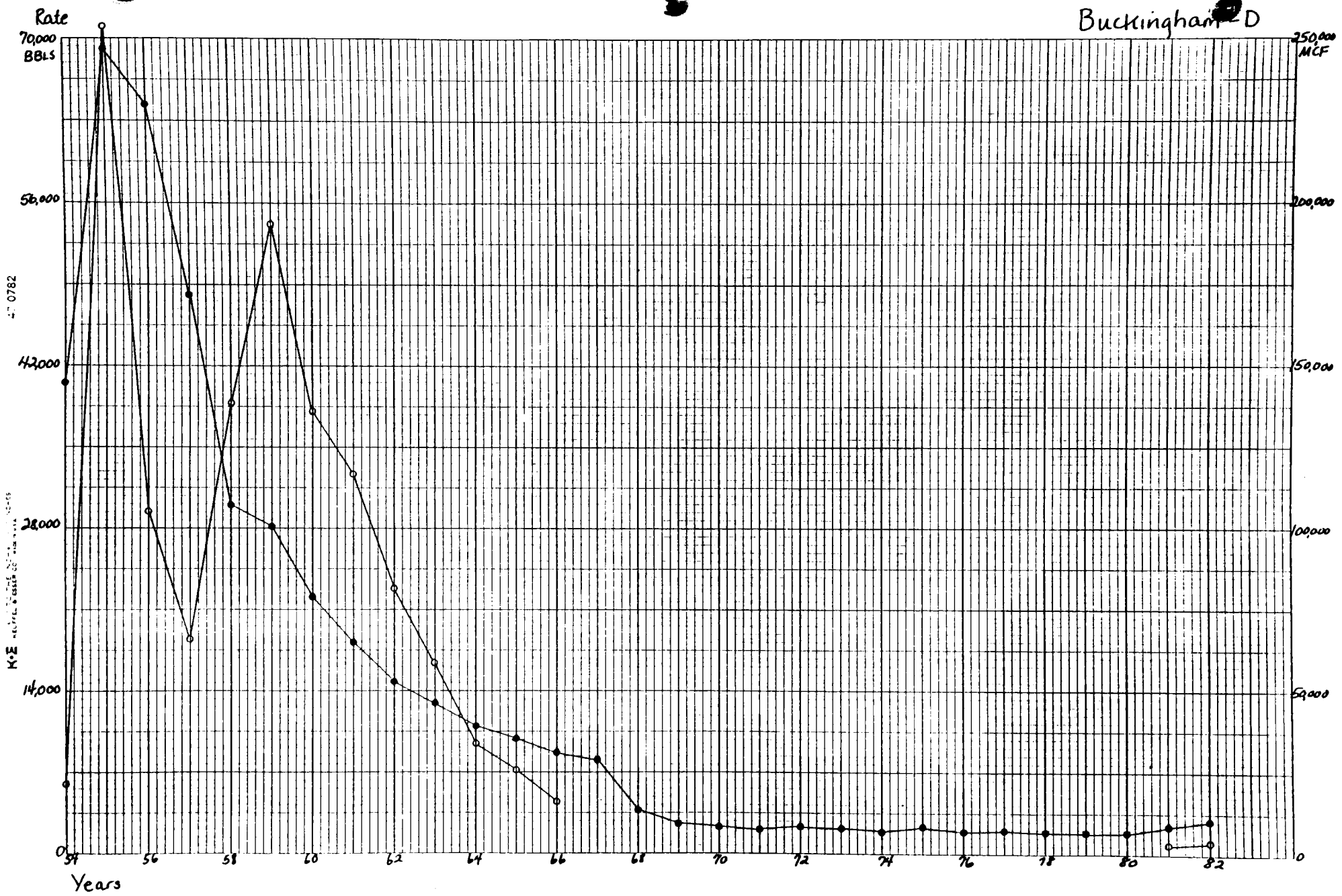
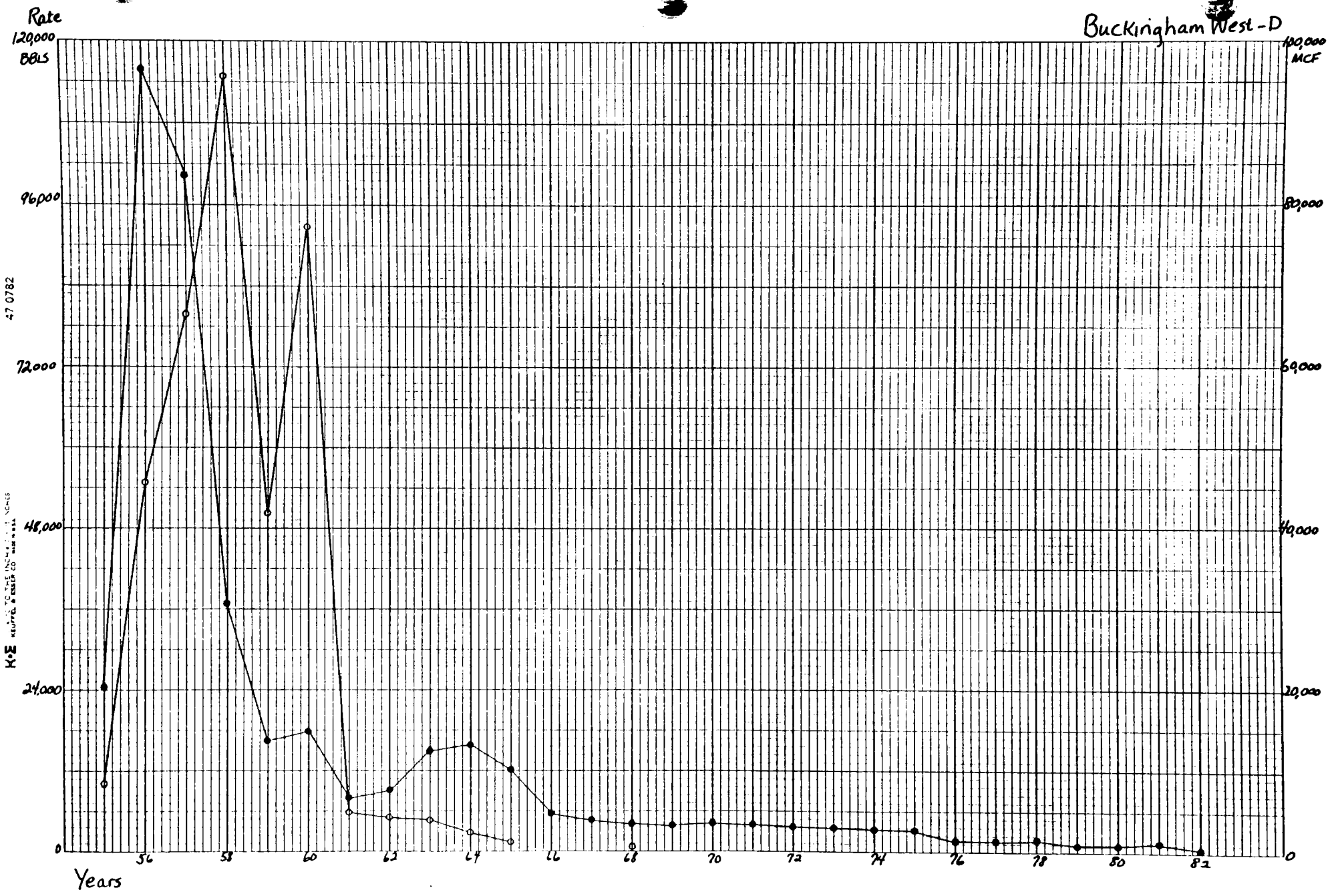
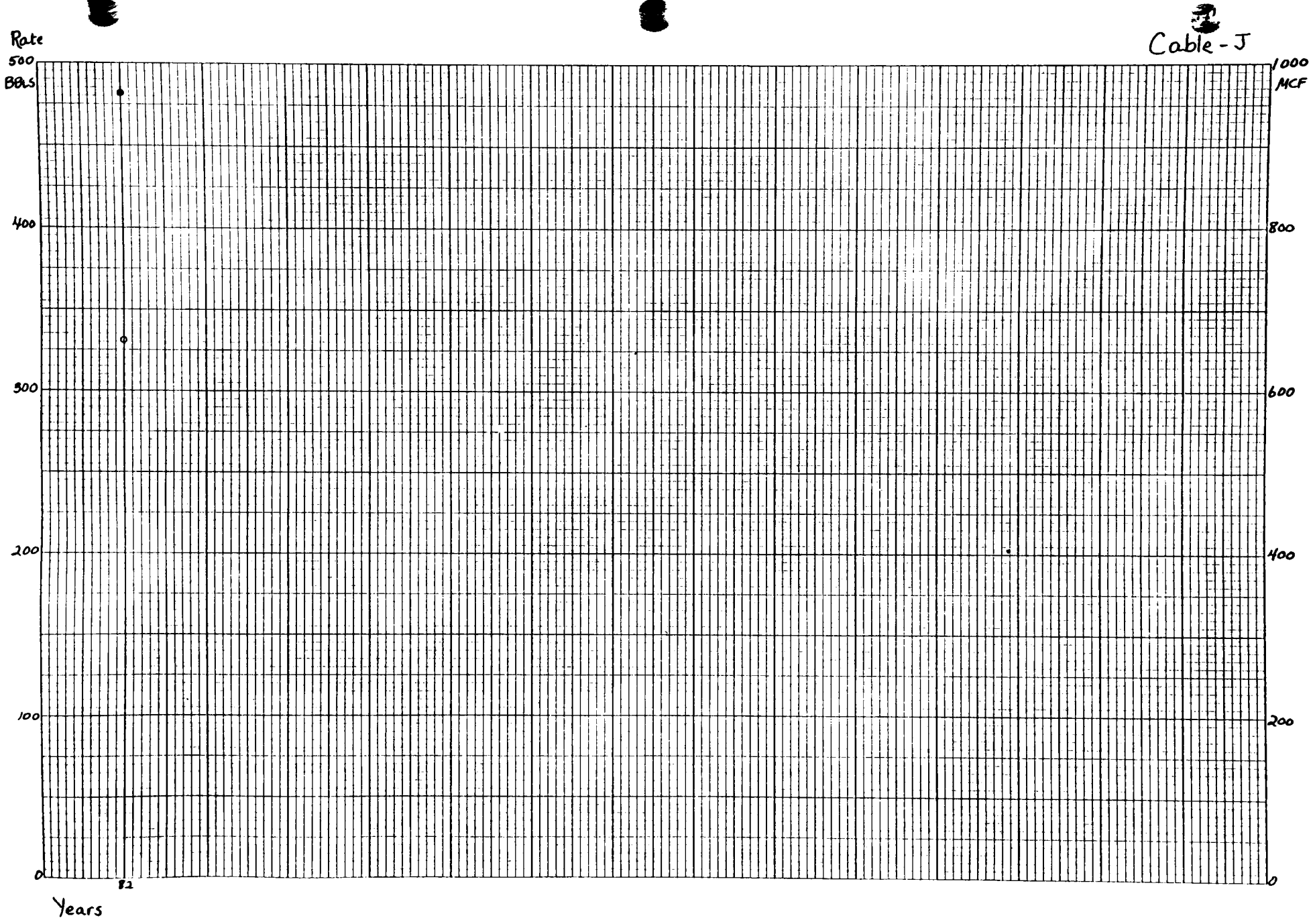
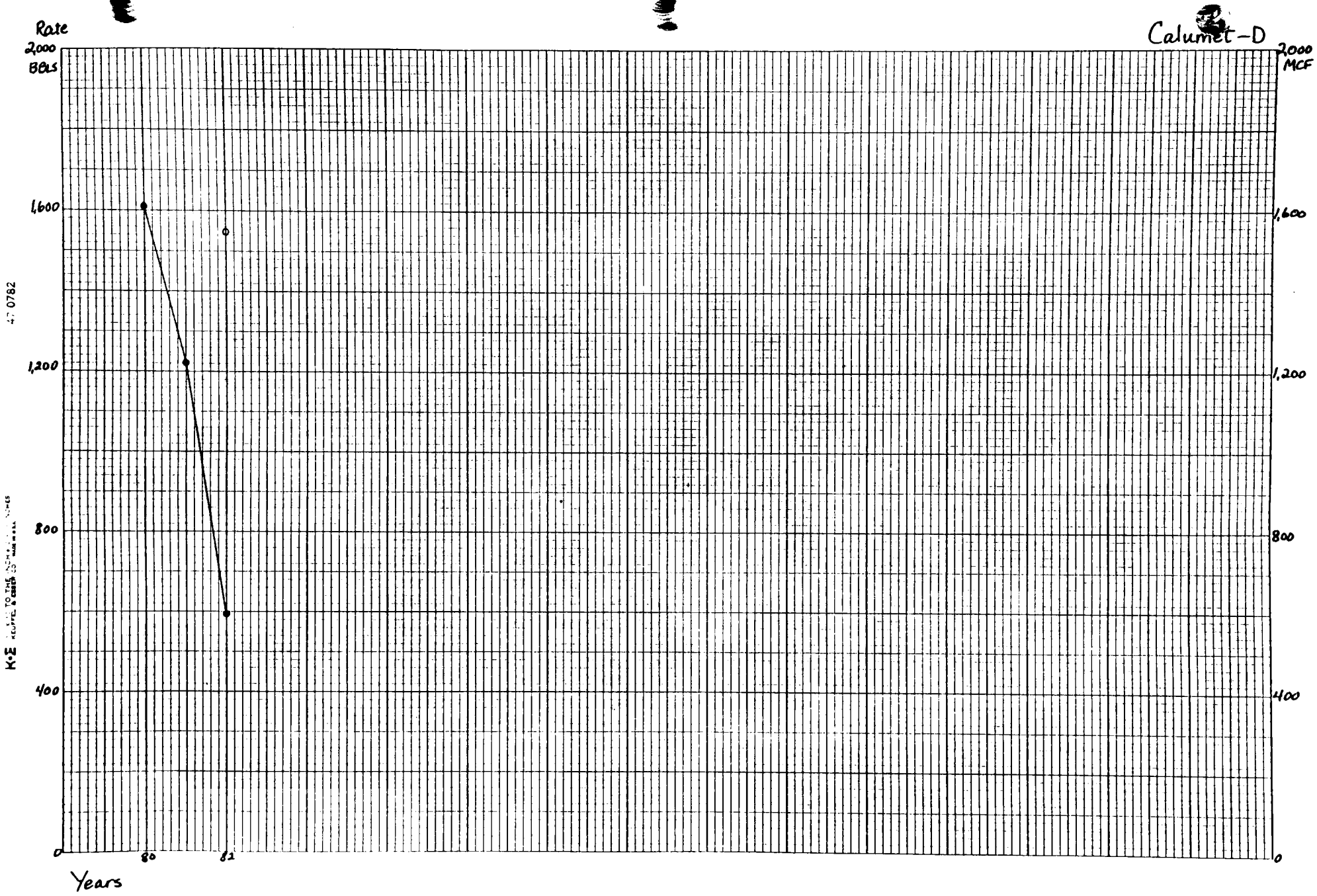
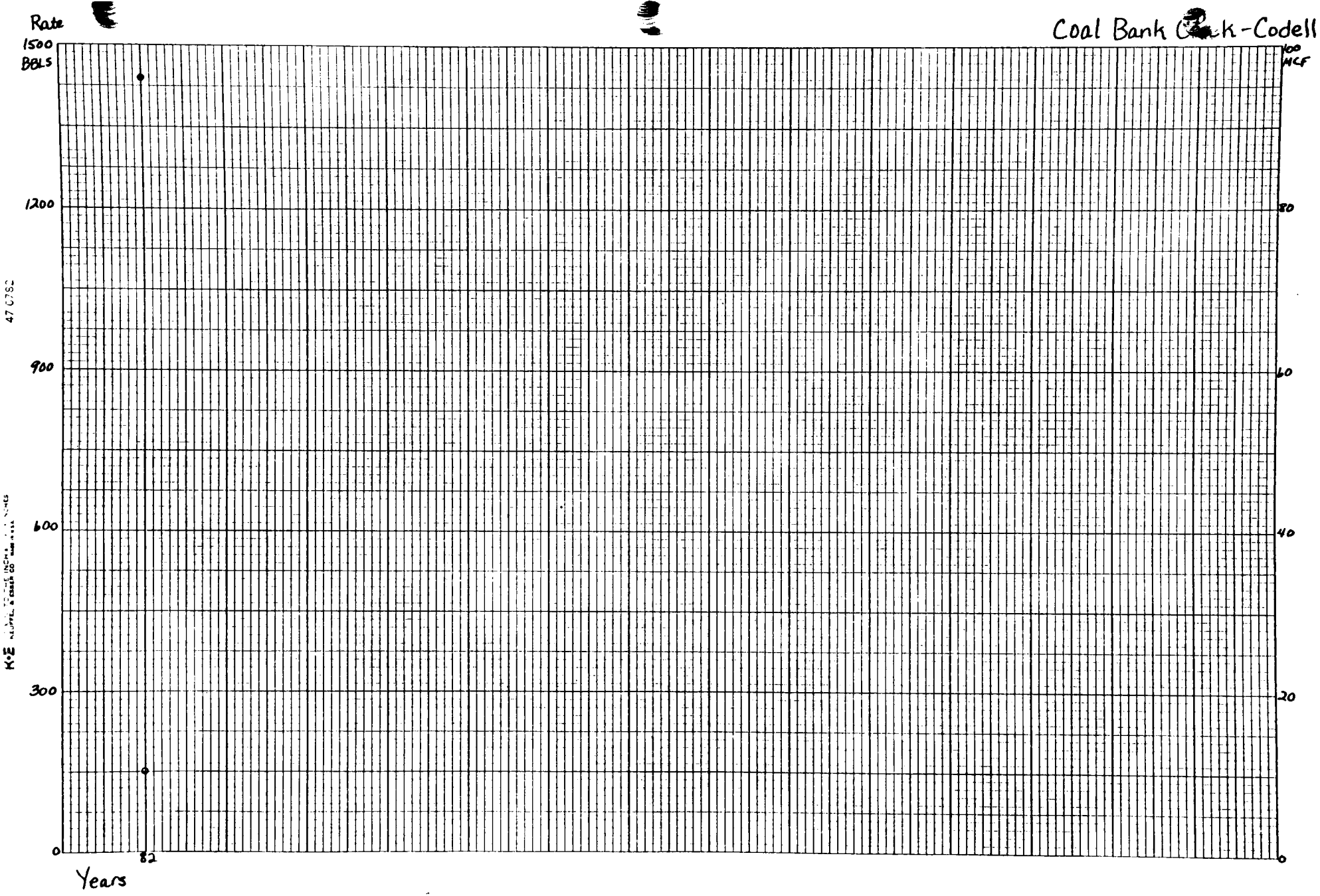
BBLS
4,000
3,000
2,000
1,000
0
5,000
MCF
4,000
3,000
2,000
1,000
0
82
Years

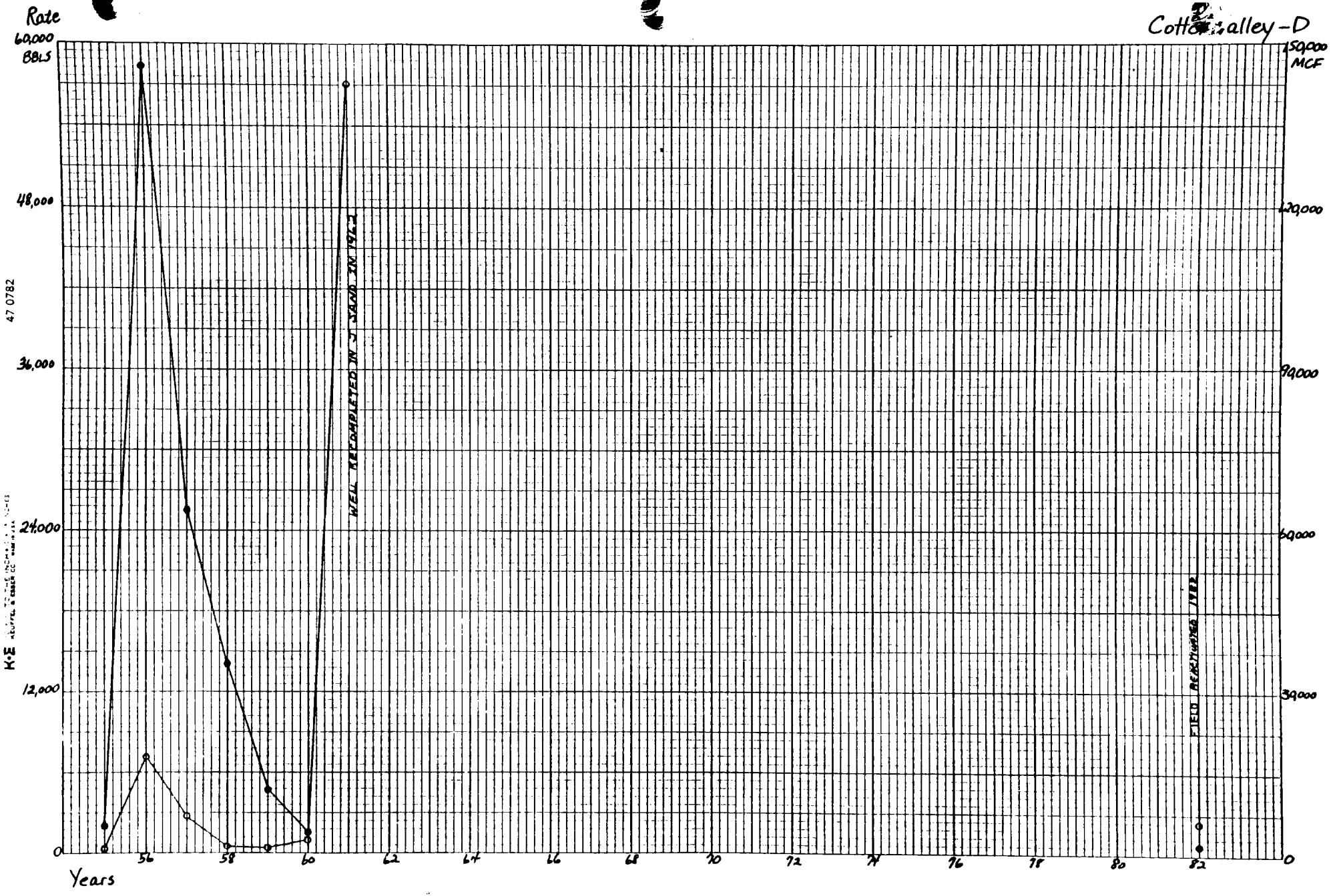

Rate
70,000
BBLS
56,000
42,000
28,000
14,000
0
250,000
MCF
200,000
150,000
100,000
50,000
0
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years
Buckingham D
K&E

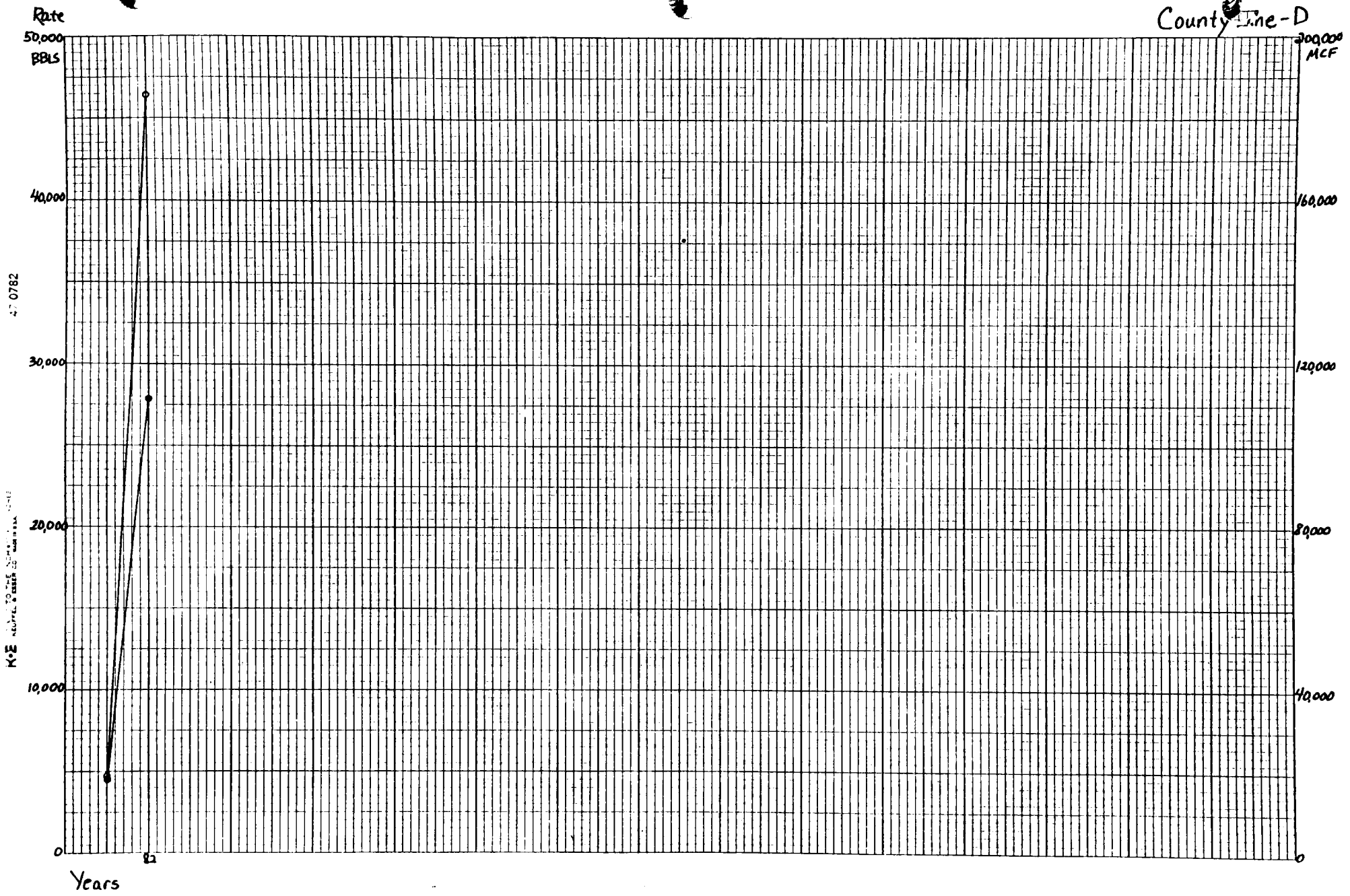

Rate
120,000
BBLS
96,000
72,000
48,000
24,000
0
100,000
MCF
80,000
60,000
40,000
20,000
0
Buckingham West-D
47 0782
K&E
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years

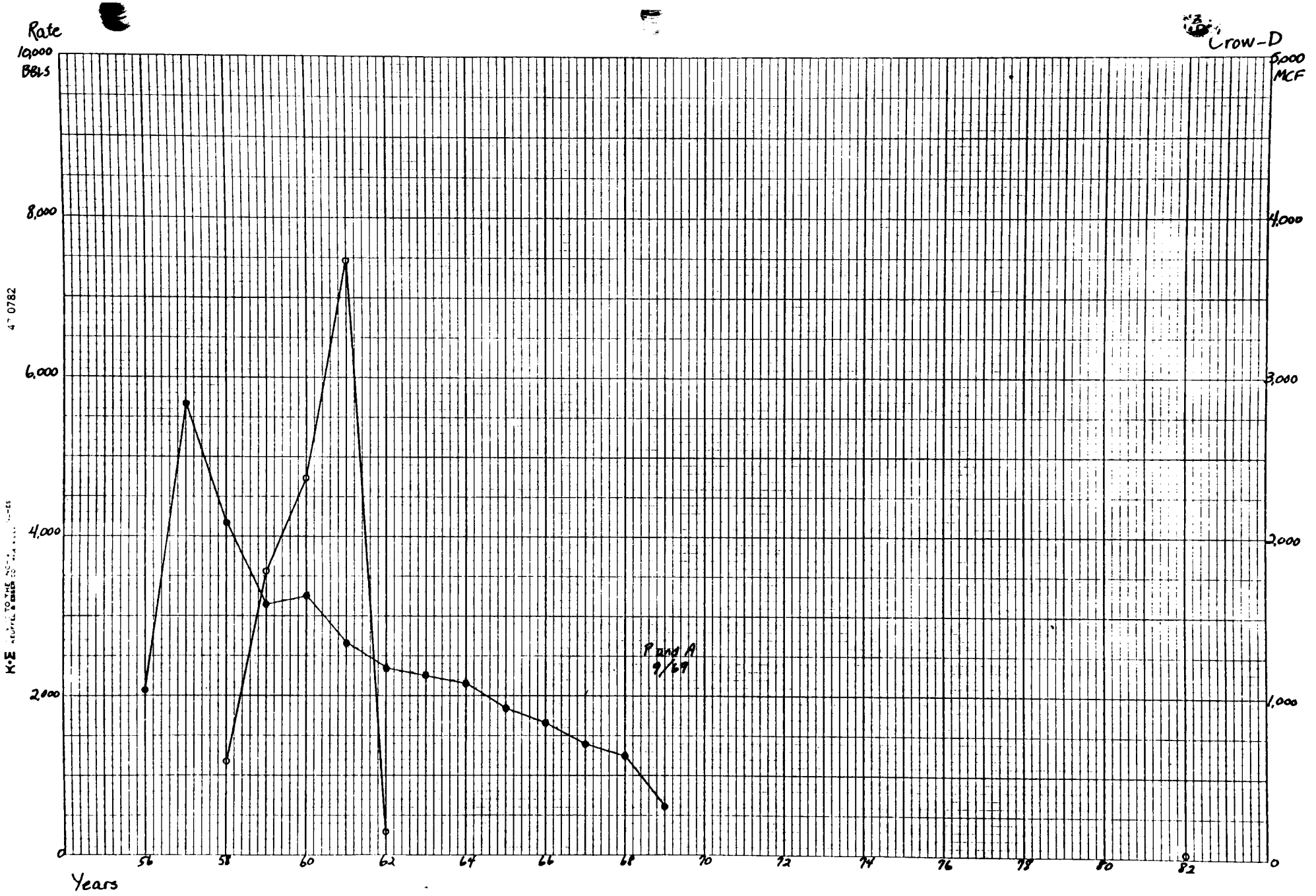

Rate
Cable - J
500
BBLS
400
300
200
100
0
1000
MCF
800
600
400
200
0
82
Years

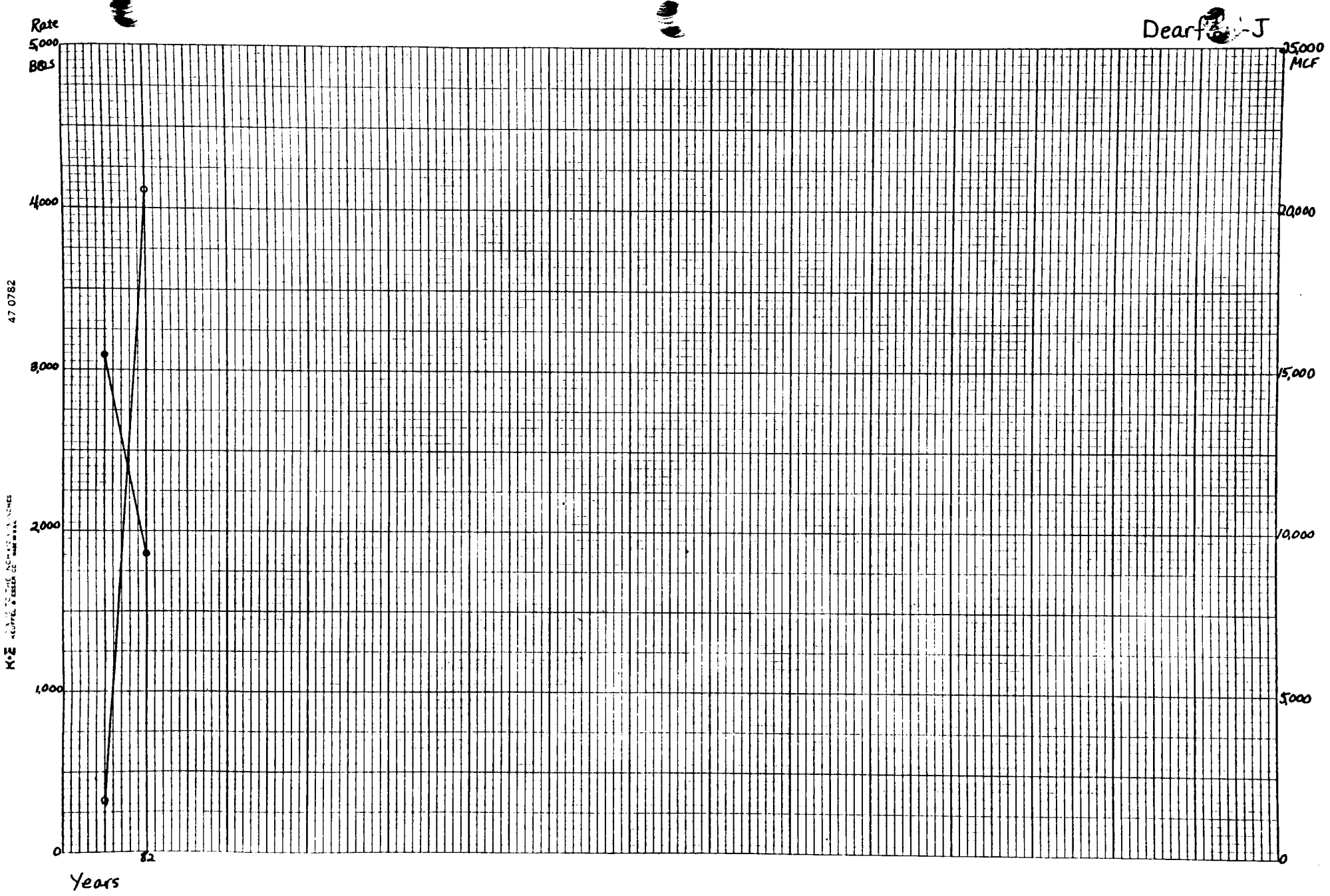

Rate
Calumet-D
2,000 BBLS
1,600
1,200
800
400
0
2,000 MCF
1,600
1,200
800
400
0
80
81
Years

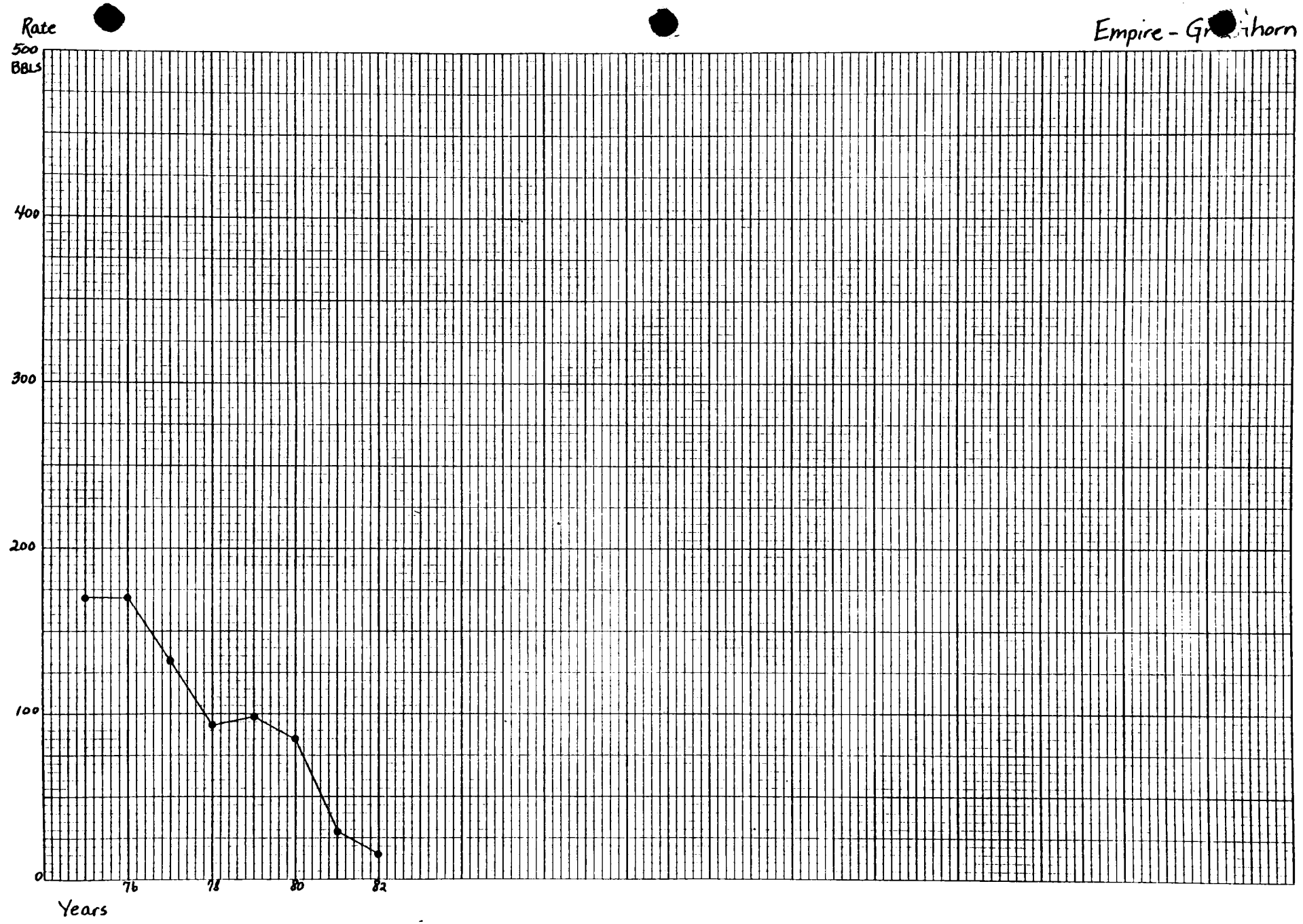

Rate
Coal Bank Creek-Codell
1500
BBLS
1200
900
600
300
0
100
MCF
80
60
40
20
0
82
Years

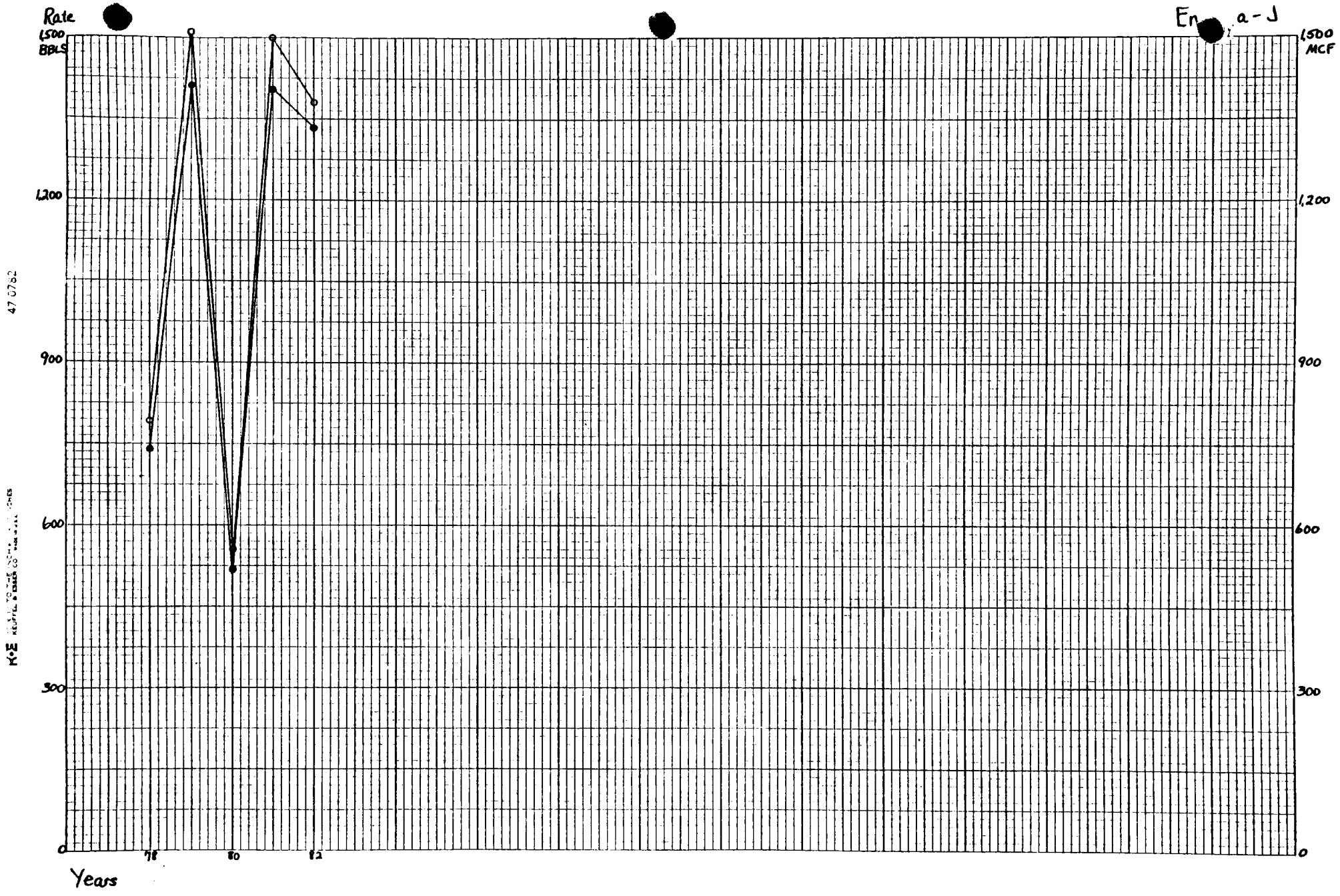

Rate
60,000
BBLS
48,000
36,000
24,000
12,000
0
150,000
MCF
120,000
90,000
60,000
30,000
0
Years
56
58
60
62
64
66
68
70
72
74
76
78
80
82
WELL RECOMPLETED IN 3rd SAND IN 1962
FIELD RECHARGED 1982
47 0782
K·E


Rate
50,000
BBLS
40,000
30,000
20,000
10,000
0
Years
200,000
MCF
160,000
120,000
80,000
40,000
0


Rate
10,000
BBLS
8,000
6,000
4,000
2,000
0
5,000
MCF
4,000
3,000
2,000
1,000
0
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years
Crow-D
P and A
9/69


Rate
5,000
BBLS
4000
3,000
2000
1,000
0
82
Years
Dearf -J
25000
MCF
20000
15,000
10,000
5000
0
47 0782


Rate
Empire - Gr ihorn
500
BBLS
400
300
200
100
0
76
78
80
82
Years
47 0782
K&E


Rate
1500
BBLS
1,200
900
600
300
0
78
80
82
Years
En a-J
1500
MCF
1,200
900
600
300
0
47 0782

Rate

1,000 BBLS

800

600

400

300

0

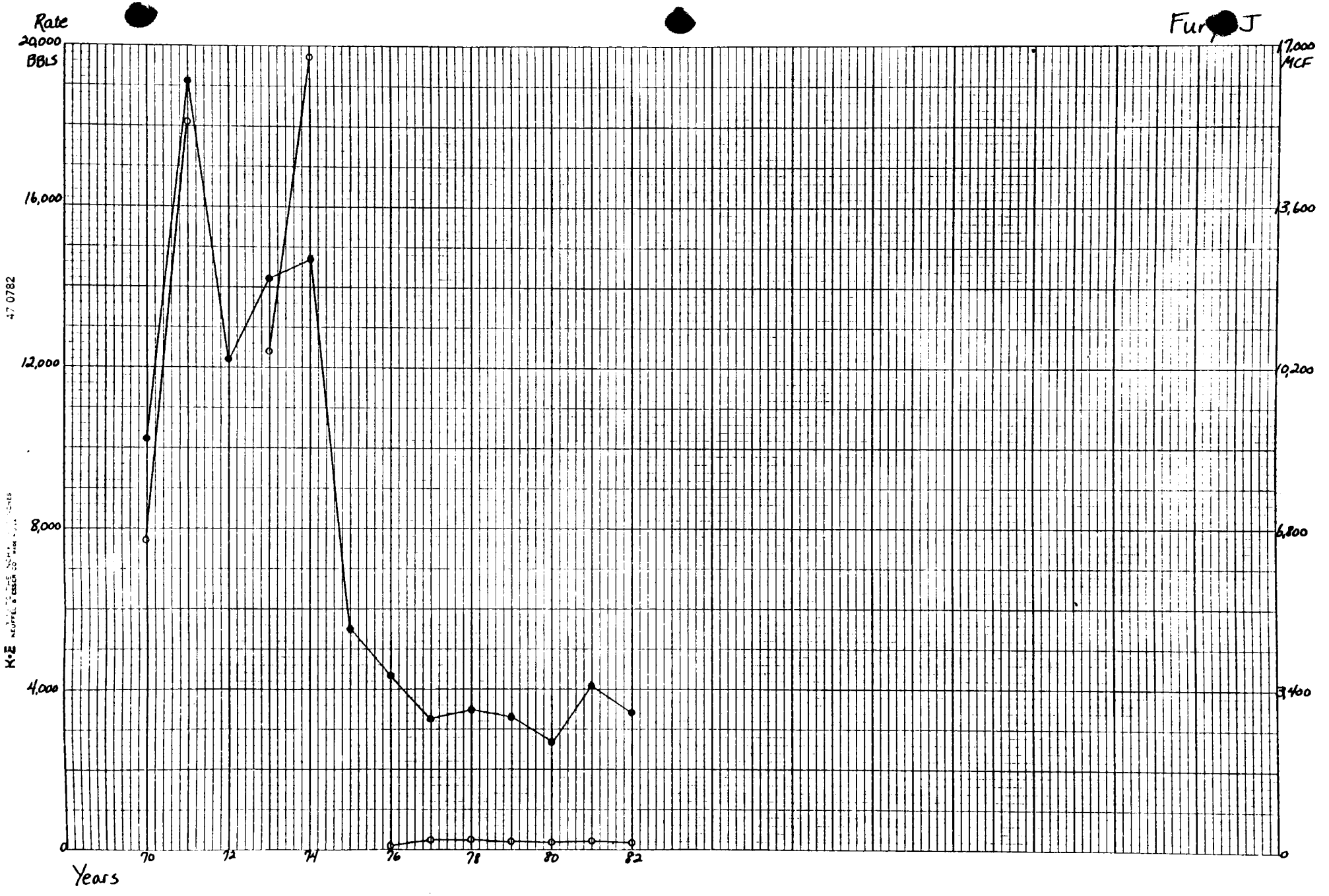
81

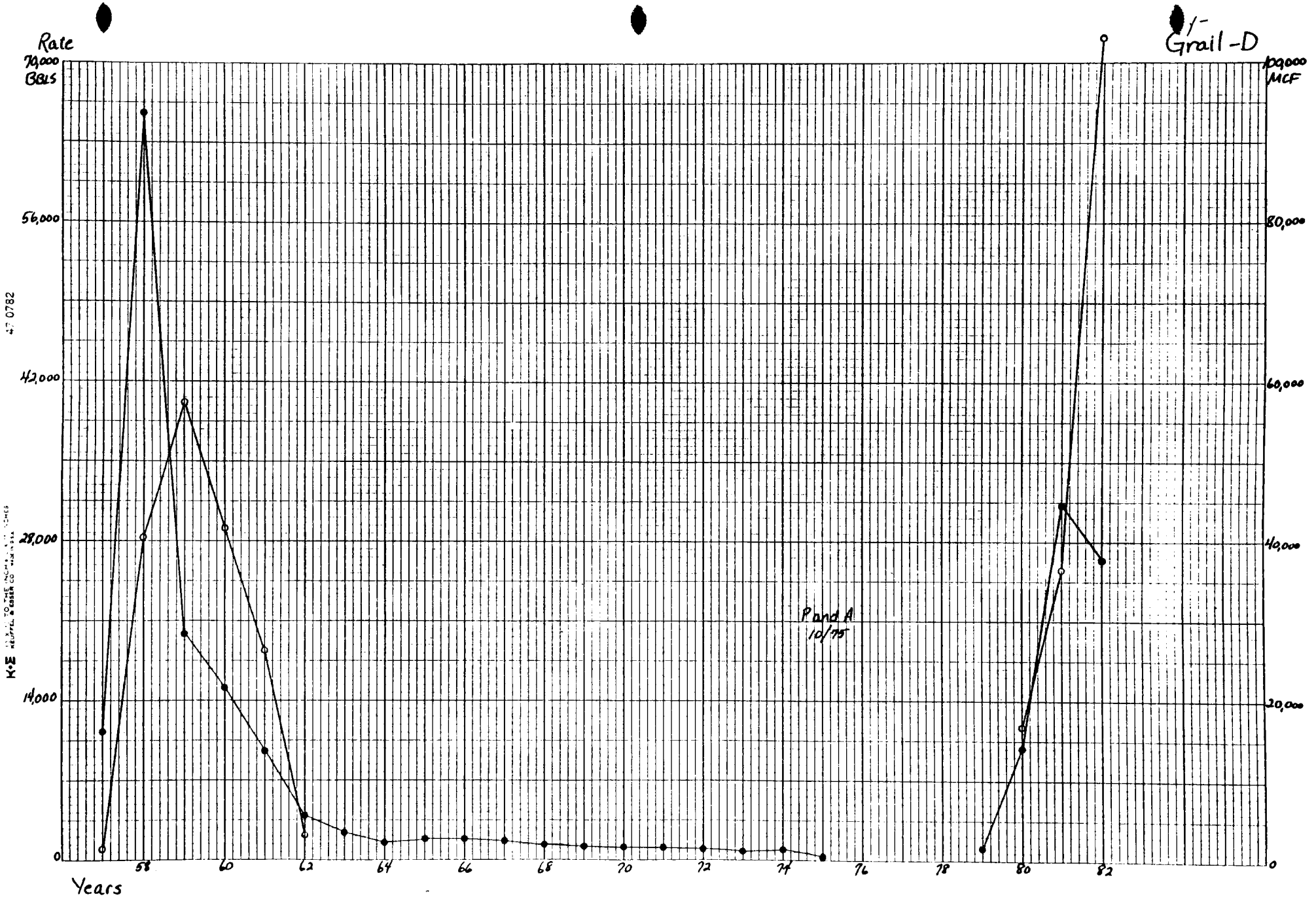
Years

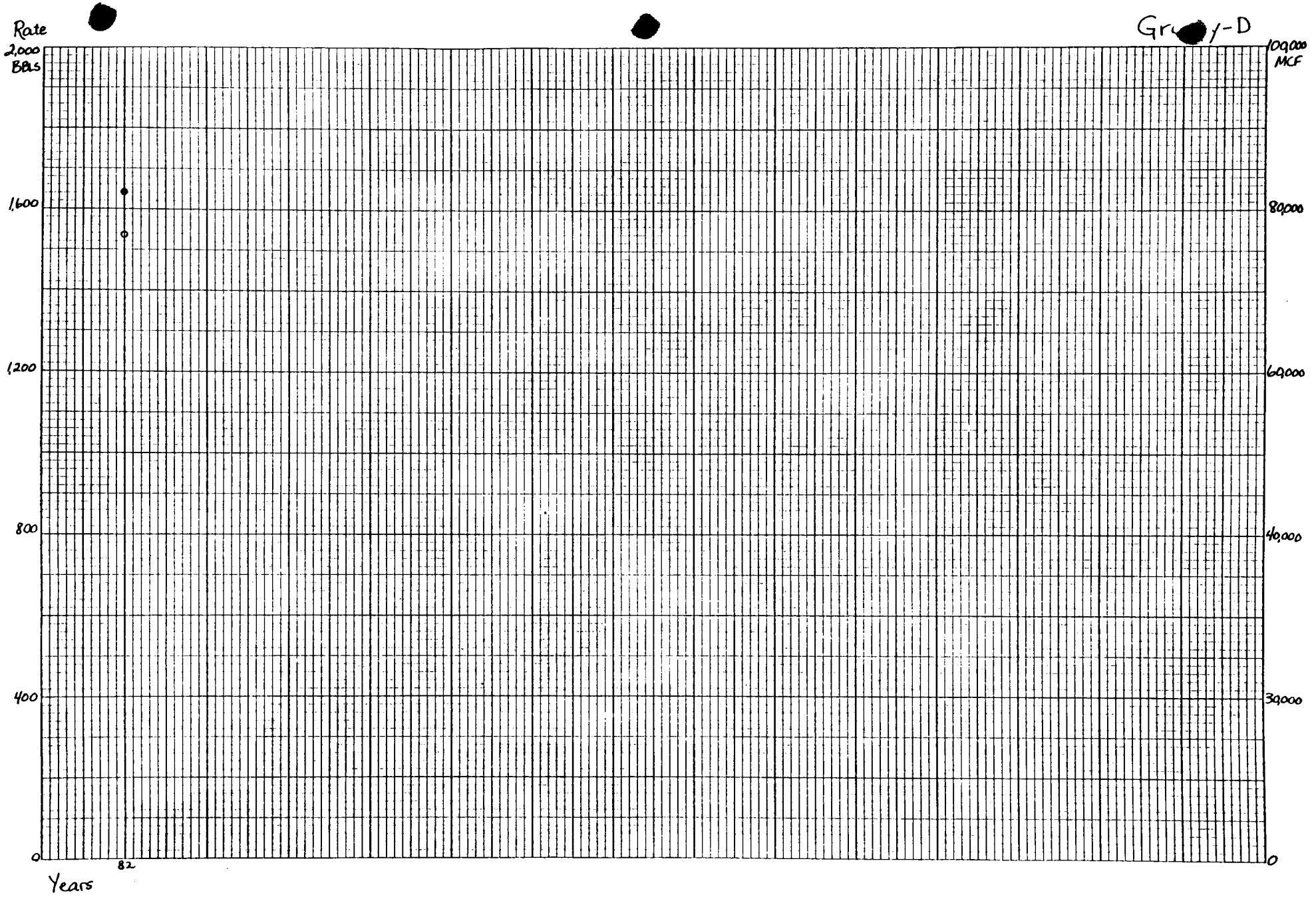
Ermine - J

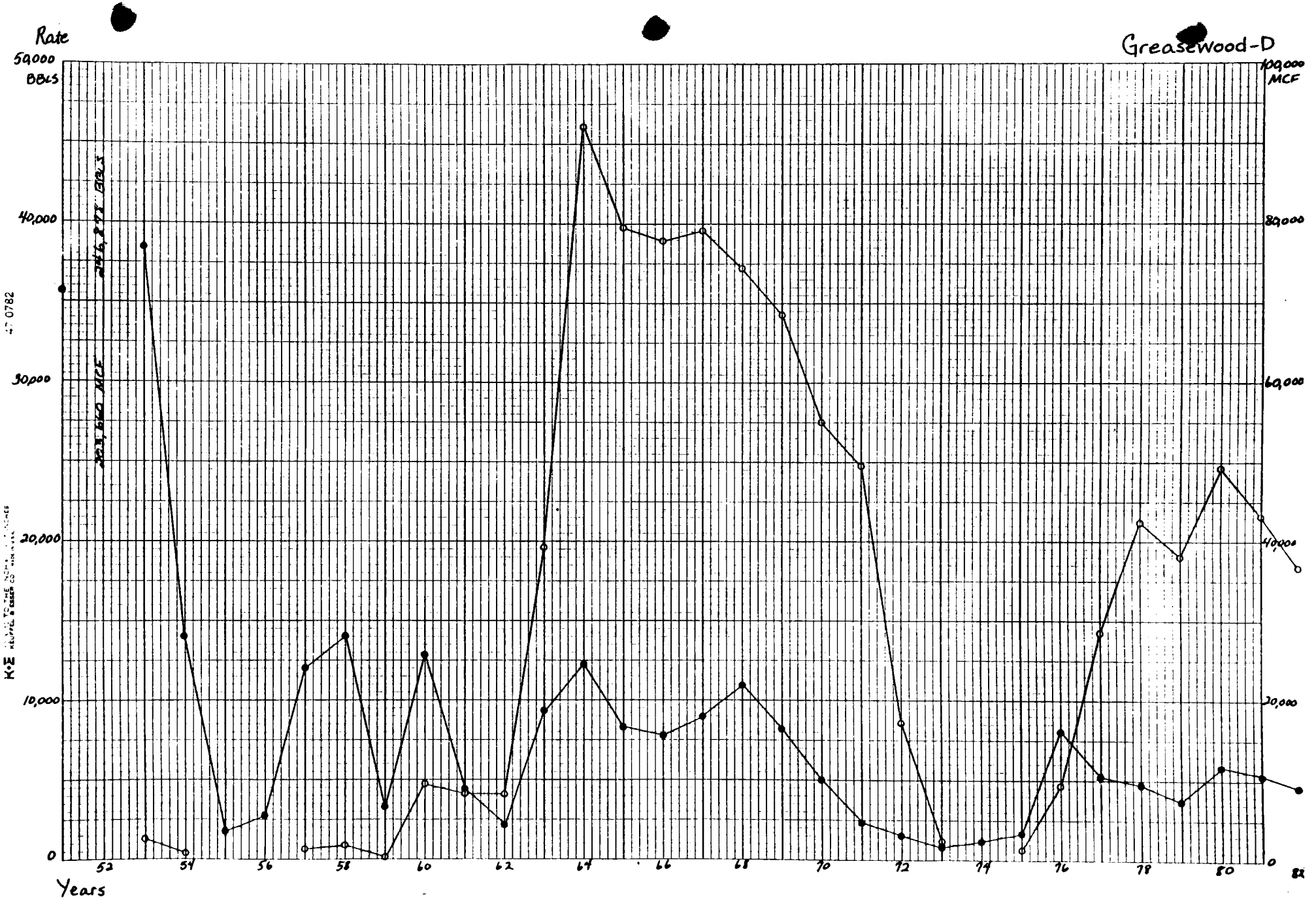
47 0782

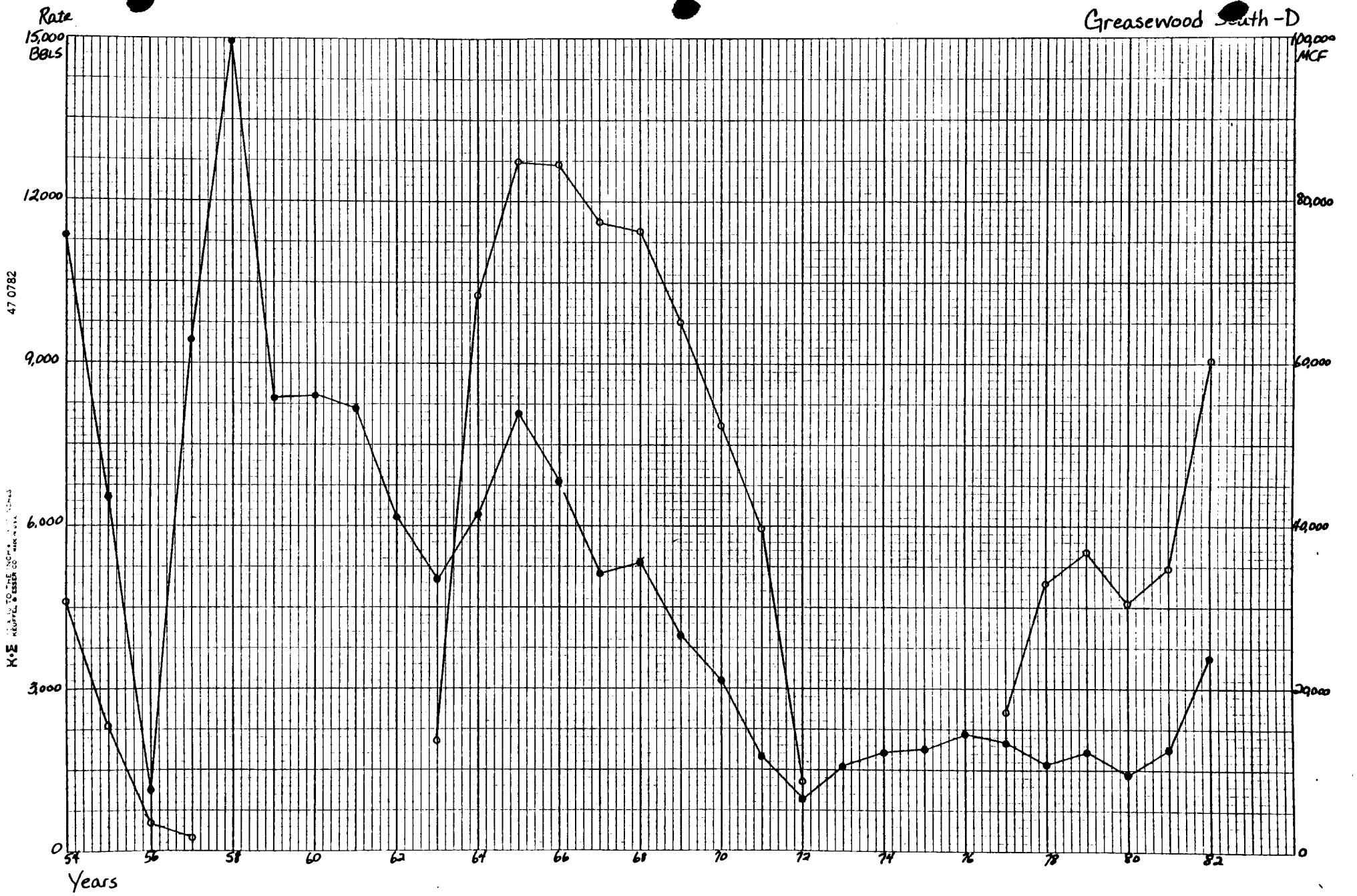
K•E

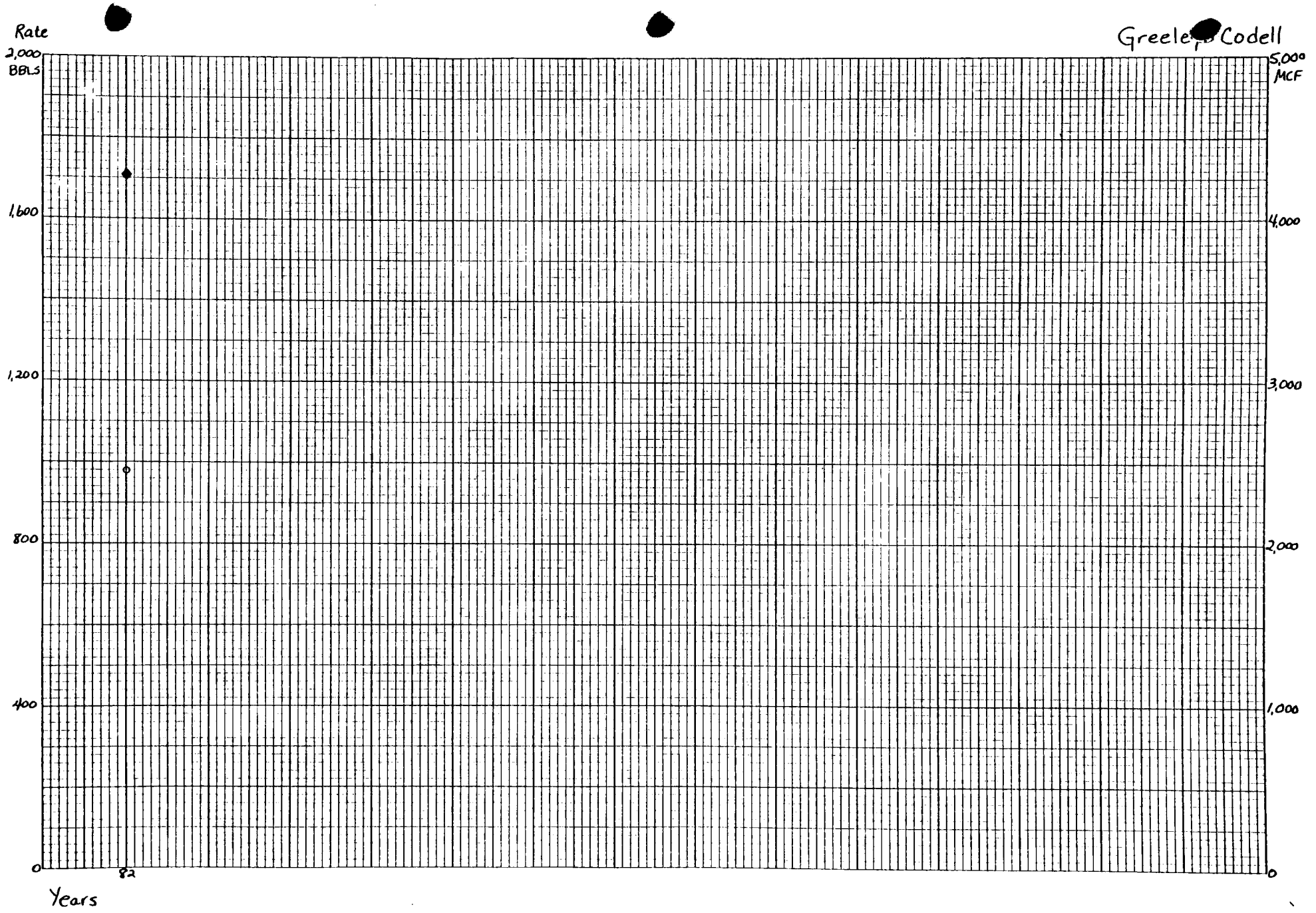

Rate
20,000
BBLS
16,000
12,000
8,000
4,000
0
17,000
MCF
13,600
10,200
6,800
3,400
0
70
72
74
76
78
80
82
Years
47 0782
K&E

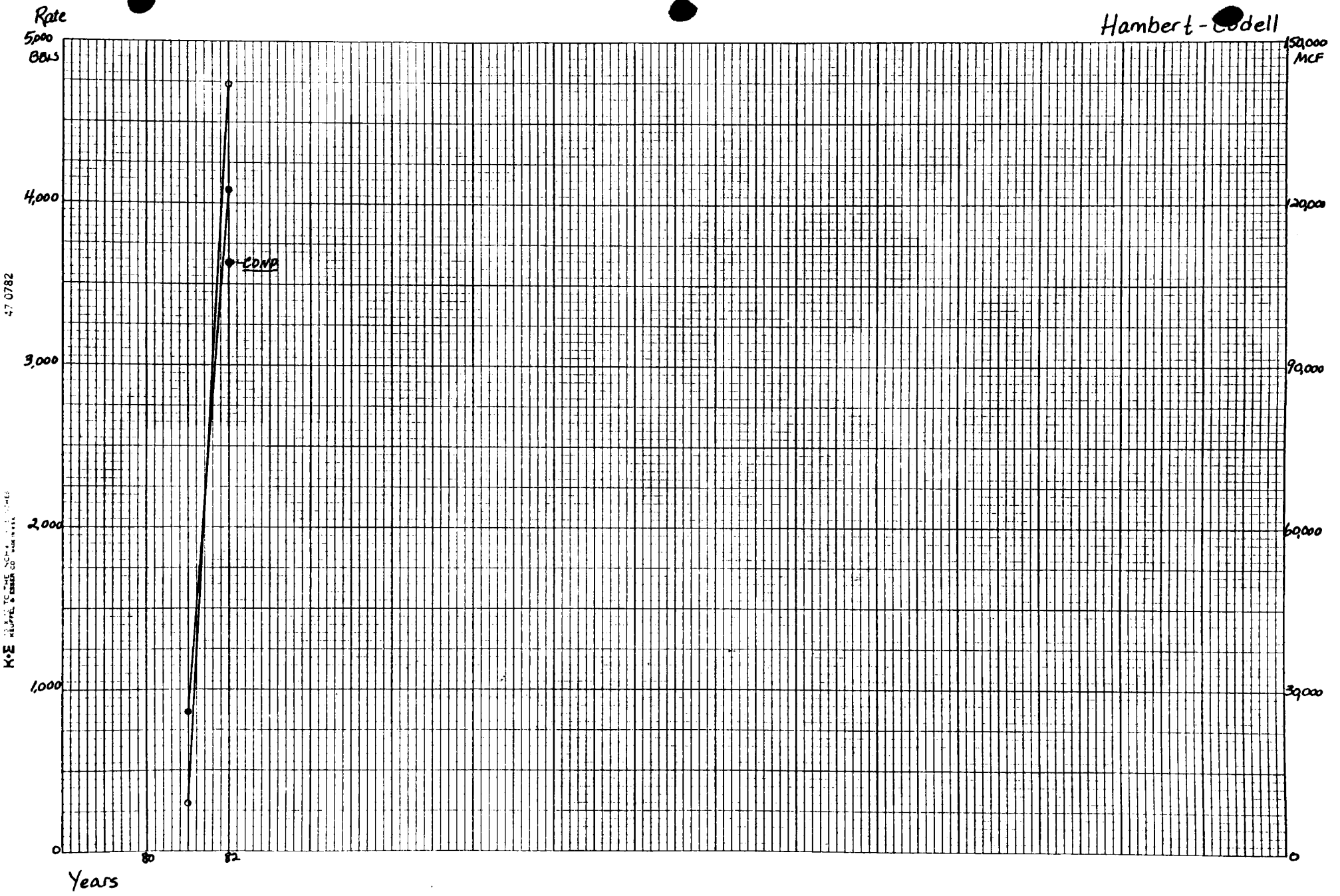

Rate
70,000 BBLS
56,000
42,000
28,000
14,000
0
Years
58
60
62
64
66
68
70
72
74
76
78
80
82
Grail-D
100,000 MCF
80,000
60,000
40,000
20,000
0
P and A
10/75
47 0782
K&E

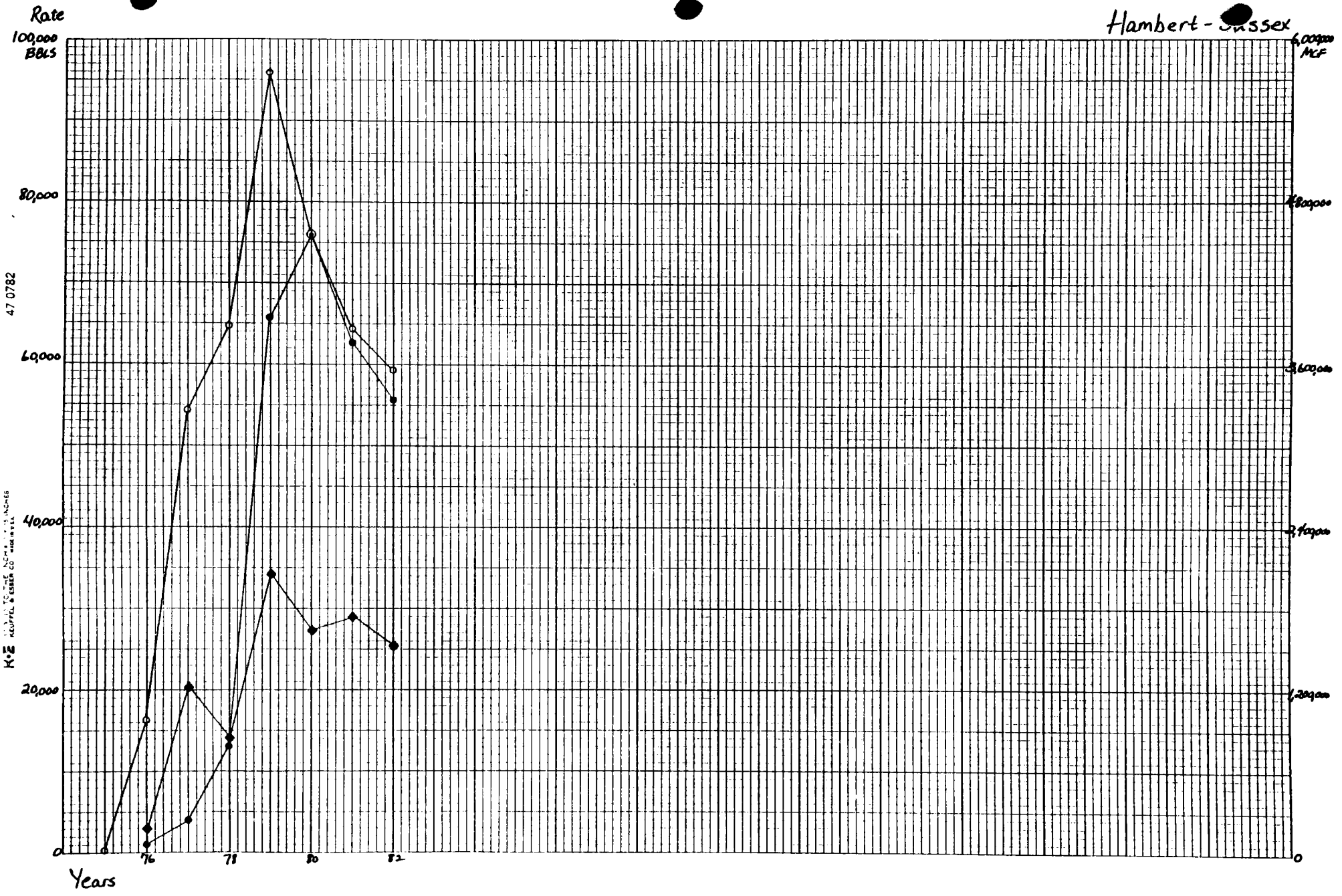

Rate
Gr y-D
2,000 Bbls
1,600
1,200
800
400
0
100,000 MCF
80,000
60,000
40,000
30,000
0
82
Years
47 0782

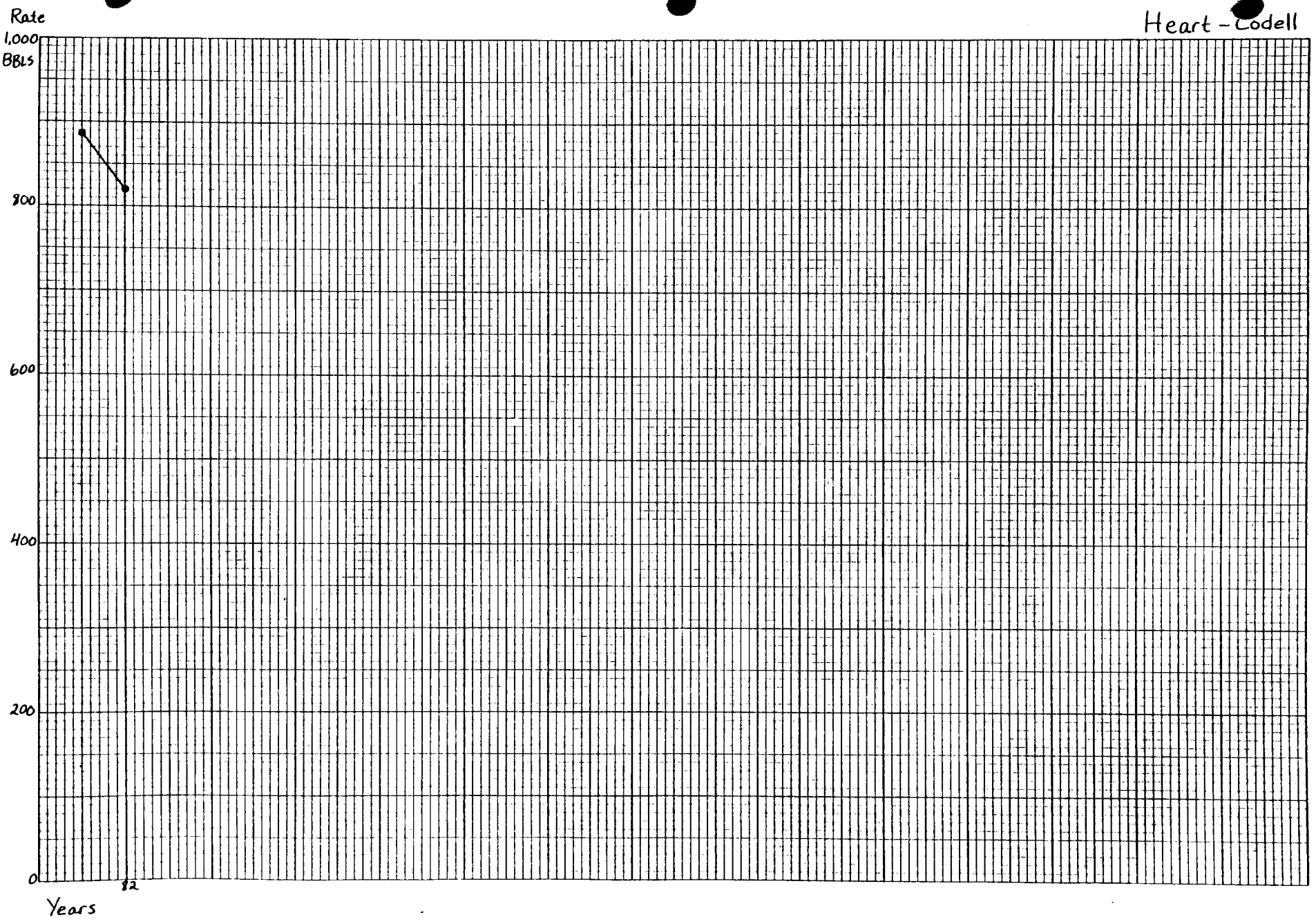

Rate
Greasewood-D
50,000
BBLS
40,000
30,000
20,000
10,000
0
100,000
MCF
80,000
60,000
40,000
20,000
0
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years

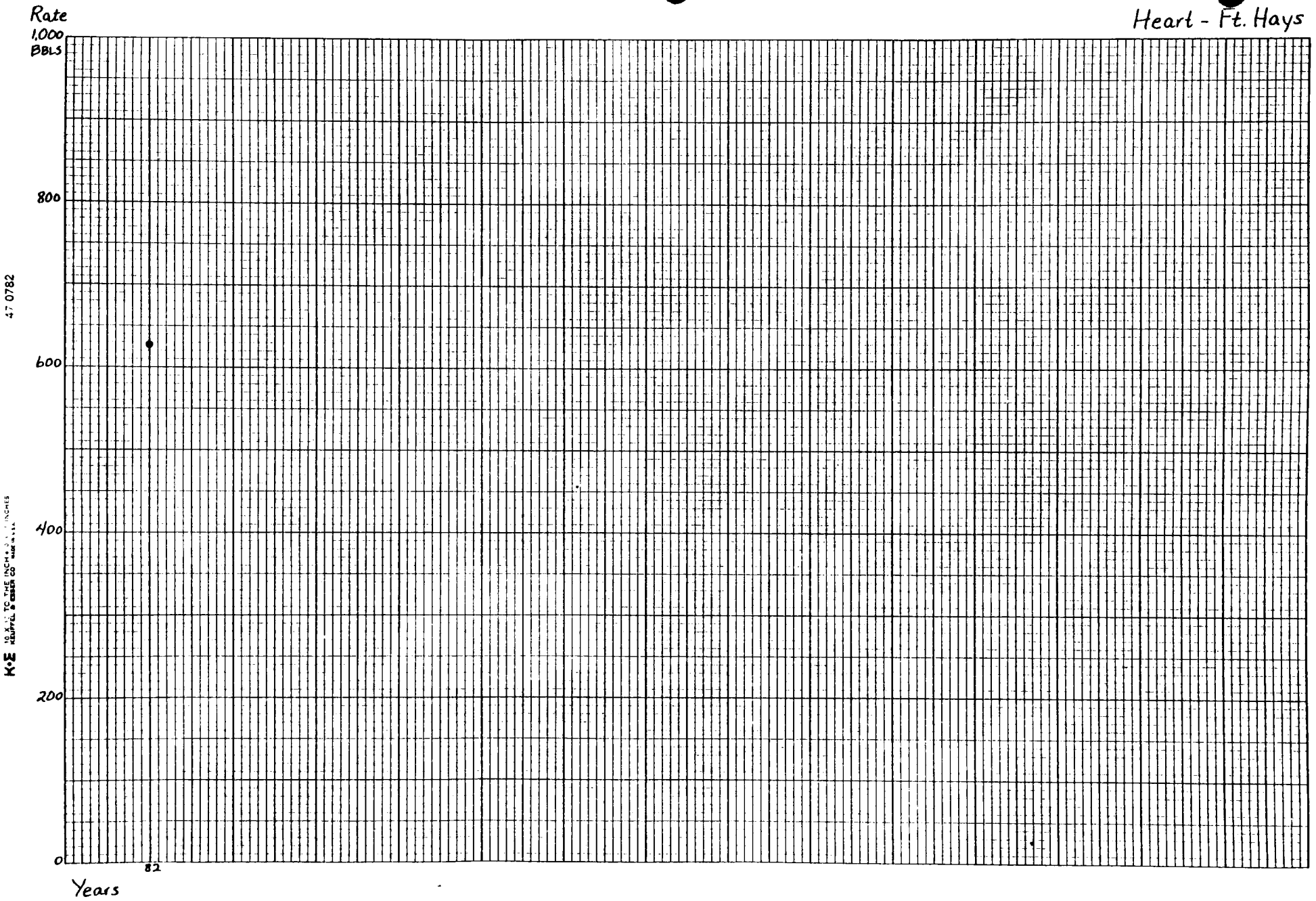

Rate
15,000 BBLS
12,000
9,000
6,000
3,000
0
100,000 MCF
80,000
60,000
40,000
20,000
0
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years
Greasewood South-D
47 0782


Rate
Greeley Codell
2,000
BBLS
1,600
1,200
800
400
0
5,000
MCF
4,000
3,000
2,000
1,000
0
82
Years
47 0782
K•E

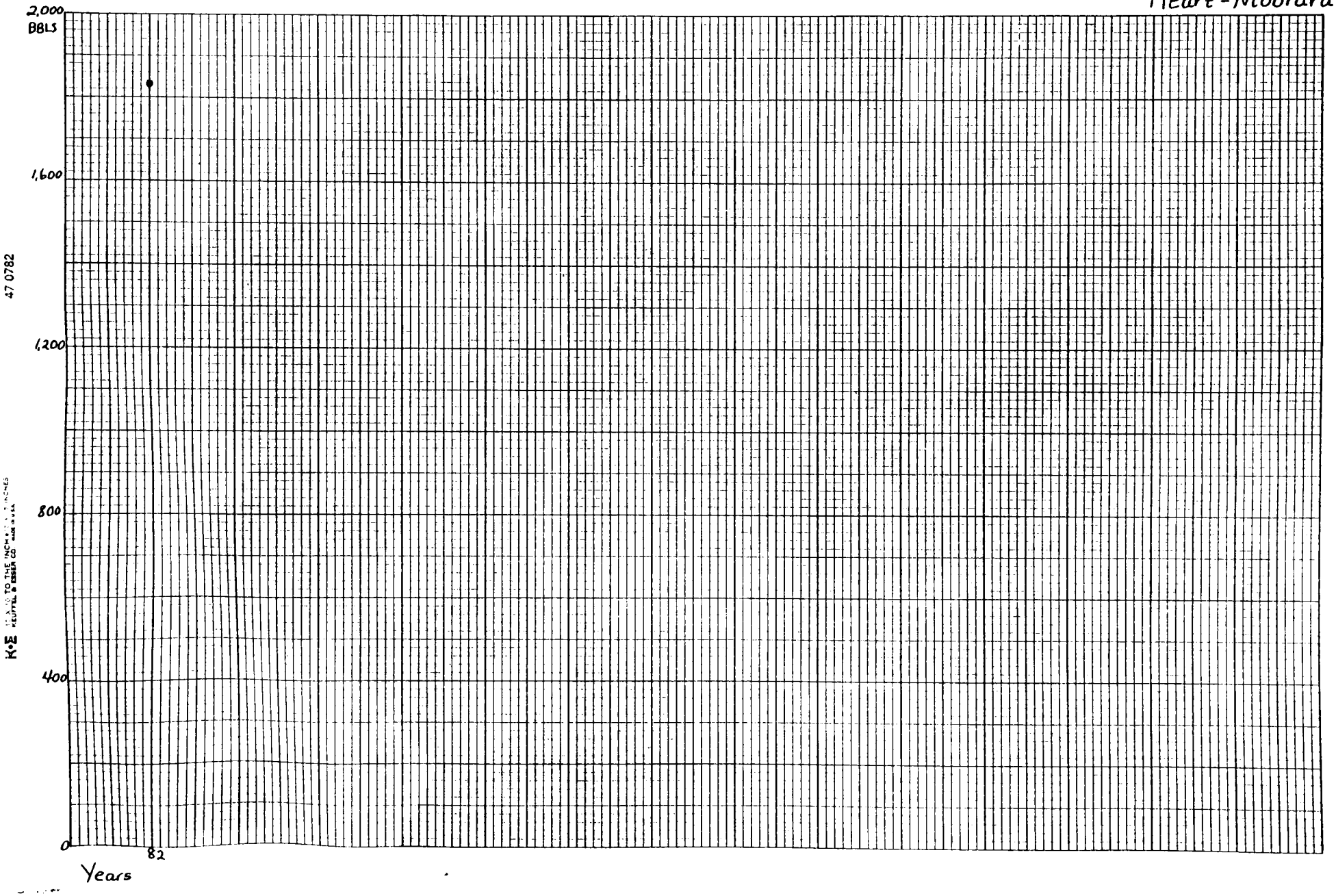

Rate
Hambert - Odell
5,000 BBLS
4,000
3,000
2,000
1,000
0
150,000 MCF
120,000
90,000
60,000
30,000
0
COND
80
82
Years
47 0782
K·E


Rate
100,000 BBLS
80,000
60,000
40,000
20,000
0
Hambert - Sussex
6,000,000 MCF
4,800,000
3,600,000
2,400,000
1,200,000
0
76
78
80
82
Years
47 0782
K+E

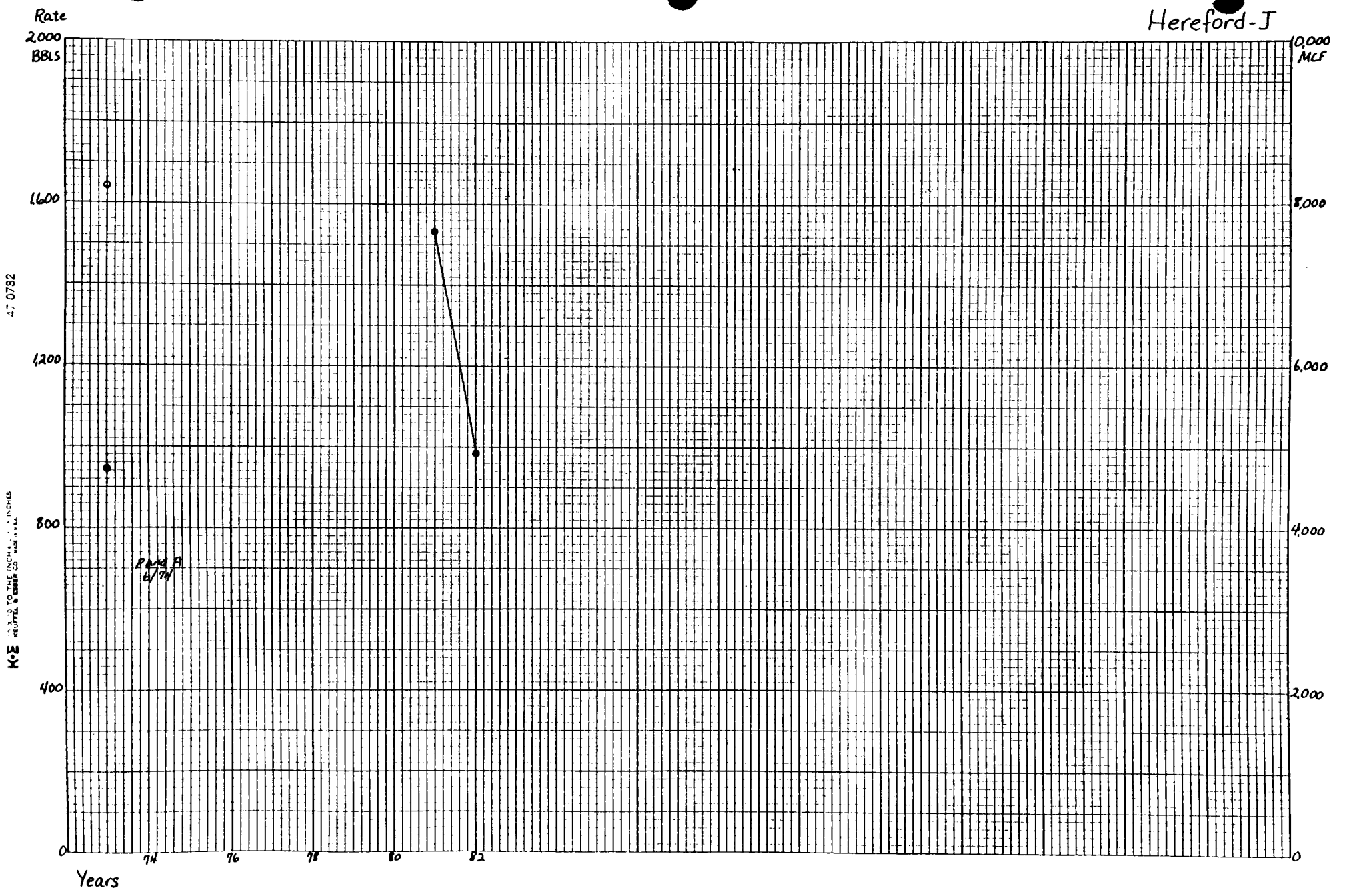

Rate
1,000
BBLS
800
600
400
200
0
82
Years
Heart - Codell
47 0782

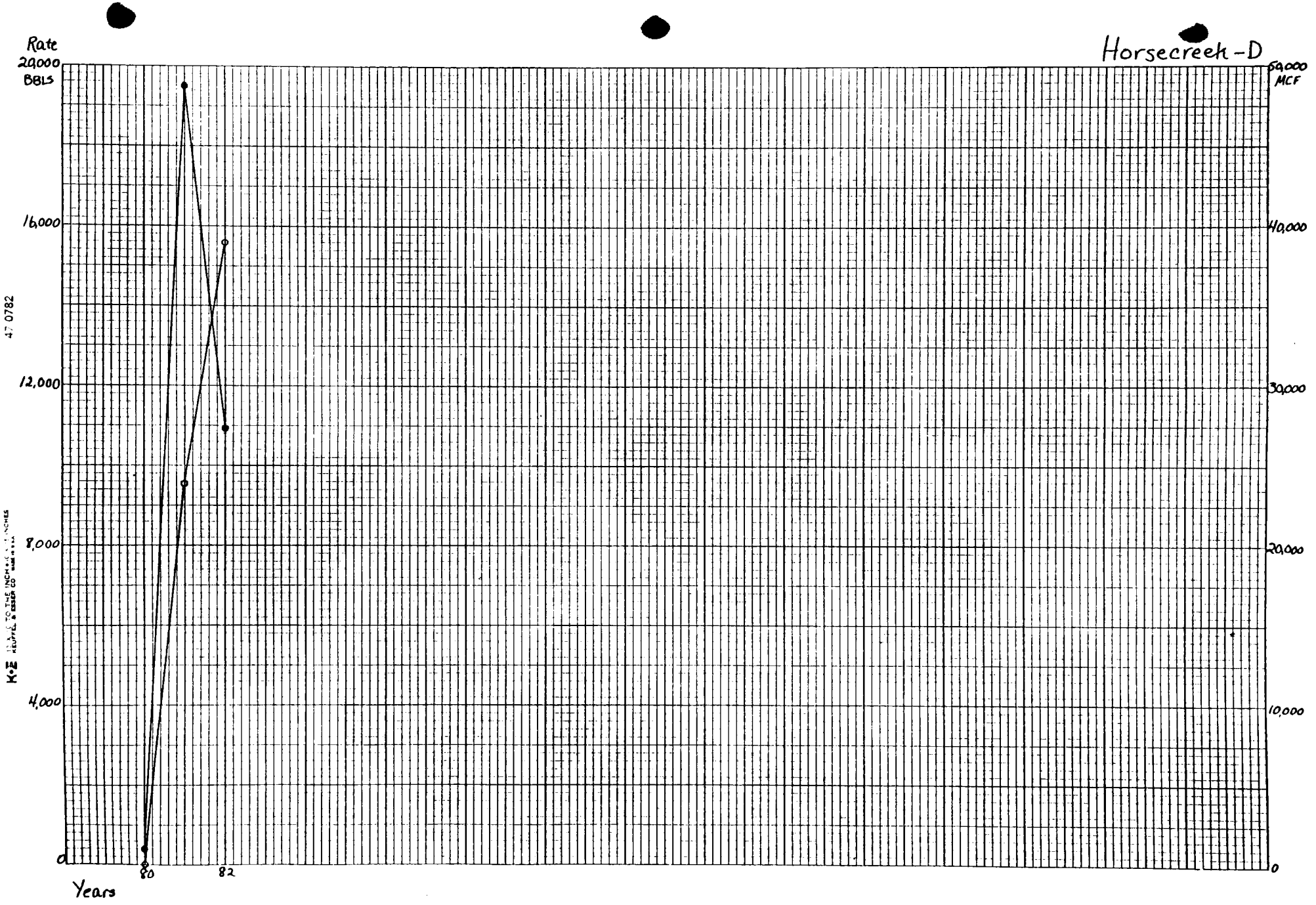

Heart - Ft. Hays
Rate
1,000
BBLS
800
600
400
200
0
82
Years
47 0782
K·E

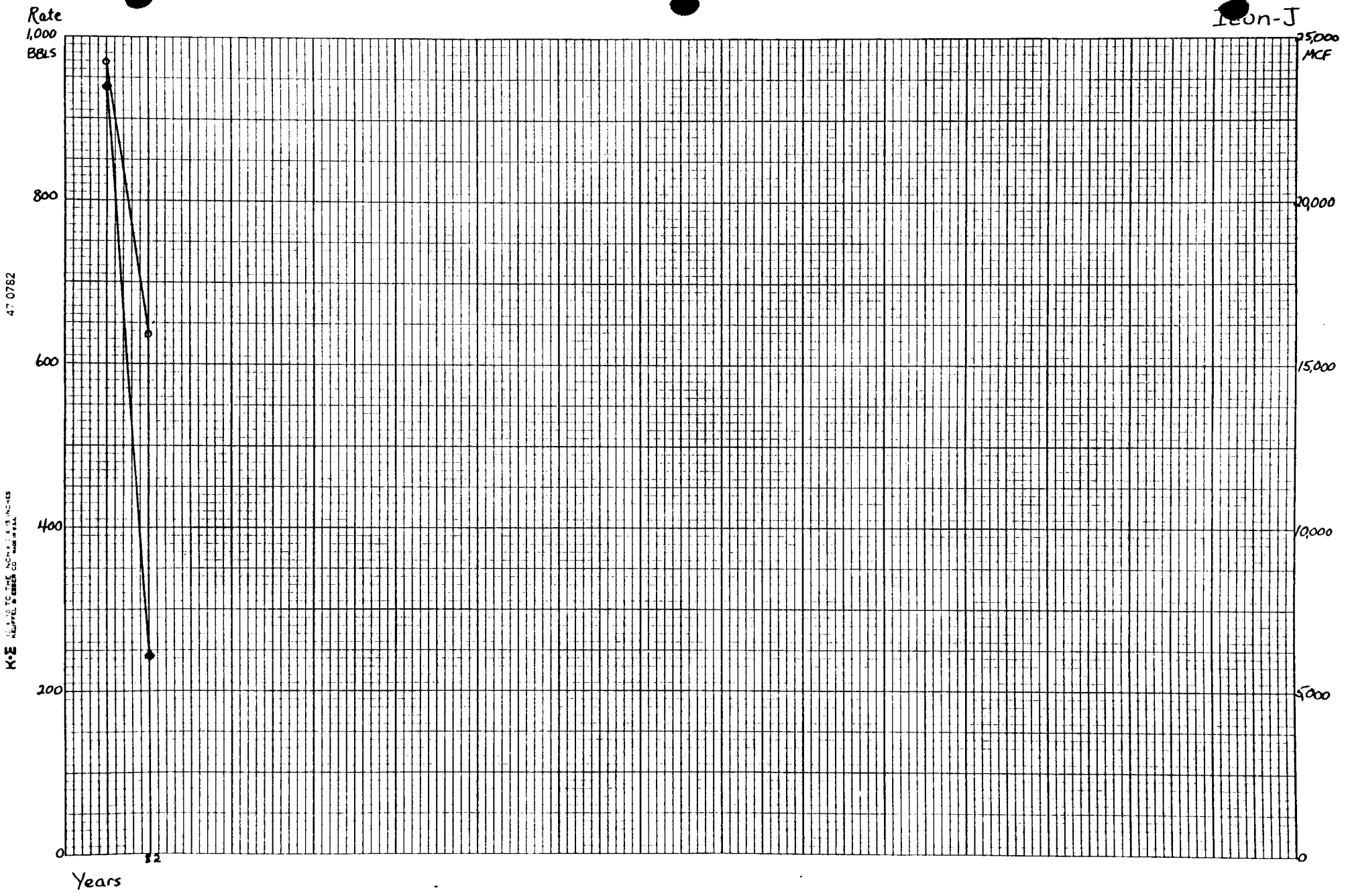
Heart - Niobrara



47 0782

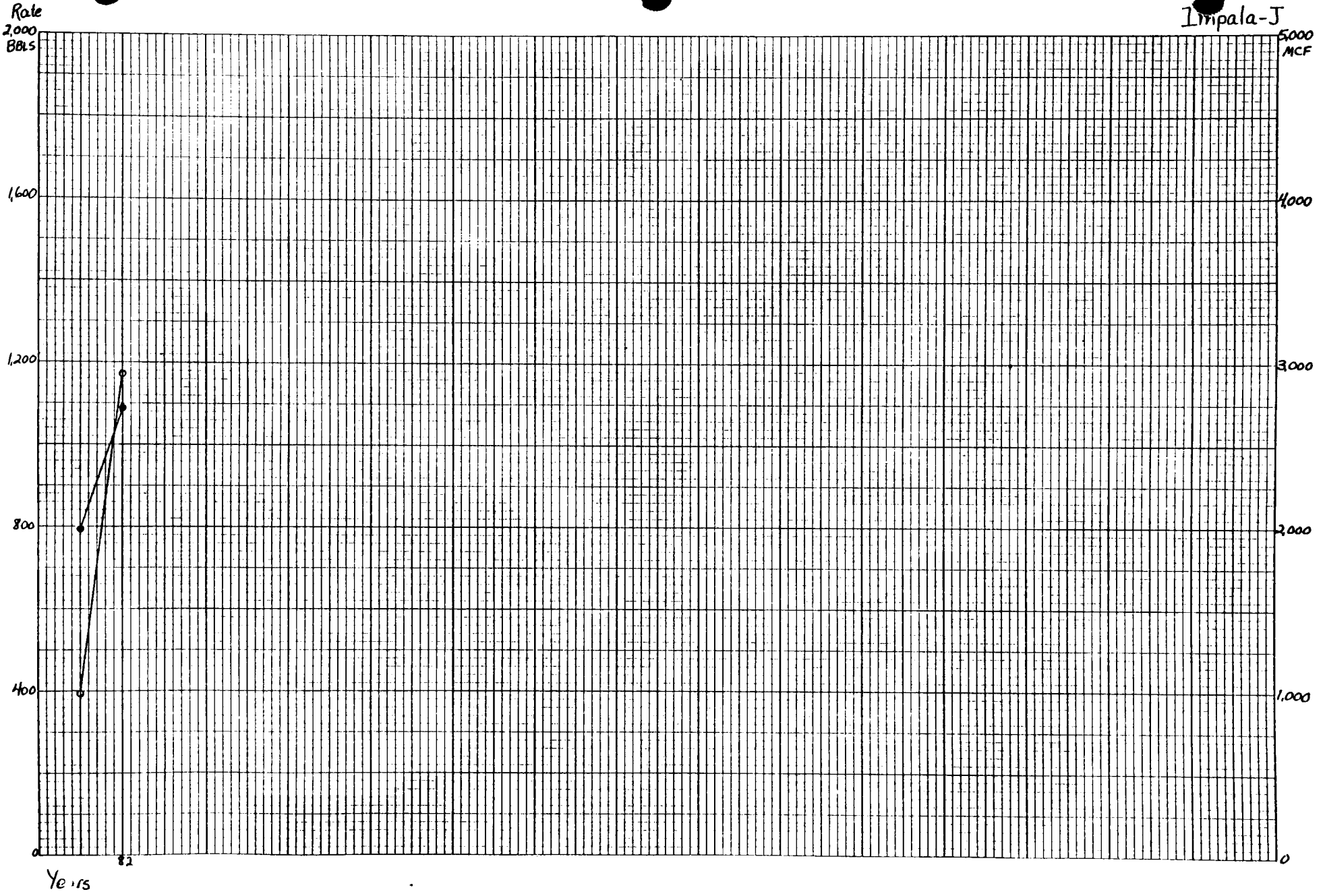

Rate
Hereford-J
2,000 BBLS
1600
1200
800
400
0
10,000 MCF
8,000
6,000
4,000
2,000
0
Pump A 6/74
74
76
78
80
82
Years
47 0782
K&E

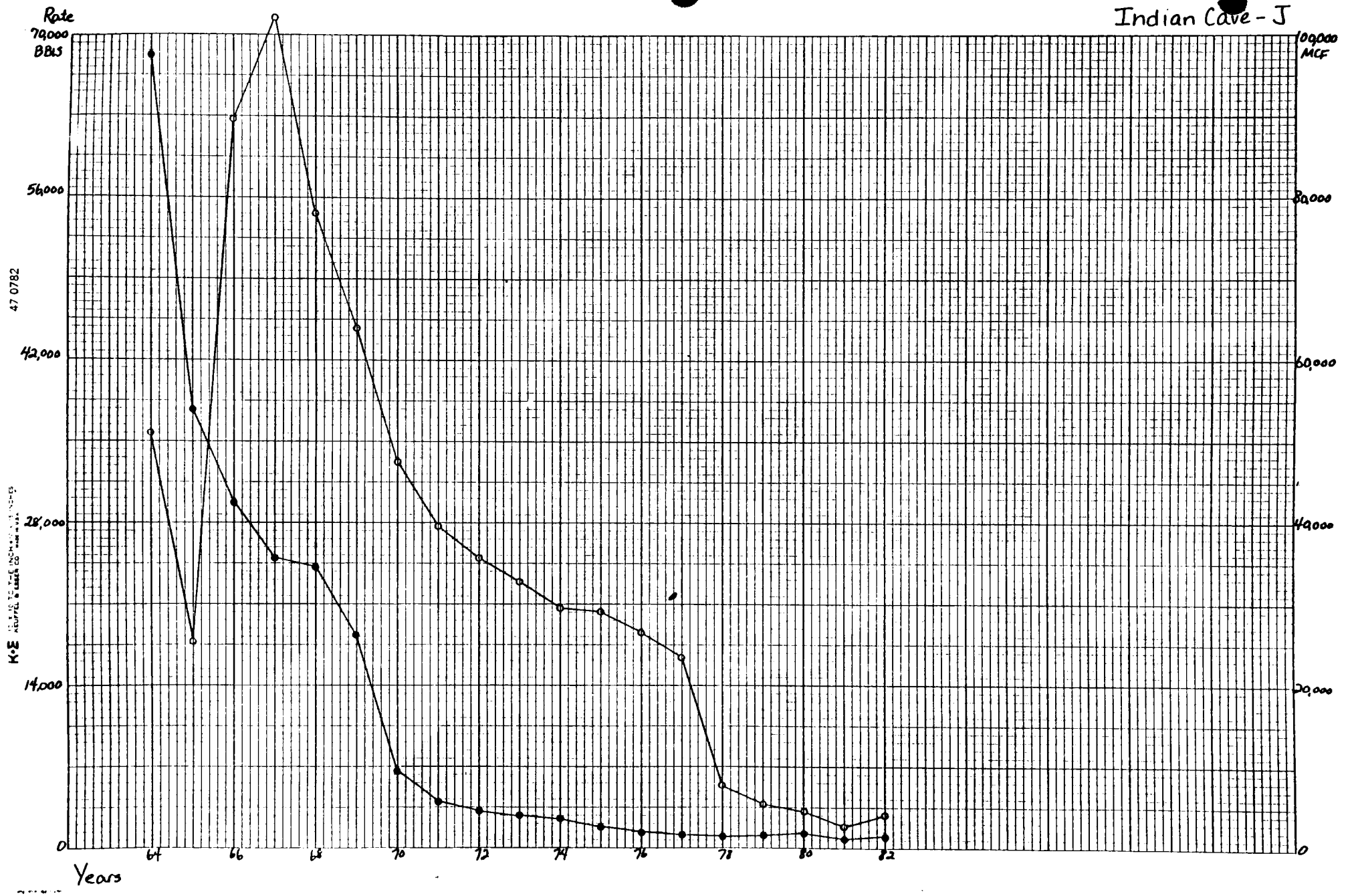

Rate
20,000
BBLS
16,000
12,000
8,000
4,000
0
59,000
MCF
40,000
30,000
20,000
10,000
0
Horsecreek-D
80
82
Years
47 0782
K+E

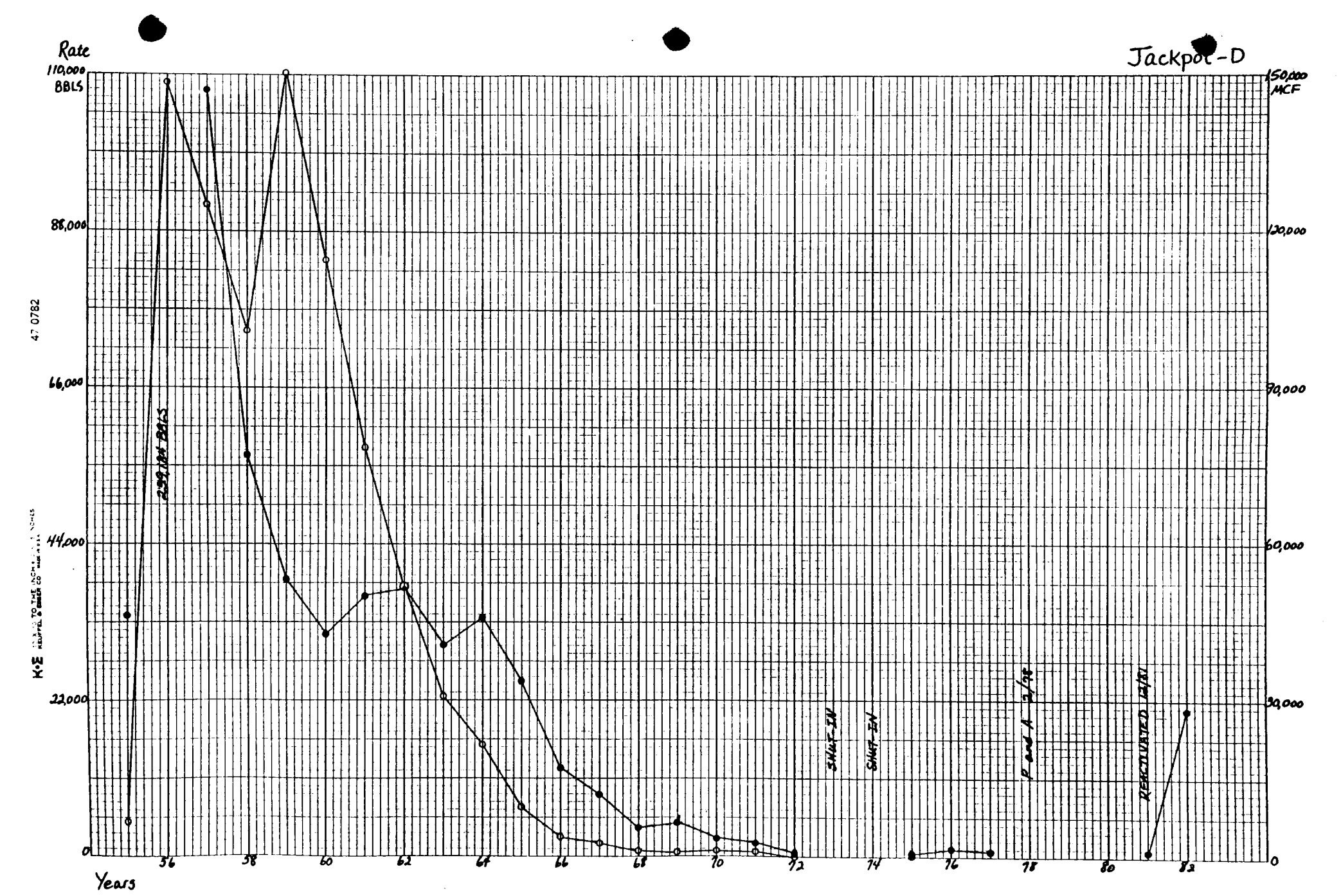


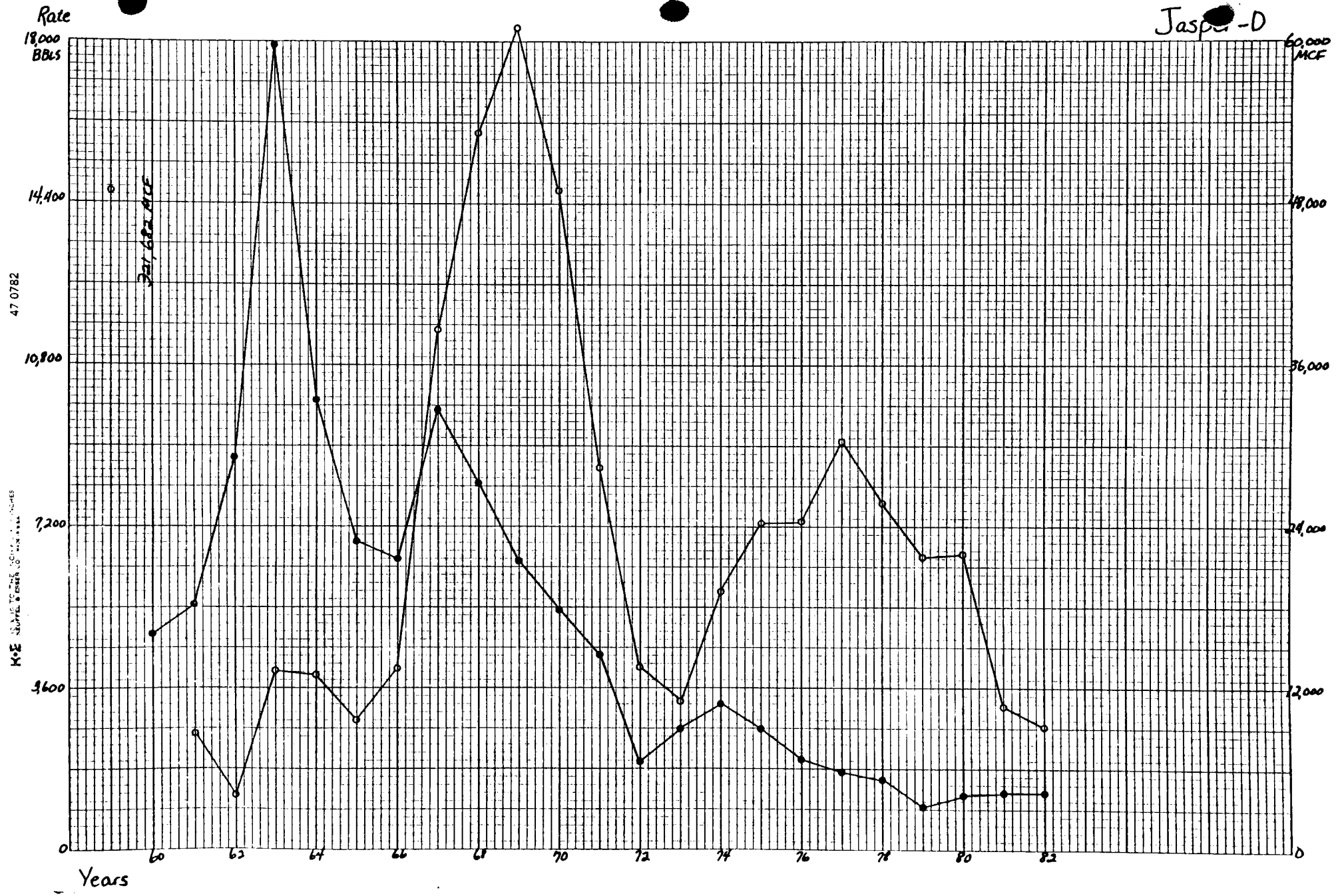
Leon-J

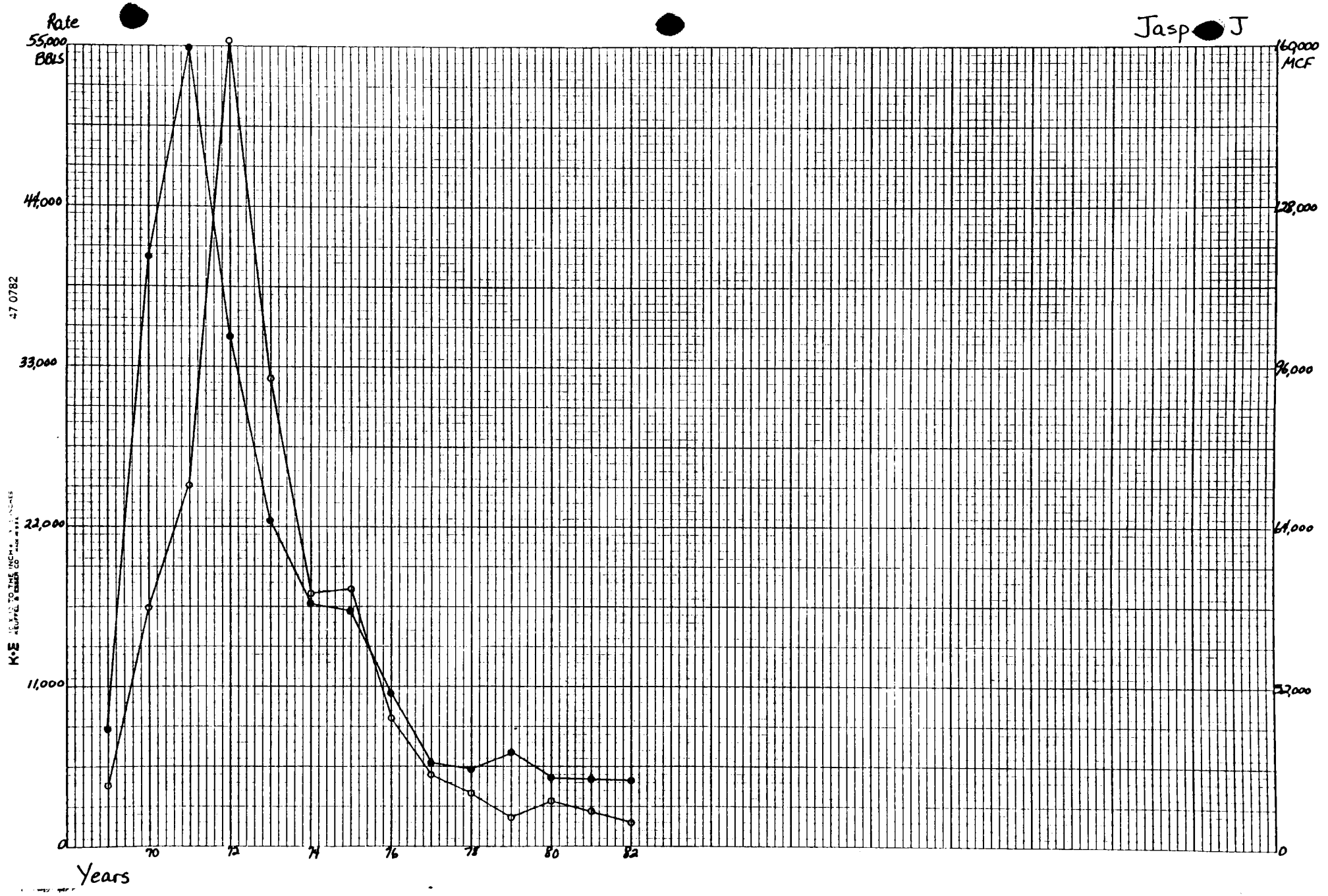
47 0782

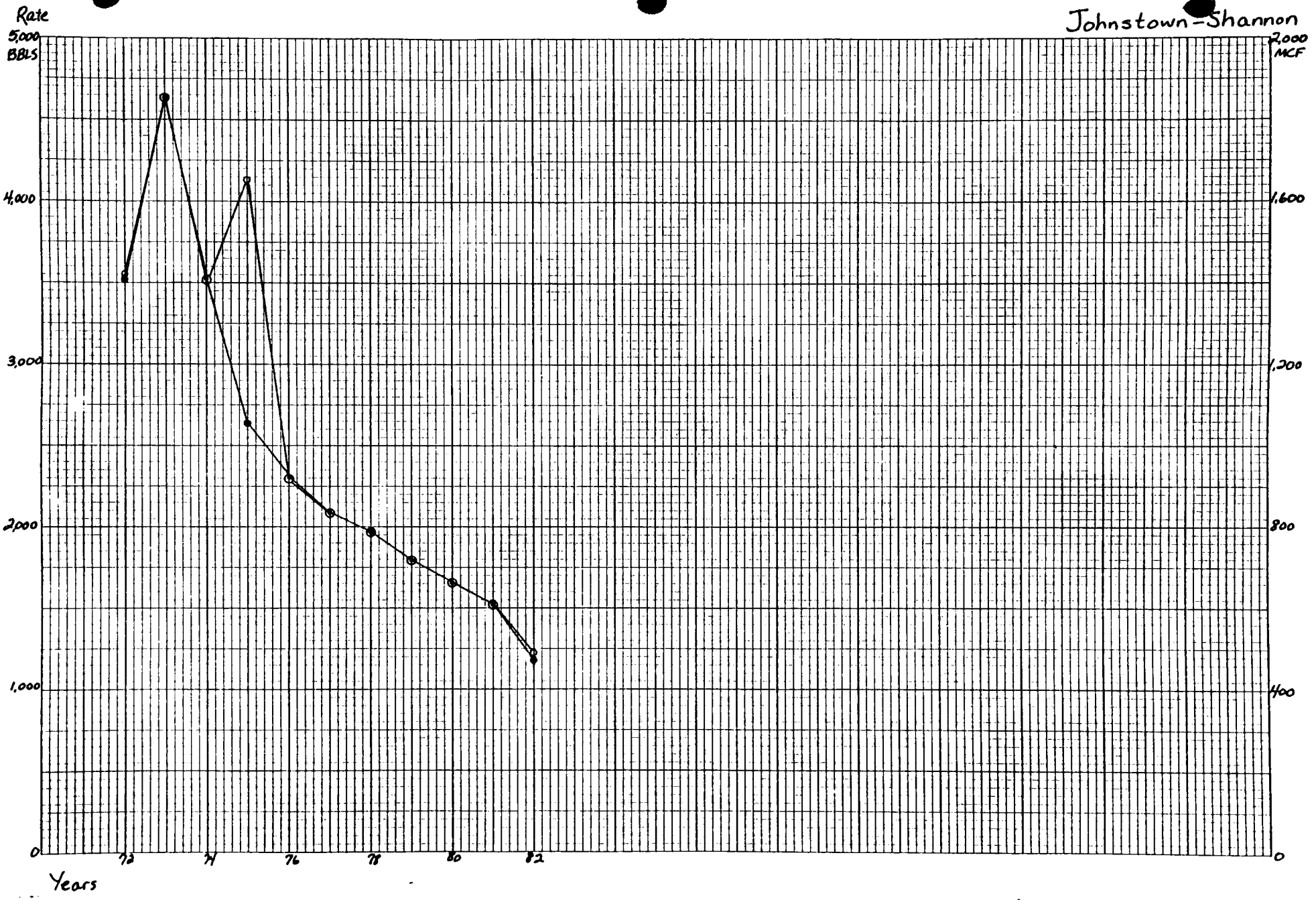

Rate
2,000
BBLS
1,600
1,200
800
400
0
81
Years
Impala-J
5,000
MCF
4,000
3,000
2,000
1,000
0

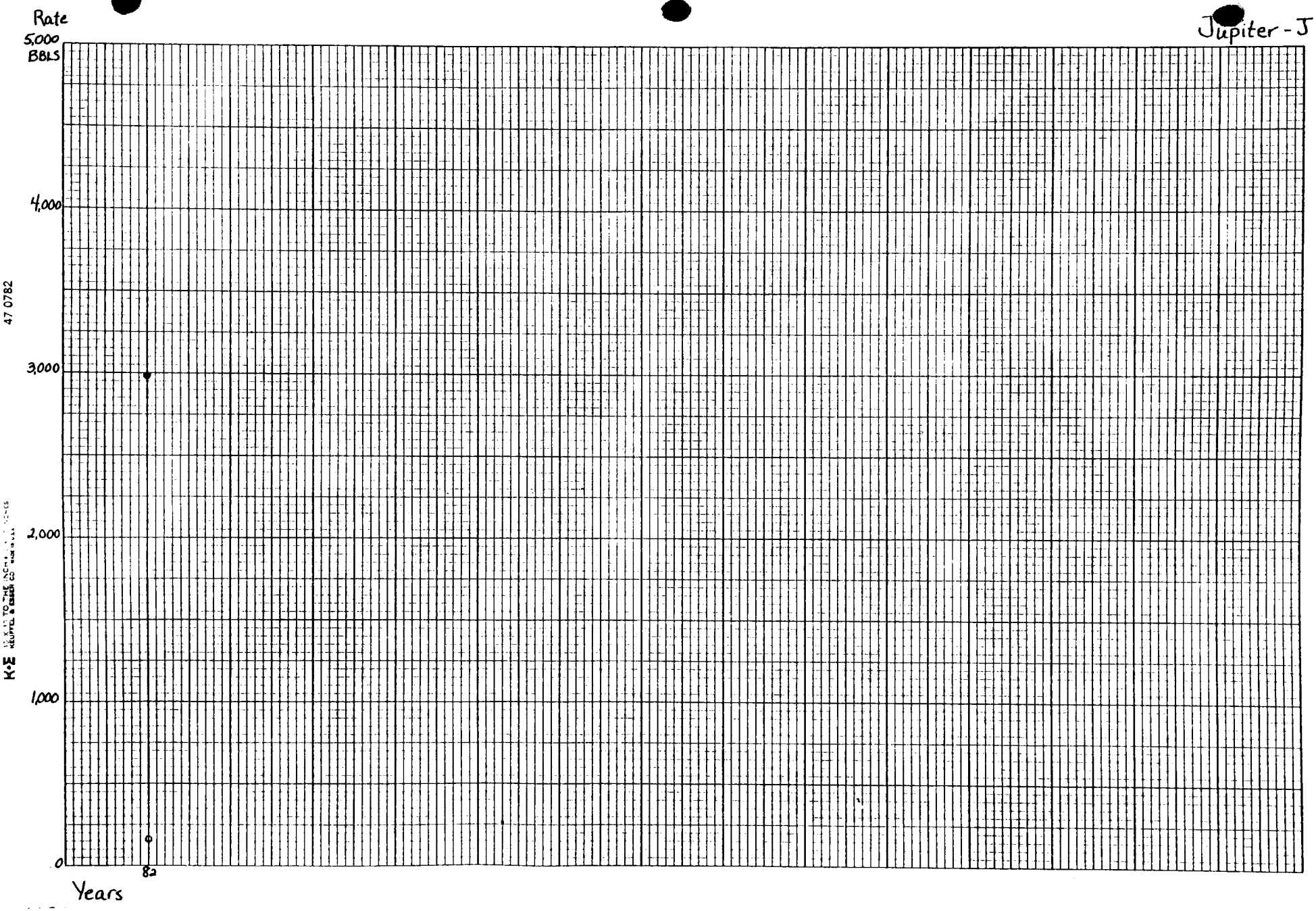

Rate
70,000
BBLS
56,000
42,000
28,000
14,000
0
100,000
MCF
80,000
60,000
40,000
20,000
0
64
66
68
70
72
74
76
78
80
82
Years
Indian Cave - J
47 0782
K·E


Rate
110,000
BBLS
88,000
66,000
44,000
22,000
0
150,000
MCF
120,000
90,000
60,000
30,000
0
Jackpot-D
47 0782
K+E
239,000 BBLS
SHUT-IN
SHUT-IN
Pool 1-2/28
REACTIVATED 1981
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years

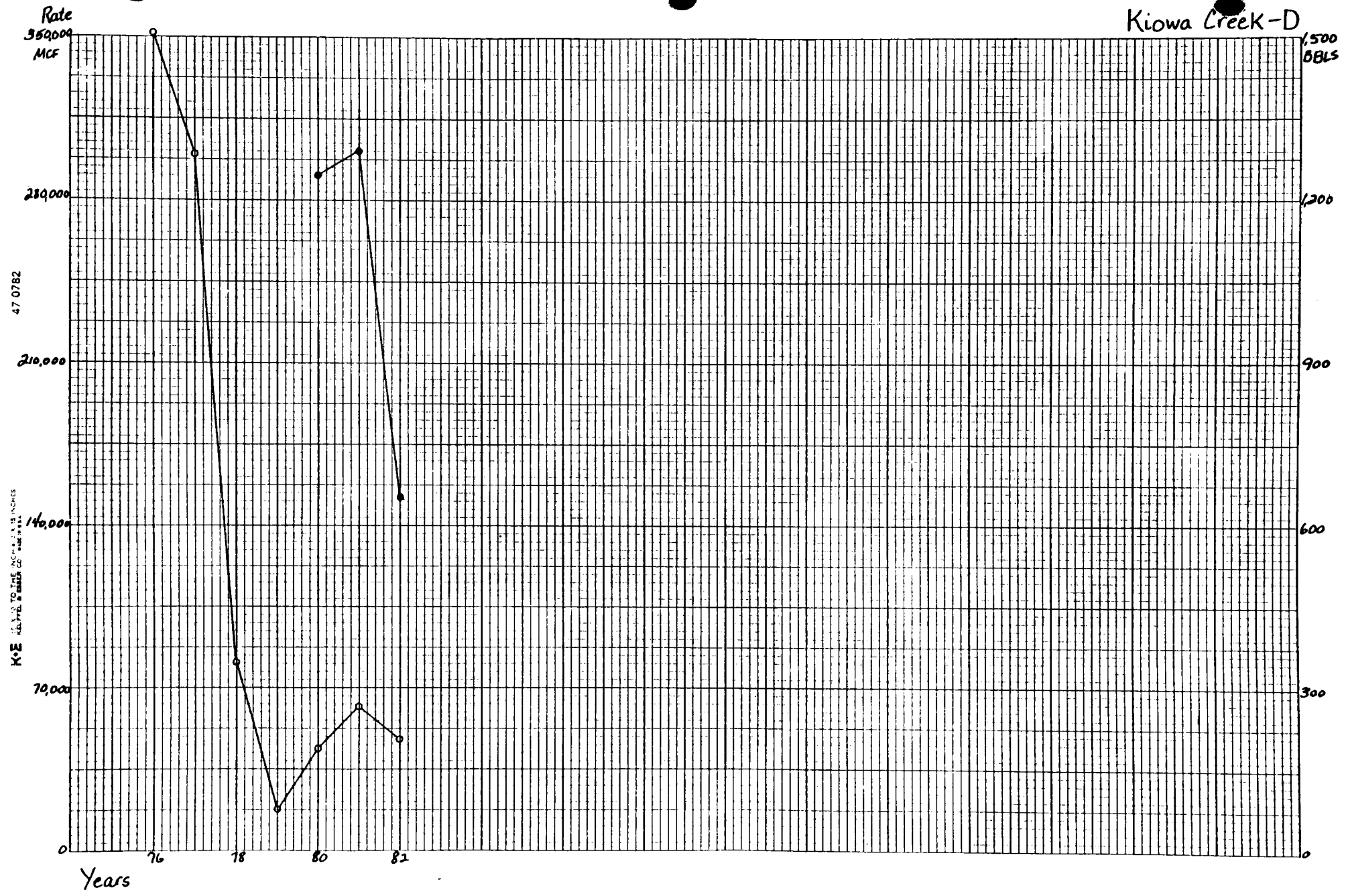

Rate
18,000 BBLS
14,400
10,800
7,200
3600
0
60,000 MCF
48,000
36,000
24,000
12,000
0
Jasper-D
3at, 682 MCF
47 0782
60
62
64
66
68
70
72
74
76
78
80
82
Years


Rate
55,000 BBLS
44,000
33,000
22,000
11,000
0
160,000 MCF
128,000
96,000
64,000
32,000
0
70
72
74
76
78
80
82
Years
Jasp J
47 0782
K·E

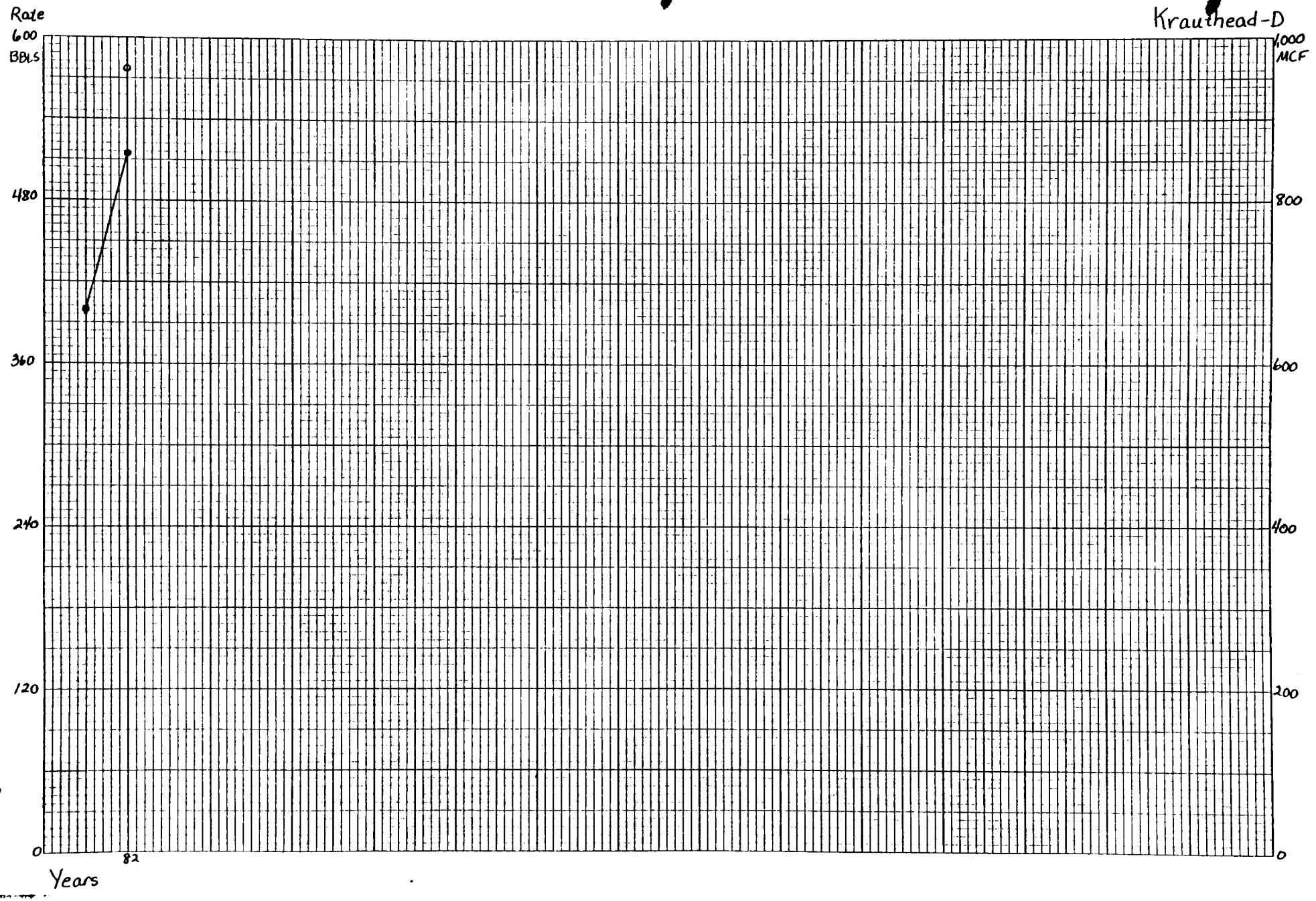

Rate
Johnstown-Shannon
5,000 BBLS
4,000
3,000
2,000
1,000
0
2,000 MCF
1,600
1,200
800
400
0
72
74
76
78
80
82
Years
47 0782
K&E

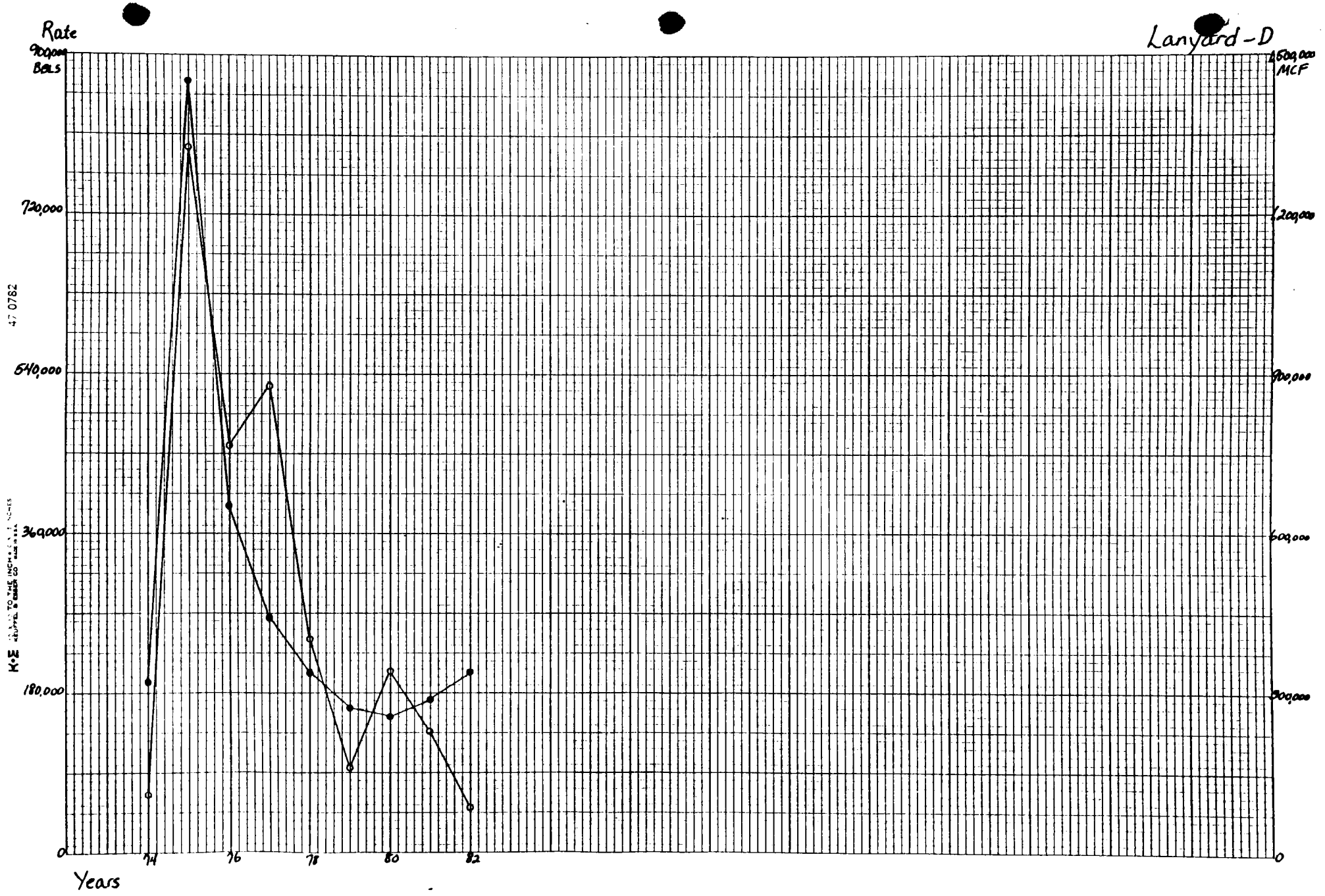

Rate
5,000
BBLS
4,000
3,000
2,000
1,000
0
82
Years
Jupiter - J
47 0782

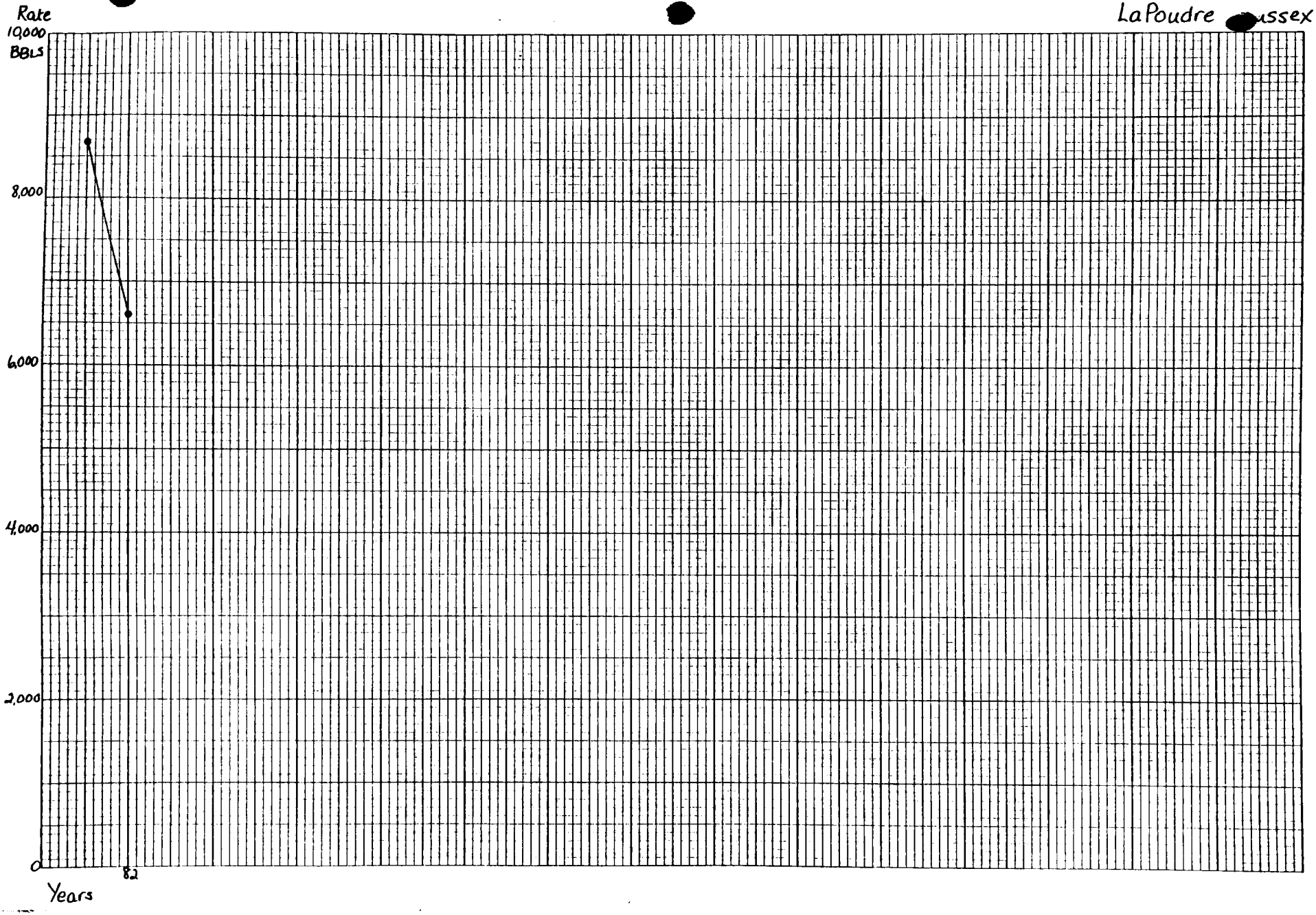

Rate
220,000
BBLS
176,000
132,000
88,000
44,000
0
Years
53
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Keota-J
85,000
68,000
51,000
34,000
17000
0
47 0782
K•E

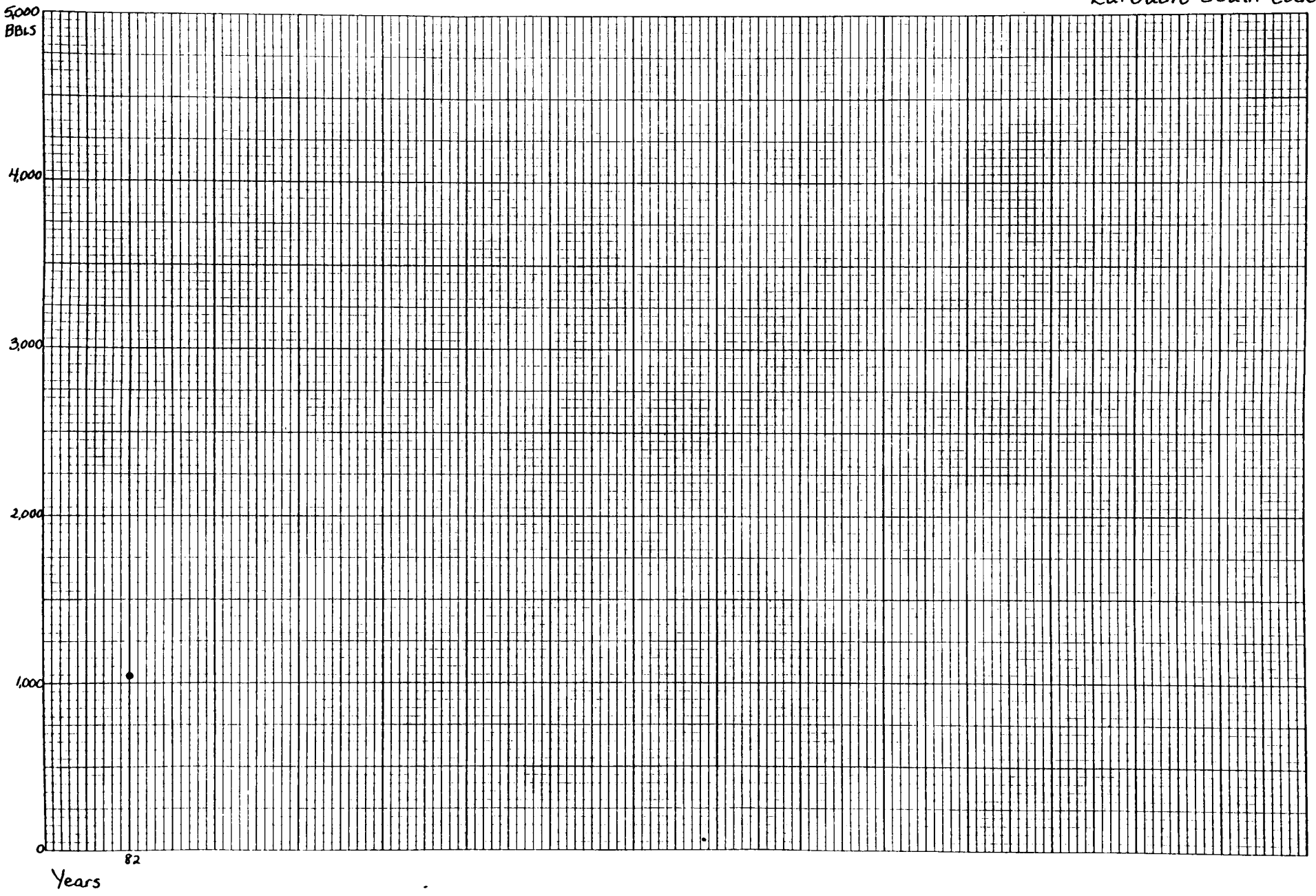

Rate
350,000
MCF
280,000
210,000
140,000
70,000
0
Kiowa Creek-D
1,500
BBLS
1,200
900
600
300
0
76
78
80
82
Years
47 0782
K•E

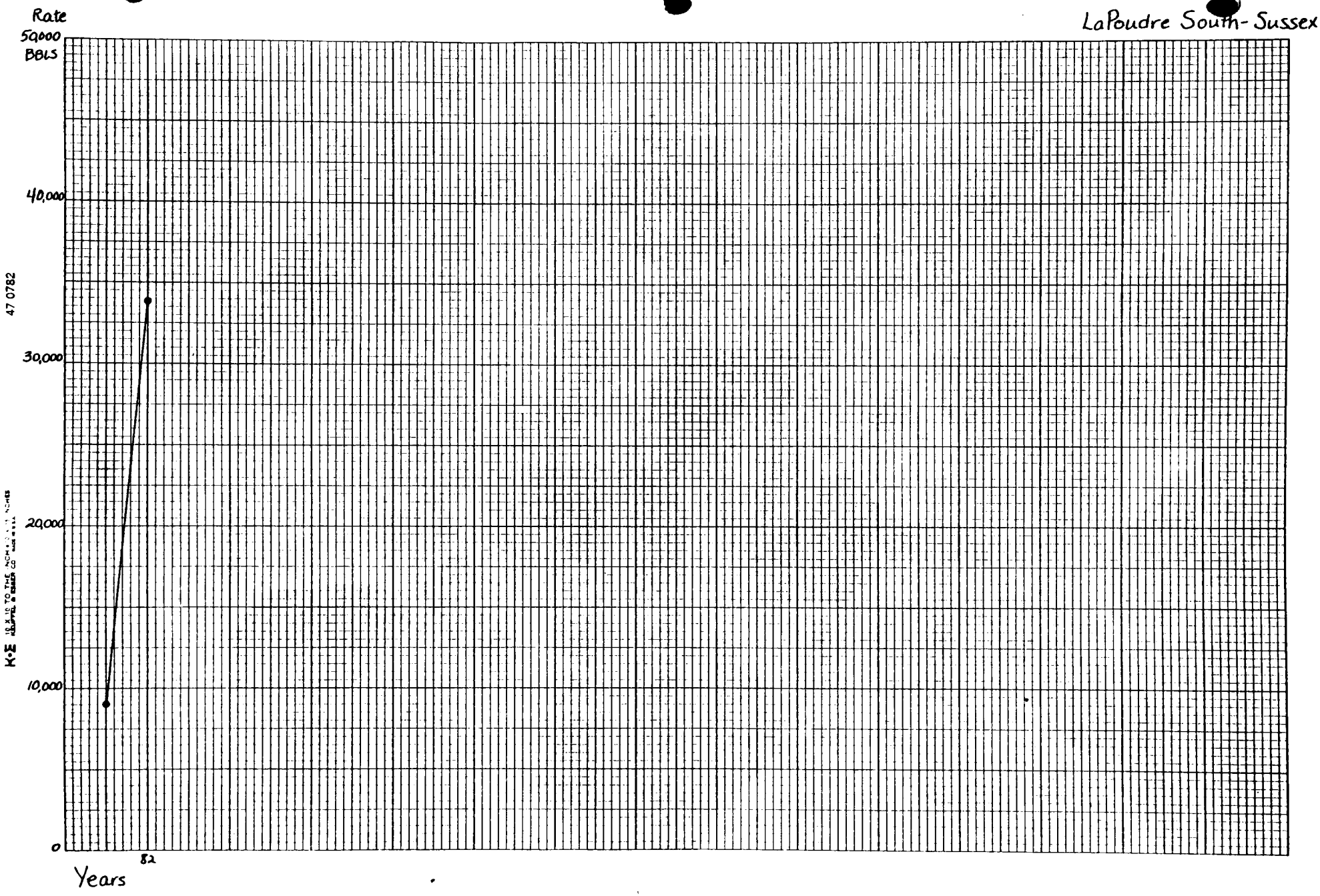

Rate
600
BBLS
480
360
240
120
0
Kiowa Creek - J
400,000
MCF
320,000
240,000
160,000
80,000
0
Panel A
7/59
58
60
62
64
66
68
70
72
74
76
78
80
82
Years
47 0782
K·E


Rate
600
BBLS
480
360
240
120
0
82
Years
Krauthead-D
1,000
MCF
800
600
400
200
0
47 0782


Rate
900,000
Bbls
720,000
540,000
360,000
180,000
0
Lanyard - D
1500,000
MCF
1200,000
900,000
600,000
300,000
0
74
76
78
80
82
Years
47 0782
K+E

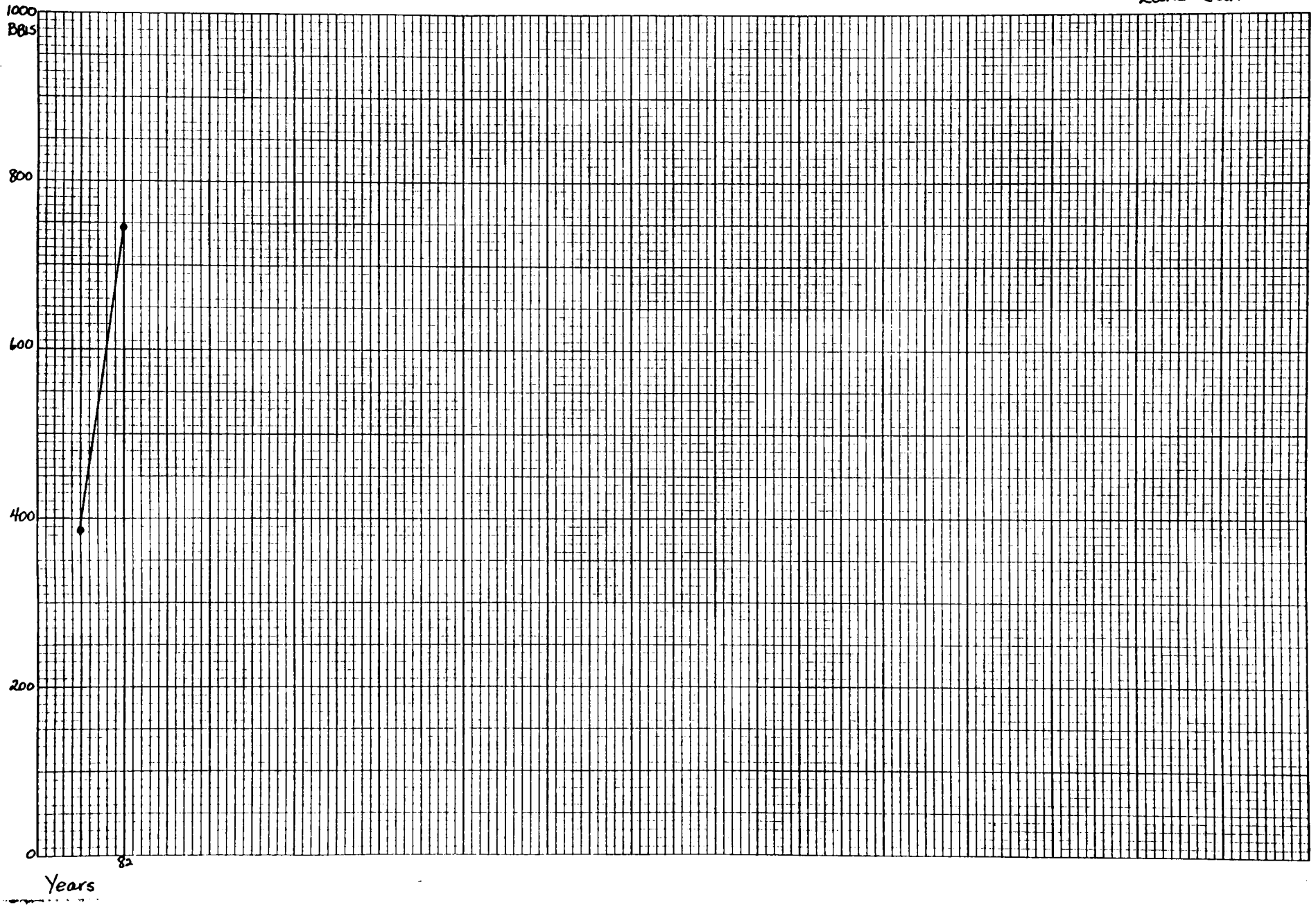

Rate
10,000
BBLS
8,000
6,000
4,000
2,000
0
8.2
Years
LaPoudre
ussex
47 0782
K·E


Rate
5,000
BBLS
4,000
3,000
2,000
1,000
0
82
Years
LaPoudre South-Codell


Rate
50000
BBLS
40,000
30,000
20,000
10,000
0
82
Years
LaPoudre South- Sussex
47 0782
K·E

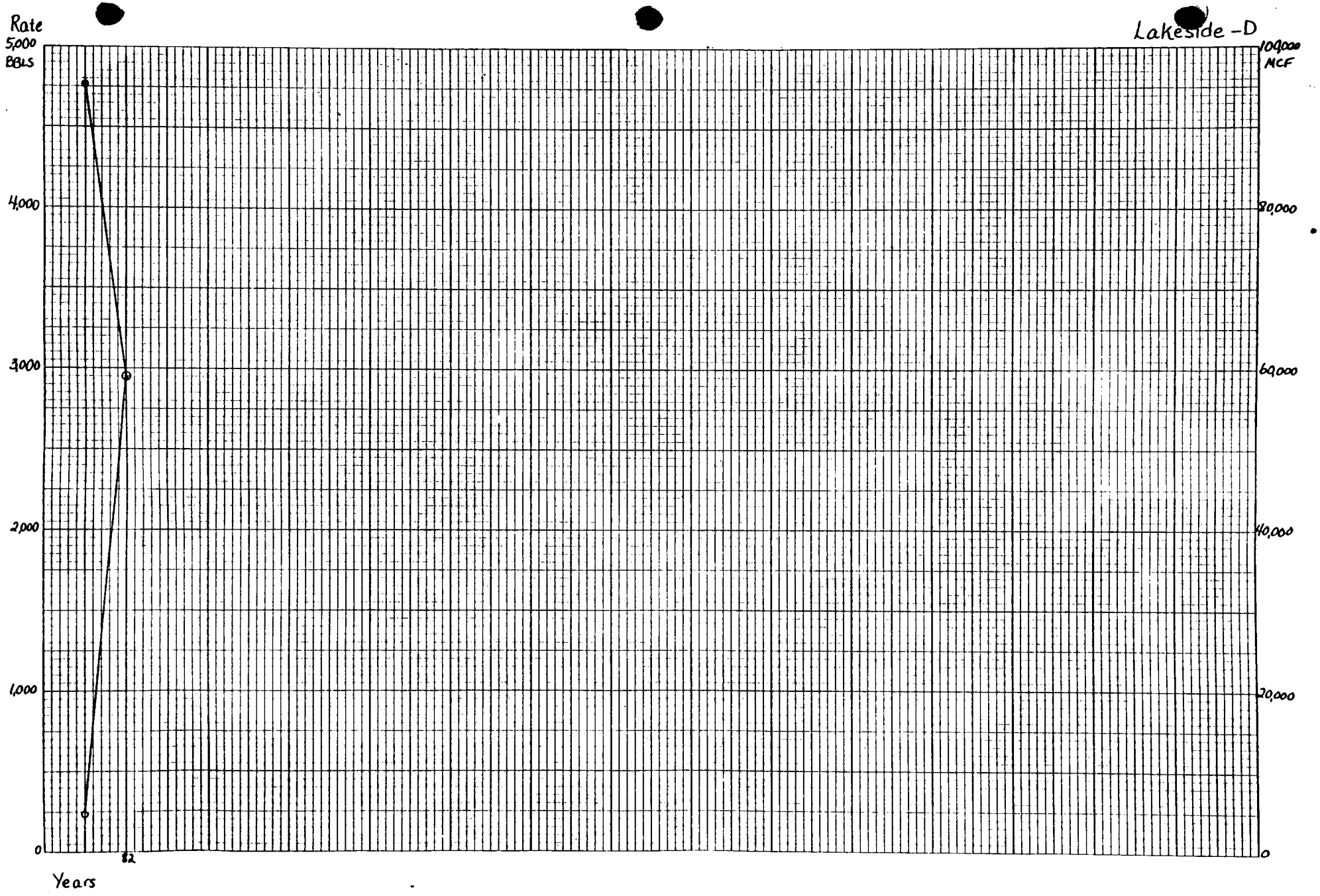
Rate

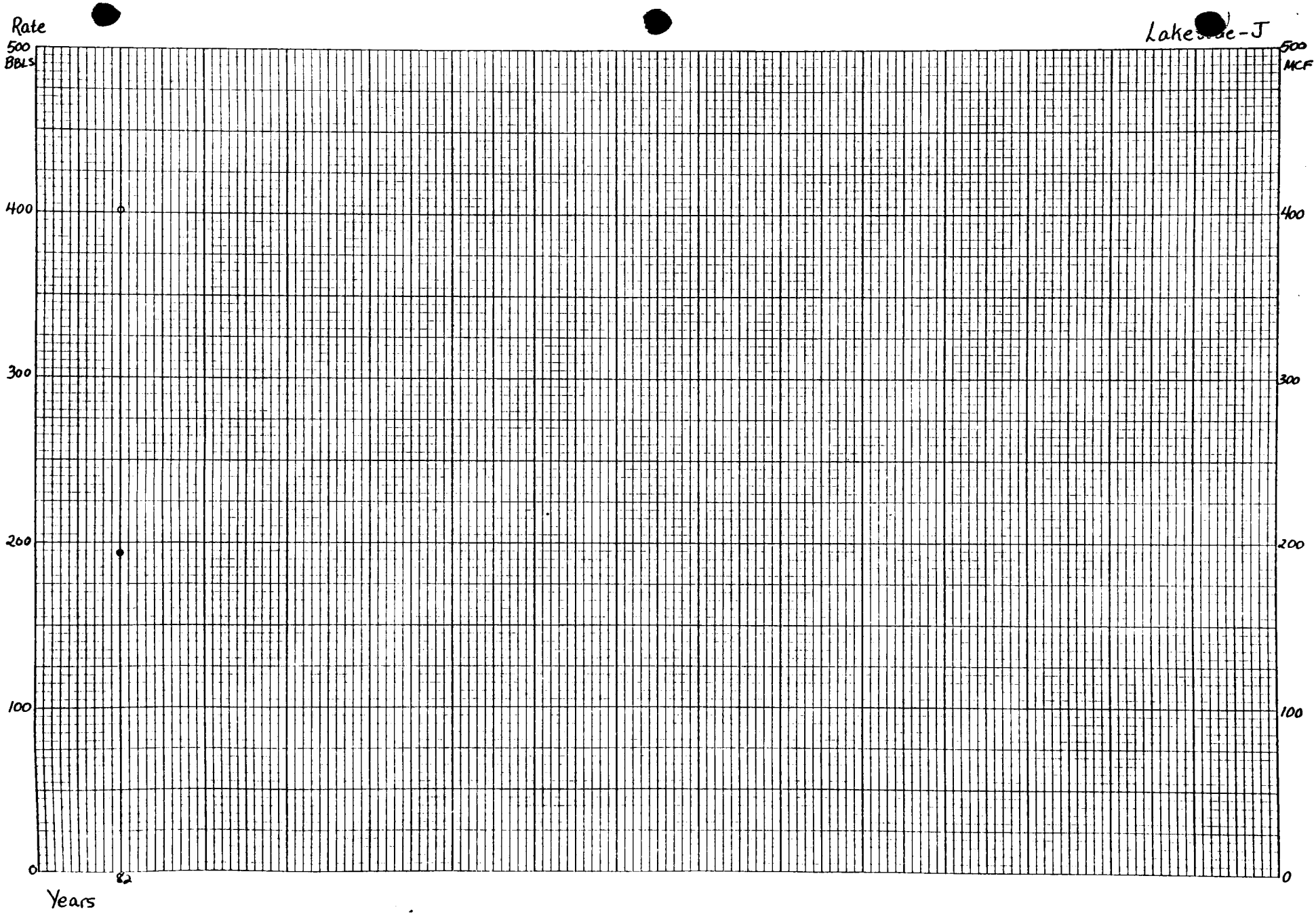
Lake Canal - D

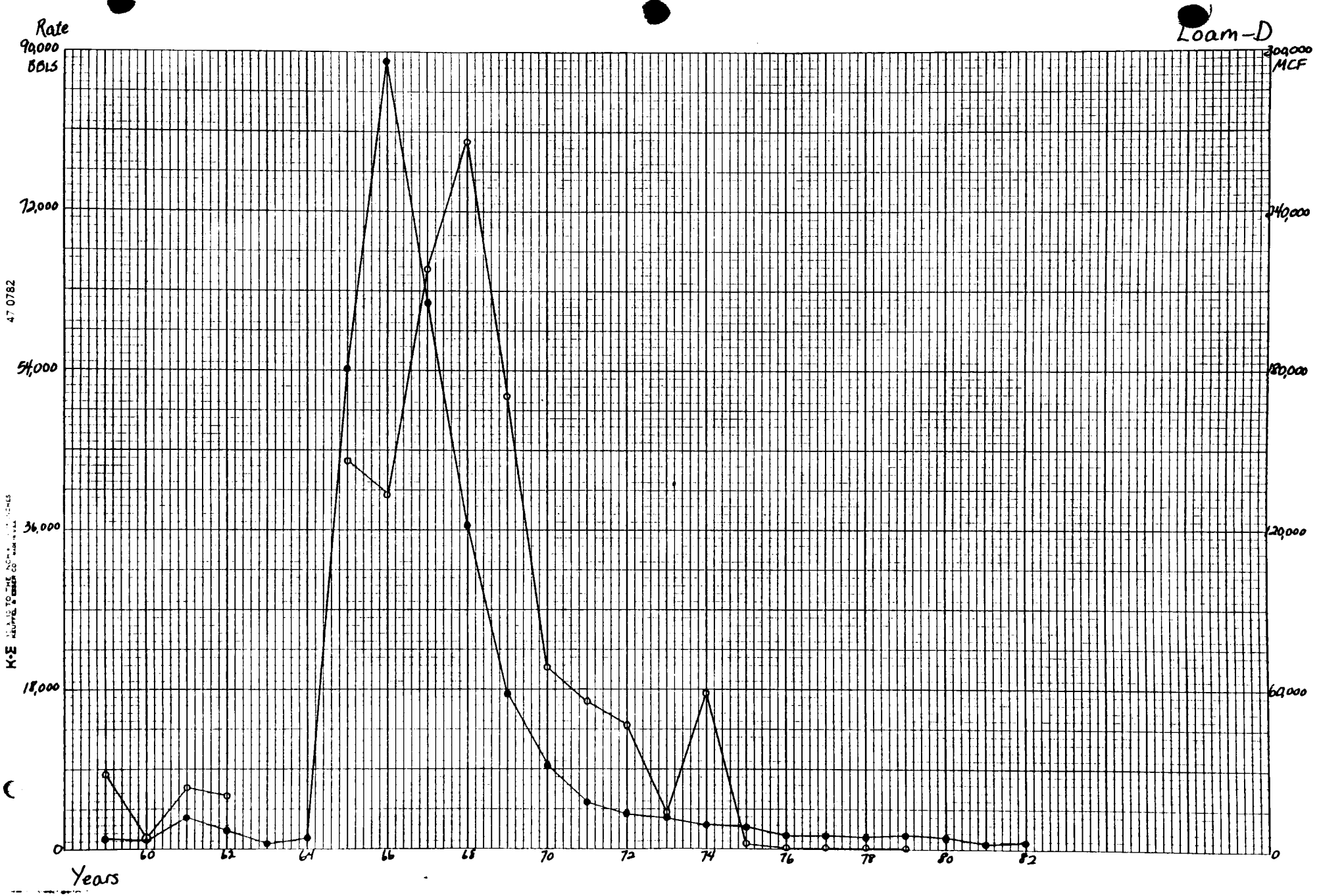


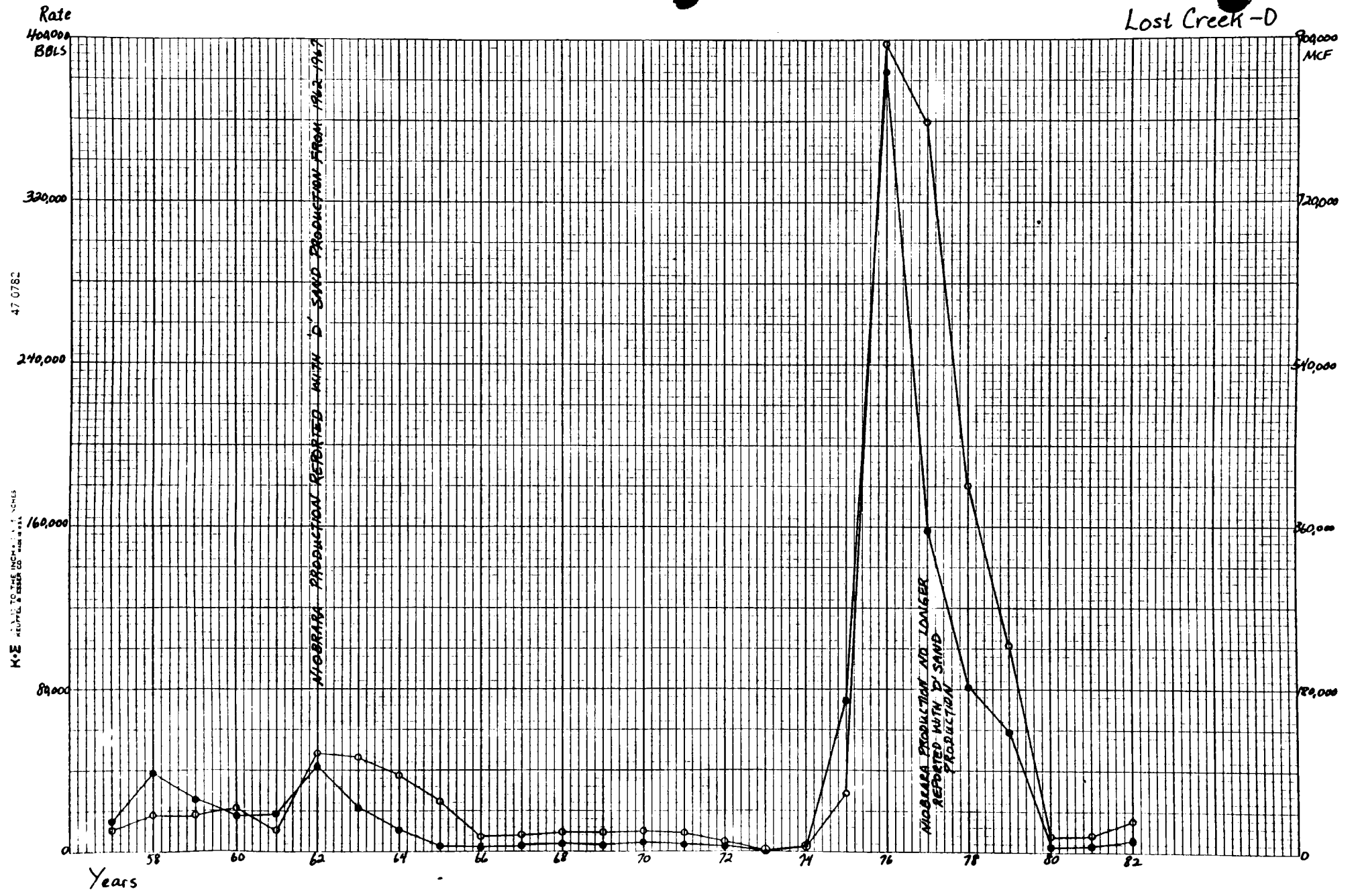
47 0782

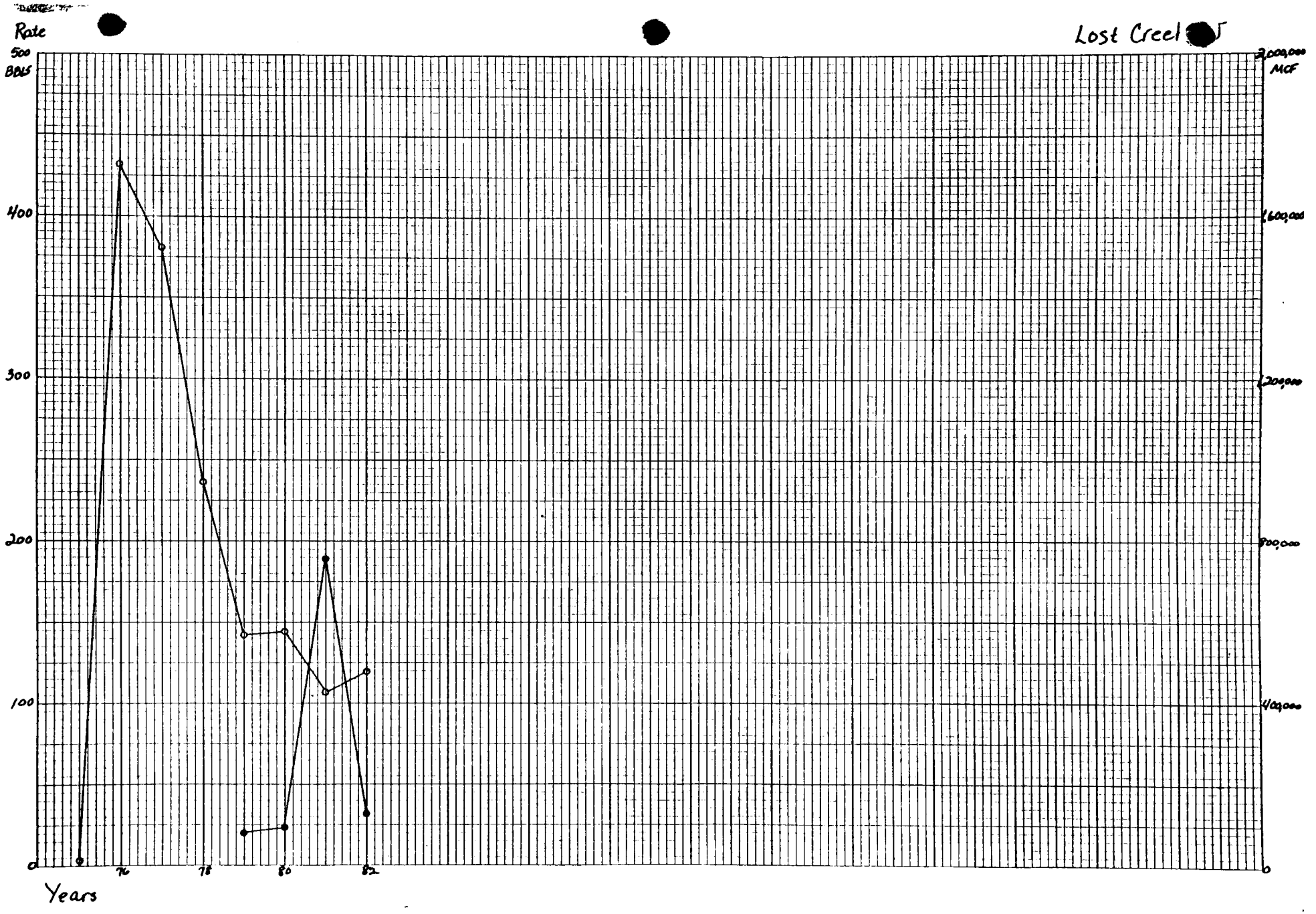
K·E

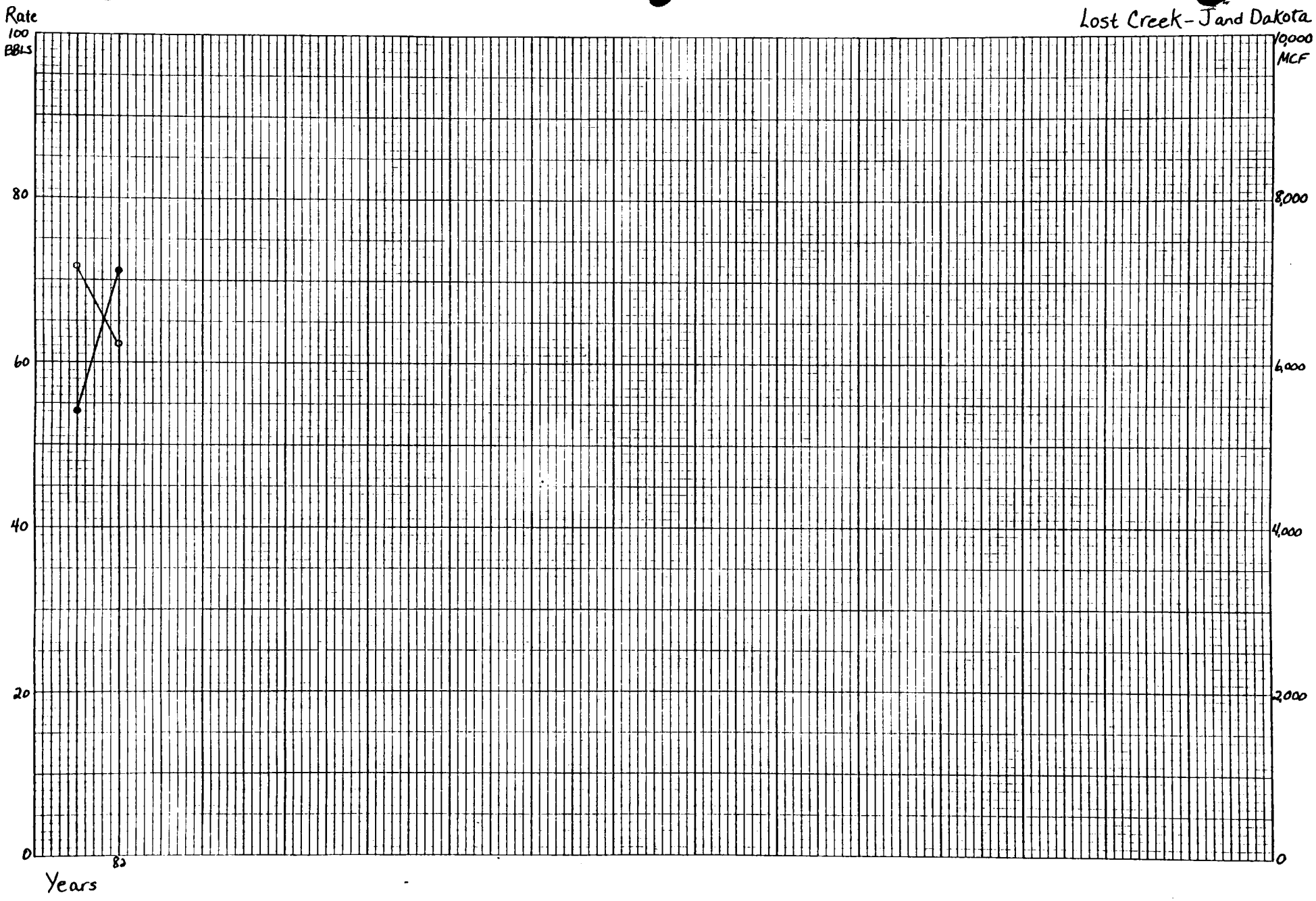

Rate
5,000
BBLS
4,000
3,000
2,000
1,000
0
Lakeside -D
100,000
MCF
80,000
60,000
40,000
20,000
0
82
Years

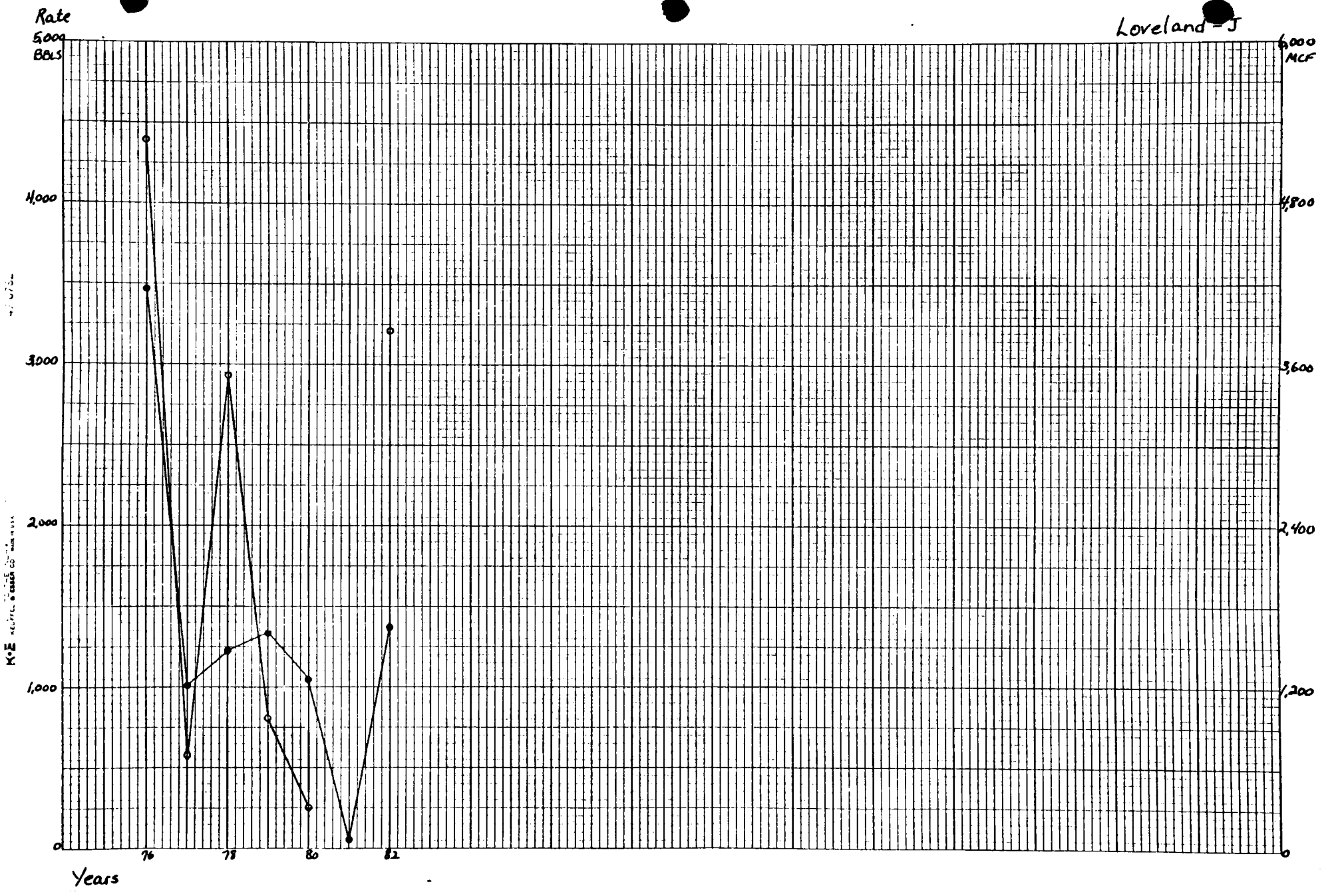

Rate
Lakeside-J
500
BBLS
400
300
200
100
0
500
MCF
400
300
200
100
0
82
Years
47 0782
K•E

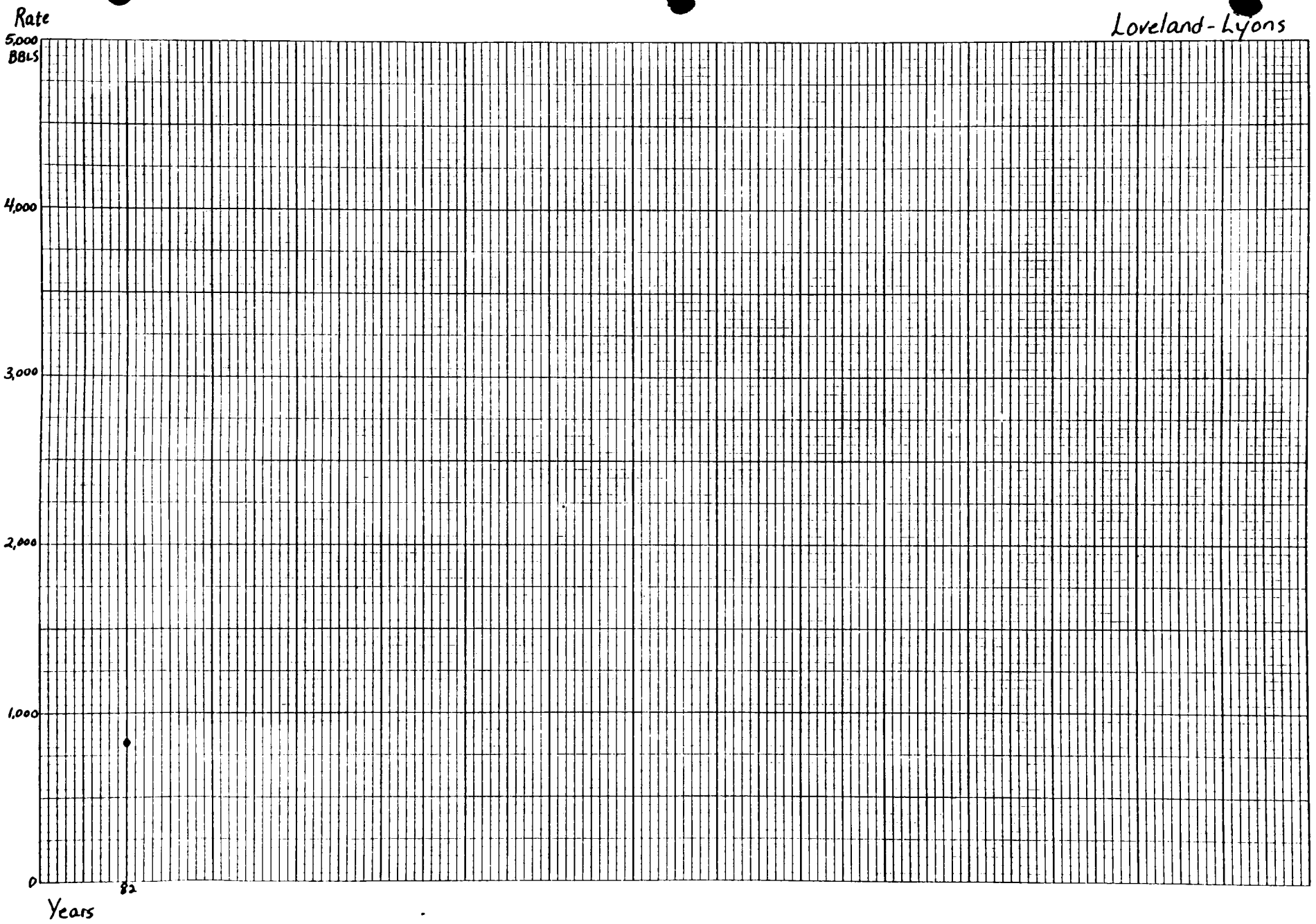

Rate
90,000
BBLS
72,000
54,000
36,000
18,000
0
Loam-D
300,000
MCF
240,000
180,000
120,000
60,000
0
60
62
64
66
68
70
72
74
76
78
80
82
Years
47 0782
K&E

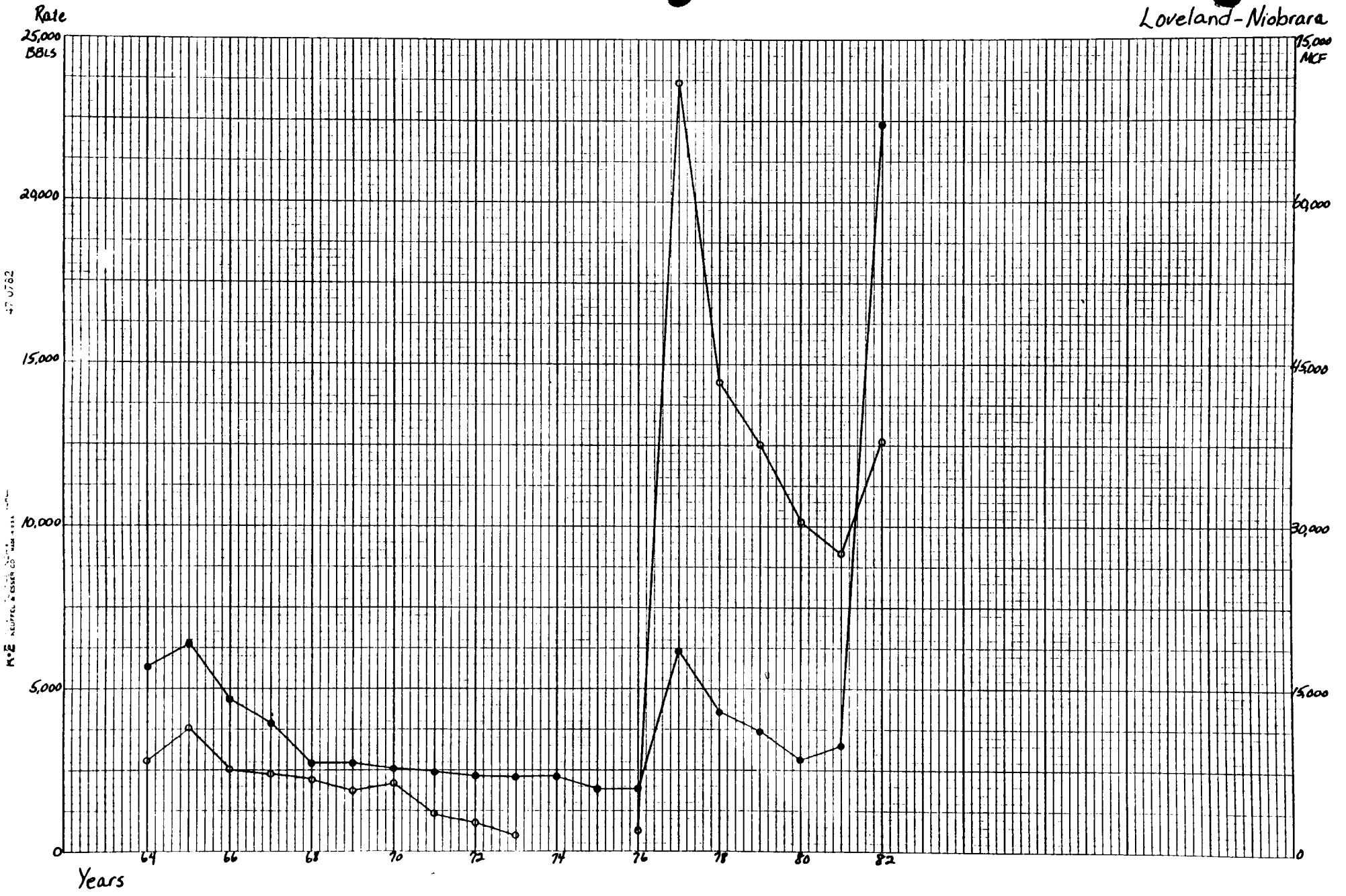

Rate
400,000 BBLS
320,000
240,000
160,000
80,000
0
900,000 MCF
720,000
540,000
360,000
180,000
0
Lost Creek - D
NIOBRARA PRODUCTION REPORTED WITH "D" SAND PRODUCTION FROM 1962-1967
NIOBRARA PRODUCTION NO LONGER REPORTED WITH "D" SAND PRODUCTION
58
60
62
64
66
68
70
72
74
76
78
80
82
Years
47 0782
K+E

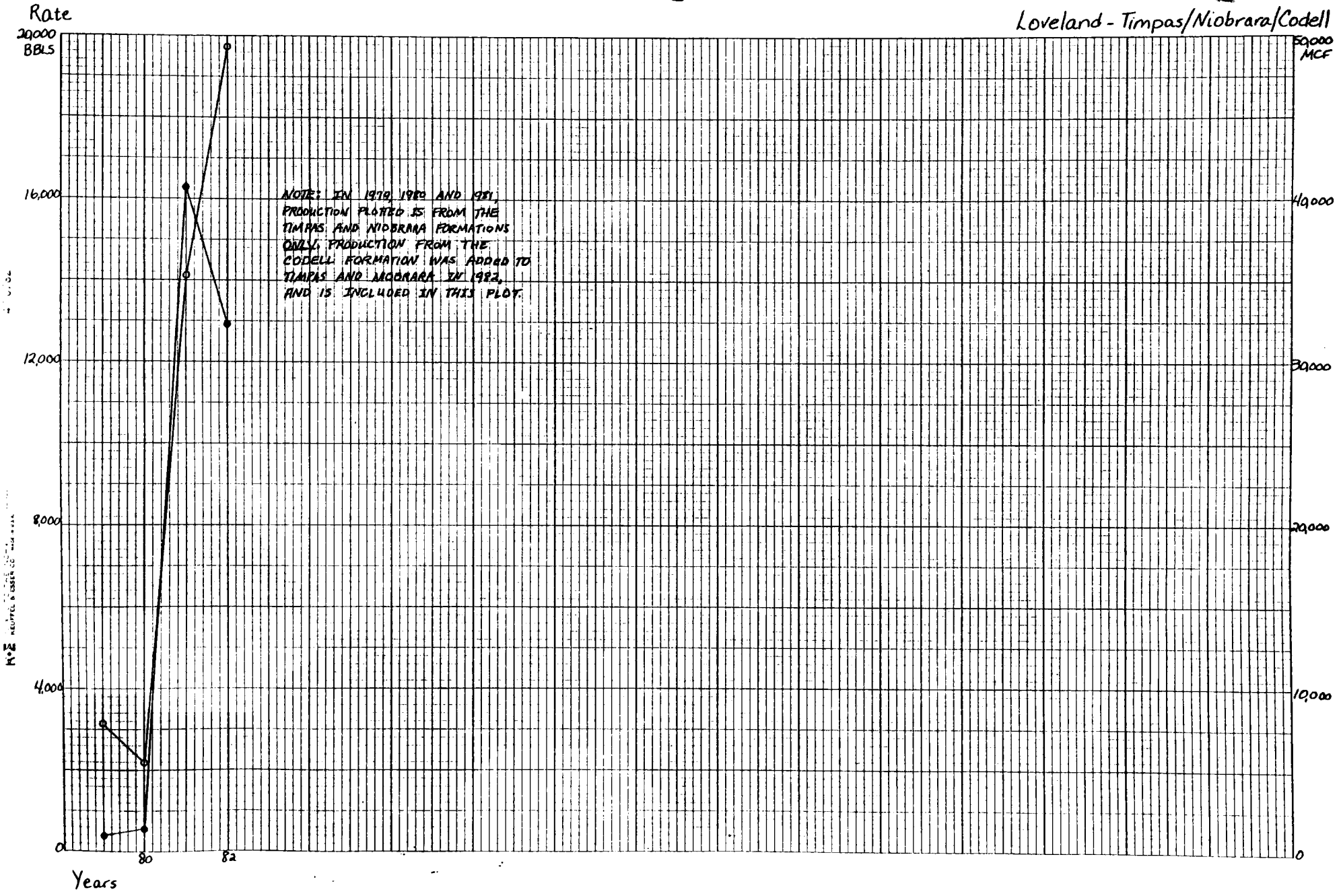

Rate
Lost Creek
500
BBLS
400
300
200
100
0
2,000,000
MCF
1,600,000
1,200,000
800,000
400,000
0
76
78
80
82
Years
47 0782
K+E

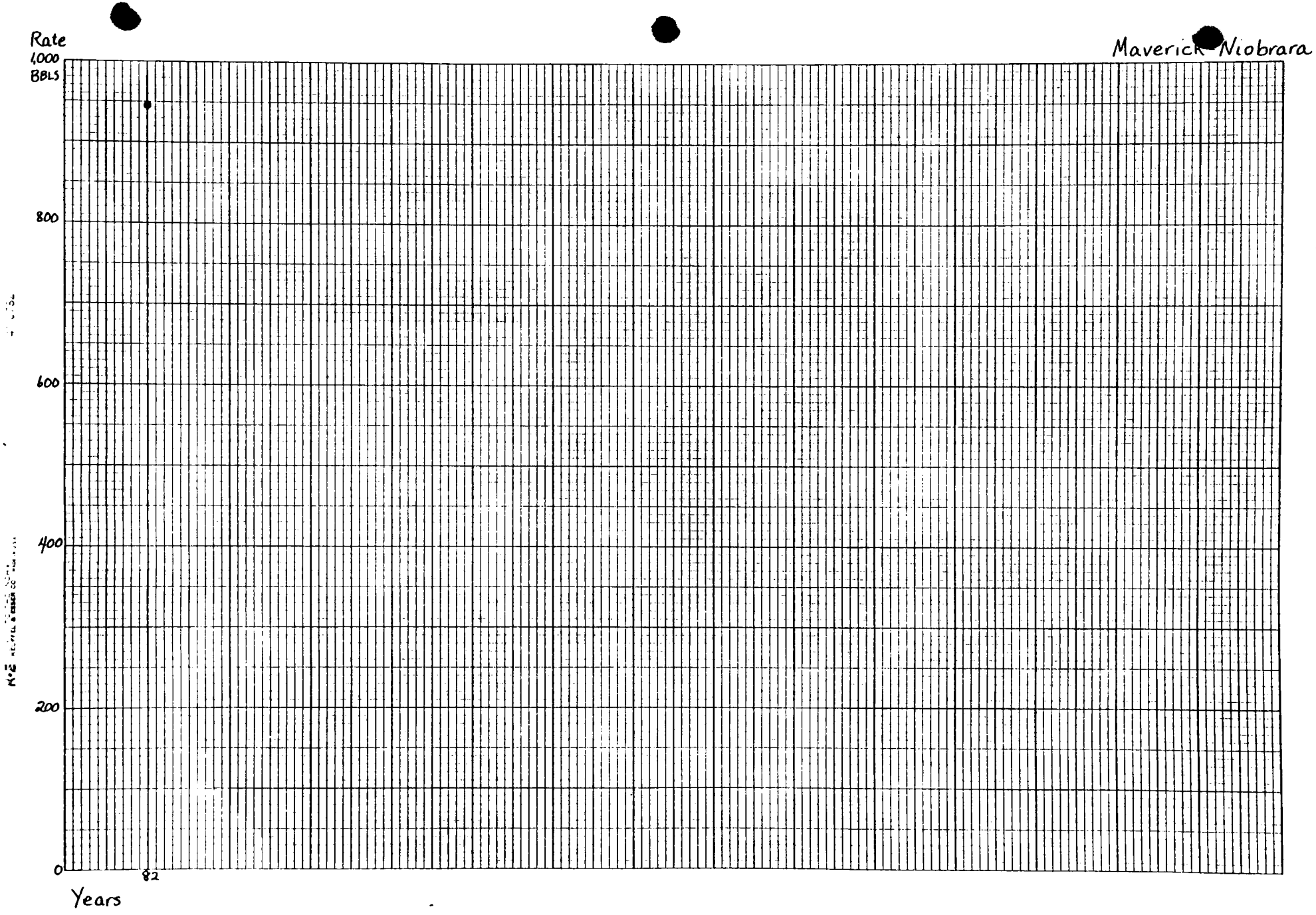

Rate
100
BBLS
80
60
40
20
0
Years
83
Lost Creek - J and Dakota
10,000
MCF
8,000
6,000
4,000
2,000
0


Rate
5,000
BBLS
4,000
3,000
2,000
1,000
0
Loveland - J
6,000
MCF
4,800
3,600
2,400
1,200
0
76
78
80
82
Years


Rate
Loveland - Lyons
5,000
BBLS
4,000
3,000
2,000
1,000
0
82
Years

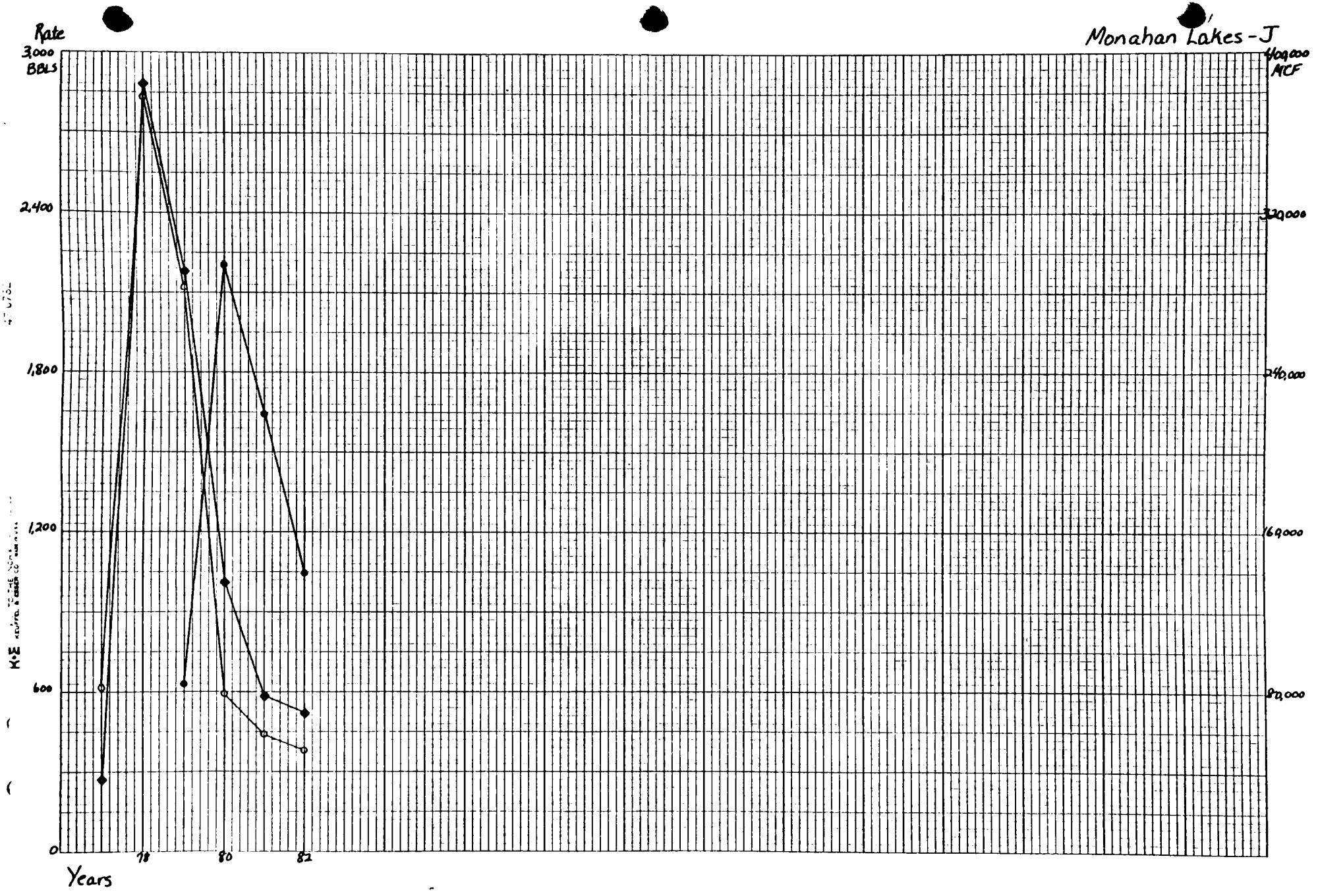

Rate
Loveland-Niobrara
25,000 BBLS
20,000
15,000
10,000
5,000
0
45,000 MCF
60,000
45,000
30,000
15,000
0
64
66
68
70
72
74
76
78
80
82
Years

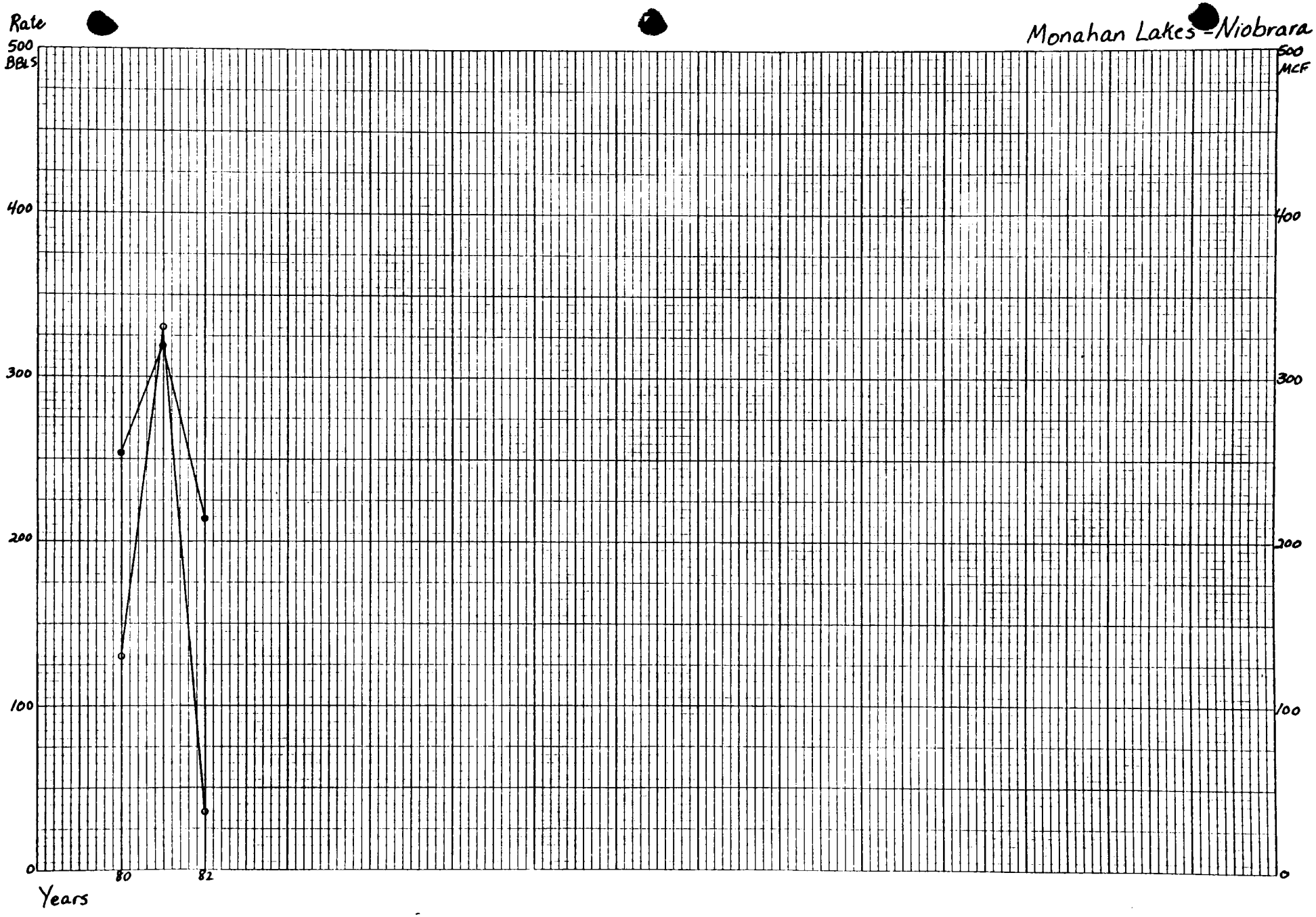

Rate
Loveland - Timpas/Niobrara/Codell
20000 BBLS
16,000
12,000
8,000
4,000
0
60000 MCF
40,000
30,000
20,000
10,000
0
80
82
Years
NOTE: IN 1979, 1980 AND 1981, PRODUCTION PLOTTED IS FROM THE TIMPAS AND NIOBRARA FORMATIONS ONLY. PRODUCTION FROM THE CODELL FORMATION WAS ADDED TO TIMPAS AND NIOBRARA IN 1982, AND IS INCLUDED IN THIS PLOT.

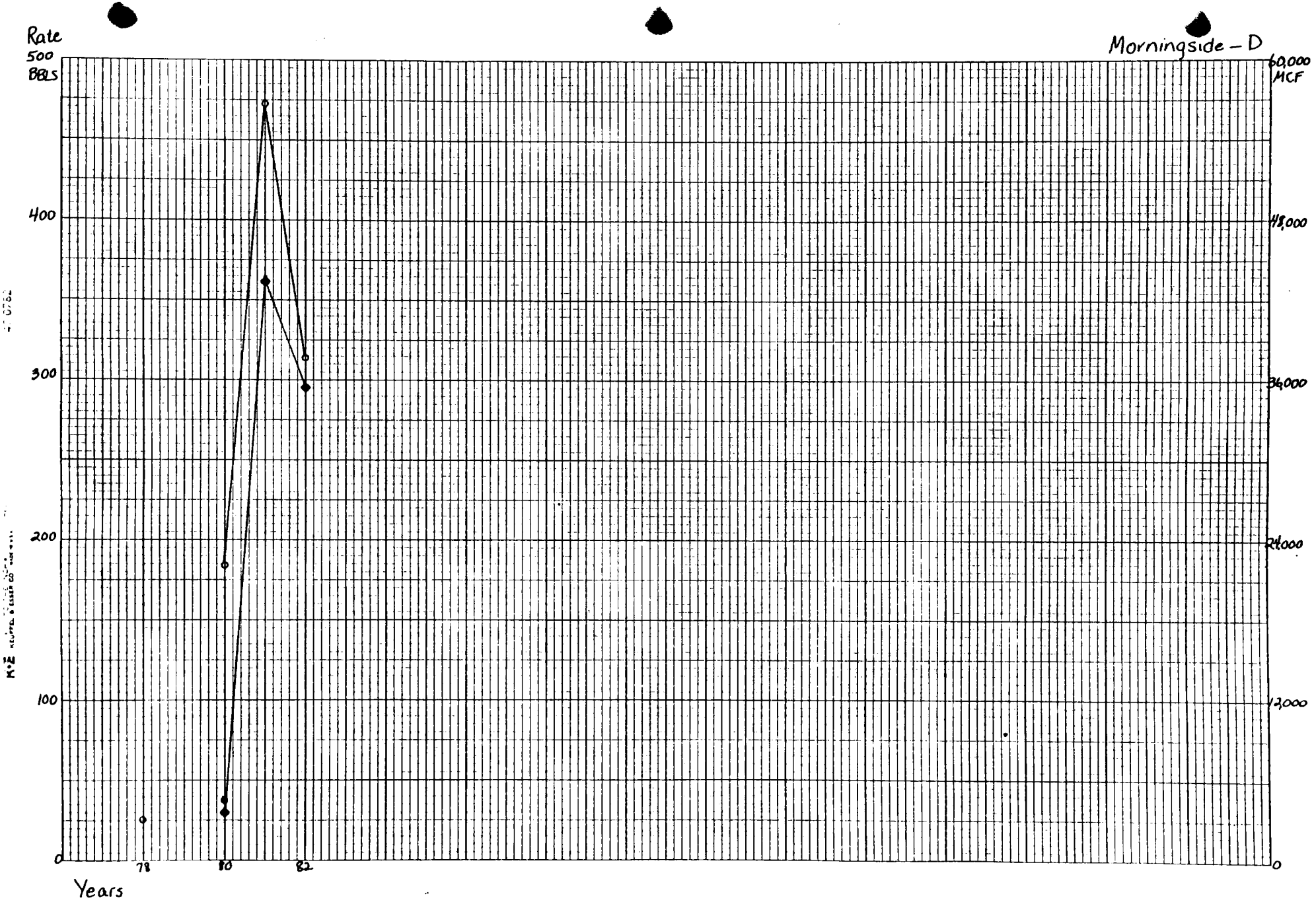

Rate
1,000
BBLS
800
600
400
200
0
82
Years
Maverick Niobrara

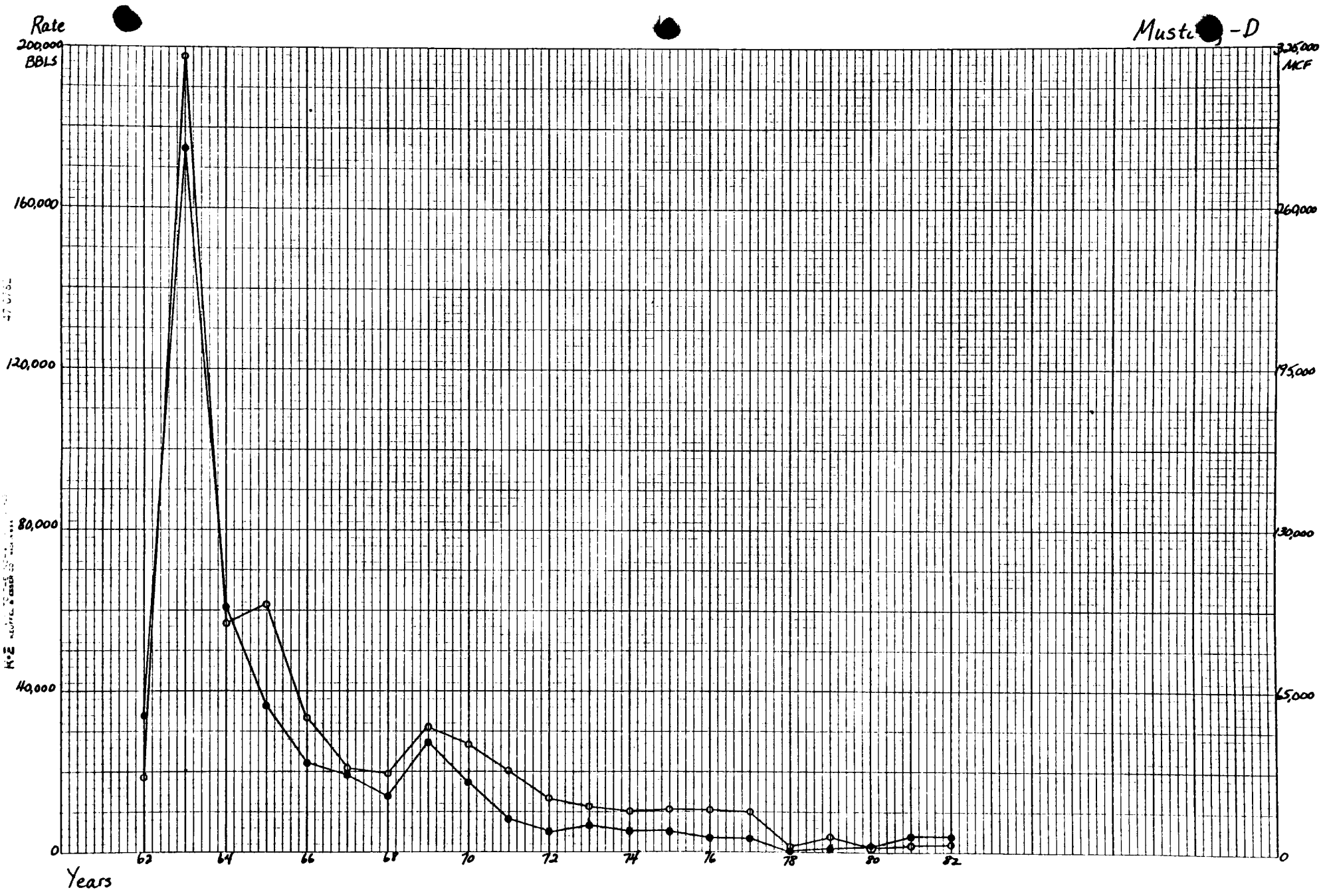

Rate
May-J
100,000 BBLS
80,000
60,000
40,000
20,000
0
75,000 MCF
60,000
45,000
30,000
15,000
0
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years

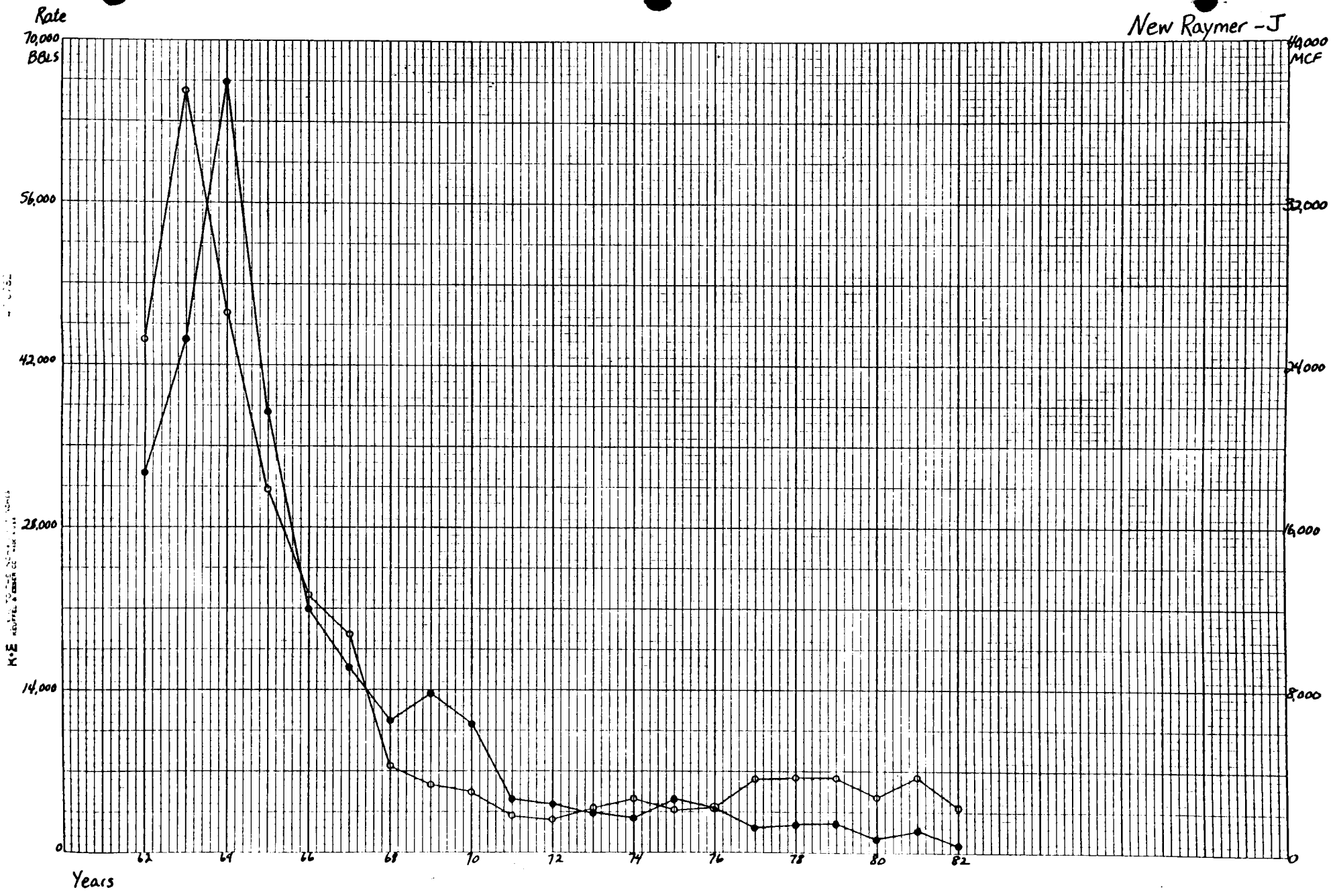

Rate
McKenzie-J
55,000
MCF
44,000
33,000
22,000
11,000
0
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years

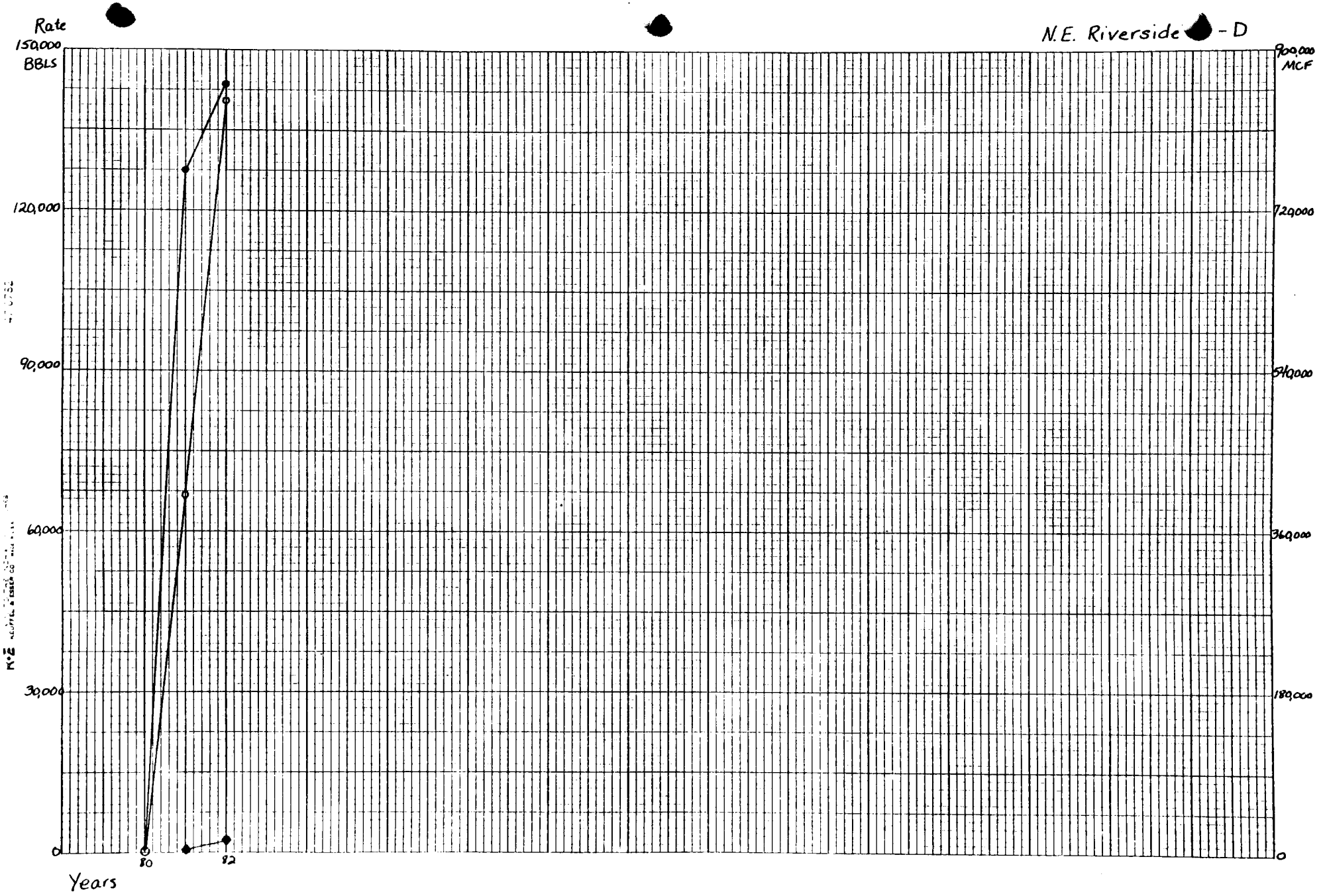

Rate
3,000
BBLS
2,400
1,800
1,200
600
0
Monahan Lakes - J
MCF
480,000
320,000
240,000
160,000
80,000
78
80
82
Years

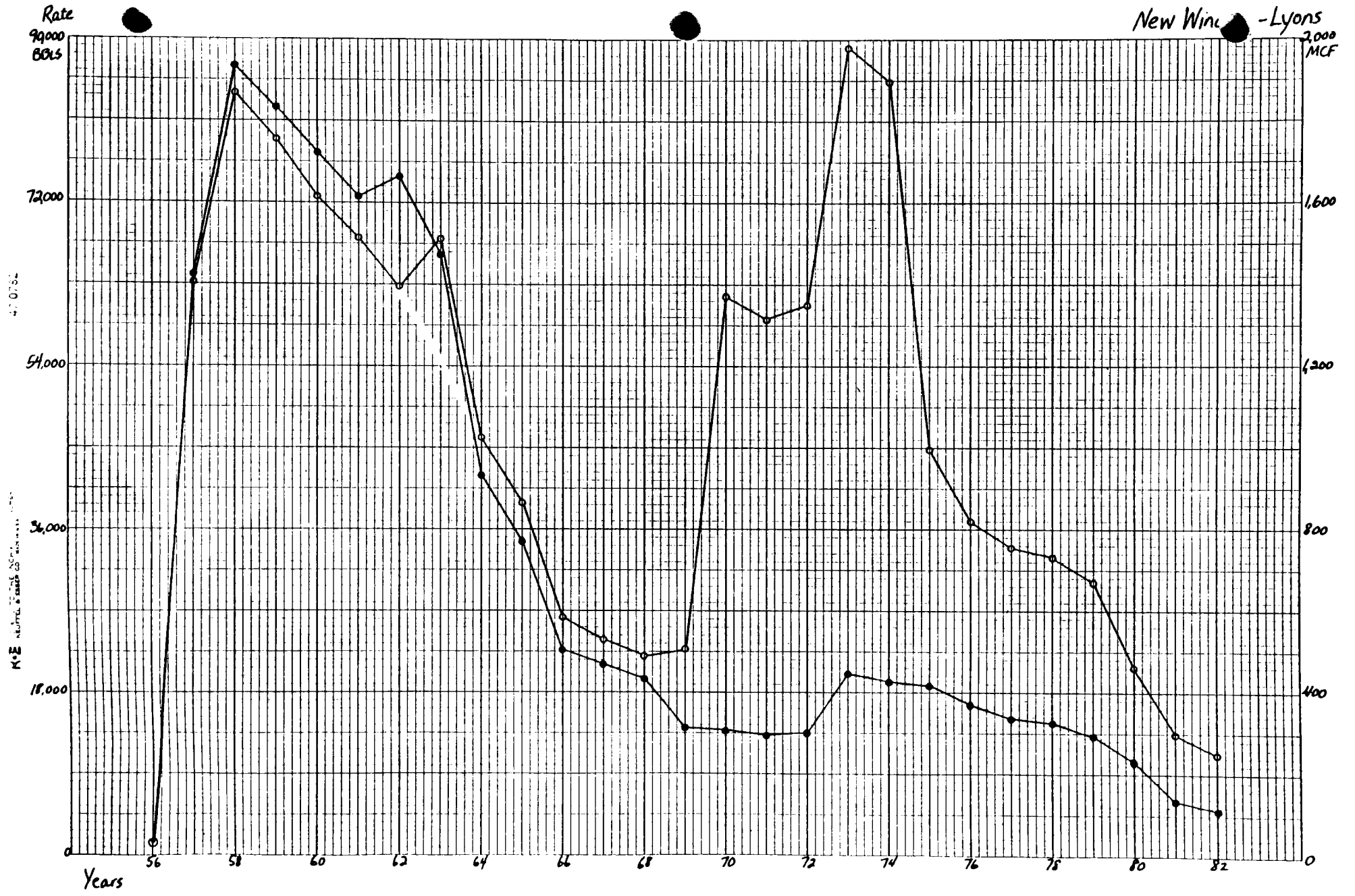

Rate
500
BBLS
400
300
200
100
0
80
82
Years
Monahan Lakes-Niobrara
500
MCF
400
300
200
100
0

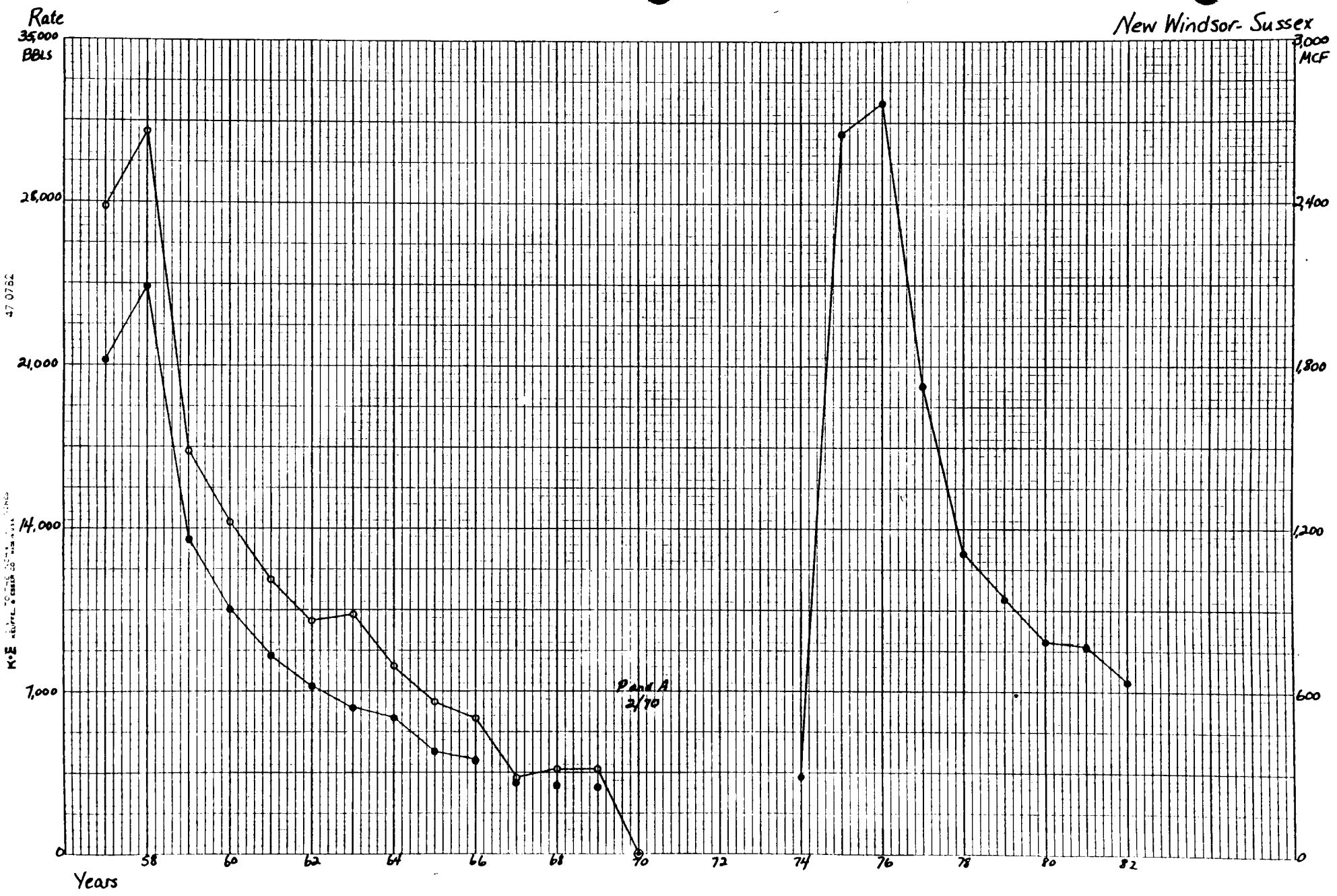

Rate
500
BBLS
400
300
200
100
0
60,000
MCF
48,000
36,000
24,000
12,000
0
78
80
82
Years
Morningside – D

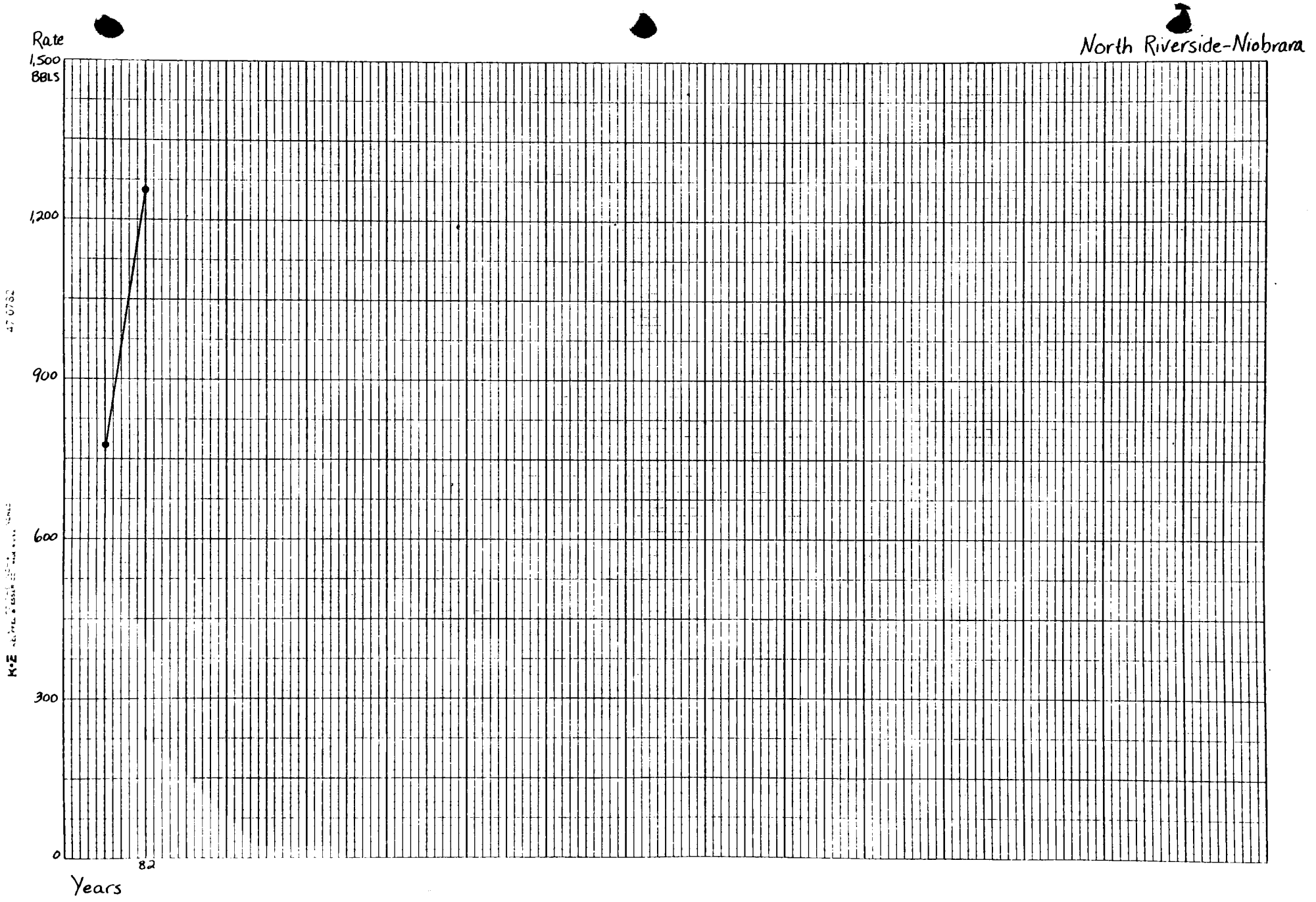

Rate
Mustang-D
200,000
BBLS
160,000
120,000
80,000
40,000
0
335,000
MCF
260,000
195,000
130,000
65,000
0
62
64
66
68
70
72
74
76
78
80
82
Years


Rate
70,000 BBLS
56,000
42,000
28,000
14,000
0
New Raymer - J
MCF
32,000
24,000
16,000
8,000
0
62
64
66
68
70
72
74
76
78
80
82
Years

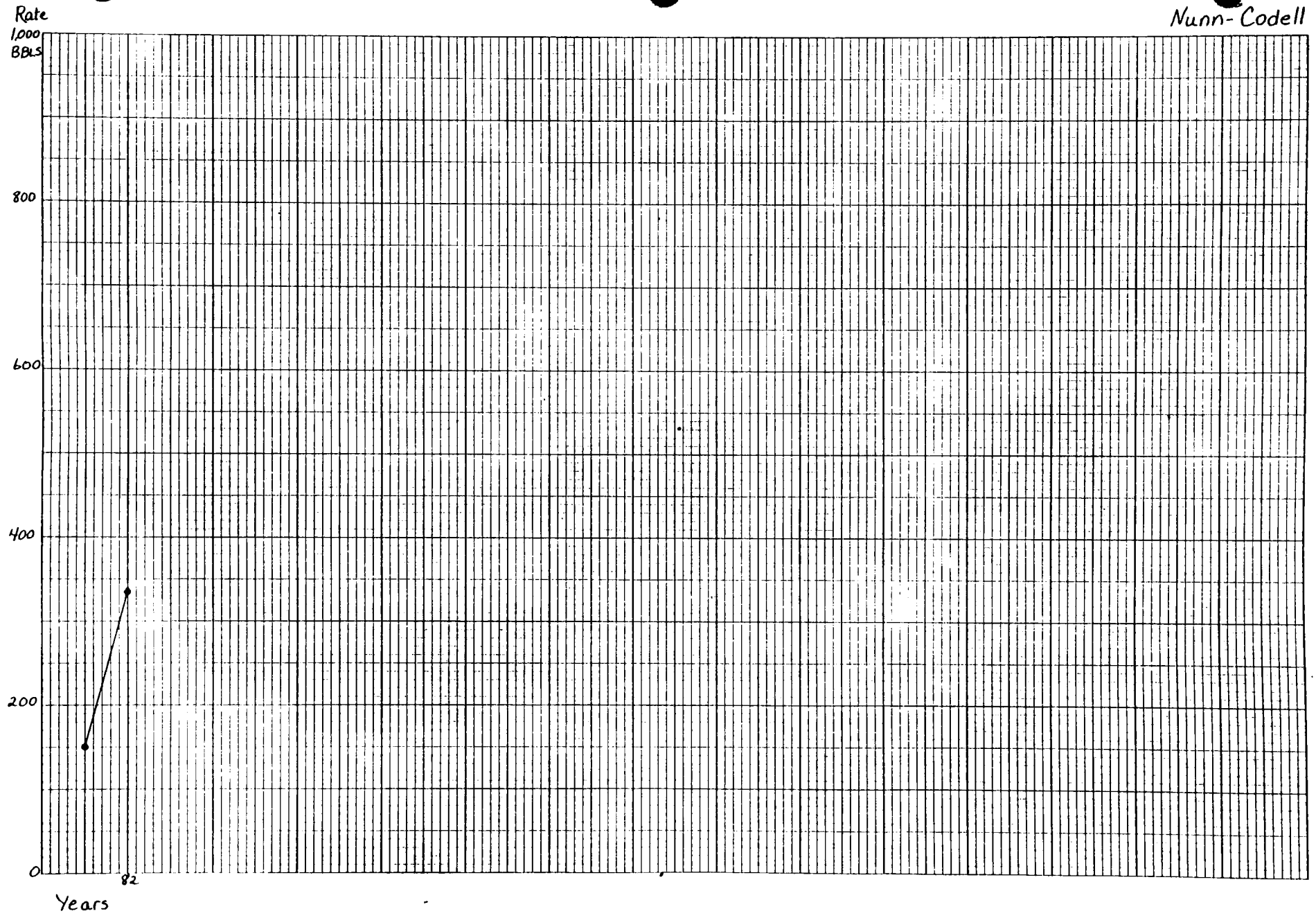

Rate
150,000
BBLS
120,000
90,000
60,000
30,000
0
900,000
MCF
720,000
540,000
360,000
180,000
0
80
82
Years
N.E. Riverside - D


Rate
90000
BBLS
72,000
54,000
36,000
18,000
0
2,000
MCF
1,600
1,200
800
400
0
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years
New Win -Lyons

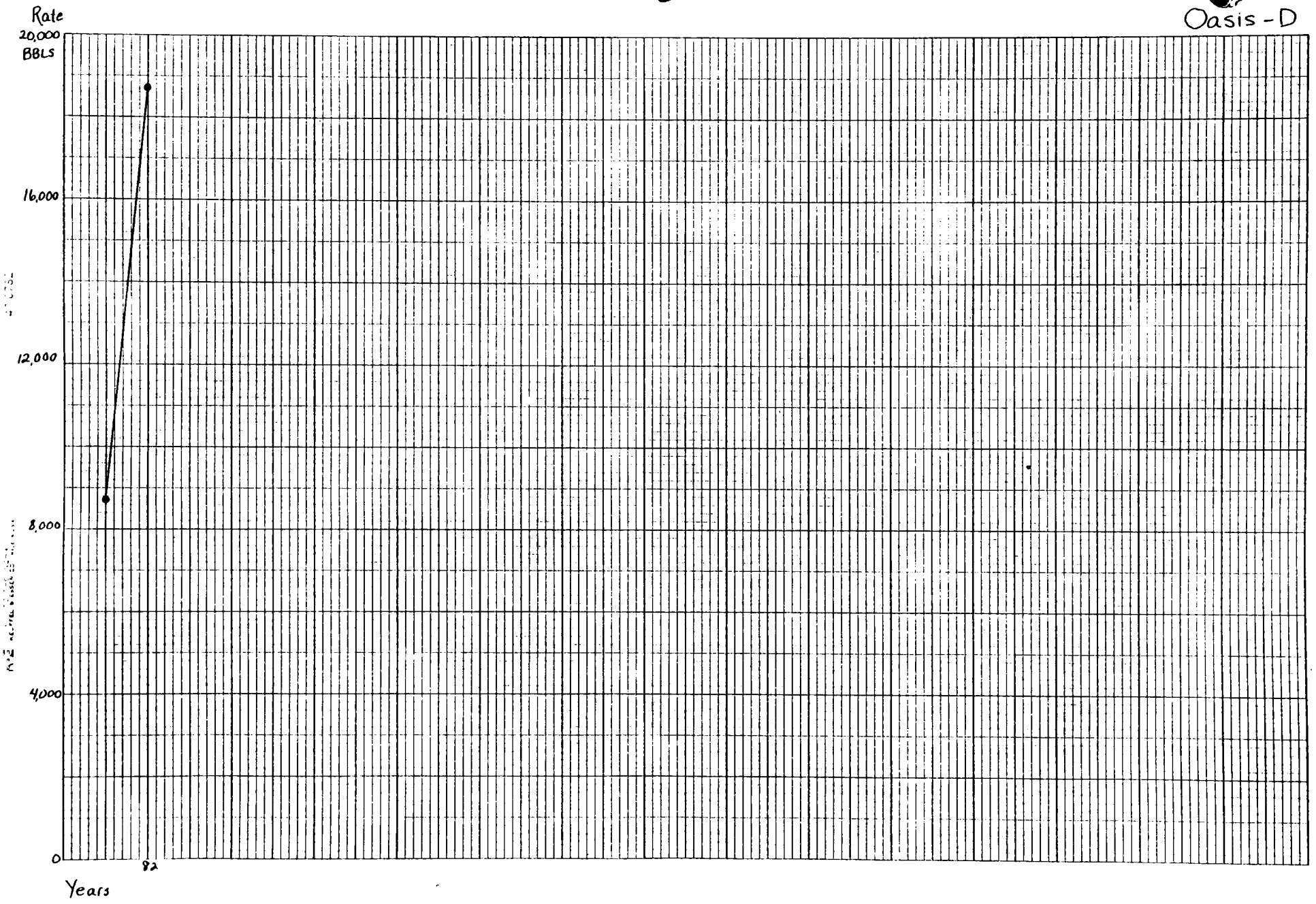

Rate
35,000
BBLs
28,000
21,000
14,000
7,000
0
New Windsor- Sussex
3,000
MCF
2,400
1,800
1,200
600
0
58
60
62
64
66
68
70
72
74
76
78
80
82
Years
P and A
2/70

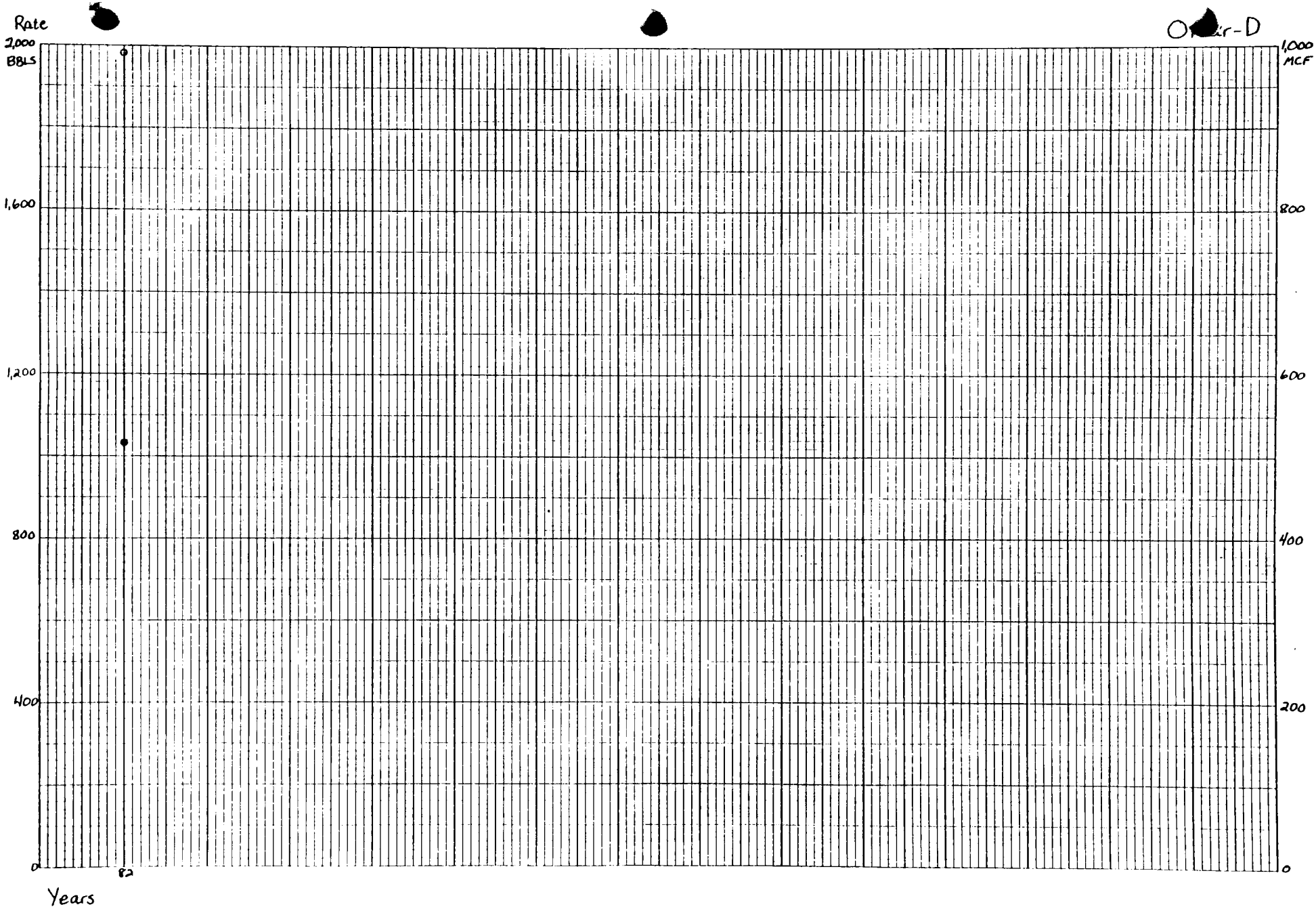

Rate
1,500
BBLS
1,200
900
600
300
0
82
Years
North Riverside-Niobrara

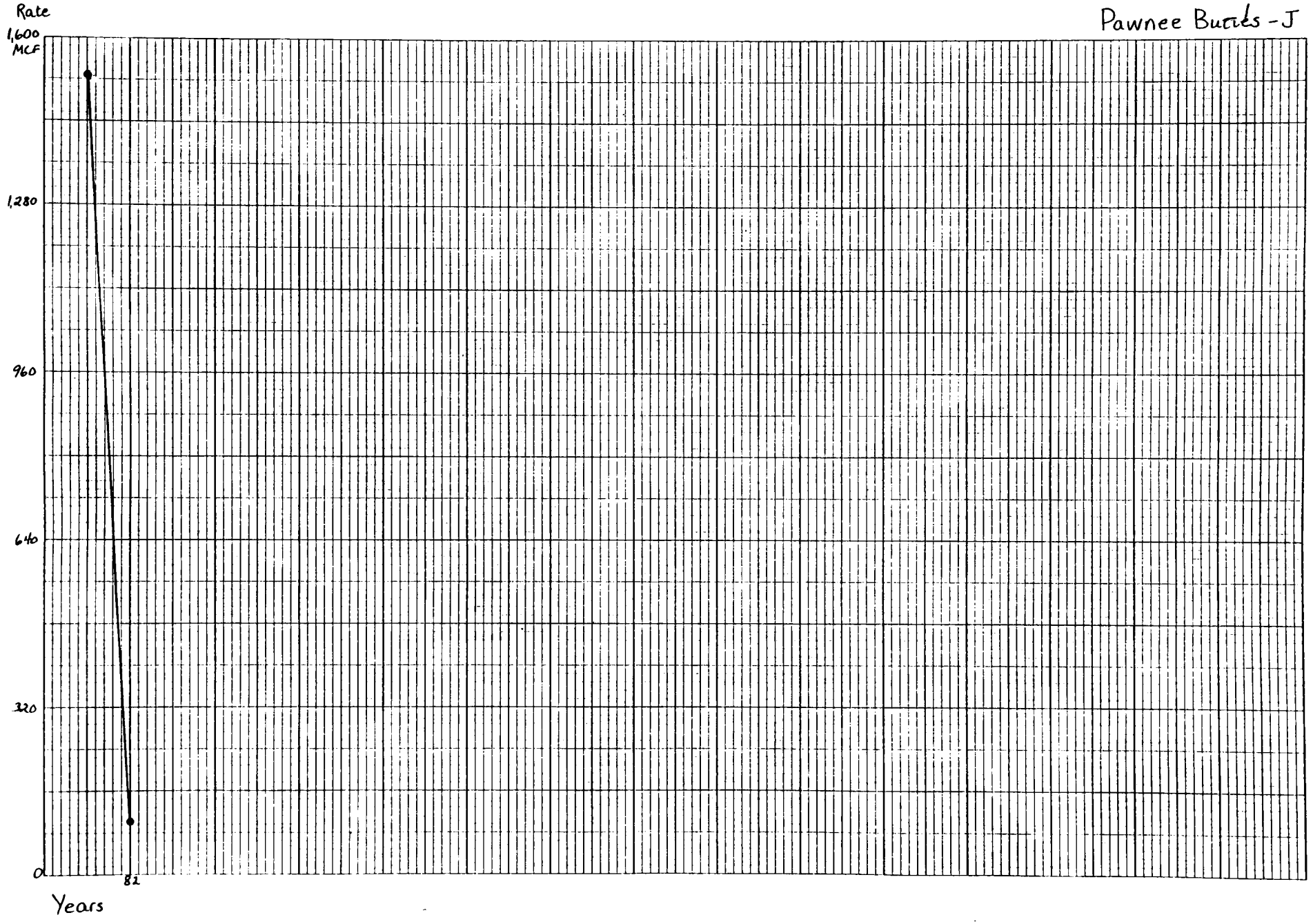
Nunn-Codell

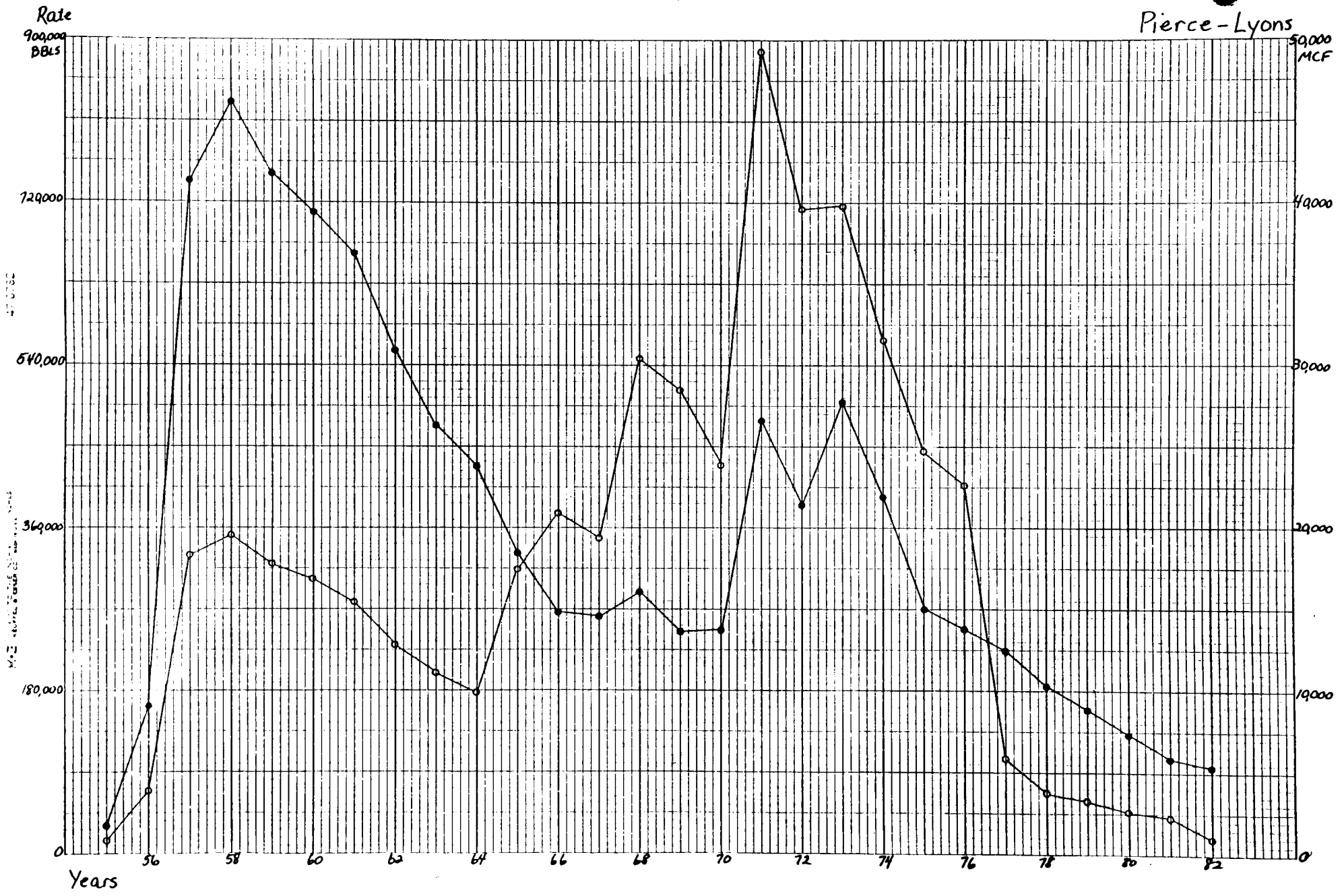


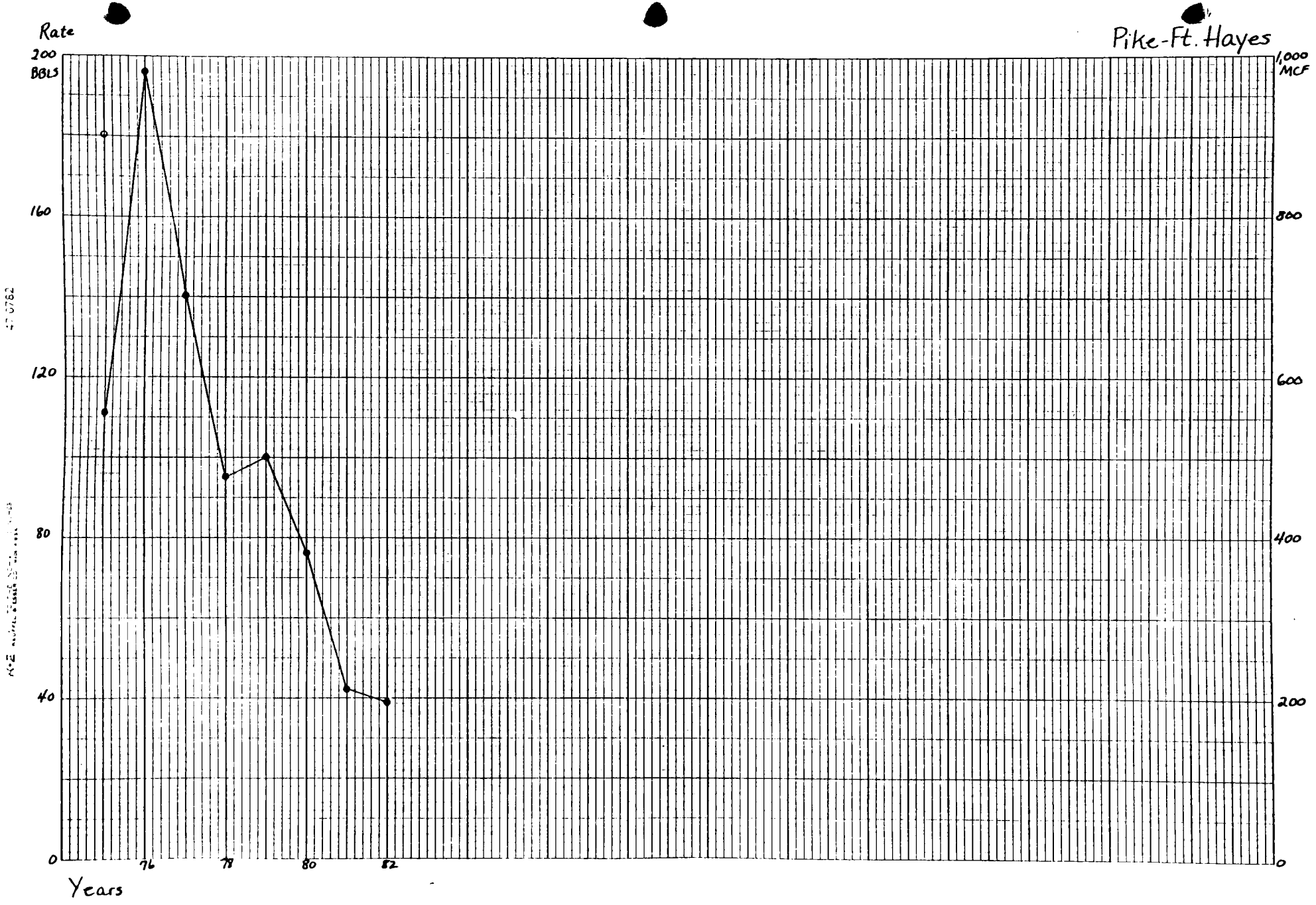
Oasis - D

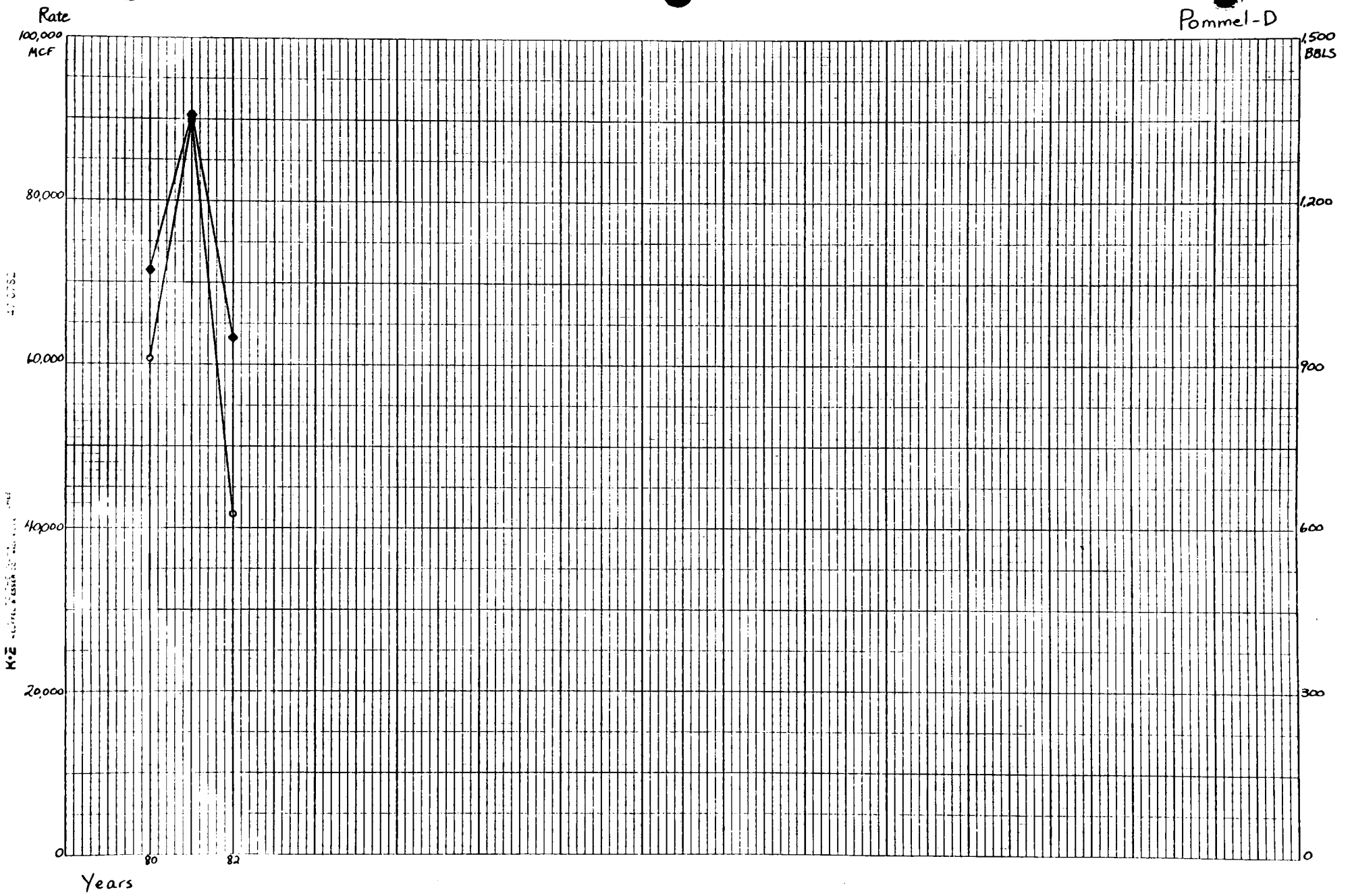



Rate
2,000
BBLS
1,600
1,200
800
400
0
1,000
MCF
800
600
400
200
0
82
Years

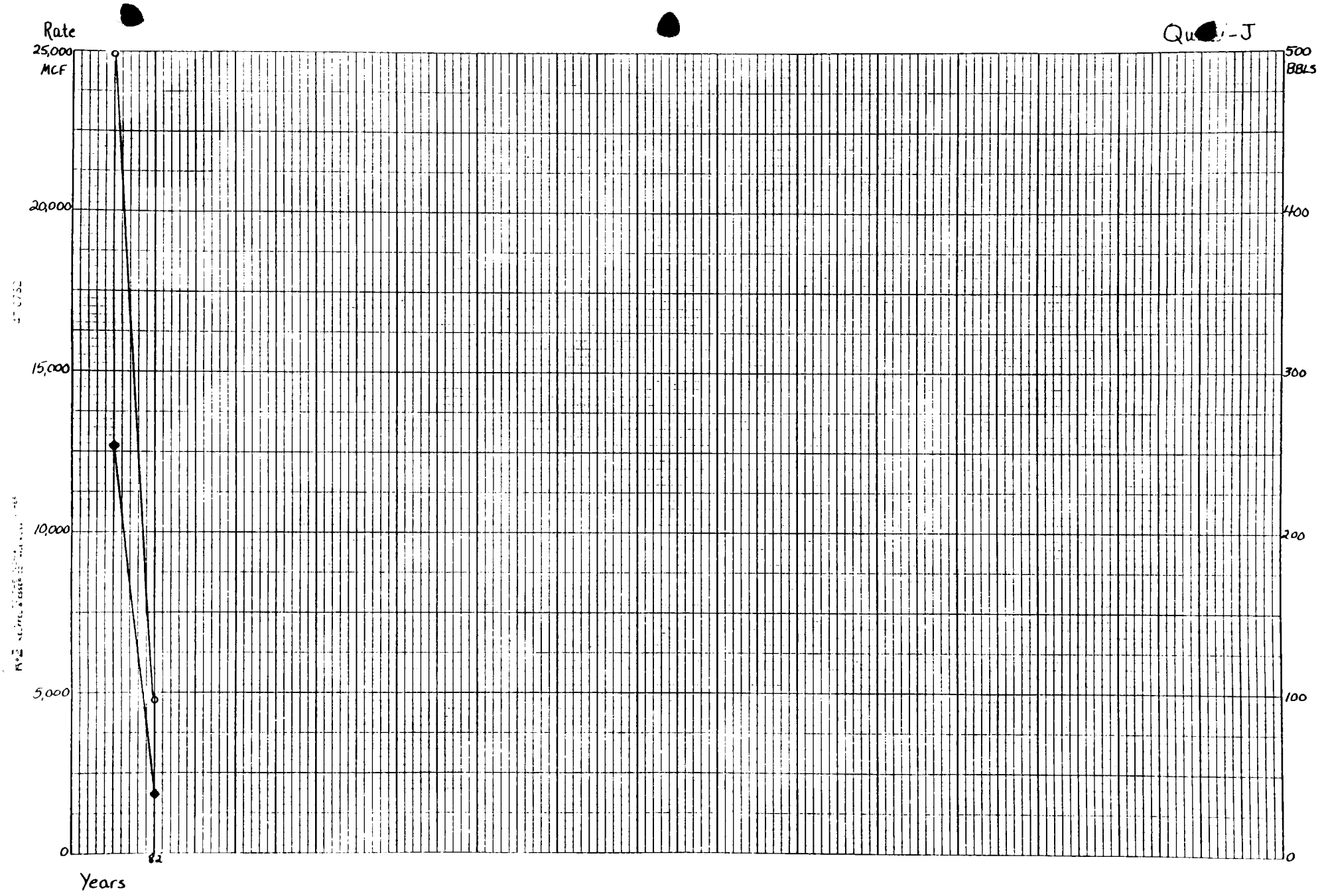

Rate
1,600 MCF
1,280
960
640
320
0
82
Years
Pawnee Buttes - J

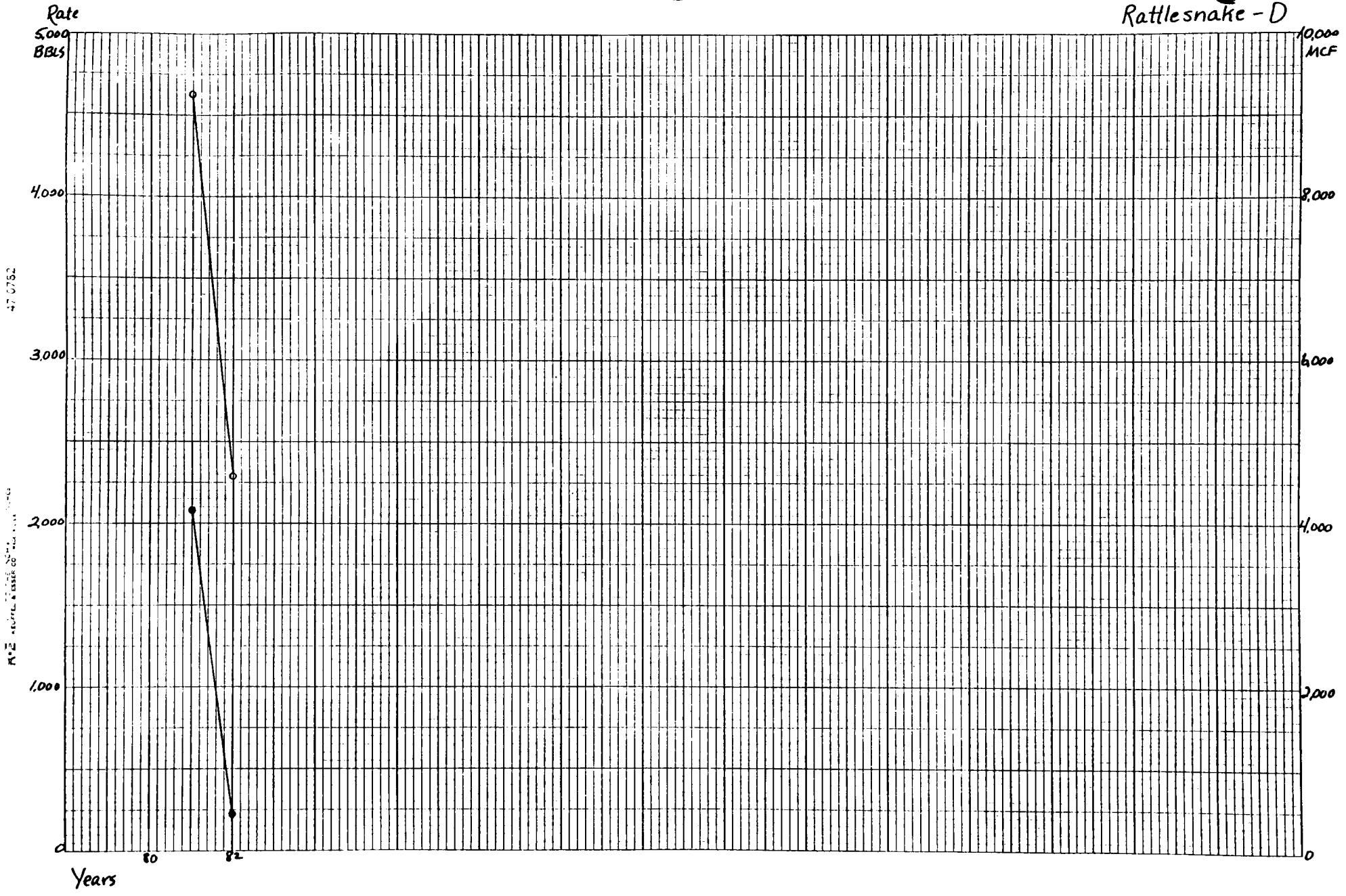

Rate
900,000 BBLS
720000
540,000
360,000
180,000
0
Pierce-Lyons
50,000 MCF
40,000
30,000
20,000
10,000
0
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years

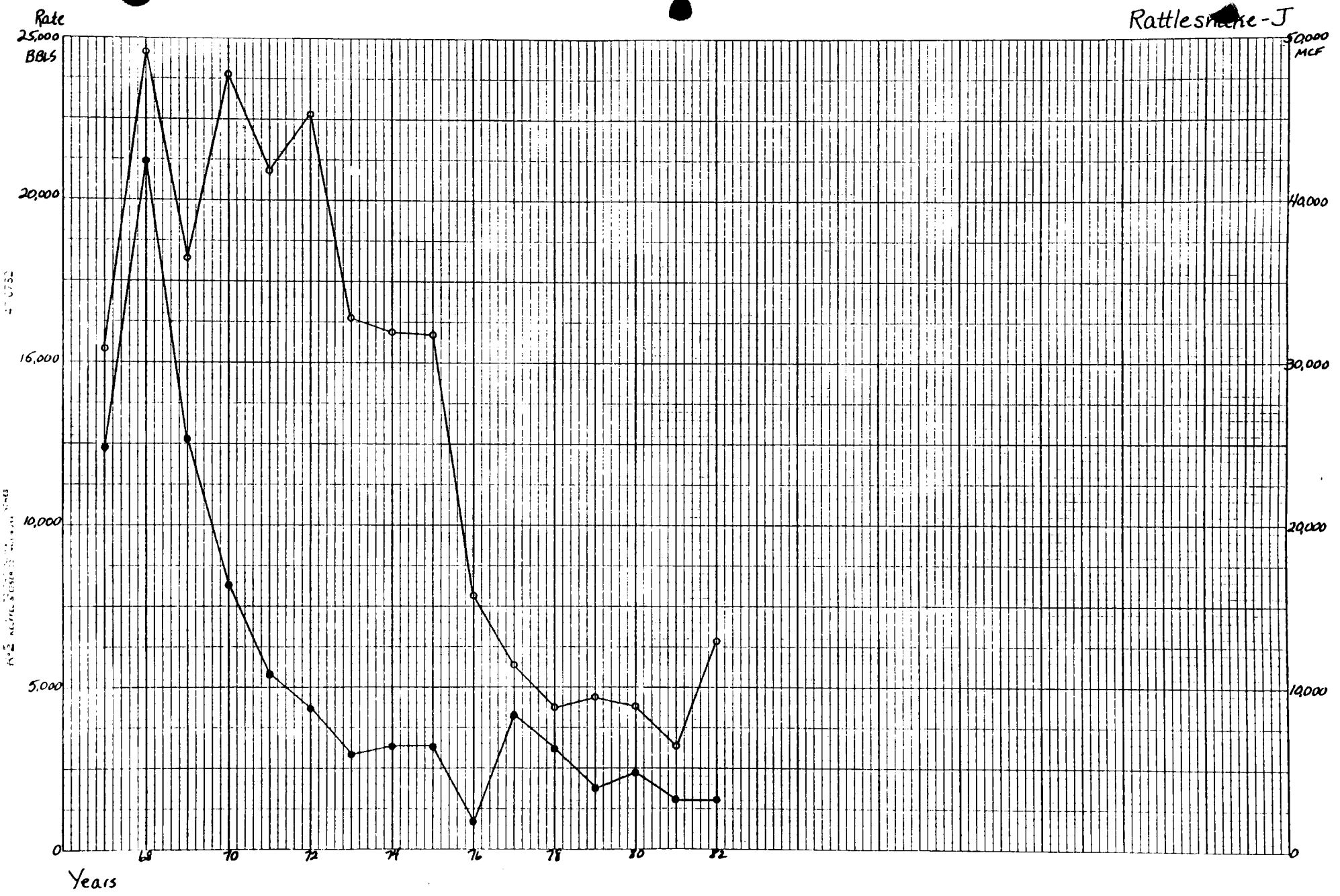

Rate
200
BBLS
160
120
80
40
0
1,000
MCF
800
600
400
200
0
76
78
80
82
Years
Pike-Ft. Hayes


Rate
100,000 MCF
80,000
60,000
40,000
20,000
0
1,500 BBLS
1,200
900
600
300
0
80
82
Years
Pommel-D

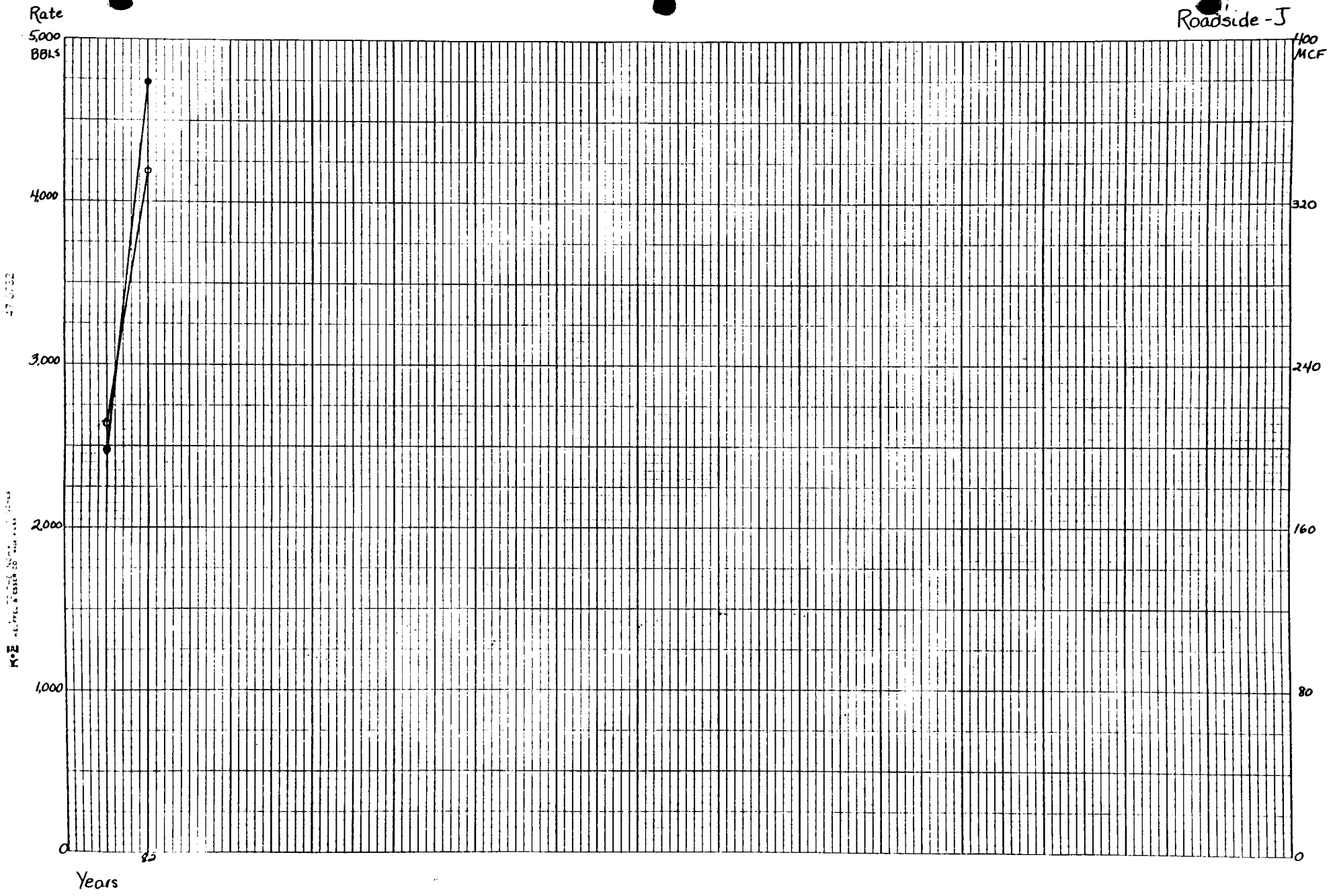

Rate
Prospect - J
4,000 BBLS
3,200
2,400
1,600
800
0
105,000 MCF
84,000
63,000
42,000
21,000
0
16
18
80
82
Years

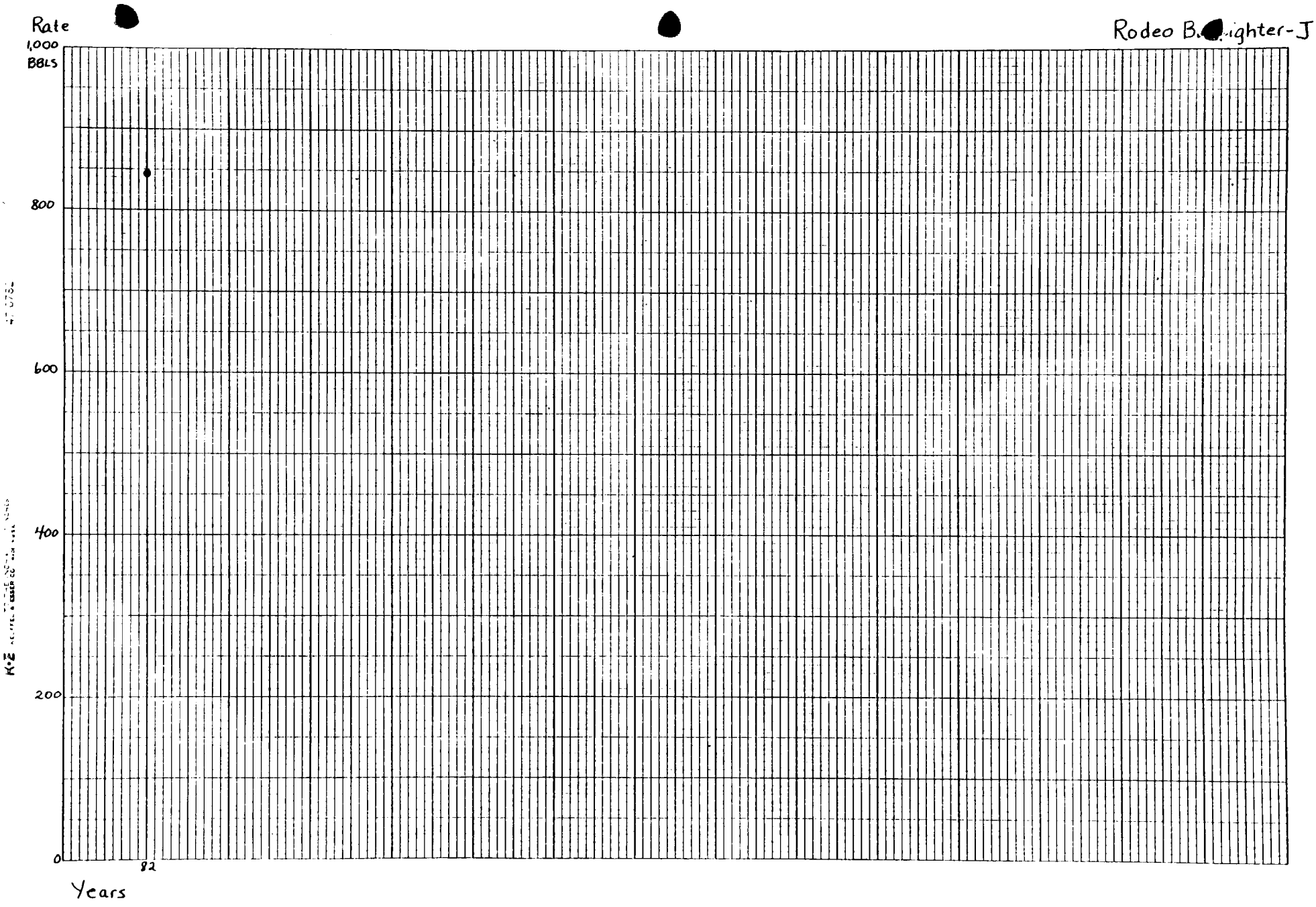

Rate
25,000
MCF
20,000
15,000
10,000
5,000
0
500
BBLS
400
300
200
100
0
82
Years


Rate
5,000
BBLS
4,000
3,000
2,000
1,000
0
Rattlesnake - D
10,000
MCF
8,000
6,000
4,000
2,000
0
80
82
Years


Rate
25,000
BBLS
20,000
16,000
10,000
5,000
0
50,000
MCF
40,000
30,000
20,000
10,000
0
68
70
72
74
76
78
80
82
Years
Rattlesnake-J

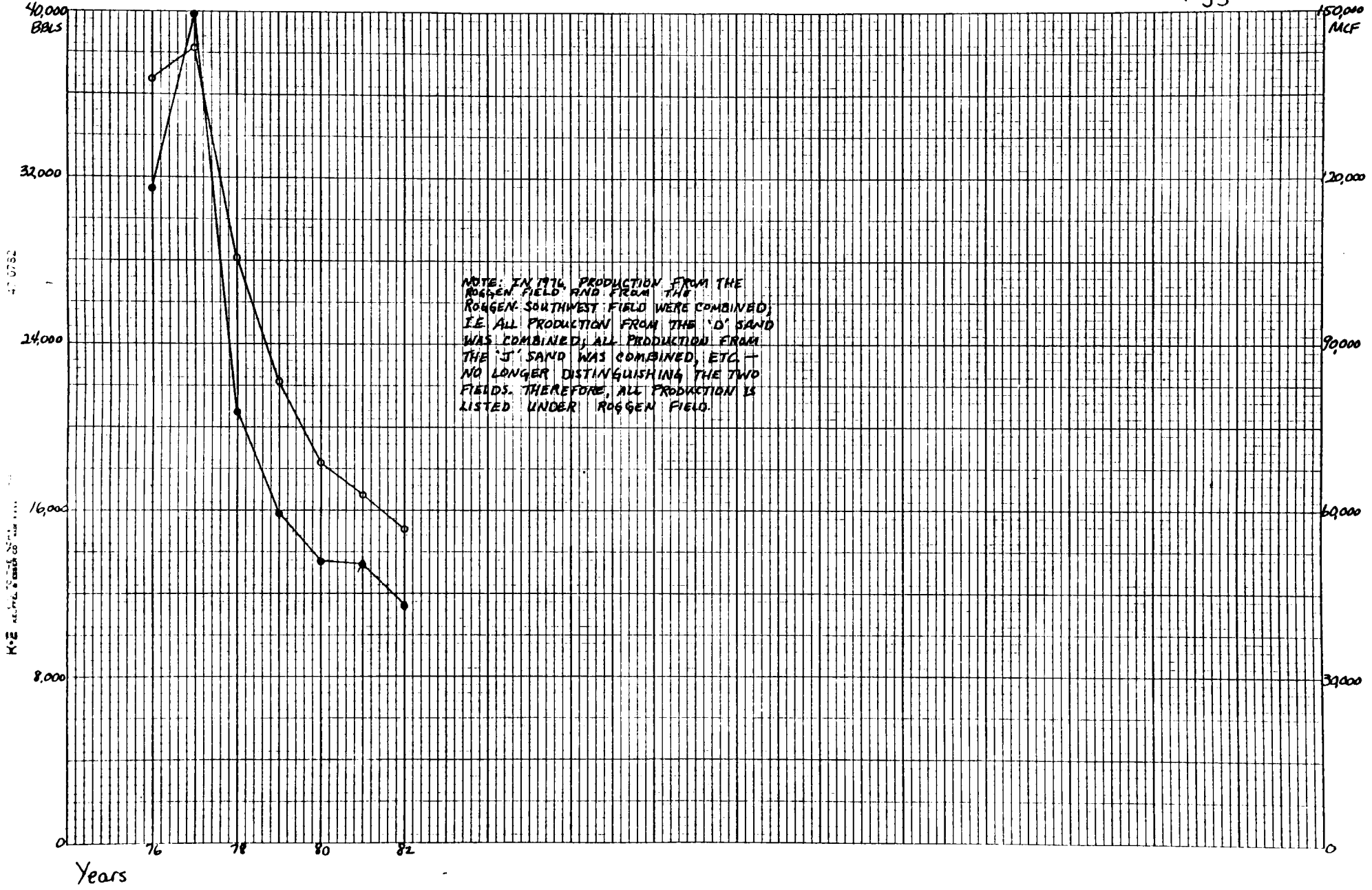

Rate
2,000
BBLS
1,600
1,200
800
400
0
30,000
MCF
24,000
18,000
12,000
6,000
0
72
74
76
78
80
82
Years
Reward-D

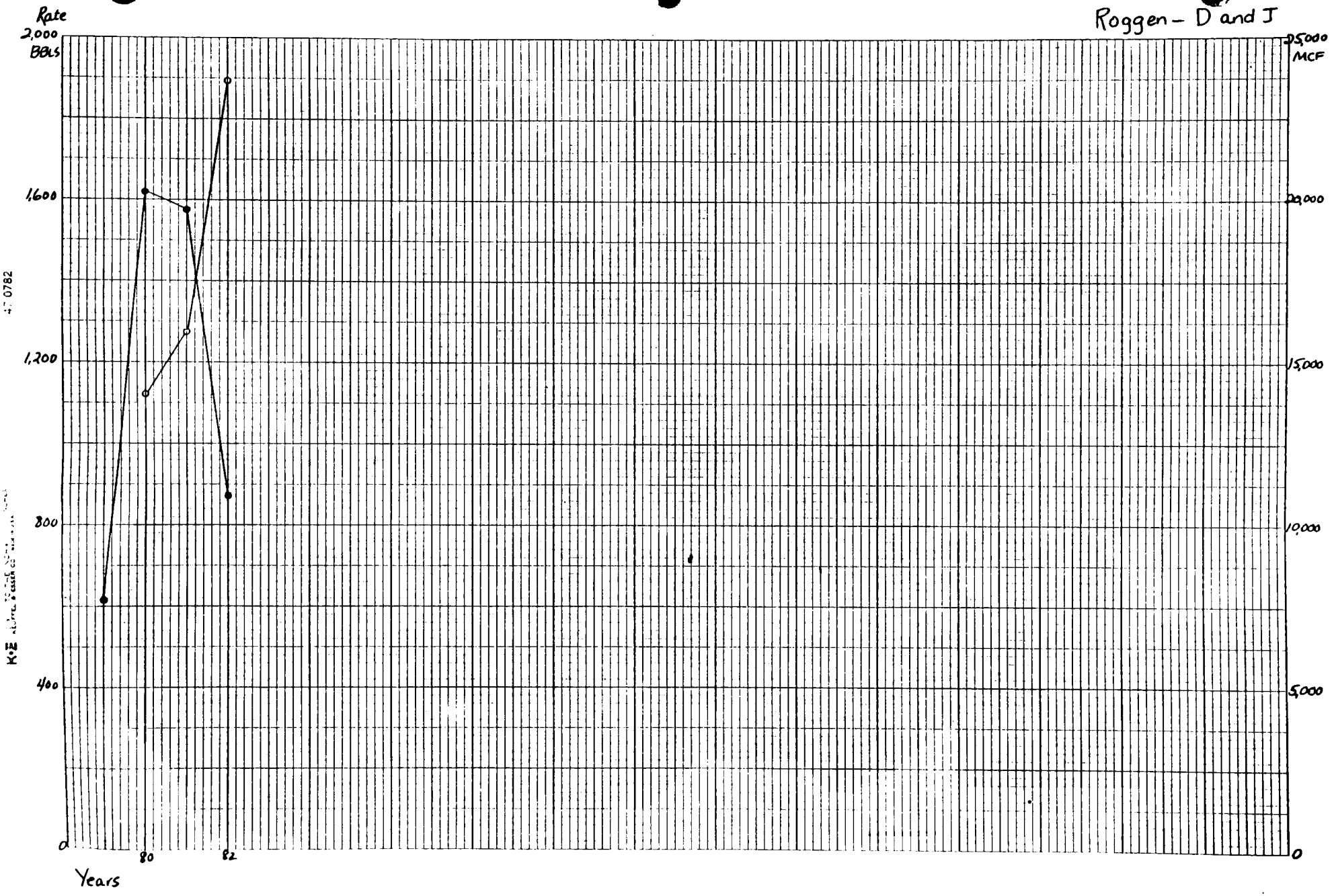

Rate
5,000
BBLS
4000
3,000
2,000
1,000
0
400
MCF
320
240
160
80
0
83
Years
Roadside - J

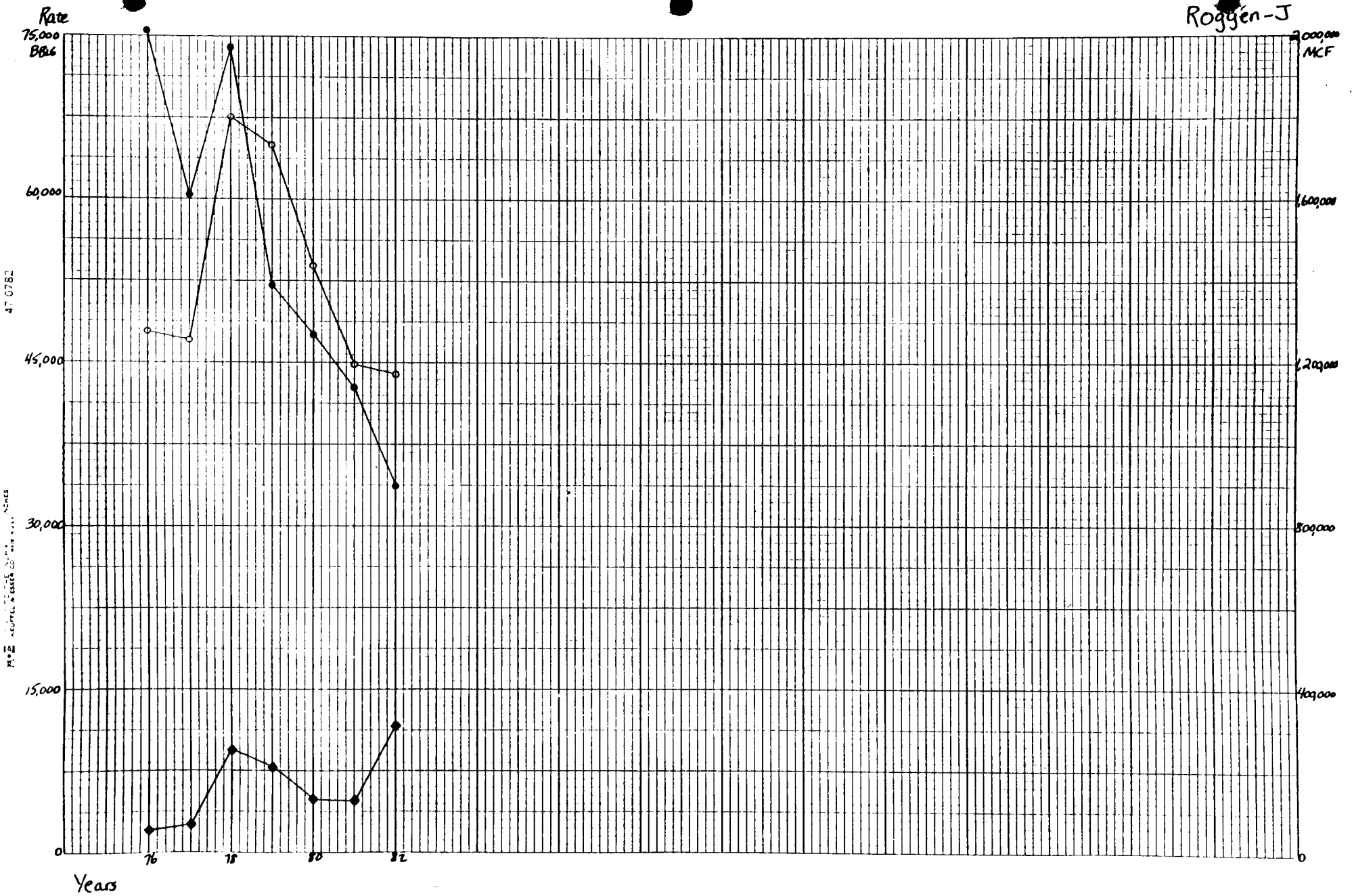

Rate
1,000
BBLS
800
600
400
200
0
82
Years
Rodeo B. ighter-J

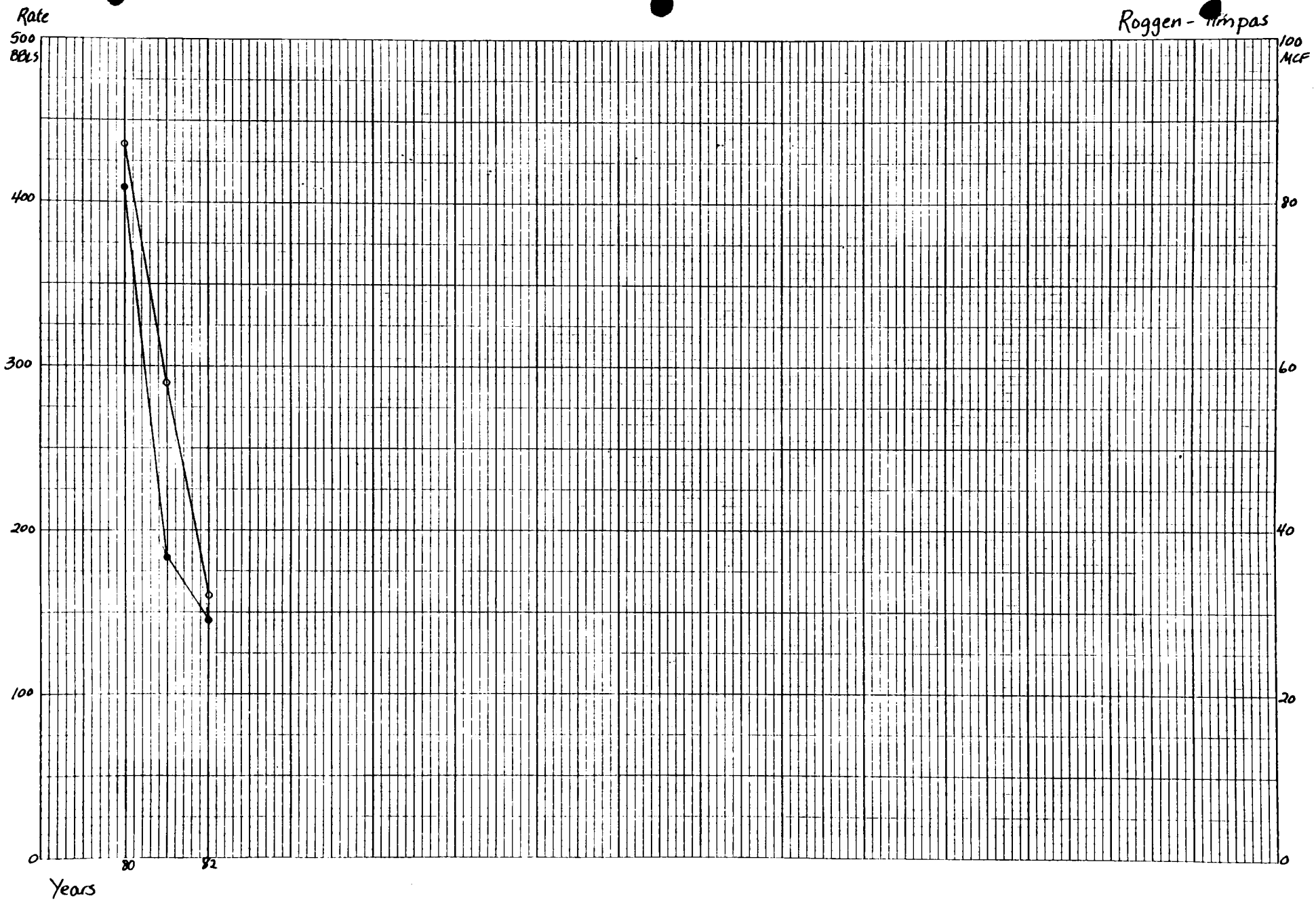
Rate

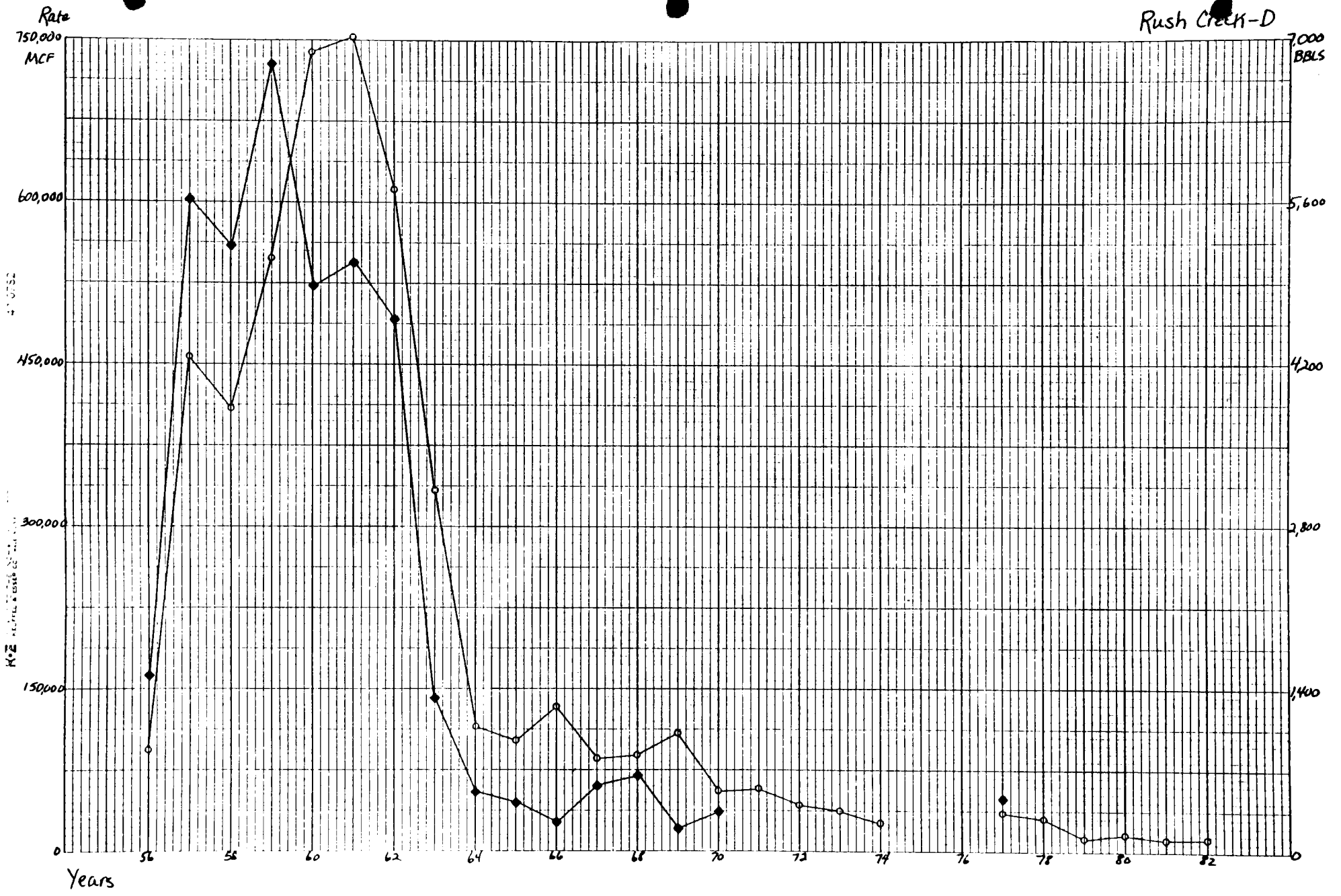
Roggen-D

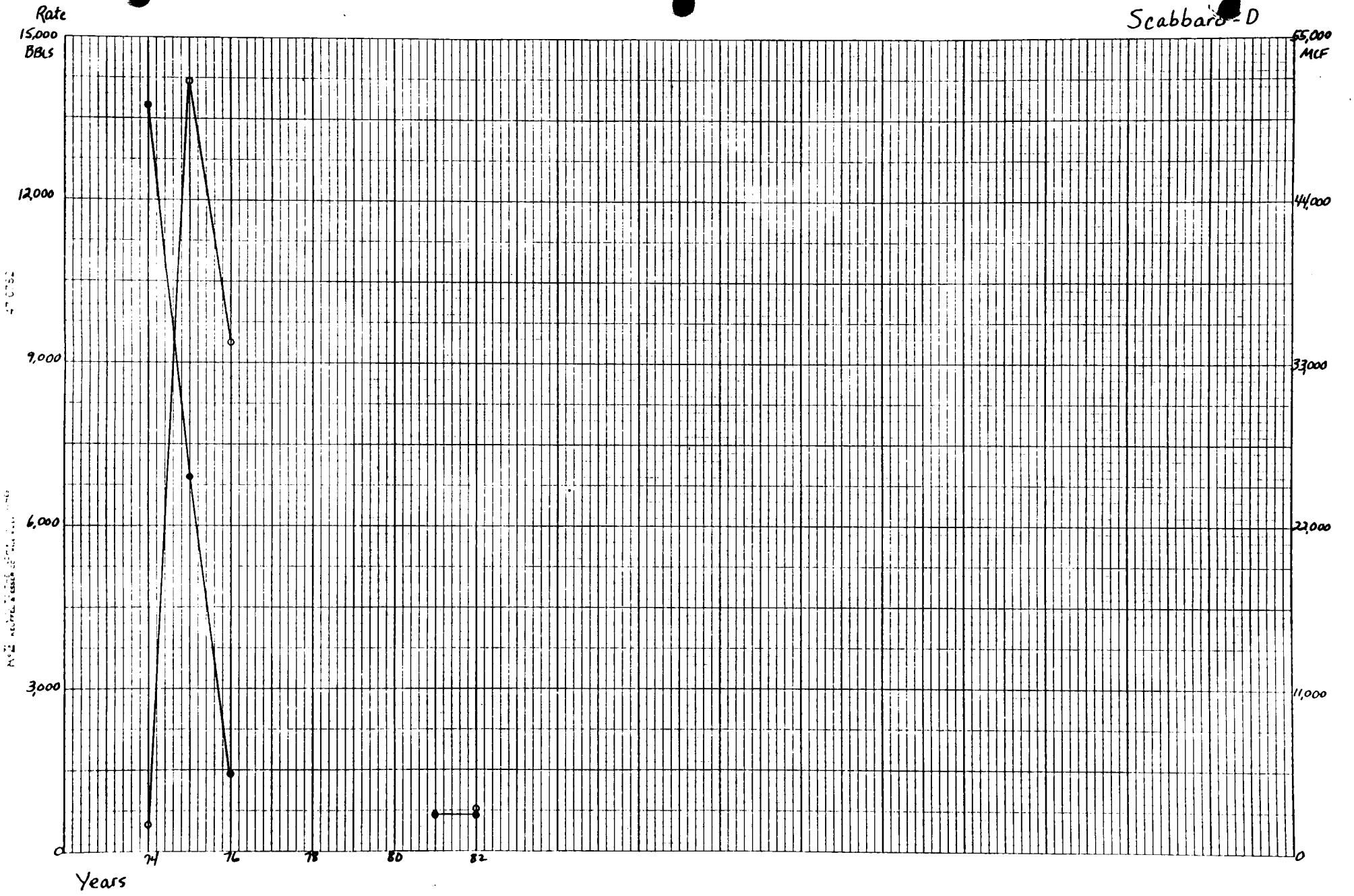



Rate
2,000
BBLS
1,600
1,200
800
400
0
25,000
MCF
20,000
15,000
10,000
5,000
0
80
82
Years
Roggen - D and J

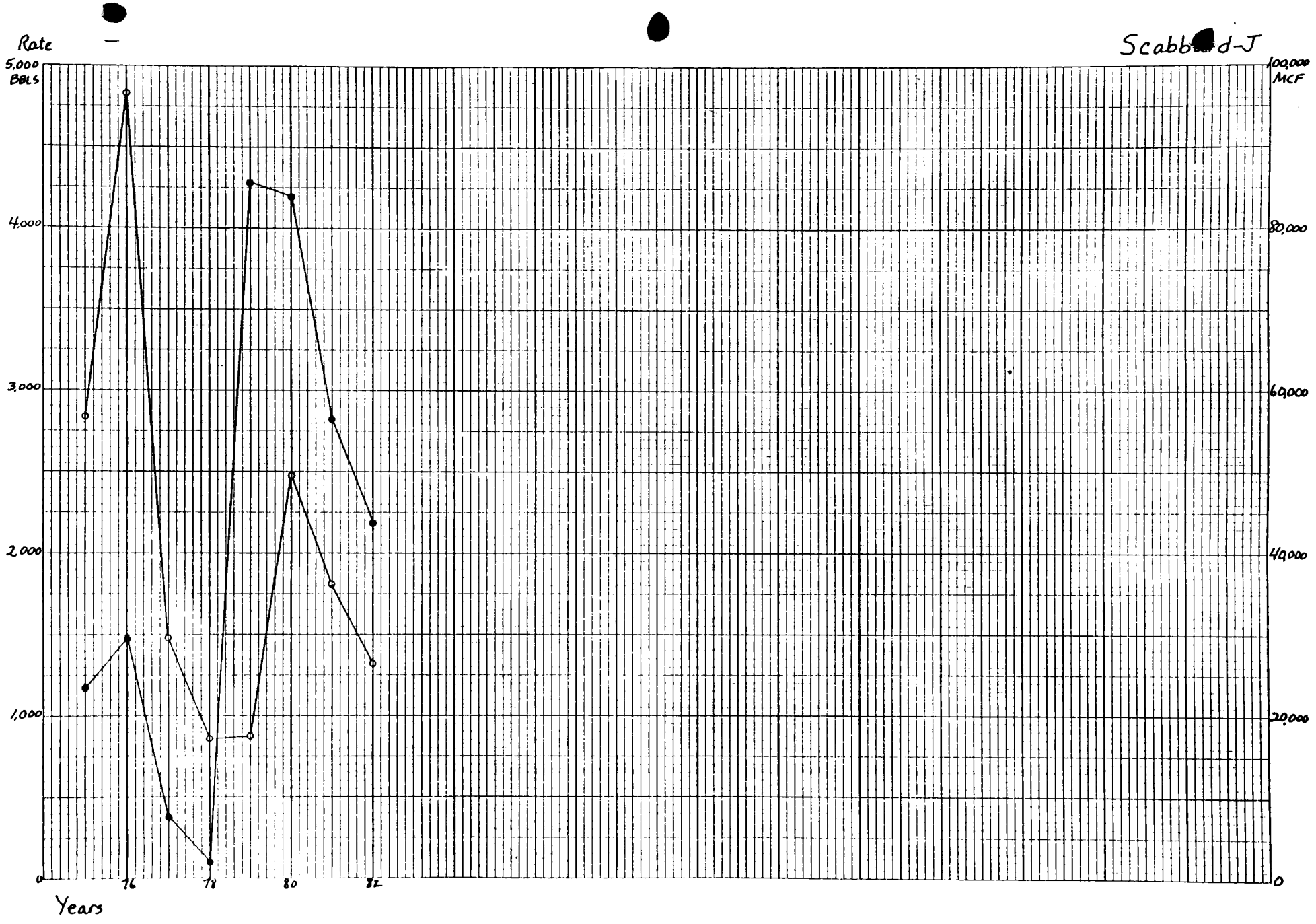

Rate
75,000
BBLS
60,000
45,000
30,000
15,000
0
2,000,000
MCF
1,600,000
1,200,000
800,000
400,000
0
76
78
80
82
Years
Roggen-J

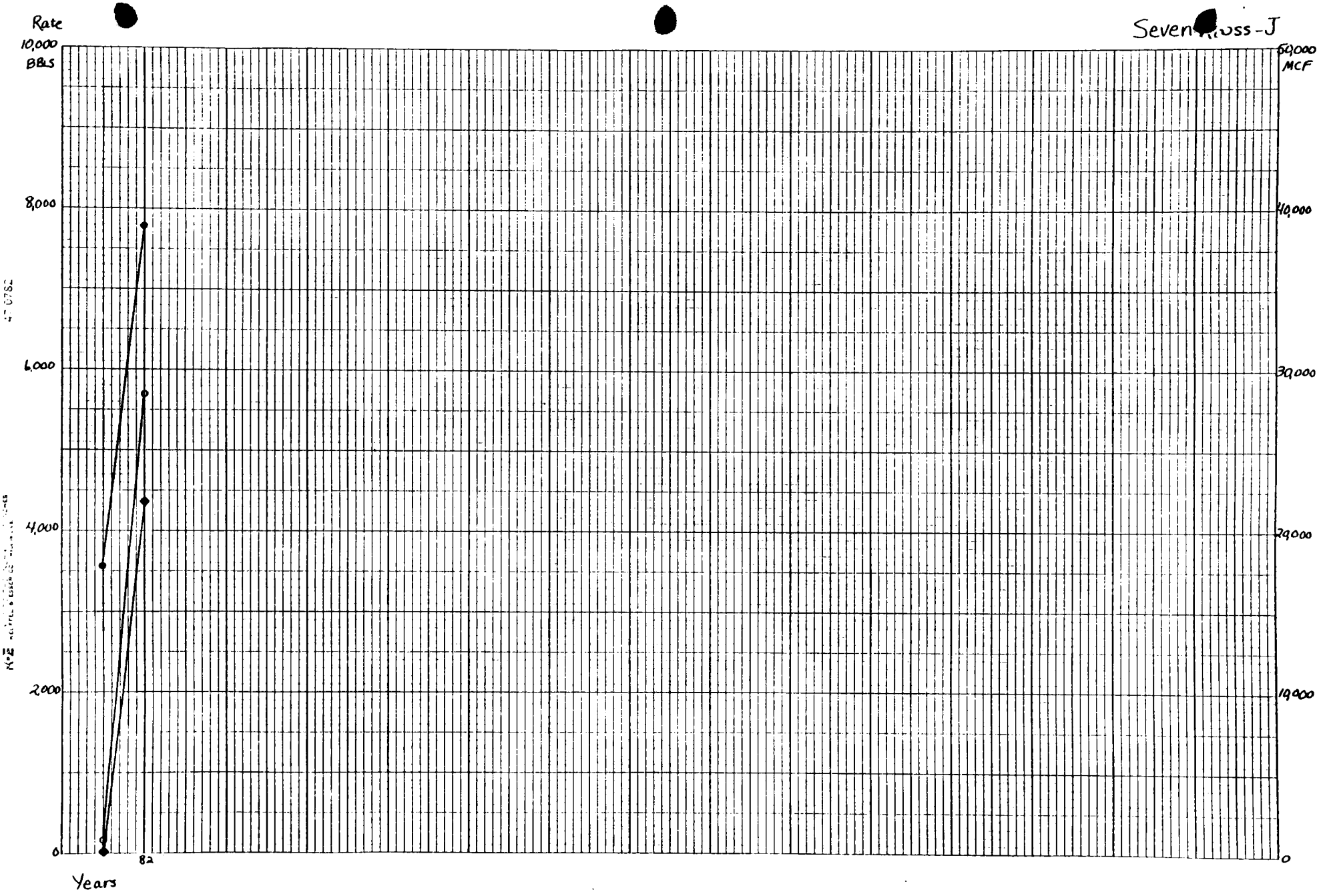

Rate
500
BBLS
400
300
200
100
0
100
MCF
80
60
40
20
0
80
82
Years
Roggen - Arapas

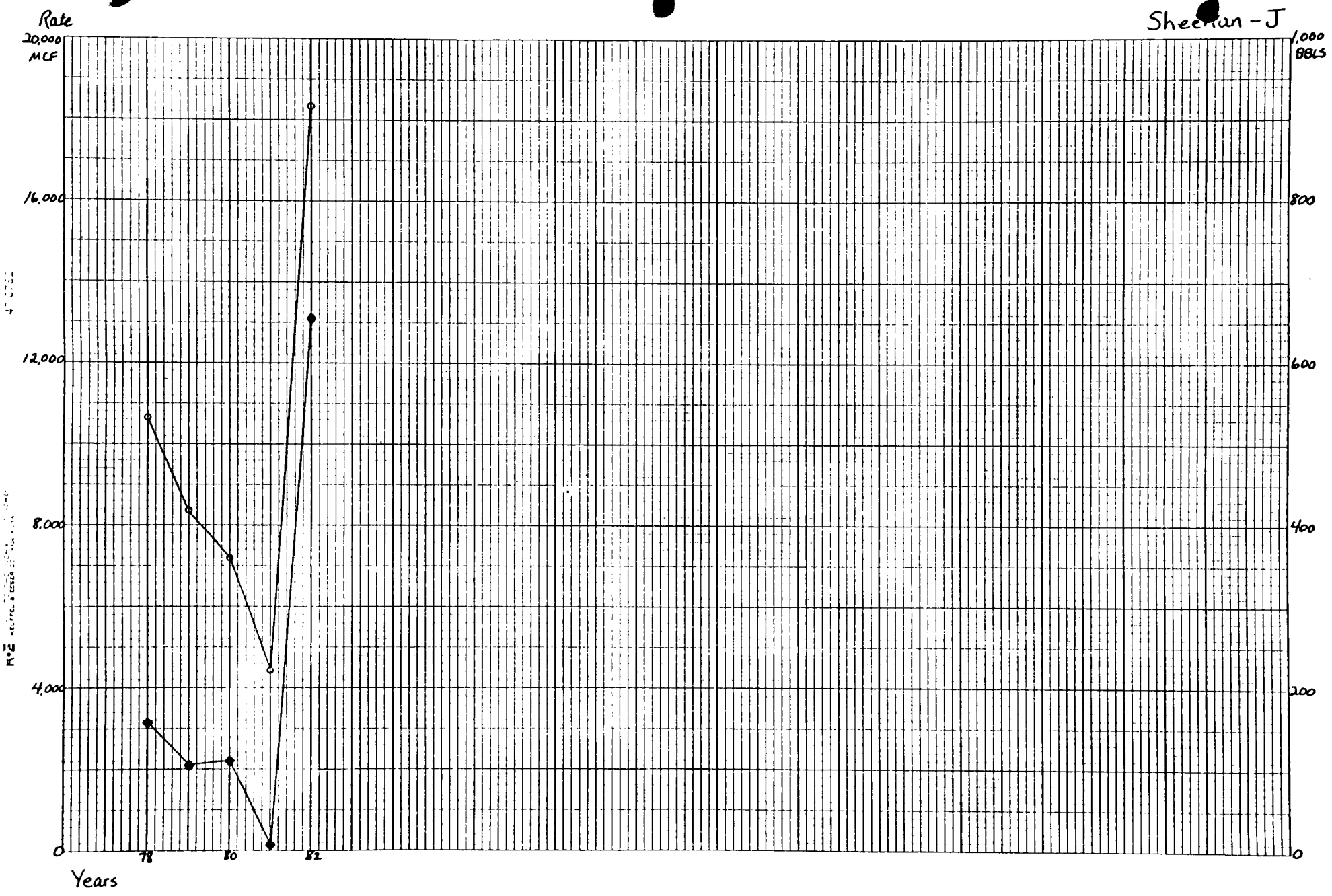

Rate
MCF
BBLS
Rush Creek-D
750,000
600,000
450,000
300,000
150,000
0
7,000
5,600
4,200
2,800
1,400
0
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years

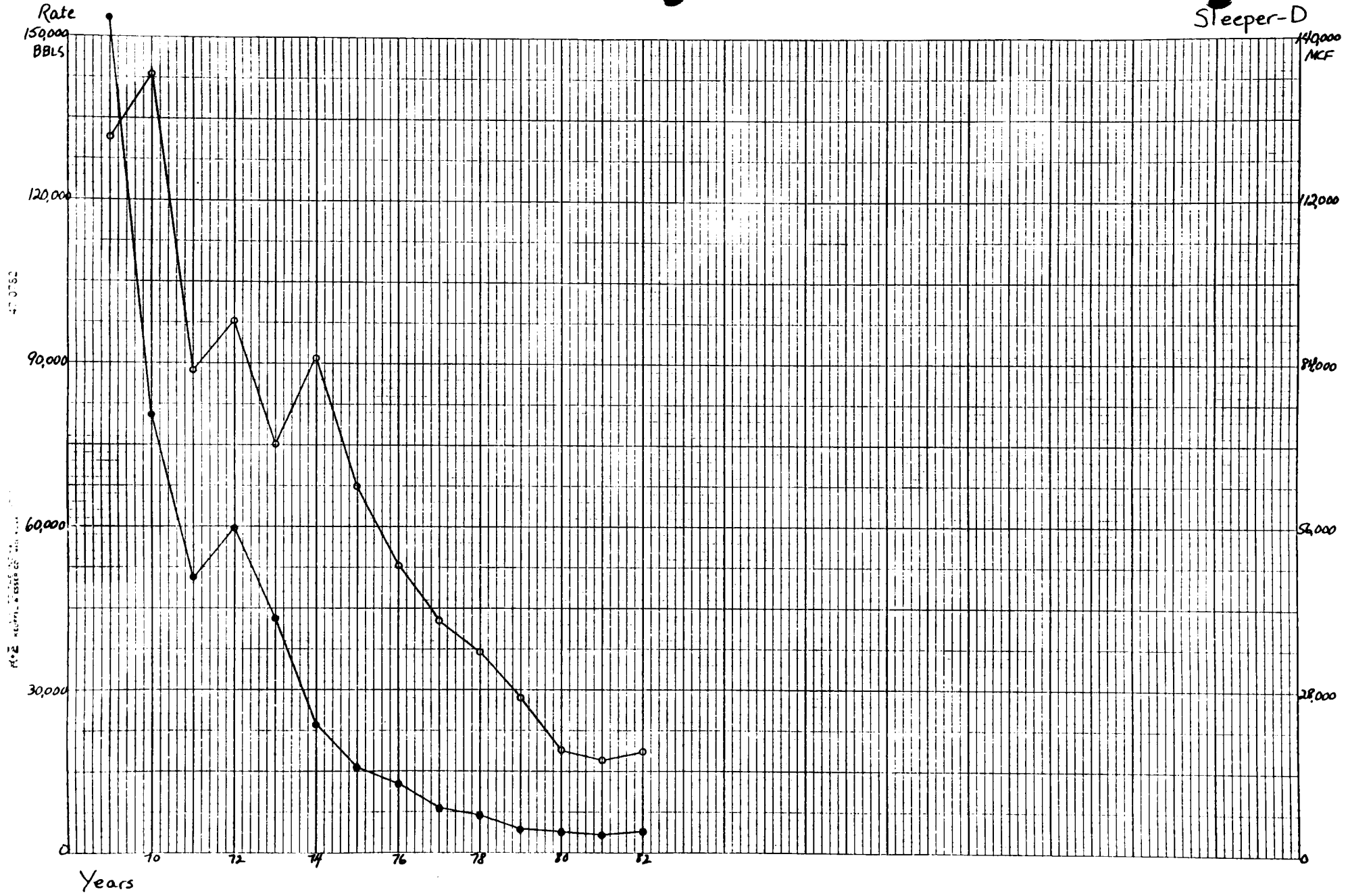

Rate
15,000
BBLS
12,000
9,000
6,000
3,000
0
65,000
MCF
44,000
33,000
22,000
11,000
0
74
76
78
80
82
Years

Scabbard - D

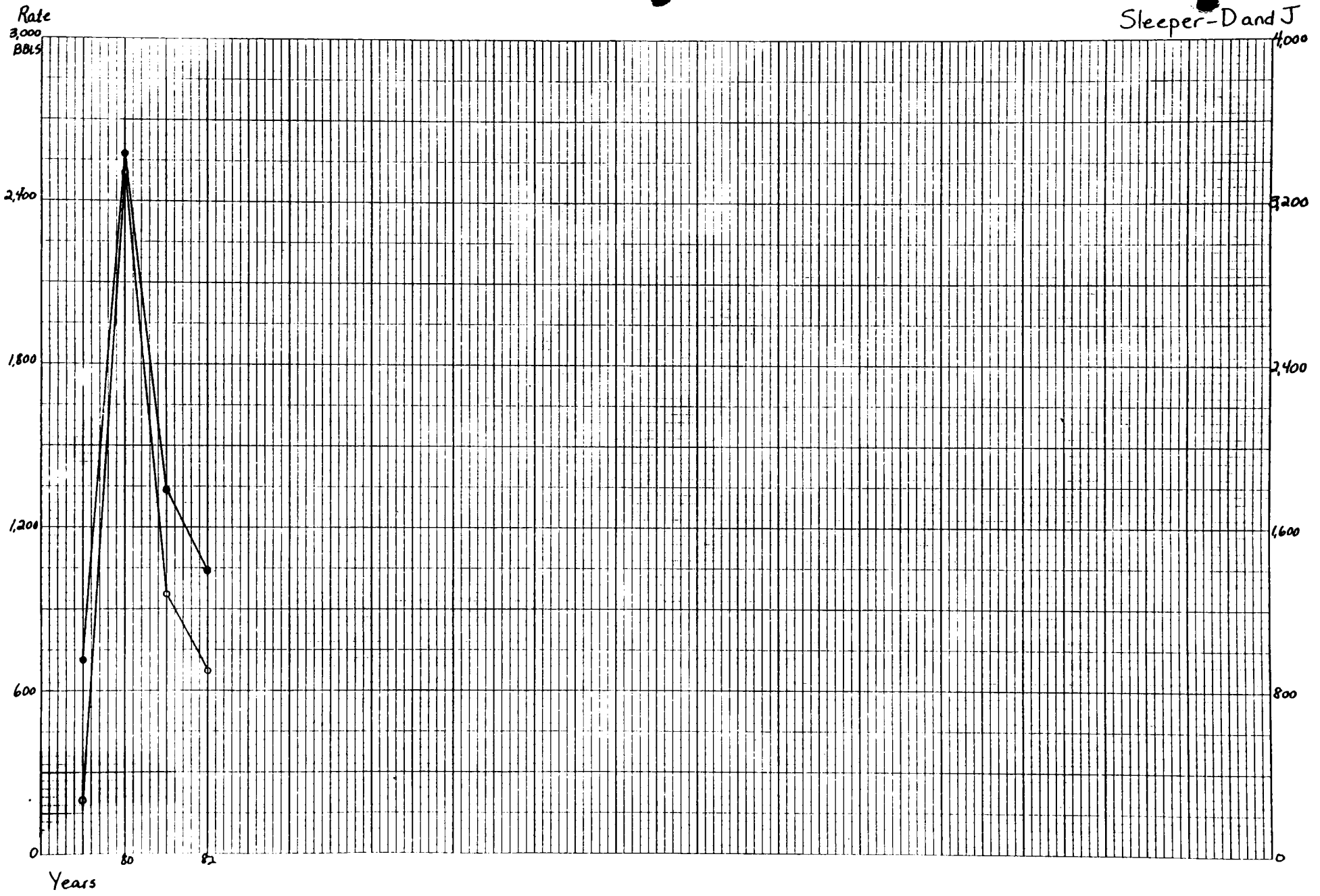

Rate
Scabbard-J
5,000 BBLS
4,000
3,000
2,000
1,000
0
100,000 MCF
80,000
60,000
40,000
20,000
0
76
78
80
82
Years

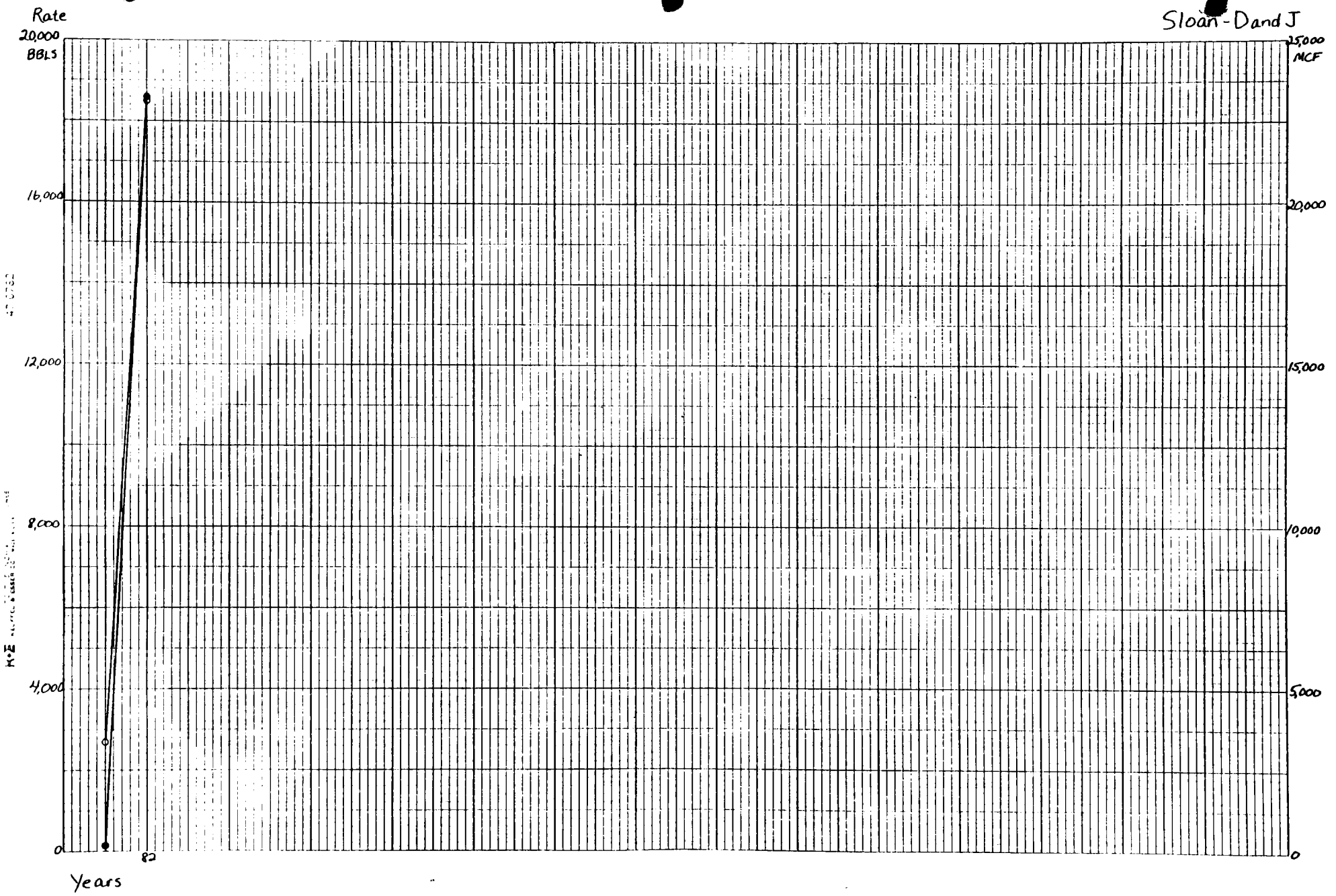

Rate
10,000 BBLS
8,000
6,000
4,000
2,000
0
50,000 MCF
40,000
30,000
20,000
10,000
0
82
Years

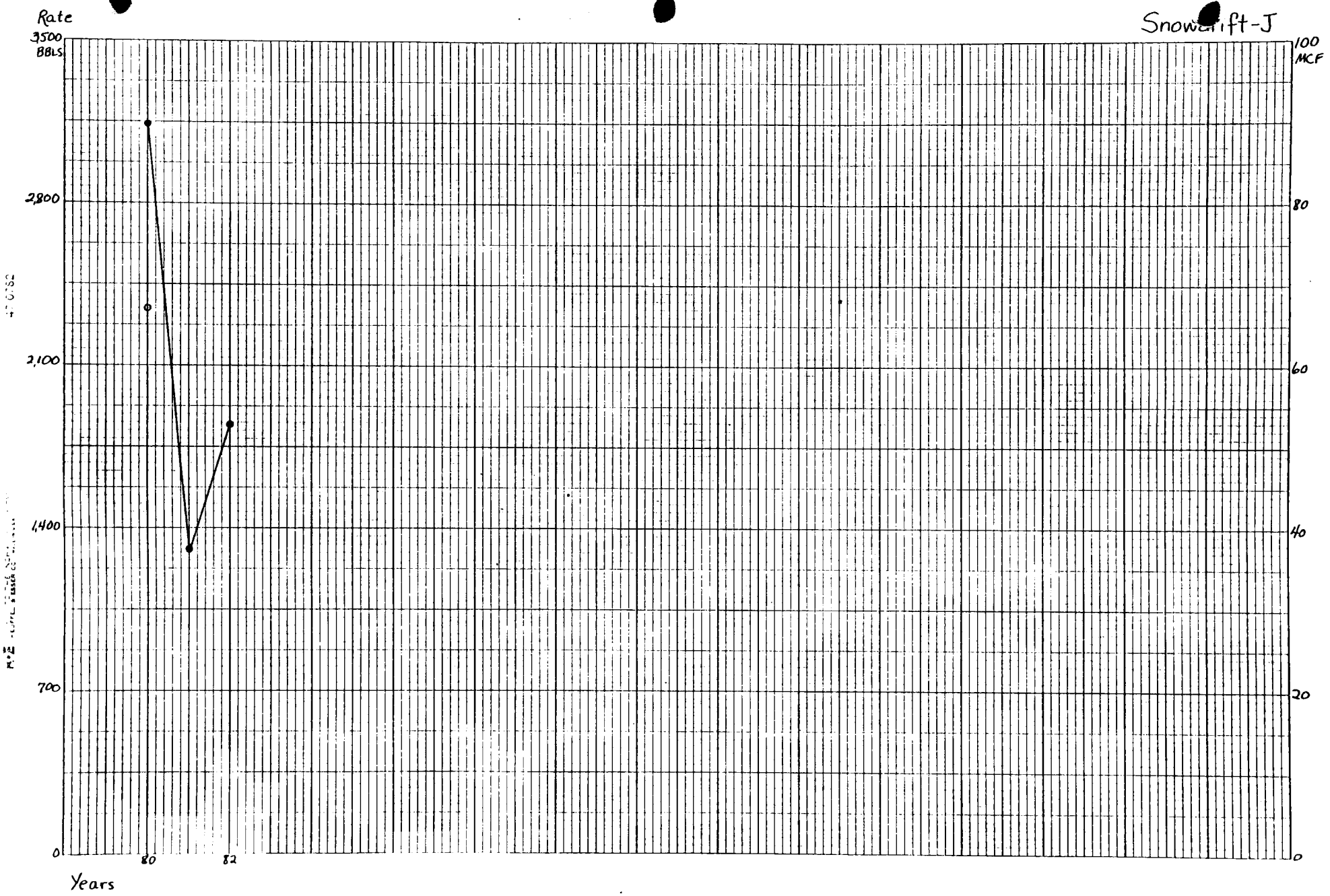

Rate
Sheehan - J
20,000 MCF
16,000
12,000
8,000
4,000
0
1,000 BBLS
800
600
400
200
0
78
80
82
Years

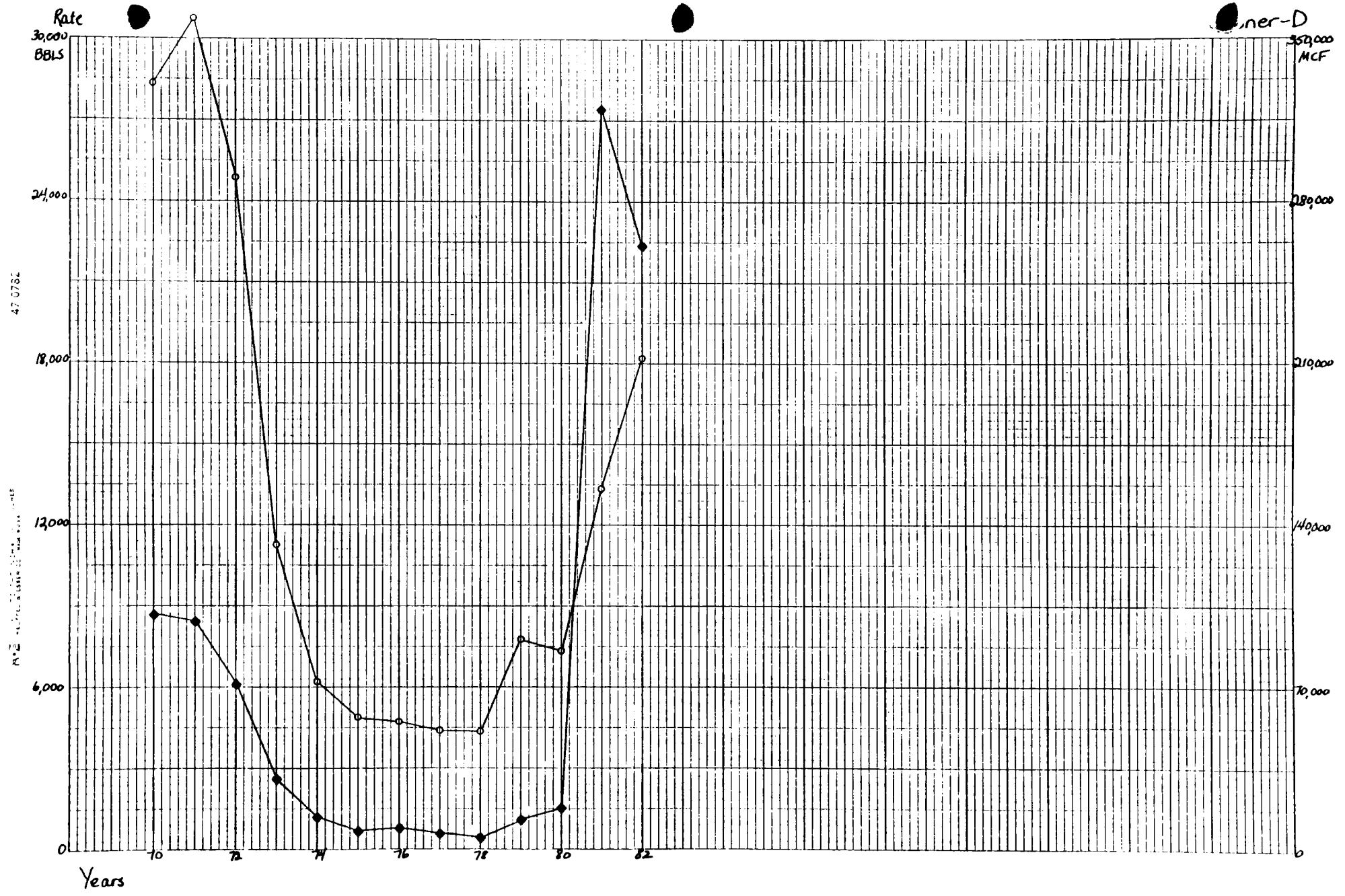

Rate
150,000
BBLS
120,000
90,000
60,000
30,000
0
Sleeper-D
140,000
MCF
112,000
84,000
56,000
28,000
0
10
72
74
76
78
80
82
Years

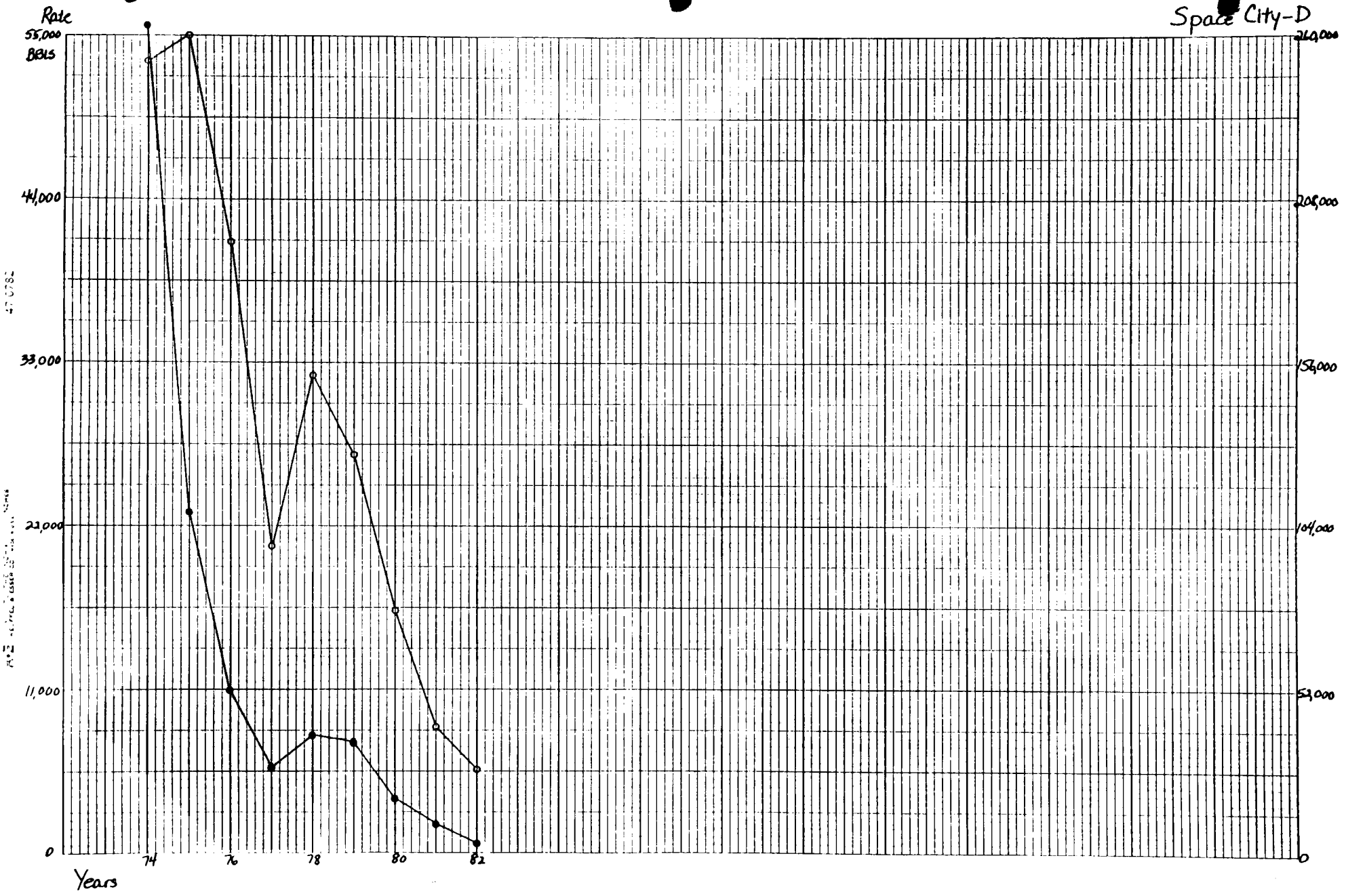

Rate
20,000
BBLS
16,000
12,000
8,000
4,000
0
Sleeper-J
50,000
MCF
40,000
30,000
20,000
10,000
0
74
76
78
80
82
Years

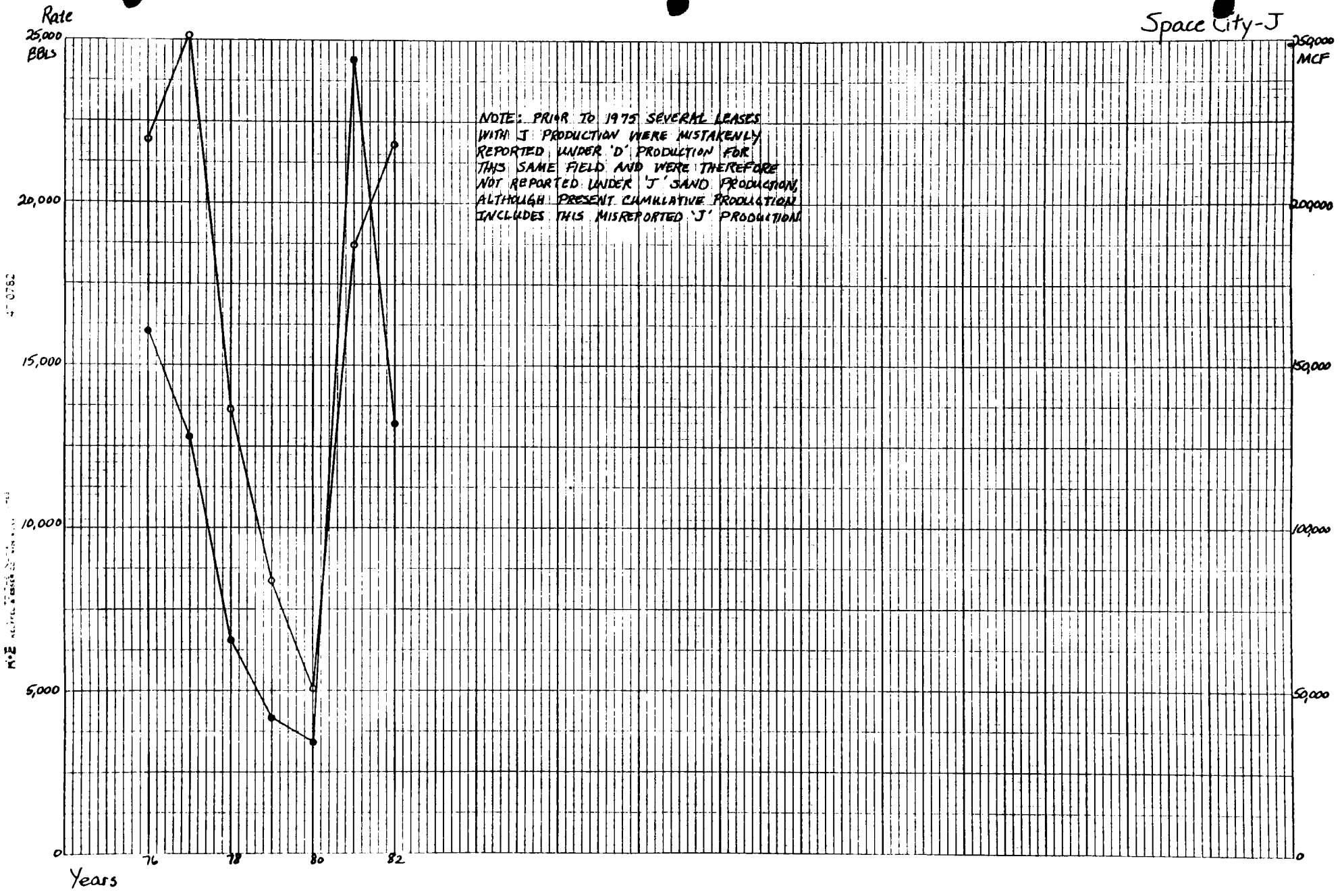

Rate
3,000
BBLS
2,400
1,800
1,200
600
0
80
82
Years
Sleeper-D and J
4,000
3,200
2,400
1,600
800
0

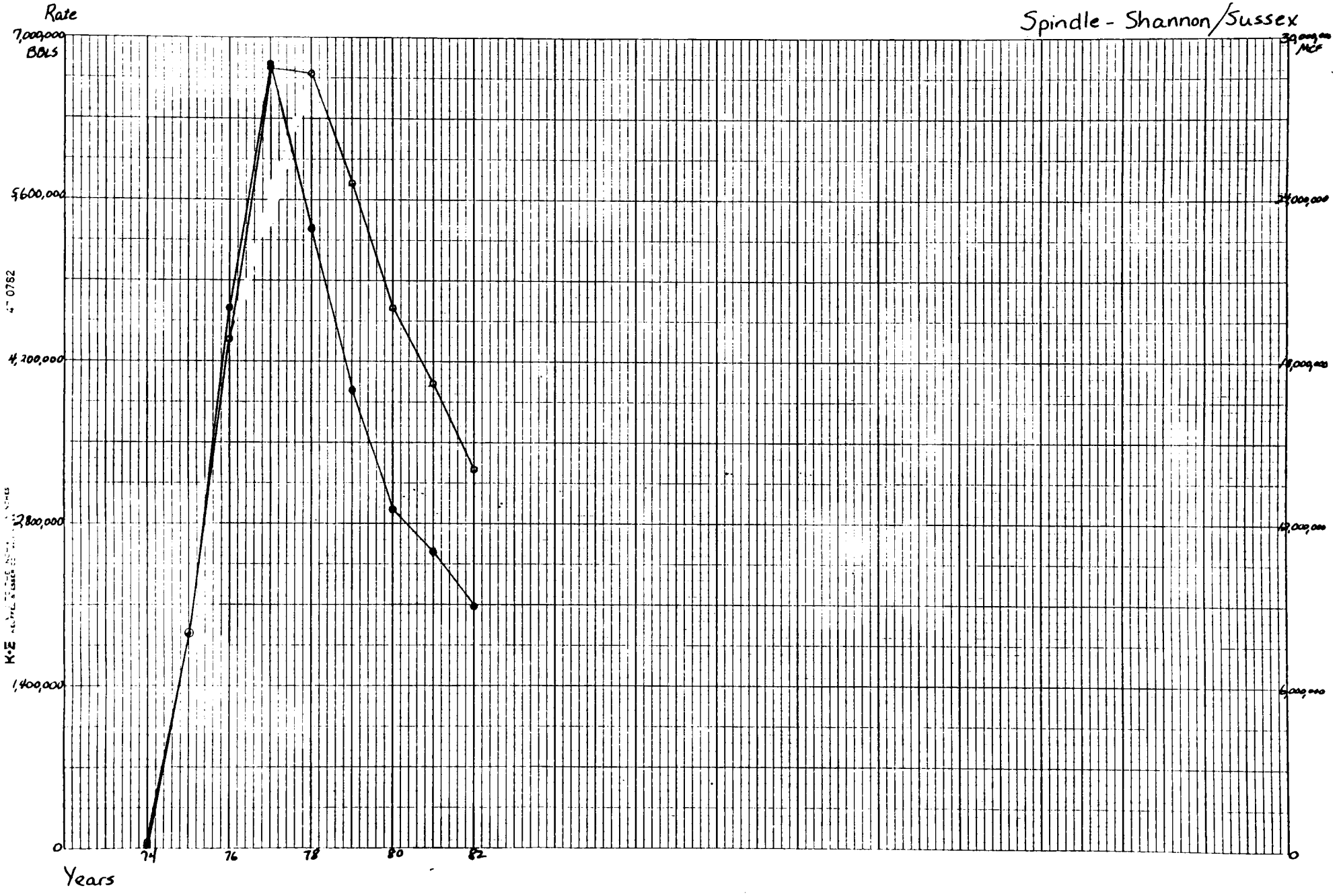

Rate
Sloan-D and J
20,000
BBLS
16,000
12,000
8,000
4,000
0
25,000
MCF
20,000
15,000
10,000
5,000
0
1
82
Years

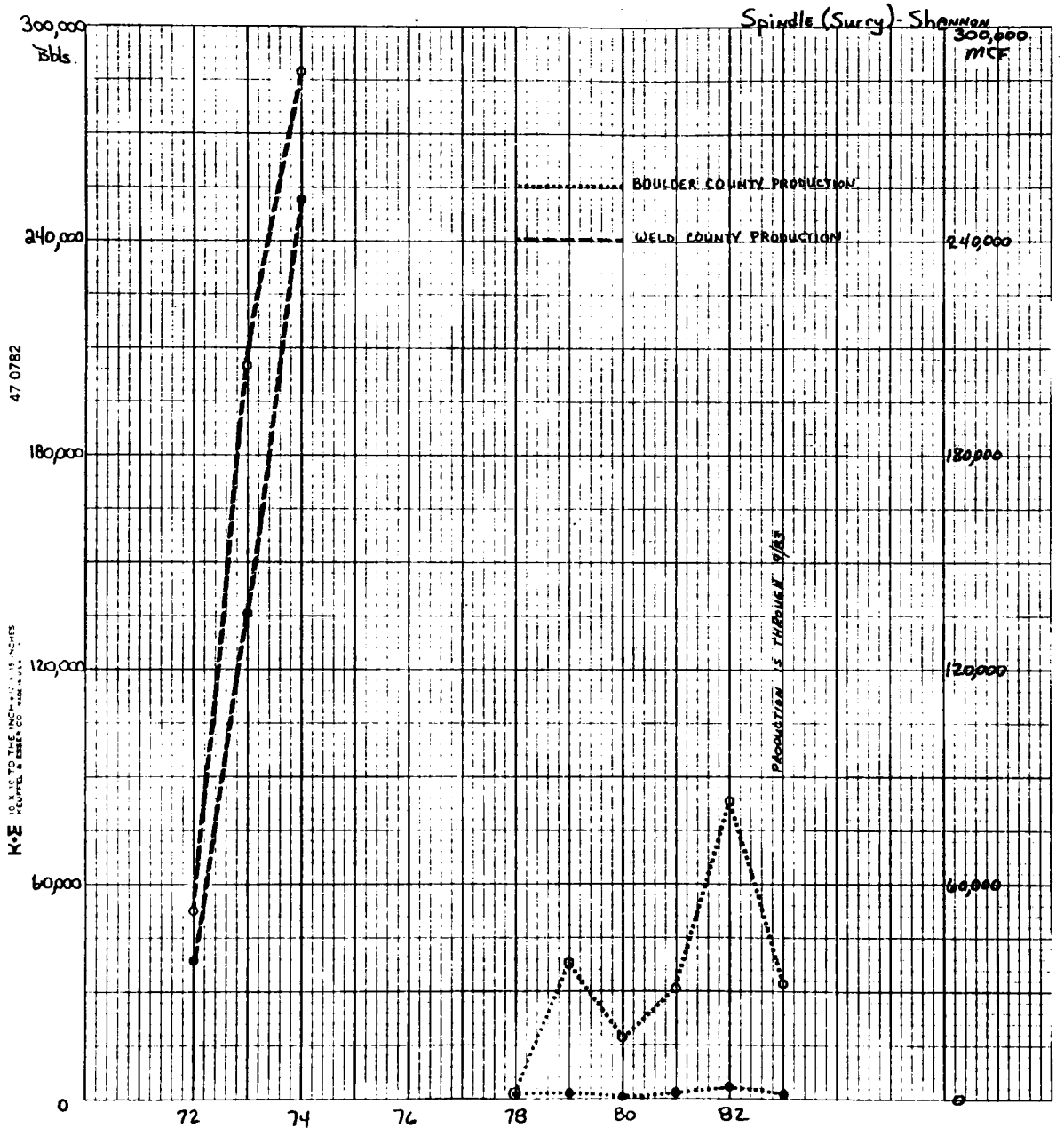

Rate
3500
BBLS
2,800
2,100
1,400
700
0
100
MCF
80
60
40
20
0
80
82
Years
Snowdrift-J

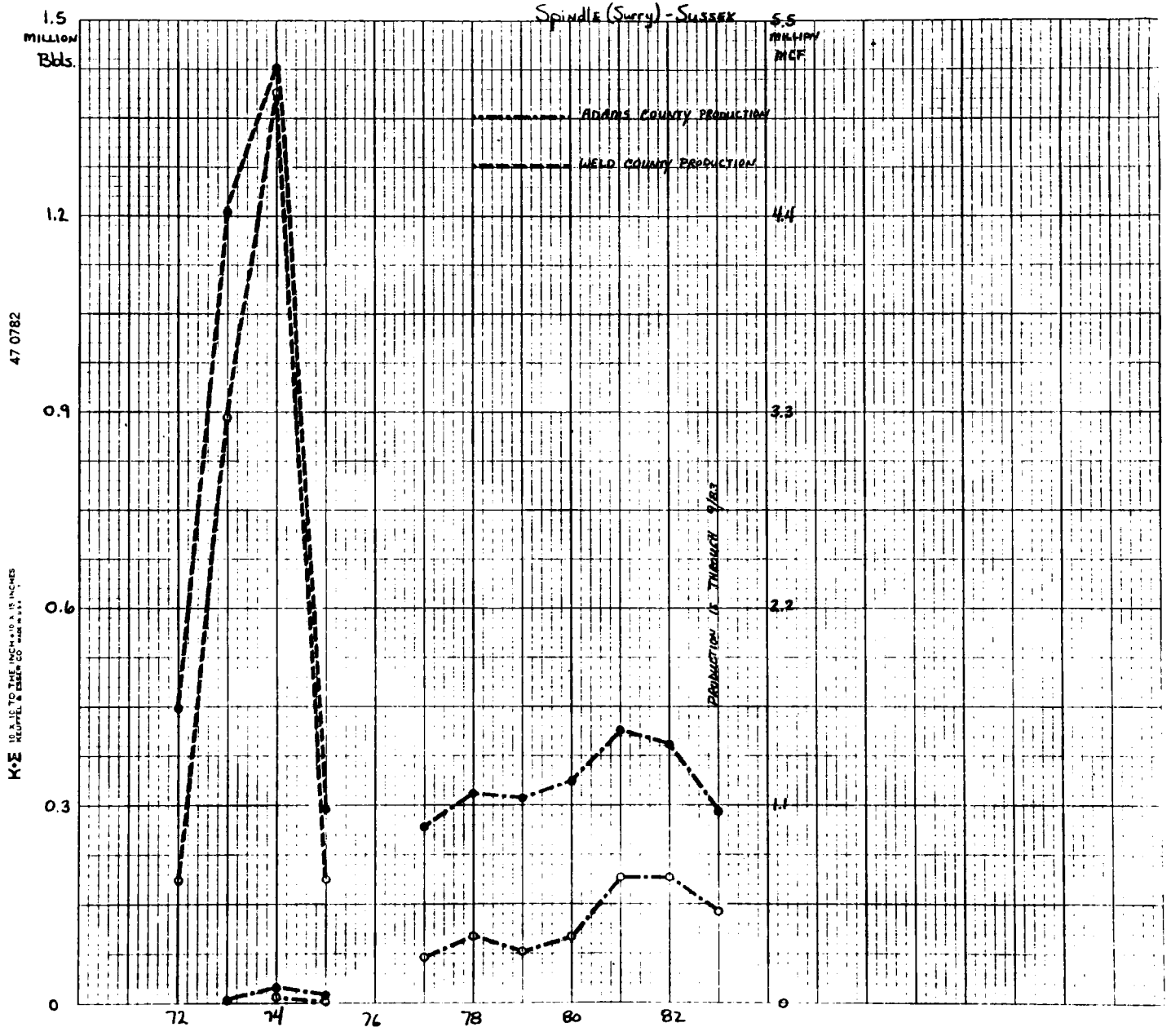

Rate
ner-D
30,000
BBLS
24,000
18,000
12,000
6,000
0
350,000
MCF
280,000
210,000
140,000
70,000
0
10
72
74
76
78
80
82
Years

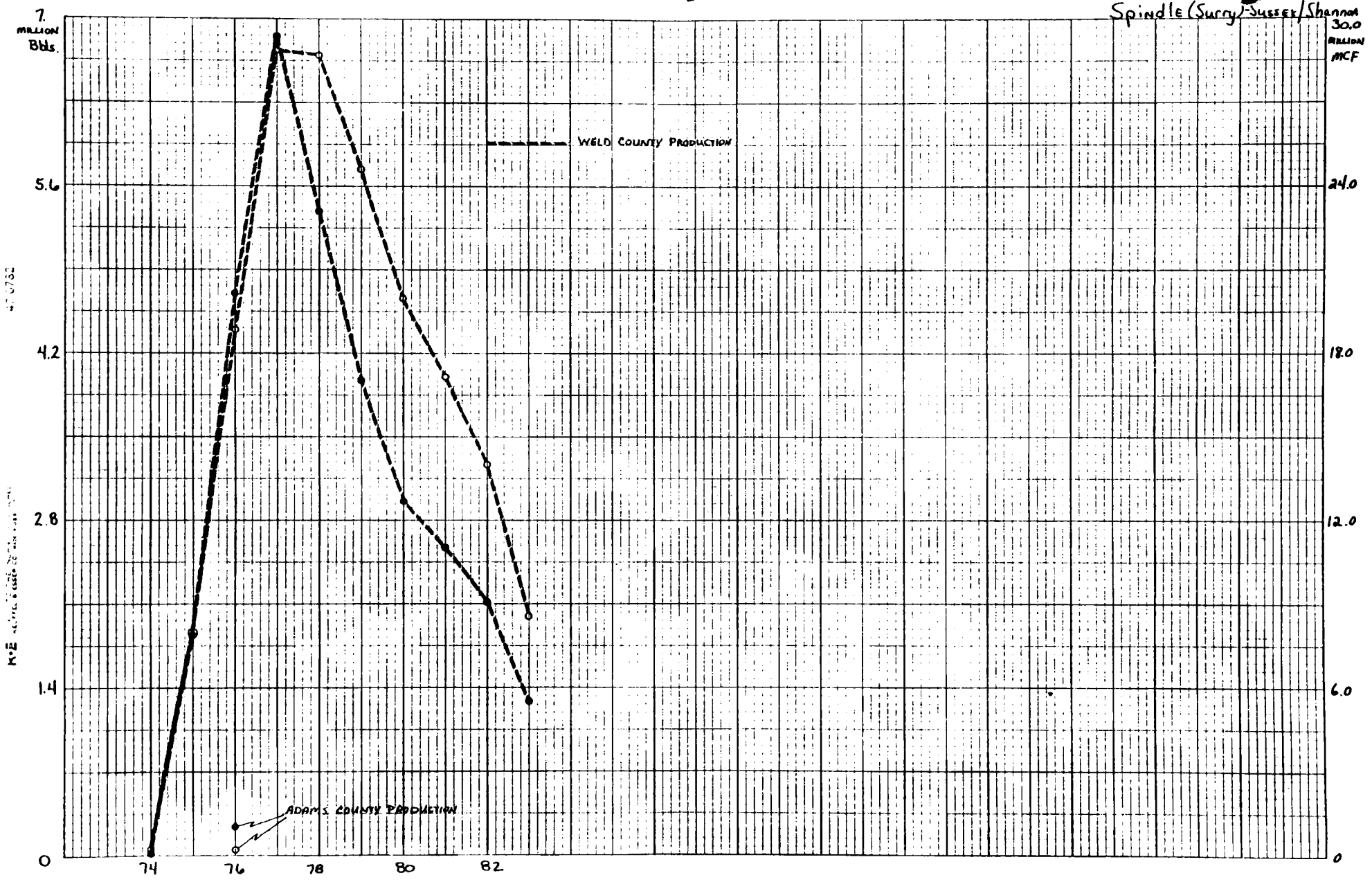

Rate
55,000
Bbls
44,000
33,000
22,000
11,000
0
74
76
78
80
82
Years
Space City-D
260,000
208,000
156,000
104,000
52,000
0

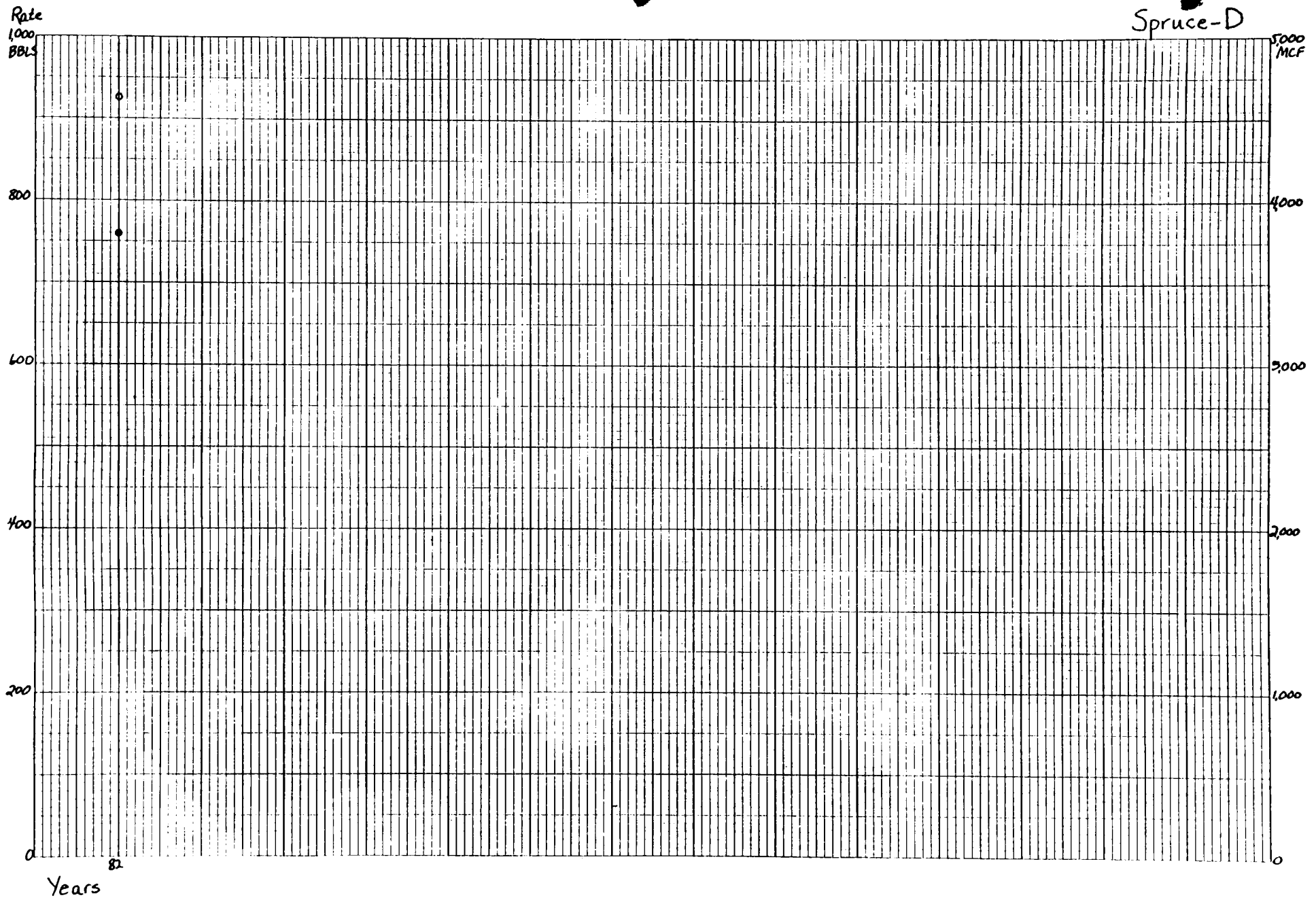

Rate
25,000
BBLS
20,000
15,000
10,000
5,000
0
Space City-J
250,000
MCF
200,000
150,000
100,000
50,000
0
NOTE: PRIOR TO 1975 SEVERAL LEASES WITH J PRODUCTION WERE MISTAKENLY REPORTED UNDER 'D' PRODUCTION FOR THIS SAME FIELD AND WERE THEREFORE NOT REPORTED UNDER 'J' SAND PRODUCTION, ALTHOUGH PRESENT CUMULATIVE PRODUCTION INCLUDES THIS MISREPORTED 'J' PRODUCTION.
76
78
80
82
Years

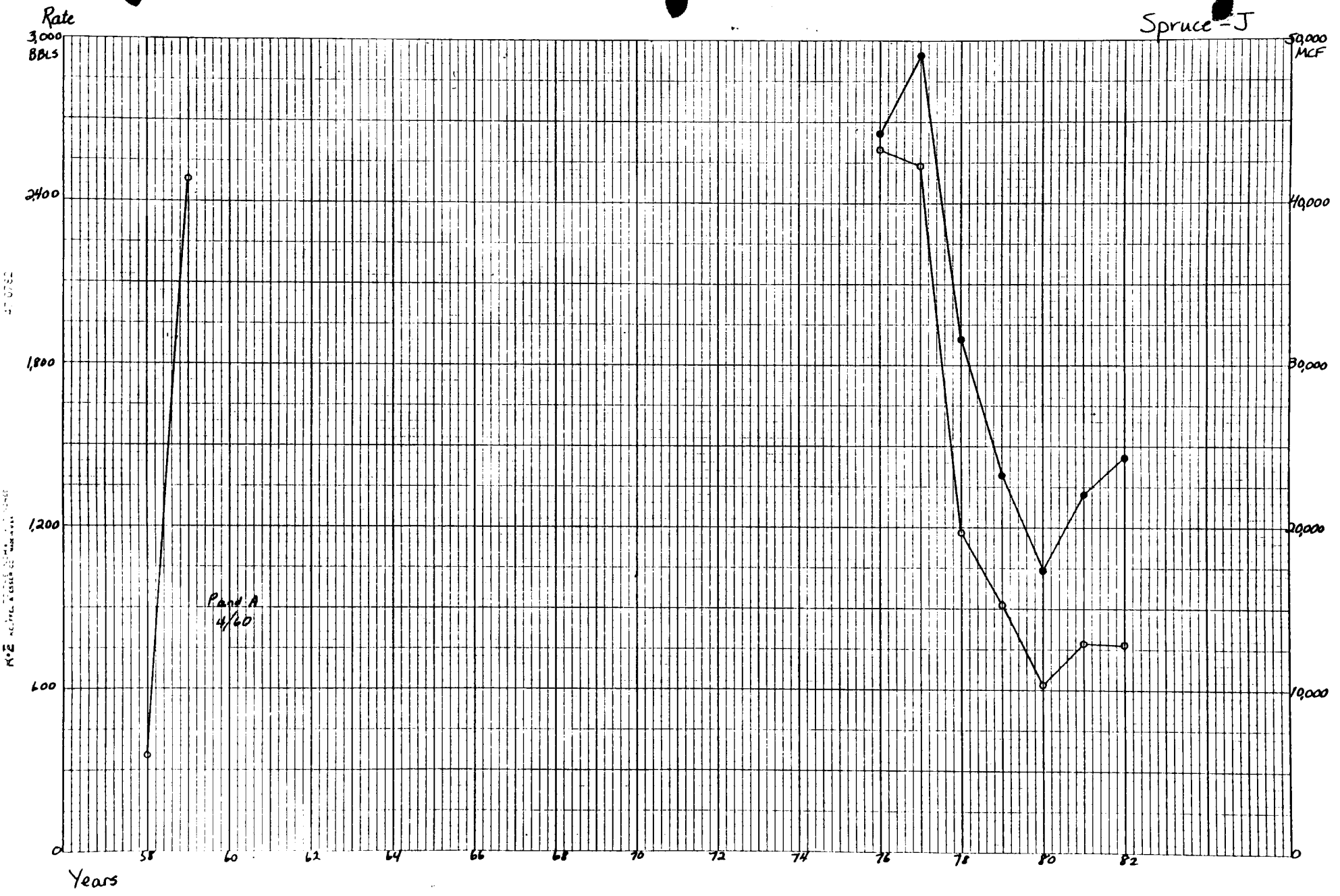

Rate
7,000,000 BBLS
4,200,000
2,800,000
1,400,000
0
74
76
78
80
82
Years
Spindle - Shannon/Sussex

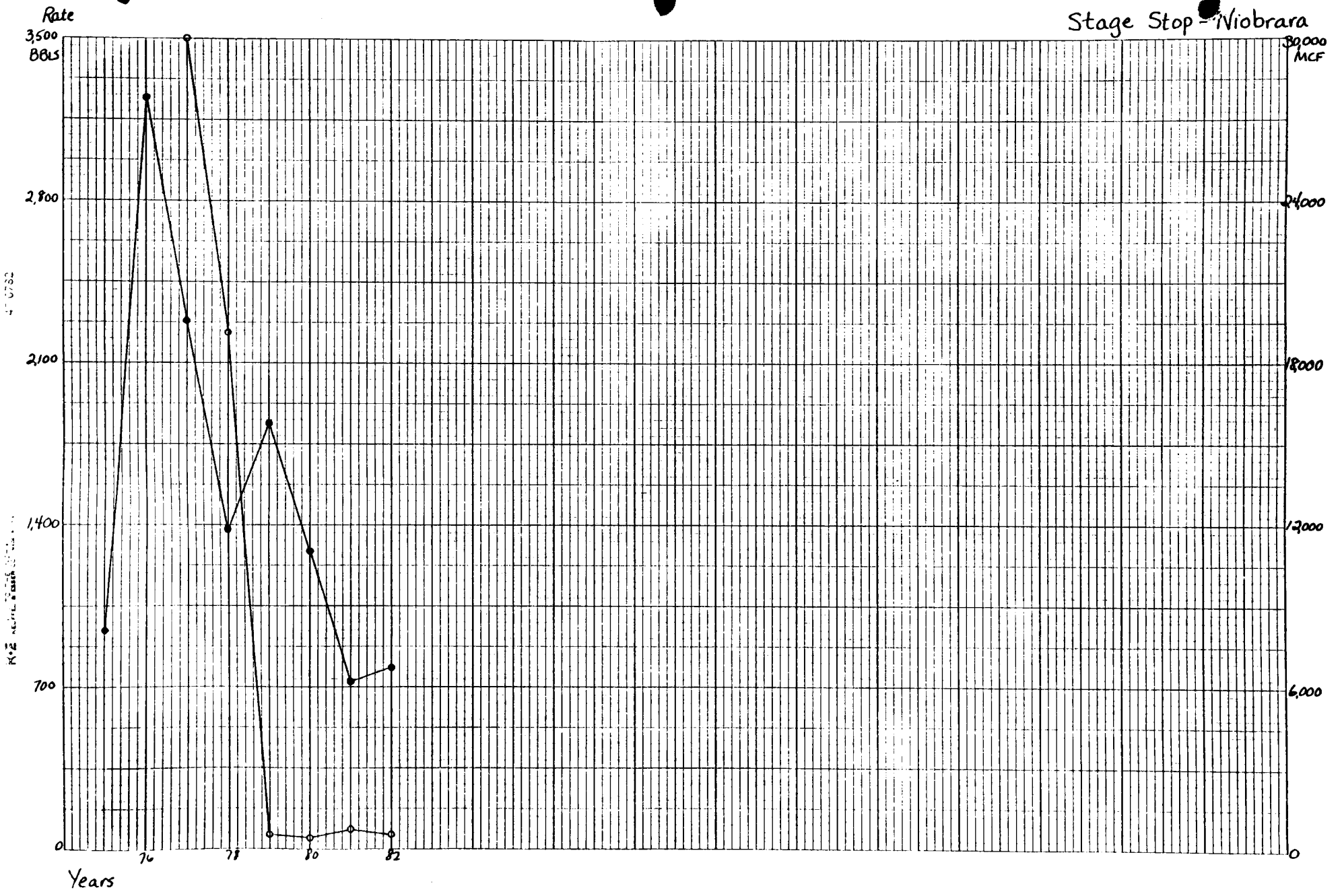

Spindle (Surry) - Shannon
300,000 Bbls.
300,000 MCF
BOULDER COUNTY PRODUCTION
WELD COUNTY PRODUCTION
240,000
180,000
120,000
60,000
0
72
74
76
78
80
82
PRODUCTION IS THROUGH 9/83
47 0782
K·E

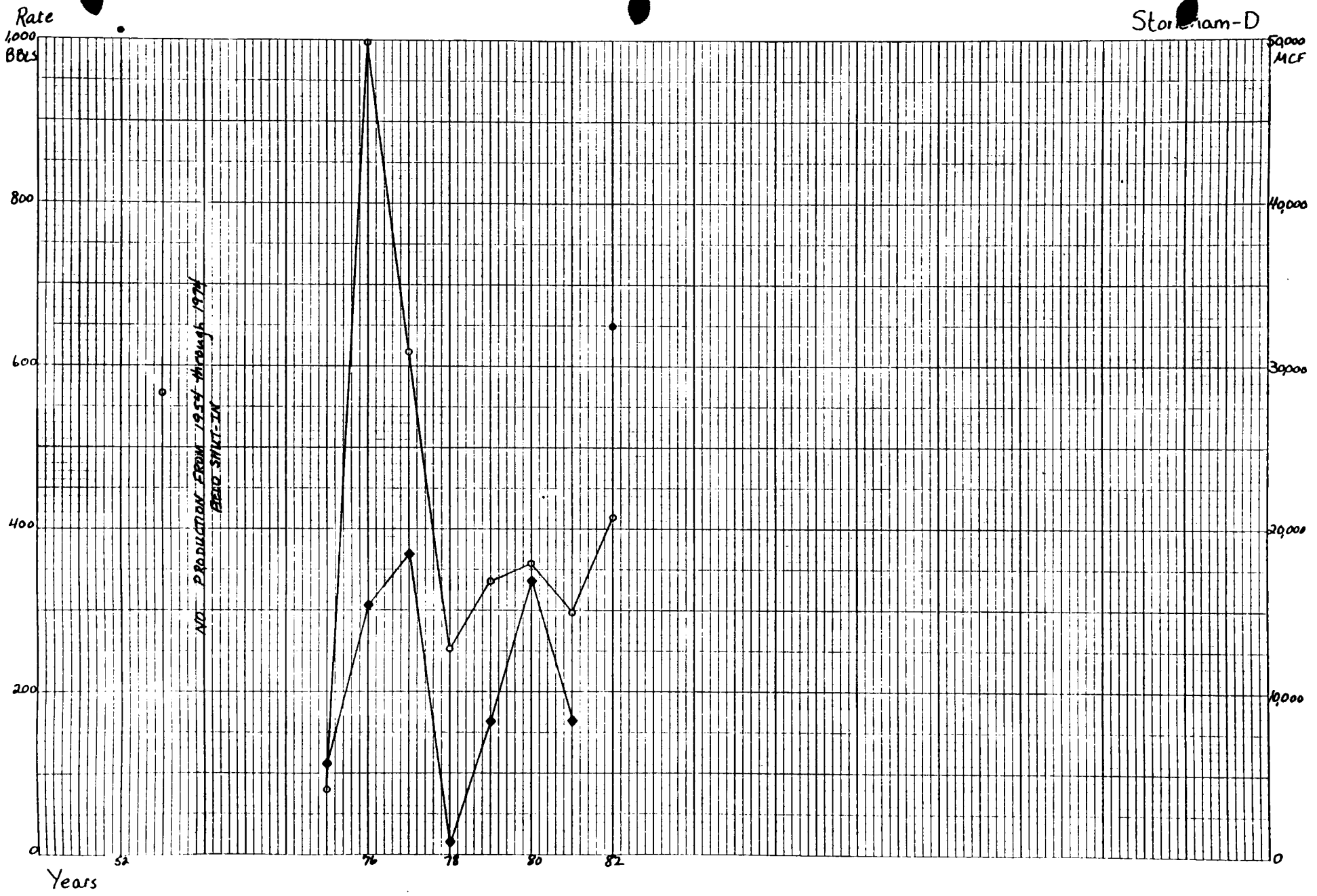

Spindle (Surry) - Sussex
1.5
MILLION
Bbls.
1.2
0.9
0.6
0.3
0
5.5
MILLION
MCF
4.4
3.3
2.2
1.1
0
ADAMS COUNTY PRODUCTION
WELD COUNTY PRODUCTION
PRODUCTION IN THOUSAND B/D.T
72
74
76
78
80
82
47 0782
K+E
10 X 10 TO THE INCH • 10 X 15 INCHES
KEUFFEL & ESSER CO


Spindle (Surry)-Sussex/Shannon
7.
MILLION
Bbls.
5.6
4.2
2.8
1.4
0
30.0
MILLION
MCF
24.0
18.0
12.0
6.0
0
WELD COUNTY PRODUCTION
ADAMS COUNTY PRODUCTION
74
76
78
80
82

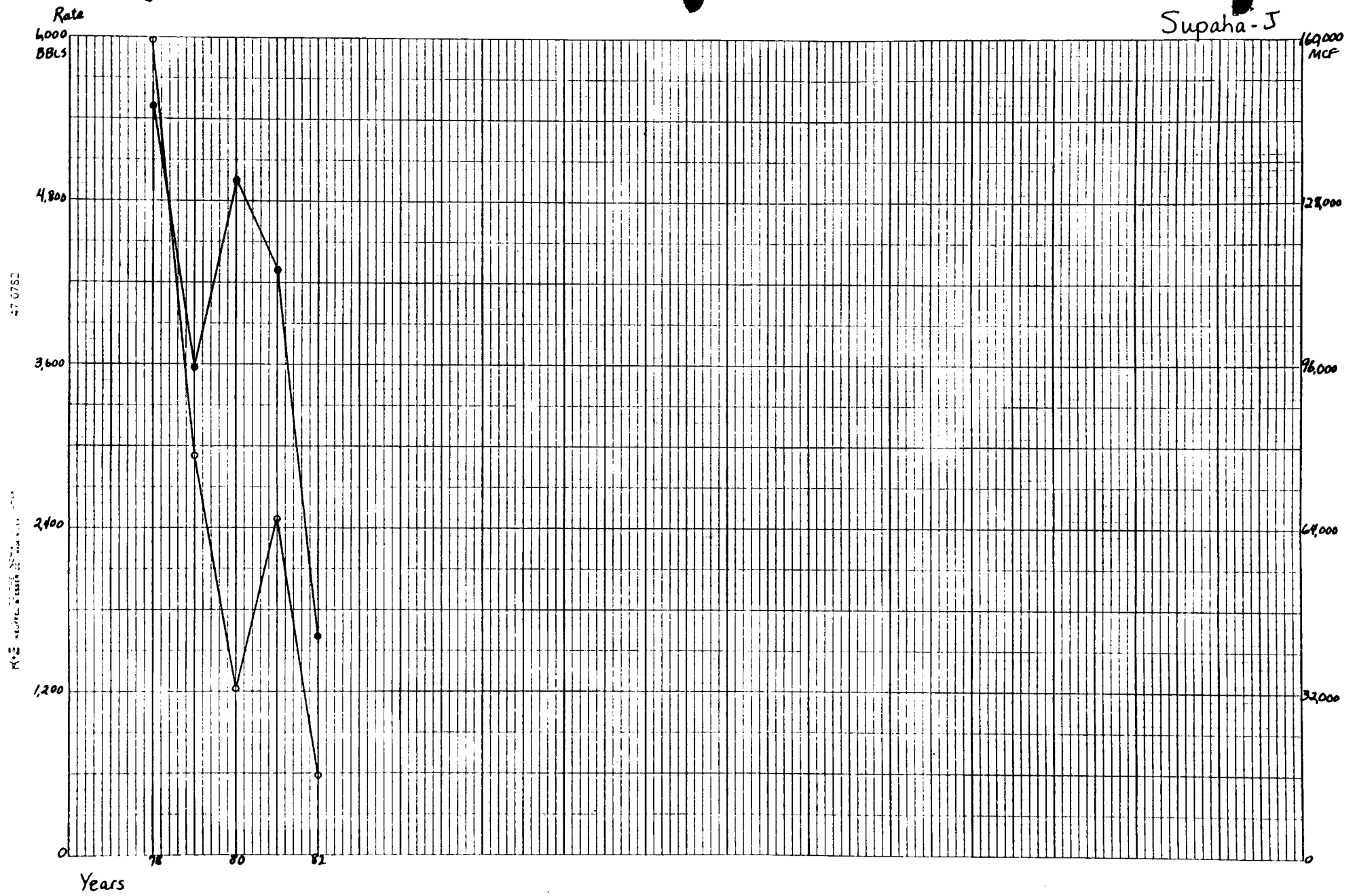

Spruce-D
Rate
1,000 BBLS
800
600
400
200
0
5,000 MCF
4,000
3,000
2,000
1,000
0
82
Years

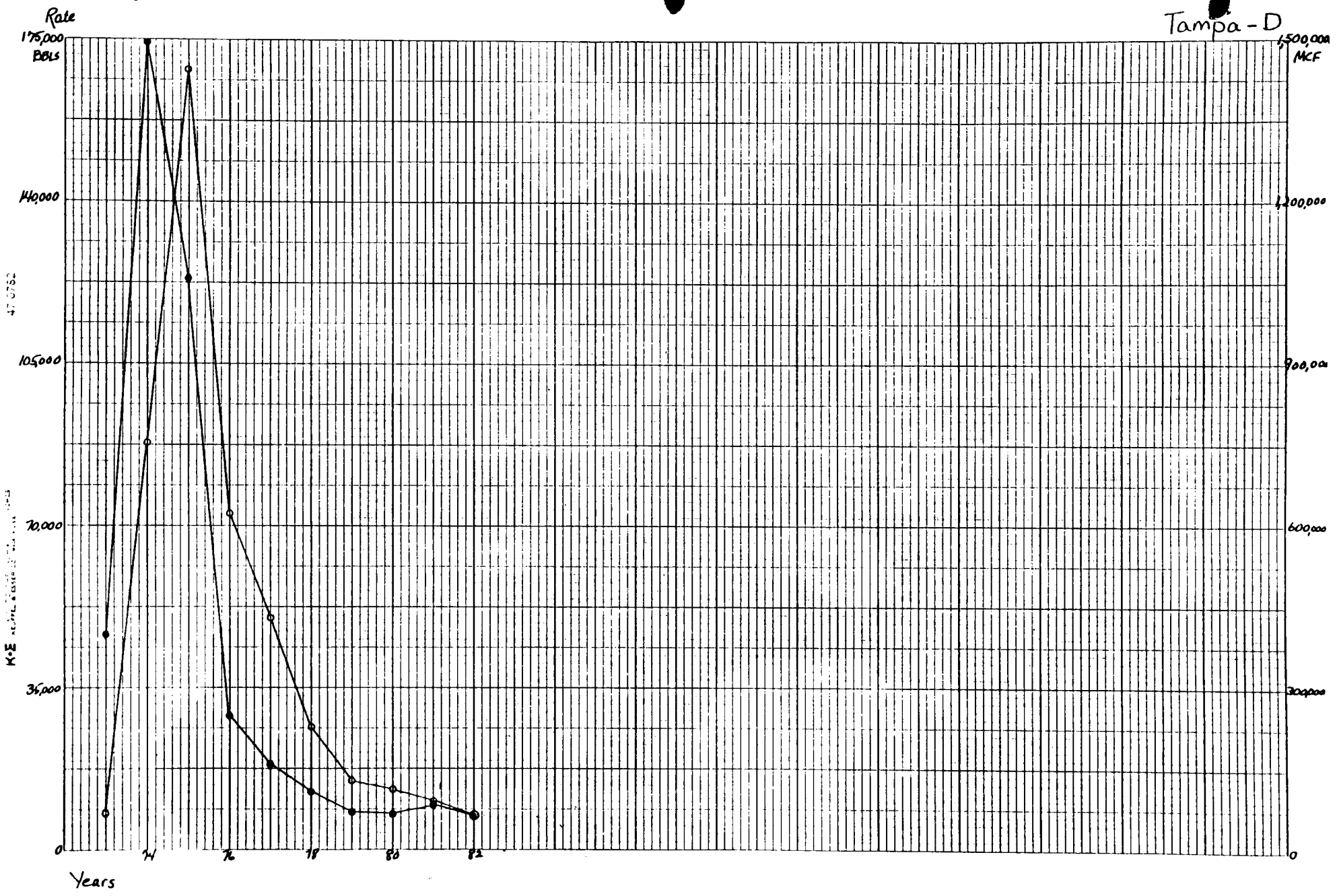

Rate
3,000
BBLS
2400
1,800
1,200
600
0
Spruce - J
50,000
MCF
40,000
30,000
20,000
10,000
0
Pool A
4/60
58
60
62
64
66
68
70
72
74
76
78
80
82
Years

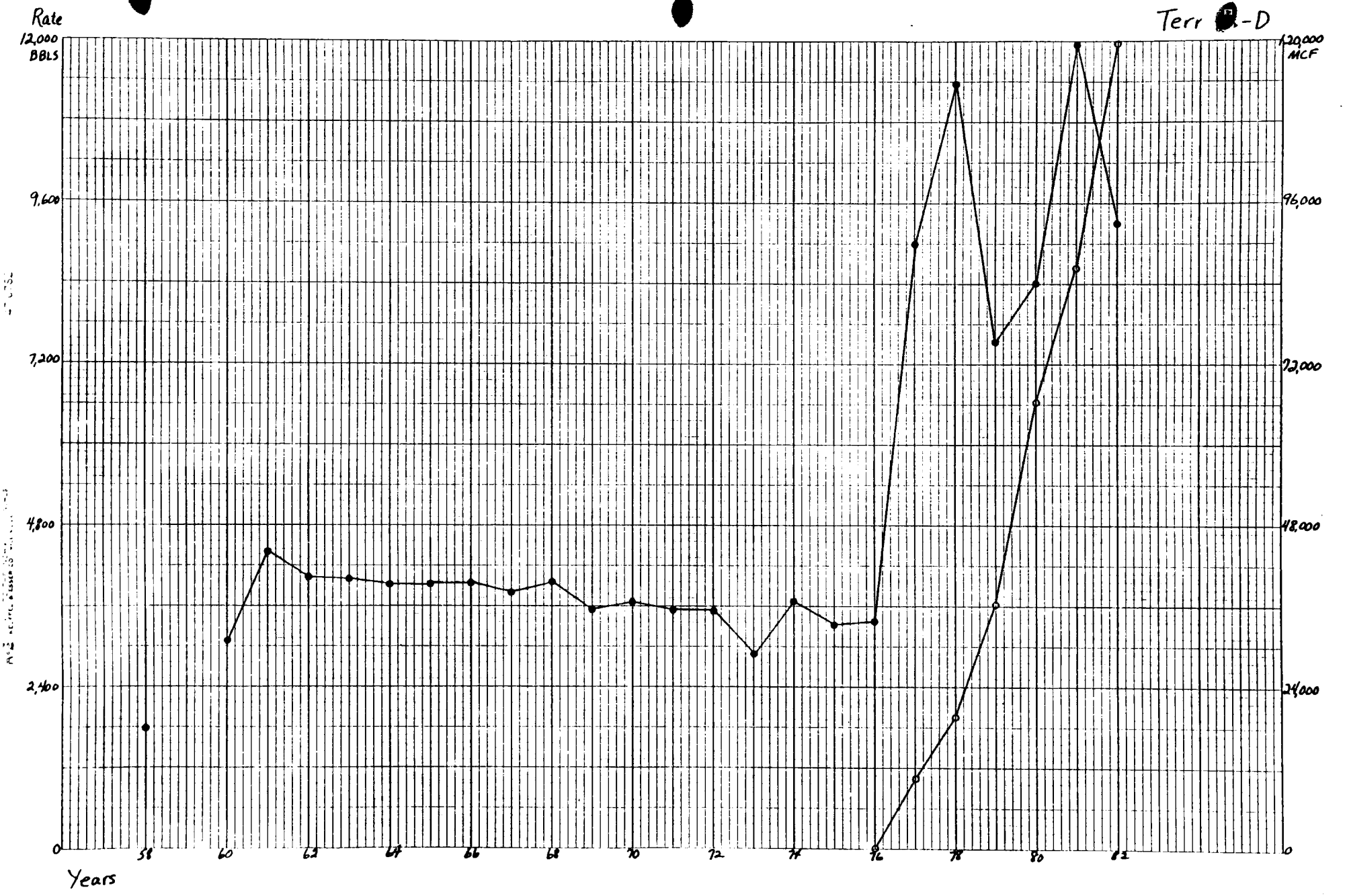

Rate
3,500
BBLS
2,800
2,100
1,400
700
0
30,000
MCF
24,000
18,000
12,000
6,000
0
76
78
80
82
Years
Stage Stop - Niobrara

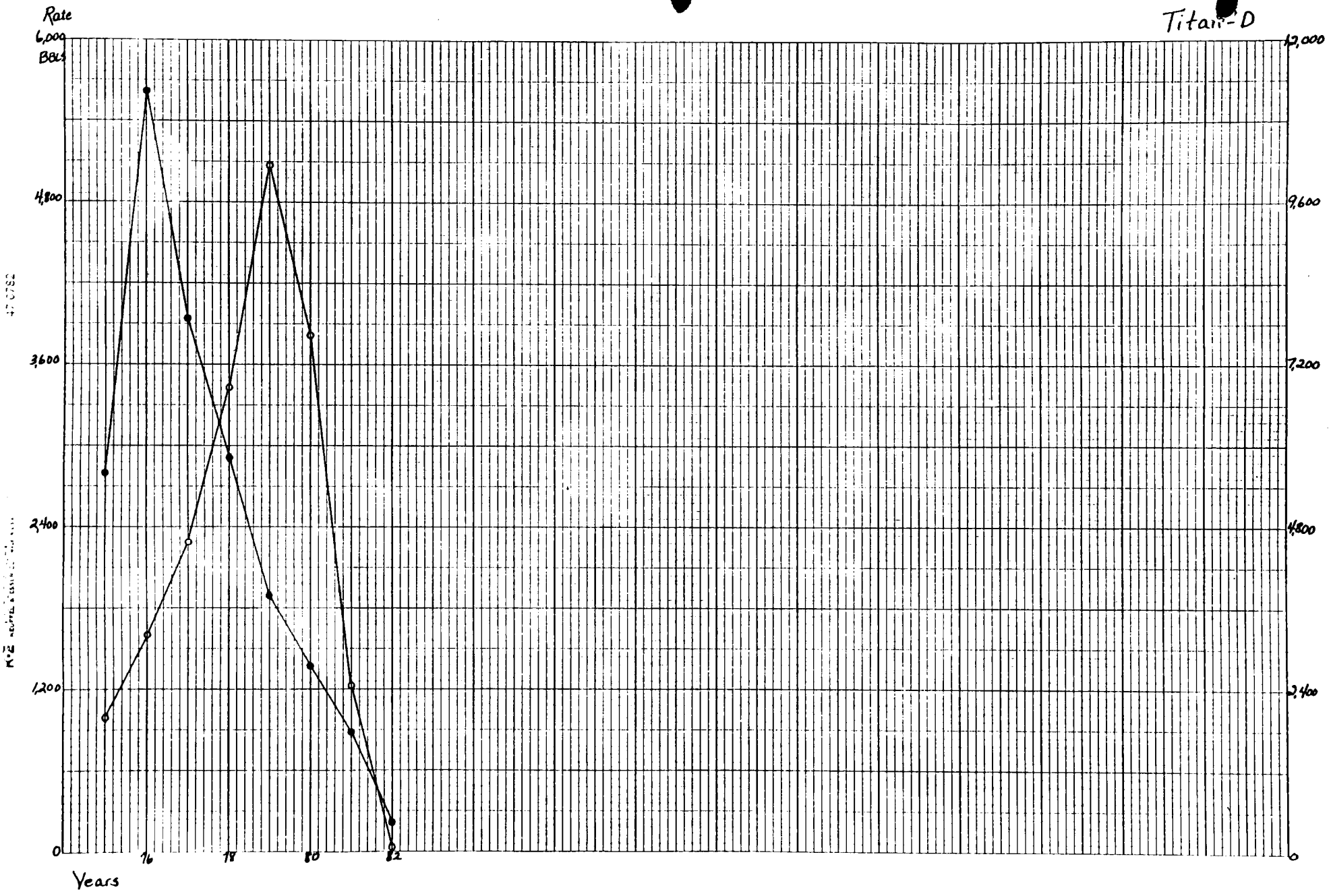

Rate
1,000
BBLS
800
600
400
200
0
50,000
MCF
40,000
30,000
20,000
10,000
0
52
76
78
80
82
Years
NO PRODUCTION FROM 1954 through 1974
BEING SHUT-IN
Stoneham-D

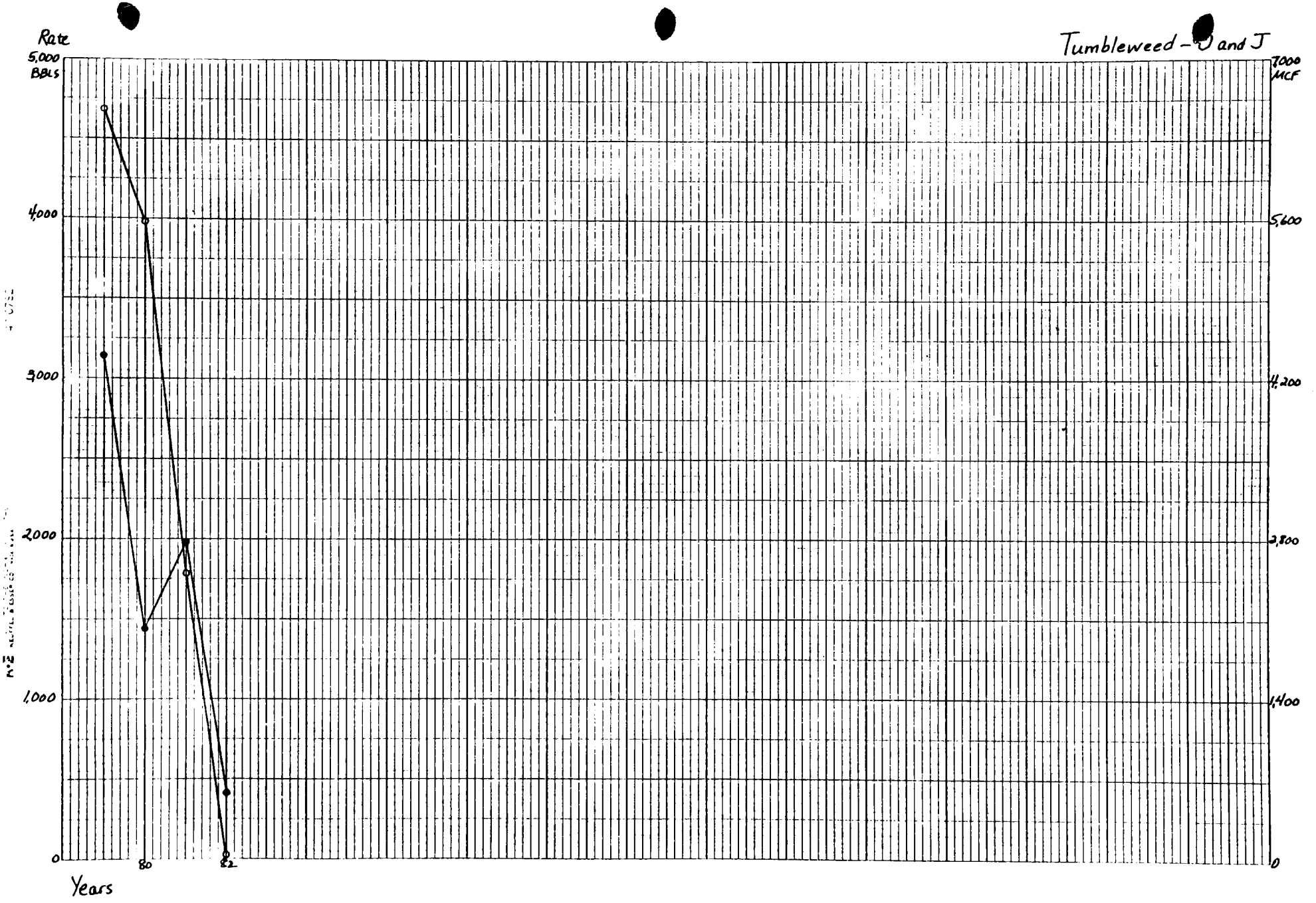

Rate
Stoneham. th-J
20000 BBLS
16,000
12,000
8,000
4,000
0
50000 MCF
40,000
30000
20,000
10,000
0
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years

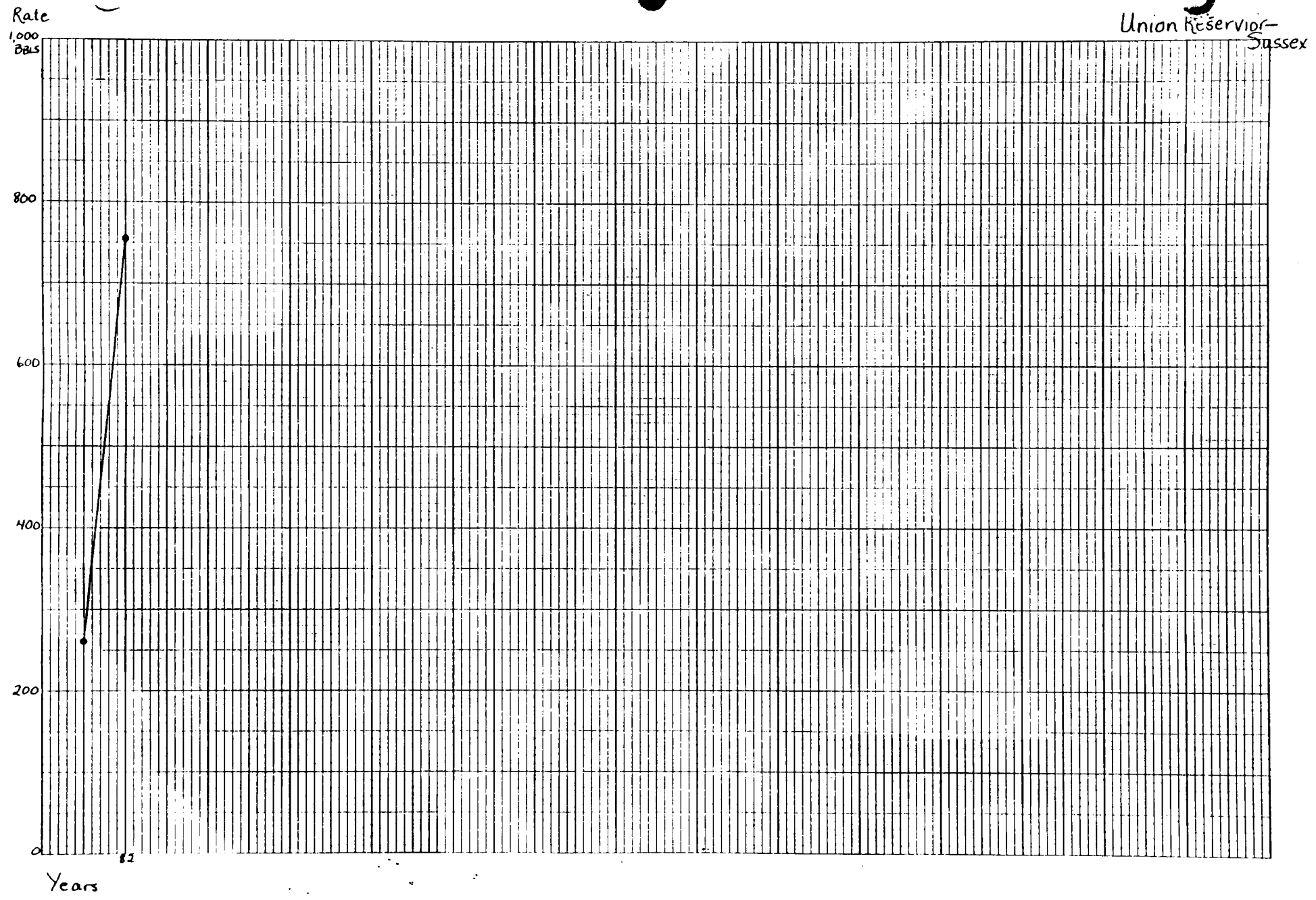

Rate
4,000 BBLS
4,800
3,600
2,400
1,200
0
160,000 MCF
128,000
96,000
64,000
32,000
0
78
80
82
Years
Supaha-J

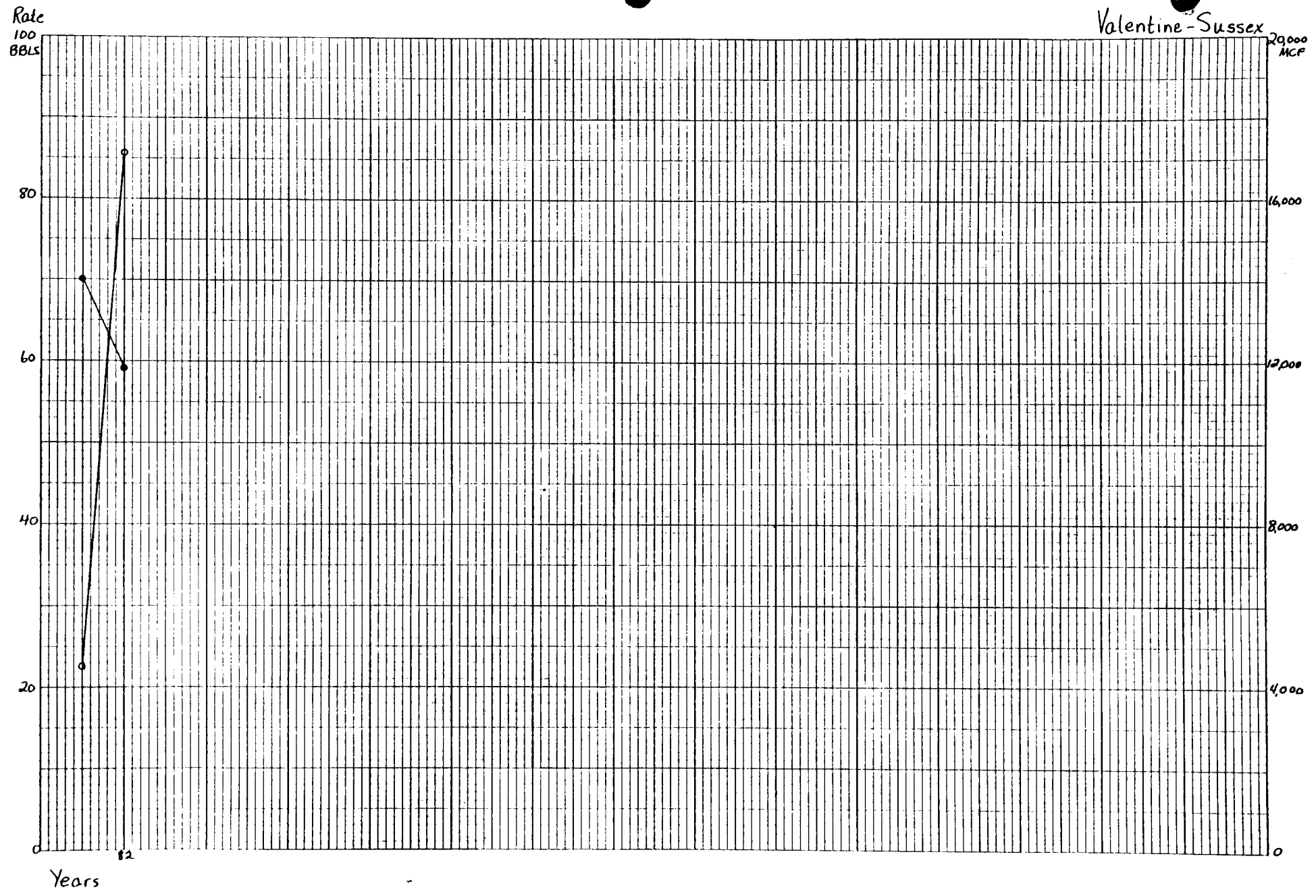

Rate
Tampa - D
175,000
BBLS
140,000
105,000
70,000
35,000
0
1,500,000
MCF
1,200,000
900,000
600,000
300,000
0
74
76
78
80
82
Years

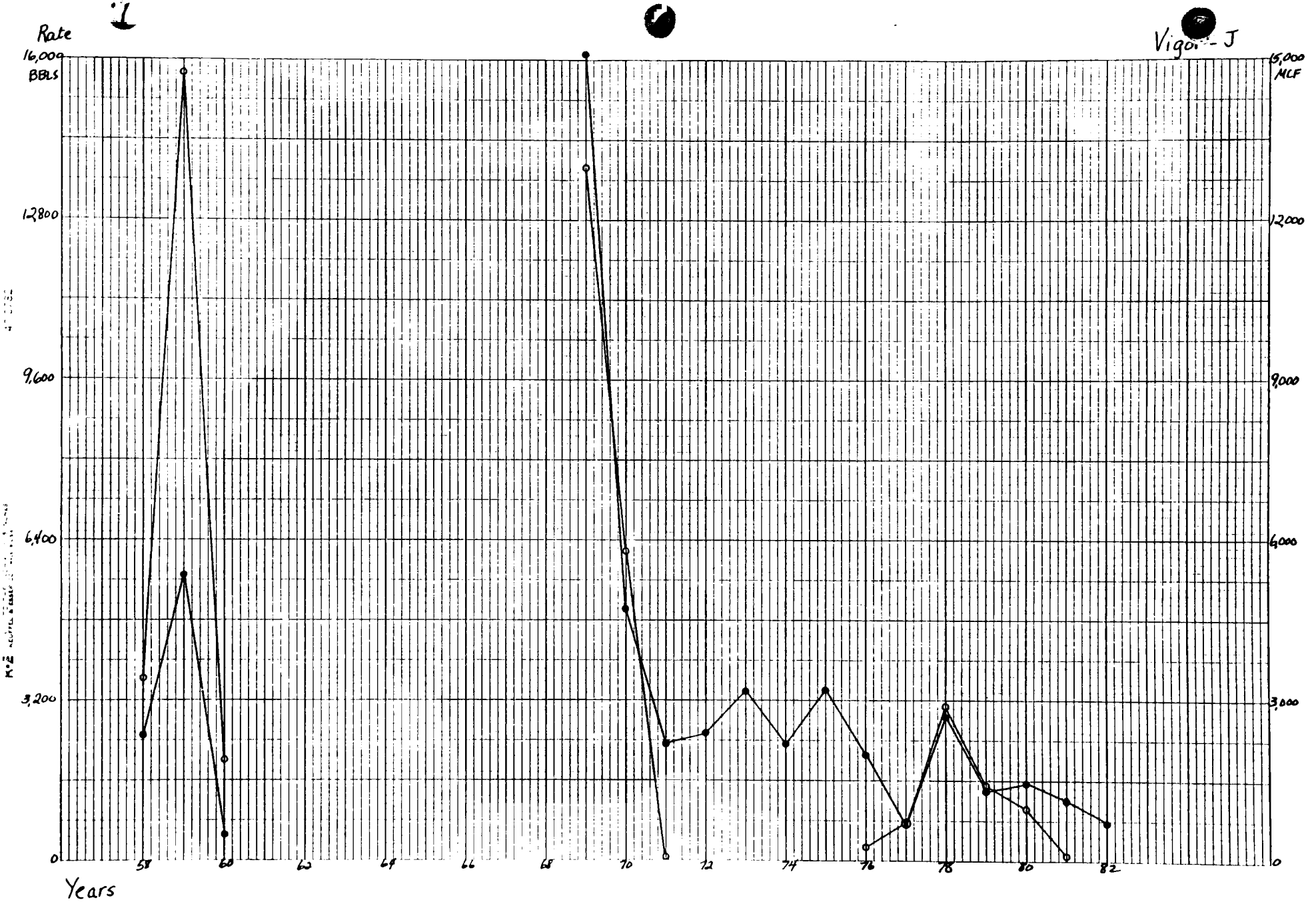

Rate
12,000 BBLS
9,600
7,200
4,800
2,400
0
120,000 MCF
96,000
72,000
48,000
24,000
0
58
60
62
64
66
68
70
72
74
76
78
80
81
Years

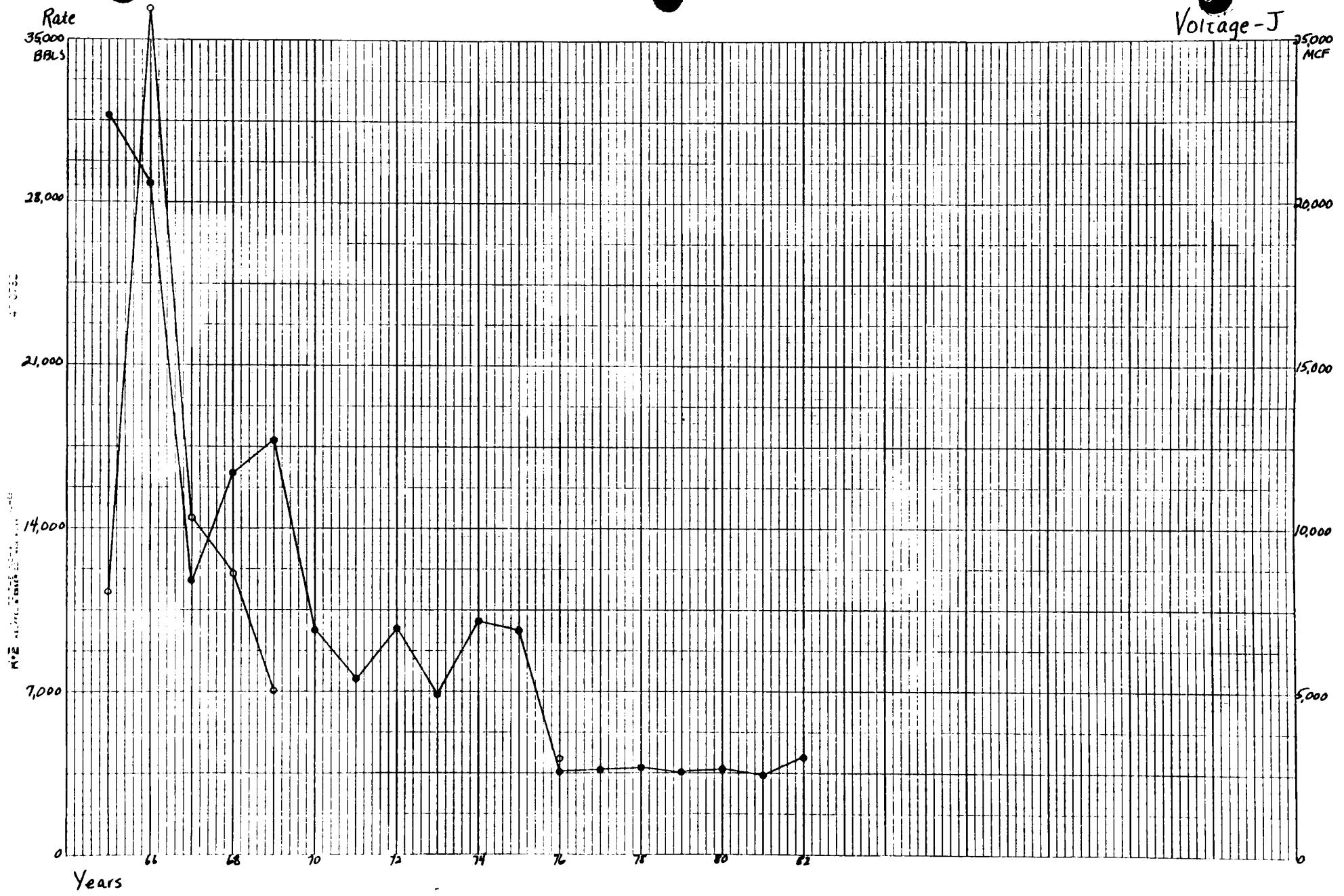

Rate
Titan-D
6,000
Bbls
4,800
3,600
2,400
1,200
0
12,000
9,600
7,200
4,800
2,400
0
16
18
80
82
Years

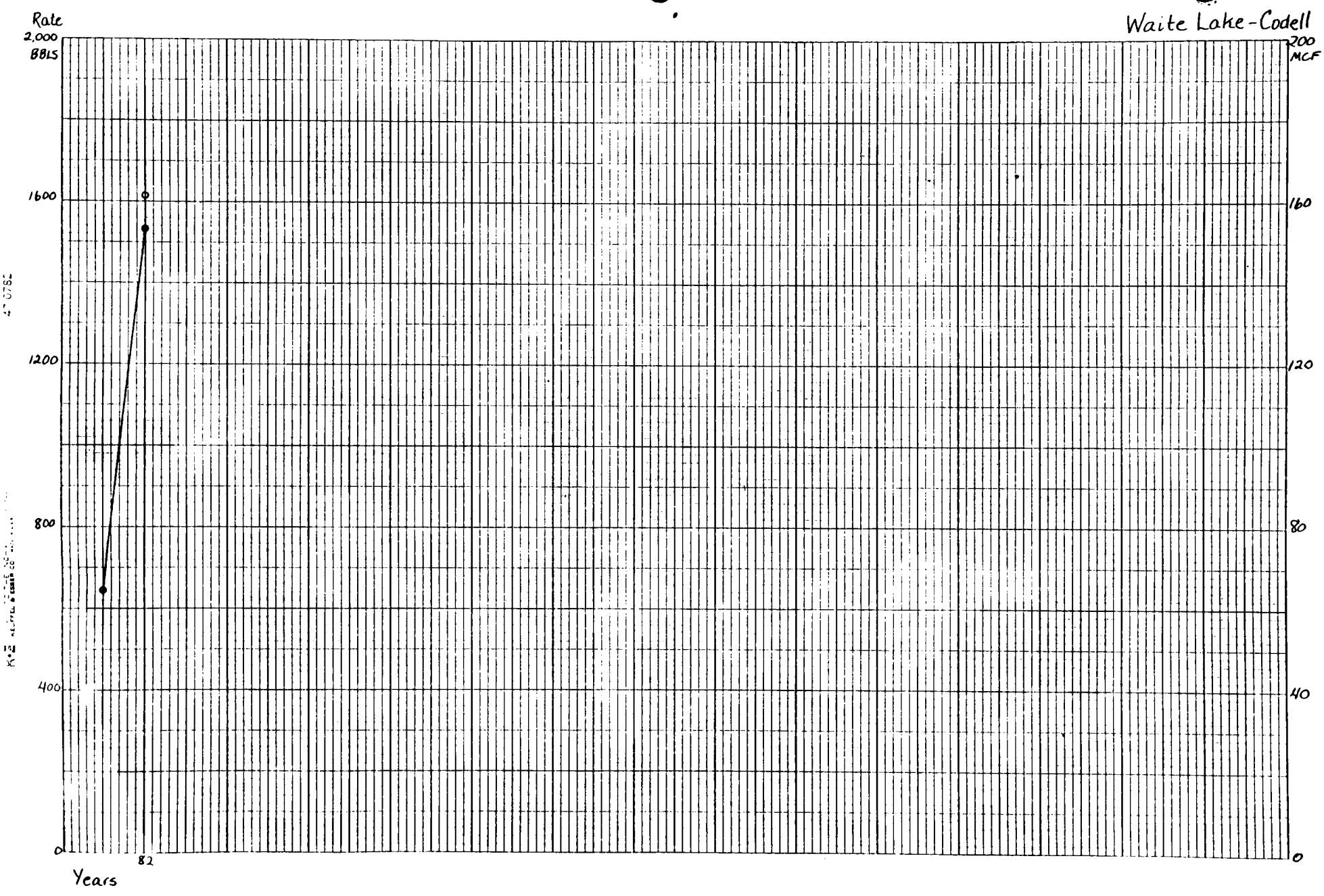

Rate
5,000 BBLS
4,000
3,000
2,000
1,000
0
7000 MCF
5,600
4,200
2,800
1,400
0
80
82
Years
Tumbleweed - D and J


Rate
1,000 BBLS
800
600
400
200
0
81
Years
Union Reservior–Sussex


Rate
100
BBLS
80
60
40
20
0
82
Years
Valentine-Sussex
20,000
MCF
16,000
12,000
8,000
4,000
0

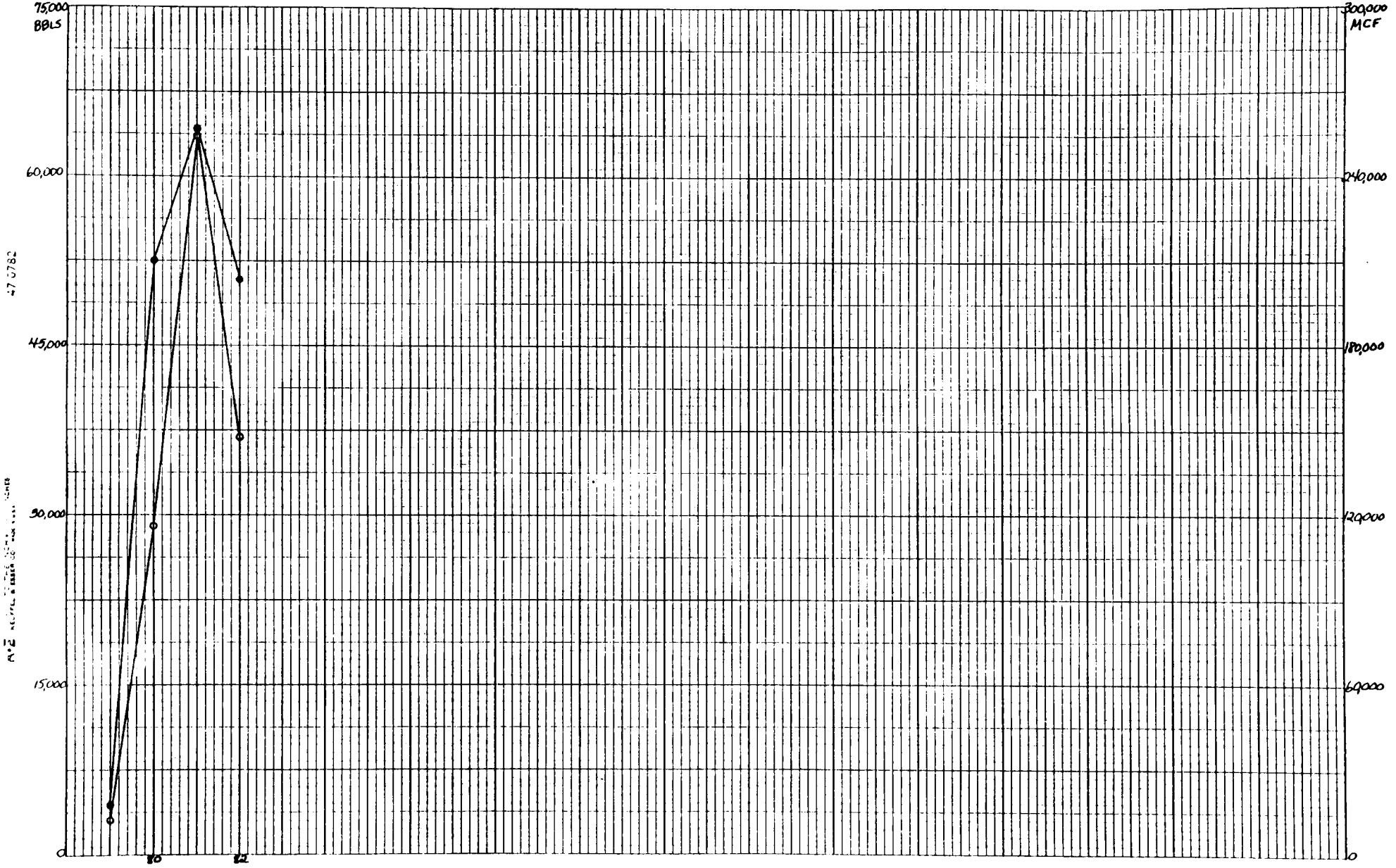

Rate
16,000 BBLS
12,800
9,600
6,400
3,200
0
15,000 MCF
12,000
9,000
6,000
3,000
0
58
60
62
64
66
68
70
72
74
76
78
80
82
Years


Rate
35,000 BBLS
28,000
21,000
14,000
7,000
0
25,000 MCF
20,000
15,000
10,000
5,000
0
66
68
70
72
74
76
78
80
82
Years
Voltage-J

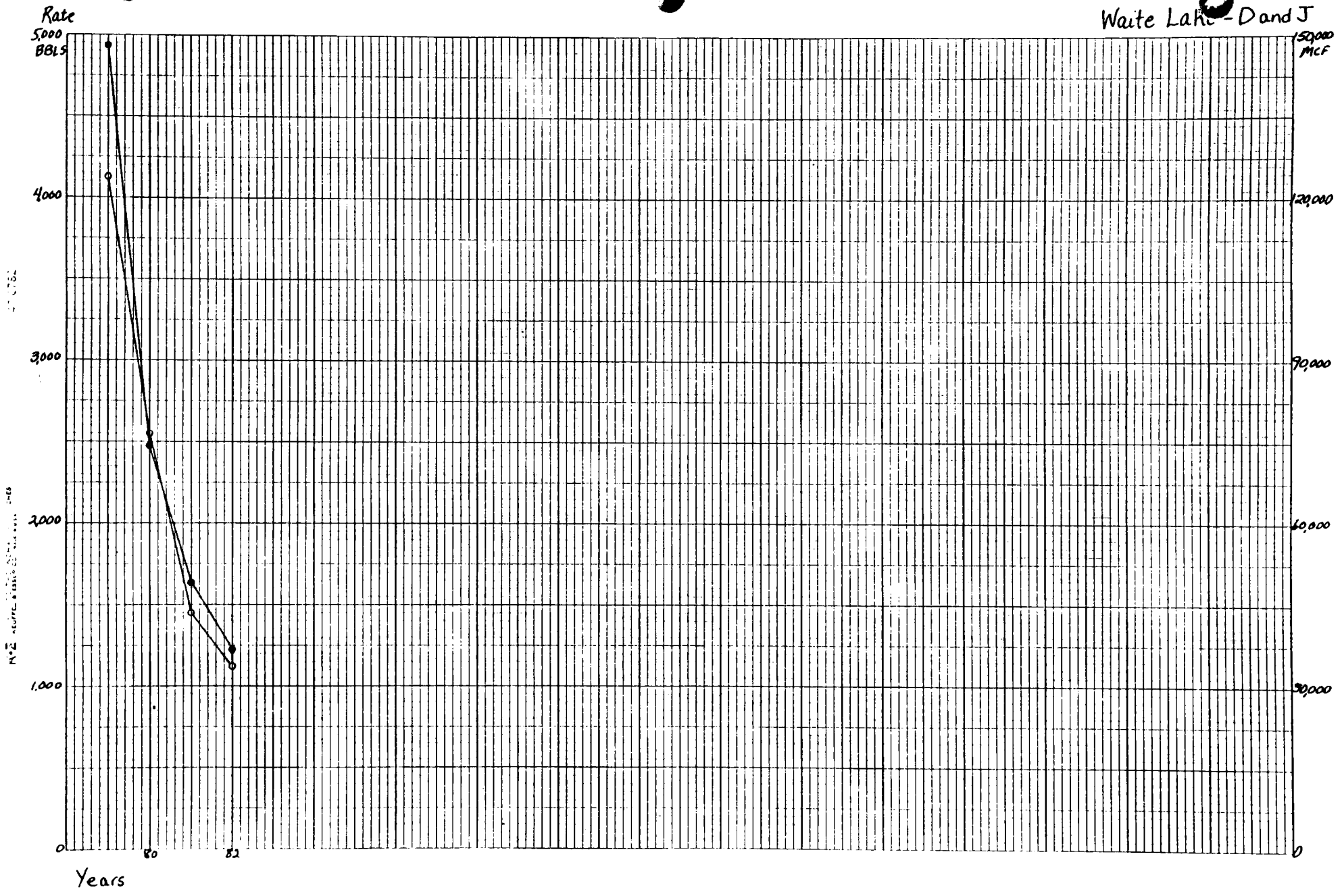

Rate
2,000
BBLS
1600
1200
800
400
0
82
Years
Waite Lake-Codell
200
MCF
160
120
80
40
0

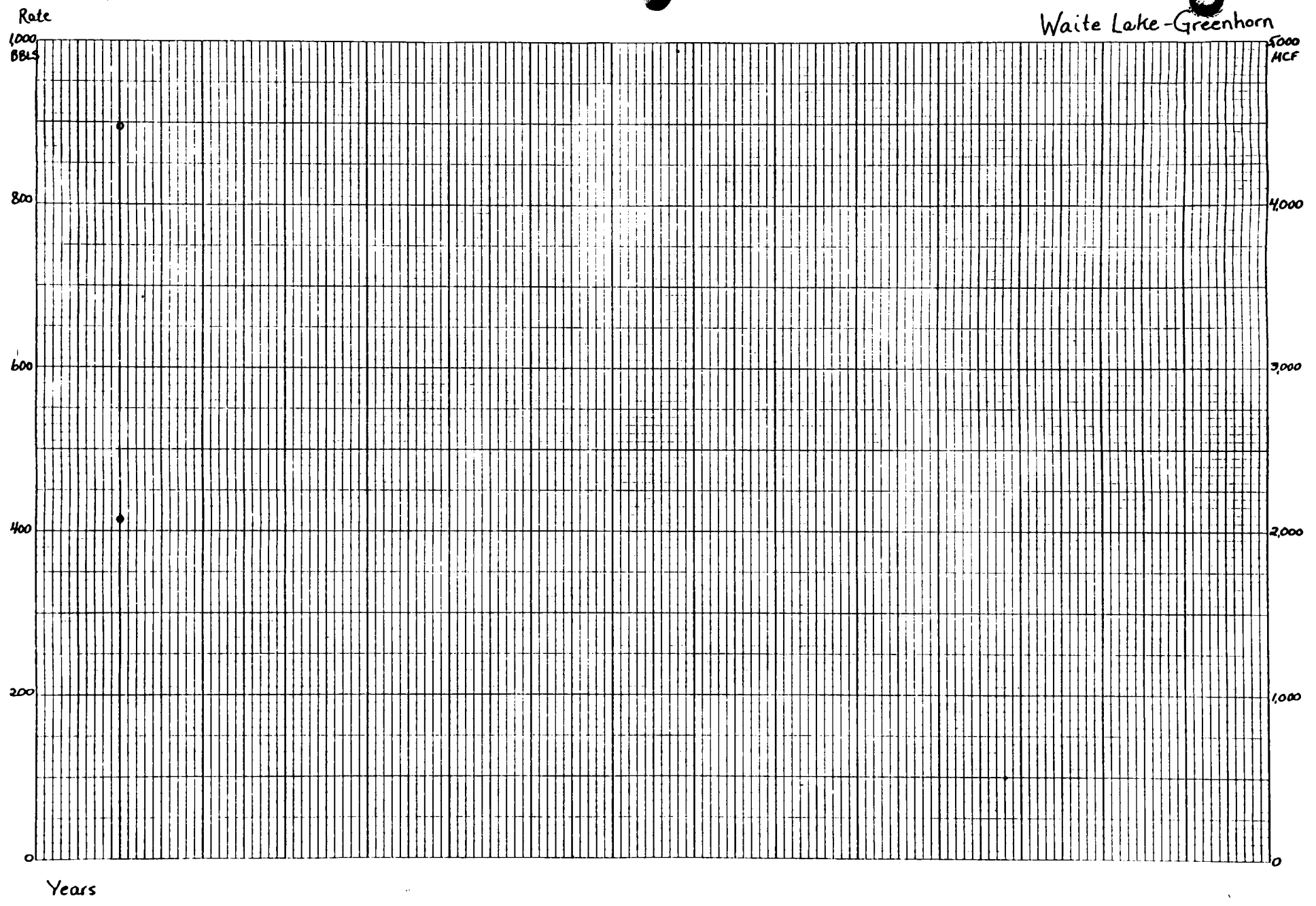
Rate

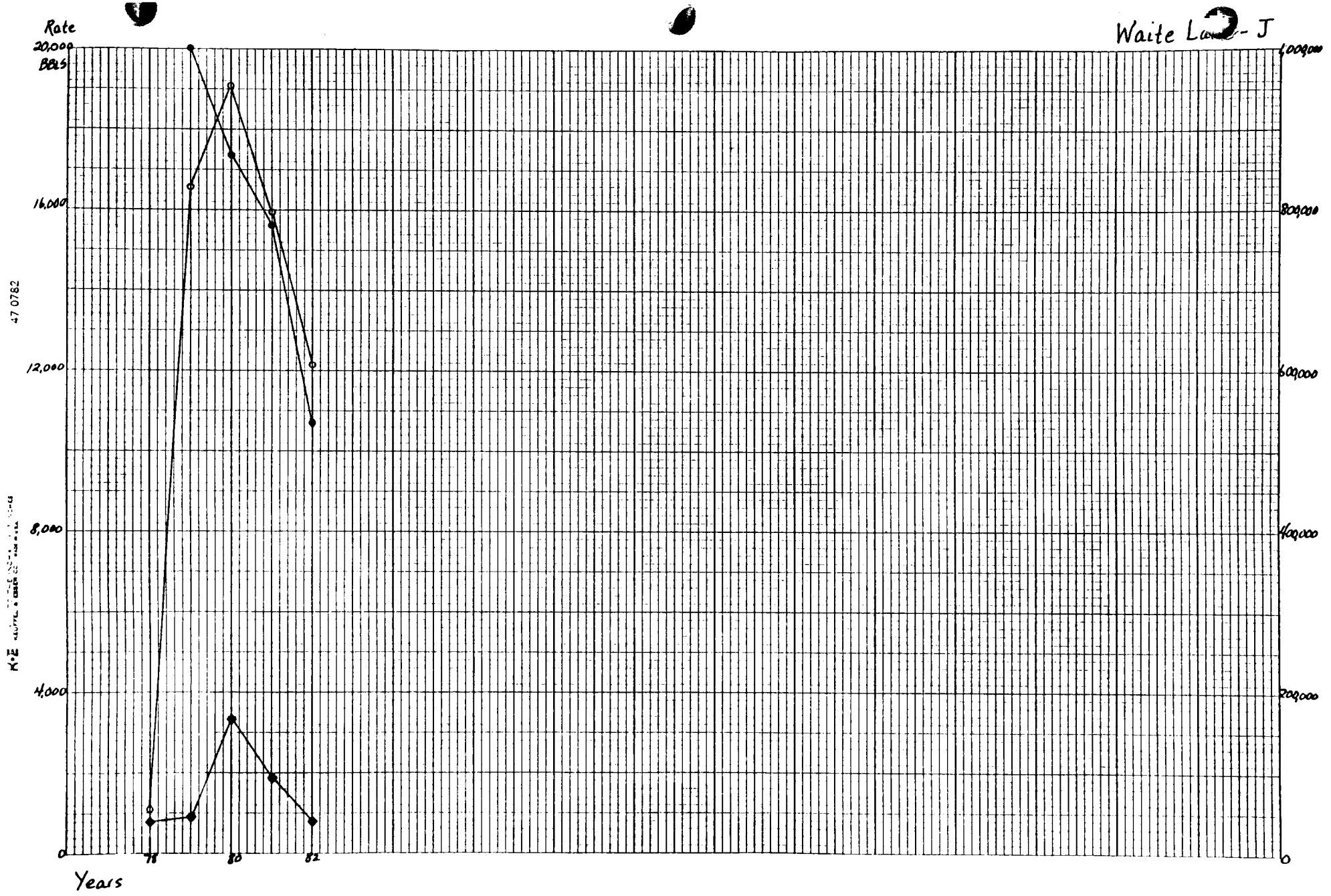
Waite Lake - D

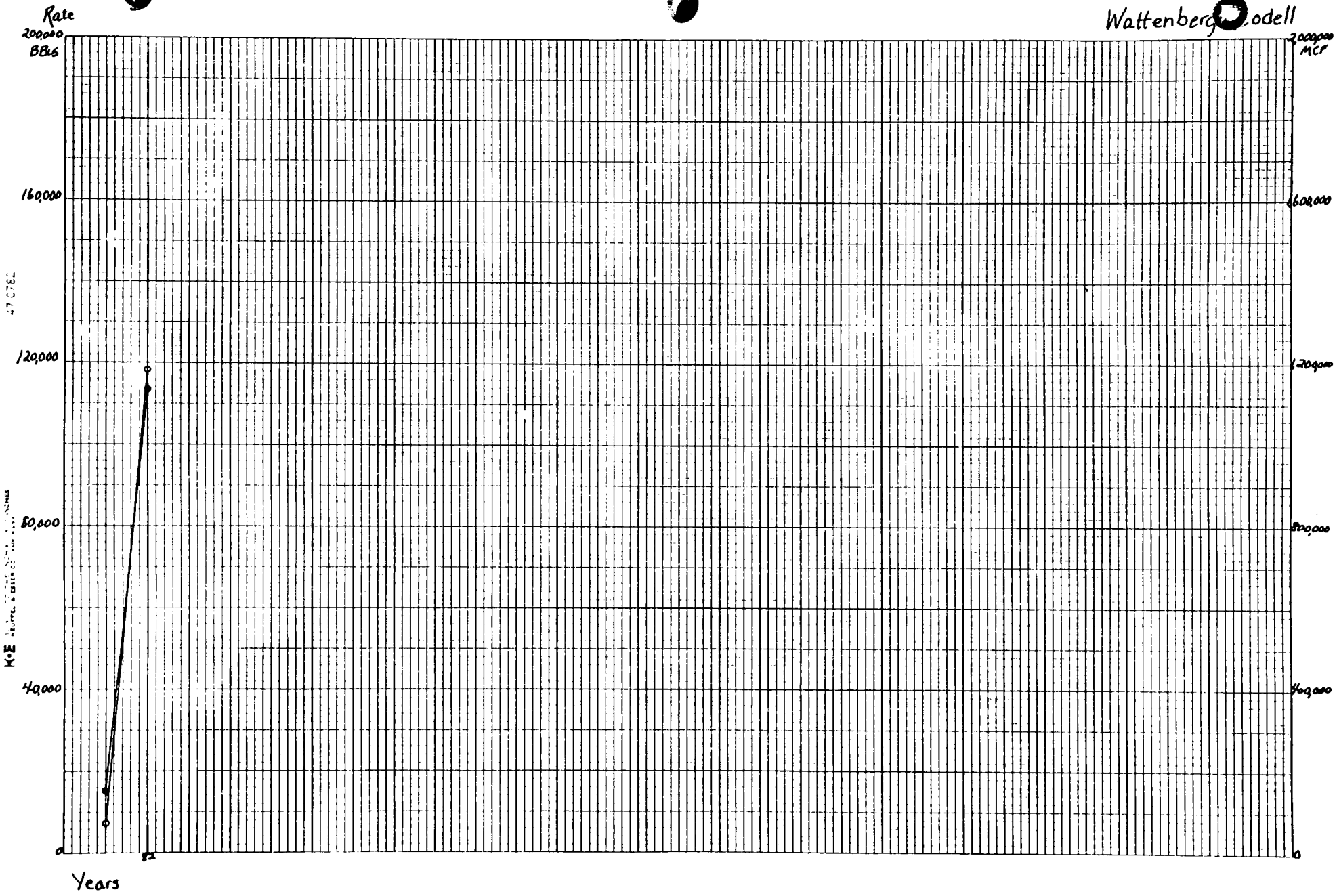


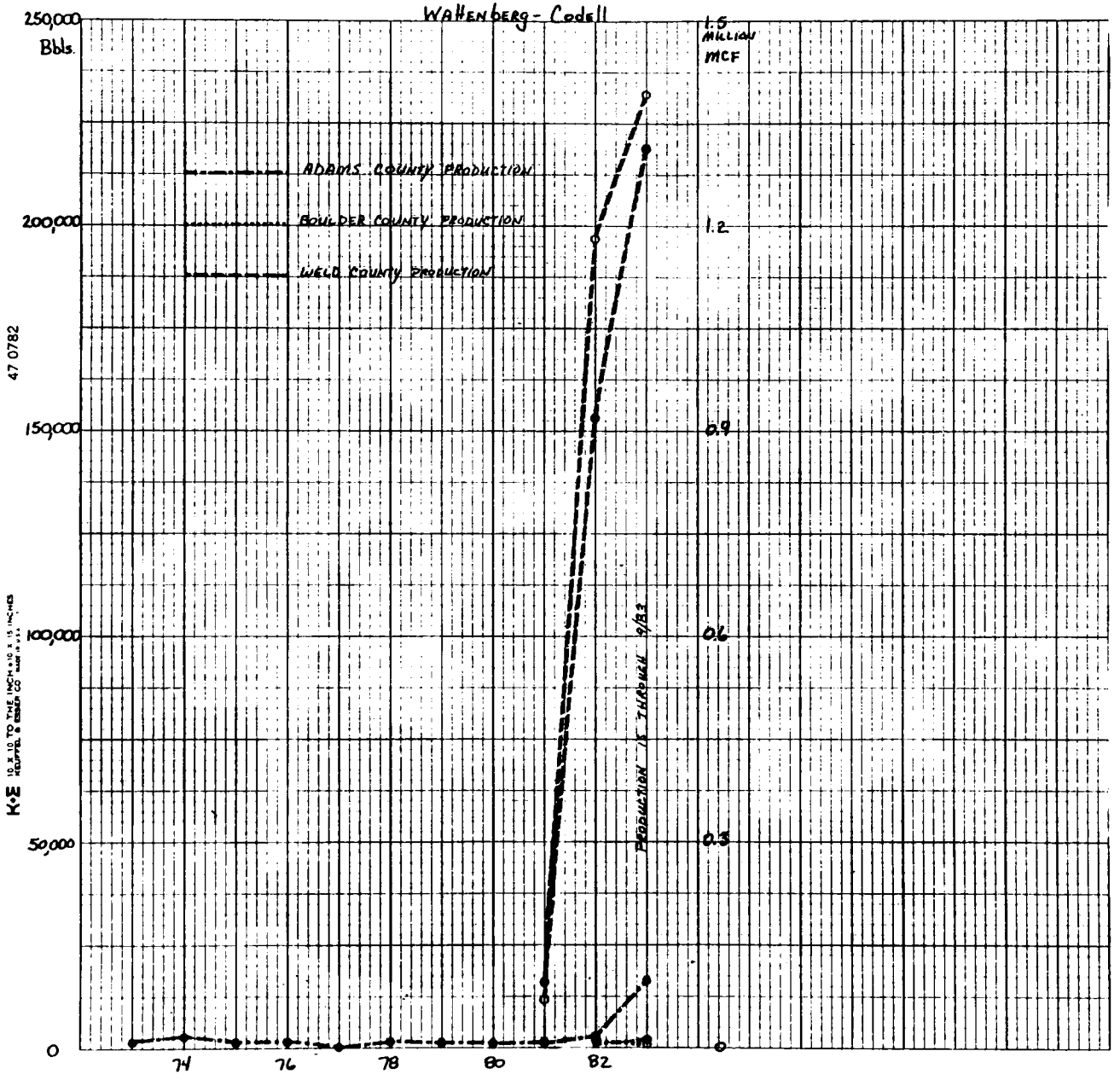
Years

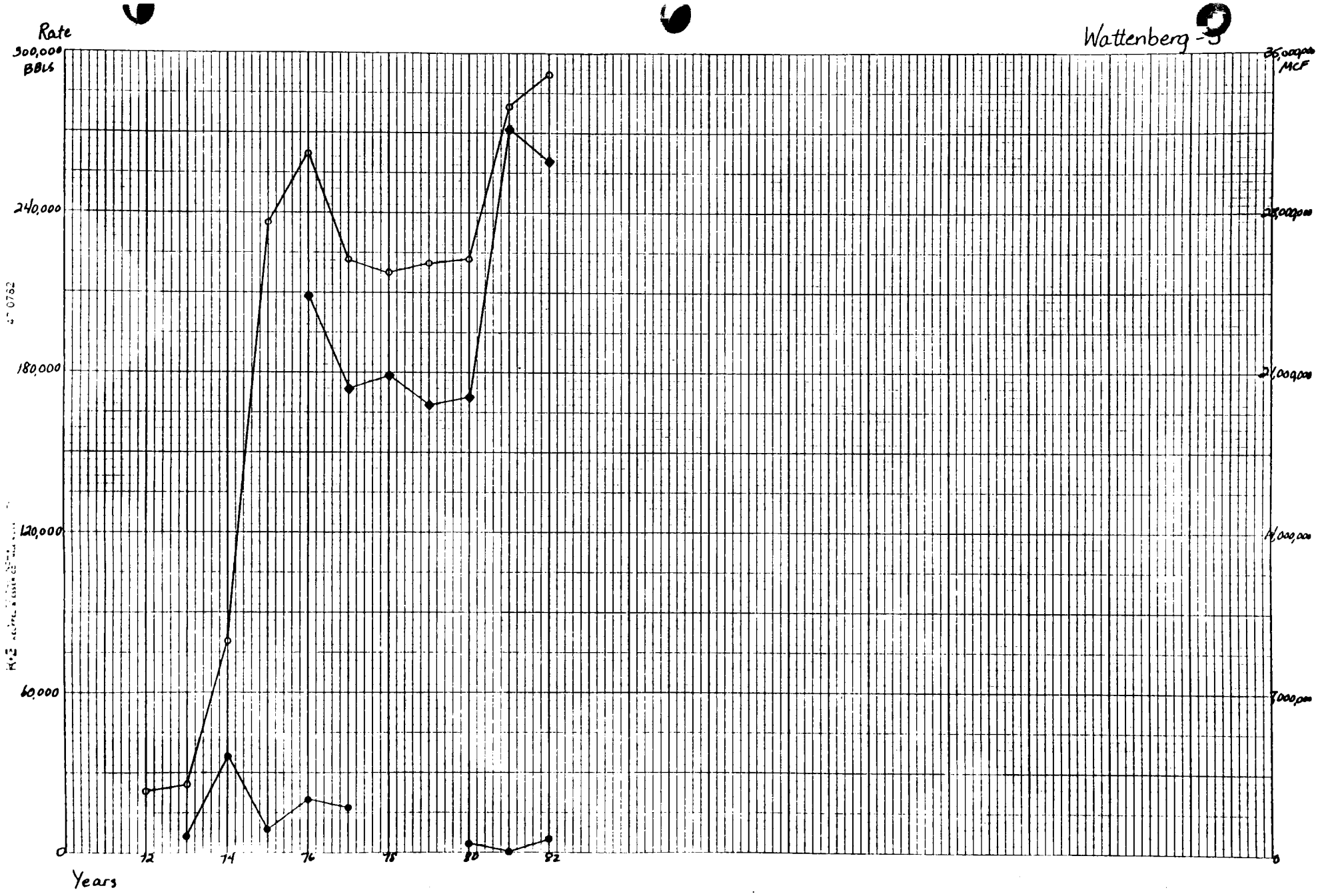

Rate
5,000 BBLS
4000
3,000
2000
1,000
0
150,000 MCF
120,000
90,000
60,000
30,000
0
80
82
Years
Waite Lake - D and J

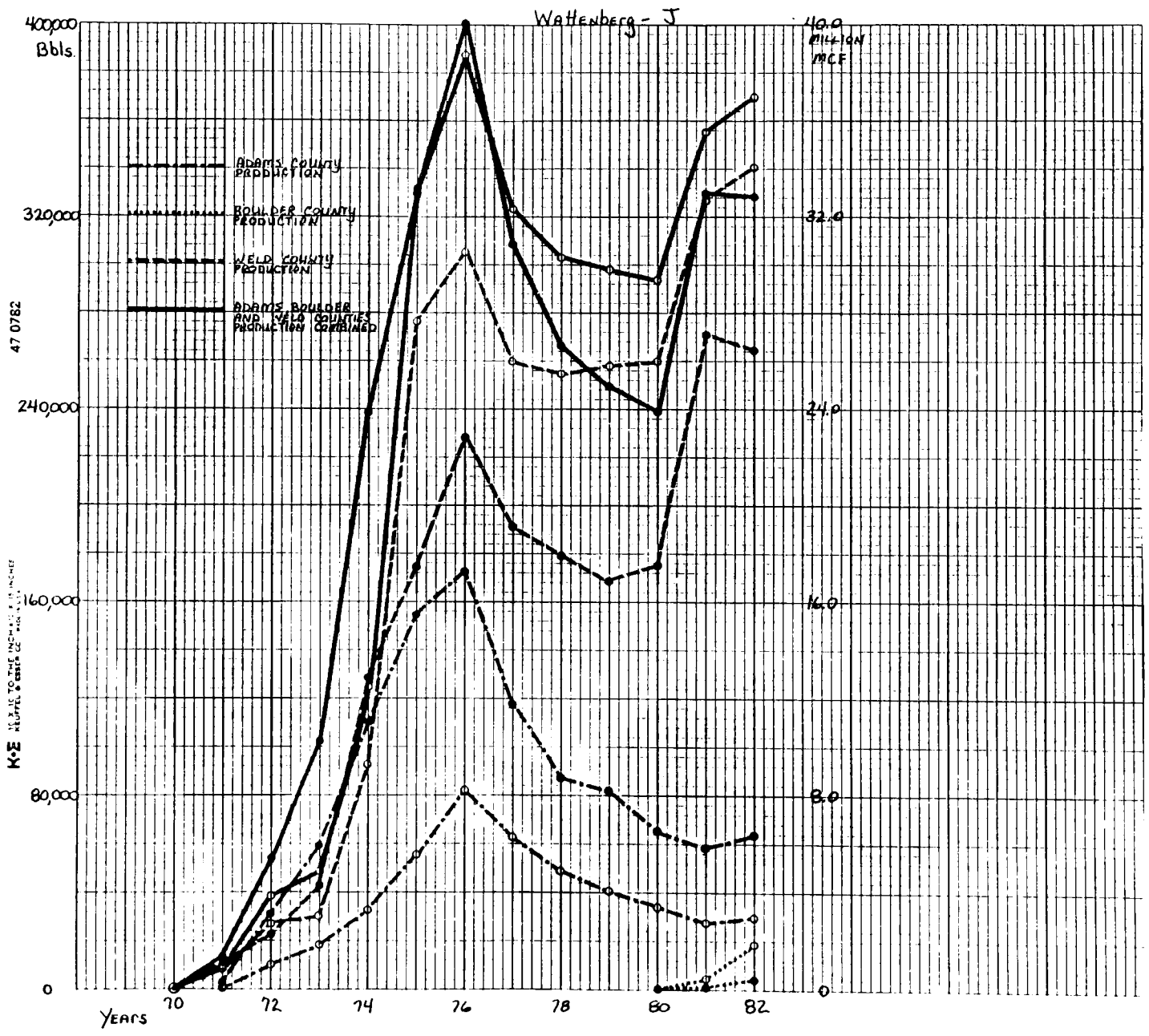

Rate
Waite Lake-Greenhorn
1000 BBLS
800
600
400
200
0
5000 MCF
4,000
3,000
2,000
1,000
0
Years


Rate
20,000
BBLS
16,000
12,000
8,000
4,000
0
78
80
82
Years
Waite La - J
1,000,000
800,000
600,000
400,000
200,000
0
47 0782

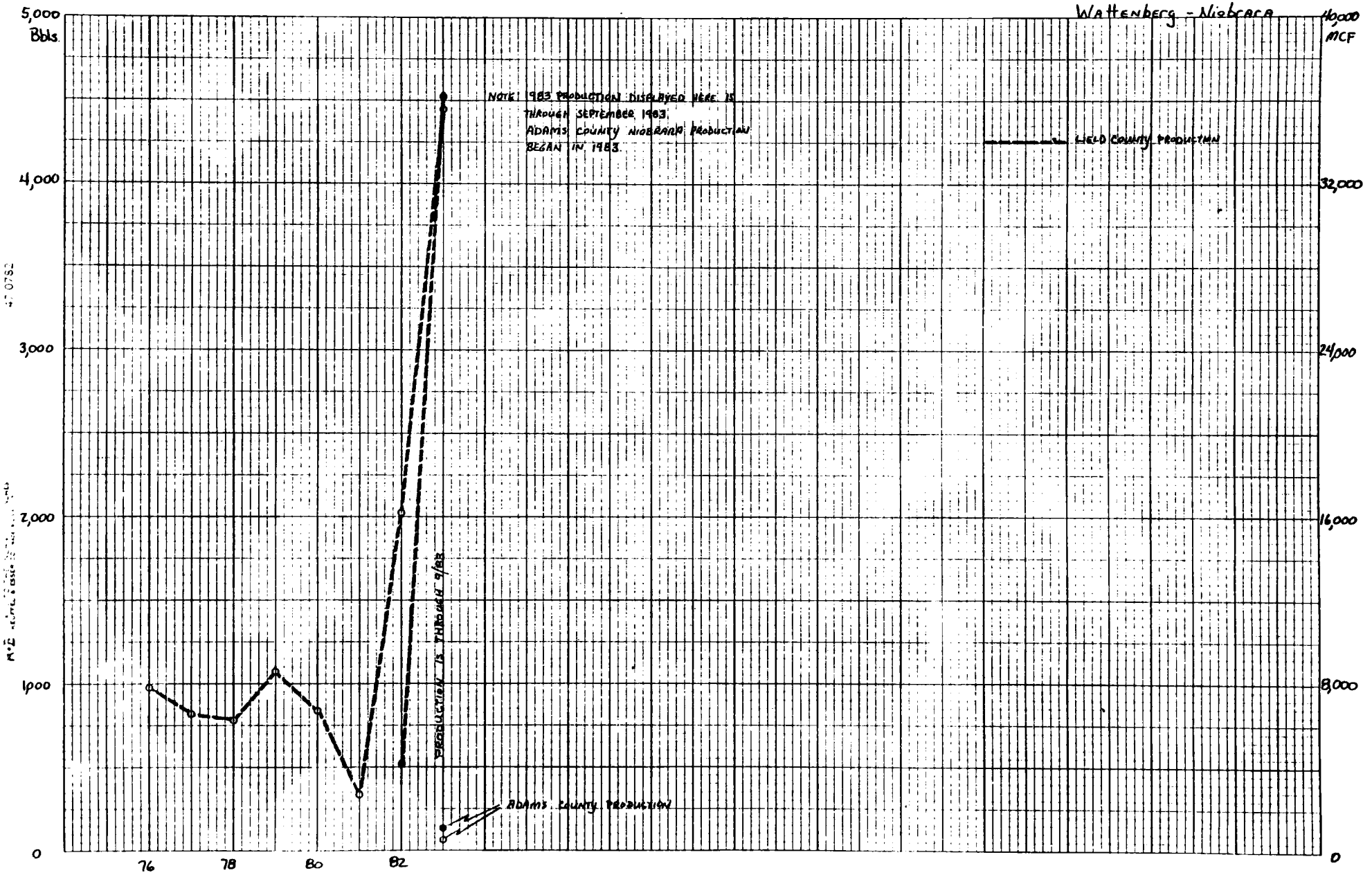

Rate
200,000
BBLS
160,000
120,000
80,000
40,000
0
200,000
MCF
160,000
120,000
80,000
40,000
0
Years
Wattenberg Codell

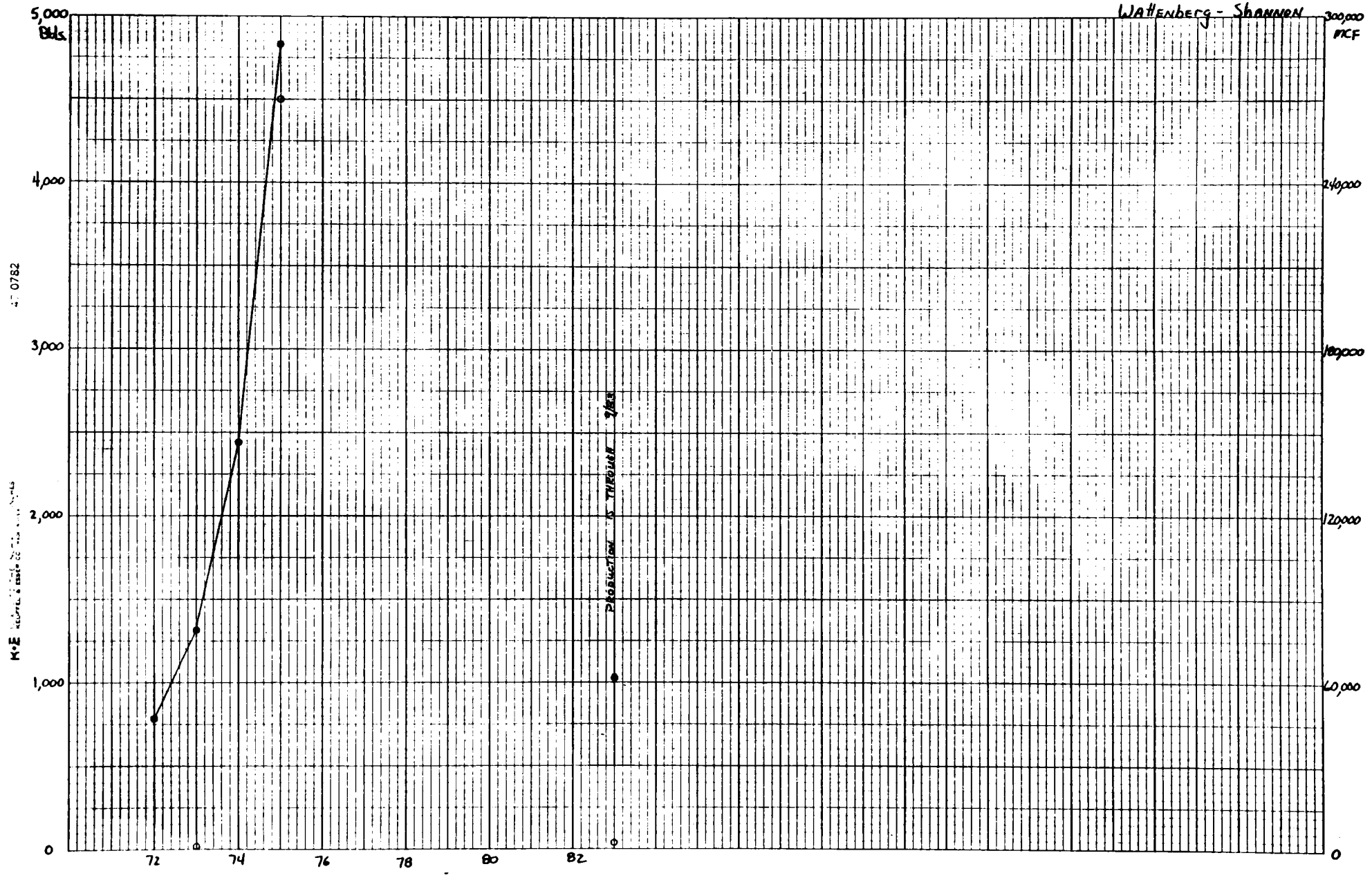

WATTENBERG - Code 11
250,000 Bbls.
200,000
150,000
100,000
50,000
0
1.5 MILLION MCF
1.2
0.9
0.6
0.3
ADAMS COUNTY PRODUCTION
BOULDER COUNTY PRODUCTION
WELD COUNTY PRODUCTION
PRODUCTION IS THROUGH 9/82
74
76
78
80
82
47 0782
K·E 10 X 10 TO THE INCH 10 X 15 INCHES

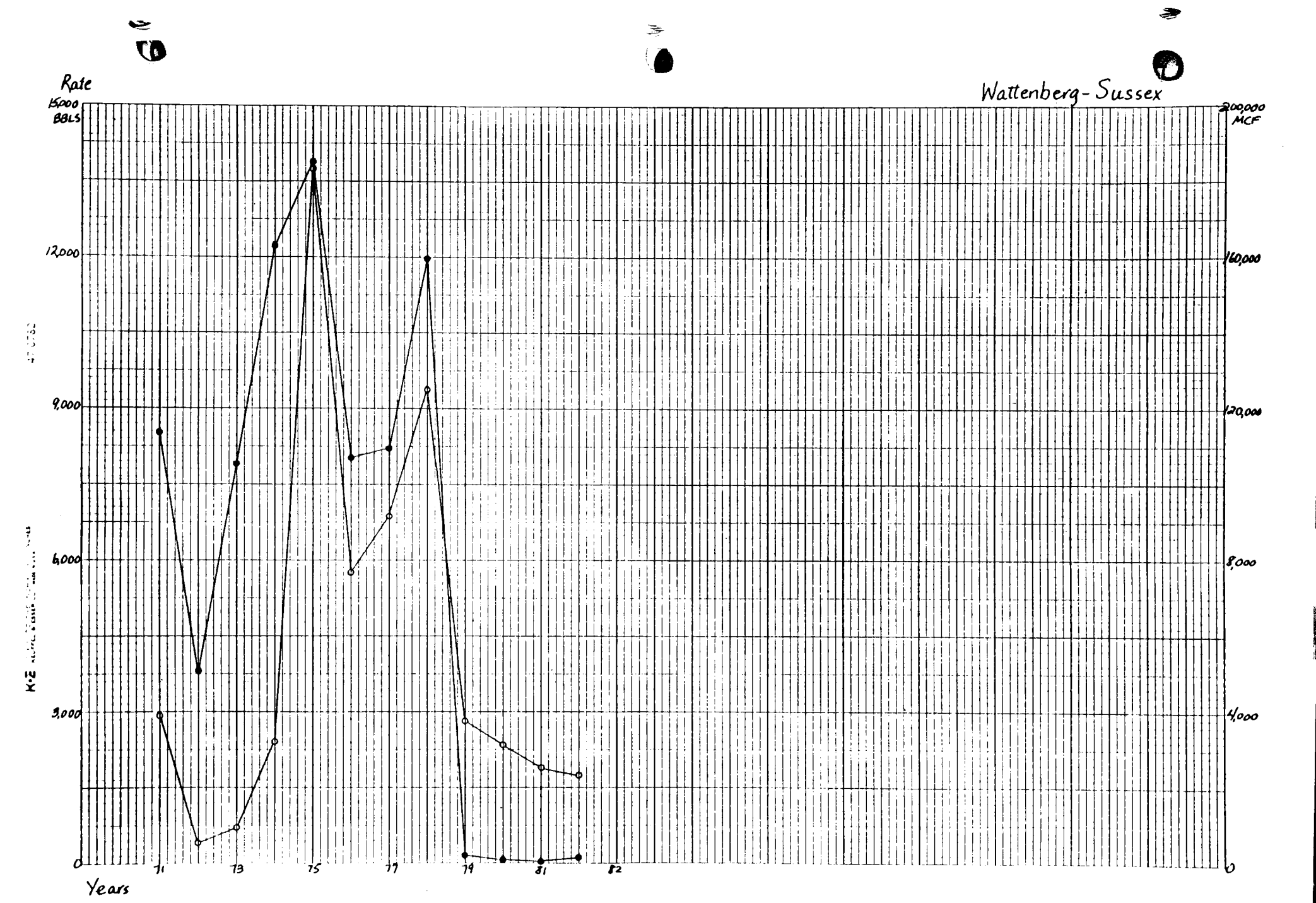

Rate
300,000 BBLS
240,000
180,000
120,000
60,000
0
Wattenberg - 3
35,000,000 MCF
28,000,000
21,000,000
14,000,000
7,000,000
0
12
14
76
78
80
82
Years

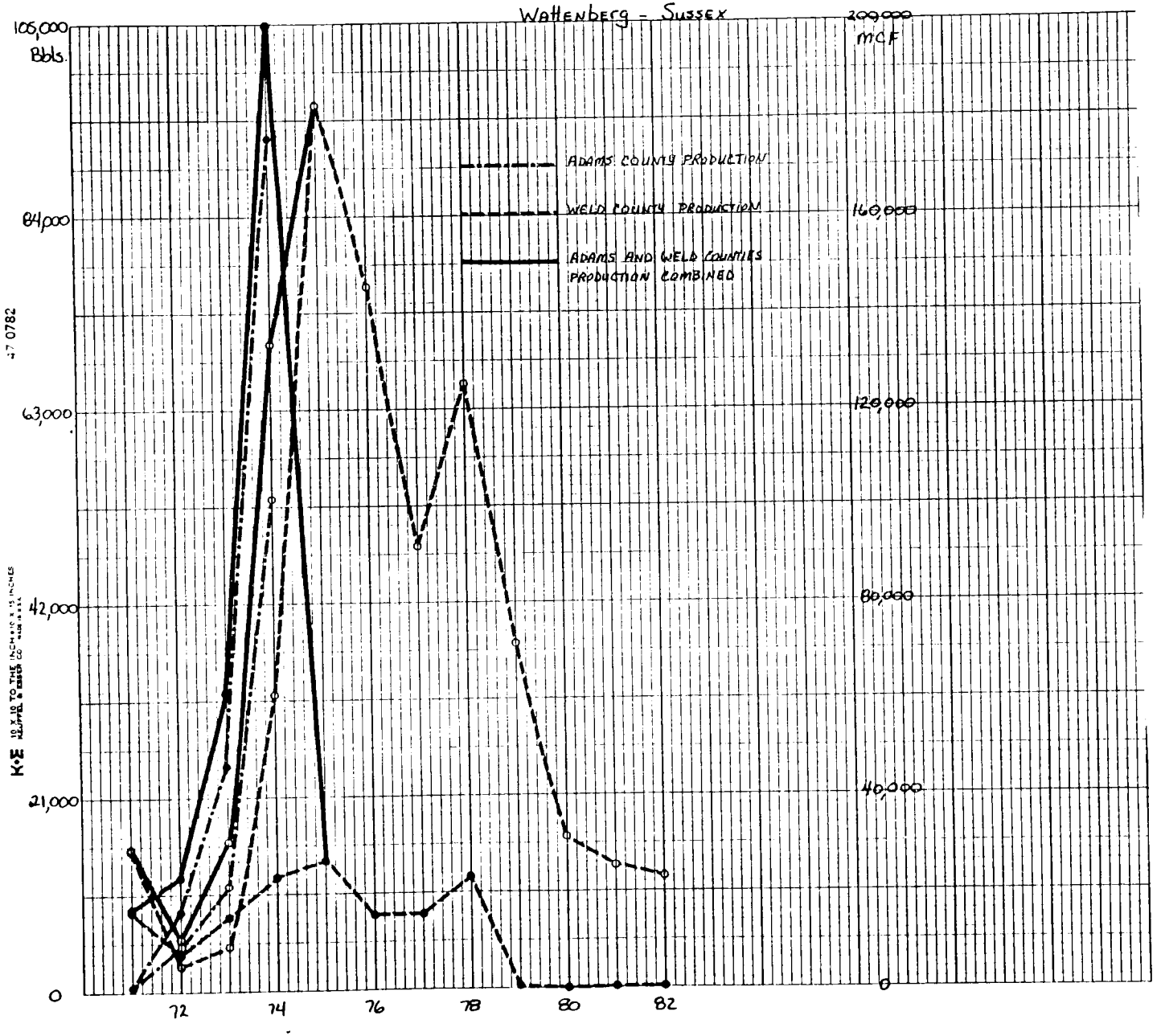

WATTENBERG - J
400,000 Bbls.
320,000
240,000
160,000
80,000
0
40.0 MILLION MCF
32.0
24.0
16.0
8.0
0
ADAMS COUNTY PRODUCTION
BOULDER COUNTY PRODUCTION
WELD COUNTY PRODUCTION
ADAMS BOULDER AND WELD COUNTIES PRODUCTION COMBINED
47 0782
K+E
70
72
74
76
78
80
82
YEARS

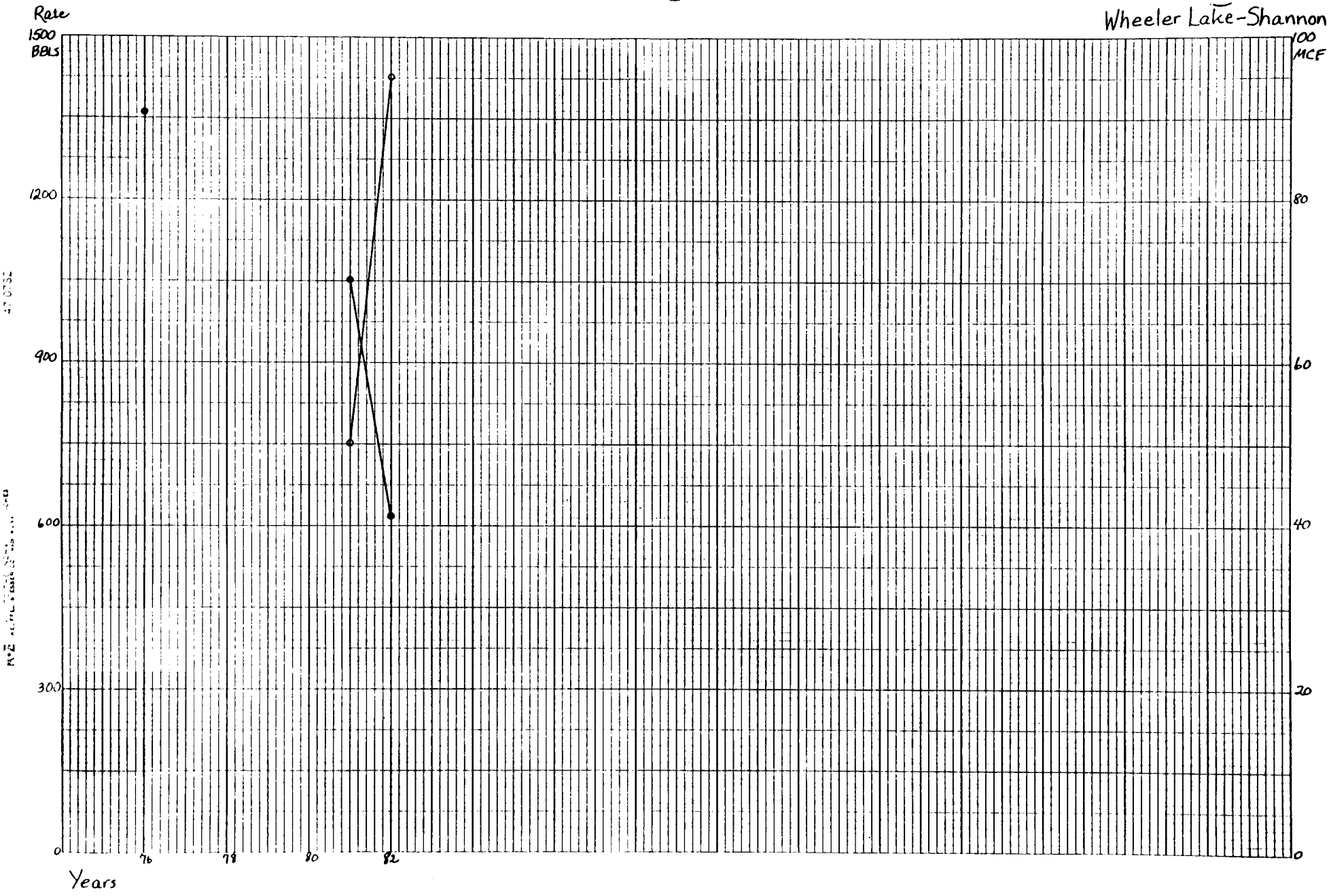

Rate
1,000
BBLS
800
600
400
200
0
76
78
80
82
Wattenberg - Niobrara
20000
MCF
16,000
12,000
8,000
4,000
0

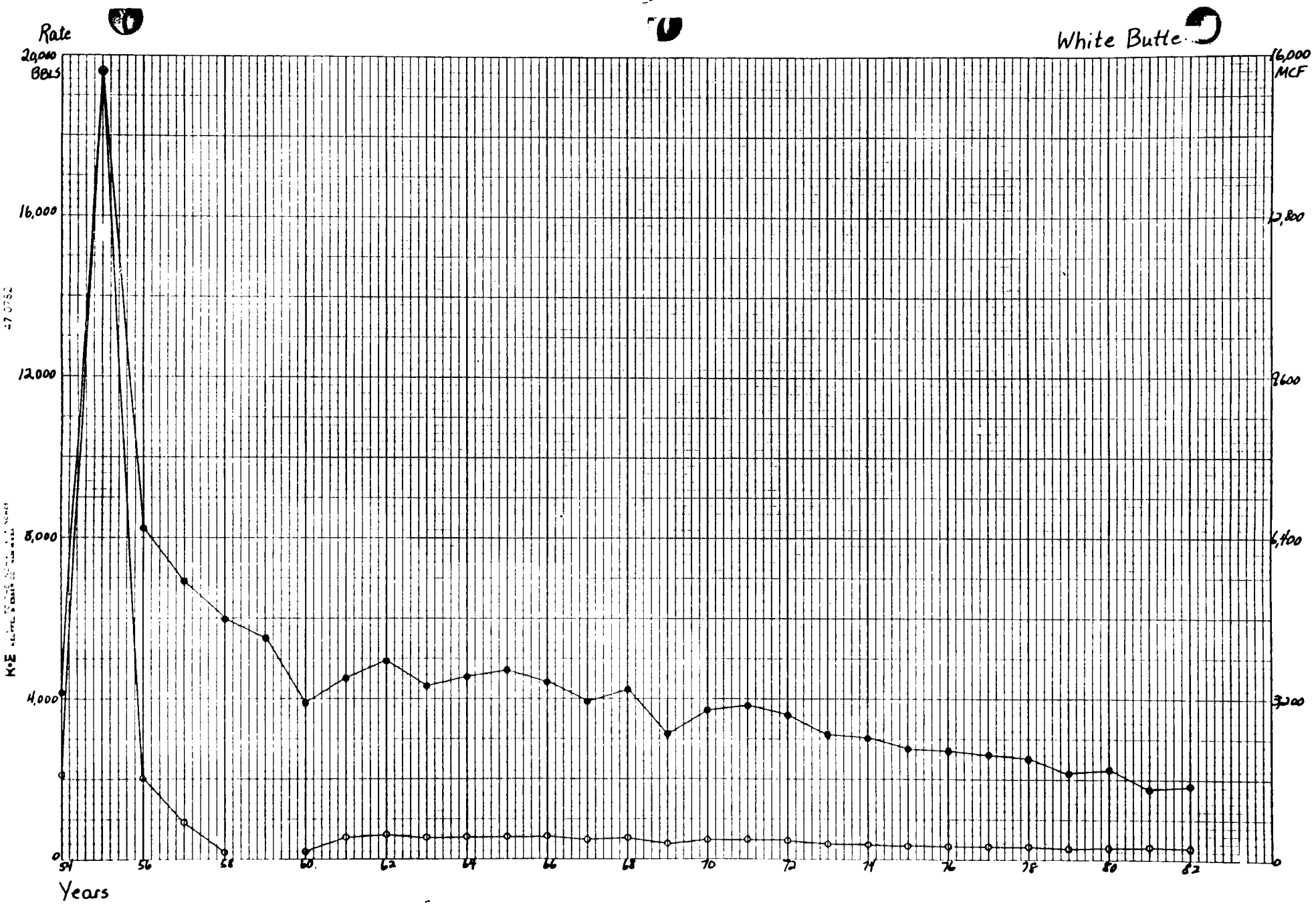

Wattenberg - Niobrara
5,000 Bbls
4,000
3,000
2,000
1000
0
40,000 MCF
32,000
24,000
16,000
8,000
0
76
78
80
82
NOTE: 1983 PRODUCTION DISPLAYED HERE IS THROUGH SEPTEMBER 1983. ADAMS COUNTY NIOBRARA PRODUCTION BEGAN IN 1983.
FIELD COUNTY PRODUCTION
ADAMS COUNTY PRODUCTION
PRODUCTION IS THROUGH 9/83

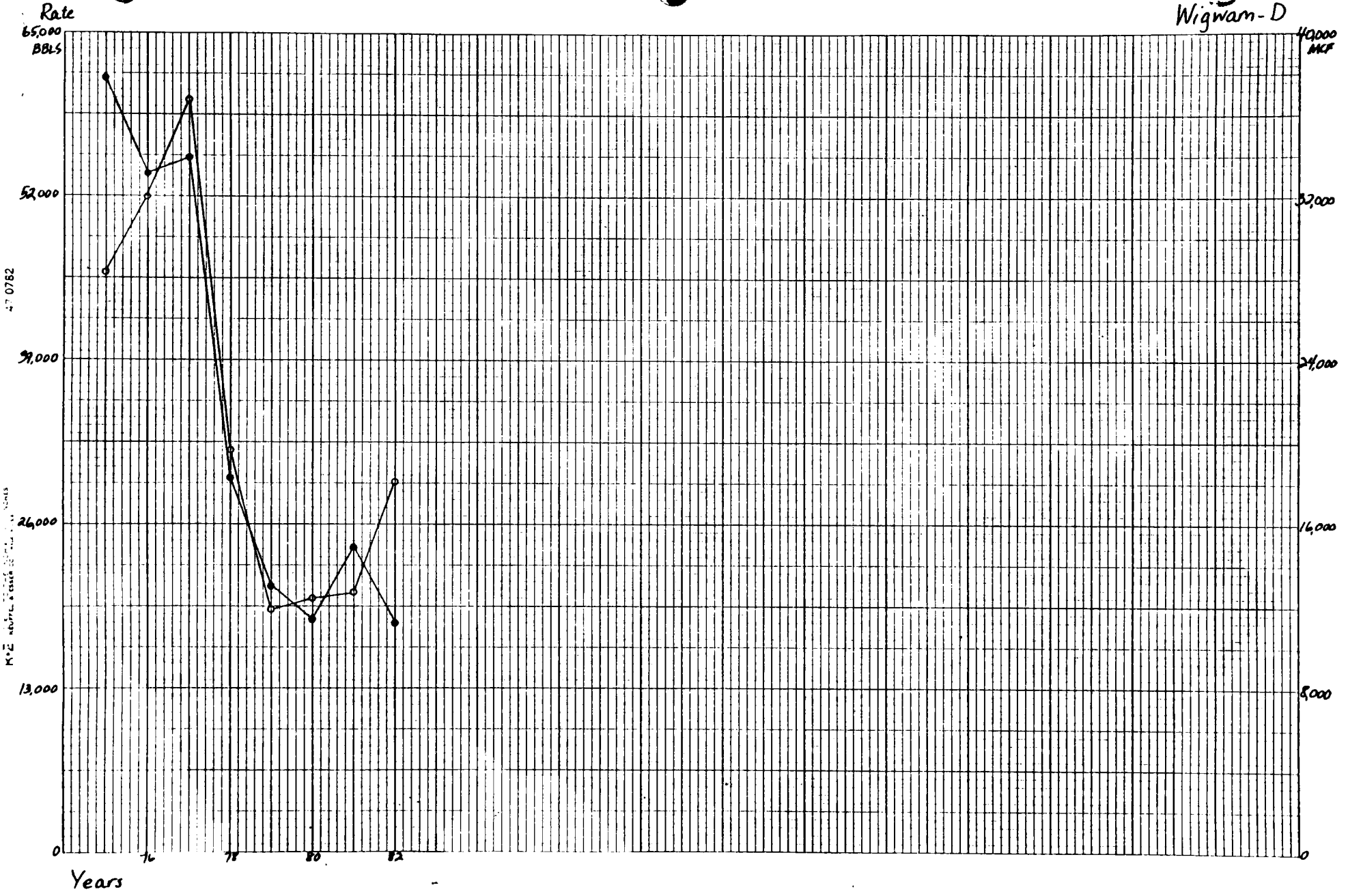

WATTENBERG - SHANNON
5,000 Bbls.
4,000
3,000
2,000
1,000
0
300,000 MCF
240,000
180,000
120,000
60,000
0
72
74
76
78
80
82
PRODUCTION IS THROUGH 9/82
K·E 47 0782

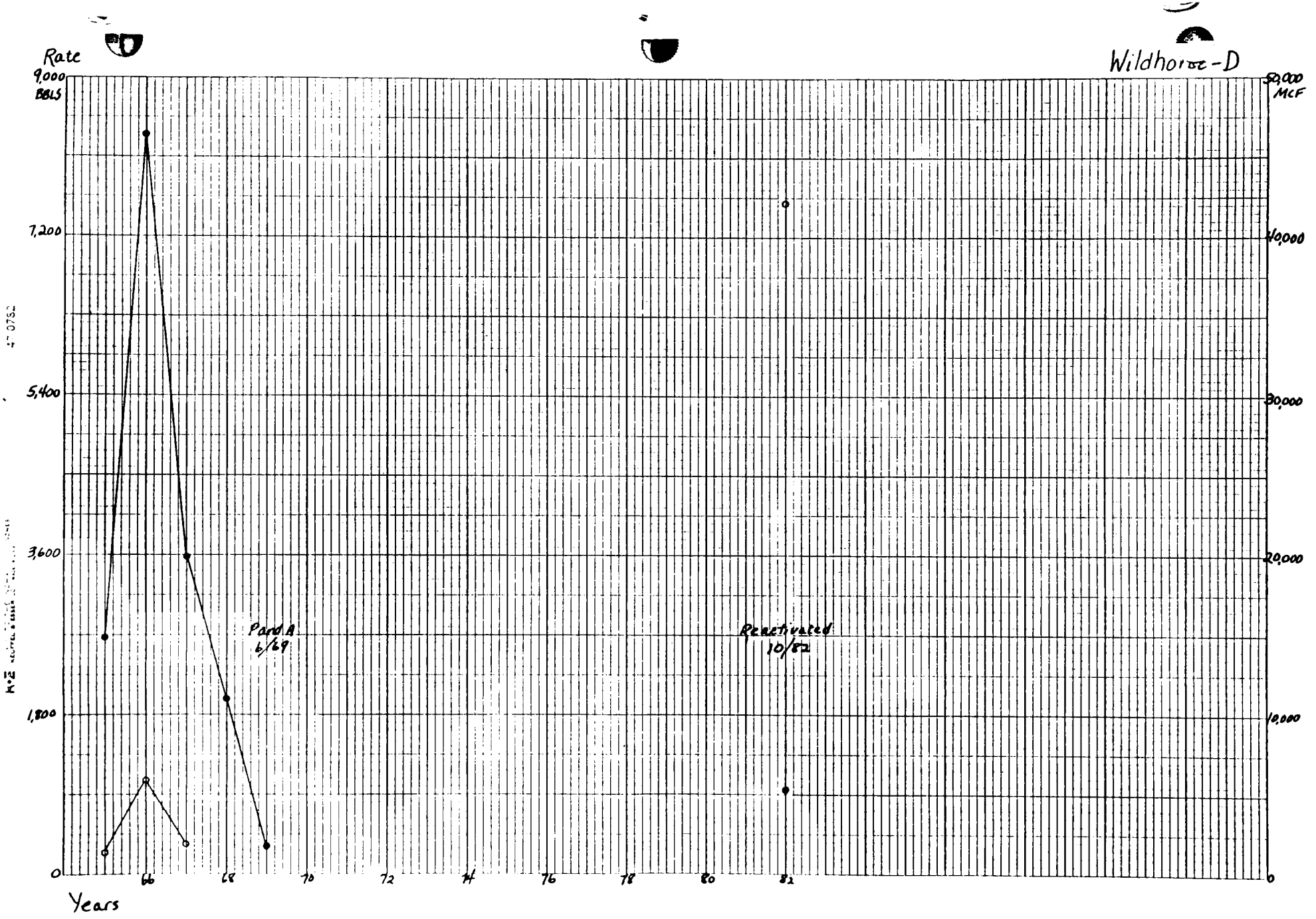

Rate
15000 BBLS
12,000
9,000
6,000
3,000
0
200,000 MCF
160,000
120,000
80,000
40,000
0
71
73
75
77
79
81
82
Years
Wattenberg-Sussex

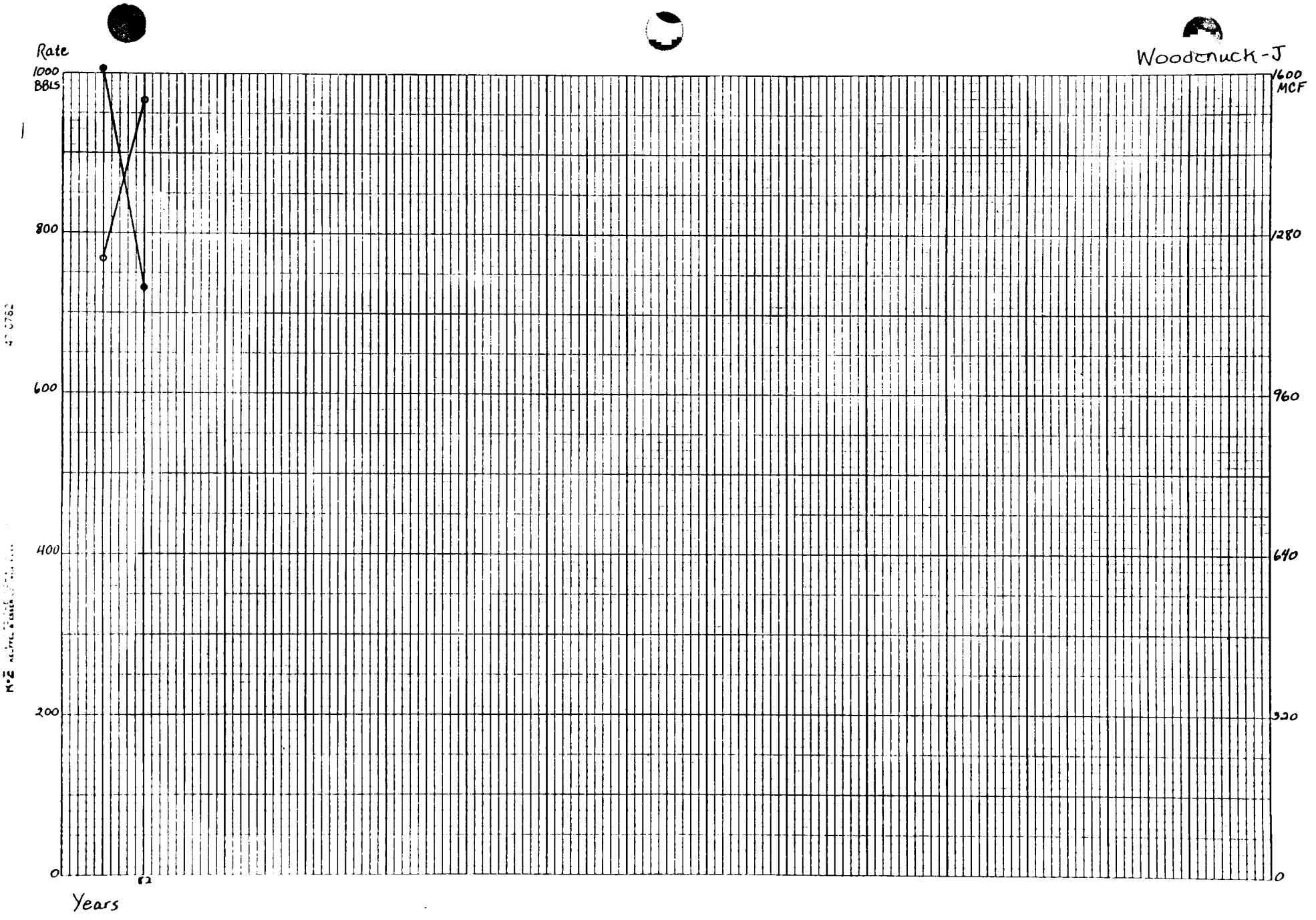

Wattenberg - Sussex
105,000
Bbls.
84,000
63,000
42,000
21,000
0
200,000
MCF
160,000
120,000
80,000
40,000
0
ADAMS COUNTY PRODUCTION
WELD COUNTY PRODUCTION
ADAMS AND WELD COUNTIES
PRODUCTION COMBINED
72
74
76
78
80
82
K·E 10 X 10 TO THE INCH 5 X 15 INCHES


Rate
1500
BBLS
1200
900
600
300
0
100
MCF
80
60
40
20
0
76
78
80
82
Years
Wheeler Lake-Shannon


Rate
White Butte
20,000 BBLS
16,000
12,000
8,000
4,000
0
16,000 MCF
12,800
9600
6,400
3200
0
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
Years


Rate
Wigwam-D
65,000 BBLS
52,000
39,000
26,000
13,000
0
40,000 MCF
32,000
24,000
16,000
8,000
0
76
78
80
82
Years


Rate
Wildhorse-D
9,000
BBLS
7,200
5,400
3,600
1,800
0
50,000
MCF
40,000
30,000
20,000
10,000
0
Pand A
6/69
Reactivated
10/82
66
68
70
72
74
76
78
80
82
Years


Rate
1000 BBLS
800
600
400
200
0
Years
Woodchuck-J
1600 MCF
1280
960
640
320
0

Other Publications

INFORMATION SERIES 18--Oil and Gas Fields of Colorado: Statistical Data through 1981.
MAP SERIES 22--Oil and Gas Field: 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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