

TECHNICAL REPORT

PART I

UNIT AREA, VERTICAL INTERVAL TO BE UNITIZED,  
AND UNITIZATION PARAMETERS BY TRACT

FOR

THE PROPOSED

BLINEBRY-DRINKARD UNIT

LEA COUNTY, NEW MEXICO

DECEMBER 1985

Northeast Drinkard Unit  
Exhibit Twenty-One  
Cases 9230  
9231  
9232 ✓

TECHNICAL REPORT

PART I

UNIT AREA, VERTICAL INTERVAL TO BE UNITIZED,  
AND UNITIZATION PARAMETERS BY TRACT  
FOR  
THE PROPOSED  
BLINEBRY-DRINKARD UNIT  
LEA COUNTY, NEW MEXICO  
DECEMBER 1985

## TABLE OF CONTENTS

	<u>Page</u>
List of Tables	ii
List of Figures	iii
I. Introduction	1
II. Recommendations	2
III. Proposed Unitized Area	4
IV. Proposed Unitized Interval	12
V. Unitization Parameters	15
VI. Appendixes; Production Curves	
A. Appendix A - Oil Production Curves	
B. Appendix B - Gas Production Curves	

LIST OF TABLES

<u>Table No.</u>	<u>Description</u>	<u>Page</u>
1	Tract Descriptions	6
2	Oil Parameter Values	19
3	Gas Parameter Values	20

LIST OF FIGURES

<u>Figure No.</u>	<u>Description</u>	<u>Page</u>
1	Tract Reference Map	8
2	Extent of Blinebry Production	9
3	Extent of Tubb Production	10
4	Extent of Drinkard Production	11
5	Type Log	14

SECTION I.

INTRODUCTION

Formal unitization efforts were initiated in October 1984 to form the proposed Blinebry-Drinkard Unit for the purpose of implementing a waterflood program in the Drinkard Field, T21S, R37E, Lea County, New Mexico. The first three items included in the Working Interest Owner's "charge" to the Technical Committee were: 1) to define the optimum unit area, 2) to determine the optimum vertical interval to be unitized, and 3) to develop specified unitization parameters by tract to be used in the determination of a unit participation formula. This report documents the Technical Committee's recommendations for the above three items. The second part of the "charge" which consists of the detailed waterflood plan and economics will be documented in a subsequent report.

SECTION II.  
RECOMMENDATIONS

The Technical Committee recommends that the 5200 acre area located in T21S, R37E, Lea County, New Mexico, including all of Sections 2, 3, 10, 15, 22, and 23, and portions of Sections 4, 11, 14, and 24 be unitized for the purpose of implementing a waterflood program. This area consists of thirty-one leases or tracts. Section III of this report further discusses pertinent items concerning the hydrocarbon production within this area, and provides descriptions of the leases or tracts within the unit boundary.

The recommended vertical interval to be unitized should extend from 75 feet above the stratigraphic Blinebry marker to the top of the Abo. The subsurface pools located within the proposed unitized interval are those commonly known as the Blinebry Oil and Gas Pool, the Tubb Oil and Gas Pool, and the Drinkard Pool. The interval is more specifically defined in Section IV.

The Technical Committee further recommends that combined oil and combined gas production from these commingled pools described above be used as the basis for the unitization parameters. The individual tract parameters requested by the Working Interest Owners have been developed and are

included in Section V. One additional unitization parameter not requested by Working Interest Owners, but recommended by the Technical Committee to be included in the parameter tables is tract surface acreage, which is also described in Section V.

### SECTION III.

#### PROPOSED UNITIZED AREA

The proposed Blinebry-Drinkard waterflood unit encompasses 5200 acres in T21S, R37E, Lea County, New Mexico, including all of Sections 2, 3, 10, 15, 22, and 23 and portions of Sections 4, 11, 14, and 24. The proposed unit consists of thirty-one separate tracts, as illustrated on Figure 1. Table 1 summarizes the tract descriptions and operators. The area included is bordered in part to the east by the proposed Conoco operated East Blinebry Unit, to the southwest by the Chevron (formerly Gulf) operated Central Drinkard Unit and to the west by the proposed Sun operated North Drinkard Unit. These offsetting, existing or proposed units are shown on Figures 2, 3, and 4.

The proposed unit includes developed acreage producing mainly from both the Blinebry and Drinkard. Many tracts also have oil and/or gas production from the Tubb. All of the acreage has at least one drainage point per forty acres. Both Blinebry and Drinkard production extend over the majority of the proposed Blinebry-Drinkard Unit area. Blinebry production is found over the entire unit and Drinkard production is found over ninety percent of the proposed unit area. The extent of Blinebry, Tubb, and Drinkard production is illustrated on Figures 2, 3, and 4, respectively. In contrast to the proposed unit, only Drinkard

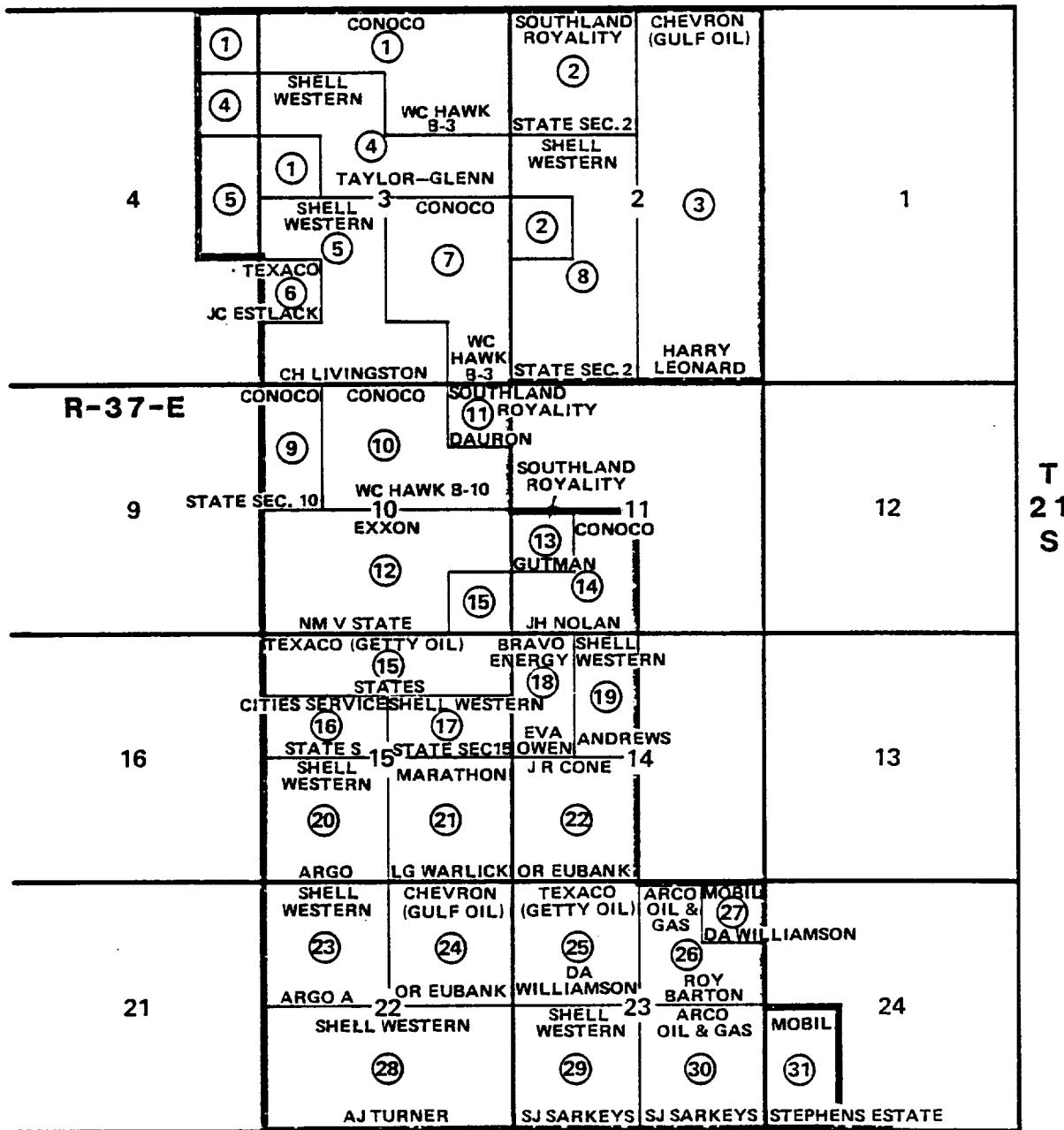
production extends over the entire Central Drinkard Unit (Chevron) area, and mainly Blinebry production extends over the proposed East Blinebry Unit (Conoco) area.

With all three zones extending over the proposed unit area, as described above, there would not be a sufficient number of existing wellbores to form three separate units and flood each zone independently.

TABLE 1  
PROPOSED  
BLINEBRY-DRINKARD UNIT  
LEA COUNTY, NEW MEXICO  
TRACT DESCRIPTIONS

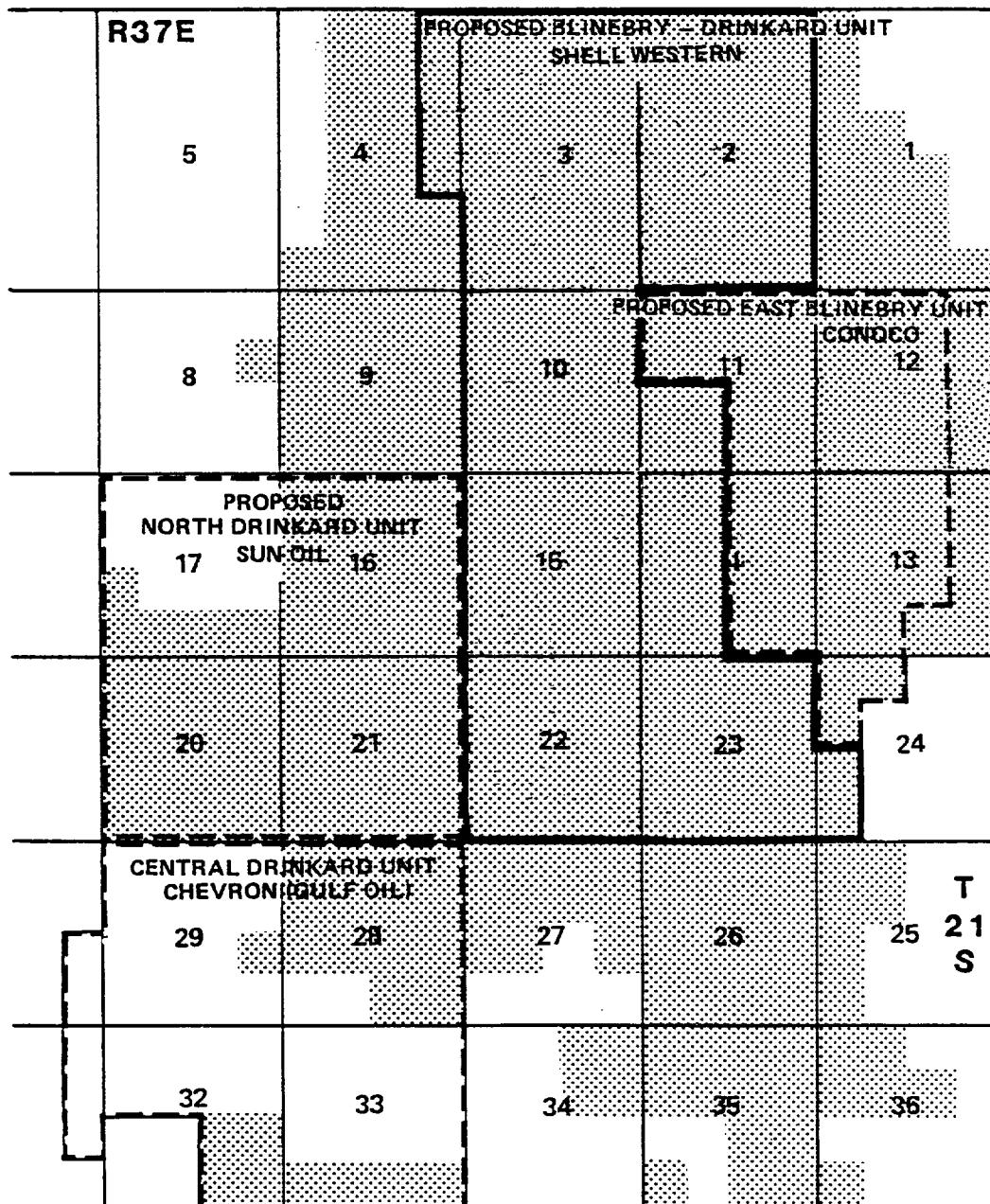
<u>TRACT NO.</u>	<u>LEASE NAME</u>	<u>DESCRIPTION</u>	<u>OPERATOR</u>
1	W. C. Hawk B-3	Lots 1,2,3,4,7,8,12 Sec. 3 & Lot 1 Sec. 4, T21S, R37E	Conoco, Inc.
2	State Sec. 2	Lots 3,4,5,6,13 Sec. 2 T21S, R37E	Southland Royalty
3	Harry Leonard	Lots 1,2,7,8,9,10,15,16, SE/4 Sec. 2, T21S, R37E	Chevron USA, Inc. (Gulf Oil Corp.)
4	Taylor-Glenn	Lots 5,6,9,10,11 Sec. 3 & Lot 8 Sec. 4, T21S, R37E	Shell Western E&P Inc.
5	C. H. Livingston	Lots 9,16 Sec. 4 & Lots 13,14, SW/4 SE/4, NE/4 SW/4	Shell Western E&P Inc.
6	J. C. Estlack	S/2 SW/4 Sec. 3, T21S, R37E	Texaco, Inc.
7	W. C. Hawk B-3	NW/4 SW/4 Sec. 3, T21S, R37E	Conoco, Inc.
8	State Sec. 2	Lots 15,16, N/2 SE/4, SE/4 SE/4 Sec. 3, T21S, R37E	Shell Western E&P Inc.
9	State Sec. 10	Lots 11,12,14, SW/4 Sec. 2 T21S, R37E	Conoco, Inc.
10	W. C. Hawk B-10	W/2 NW/4 Sec. 10, T21S, R37E	Conoco, Inc.
11	Dauron	E/2 NW/4, W/2 NE/4, SE/4 NE/4 Sec. 10, T21S, R37E	Southland Royalty
12	NM V State	NE/4 NE/4 Sec. 10, T21S, R37E	Exxon Co., USA
13	Gutman	SW/4, W/2 SE/4, NE/4 SE/4 Sec. 10, T21S, R37E	Southland Royalty
14	J. H. Nolan	NW/4 SW/4 Sec. 11, T21S, R37E	Conoco, Inc.
15	State S	NE/4 SW/4 & S/2 SW/4 Sec. 11, T21S, R37E	Texaco, Inc. (Getty Oil)
16	State S	SE/4 SE/4 Sec. 10 & N/2 N/2 Sec. 15, T21S, R37E	Cities Service
17	State Sec. 15	S/2 NW/4 Sec. 15, T21S, R37E	Shell Western E&P Inc.
18	Eva Owen	S/2 NE/4 Sec. 15, T21S, R37E	Bravo Energy
19	Andrews	W/2 NW/4 Sec. 14, T21S, R37E	Shell Western E&P Inc.
20	Argo	E/2 NW/4 Sec. 14, T21S, R37E	Marathon
21	L. G. Warlick	SW/4 Sec. 15, T21S, R37E	J. R. Cone
22	O. R. Eubank	SE/4 Sec. 15, T21S, R37E	Shell Western E&P Inc.
23	Argo A	NW/4 Sec. 22, T21S, R37E	Chevron USA, Inc. (Gulf Oil Corp.)
24	O. R. Eubank	NE/4 Sec. 22, T21S, R37E	Texaco, Inc. (Getty Oil)
25	D. A. Williamson	NW/4 Sec. 23, T21S, R37E	

<u>TRACT NO.</u>	<u>LEASE NAME</u>	<u>DESCRIPTION</u>	<u>OPERATOR</u>
26	Roy Barton	W/2 NE/4 & SE/4 NE/4 Sec. 23, T21S, R37E	Arco Oil & Gas Co.
27	D. A. Williamson	NE/4 NE/4 Sec. 23, T21S, R37E	Mobil Prod. TX & NM
28	A. J. Turner	S/2 Sec. 22, T21S, R37E	Shell Western E&P Inc.
29	S. J. Sarkeys	SW/4 Sec. 23, T21S, R37E	Shell Western E&P Inc.
30	S. J. Sarkeys	SE/4 Sec. 23, T21S, R37E	Arco Oil & Gas Co.
31	Stephens Estate	W/2 SW/4 Sec. 24, T21S, R37E	Mobil Prod. TX & NM



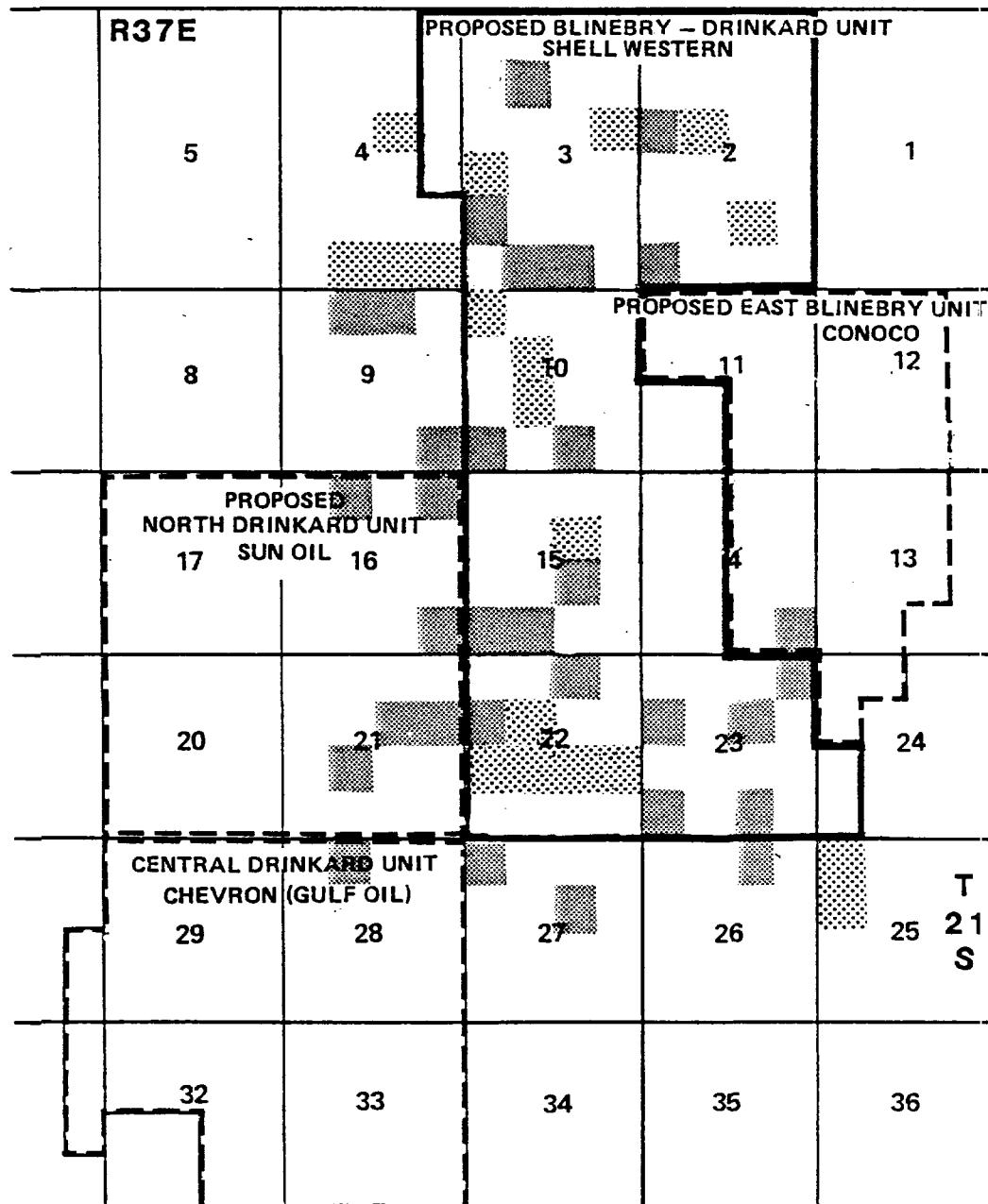
PROPOSED BLINDBRY - DRINKARD UNIT  
LEA COUNTY, NEW MEXICO  
TRACT MAP SHOWING OPERATORS  
WITHIN PROPOSED UNIT BOUNDARIES

FIGURE 1



PROPOSED BLINEBRY - DRINKARD UNIT  
LEA COUNTY, NEW MEXICO  
EXISTING AND PROPOSED  
UNIT LOCATIONS  
FIGURE 2

■ EXTENT OF BLINEBRY  
PRODUCTION



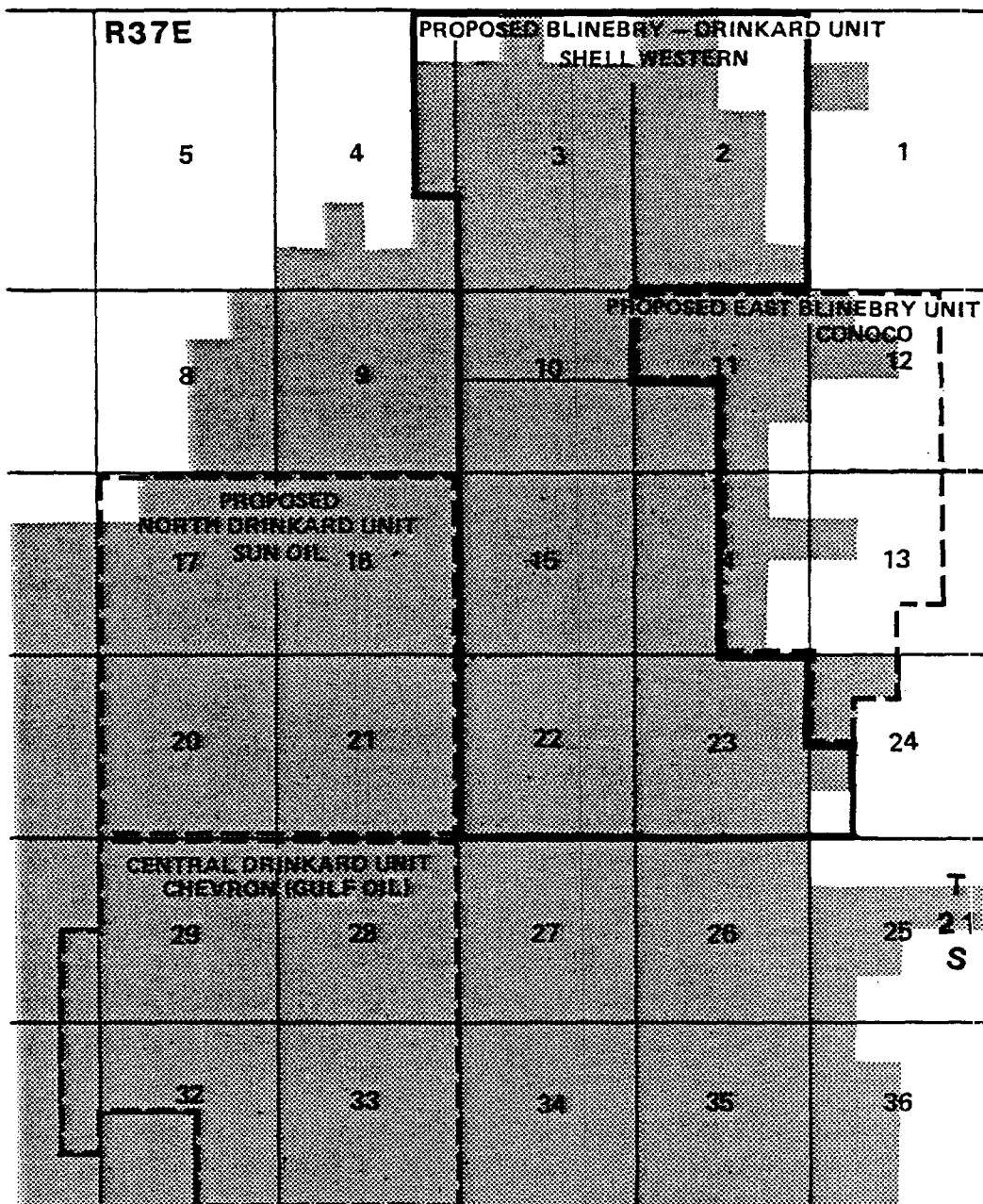
PROPOSED BLINBRY - DRINKARD UNIT  
LEA COUNTY, NEW MEXICO  
EXISTING AND PROPOSED  
UNIT LOCATIONS

FIGURE 3

TUBB GAS

TUBB OIL

2VMC001538



PROPOSED BLINEBRY - DRINKARD UNIT  
LEA COUNTY, NEW MEXICO  
EXISTING AND PROPOSED  
UNIT LOCATIONS  
FIGURE 4



EXTENT OF DRINKARD  
PRODUCTION

ZVMC001538

SECTION IV.

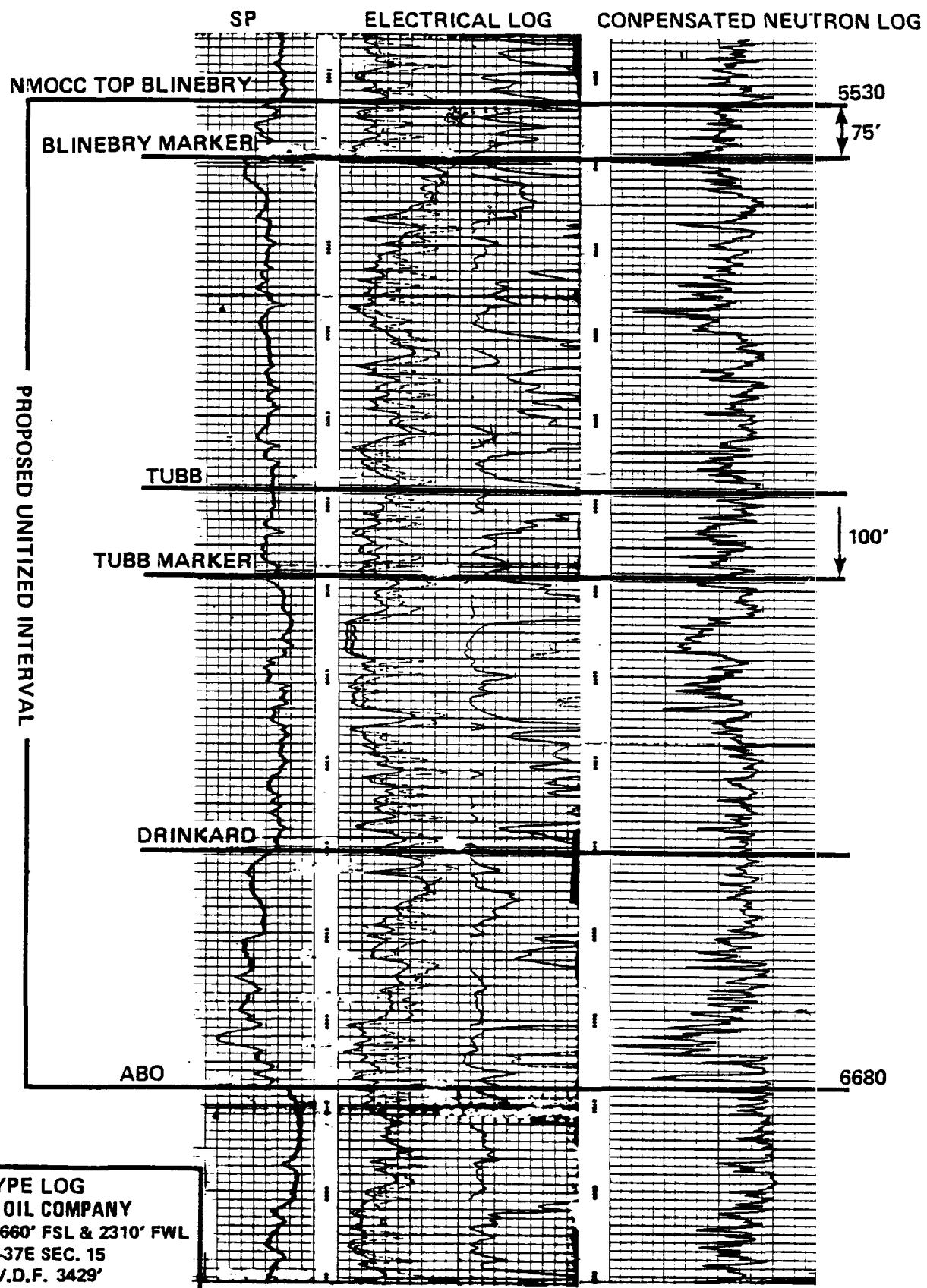
PROPOSED UNITIZED INTERVAL

The vertical interval to be unitized in the proposed Blinebry-Drinkard waterflood unit extends from 75' above the stratigraphic Blinebry marker to the top of the Abo. The Blinebry marker has been defined by the New Mexico Oil Conservation Commission (NMOCC) at 5438 feet below the surface in Exxon State S #20, located in Section 2-T22N-R37E, Lea County, New Mexico. The proposed unitized interval is that interval correlative to that shown on the type log (Figure 5), from Shell Argo #8 located at 660' FSL and 2310' FWL, Section 15-T21S-R37E, from a depth of 5530 to 6680 feet below the surface.

This proposed unitized interval correlates to the top of the unitized interval of the proposed East Blinebry Unit and to the base of the unitized interval in the Central Drinkard Unit.

The inclusion of the Blinebry, Tubb, and Drinkard in a single unit is without precedent in New Mexico. It is felt, however, that there are economic advantages to forming a single unit encompassing the three zones. The most significant is the efficient utilization of existing wellbores which will result in an economic waterflood and maximize production from formations above and below the unit as well as those within it. Most likely, significant secondary reserves would not be developed unless a combined waterflood unit is implemented.

The Blinebry and Drinkard are stratigraphically equivalent to the Upper and Lower Clearfork respectively in West Texas. A long history of successful West Texas Clearfork waterfloods further support the viability of the combined unitized interval.



SECTION V.  
UNITIZATION PARAMETERS

The individual tract parameter values developed by the Technical Committee, with the exception of tract surface acreage, are based on the combined oil and combined gas production from the subsurface pools commonly known as the Blinebry Oil and Gas Pool, the Tubb Oil and Gas Pool, and the Drinkard Pool. The specific parameters, requested in the Working Interest Owner's "charge", and recommended by the Technical Committee to be included in the parameter tables, are as follows:

- o Cumulative oil and gas production, by tract, from discovery to as recent as data are available.
- o Remaining primary oil and gas reserves, by tract, from the cutoff date established above to economic depletion.
- o Ultimate primary oil and gas production using appropriate combinations of the two items above.
- o "Current" oil and gas production, by tract, over an appropriate recent period.

An additional parameter, not requested in the Working Interest Owner's "charge", but recommended by the Technical Committee to be included in the parameter tables is as follows:

- o Surface acreage, by tract.

The Technical Committee recommends that combined interval production be used to generate the production parameter values because past zonal allocation has been based on well tests taken many years ago prior to commingling. This long history of commingled production within the proposed unitized interval has involved all combinations; Blinebry and Tubb, Tubb and Drinkard, Blinebry and Drinkard. Due to the changing producing characteristics of the individual zones, the reported zonal production is not precise, whereas, on a total interval basis the produced volumes are accurate. The combined zone production approach ensures that an accurate estimate of each tract's ultimate recovery is determined as well as the strongly dependent prediction of secondary oil potential.

It is recommended that Dwight's Energydata, Inc. be the official source for the historical oil and gas production data. The following discusses the basis of each parameter included in the parameter tables.

#### Recommended Parameter Criteria

- o Cumulative oil and gas production was generated through May 31, 1985 with production data retrieved from Dwight's Energydata, Inc. May 1985 was the most recent date that data were available. All Blinebry, Tubb, and Drinkard production within each tract was retrieved for all current and past producing wells.

- o Remaining primary oil and gas reserves were both calculated using decline curve analysis. Separate oil and gas production rate versus time curves were generated for each tract utilizing the data retrieved from Dwight's. Because of common widespread rate fluctuations, initial oil and gas rate values for the calculation of remaining primary recoveries were determined by taking the arithmetic average of the most recent three months of oil production available for the initial oil rate, and the most recent twelve months of gas production available for the initial gas rate. The oil and gas economic limits were selected to be 30 BOPM/well and 500 MCFPM/well, respectively. Individual tract economic limits were calculated based on the number of active producers. Tubb producers classified as gas wells in May 1985 by the NMOCC were included only in the gas economic limit calculations. The decline factor was determined by performing a least squares fit through actual production data within a selected representative time interval. Occassional sporadic data points were eliminated, and the two adjacent rate values were averaged to improve the least squares fit for the decline factor calculation. The oil and gas production curves are included in Appendixes A and B, respectively.
- o Ultimate primary oil and gas production are the sum of the appropriate combinations of the two items described above (cumulative production plus remaining primary reserves).

- o "Current" oil and gas production was selected to be the oil and gas volumes produced within the twelve month period from June 1, 1984 through May 31, 1985. Again, the production data used to determine "current" oil and gas production was retrieved from Dwight's Energydata, Inc.
- o Surface acreage is the area within each tract, measured in acres.

The oil and gas tract parameter values developed are shown in Tables 2 and 3, respectively.

TABLE 2

**PROPOSED  
BLINNERY-DRINKARD UNIT  
UNITIZATION PARAMETERS**

TRACT NUMBER	LEASE	OPERATOR	OIL VALUES		CUMULATIVE OIL PRODUCTION THRU MAY 31, 1985 (STB)	REMAINING PRIMARY OIL RESERVES AFTER MAY 31, 1985 (STB)	ULTIMATE PRIMARY OIL RECOVERY (STB)	CURRENT OIL PRODUCTION, JUNE 1, 1984 - MAY 31, 1985 (STB)
			SURFACE AREA (ACRES)	TRACT				
1 W.C. HAWK B-5	CONOCO INC.		320	888,281	76,233	964,514	10,992	
2 STATE SEC. 2	SOUTH LAND ROYALTY		200	90,424	91,357	991,781	13,190	
3 HARRY LEONARD	CHEVRON USA, INC. (GULF OIL CORP.)		480	1,609,060	106,904	1,715,964	12,260	
4 TAYLOR-GLENN	SHELL WESTERN E&P INC.		240	1,181,698	119,952	1,301,650	17,998	
5 C.H. LIVINGSTON	SHELL WESTERN E&P INC.		320	2,160,104	162,300	2,322,404	20,192	
6 J.C. ESTBLACK	TEXACO, INC.		40	45,929	4,165	50,094	887	
7 W.C. HAWK B-3	CONOCO INC.		200	1,216,197	113,140	1,329,337	13,801	
8 STATE SEC. 2	SHELL WESTERN E&P INC.		280	1,613,855	91,377	1,905,232	15,286	
9 STATE SEC. 10	CONOCO, INC.		80	654,543	130,311	784,854	10,353	
10 W.C. HAWK B-10	CONOCO, INC.		200	1,041,130	92,129	1,133,259	13,385	
11 DAURON	SOUTH LAND ROYALTY		40	160,634	12,114	172,948	2,017	
12 NM V STATE	EXXON CO., USA		260	1,274,727	71,005	1,345,732	4,984	
13 GUTMAN	SOUTH LAND ROYALTY		40	179,495	43,240	222,735	3,469	
14 J.H. NOLAN	CONOCO, INC.		120	692,520	70,618	763,138	8,230	
15 STATE S	TEXACO, INC. (GETTY OIL)		200	1,024,988	95,518	1,120,506	10,332	
16 STATE S	CITIES SERVICE		80	976,007	27,240	603,247	4,482	
17 STATE SEC. 15	SHELL WESTERN E&P INC.		80	619,510	50,612	670,122	5,516	
18 D BRAVO ENERGY	BRAVO ENERGY		60	797,524	77,022	874,546	8,740	
19 ANDREWS	SHELL WESTERN E&P INC.			49,654	0	49,654	0	
20 ARGU	SHELL WESTERN E&P INC.		80	464,556	48,474	513,030	4,459	
21 L.G. MARLICK	MARATHON		160	1,598,256	91,608	1,679,864	16,525	
22 O.R. EUBANK	J.R. CONE		160	748,844	26,009	774,853	5,071	
23 ARGO A	SHELL WESTERN E&P INC.		160	1,356,610	252,926	1,509,536	20,129	
24 O.R. EUBANK	CHEVRON, USA, INC. (GULF OIL CORP.)		160	1,225,608	89,267	1,314,875	13,940	
25 D.A. WILLIAMSON	TEXACO, INC. (GETTY OIL)		160	810,852	4,900	815,752	2,761	
26 ROY BARTON	ARCO OIL & GAS CO.		120	667,249	51,622	718,871	7,194	
27 D.A. WILLIAMSON	MOBIL PROD. TX & NM		40	475,400	97,104	572,504	7,236	
28 A.J. TURNER	SHELL WESTERN E&P INC.		320	1,730,263	1,730,263	96,492	673	
29 S.J. SARKEYS	SHELL WESTERN E&P INC.		160	1,222,101	1,222,101	1,830,161	13,933	
30 S.J. SARKEYS	ARCO OIL & GAS CO.		160	821,529	80,860	1,334,499	12,983	
31 STEPHENS ESTATE	MOBIL PROD. TX & NM		40	145,700	0	902,398	11,433	
			5,200	28,133,652	5,200	145,700	79	
				2,396,600	5,200	30,530,252	292,470	

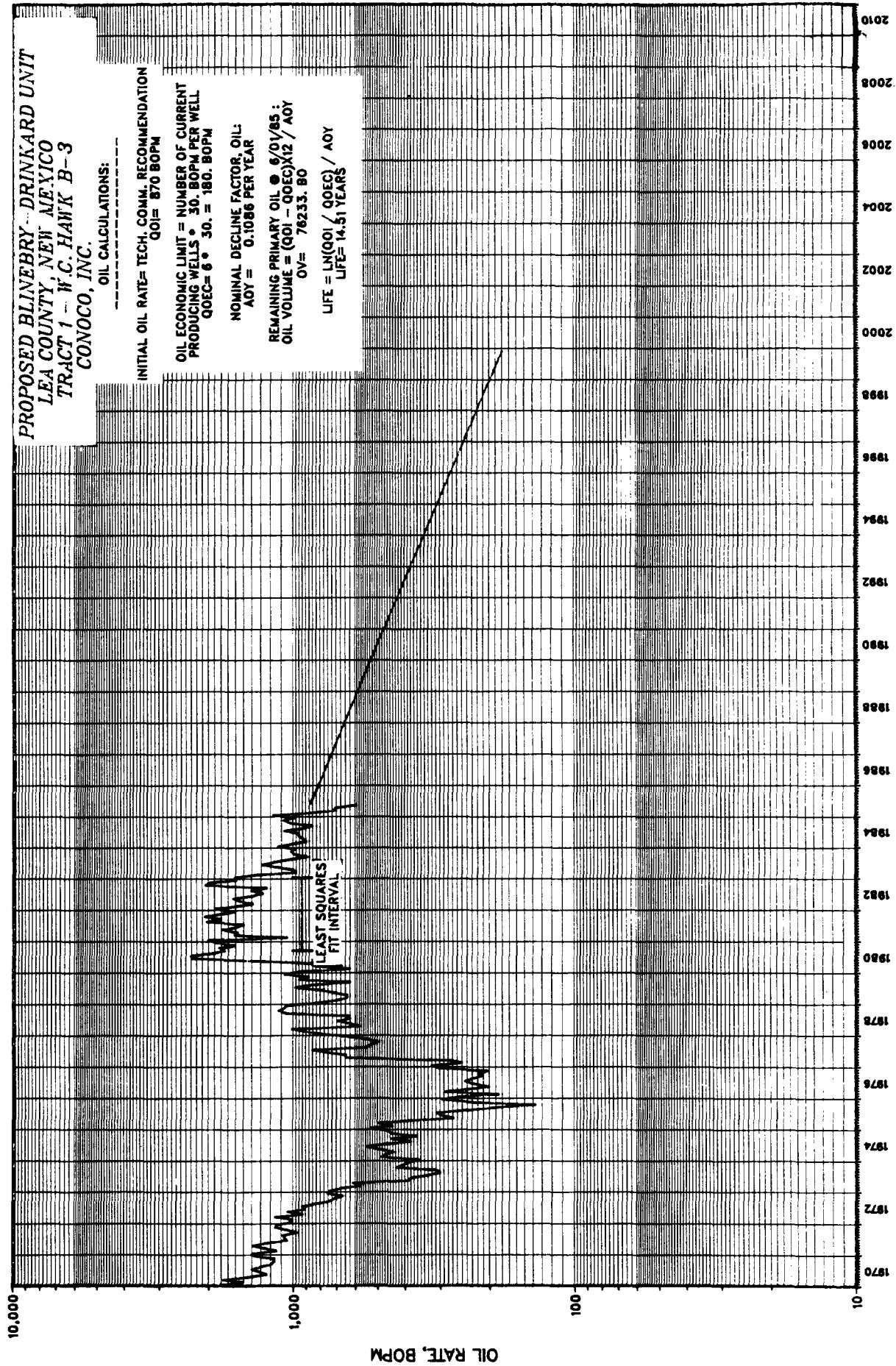
TABLE 3

**PROPOSED  
BLINEBRY-DRANKARD UNIT  
UNITIZATION PARAMETERS**

**GAS VALUES**

TRACT NUMBER	LEASE	OPERATOR	CUMULATIVE GAS PRODUCTION THRU MAY 31, 1985 (MCF)		ULTIMATE PRIMARY GAS RECOVERY (MCF)	CURRENT GAS PRODUCTION JUNE 1, 1984 - MAY 31, 1985 (MCF)
			TRACT SURFACE AREA (ACRES)	TRACT SURFACE AREA (ACRES)		
1 W.C. HAWK B-3		CONOCO, INC.	320	8,412,864	9,268,345	113,933
2 STATE SEC. 2		SOUTHLAND ROYALTY	200	7,677,557	8,677,596	139,585
3 HARRY LEONARD		CHEVRON, USA, INC. (GULF OIL CORP.)	480	9,707,627	10,135,243	65,125
4 TAYLOR-GLENN		SHELL WESTERN E&P INC.	240	21,212,592	25,001,003	480,561
5 C.H. LIVINGSTON		SHELL WESTERN E&P INC.	320	28,568,182	34,876,278	555,282
6 J.C. ESTBLACK		TEXACO, INC.	40	1,111,353	1,306,925	34,694
7 W.C. HAWK B-3		CONOCO, INC.	200	8,906,553	1,990,397	236,599
8 STATE SEC. 2		SHELL WESTERN E&P INC.	260	13,703,518	1,361,333	199,962
9 STATE SEC. 10		CONOCO, INC.	80	10,168,212	1,400,524	153,134
10 W.C. HAWK B-10		CONOCO, INC.	200	9,932,043	3,008,532	246,874
11 DAIRON		SOUTHLAND ROYALTY	40	5,170,228	576,916	80,258
12 NM V STATE		EYXON CO., USA	280	15,223,779	1,421,850	146,935
13 GUTMAN		SOUTHLAND ROYALTY	40	4,895,847	6,298,866	132,998
14 J.H. NOLAN		CONOCO, INC.	120	9,025,076	1,331,658	188,314
15 STATE S		TEXACO, INC. (GETTY OIL)	200	23,204,492	2,092,263	302,909
16 STATE S		CITIES SERVICE	80	6,632,203	2,185,525	8,717,728
17 STATE SEC. 15		SHELL WESTERN E&P INC.	80	11,718,478	2,703,091	14,421,569
18BD EVA OWEN		BRAVO ENERGY	80	7,151,178	1,269,123	8,420,301
18T EVA OWEN		BRAVO ENERGY		3,696,210	317,747	4,013,957
19 ANDREWAS		SHELL WESTERN E&P INC.	80	4,496,906	1,207,673	5,704,579
20 ARGO		SHELL WESTERN E&P INC.	160	27,628,449	6,274,074	33,902,523
21 L.G. WARICK		MARATHON	160	14,071,617	2,994,521	16,666,138
22 O.R. EBANK		J.R. CONE	160	17,504,575	2,556,067	20,040,642
23 ARGO A		SHELL WESTERN E&P INC.	160	25,705,851	5,475,497	31,181,748
24 O.R. EBANK		CHEVRON, USA, INC. (GULF OIL CORP.)	160	17,065,542	991,915	17,657,477
25 D.A. WILLIAMSON		TEXACO, INC. (GETTY OIL)	160	10,029,961	1,007,401	117,134
26 ROY BARON		ARCO OIL & GAS CO.	120	7,576,342	1,446,171	9,022,513
27 D.A. WILLIAMSON		MOBIL PROD. TX & NM	40	3,172,767	84,629	5,257,376
28 A.J. TURNER		SHELL WESTERN E&P INC.	320	49,322,486	10,374,683	1,249,736
29 S.J. SANKEYS		SHELL WESTERN E&P INC.	160	22,024,214	1,628,764	25,1532,978
30 S.J. SANKEYS		ARCO OIL & GAS CO.	160	19,343,630	3,943,473	22,187,103
31 STEPHENS ESTATE		MOBIL PROD. TX & NM	80	2,826,277	5,598	2,831,875
			5,200	425,886,609	73,563,318	499,469,927
						6,585,865

**APPENDIX A**  
**OIL PRODUCTION CURVES**



**PROPOSED BLINEBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 2 - STATE SEC. 2**  
**SOUTHLAND ROYALTY**

**OIL CALCULATIONS:**

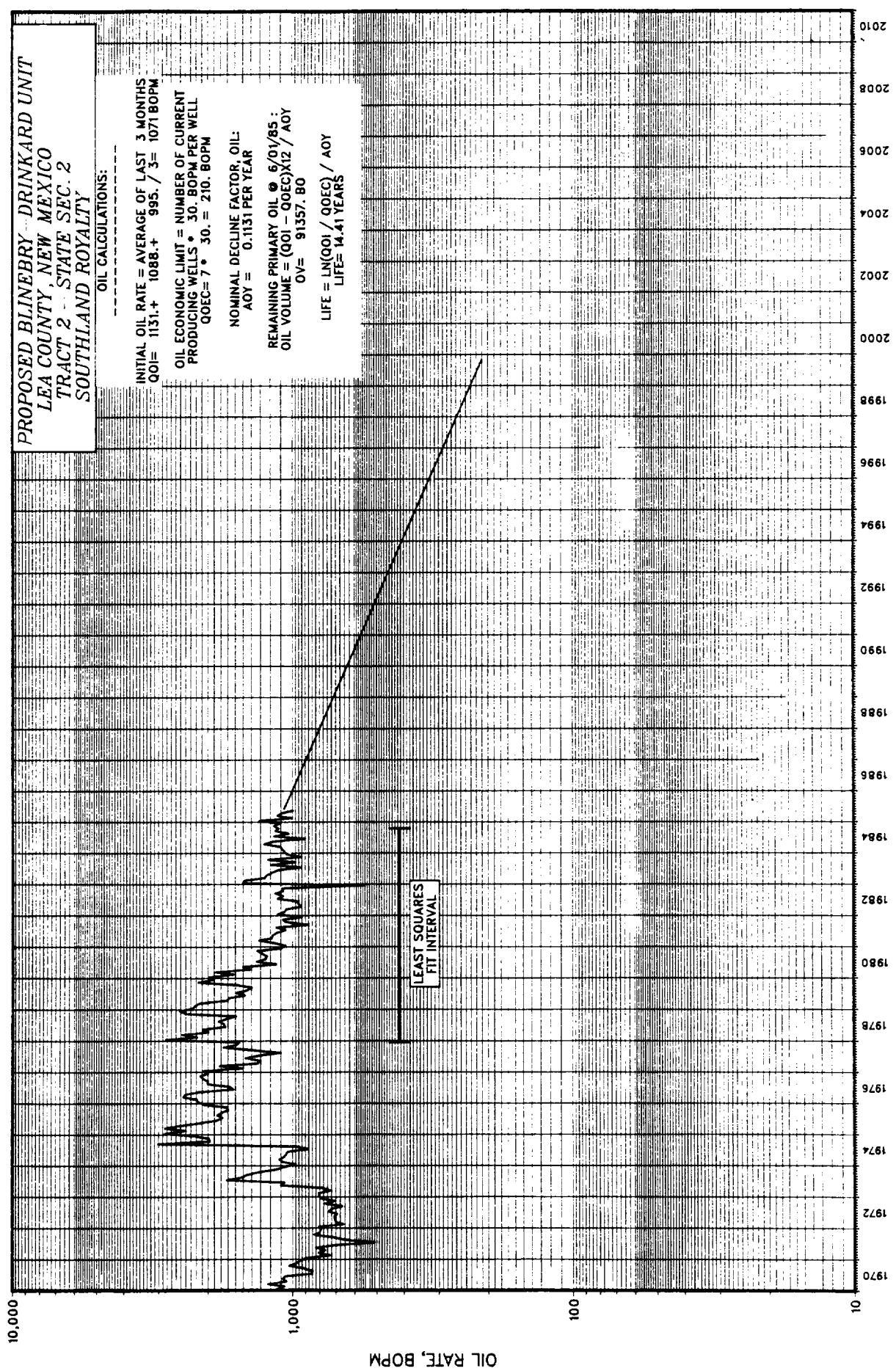
$$QOI = 1131 + 1088.4 - 935.7 / 3 = 1071 \text{ BOPM}$$

OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS • 30. BOPM PER WELL  
 QOEC = 7 • 30. = 210. BOPM

$$\text{NOMINAL DECLINE FACTOR, OIL:} \\ AOF = 0.1131 \text{ PER YEAR}$$

$$\text{REMAINING PRIMARY OIL @ 6/01/85:} \\ \text{OIL VOLUME} = (QOI - QOEC)X12 / AOF \\ OV = 91357. BO$$

$$\text{LIFE} = \ln(QOI / QOEC) / AOF \\ \text{LIFE} = 14.41 \text{ YEARS}$$



**PROPOSED BLINBRY-DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 3 - HARRY LEONARD**  
**CHEVRON, USA, INC.**

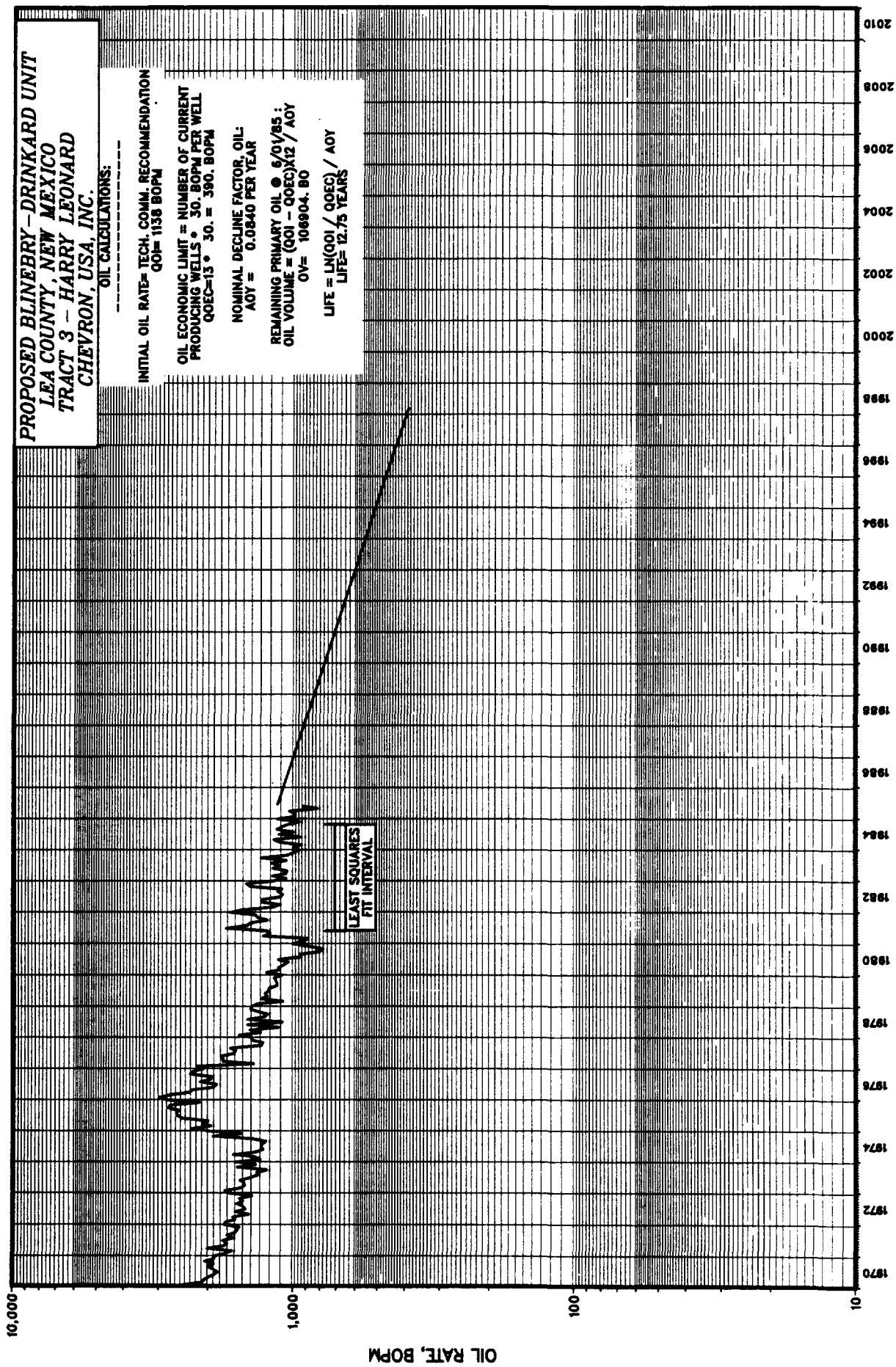
**OIL CALCULATIONS:**

INITIAL OIL RATE = TECH. COMM. RECOMMENDATION  
 $Q_0 = 1138 \text{ BOPM}$

OIL ECONOMIC LIMIT = NUMBER OF CURRENT  
 PRODUCING WELLS \* 30. BOPM PER WELL  
 $Q_{OEC} = 13 * 30. = 390. \text{ BOPM}$

NOMINAL DECLINE FACTOR, OIL:  
 $A_{OY} = 0.03840 \text{ PER YEAR}$

REMAINING PRIMARY OIL ●  $\frac{5\%}{12.5} / 85 :$   
 OIL VOLUME =  $(Q_0 - Q_{OEC}) \times 12 / A_{OY}$   
 $Q_V = 108804. \text{ BO}$   
 $LIFE = \ln(Q_0 / Q_{OEC}) / A_{OY}$   
 $LIFE = 12.5 \text{ YEARS}$



**PROPOSED BLINNEBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 4 - TAYLOR - GLENN**  
**SHELL WESTERN E&P INC.**

**OIL CALCULATIONS:**

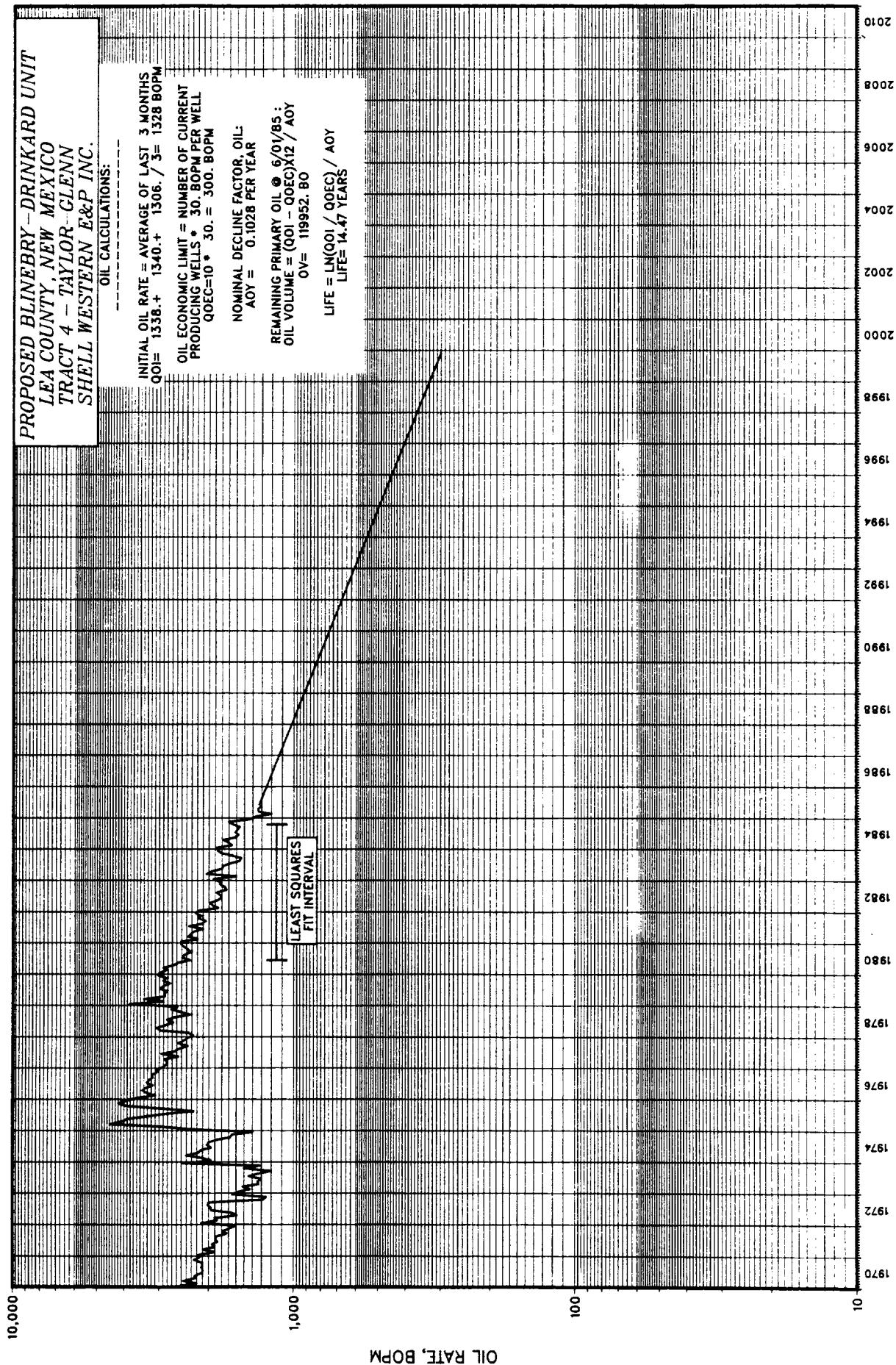
INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS  
 $QOI = 1338 + 1340 + 1306 / 3 = 1328 \text{ BOPM}$

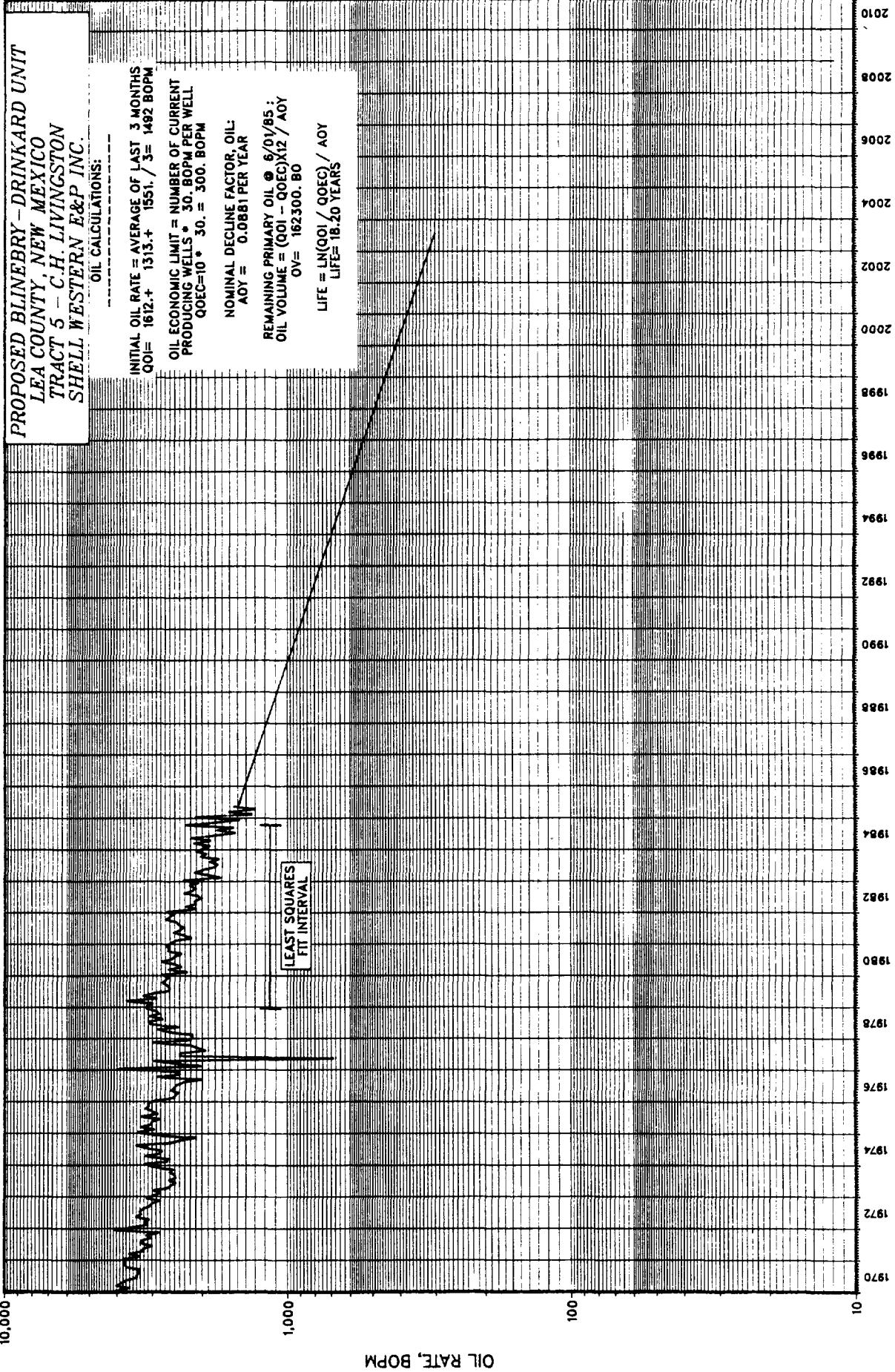
OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 30. BOPM PER WELL  
 $QOEC = 10 * 30 = 300 \text{ BOPM}$

NOMINAL DECLINE FACTOR, OIL:  
 $AOY = 0.1028 \text{ PER YEAR}$

REMAINING PRIMARY OIL @  $6/01/85$ :  
 $QV = (QOI - QOEC) \times 12 / AOY$

LIFE =  $\ln(QOI / QOEC) / AOY$   
 LIFE = 14.7 YEARS





**PROPOSED BLINEBRY-DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 6 - J.C. EASTLACK**  
**TEXACO, LVC.**

**OIL CALCULATIONS:**

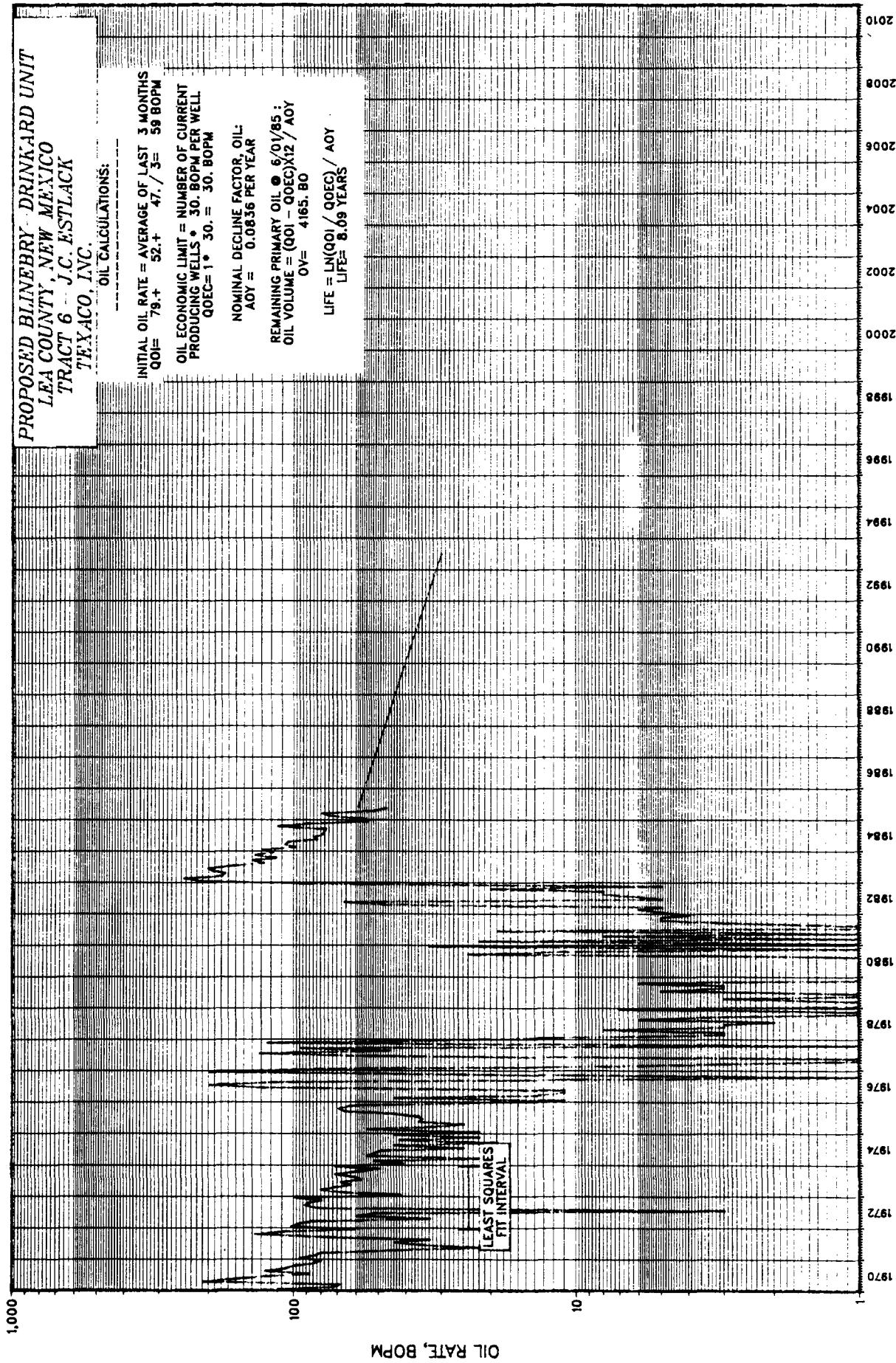
INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS  
 $QOI = 79. + 52. + 47. / 3 = 59 \text{ BOPM}$

OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 30. BOPM PER WELL  
 $QOEC = 1. * 30. = 30. \text{ BOPM}$

NOMINAL DECLINE FACTOR, OIL  
 $AOD = 0.0836 \text{ PER YEAR}$

REMAINING PRIMARY OIL @  $6.01/85 :$   
 OIL VOLUME =  $(QOI - QOEC)X12 / AOD$   
 $OV = 4165.80$

LIFE =  $\ln(QOI / QOEC) / AOD$   
 LIFE = 8.69 YEARS



**PROPOSED BLINDBRI DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 7 W.C. HAWK B-3**  
**CONOCO, INC.**

**OIL CALCULATIONS:**

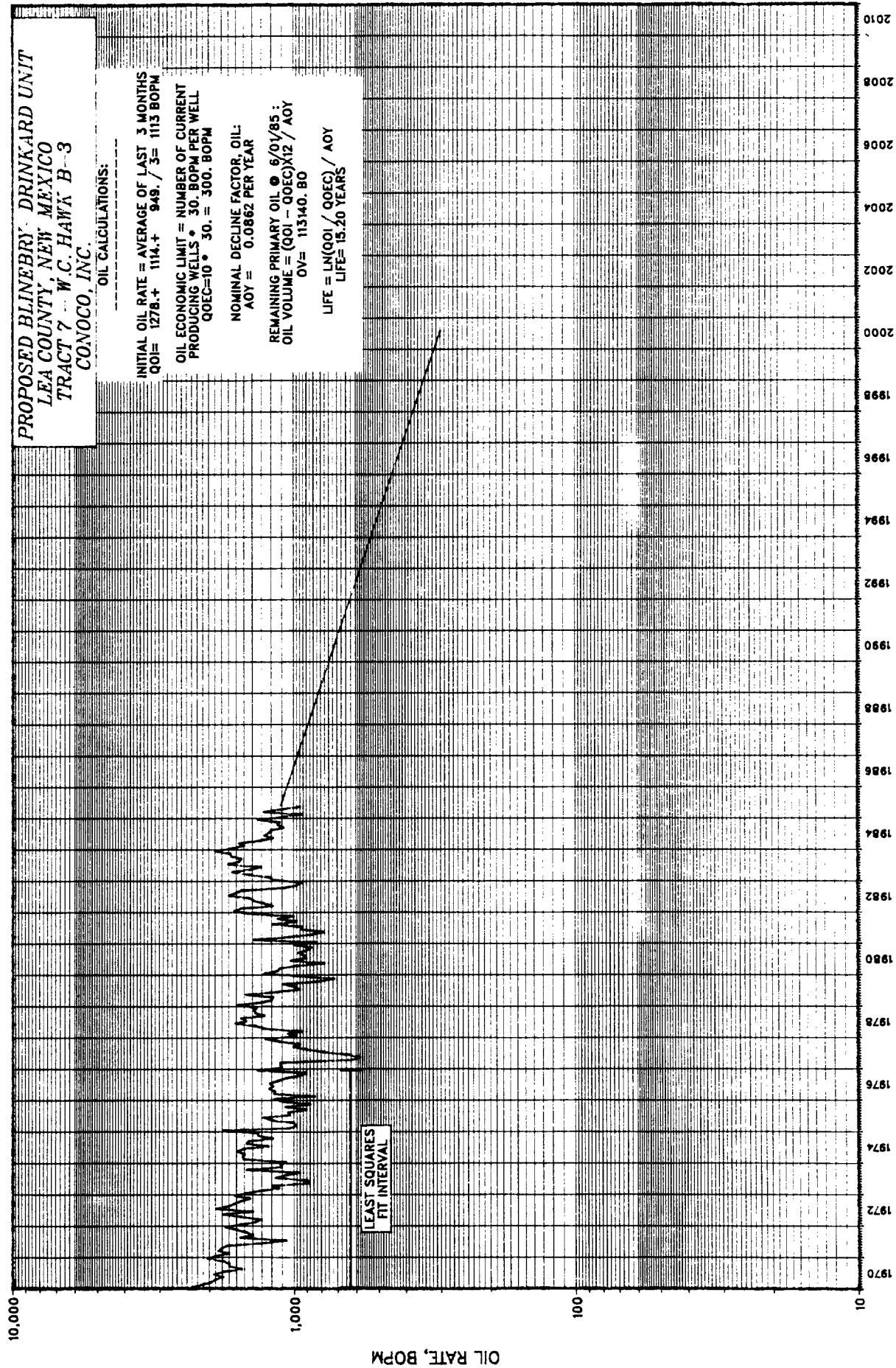
INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS  
 $Q_0 = 1114 + 948 / 3 = 1113 \text{ BOPM}$

OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS • 30. BOPM PER WELL  
 $Q_{ECL} = 10 \cdot 30 = 300. \text{ BOPM}$

NOMINAL DECAY FACTOR, OIL:  
 $A_{OY} = 0.0862 \text{ PER YEAR}$

REMAINING PRIMARY OIL •  $6/01/85$ :  
 OIL VOLUME =  $(Q_0 - Q_{ECL}) \times 12 / A_{OY}$   
 $Q_V = 111340. \text{ BOY}$

LIFE =  $\ln(Q_0 / Q_{ECL}) / A_{OY}$   
 LIFE = 15.20 YEARS



**PROPOSED BLINNERY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 8 - STATE SEC. 2**  
**SHELL WESTERN E&P INC.**

**OIL CALCULATIONS:**

INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS:  
 $QOI = 1175 + 1083 + 1114 / 3 = 1124 \text{ BOPM}$

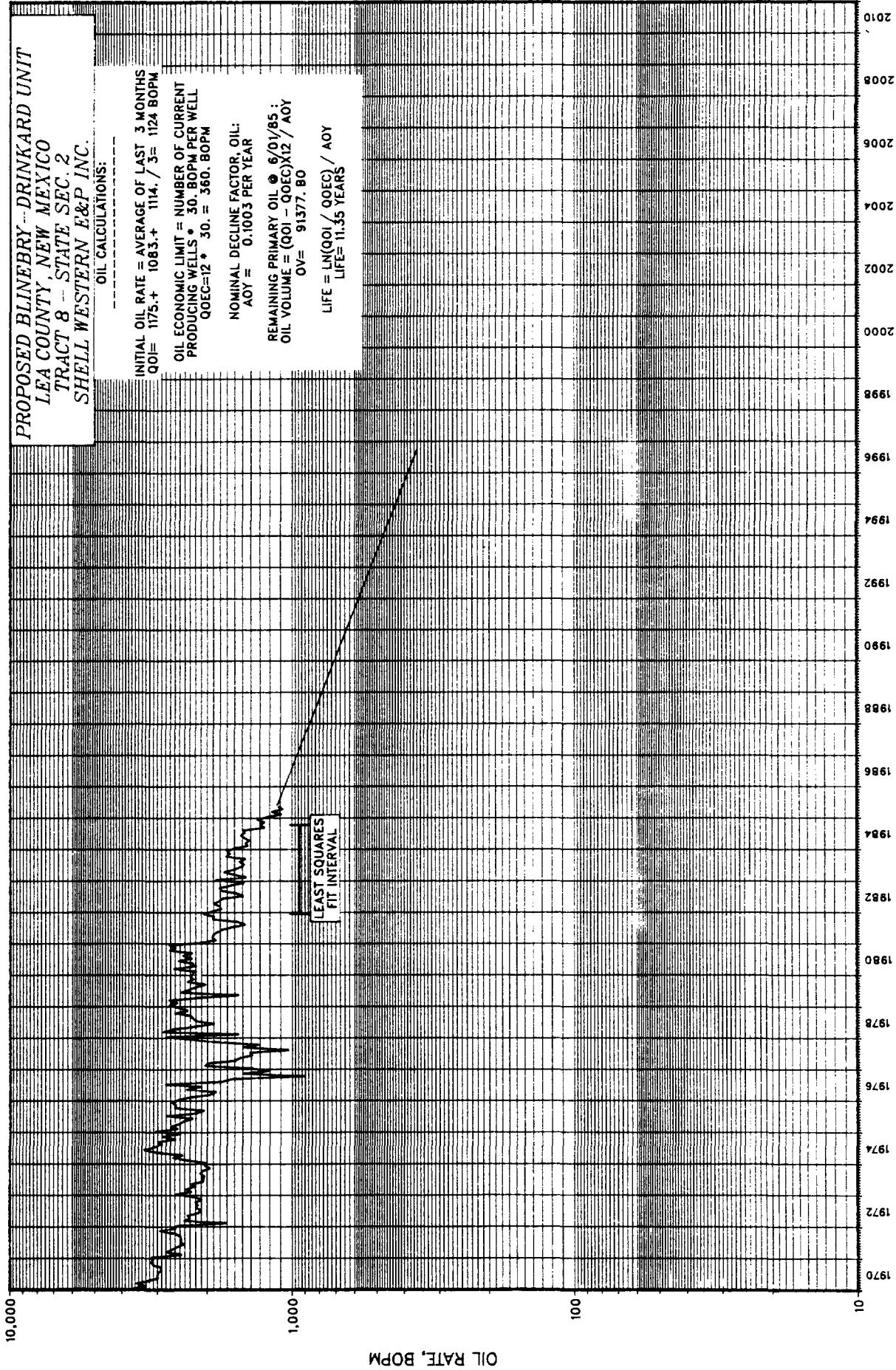
OIL ECONOMIC LIMIT = NUMBER OF CURRENT  
 PRODUCING WELLS • 30. BOPM PER WELL  
 $QOEC = 12 \bullet 30. = 360. \text{ BOPM}$

NOMINAL DECLINE FACTOR, OIL:  
 $AOF = 0.1003 \text{ PER YEAR}$

REMAINING PRIMARY OIL @ 6/01/85:  
 OIL VOLUME =  $(QOI - QOEC) \times 12 / AOF$

$OV = 91377.80$

LIFE =  $\ln(QOI / QOEC) / AOF$   
 $LIFE = 11.35 \text{ YEARS}$



OIL RATE, BOPM

PROPOSED BLOWEBRY DRILLING UNIT  
LEA COUNTY, NEW MEXICO  
TRACT 9, STATE SEC. 10  
CONOCO, INC.

OIL CALCULATIONS:

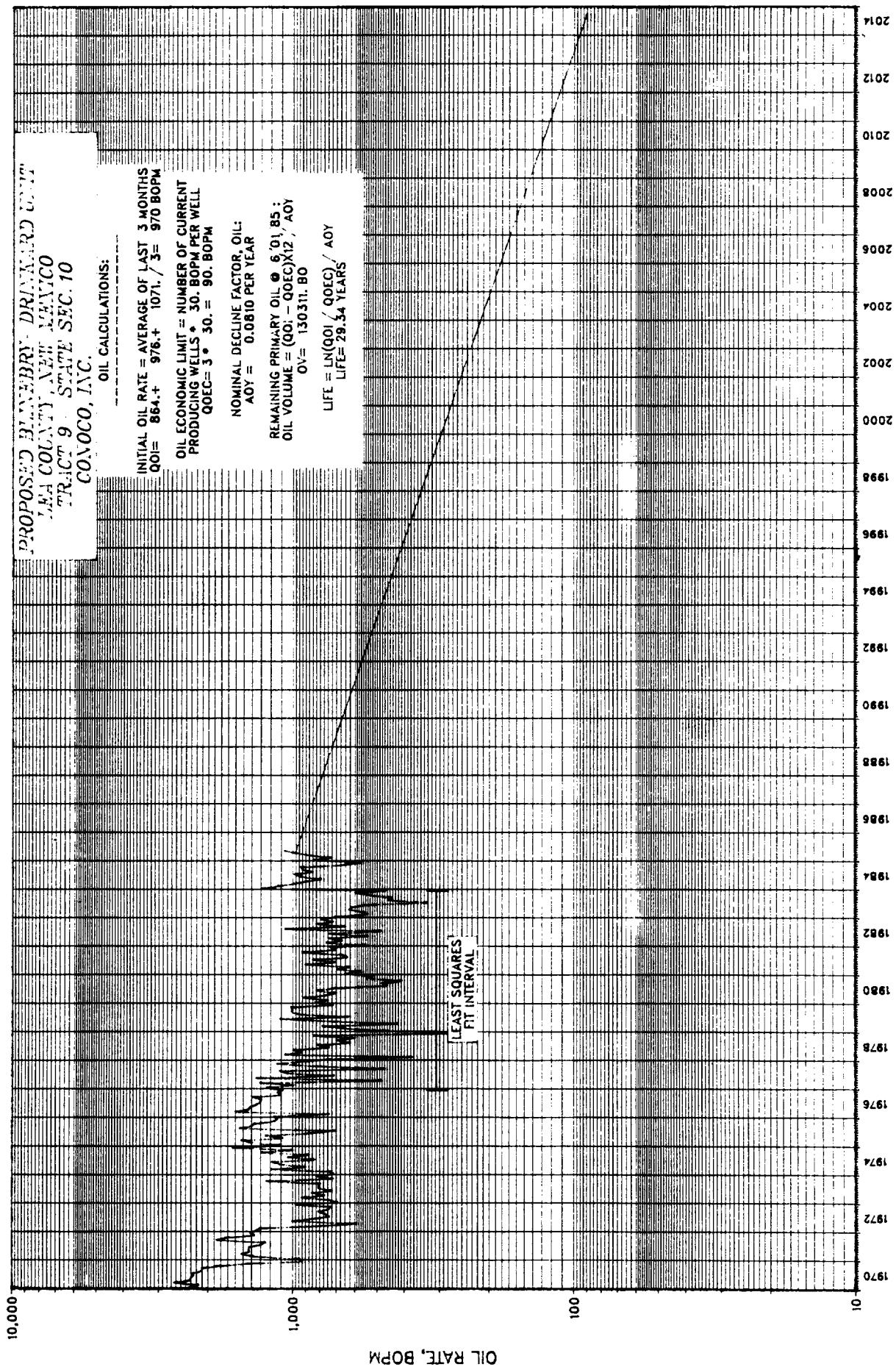
$$\text{INITIAL OIL RATE} = \text{AVERAGE OF LAST 3 MONTHS}$$
$$QOI = 864 + 976 + 1071 / 3 = 970 \text{ BOPM}$$

$$\text{OIL ECONOMIC LIMIT} = \text{NUMBER OF CURRENT PRODUCING WELLS} * 30 \text{ BOPM PER WELL}$$
$$QEC = 3 * 30 = 90 \text{ BOPM}$$

$$\text{NOMINAL DECLINE FACTOR, OIL:}$$
$$AOY = 0.0810 \text{ PER YEAR}$$

$$\text{REMAINING PRIMARY OIL} @ 6\% \text{ BOPM}$$
$$\text{OIL VOLUME} = (QO) - QEC) \times 12 / AOY$$
$$OV = 130311.80$$

$$\text{LIFE} = \ln(QOI / QOEC) / AOY$$
$$LIFE = 29.54 \text{ YEARS}$$



**PROPOSED BLINNEBRY - DRINKARD UNIT**

**LEA COUNTY, NEW MEXICO**

**TRACT 10 - W.C. HAWK B-10**

**CONOCO, INC.**

**OIL CALCULATIONS:**

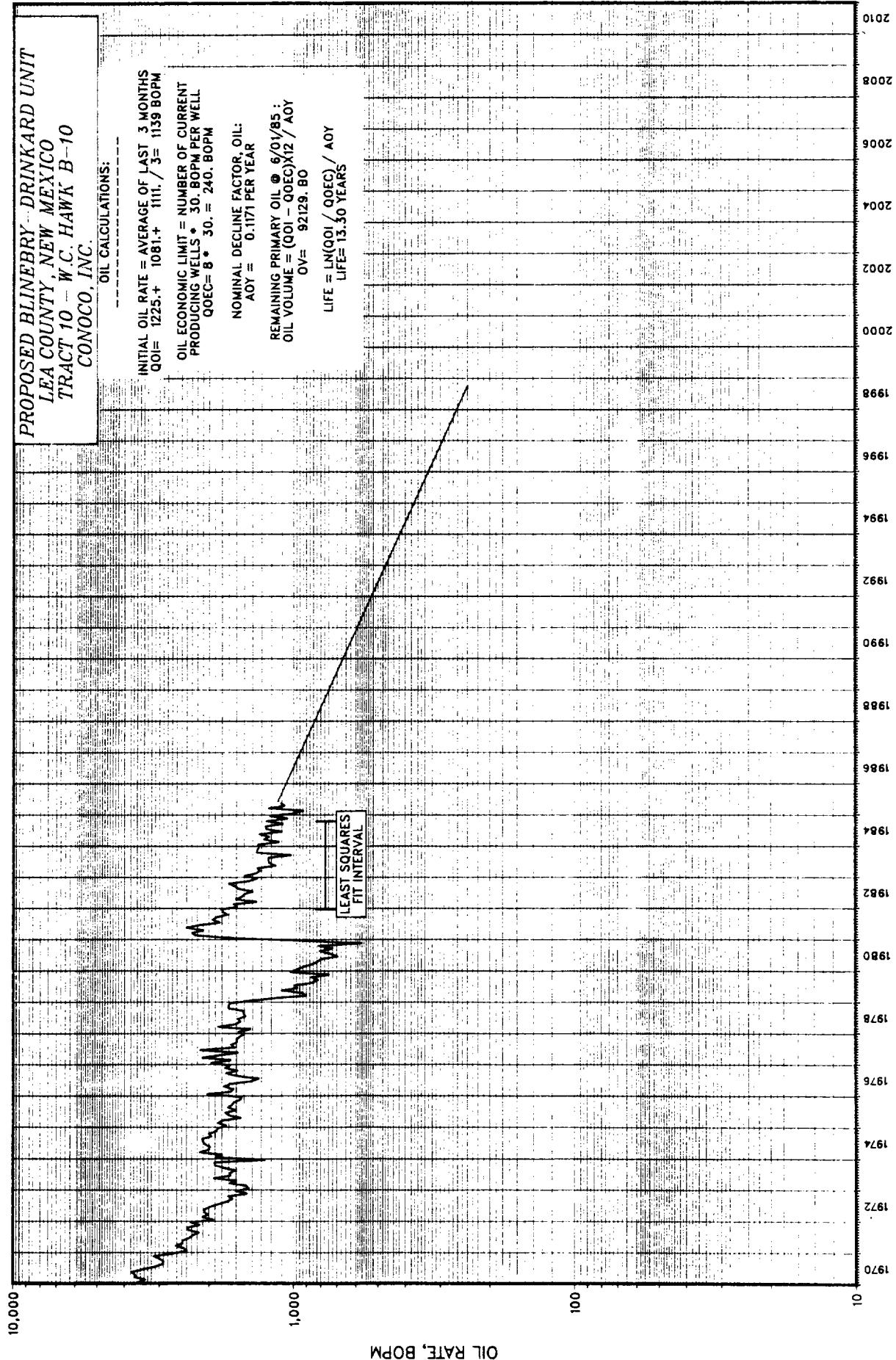
$$\text{INITIAL OIL RATE} = \text{AVERAGE OF LAST 3 MONTHS}$$
$$QOI = 1225. + 1081. + 1111. / 3 = 1139 \text{ BOPM}$$

$$\text{OIL ECONOMIC LIMIT} = \text{NUMBER OF CURRENT PRODUCING WELLS} * 30. \text{ BOPM PER WELL}$$
$$QOEC = 8 * 30. = 240. \text{ BOPM}$$

$$\text{NOMINAL DECLINE FACTOR, OIL:}$$
$$AOY = 0.1171 \text{ PER YEAR}$$

$$\text{REMAINING PRIMARY OIL} = 6/0V/85 :$$
$$\text{OIL VOLUME} = (QOI - QOEC) \times 12 / AOY$$
$$OV = 92129. \text{ BO}$$

$$\text{LIFE} = \ln(QOI / QOEC) / AOY$$
$$\text{LIFE} = 13.30 \text{ YEARS}$$



*PROPOSED BLUEBERRY DRINKARD UNIT  
LEA COUNTY, NEW MEXICO  
TRACT 11 - DAURON  
SOUTHLAND ROYAL™*

OIL CALCULATIONS:

$$\text{INITIAL OIL RATE} = \text{AVERAGE OF LAST 3 MONTHS}$$

$$QOI = 181 + 182 + 136 / 3 = 166 \text{ BOPM}$$

$$\text{OIL ECONOMIC LIMIT} = \text{NUMBER OF CURRENT PRODUCING WELLS} * 30. \text{ BOPM PER WELL}$$

$$QECL = 2 * 30. = 60. \text{ BOPM}$$

$$\text{NOMINAL DECLINE FACTOR, OIL:}$$

$$AOY = 0.1050 \text{ PER YEAR}$$

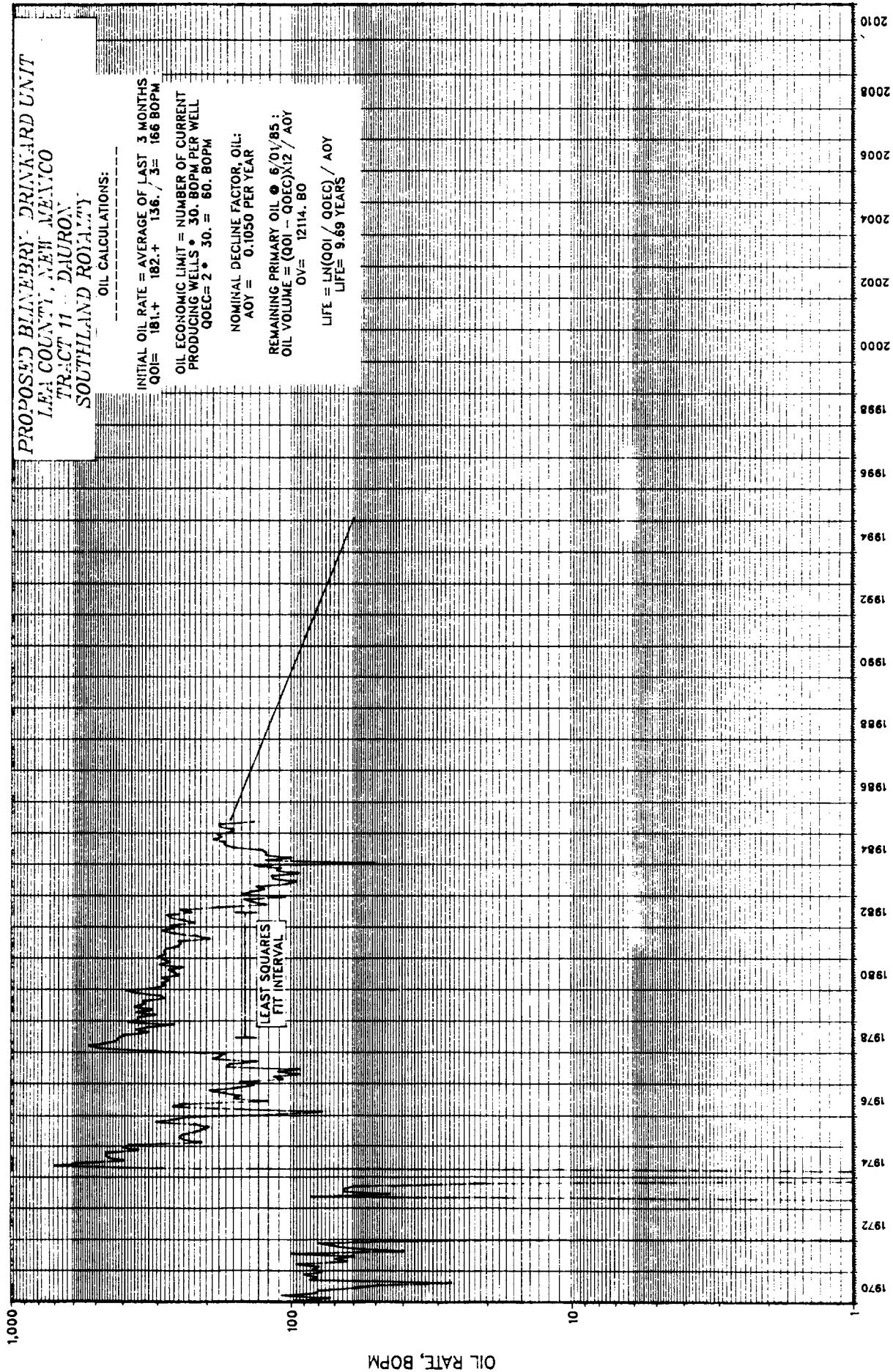
$$\text{REMAINING PRIMARY OIL} = 6/01/85 :$$

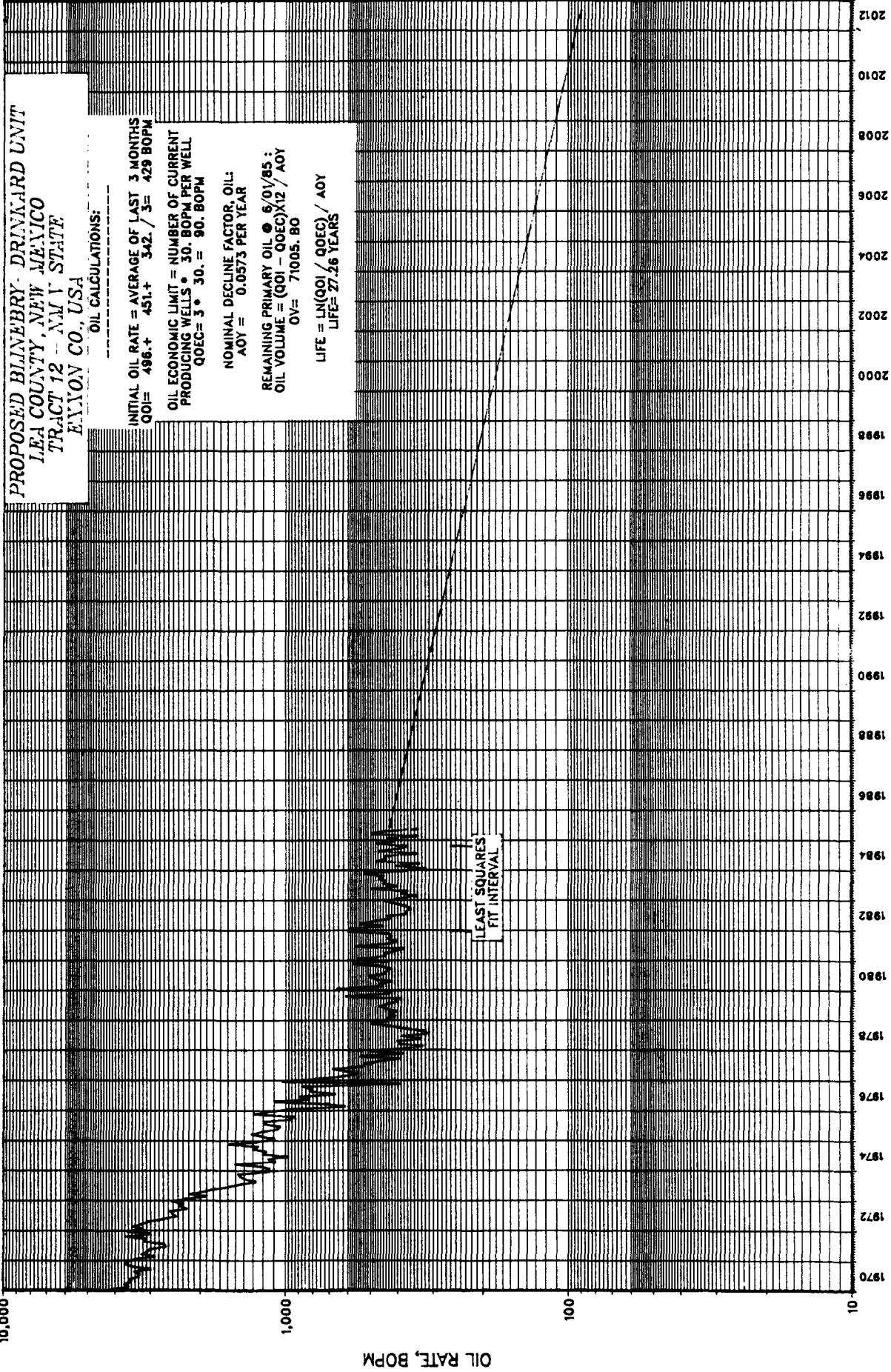
$$\text{OIL VOLUME} = (QOI - QECL) \times 12 / AOY$$

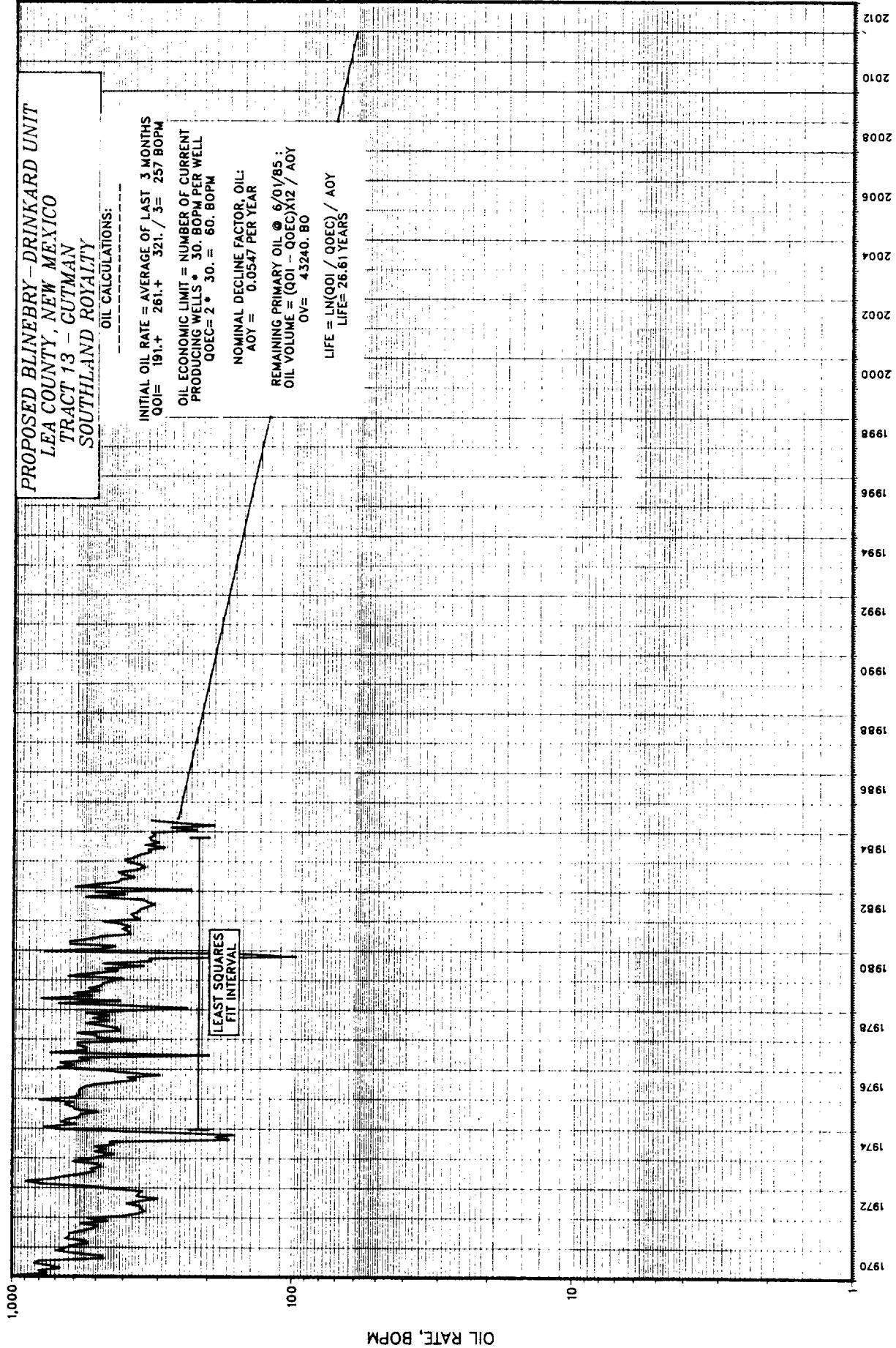
$$OV = 12114.80$$

$$\text{LIFE} = \ln(QOI / QECL) / AOY$$

$$\text{LIFE} = 9.69 \text{ YEARS}$$







**PROPOSED BLINNEBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 14 - J.H. NOLAN**  
**CONOCO, INC.**

OIL CALCULATIONS:

$$\text{INITIAL OIL RATE} = \text{AVERAGE OF LAST 3 MONTHS}$$

$$QOI = 649 + 625 + 598 / 3 = 624 \text{ BOPM}$$

OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 30. BOPM PER WELL  
 QOEC = 3 \* 30 = 90. BOPM

NOMINAL DECLINE FACTOR, OIL:  
 AOF = 0.0307 PER YEAR

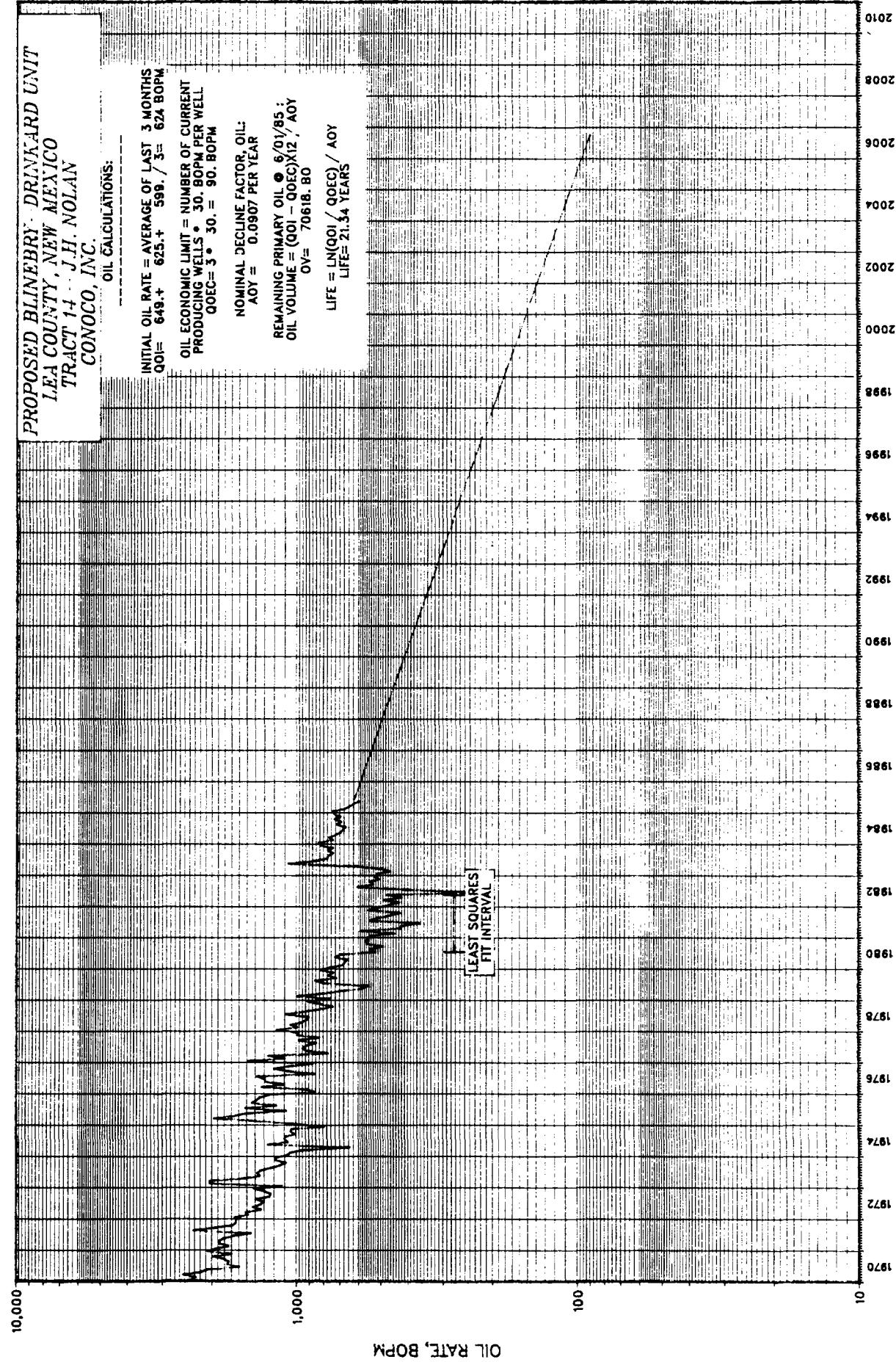
$$\text{REMAINING PRIMARY OIL} = 6/01/85 ;$$

$$\text{OIL VOLUME} = (QOI - QOEC) \times 12 / AOF$$

$$OV = 70618.80$$

$$\text{LIFE} = \ln(QOI / QOEC) / AOF$$

$$\text{LIFE} = 21.34 \text{ YEARS}$$



OIL RATE, BOPM

**PROPOSED BLINBRY-DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 15 - STATE S**  
**TEXACO, INC. (GETTY OIL)**

**OIL CALCULATIONS:**

$$\text{INITIAL OIL RATE} = \text{AVERAGE OF LAST 3 MONTHS}$$

$$QOI = 760 + 845 + 812 / 3 = 805 \text{ BOPM}$$

OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 30. BOPM PER WELL

$$QEC = 8 * 30 = 240 \text{ BOPM}$$

NOMINAL DECLINE FACTOR, OIL:  
AOY = 0.0709 PER YEAR

$$\text{REMAINING PRIMARY OIL @ 6/01/85 :}$$

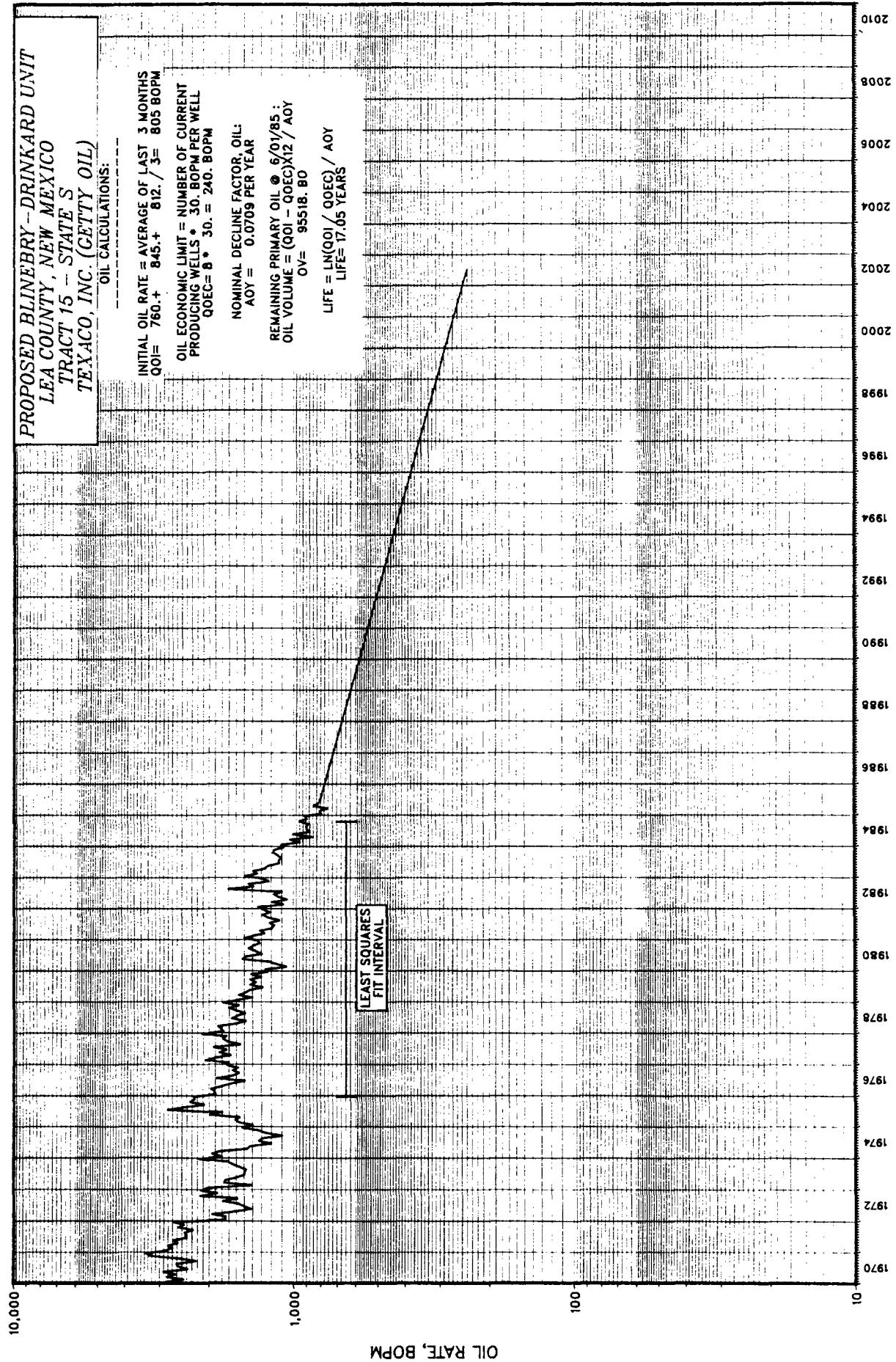
$$\text{OIL VOLUME} = (QOI - QEC) \times 12 / \text{AOY}$$

$$OV = 95518.80$$

$$\text{LIFE} = \ln(QOI / QEC) / \text{AOY}$$

$$\text{LIFE} = 17.65 \text{ YEARS}$$

**LEAST SQUARES  
FIT INTERVAL**



**PROPOSED BLINBERRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**

**TRACT 16 - STATE S**

**CITIES SERVICE**

**OIL CALCULATIONS:**

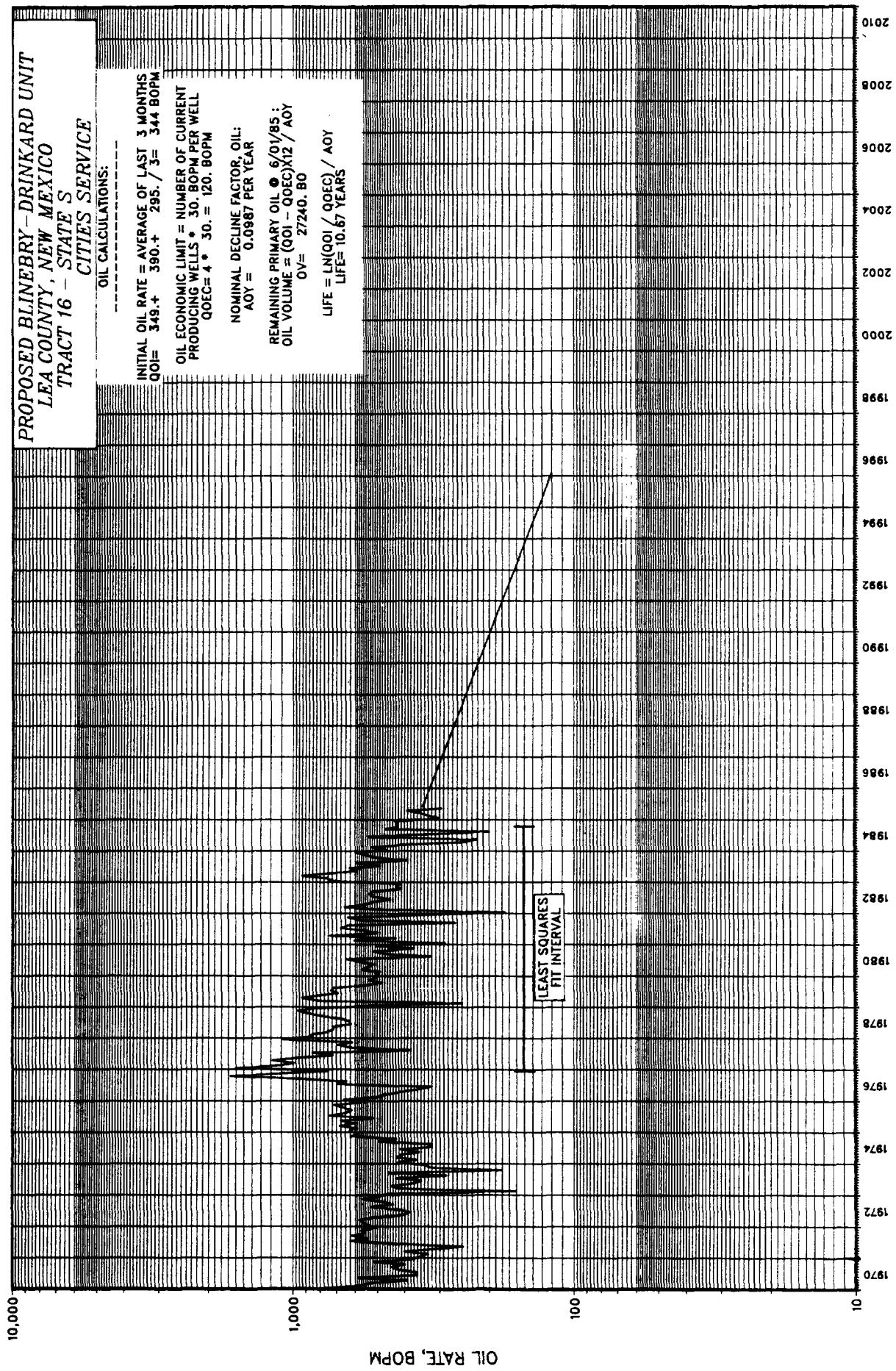
$$\text{INITIAL OIL RATE} = \text{AVERAGE OF LAST 3 MONTHS}$$
$$QOI = \frac{349 + 380 + 295}{3} = 344 \text{ BOPM}$$

$$\text{OIL ECONOMIC LIMIT} = \text{NUMBER OF CURRENT PRODUCING WELLS} * 30 \text{ BOPM PER WELL}$$
$$QOEC = 4 * 30 = 120 \text{ BOPM}$$

$$\text{NOMINAL DECLINE FACTOR, OIL:}$$
$$AOY = 0.01987 \text{ PER YEAR}$$

$$\text{REMAINING PRIMARY OIL} = \frac{6}{QOI - QOEC} \times 12 \text{ / AOY}$$
$$OV = 2724.0 \text{ BO}$$

$$\text{LIFE} = \frac{\ln(QOI - QOEC)}{AOY}$$
$$\text{LIFE} = 10.67 \text{ YEARS}$$



**PROPOSED BLINDBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 17 - STATE SEC. 15**  
**SHELL WESTERN E&P INC.**  
**OIL CALCULATIONS:**

INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS  
 $QOI = 521 + 458 + 413 / 3 = 464 \text{ BOPM}$

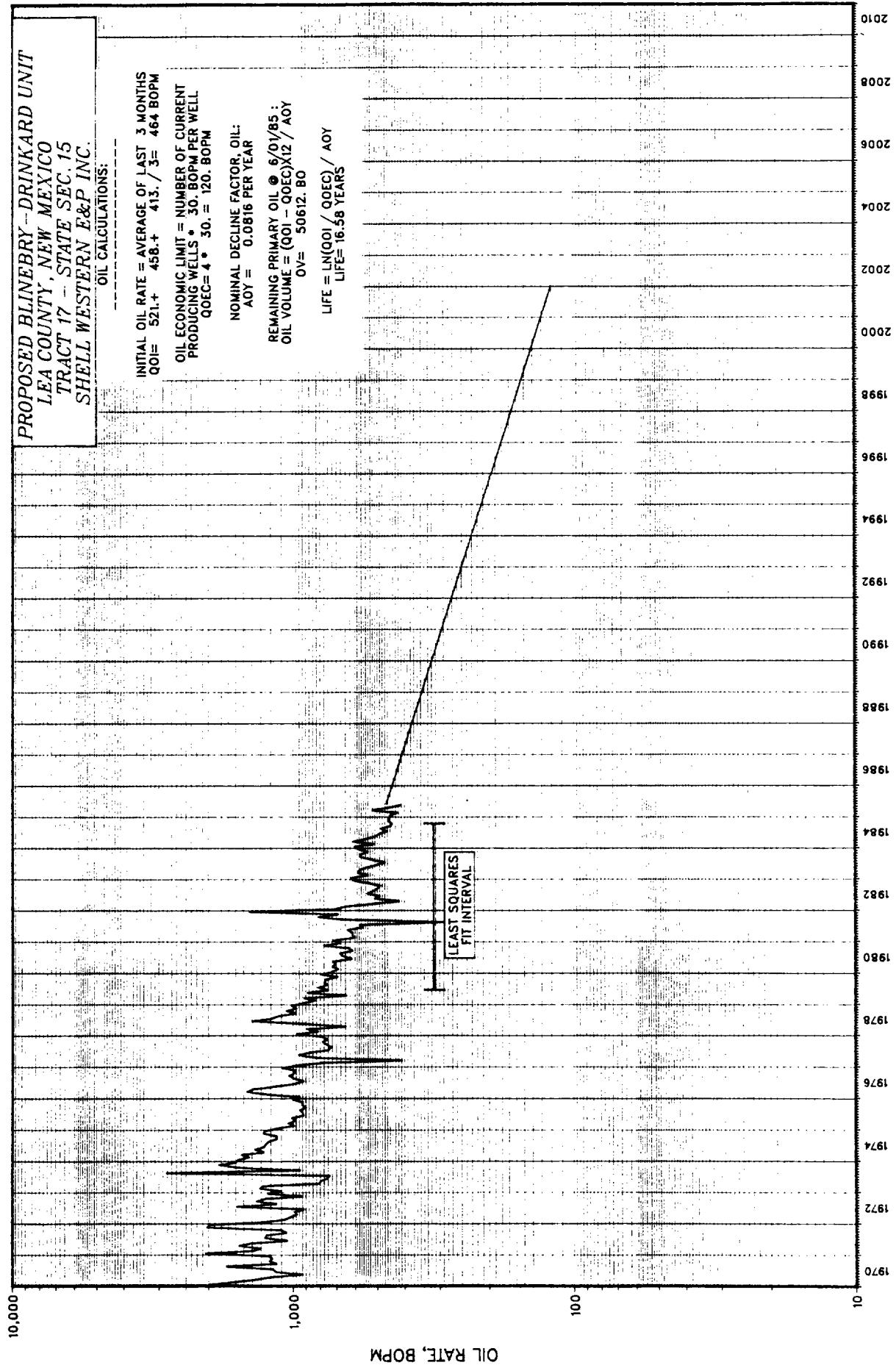
OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 30. BOPM PER WELL  
 $QOEC = 4 * 30 = 120. \text{ BOPM}$

NOMINAL DECLINE FACTOR, OIL:  
 $AOD = 0.0816 \text{ PER YEAR}$

REMAINING PRIMARY OIL @  $6/01/85$ :  
 OIL VOLUME =  $(QOI - QOEC) \times 12 / AOD$   
 $OV = 50612. \text{ BO}$

LIFE =  $\ln(QOI / QOEC) / AOD$   
 $LIFE = 16.58 \text{ YEARS}$

LEAST SQUARES  
FIT INTERVAL



OIL RATE, BOPM

**PROPOSED BLINNEBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 18BD - EVA OWEN**  
**BRAVO ENERGY**

**OIL CALCULATIONS:**

INITIAL OIL RATE = TECH. COMM. RECOMMENDATION  
 QOI = 650 BOPM

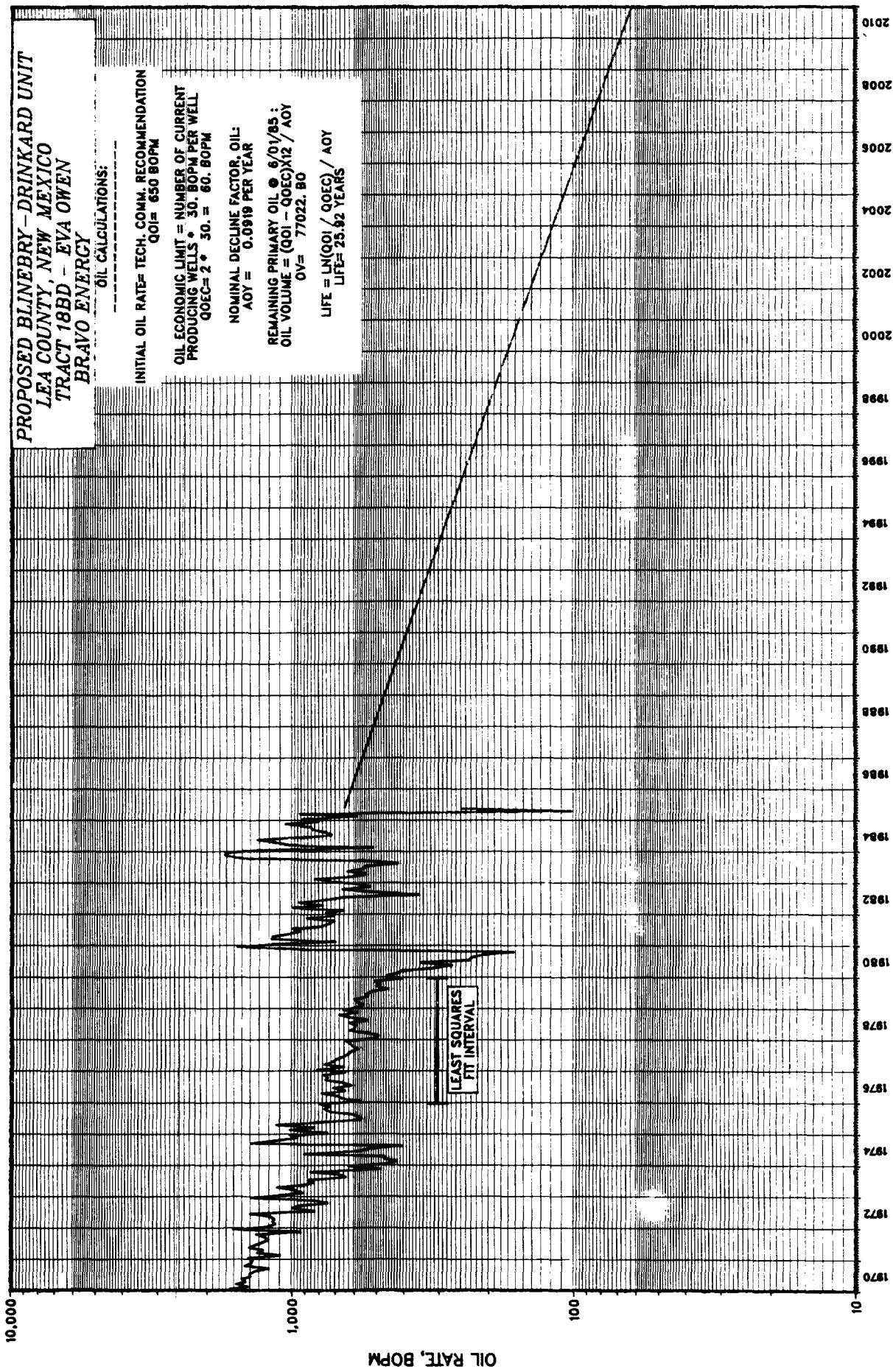
OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS • 30. BOPM PER WELL  
 QOEC = 2 • 30. = 60. BOPM

NOMINAL DECLINE FACTOR, OIL

AOF = 0.0919 PER YEAR

REMAINING PRIMARY OIL @ 6.01/85 :  
 OIL VOLUME =  $(QOI - QOEC) \times 12 / AOF$   
 QV = 77022. BO

LIFE =  $\ln(QOI / QOEC) / AOF$   
 LIFE = 25.92 YEARS



LEAST SQUARES  
FIT INTERVAL

OIL RATE, BOPM

**PROPOSED BLINEBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 187 - EVA OWEN**  
**BRAVO ENERGY**

**OIL CALCULATIONS:**

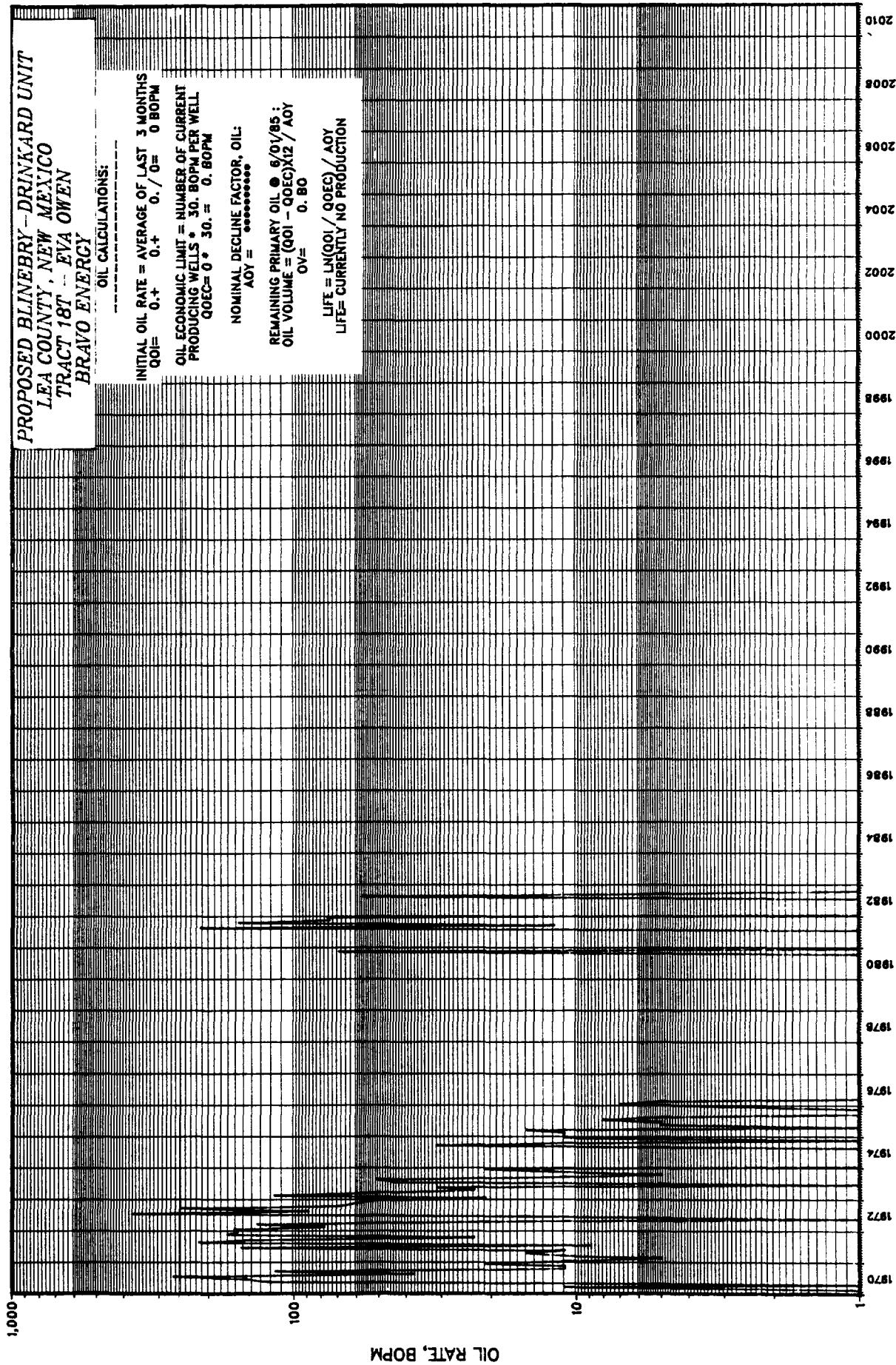
INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS  
QOI = 0. + 0. + 0. / 3 = 0 BOPM

OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS • 30. BOPM PER WELL  
QEC= 0 • 30. = 0. BOPM

NOMINAL DECLINE FACTOR, OIL:  
AOY = \*\*\*\*\*

REMAINING PRIMARY OIL ● 6/01/85 :  
OIL VOLUME = (QOI - QOEC)X12 / AOY  
OV= 0. BO

LIFE = LN(QOI / QOEC) / AOY  
LIFE= CURRENTLY NO PRODUCTION



**PROPOSED BLUEBERRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 19 - ANDREWS**  
**SHELL WESTERN E&P INC.**

OIL CALCULATIONS:

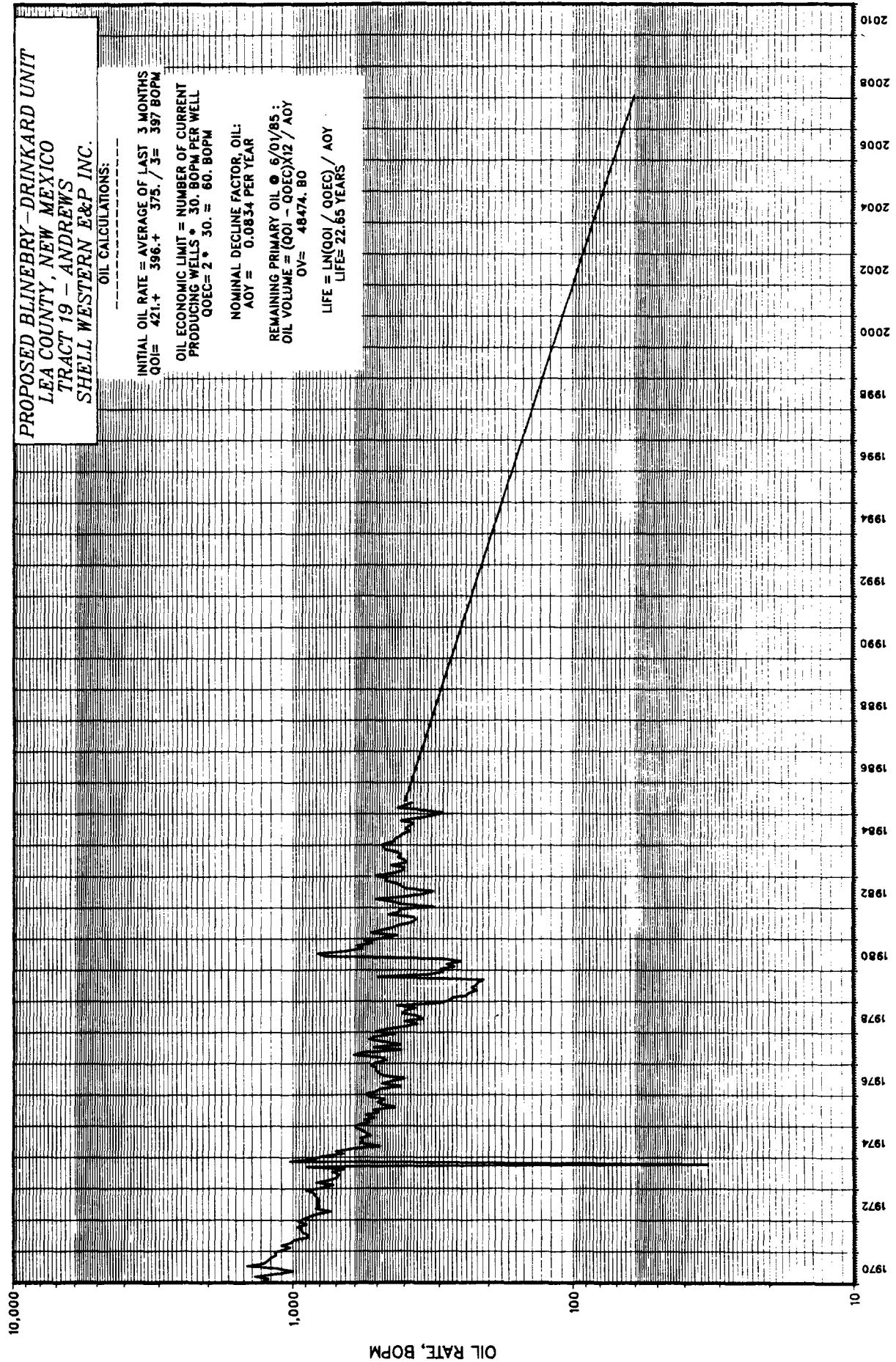
INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS  
 QOI =  $421.4 + 396.4 = 375.4 / 3 = 397 \text{ BOPM}$

OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS • 30. BOPM PER WELL  
 QOEC = 2 • 30. = 60. BOPM

NOMINAL DECLINE FACTOR, OIL:

AOY = 0.0834 PER YEAR  
 REMAINING PRIMARY OIL =  $6/01/85 - 6/01/85$  :  
 OIL VOLUME =  $(QOI - QOEC) \times 12 / AOY$   
 OV =  $48474.80$

LIFE =  $\ln(QOI / QOEC) / AOY$   
 LIFE = 22.65 YEARS



**PROPOSED BLINDBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 20 - ARGO**  
**SHELL WESTERN E&P INC.**

**OIL CALCULATIONS:**

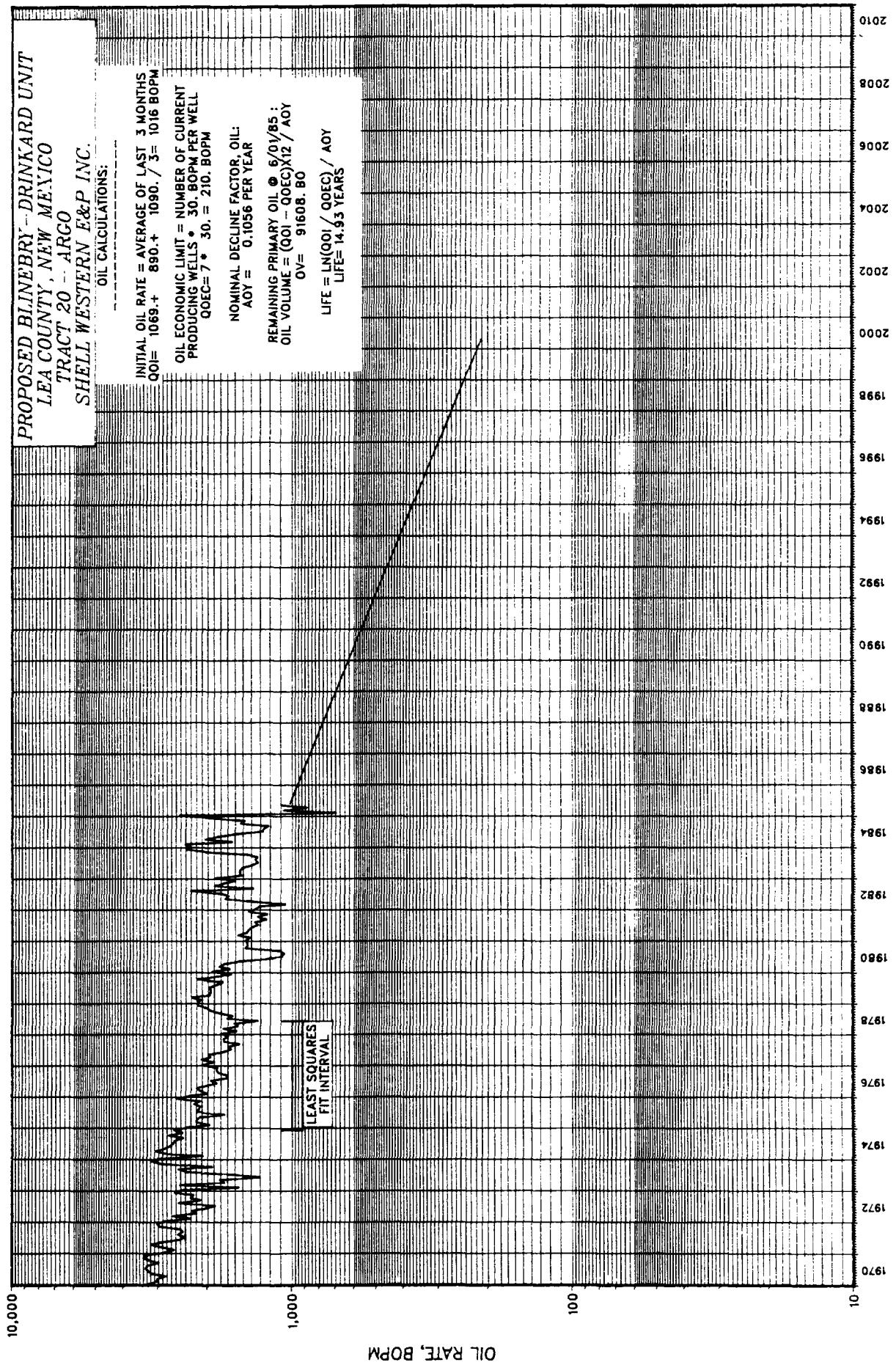
INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS  
 $Q_0 = 1069 + 890 + 1090 / 3 = 1016 \text{ BOPM}$

OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 30. BOPM PER WELL  
 $Q_{ECL} = 7 * 30 = 210. \text{ BOPM}$

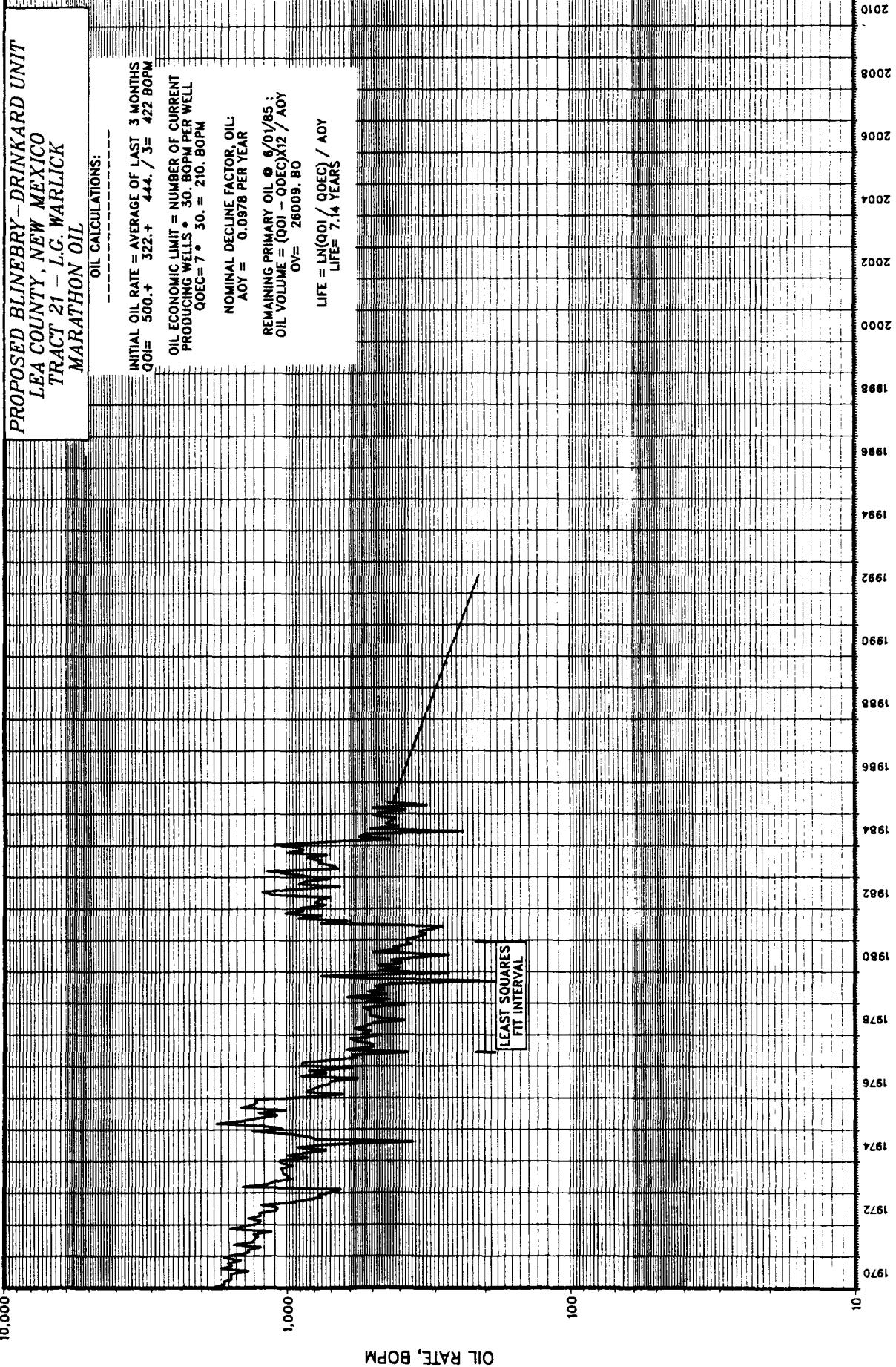
NOMINAL DECLINE FACTOR, QF:  
 $AQY = 0.1056 \text{ PER YEAR}$

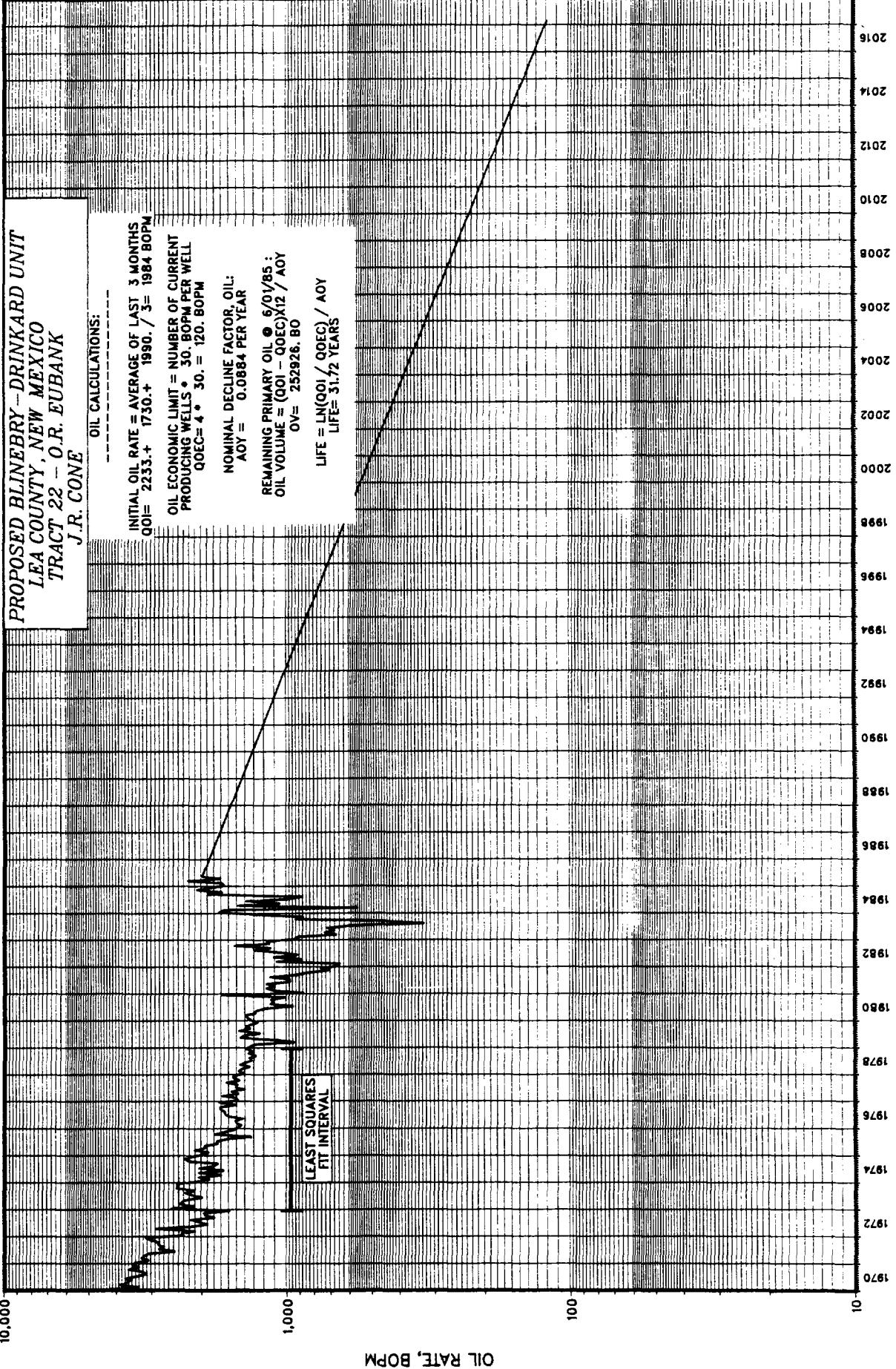
REMAINING PRIMARY OIL @  $6/01/85$ :  
 OIL VOLUME =  $(Q_0 - Q_{ECL}) \times 12 / AQY$   
 $OV = 91608. BO$

LIFE =  $\ln(Q_0 / Q_{ECL}) / AQY$   
 LIFE = 14.93 YEARS



OIL RATE, BOPM





**PROPOSED BLINNERY-DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 23 - ARCO A**  
**SHELL WESTERN E&P INC.**

OIL CALCULATIONS:

$$\text{INITIAL OIL RATE} = \text{AVERAGE OF LAST 3 MONTHS}$$

$$QOI = 1249 + 735 + 971 / 3 = 985 \text{ BOPM}$$

$$\text{OIL ECONOMIC LIMIT} = \text{NUMBER OF CURRENT PRODUCING WELLS} * 30. \text{ BOPM PER WELL}$$

$$QOEC = 10 * 30 = 300. \text{ BOPM}$$

$$\text{NOMINAL DECLINE FACTOR, OIL:}$$

$$AOY = 0.03921 \text{ PER YEAR}$$

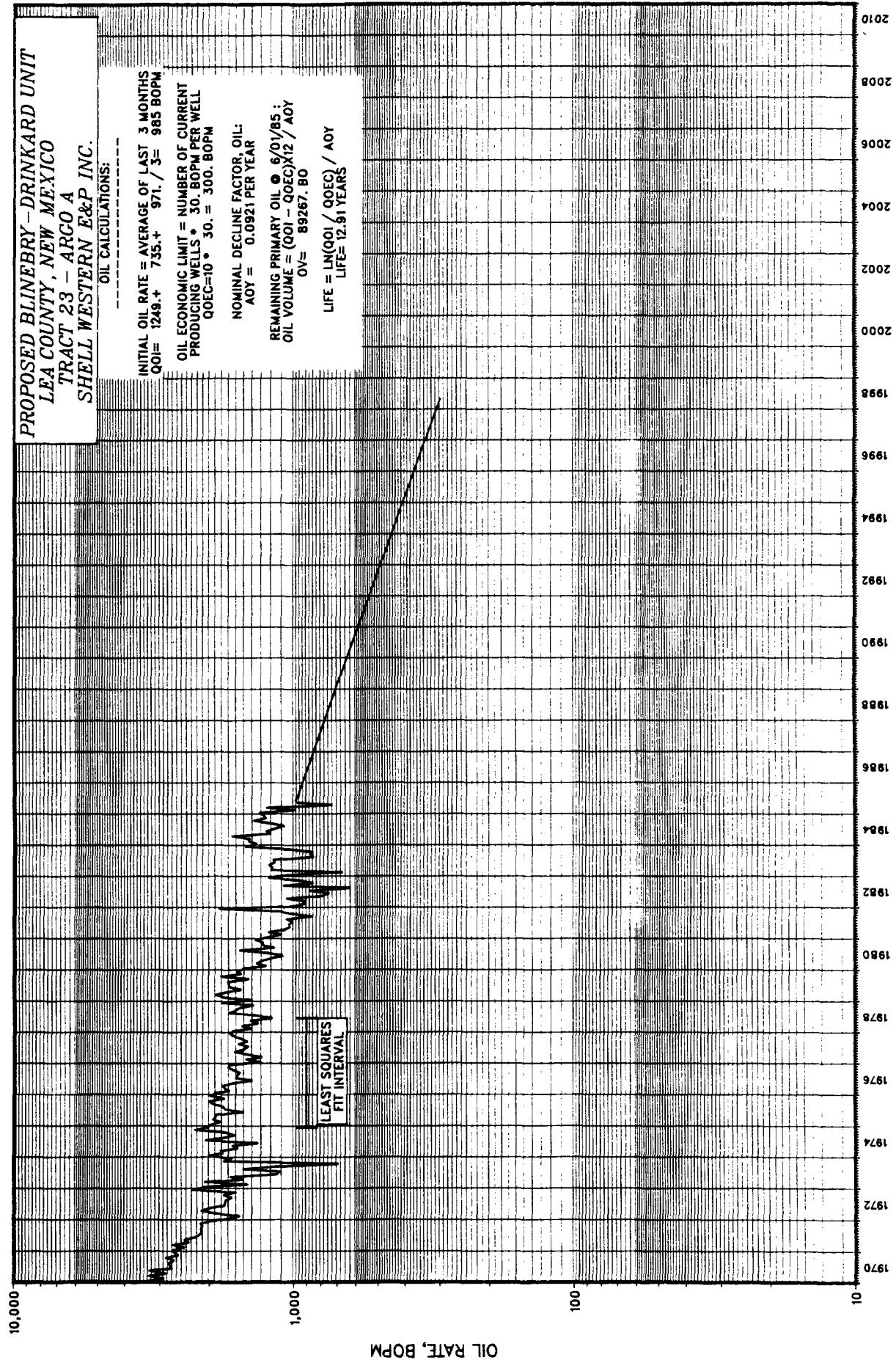
$$\text{REMAINING PRIMARY OIL} = 6/10/85 :$$

$$\text{OIL VOLUME} = (QOI - QOEC) \times 12 / AOY$$

$$QV = 89267. \text{ BO}$$

$$\text{LIFE} = \ln(QOI / QOEC) / AOY$$

$$\text{LIFE} = 12.91 \text{ YEARS}$$



OIL RATE, BOPM

**PROPOSED BLINBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 24 - O.R. EUBANK**  
**CHEVRON, U.S.A., INC. (GULF OIL CORP.)**

**OIL CALCULATIONS:**

INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS  
 QOI = 260. + 152. + 166. / 3 = 192 BOPM

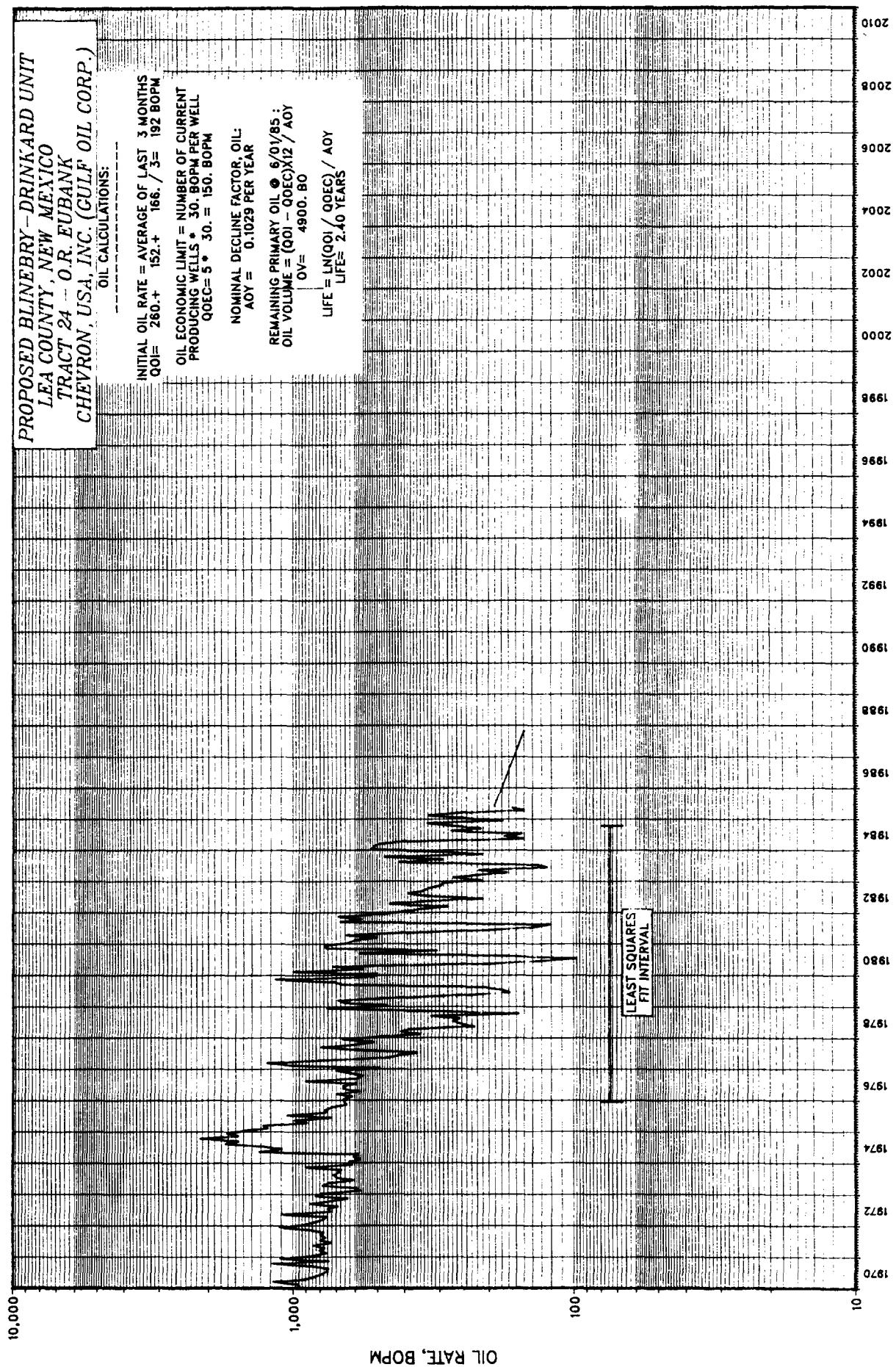
OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 30. BOPM PER WELL  
 QOEC = 5 \* 30. = 150. BOPM

NOMINAL DECLINE FACTOR, OIL  
 ADY = 0.1029 PER YEAR

REMAINING PRIMARY OIL =  $6/0^{1/85}$  ;  
 OIL VOLUME =  $(QOI - QOEC)X12 / ADY$

OV = 4900. BO

LIFE =  $\ln(QOI / QOEC) / ADY$   
 LIFE = 2.40 YEARS



**PROPOSED BLINN BRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 25 - D.A. WILLIAMSON**  
**TEXACO, INC. (GETTY OIL)**

**OIL CALCULATIONS:**

$$\text{INITIAL OIL RATE} = \text{AVERAGE OF LAST 3 MONTHS}$$

$$QOI = 598.4 + 504.7 / 3 = 522 \text{ BOPM}$$

OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS • 30. BOPM PER WELL  
 QOEC = 4 • 30. = 120. BOPM

NOMINAL DECLINE FACTOR, OIL:  
 AOF = 0.0934 PER YEAR

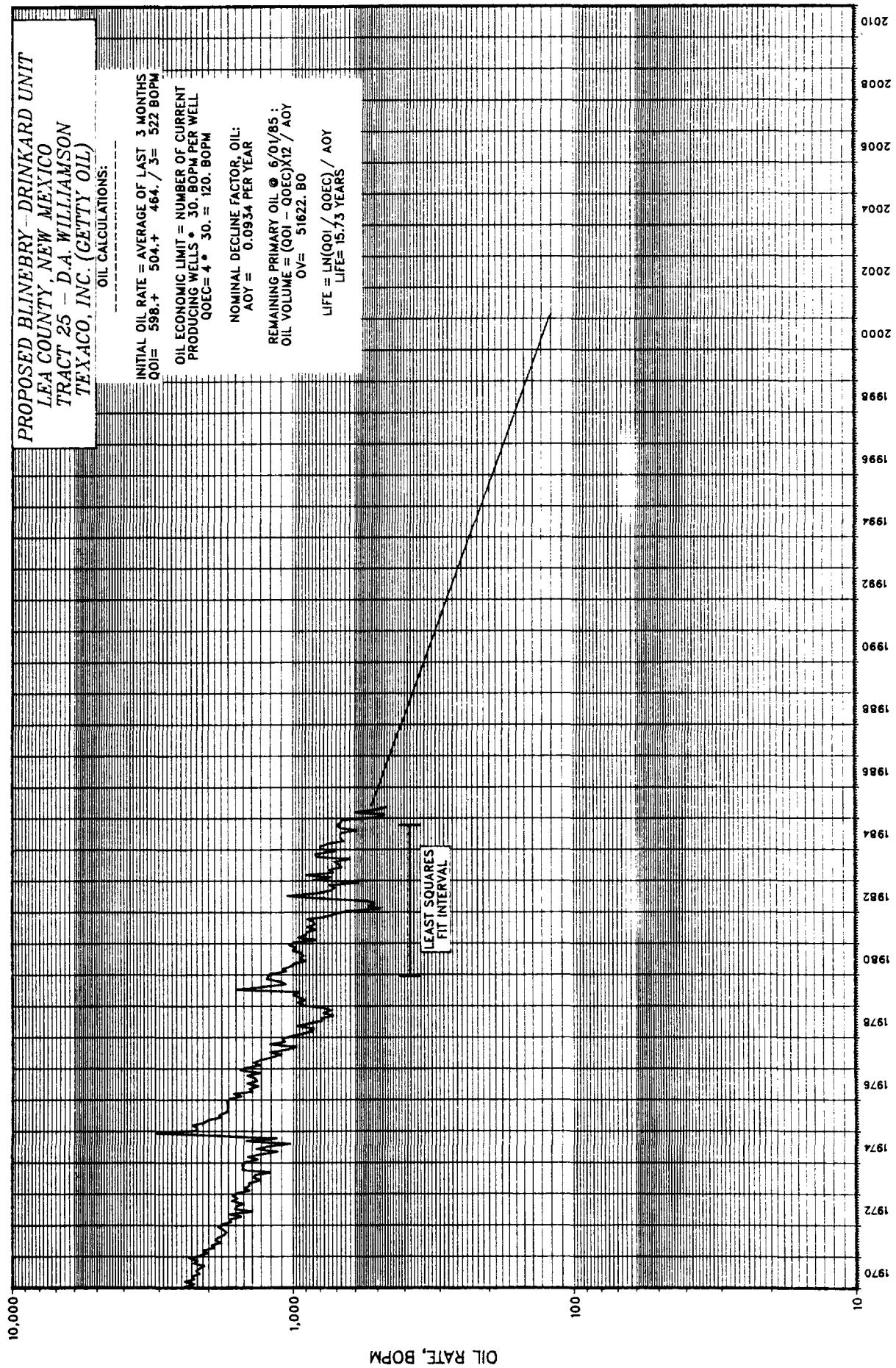
$$\text{REMAINING PRIMARY OIL @ } 6/01/85 :$$

$$\text{OIL VOLUME} = (QOI - QOEC) \times 12 / AOF$$

$$OV = 51622. BO$$

$$\text{LIFE} = \ln(QOI / QOEC) / AOF$$

$$\text{LIFE} = 15.73 \text{ YEARS}$$



**PROPOSED BLINNERY-DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 26 - ROY BARTON**  
**ARCO OIL & GAS CO.**

**OIL CALCULATIONS:**

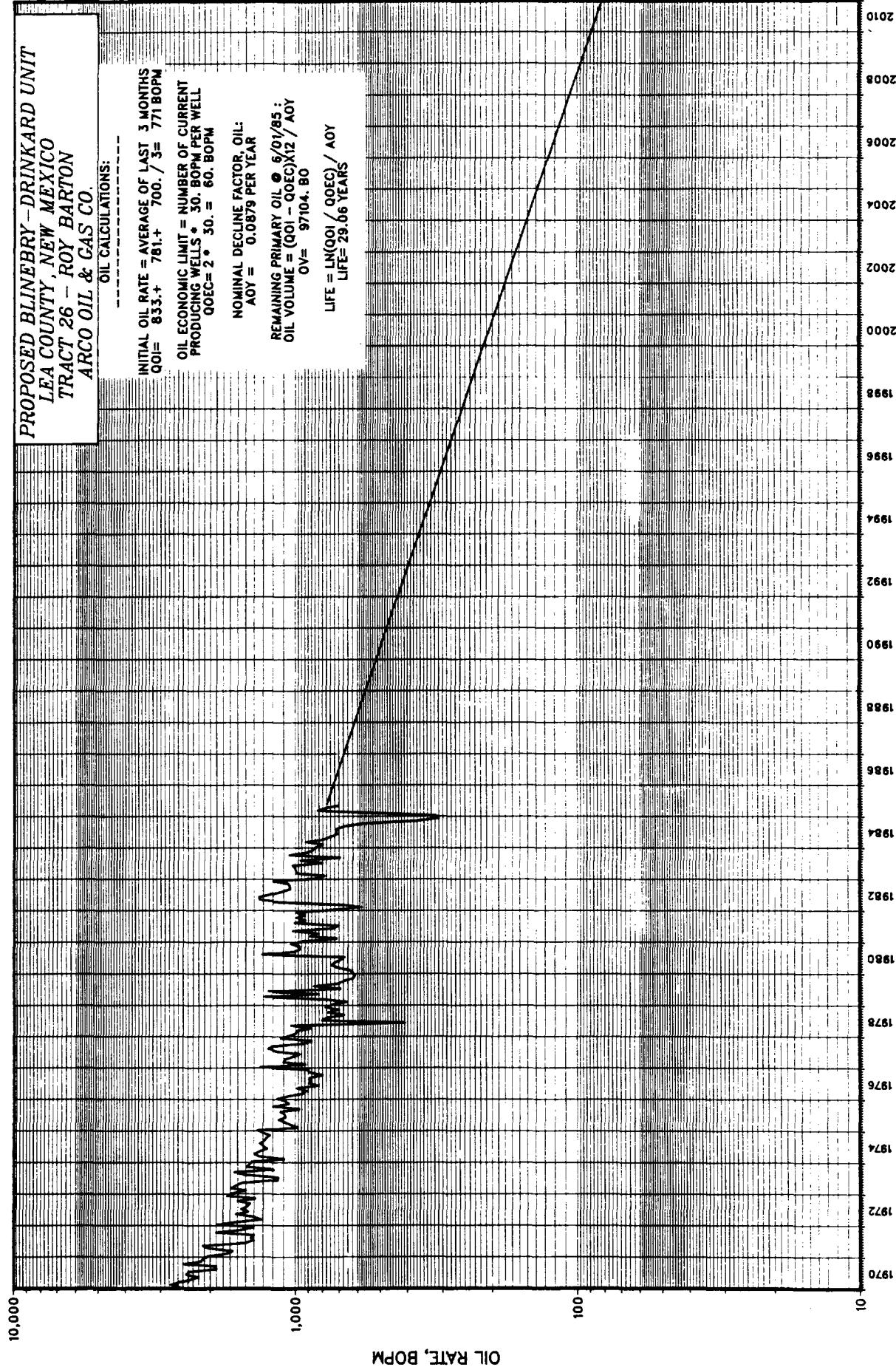
INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS  
 QOI = 833. + 700. / 3 = 771 BOPM

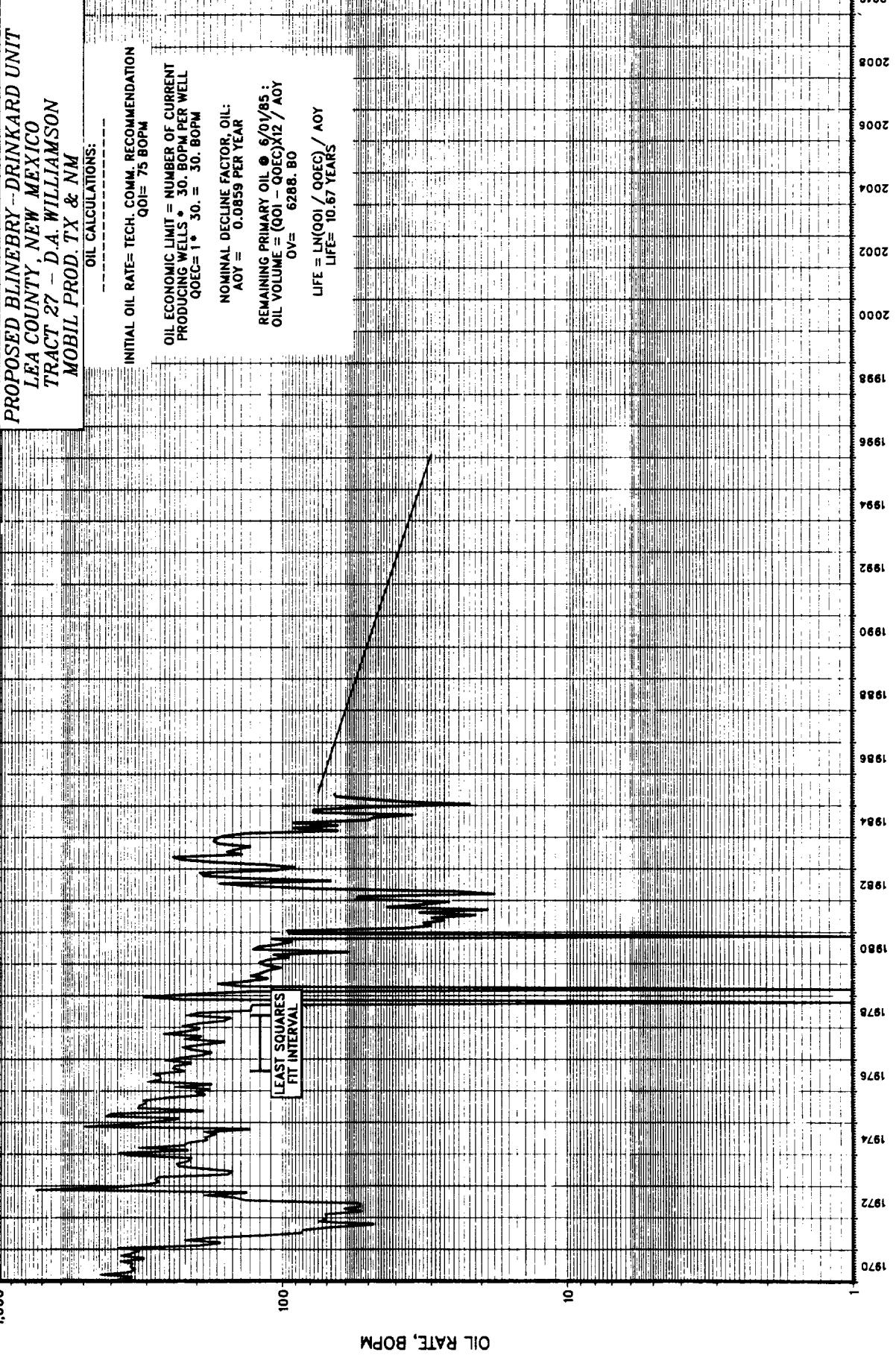
OIL ECONOMIC LIMIT = NUMBER OF CURRENT  
 PRODUCING WELLS \* 30. BOPM PER WELL  
 QECC = 2 \* 30. = 60. BOPM

NOMINAL DECLINE FACTOR, OIL:  
 ADY = 0.0879 PER YEAR

REMAINING PRIMARY OIL = 6/01/85 :  
 OIL VOLUME = (QOI - QECC)12 / ADY

OV = 97104. BO  
 LIFE = LN(QOI / QECC) / ADY  
 LIFE = 29.66 YEARS





**PROPOSED BLINBERRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 28 - A.J. TURNER**  
**SHELL WESTERN E&P INC.**

**OIL CALCULATIONS:**

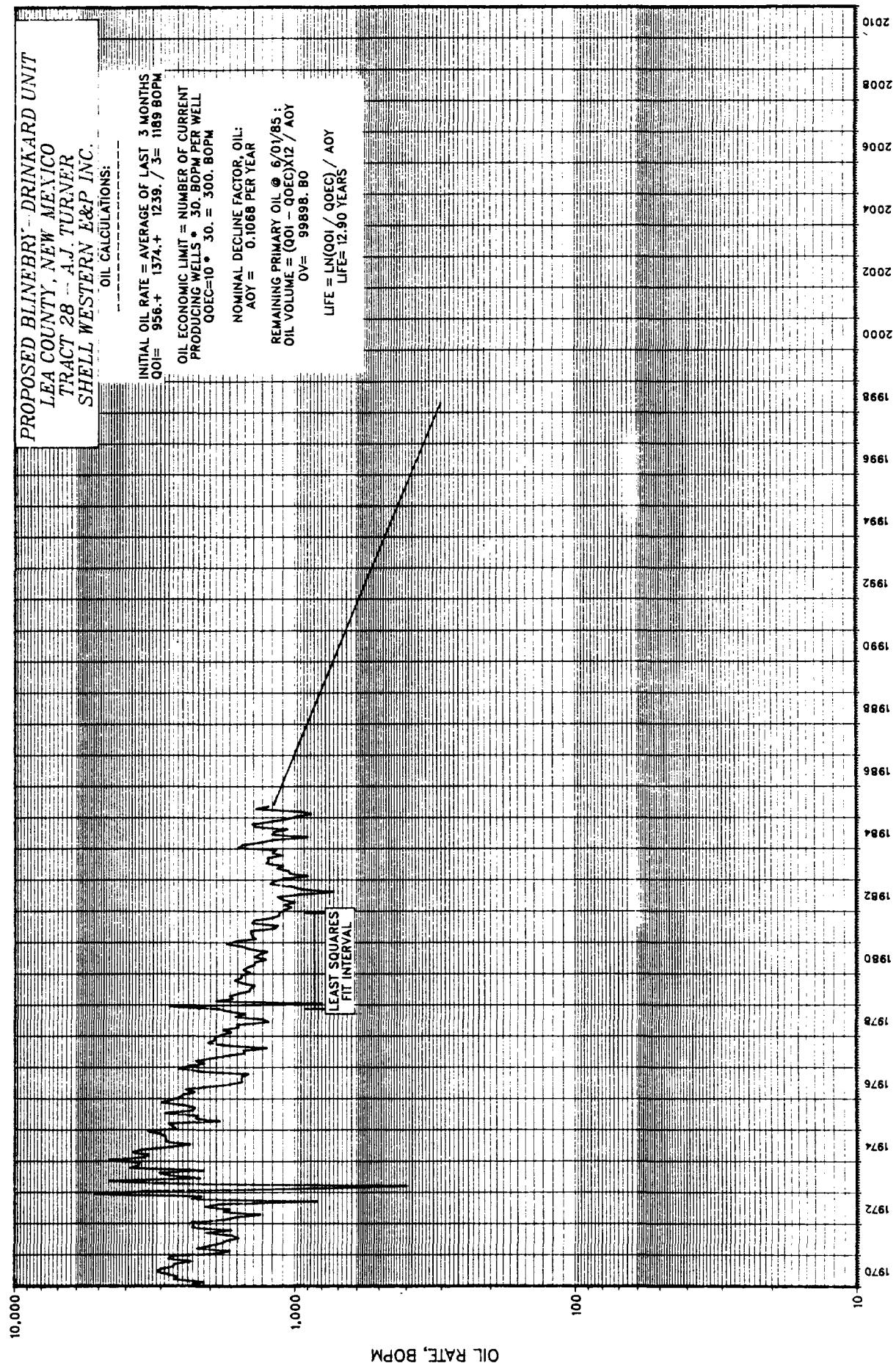
INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS  
 QOI= 956. + 1374. + 1239. / 3 = 1189 BOPM

OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS • 30. BOPM PER WELL  
 QOEC=10 • 30. = 300. BOPM

NOMINAL DECLINE FACTOR, OIL:  
 AOY = 0.1068 PER YEAR

REMAINING PRIMARY OIL @ 6/01/85 :  
 OIL VOLUME = (QOI - QOEC)X(12 / AOY)  
 OV= 99888. BO

LIFE = LN(QOI - QOEC) / AOY  
 LIFE=12.90 YEARS



**PROPOSED BLINEBRY DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 29 - S.J. SARKEYS**  
**SHELL WESTERN E&P INC.**

**OIL CALCULATIONS:**

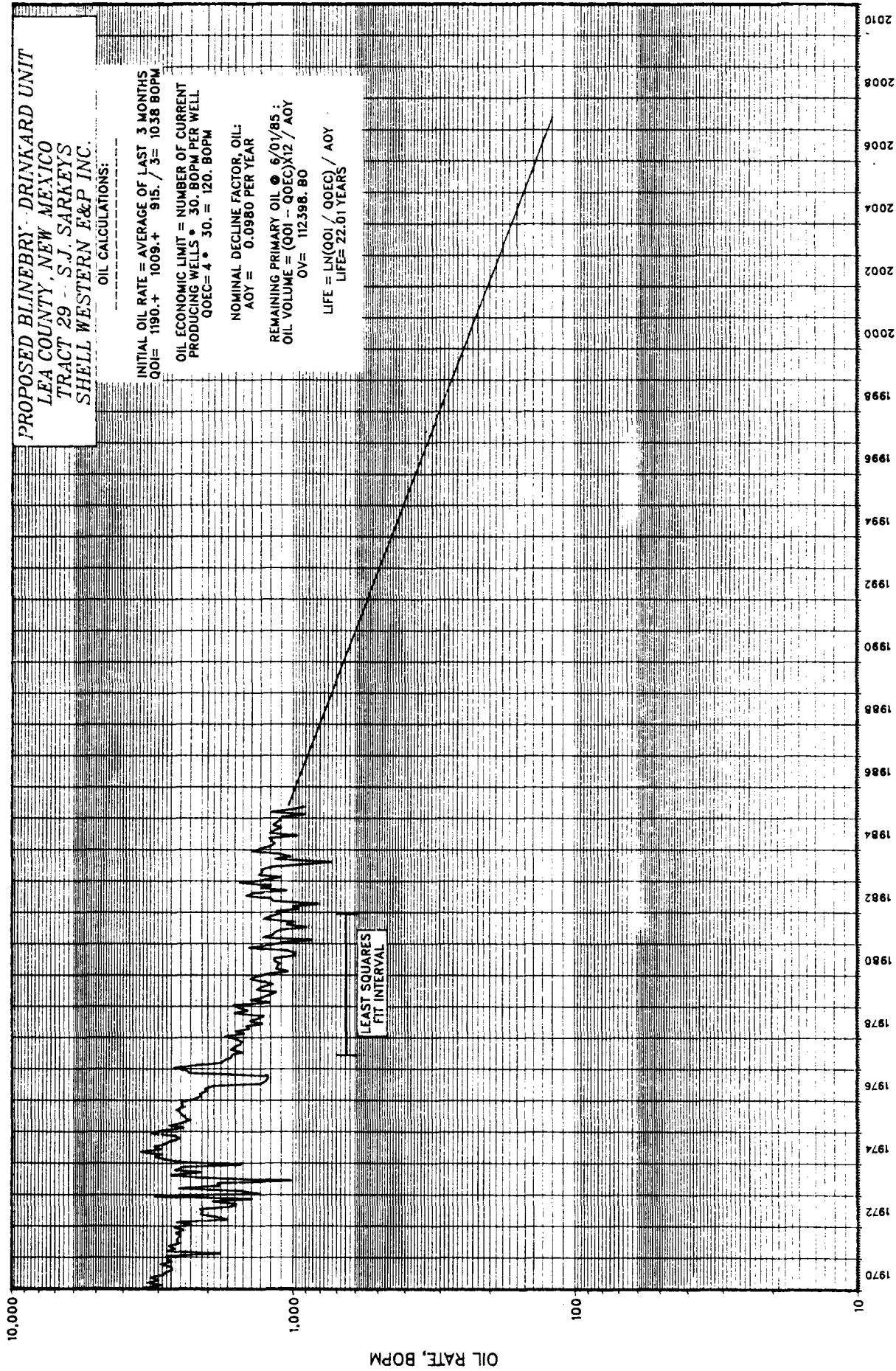
INITIAL OIL RATE = AVERAGE OF LAST 3 MONTHS  
 $QOI = 1190 + 1009 + 915 / 3 = 1038 \text{ BOPM}$

OIL ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS • 30. BOPM PER WELL  
 $QOEC = 4 • 30. = 120. \text{ BOPM}$

NOMINAL DECLINE FACTOR, OIL:

A.O.Y =  $0.0980 \text{ PER YEAR}$   
 REMAINING PRIMARY OIL @ 6/01/85:  
 $\text{OIL VOLUME} = (QOI - QOEC) \times 12 / \text{AOY}$   
 $QV = 112398. \text{ BO}$

LIFE =  $\ln(QOI / QOEC) / \text{AOY}$   
 LIFE = 22.61 YEARS



OIL RATE, BOPM

**PROPOSED BLINEBRY - DRINKARD UNIT**

**LEA COUNTY, NEW MEXICO**

**TRACT 30 - S.J. SARKEYS**

**ARCO OIL & GAS CO.**

**OIL CALCULATIONS:**

$$\text{INITIAL OIL RATE} = \text{AVERAGE OF LAST 3 MONTHS}$$

$$QOI = 852 + 758 + 834 / 3 = 814 \text{ BOPM}$$

$$\text{OIL ECONOMIC LIMIT} = \text{NUMBER OF CURRENT PRODUCING WELLS} \times 30 \text{ BOPM PER WELL}$$

$$QEC = 5 \times 30 = 150 \text{ BOPM}$$

$$\text{NOMINAL DECLINE FACTOR, OIL:}$$

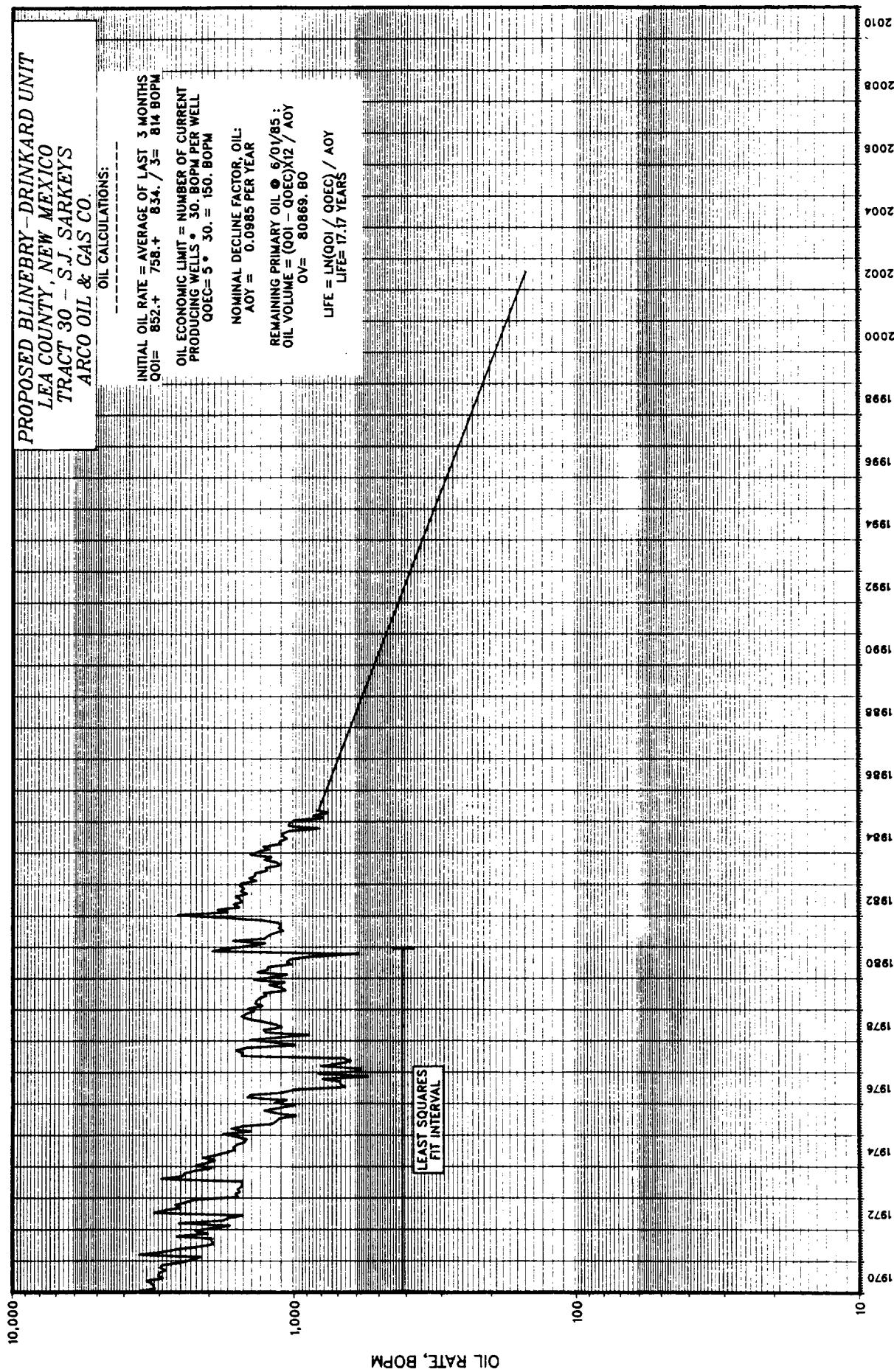
$$AOY = 0.0985 \text{ PER YEAR}$$

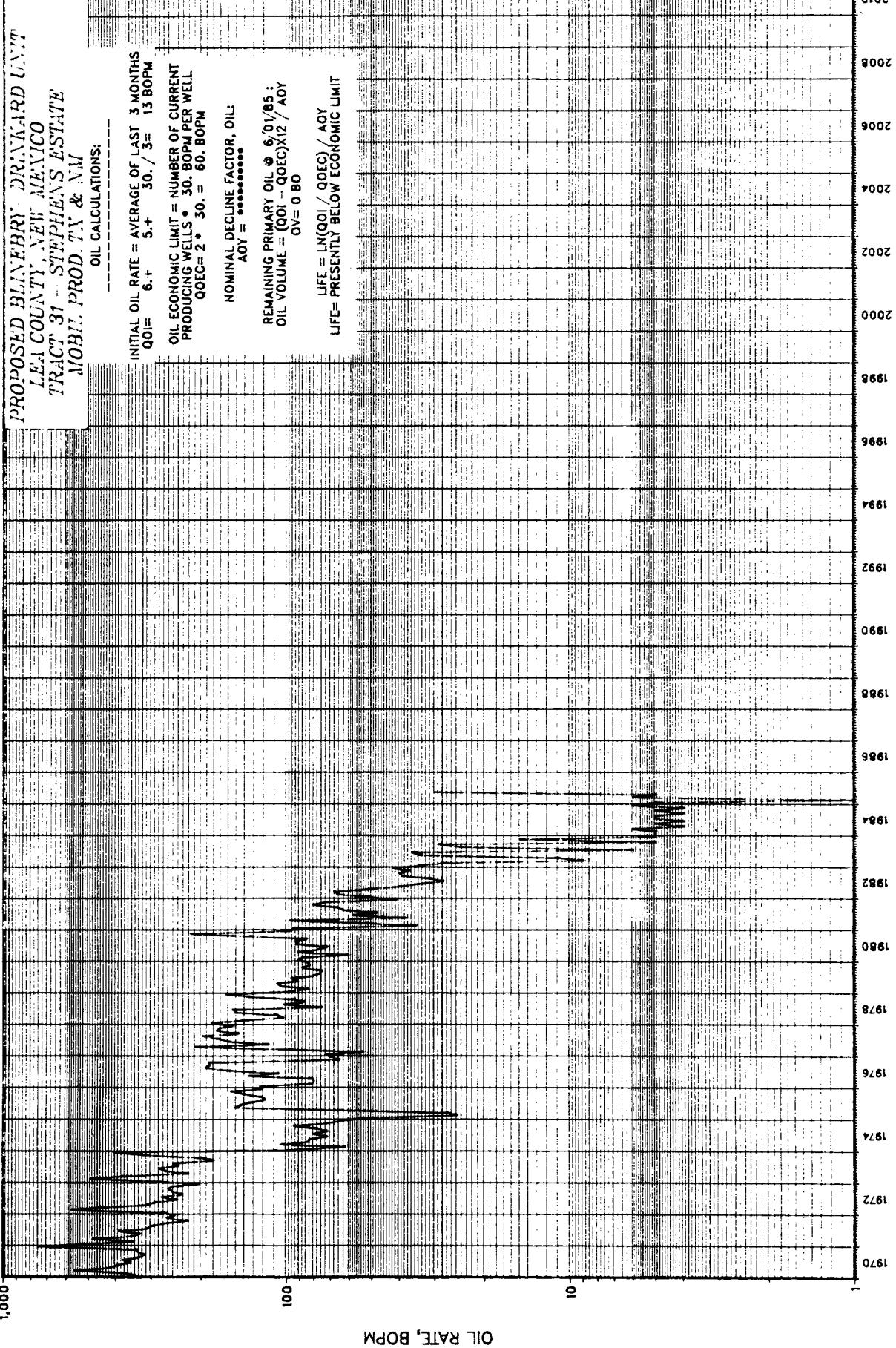
$$\text{REMAINING PRIMARY OIL} = \frac{6/0V/85}{(QOI - QEC) \times 12 / AOY}$$

$$OV = 80869.80$$

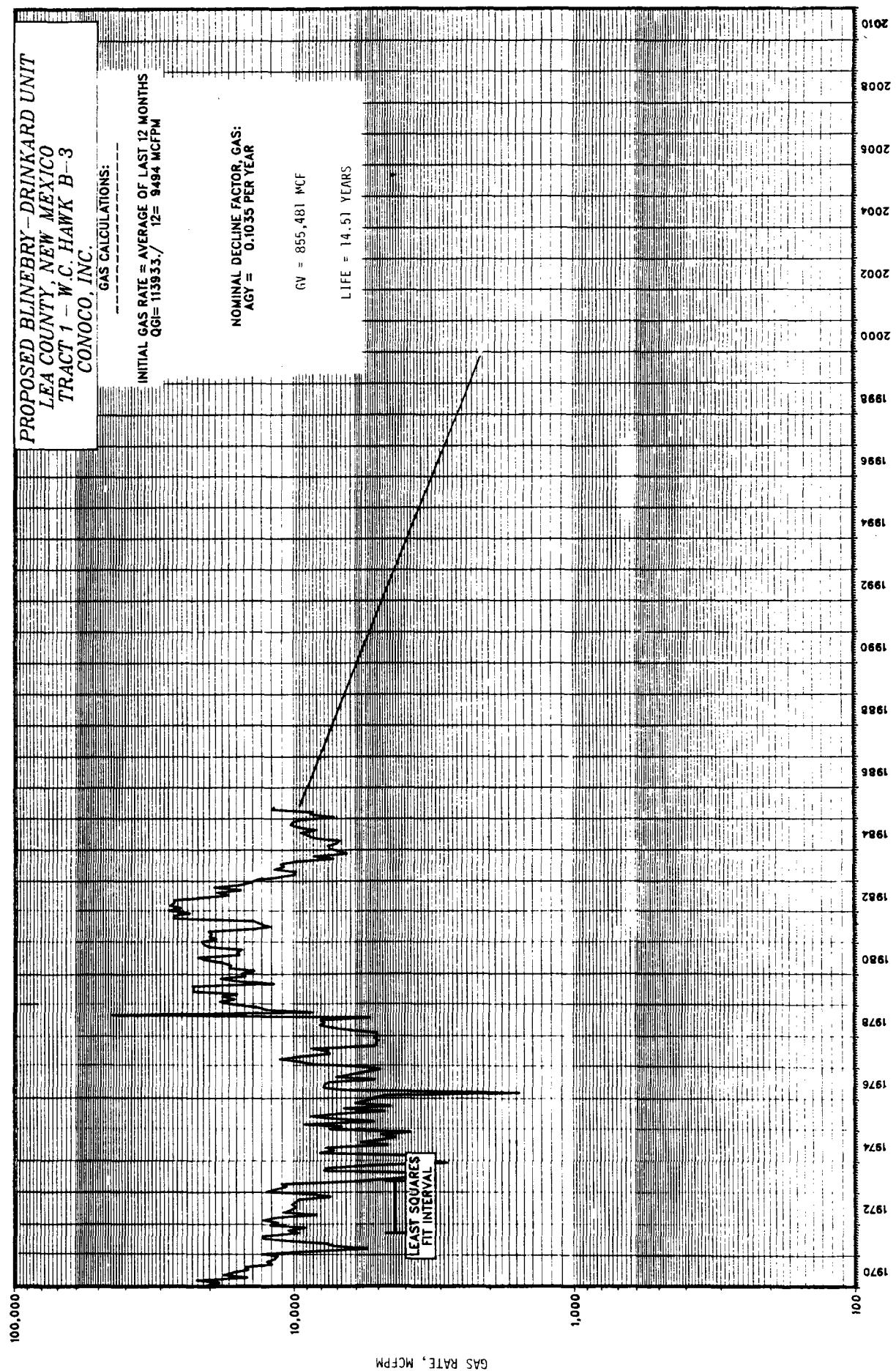
$$\text{LIFE} = \frac{\ln(QOI / QEC)}{AOY}$$

$$\text{LIFE} = 17.17 \text{ YEARS}$$





**APPENDIX B**  
**GAS PRODUCTION CURVES**



**PROPOSED BLINNEBRY - DRINKARD UNIT**  
LEA COUNTY, NEW MEXICO  
TRACT 2 - STATE SEC. 2  
**SOUTHLAND ROYALTY**

GAS CALCULATIONS:

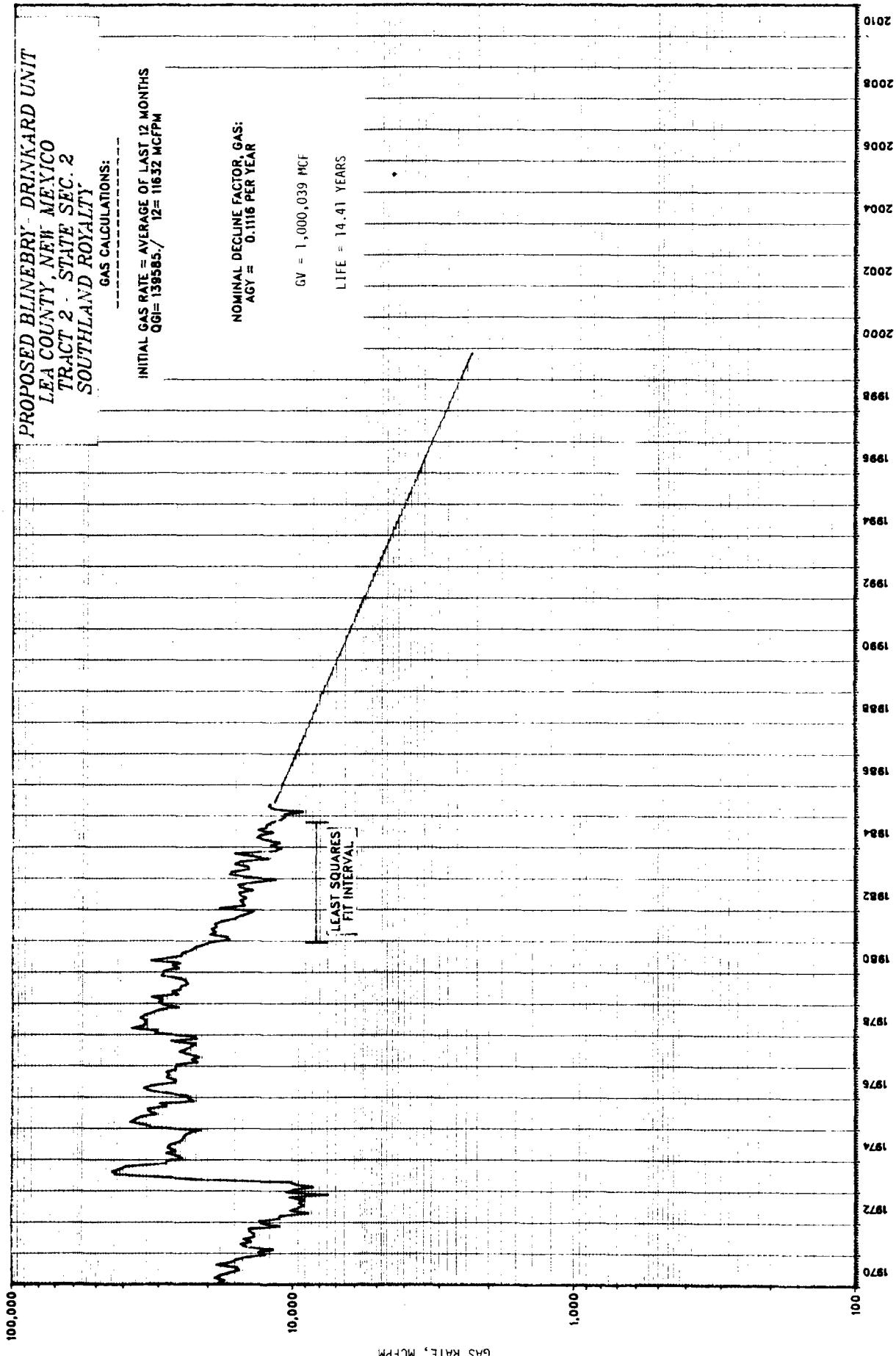
INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
QGI = 1395.85 / 12 = 116.32 MCFPM

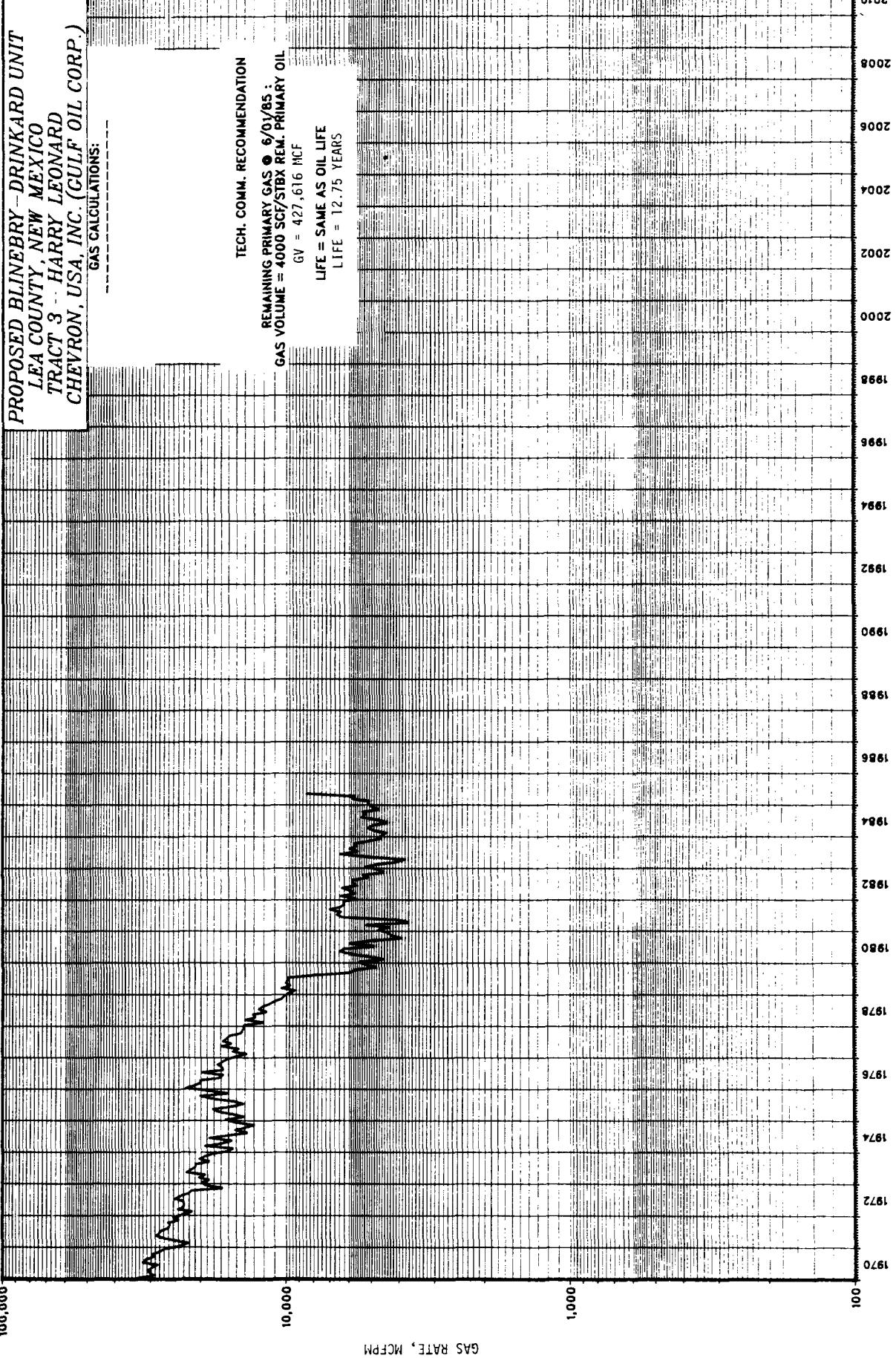
NOMINAL DECLINE FACTOR, GAS:  
AGY = 0.1116 PER YEAR

GV = 1,000,039 MCF

LIFE = 14.41 YEARS

LEAST SQUARES  
FIT INTERVAL





**PROPOSED BLINBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 4 - TAYLOR - GLENN**  
**SHELL WESTERN E&P INC.**

**GAS CALCULATIONS:**

INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
 $QGI = 480561. / 12 = 40046 \text{ MCFPM}$

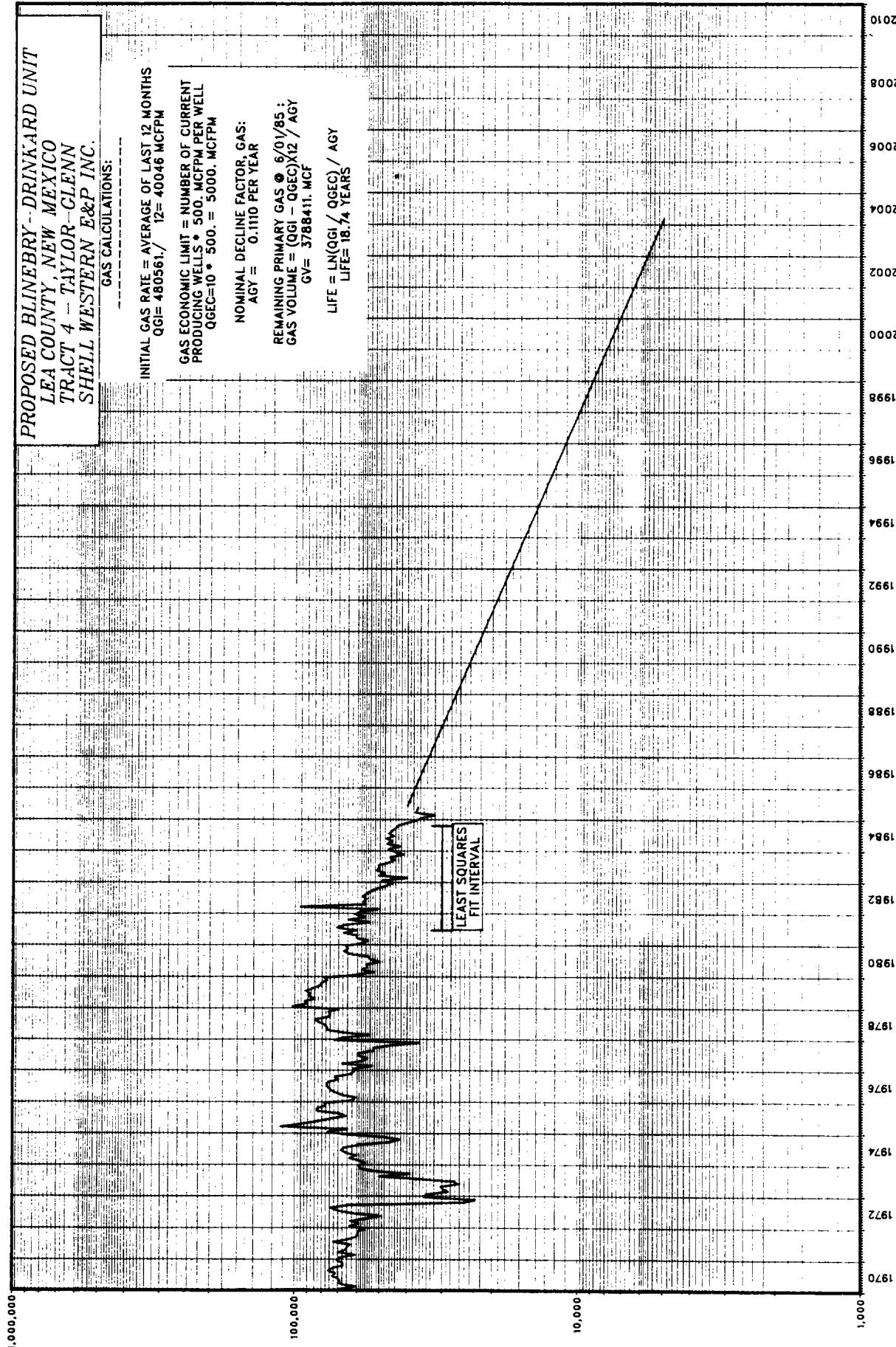
GAS ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 500. MCFPM PER WELL  
 $QGEC = 10 * 500. = 5000. \text{ MCFPM}$

NOMINAL DECINE FACTOR, GAS:

$AGY = 0.1110 \text{ PER YEAR}$   
 REMAINING PRIMARY GAS  $\bullet 6/01/85 :$

GAS VOLUME =  $(QGI - QGEC)12 / AGY$   
 $GV = 3788.11. \text{ MCF}$

LIFE =  $\ln(QGI / QGEC) / AGY$   
 LIFE = 18.4 YEARS



**PROPOSED BLINEBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 5 - C.H. LIVINGSTON**  
**SHELL WESTERN E&P INC.**

**GAS CALCULATIONS:**

INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
QGI= 55528. /  
12= 46273. MCFPM

GAS ECONOMIC LIMIT = NUMBER OF CURRENT  
PRODUCING WELLS \* 500. MCFPM PER WELL  
QECL=10 \* 500. = 5000. MCFPM

NOMINAL DECLINE FACTOR, GAS:

AGY = 0.0785 PER YEAR

REMAINING PRIMARY GAS @ 6/01/85 :  
GAS VOLUME = (QGI - QECL)X12 / AGY  
GV= 6308096. MCF

LIFE =  $\ln(QGI / QECL) / AGY$

LIFE= 28.34 YEARS

LEAST SQUARES  
FIT INTERVAL

1,000,000

100,000

10,000

1,000

GAS RATE, MCFPM

2012  
2010  
2008  
2006  
2004  
2000  
1998  
1996  
1994  
1992  
1990  
1988  
1986  
1984  
1982  
1980  
1978  
1976  
1974  
1972  
1970

**PROPOSED BLINDBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 7 - W.C. HAWK B-3**  
**CONOCO, INC.**

**GAS CALCULATIONS:**

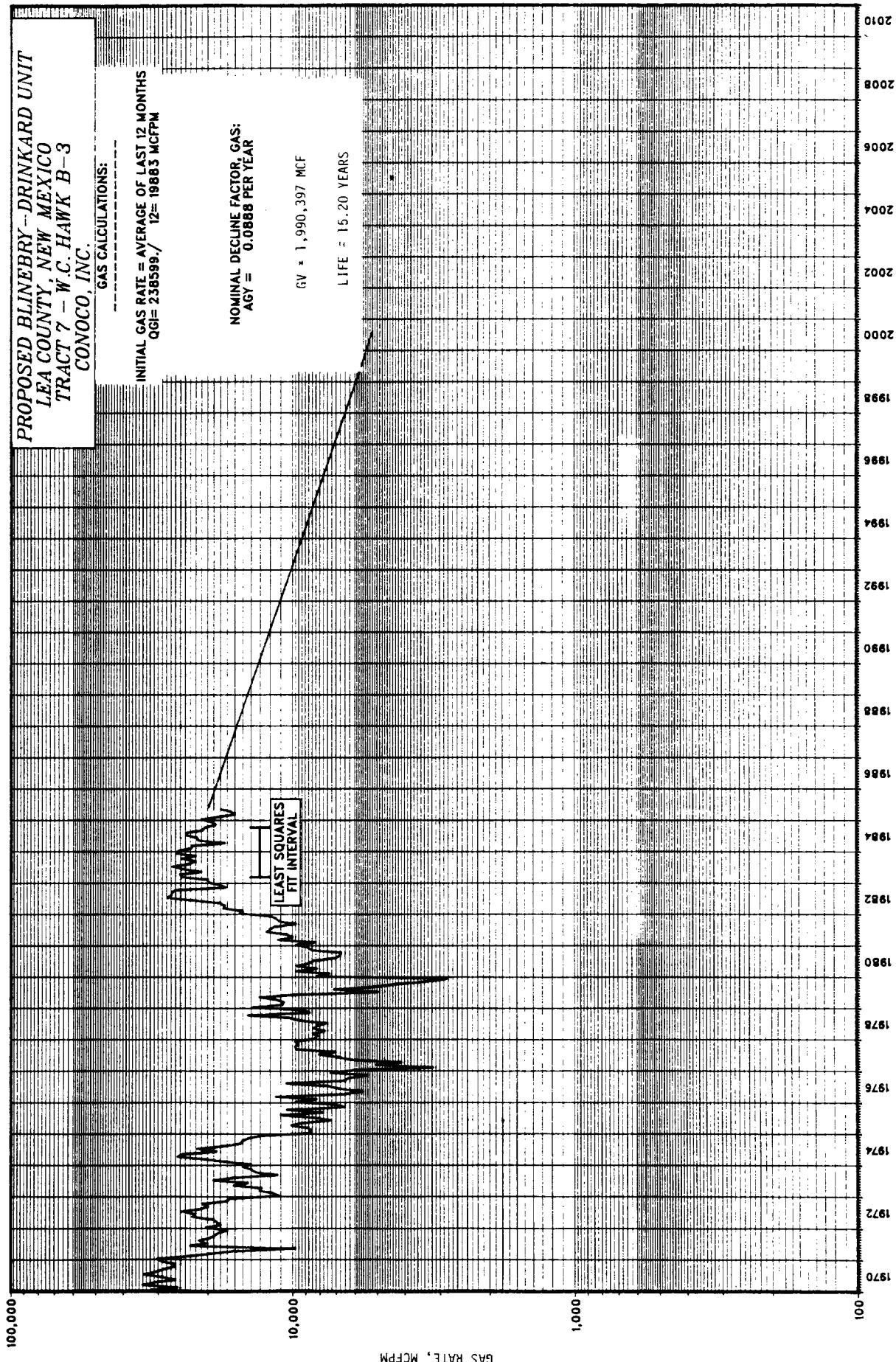
INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
 QG= 238599./12= 19883 MCFPM

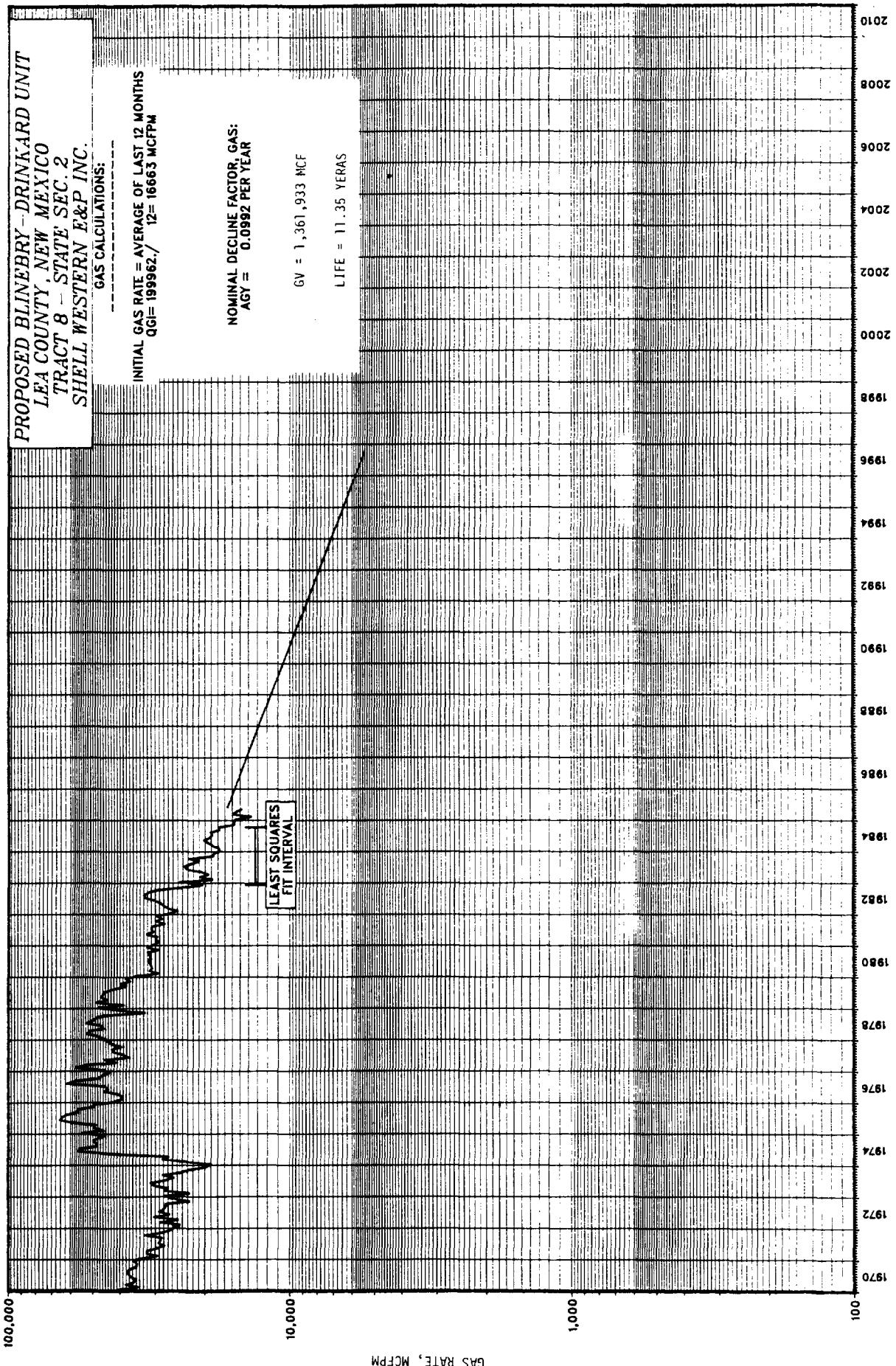
NOMINAL DECLINE FACTOR, GAS:  
 AGF = 0.0888 PER YEAR

LEAST SQUARES  
FIT INTERVAL

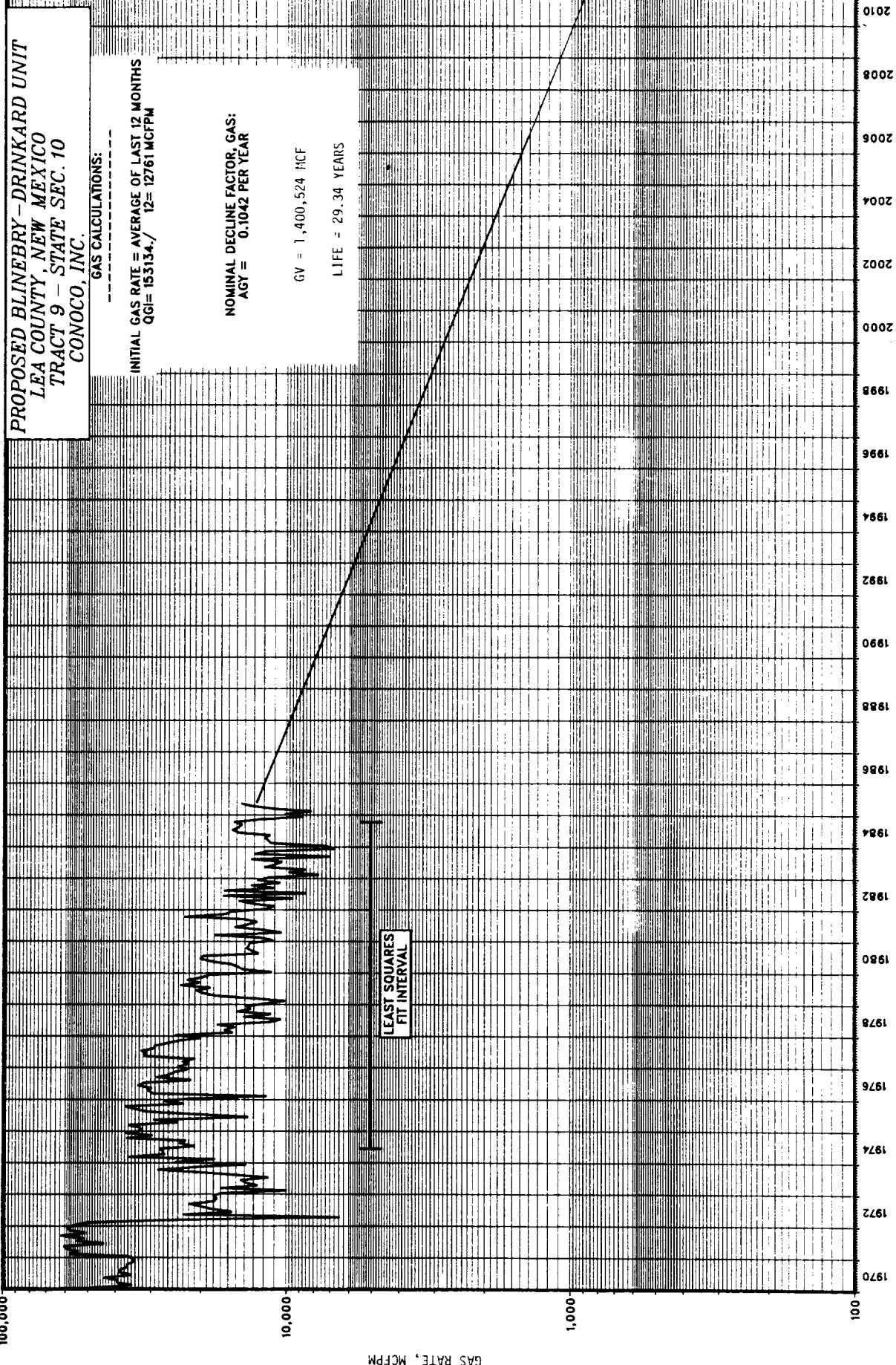
GV = 1,990,397 MCF

LIFE = 15-20 YEARS





GAS RATE, MCFM



GAS RATE, MCFPM

**PROPOSED BLINBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 10 - W.C. HAWK B-10**  
**CONOCO, INC.**

**GAS CALCULATIONS:**

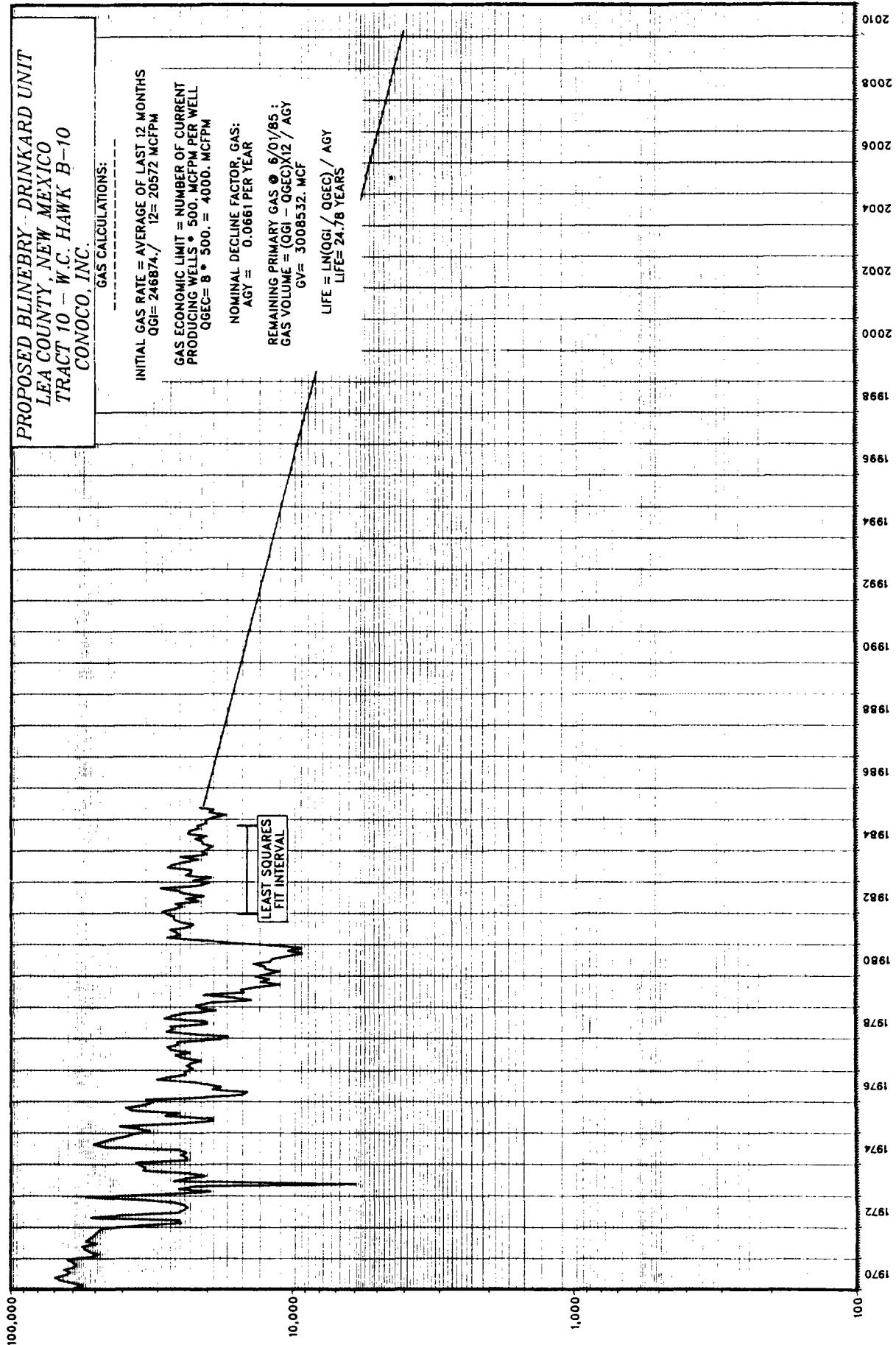
INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
 $QGI = 246874 / 12 = 20572 \text{ MCFPM}$

GAS ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS • 500, MCFPM PER WELL  
 $QGEC = 8 • 500 = 4000 \text{ MCFPM}$

NOMINAL DECLINE FACTOR GAS:  
 $AGY = 0.0661 \text{ PER YEAR}$

REMAINING PRIMARY GAS @ 6/01/85:  
 GAS VOLUME =  $(QGI - QGEC) \times 12 / AGY$   
 $GV = 3008532 \text{ MCF}$

LIFE =  $\ln(QGI / QGEC) / AGY$   
 LIFE = 24.78 YEARS



**PROPOSED BLINNEBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 11 - DAURON**  
**SOUTHLAND ROYALTY**

**GAS CALCULATIONS:**

INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
 $QGI = 80238 / 12 = 6688 \text{ MCFPM}$

GAS ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 500. MCFPM PER WELL  
 $QGEC = 2 * 500 = 1000. \text{ MCFPM}$

NOMINAL DECLINE FACTOR, GAS:

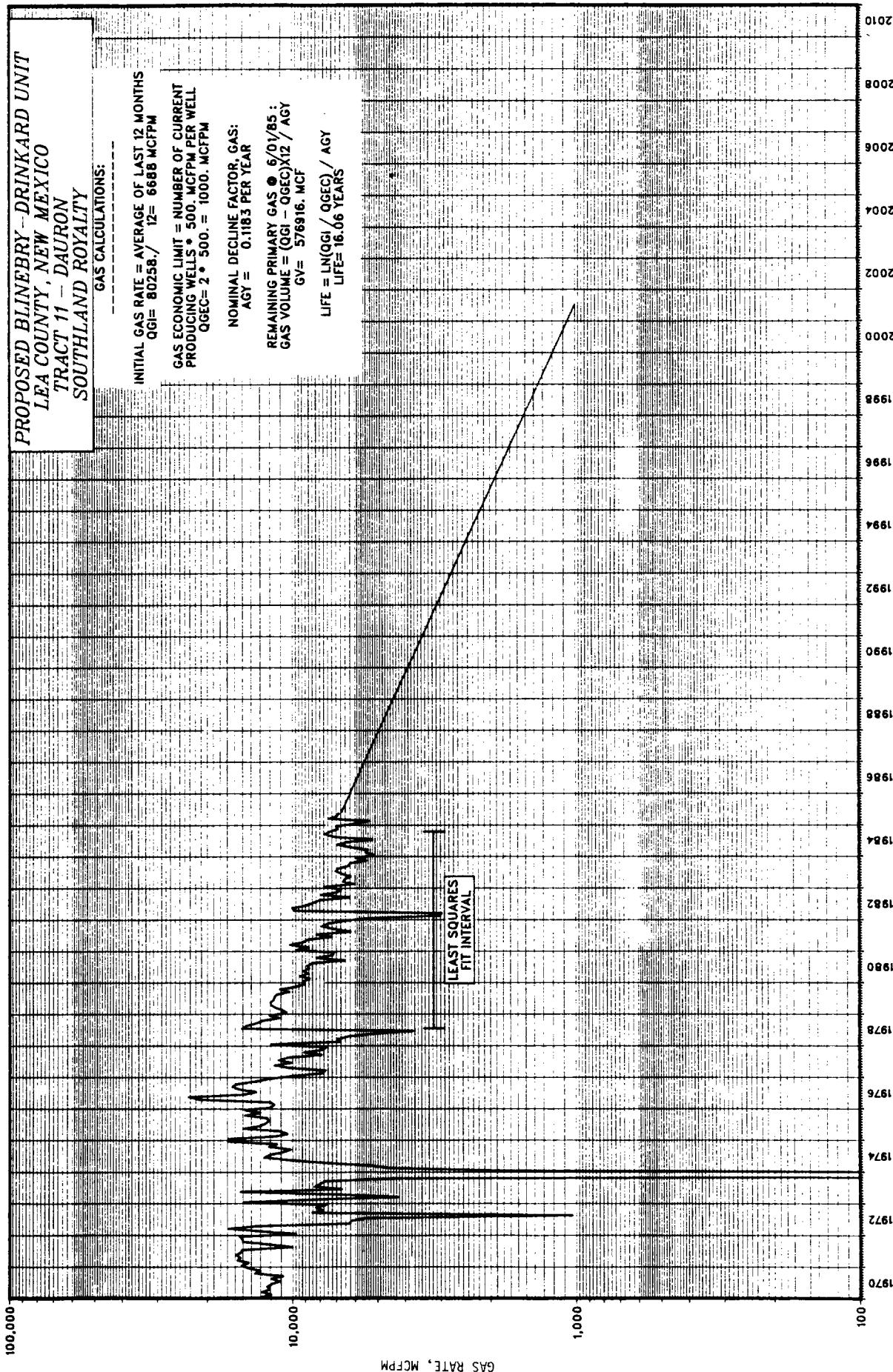
$AGY = 0.1183 \text{ PER YEAR}$

REMAINING PRIMARY GAS @  $6/01/85$  :

GAS VOLUME =  $(QGI - QGEC) \times 12 / AGY$   
 $GV = 578916. \text{ MCF}$

LIFE =  $\ln(QGI / QGEC) / AGY$

LIFE =  $16.6 \text{ YEARS}$



**PROPOSED BLUEBIRD - DRINKARD UNIT**  
LEA COUNTY, NEW MEXICO  
TRACT 12 - NM V STATE  
EXXON CO., USA

GAS CALCULATIONS:

INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
QGIP = 146935 /  
12 = 12244 MCFPM

NOMINAL DECLINE FACTOR, GAS:  
AGY = 0.0937 PER YEAR

GV = 1,421,850 MCF

LIFE = 27.26 YEARS

LEAST SQUARES  
FIT INTERVAL

100,000

10,000

1,000

GAS RATE, MCFPM

2010  
2008  
2006  
2004  
2002  
2000  
1998  
1996  
1994  
1992  
1990  
1988  
1986  
1984  
1982  
1980  
1978  
1976  
1974  
1972  
1970

**PROPOSED BLINEBRY-DRINKARD UNIT**

**LEA COUNTY, NEW MEXICO**

**TRACT 13 - GUTMAN**

**SOUTHLAND ROYALTY**

**GAS CALCULATIONS:**

INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
QGI= 132998 / 12 = 1083 MCFPM

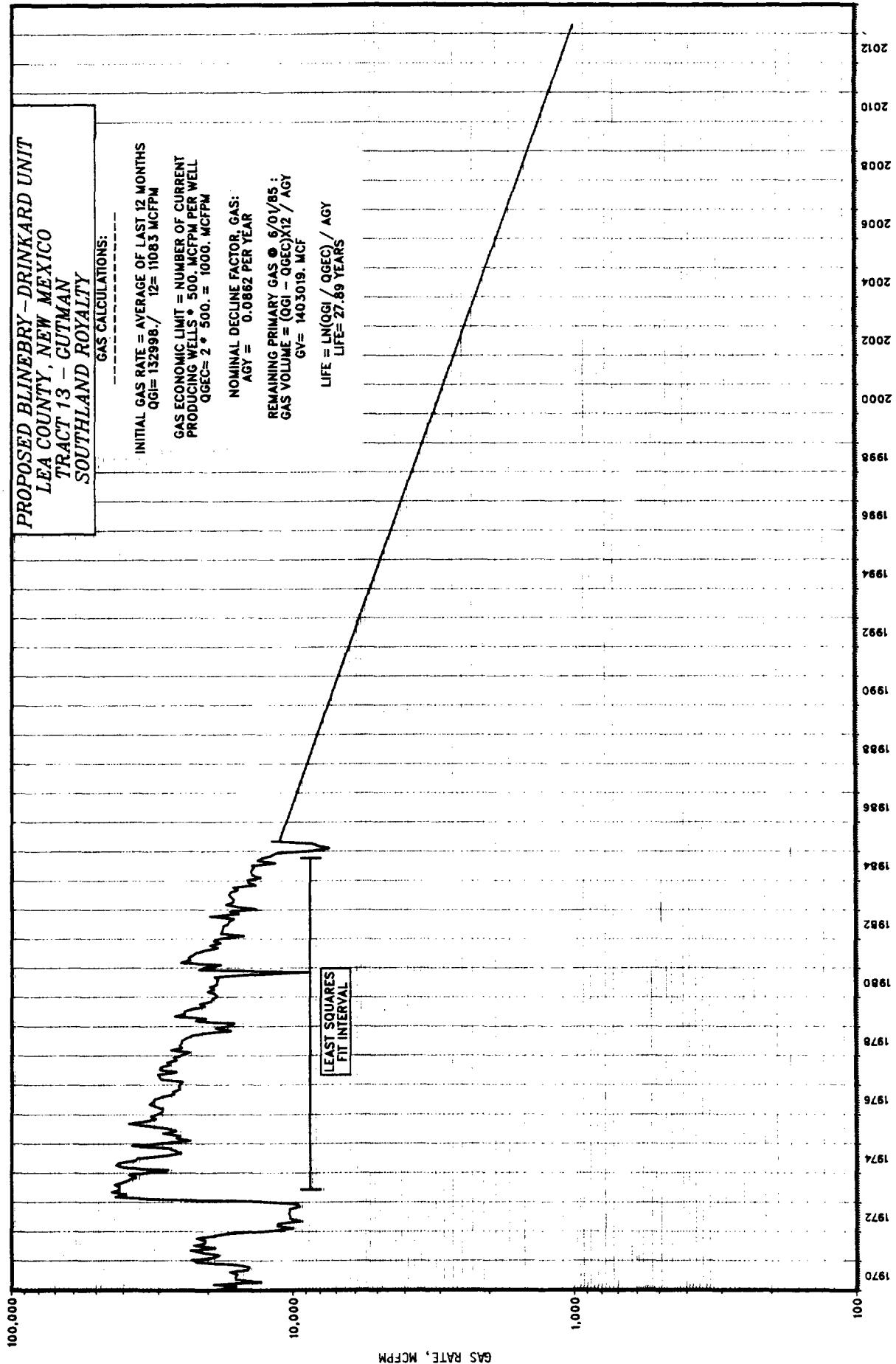
GAS ECONOMIC LIMIT = NUMBER OF CURRENT  
PRODUCING WELLS \* 500, MCFPM PER WELL  
QECL= 2 \* 500 = 1000. MCFPM

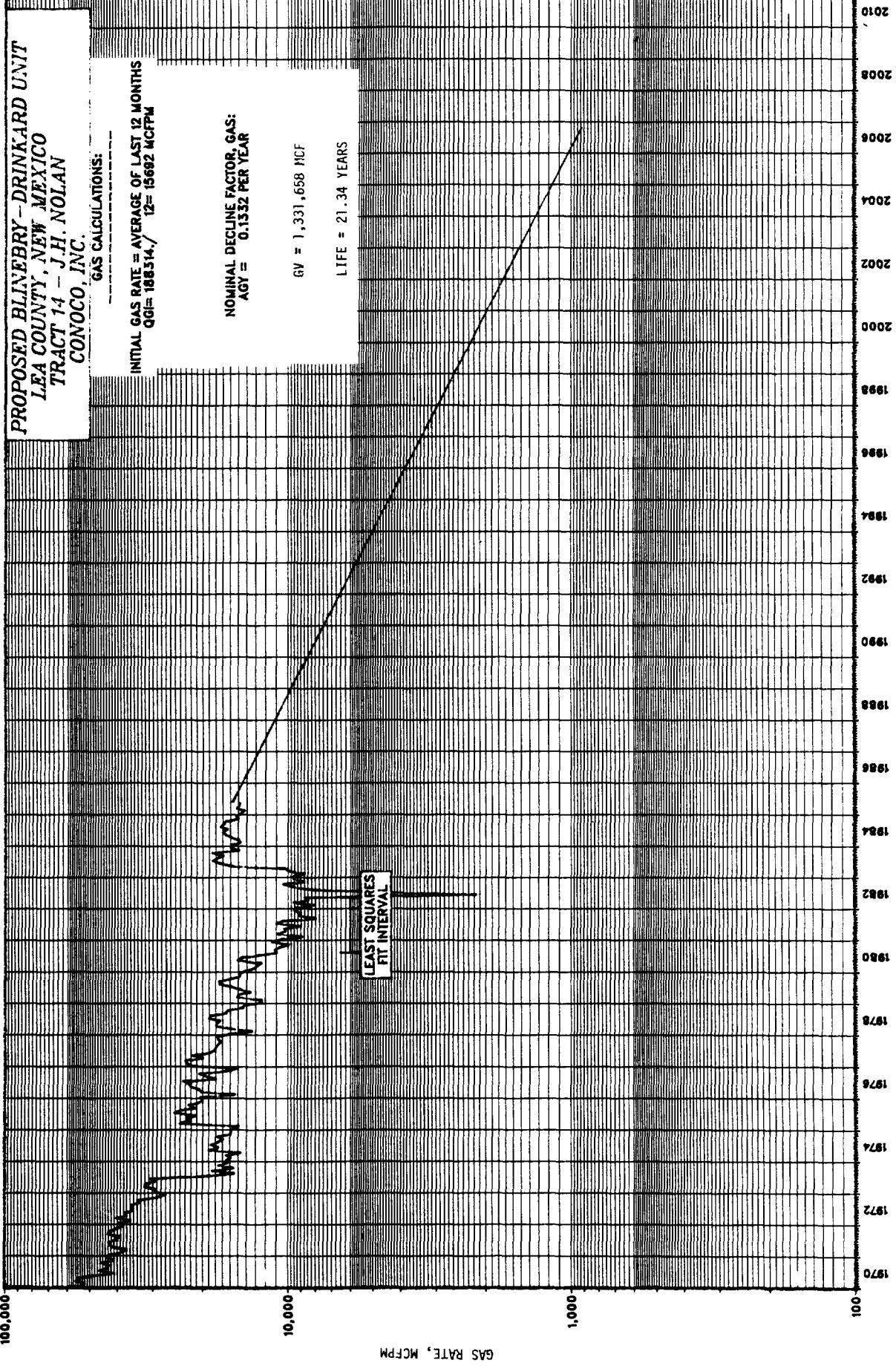
NOMINAL DECLINE FACTOR, GAS:  
AGY = 0.0882 PER YEAR

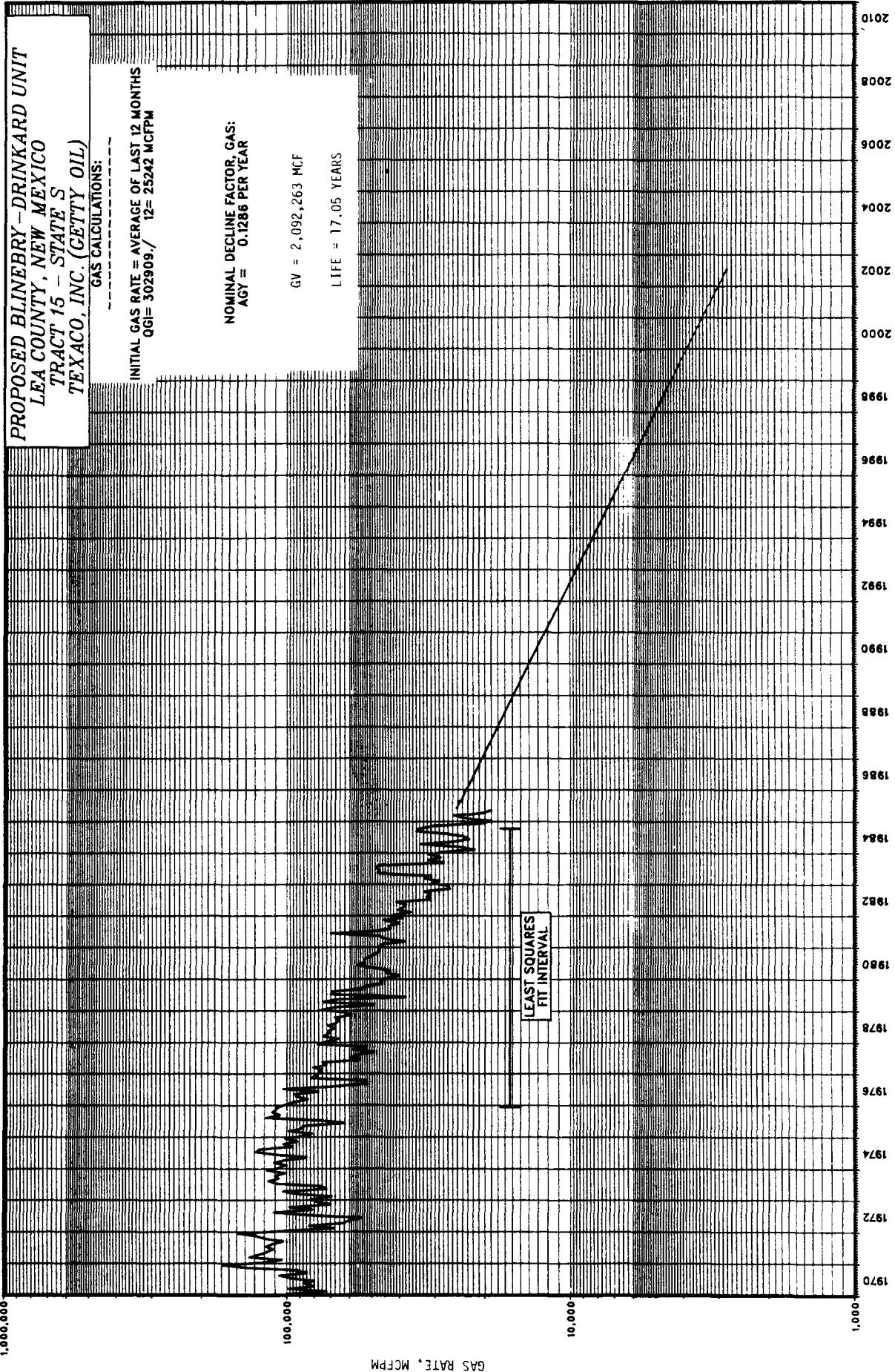
REMAINING PRIMARY GAS @ 6/01/85 :  
GAS VOLUME = (QGI - QECL)X12 / AGY  
GV= 1403019. MCF

LIFE =  $\ln(QGI / QECL) / AGY$   
LIFE= 27.69 YEARS

LEAST SQUARES  
FIT INTERVAL







**PROPOSED BLUEBERRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 16 - STATE S**  
**CITIES SERVICE**

**GAS CALCULATIONS:**

INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
 $QGI = 222072 / 12 = 18506 \text{ MCFPM}$

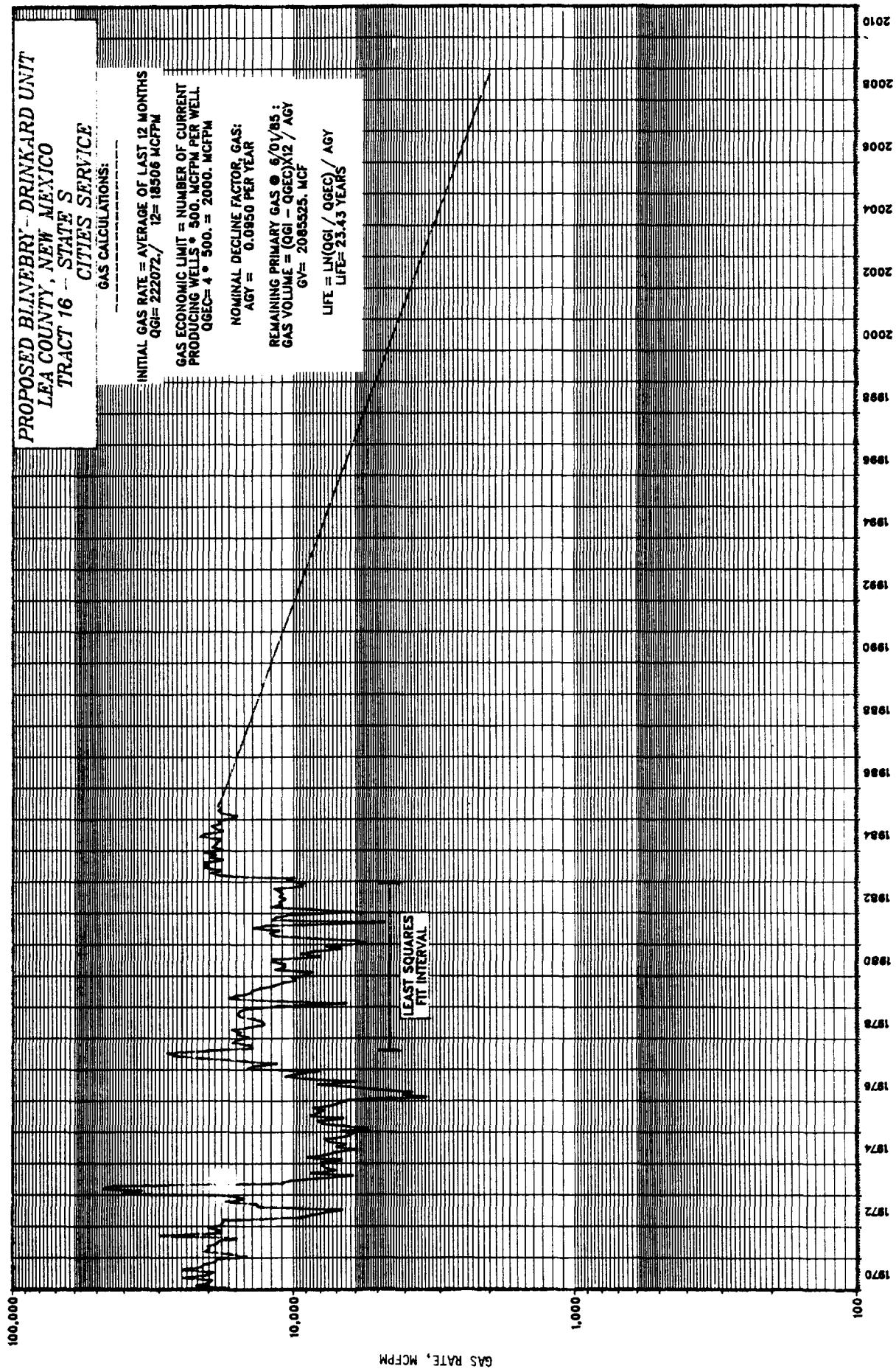
GAS ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 500, MCFPM PER WELL.  
 $QECL = 4 * 500 = 2000, \text{ MCFPM}$

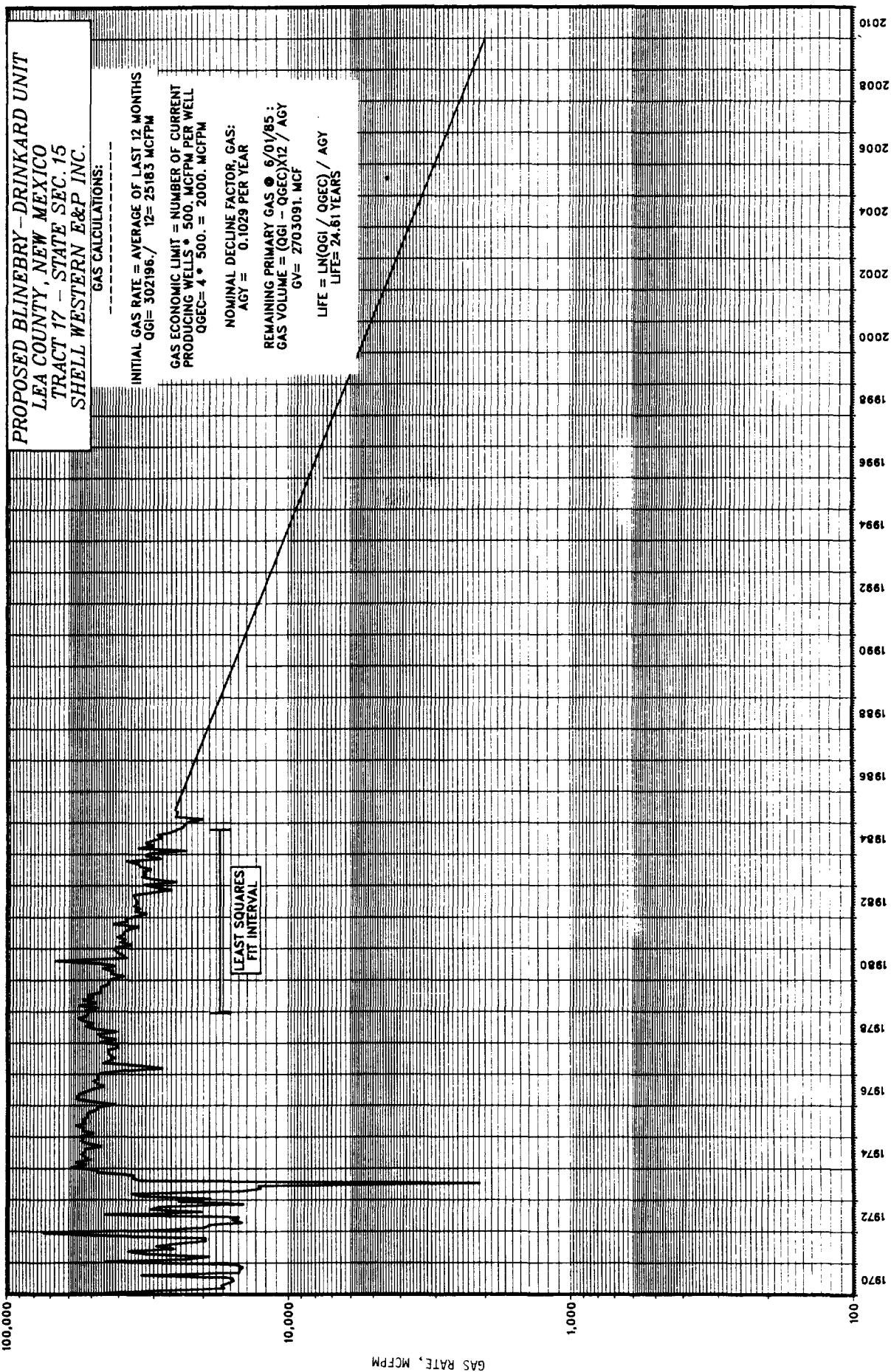
NOMINAL DECLINE FACTOR, GAS:

$AGI = 0.0950 \text{ PER YEAR}$

REMAINING PRIMARY GAS @  $6/01/85 :$   
 GAS VOLUME =  $(QGI - QECL) \times 12 / AGI$   
 $GV = 2065325, \text{ MCF}$

LIFE =  $\ln(QGI / QECL) / AGI$   
 $LIFE = 23.43 \text{ YEARS}$





**PROPOSED BLINEBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 18BD - EVA OWEN**  
**BRAVO ENERGY**

**GAS CALCULATIONS:**

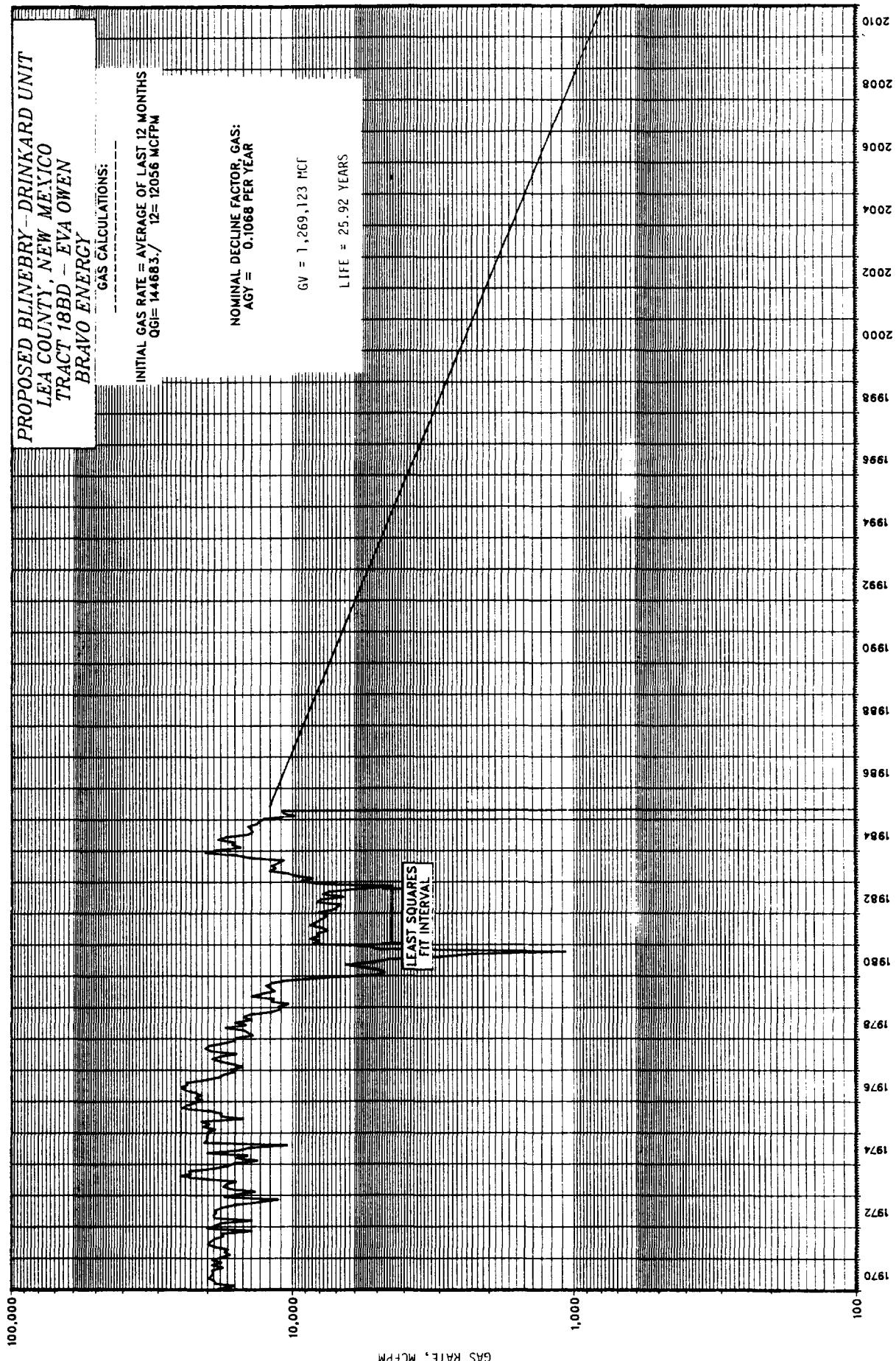
**INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS**  
**QG= 144683. / 12= 12056 MCFPM**

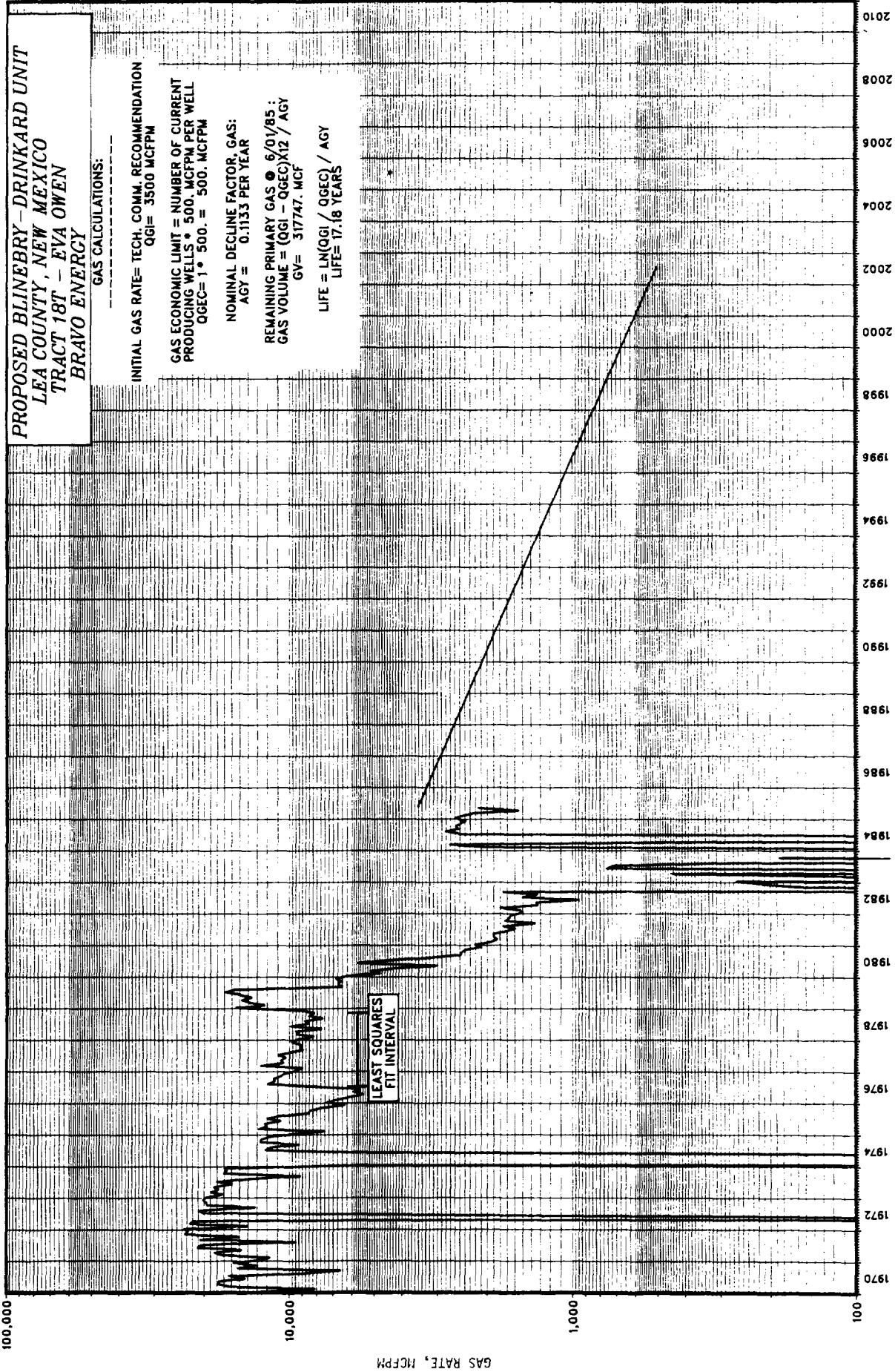
**NOMINAL DECLINE FACTOR, GAS:**  
**AGY = 0.1068 PER YEAR**

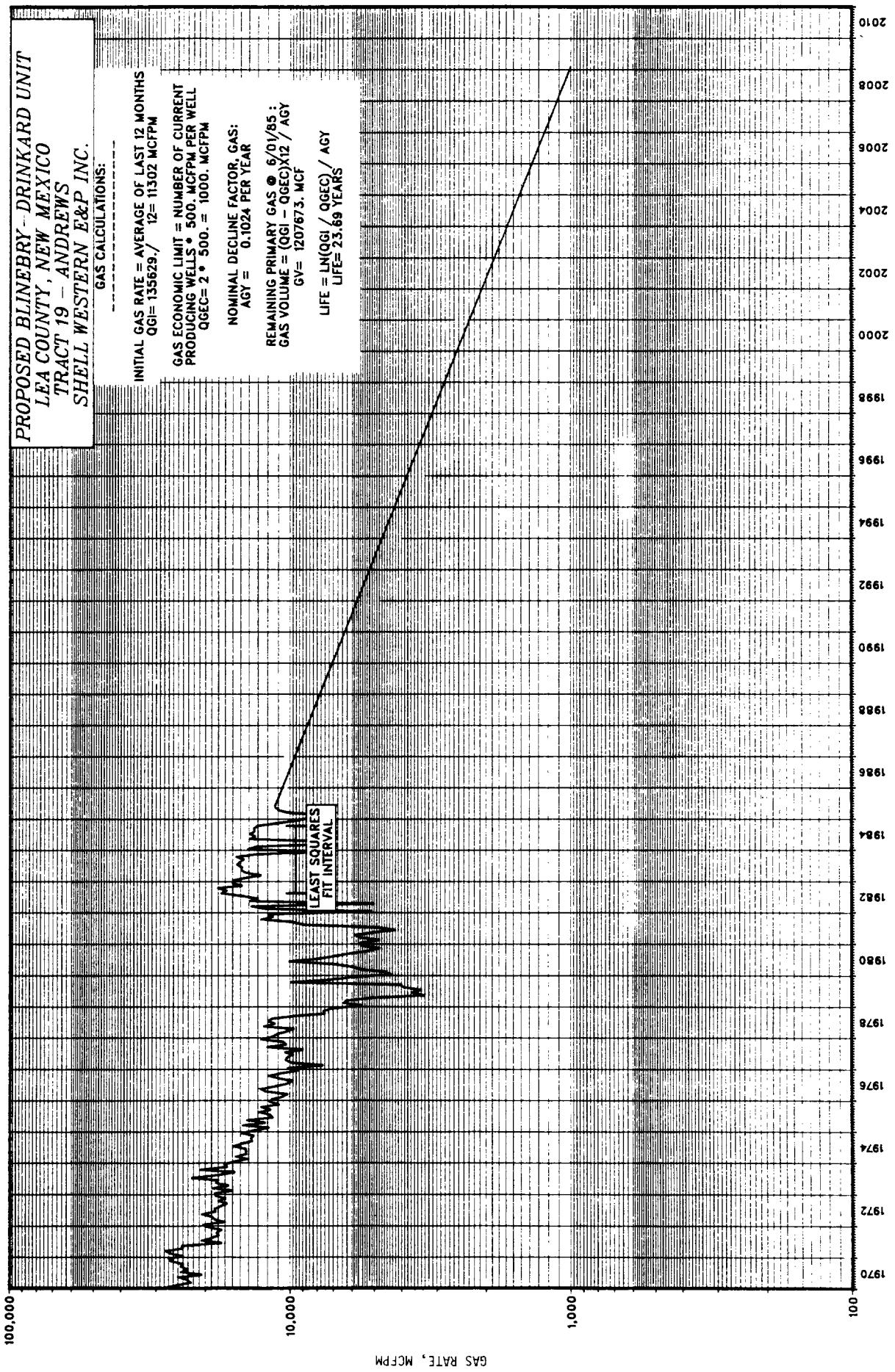
**GV = 1,269,123 MCF**

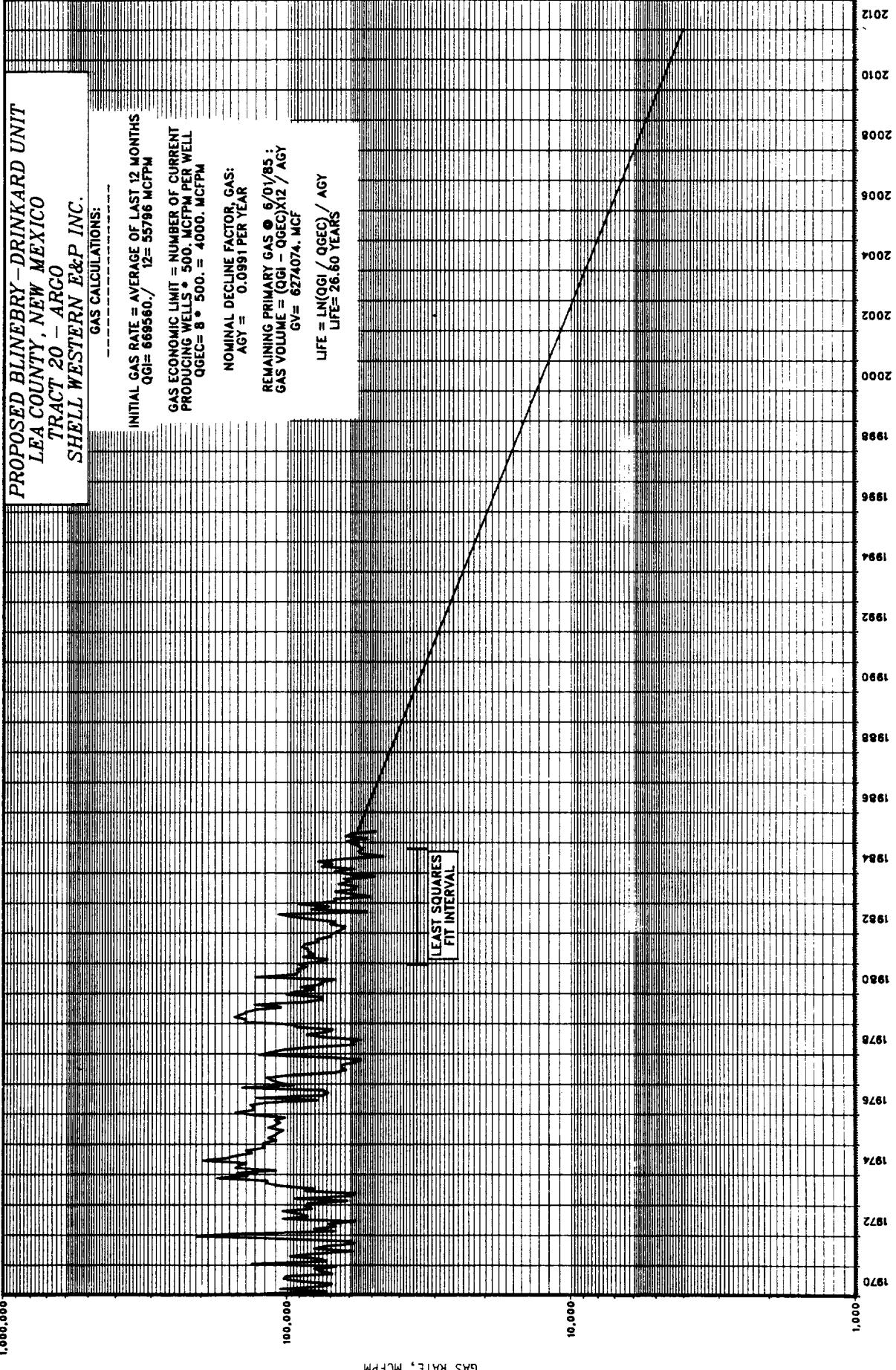
**LIFE = 25.92 YEARS**

**LEAST SQUARES  
FIT INTERVAL**









**PROPOSED BLINNEBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 21 - I.G. WARLICK**  
**MARATHON OIL**

**GAS CALCULATIONS:**

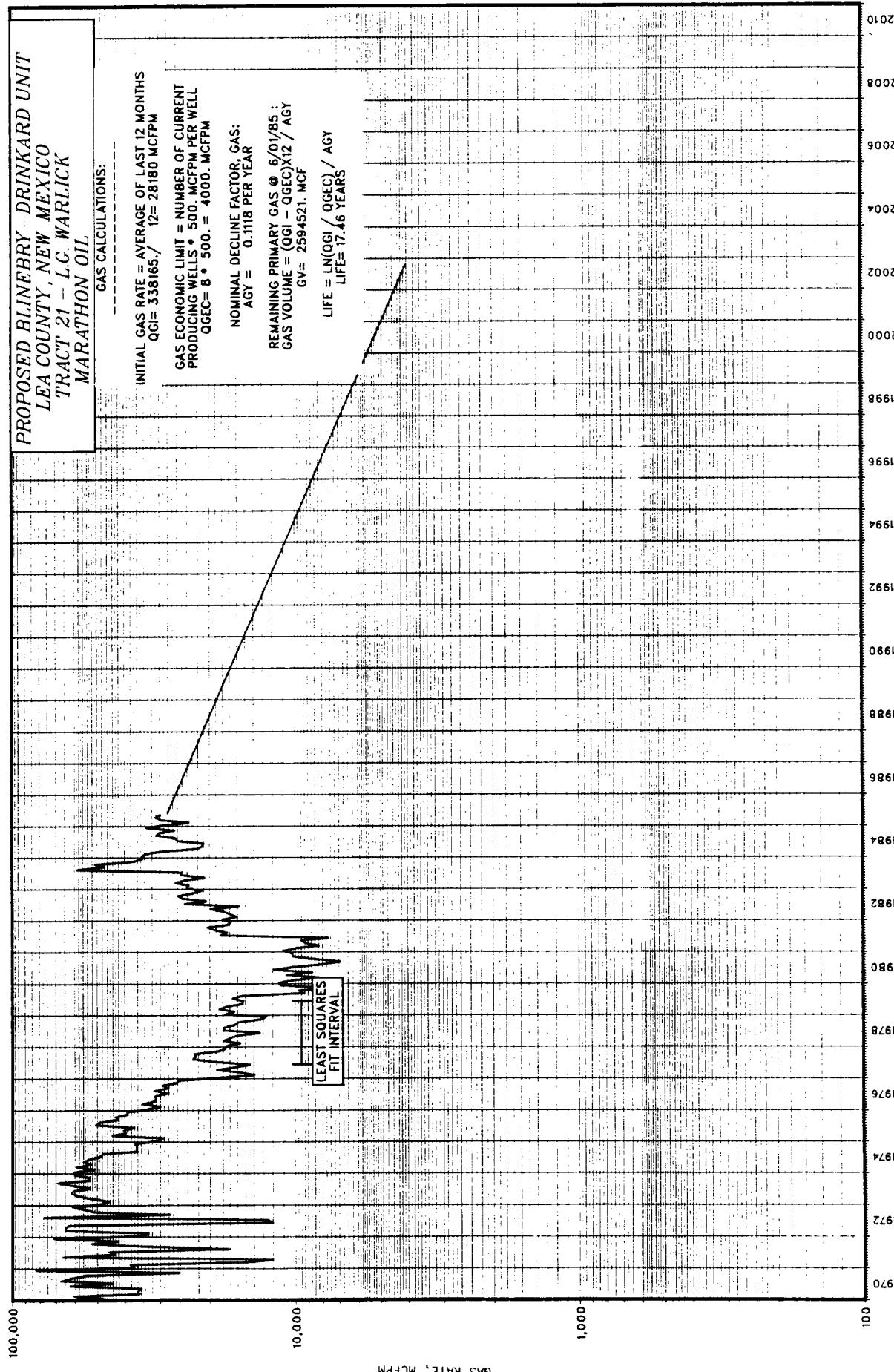
INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
 $QGI = 338165. / 12 = 28180 \text{ MCFPM}$

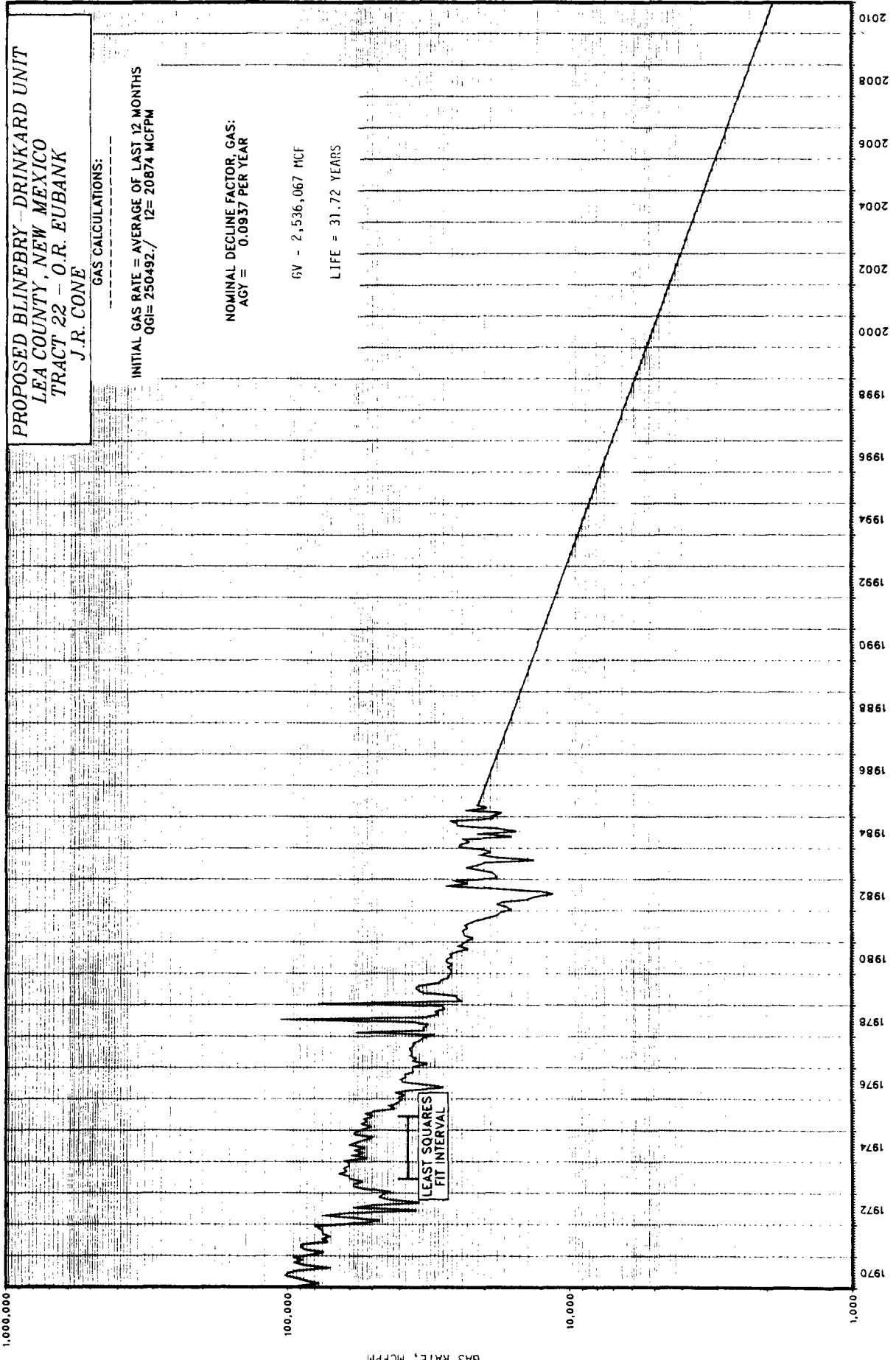
GAS ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 500. MCFPM PER WELL  
 $QGEC = 8 * 500. = 4000. \text{ MCFPM}$

NOMINAL DECLINE FACTOR, GAS:  
 $AGY = 0.1118 \text{ PER YEAR}$

REMAINING PRIMARY GAS @ 6/01/85 :  
 GAS VOLUME =  $(QGI - QGEC)X12 / AGY$   
 $GV = 2594521. \text{ MCF}$

LIFE =  $\ln(QGI / QGEC) / AGY$   
 LIFE = 17.46 YEARS





GAS RATE, MCFPM

**PROPOSED BLINERY DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 23 - ARGO A**  
**SHELL WESTERN E&P INC.**

**GAS CALCULATIONS:**

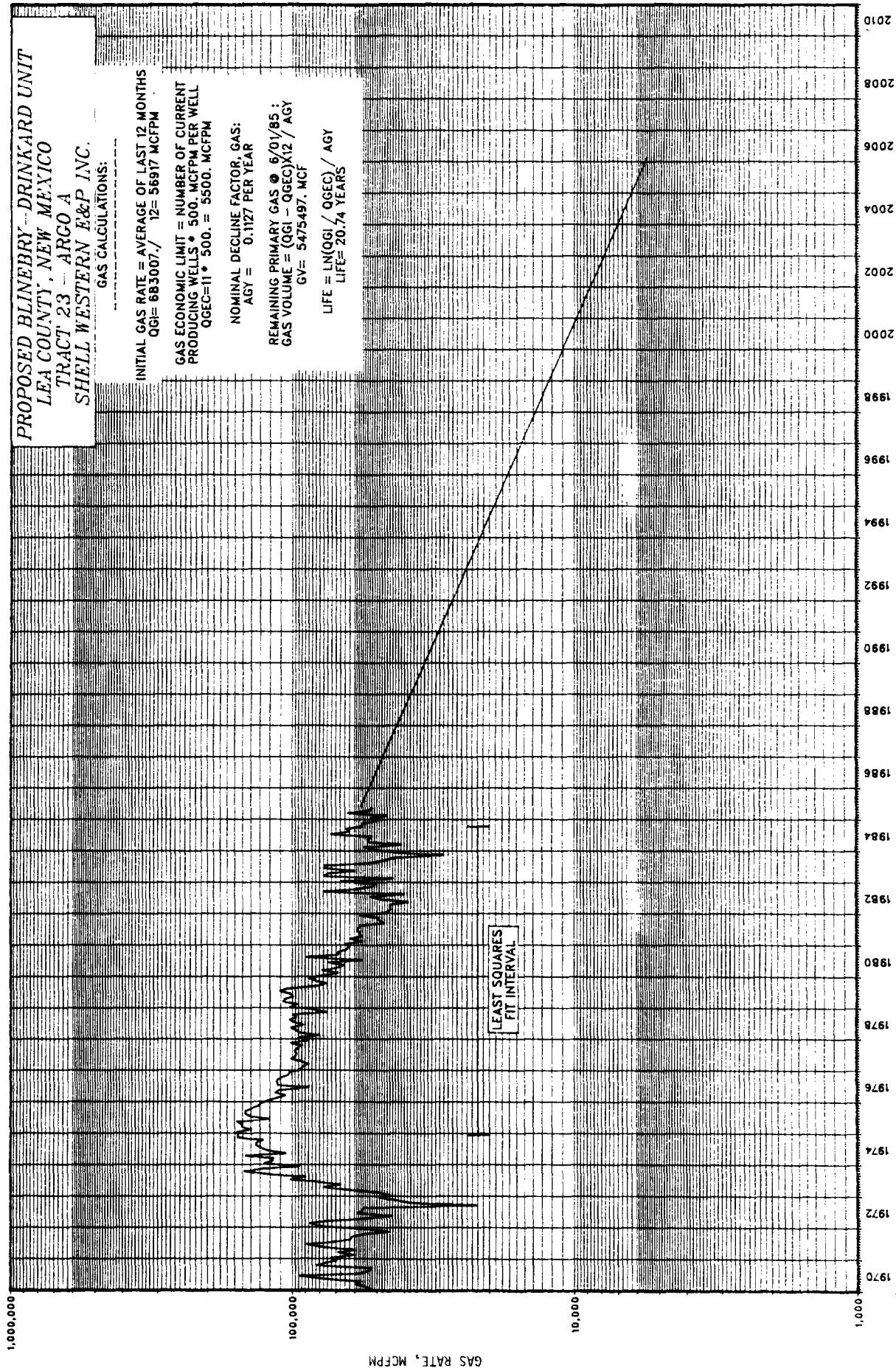
INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
 $QGI = 683007 / 12 = 56917 \text{ MCFPM}$

GAS ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 500. MCFPM PER WELL  
 $QGEC = 11 * 500 = 5500. \text{ MCFPM}$

NOMINAL DECLINE FACTOR, GAS:

$AGY = 0.1127 \text{ PER YEAR}$   
 REMAINING PRIMARY GAS @  $6\% / 85 :$   
 GAS VOLUME =  $(QGI - QGEC) \times 12 / AGY$   
 $GV = 5475497. \text{ MCF}$

$LIFE = \ln(QGI / QGEC) / AGY$   
 $LIFE = 20.74 \text{ YEARS}$



**PROPOSED BLINNEBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 24 - O.R. FUBANK**  
**CHEVRON, USA, INC. (GULF OIL CORP.)**

**GAS CALCULATIONS:**

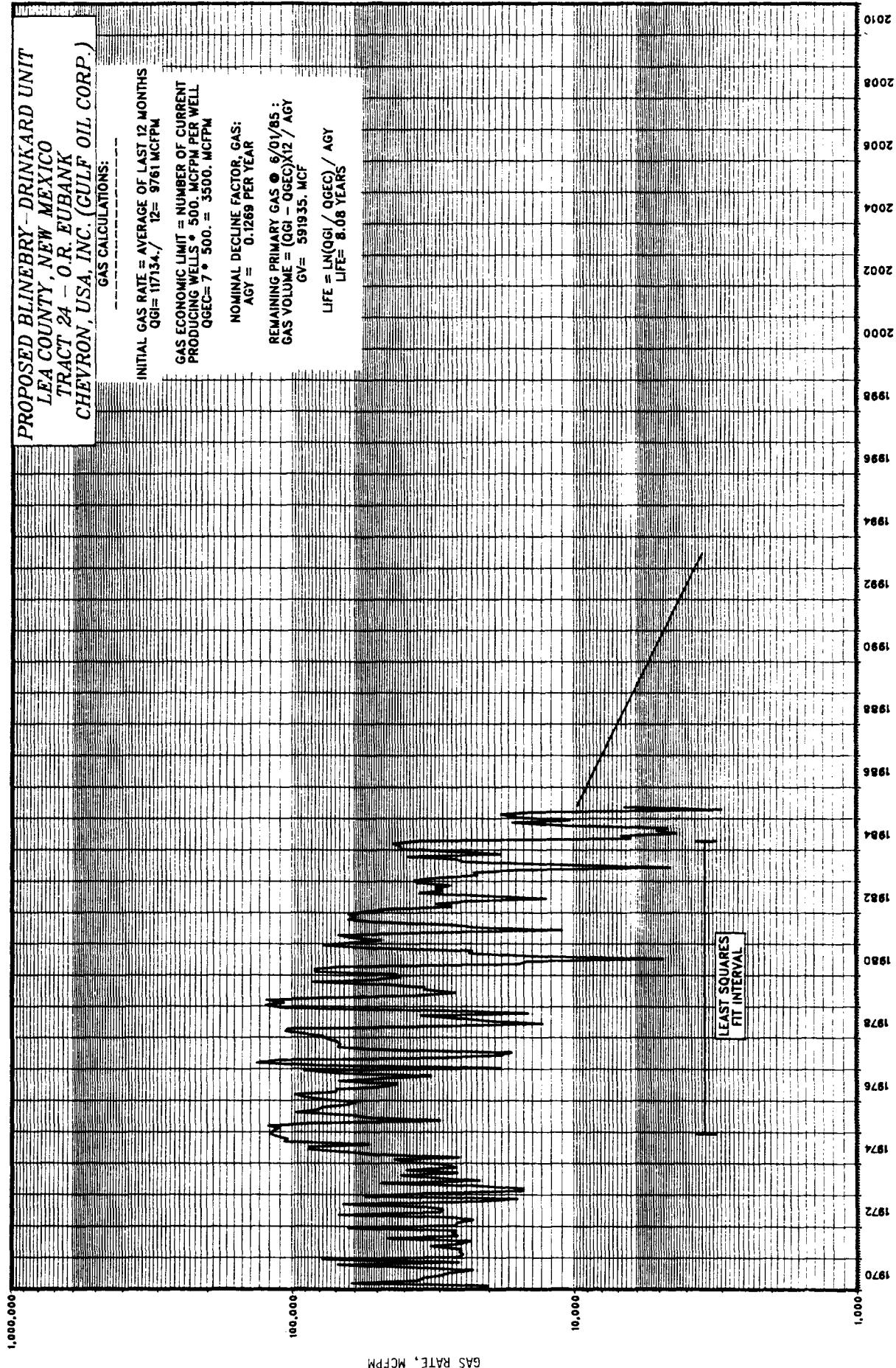
INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
 $QGI = 117,341 / 12 = 9761 \text{ MCFPM}$

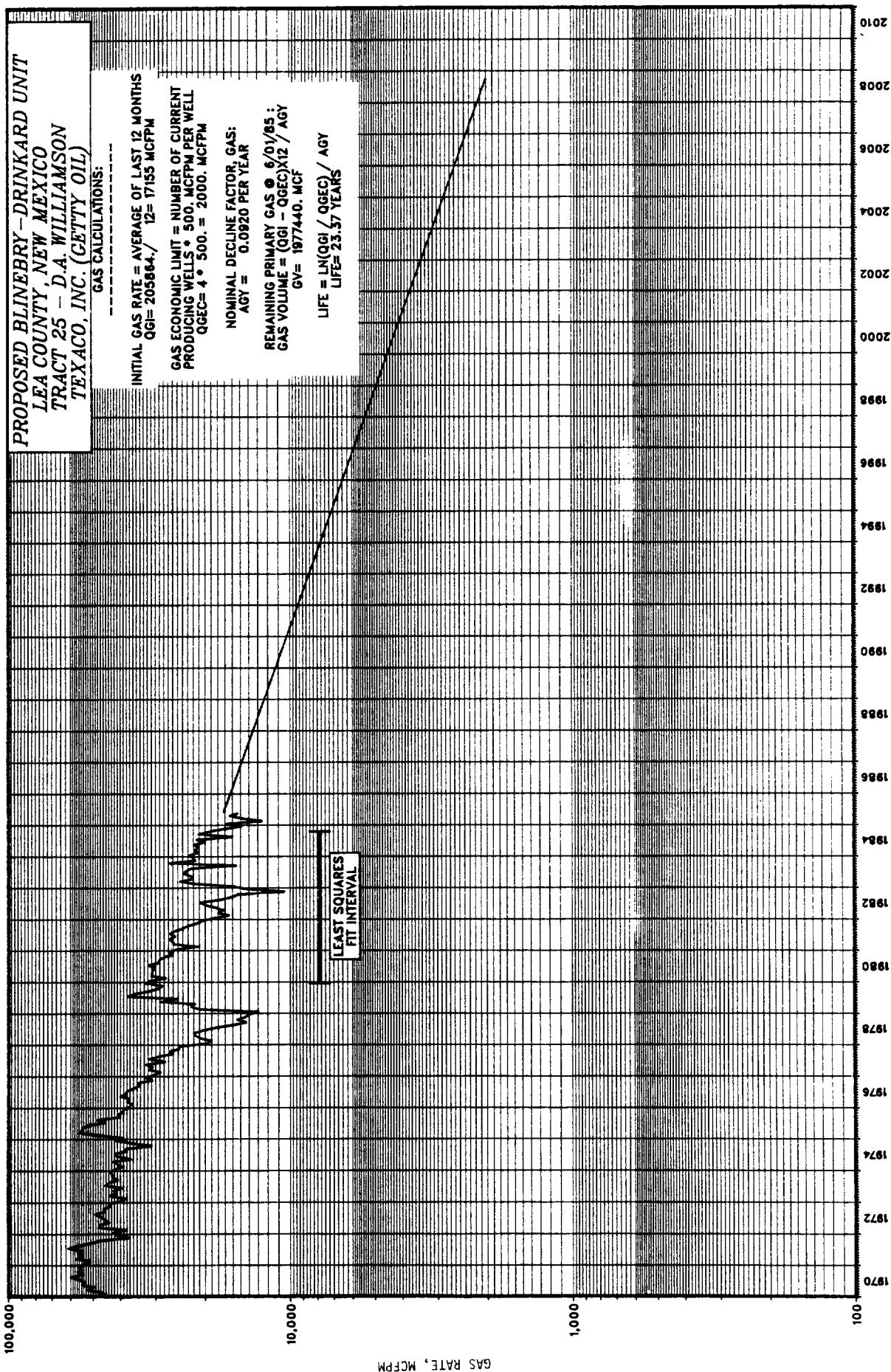
GAS ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 500. MCFPM PER WELL  
 $QGEC = 7 * 500. = 3500. \text{ MCFPM}$

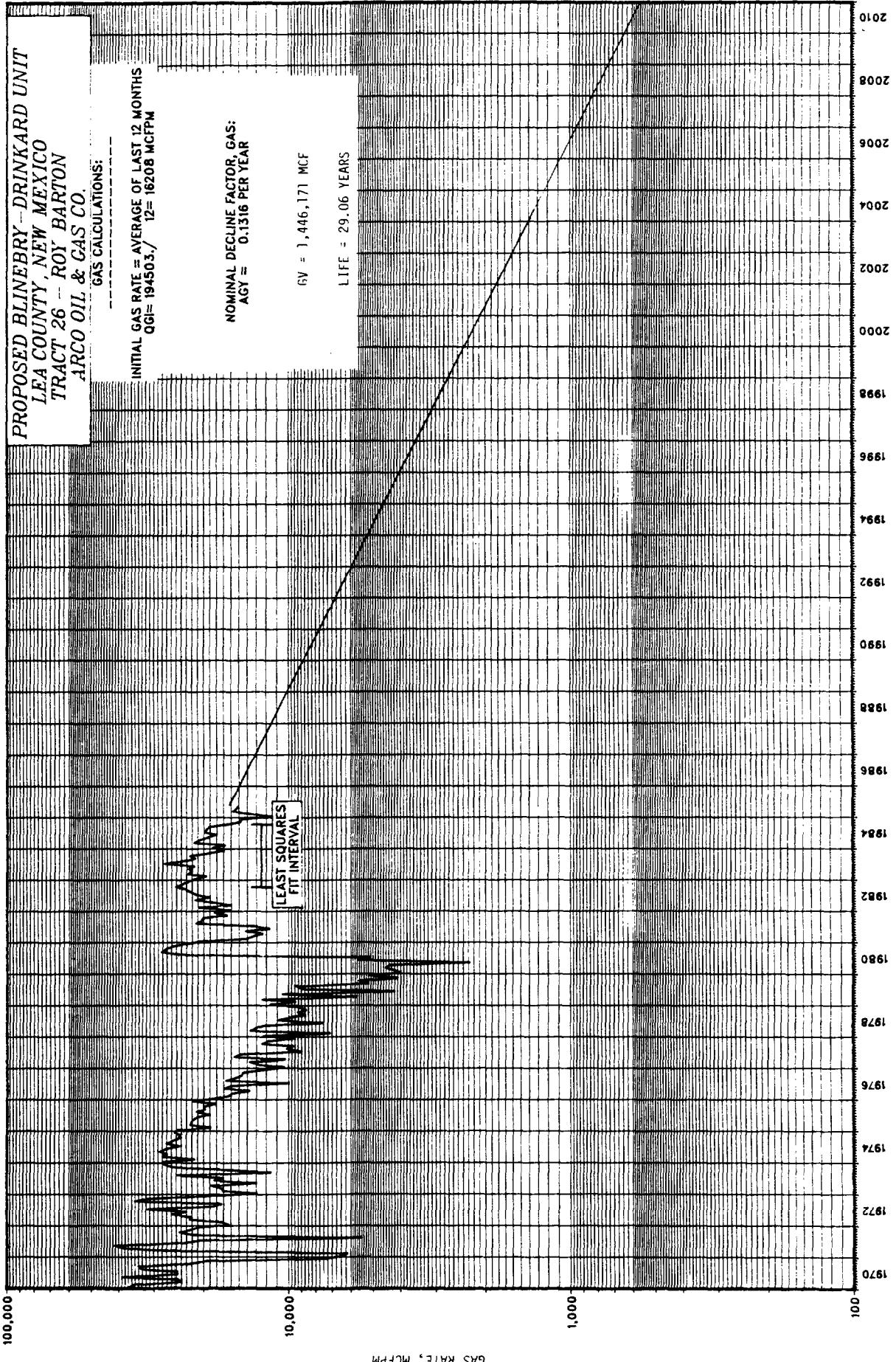
NOMINAL DECAY FACTOR, GAS:  
 $AGY = 0.1269 \text{ PER YEAR}$

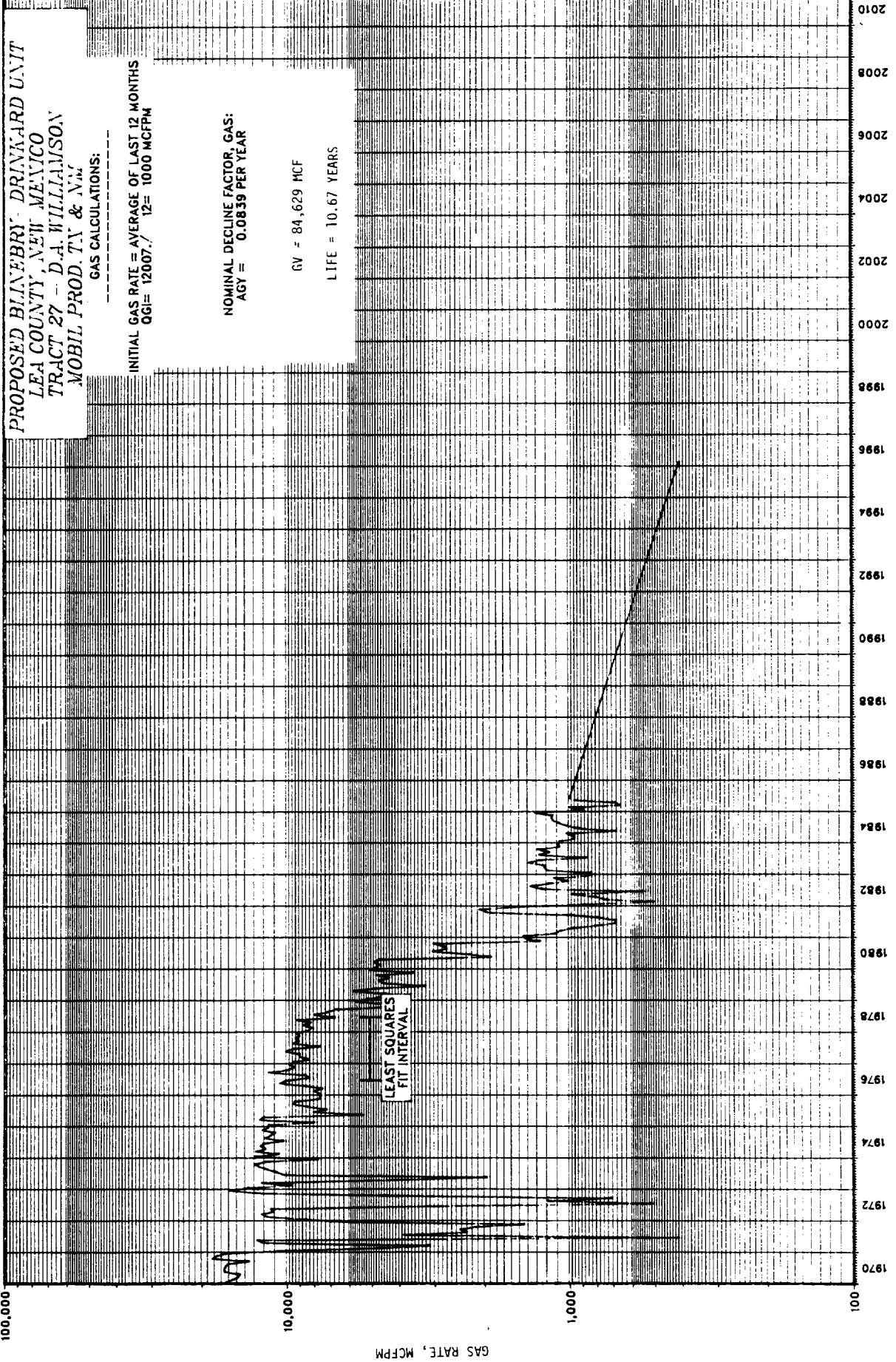
REMAINING PRIMARY GAS @ 6/01/85:  
 $\text{GV} = 5919.35. \text{ MCF}$

GAS VOLUME =  $(QGI - QGEC) \times 12 / AGY$   
 $LIFE = \ln(QGI / QGEC) / AGY$   
 $LIFE = 8.08 \text{ YEARS}$









**PROPOSED BLINDBRI - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 28 - A.J. TURNER**  
**SHELL WESTERN E&P INC.**

**GAS CALCULATIONS:**

INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
 $QGI = 249736 / 12 = 20414 \text{ MCFPM}$

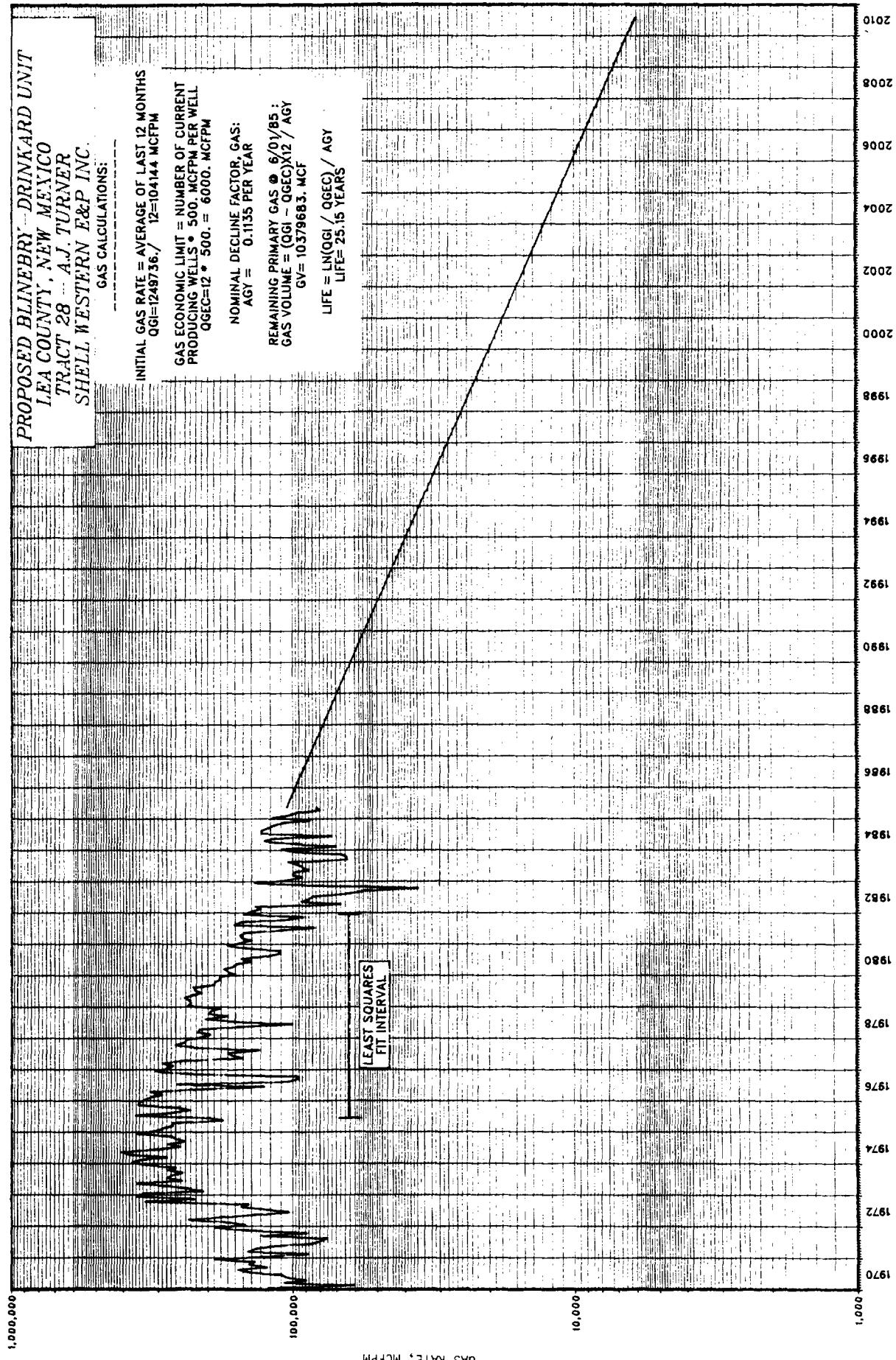
GAS ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS • 500. MCFPM PER WELL  
 $QGEC = 12 • 500. = 6000. \text{ MCFPM}$

NOMINAL DECLINE FACTOR, GAS:

$AGY = 0.1135 \text{ PER YEAR}$

REMAINING PRIMARY GAS @ 6.0/10<sup>6</sup> :  
 GAS VOLUME =  $(QGI - QGEC) \times 12 / AGY$   
 $GV = 10379683. \text{ MCF}$

LIFE =  $\ln(QGI / QGEC) / AGY$   
 LIFE = 25.15 YEARS



**PROPOSED BLINEBRY - DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 29 - S.J. SARKEYS**  
**SHELL WESTERN E&P INC.**

**GAS CALCULATIONS:**

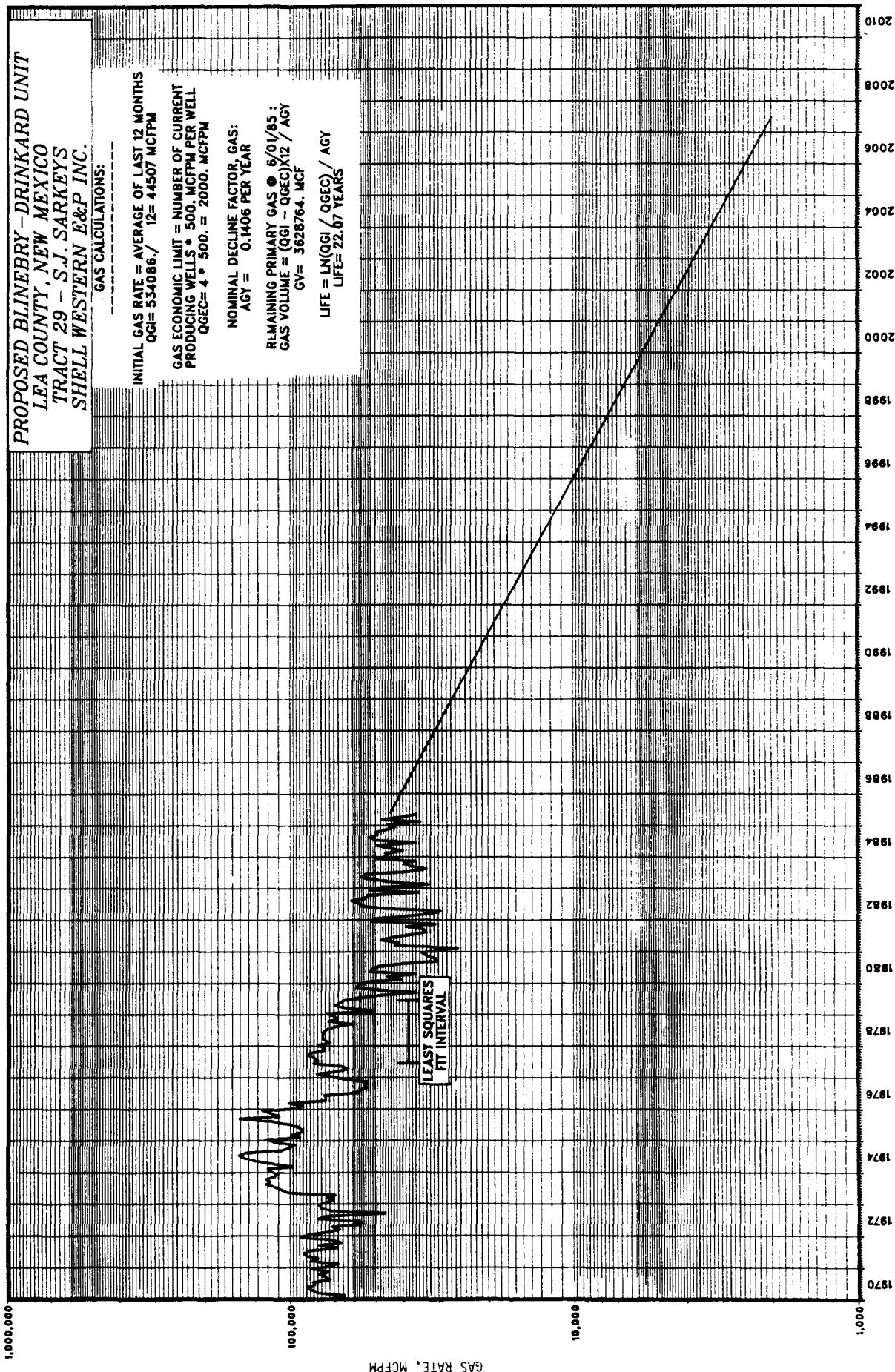
INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
 $QGI = 534086 / 12 = 44507 \text{ MCFPM}$

GAS ECONOMIC LIMIT = NUMBER OF CURRENT PRODUCING WELLS \* 500. MCFPM PER WELL  
 $QGEC = 4 * 500. = 2000. \text{ MCFPM}$

NOMINAL DECLINE FACTOR, GAS:  
 $AGY = 0.1406 \text{ PER YEAR}$

REMAINING PRIMARY GAS @  $6/01/85$  :  
 GAS VOLUME =  $(QGI - QGEC)X12 / AGY$   
 $GV = 3628764. \text{ MCF}$

LIFE =  $\ln(QGI / QGEC) / AGY$   
 LIFE = 22.67 YEARS



**PROPOSED BLINNEBRY- DRINKARD UNIT**  
**LEA COUNTY, NEW MEXICO**  
**TRACT 30 - S.J. SARKEYS**  
**ARCO OIL & GAS CO.**

**GAS CALCULATIONS:**

INITIAL GAS RATE = AVERAGE OF LAST 12 MONTHS  
 QGI= 408524 / 12 = 34043 MCFPM

GAS ECONOMIC LIMIT = NUMBER OF CURRENT  
 PRODUCING WELLS • 500. MCFPM PER WELL  
 QGEC= 6 • 500. = 3000. MCFPM

NOMINAL DECAY FACTOR, GAS:

AGY = 0.0959 PER YEAR

REMAINING PRIMARY GAS @ 6/01/85 :  
 GAS VOLUME = (QGI - QGEC)X12 / AGY  
 GV= 3843473. MCF

LIFE =  $\ln(QGI / QGEC) / AGY$   
 LIFE= 25.66 YEARS

