

ORIGINAL OIL IN PLACE CALCULATIONS

CROSSROADS, SOUTH FIELD

DATA:

PRODUCTIVE ACREAGE (A) =	600 ACRES
AVERAGE POROSITY (ϕ) =	10 %
AVG. WATER SATURATION (S_w) =	25 %
NET PAY THICKNESS (H) =	25 FT
OIL FORMATION VOLUME FACTOR (B_o) =	1.27 RB/STB

$$OOIP = (7758 * H * A * \phi * (1 - S_w)) / B_o$$

$$OOIP = \underline{\underline{6,872,244 \text{ STB}}}$$

$$\text{TOTAL FIELD RECOVERY} = \underline{\underline{3,051,000 \text{ STB}}}$$

$$\text{RECOVERY FACTOR} = \underline{\underline{44.40\%}}$$

BOUGH FIELD

DATA:

PRODUCTIVE ACREAGE (A) =	300 ACRES
AVERAGE POROSITY (ϕ) =	6 %
AVG. WATER SATURATION (S_w) =	26 %
NET PAY THICKNESS (H) =	118 FT
OIL FORMATION VOLUME FACTOR (B_o) =	1.25 RB/STB

$$OOIP = (7758 * H * A * \phi * (1 - S_w)) / B_o$$

$$OOIP = \underline{\underline{9,754,971 \text{ STB}}}$$

$$\text{TOTAL FIELD RECOVERY} = \underline{\underline{3,758,000 \text{ STB}}}$$

$$\text{RECOVERY FACTOR} = \underline{\underline{38.52\%}}$$

BEFORE THE
OIL CONSERVATION DIVISION
Santa Fe, New Mexico

Case No. 10670 (Reopened) Exhibit No. 5

Submitted by: Maralo, Inc.

Hearing Date: June 9, 1994

ORIGINAL OIL IN PLACE CALCULATIONS

BARNES "20" #1 PRORATION UNIT

DATA:

PRODUCTIVE ACREAGE (A) =	40 ACRES
AVERAGE POROSITY (ϕ) =	6 %
AVG. WATER SATURATION (S_w) =	25 %
NET PAY THICKNESS (H) =	10 FT
OIL FORMATION VOLUME FACTOR (B_o) =	1.25 RB/STB

$$OOIP = (7758 * H * A * \phi * (1 - S_w)) / B_o$$

$$OOIP = \frac{111,715 \text{ STB}}{\text{-----}}$$

$$\text{EST. ULT. RECOVERY} = \frac{46,920 \text{ STB}}{\text{-----}}$$

$$\text{RECOVERY FACTOR} = \frac{42.00\%}{\text{-----}}$$

BARNES "20" #1 PRORATION UNIT

DATA:

PRODUCTIVE ACREAGE (A) =	80 ACRES
AVERAGE POROSITY (ϕ) =	6 %
AVG. WATER SATURATION (S_w) =	25 %
NET PAY THICKNESS (H) =	13 FT
OIL FORMATION VOLUME FACTOR (B_o) =	1.25 RB/STB

$$OOIP = (7758 * H * A * \phi * (1 - S_w)) / B_o$$

$$OOIP = \frac{290,460 \text{ STB}}{\text{-----}}$$

$$\text{EST. ULT. RECOVERY} = \frac{121,993 \text{ STB}}{\text{-----}}$$

$$\text{RECOVERY FACTOR} = \frac{42.00\%}{\text{-----}}$$

ORIGINAL OIL IN PLACE CALCULATIONS

Bonds # 1 Proration Unit

Data:

Productive Acreage	(A)	=	80 acres
Average Porosity	(\emptyset)	=	6 %
Average Water Saturation	(S_w)	=	25 %
Net Pay Thickness	(H)	=	40 ft.
Oil Formation Volume Factor	(B_o)	=	1.25 RB/STB

$$\begin{aligned} \text{OOIP} &= [7758 * H * A * \emptyset * (1 - S_w)] / B_o \\ &= 893,722 \text{ STB} \end{aligned}$$

$$\text{Recovery factor} = 42 \%$$

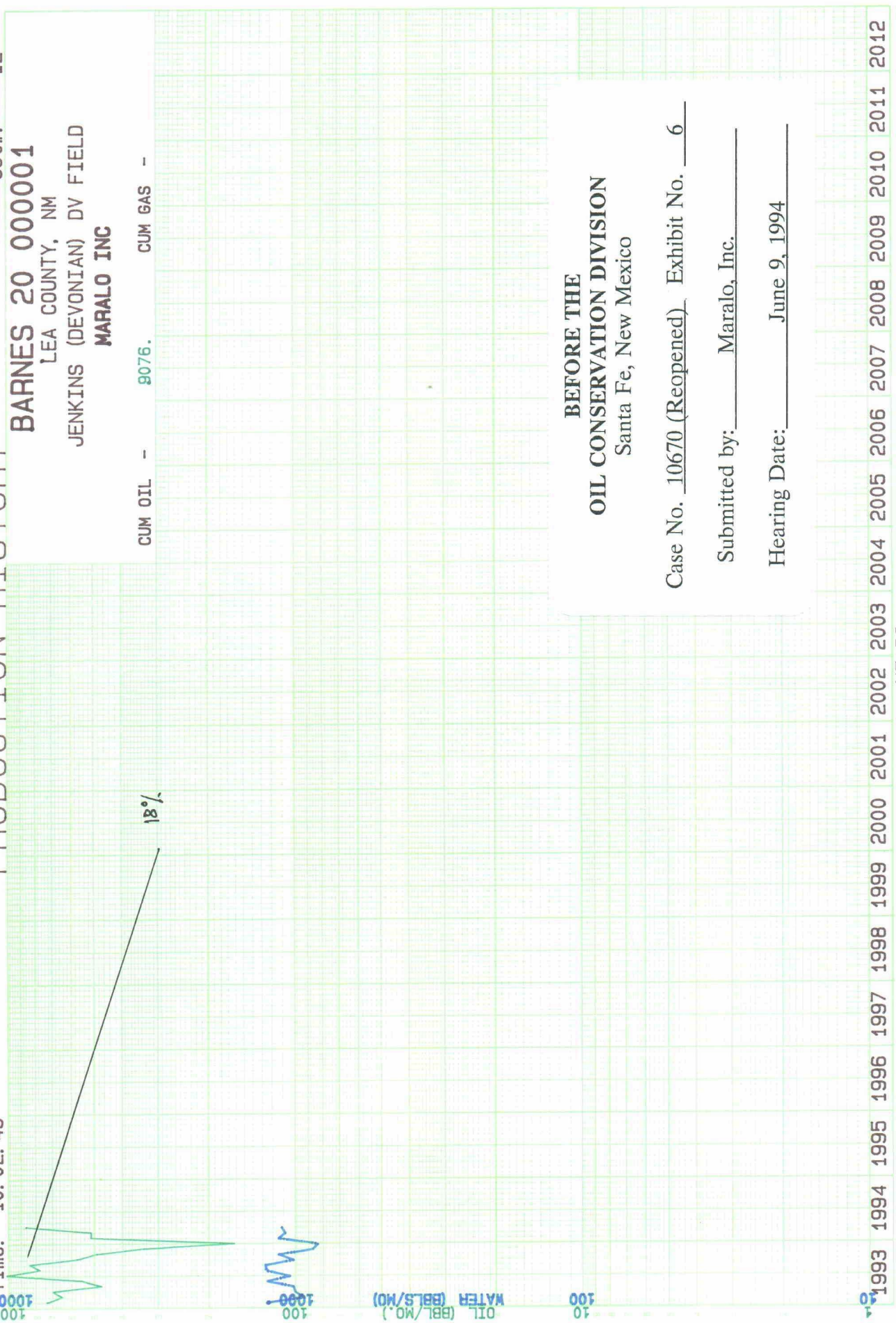
$$\text{Est. Ult. Recovery} = 375,363 \text{ STB}$$

Date: 05/27/94
Time: 10:02:49

File: CURVES.DS
Get#: 12

PRODUCTION HISTORY

BARNES 20 000001
LEA COUNTY, NM
JENKINS (DEVONIAN) DV FIELD
MARALO INC



YEARS

MARALO, INC.

Date: 05/27/94
Time: 10:02:49

File: CURVES.DS
Get#: 13

PRODUCTION HISTORY

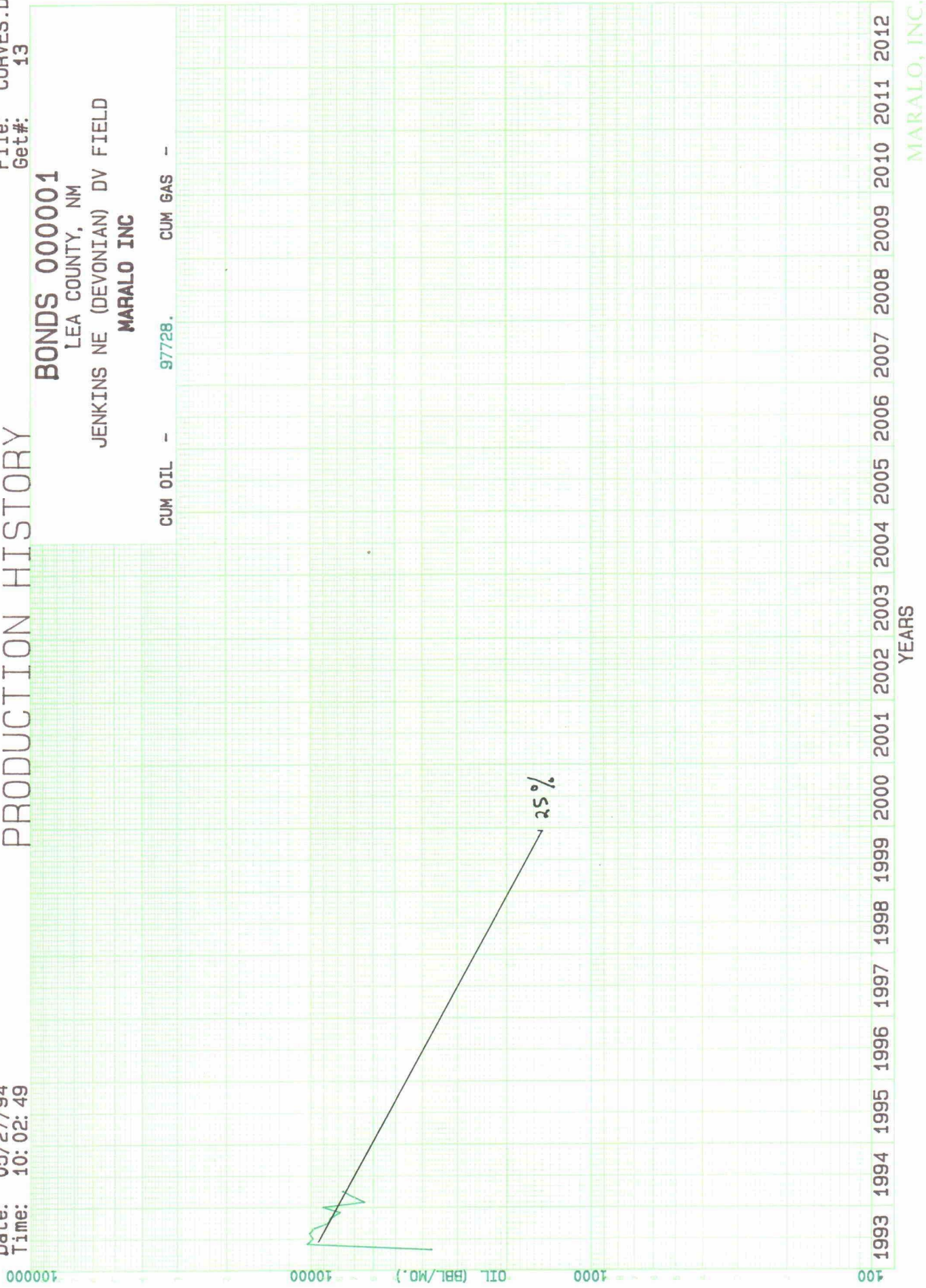
BONDS 000001

LEA COUNTY, NM

JENKINS NE (DEVONIAN) DV FIELD

MARALO INC

CUM OIL - 97728. CUM GAS -



MARALO, INC.

PRODUCTION HISTORY

JENKINS, N.E. (DEVONIAN) FIELD

	BARNES "20" #1			BONDS #1		
	OIL(bbls)	GAS (MCF)	WATER (bbls)	OIL (bbls)	GAS (MCF)	WATER (bbls)
9/92	2,087	0	339			
10/92	1,586	0	1,300			
11/92	767	0	1,069			
12/92	997	0	1,284			
1/93	722	0	1,241			
2/93	639	0	926			
3/93	692	0	997			
4/93	465	0	1,007	3,646	0	0
5/93	550	0	1,249	10,170	0	0
6/93	1,000	0	1,037	9,699	0	0
7/93	764	0	1,261	10,030	0	0
8/93	833	0	1,271	9,604	0	0
9/93	565	0	1,012	8,539	0	0
10/93	485	0	1,139	8,375	0	0
11/93	333	0	863	7,750	0	0
12/93	160	0	827	8,970	0	0
1/94	507	0	1,135	6,341	0	0
2/94	508	0	1,078	7,004	0	0
3/94	<u>854</u>	<u>0</u>	<u>1,114</u>	<u>7,600</u>	<u>0</u>	<u>0</u>
TOTALS	14,514	0	20,149	97,728	0	0

DECLINE CURVE ANALYSIS

BARNES "20" # 1

Remaining Recovery = $[\text{Initial Rate} - \text{Final Rate}] \frac{365}{-\text{Ln}(1-\text{AY})}$
Where AY is the exponential decline rate

$$\begin{aligned} N &= (26 - 5) \frac{365}{-\text{Ln}(1 - .18)} \\ N &= 38,624 \text{ STB} \end{aligned}$$

Ultimate Recovery = Remaining recovery + cumulative recovery
= 38,624 + 9,076
= 47,700 STB

DECLINE CURVE ANALYSIS

BONDS # 1

$$\text{Remaining Recovery} = \frac{[\text{Initial Rate} - \text{Final Rate}] 365}{-\ln(1 - AY)}$$

Where AY is the exponential decline rate

$$\begin{aligned} N &= \frac{(250 - 5) 365}{-\ln(1 - .25)} \\ N &= 310,846 \text{ STB} \end{aligned}$$

$$\begin{aligned} \text{Ultimate Recovery} &= \text{Remaining recovery} + \text{cumulative recovery} \\ &= 310,846 + 97,728 \\ &= 408,574 \text{ STB} \end{aligned}$$

BOTTOM-HOLE PRESSURE DATA

JENKINS, N.E. (DEVONIAN) FIELD

Initial shut-in Bottom-hole pressure (determined by DST in Barnes "20" #1 run 7/31/92) -

4807 psia

Current shut-in Bottom-hole pressure (determined by 70 hr. build-up in Bonds #1 run 4/12/94) -

4699 psia

Current flowing Bottom-hole pressure in Bonds #1 -

4633 psia

**BEFORE THE
OIL CONSERVATION DIVISION**
Santa Fe, New Mexico

Case No. 10670 (Reopened) Exhibit No. 7

Submitted by: Maralo, Inc.

Hearing Date: June 9, 1994