

RESERVOIR PARAMETERS

WEST BRAVO DOME AREA

Average Net Pay	26 Feet
Average Porosity	18 %
Average Water Saturation	50%
Average Reservoir Pressure	650 PSI
Gas Formation Volume Factor	57 SCF/RCF
Recovery Factor	80%

$$\text{OGIP} = (640 \text{ Ac}) (43,560 \text{ Ft}^2/\text{Ac}) (26 \text{ Ft}) (.18) (.50) (57) = 3.7 \text{ BCF/Section}$$

$$\text{Reserves} = (3.7 \text{ BCF/Section}) (.80) = 3.0 \text{ BCF/Section}$$

ECONOMIC EVALUATION OF TYPICAL WELL
WEST BRAVO DOME AREA

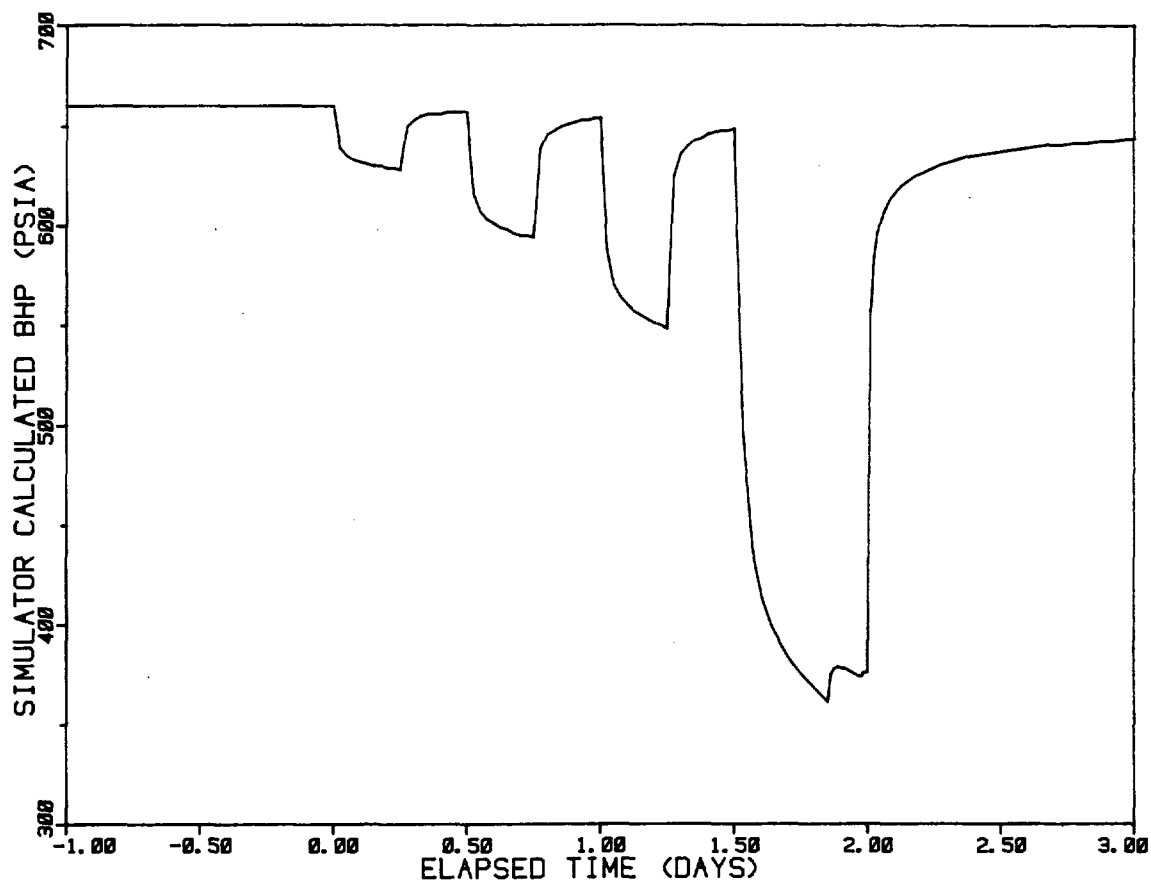
	640 Ac. SPACING	160 Ac. SPACING
Reserves, MMCF	2934	740
Cash from Operations, M\$	1219	197
Capital Investment, M\$	489	343
Net Cash Production, M\$	731	-146
Discounted at 20%, M\$	34	-112
DCF Rate of Return, %	24.1	-
Payout (BFIT), %	276	50
Payout (AFIT), %	249	58
Pay Out Period, Years	3.9	-

COMPARISON OF PAY QUALITY BY LOG ANALYSIS

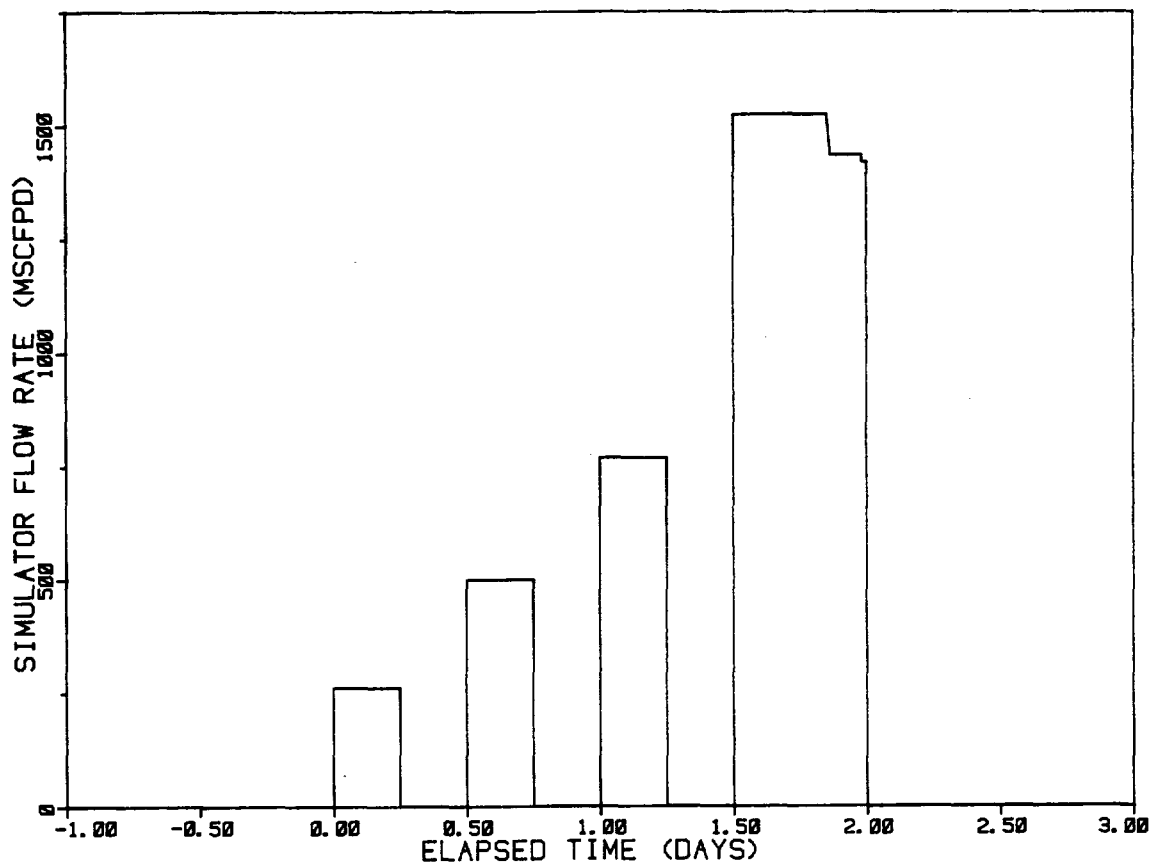
	INTERVAL	NET PAY*	AVG. ϕ	AVG. Sw
<u>WEST BRAVO DOME AREA</u>				
State "DC" No. 1	1996-2058	31	.210	.45
State "DD" No. 1	1946-1994	33	.195	.51
State "DE" No. 1	1926-1994	30	.185	.56
State "DF" No. 1	1934-2053	52	.220	.48
State "DG" No. 1	2075-2096	22	.200	.42
State "DH" No. 1	2763-2767	4	.180	.57
State "DK" No. 1	2038-2053	10	.160	.52
State "DL" No. 1	2640-2717	7	.165	.50
State "DM" No. 1	1978-2063	44	.185	.49
State "DN" No. 1	1972-1993	17	.200	.45
State "DO" No. 1	2026-2038	8	.160	.60
State "DS" No. 1	1994-2033	16	.160	.60
Trujillo No. 1	2800-2880	23	.160	.55
Smith No. 1	2924-2990	42	.185	.55
<u>AMOCO BDCDGU WELLS</u>				
1931 351	2116-2142	20	.180	.58
1933 351G	2494-2596	41	.210	.50
1835 071A	2110-2302	100	.210	.45

*Porosity >.12, Sw<.60

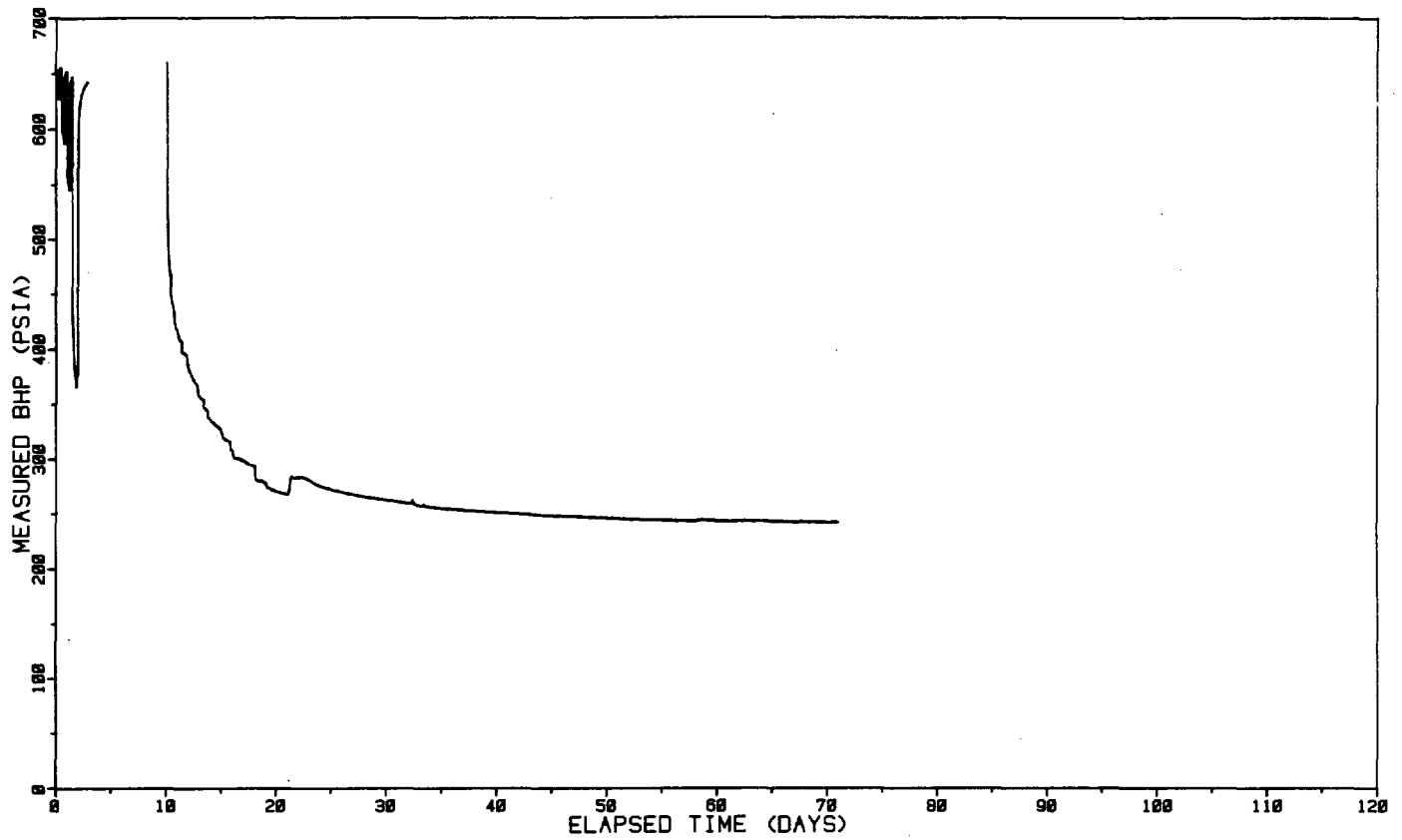
ISOCHRONAL TEST - SIMULATED PRESSURES



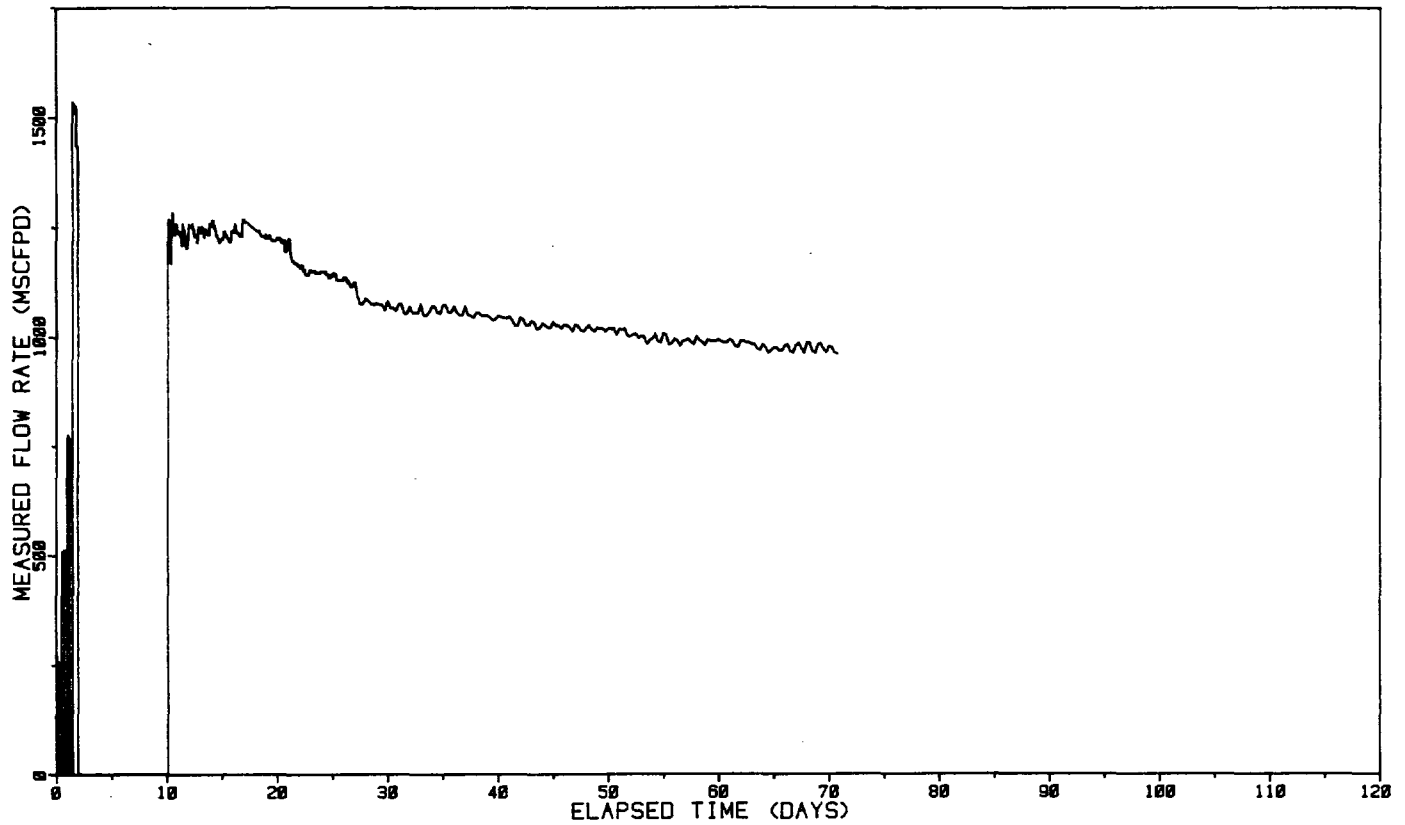
ISOCHRONAL TEST - SIMULATED FLOW RATES



EXTENDED FLOW TEST - MEASURED PRESSURES

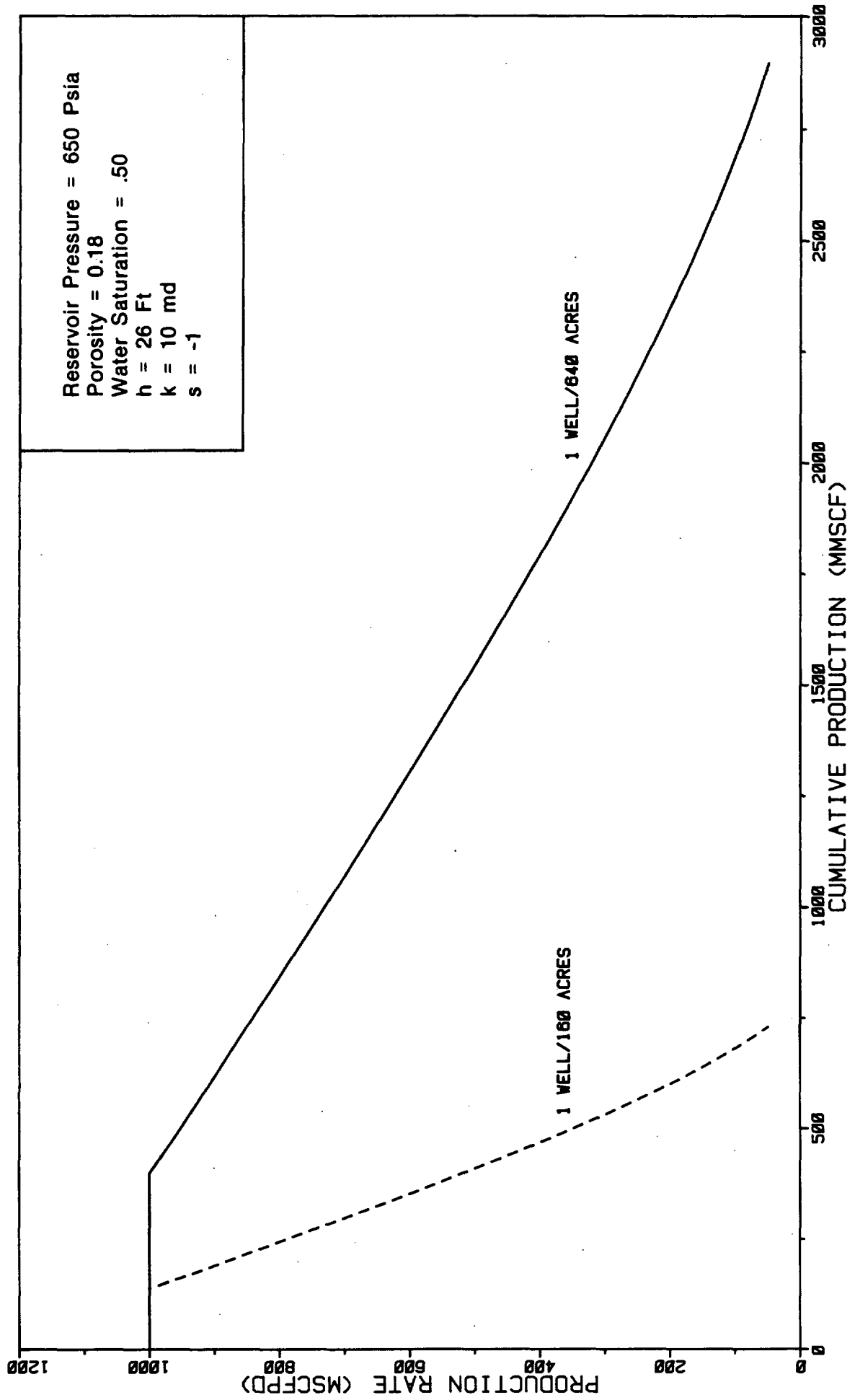


EXTENDED FLOW TEST - MEASURED FLOW RATES

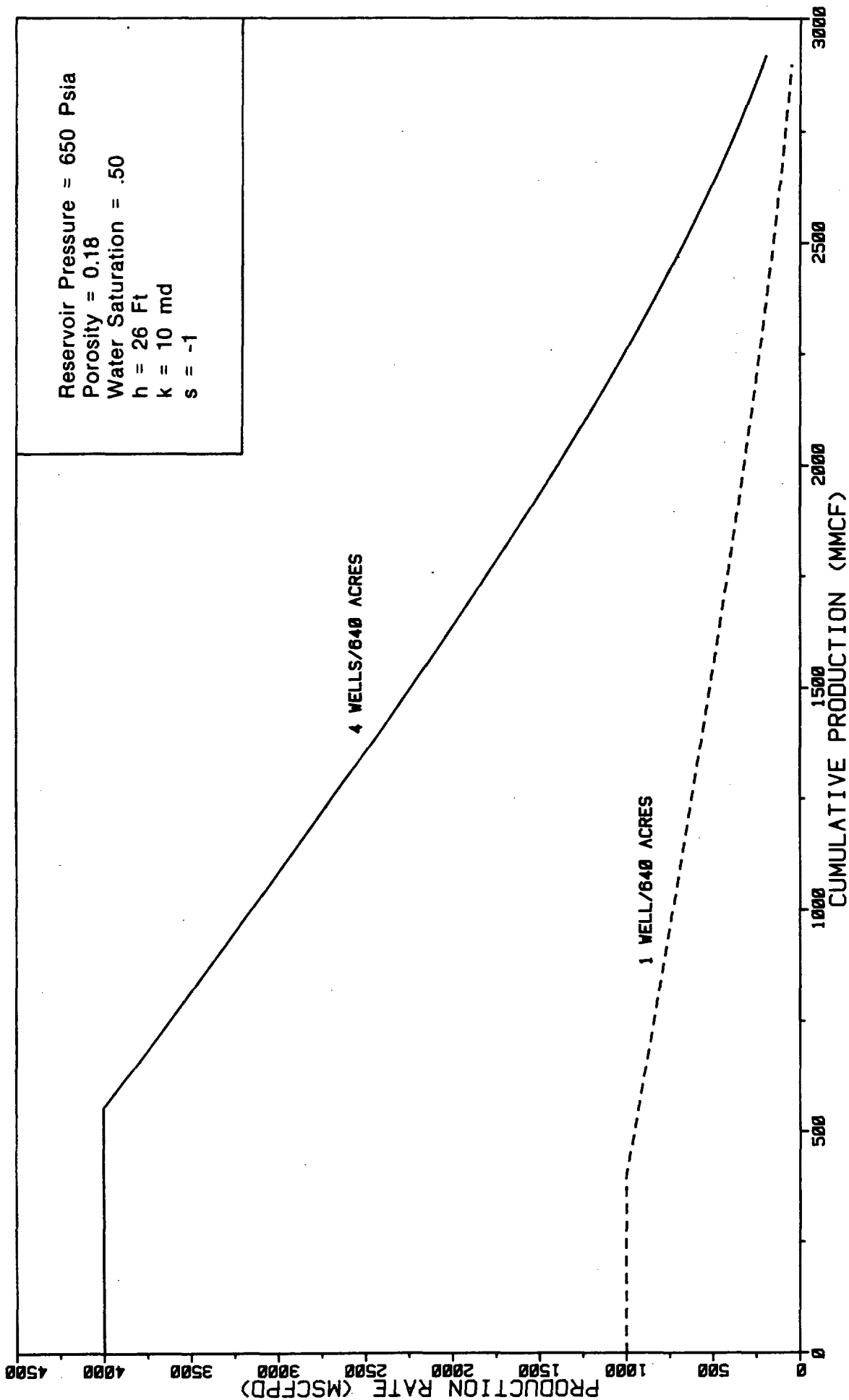


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P. 15

TYPICAL WELL PERFORMANCE CURVE

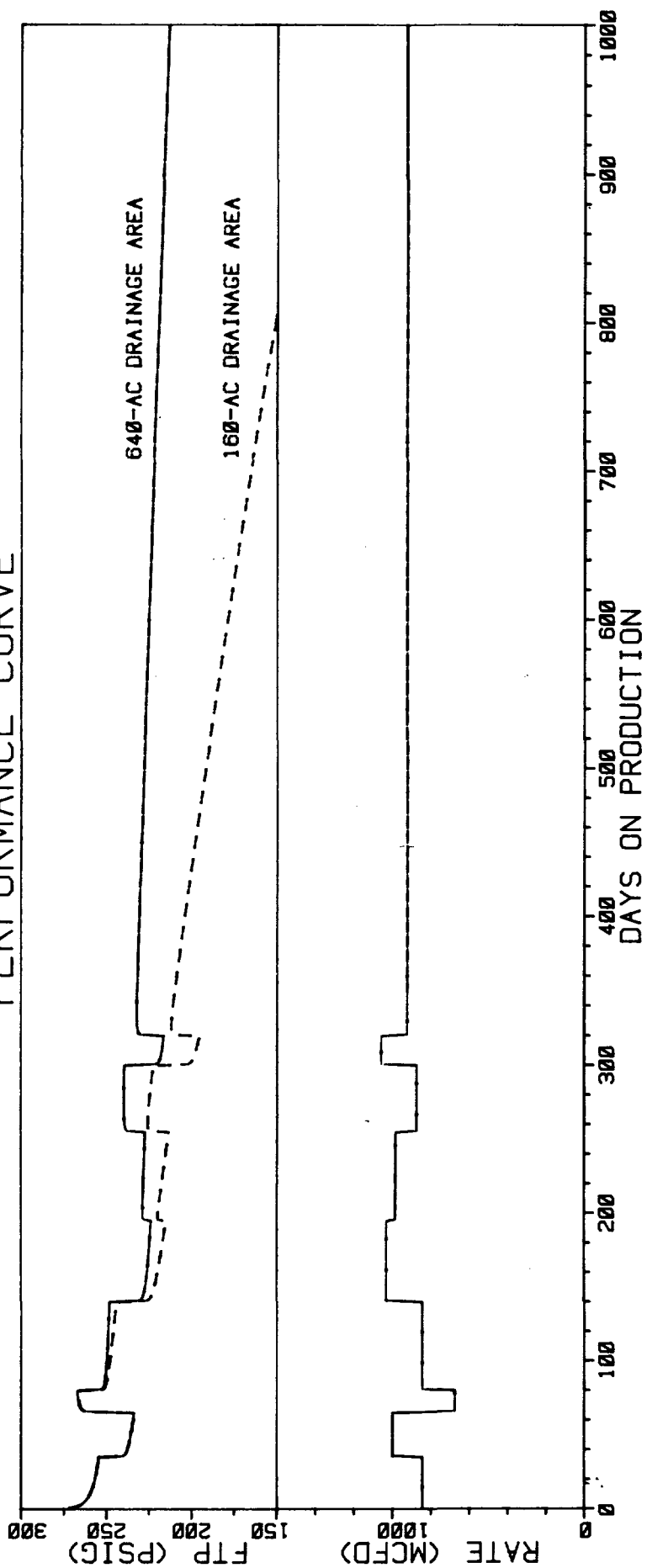


TYPICAL WELL PERFORMANCE CURVE



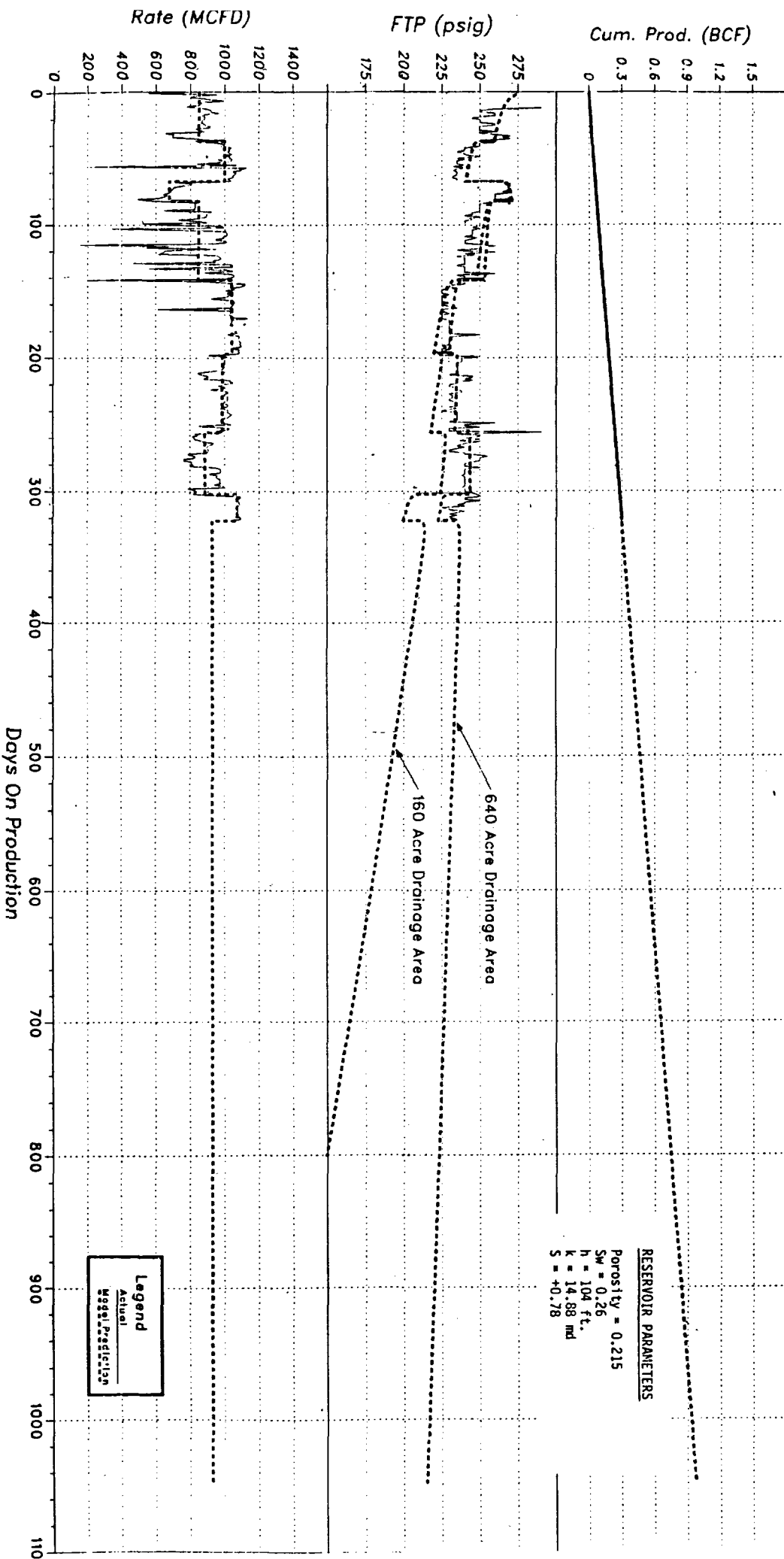
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BRAVO DOME CO2 GAS UNIT
BDCDGU WELL NO. 1934 201G
PERFORMANCE CURVE

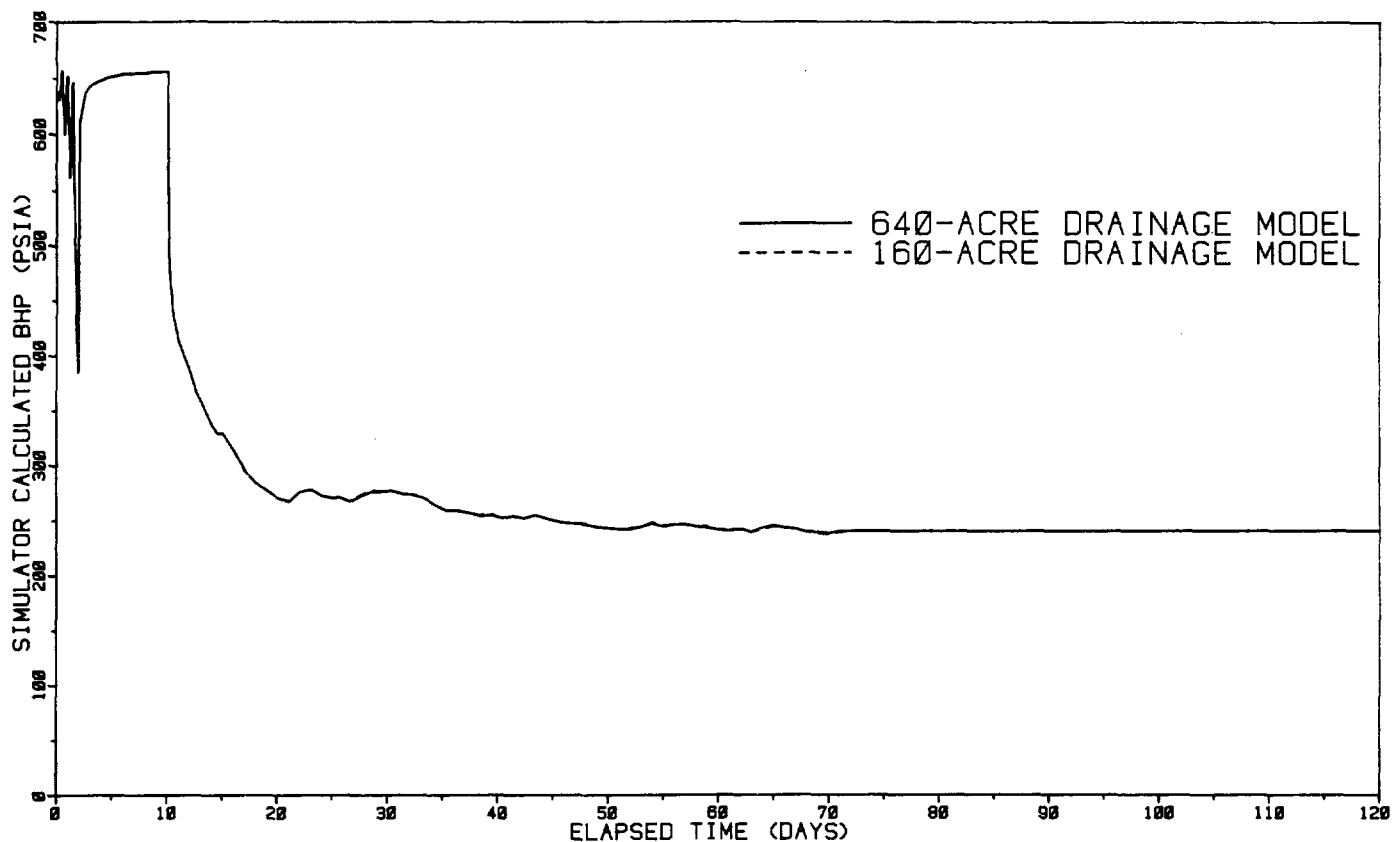


Bravo Dome CO₂ Gas Unit
 BDCCGU Well No. 1934 201G
 Performance Curve

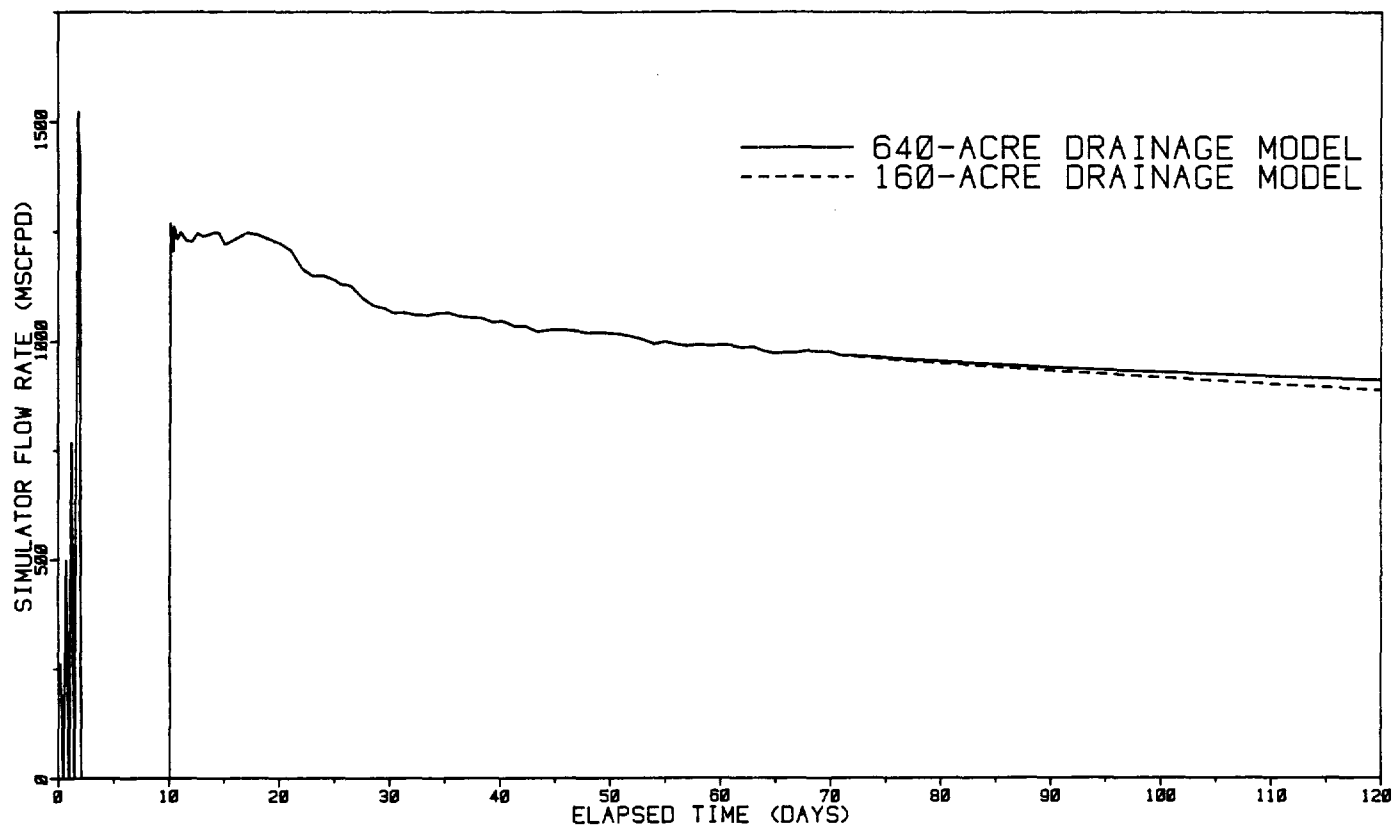
BEFORE THE
 OIL CONSERVATION COMMISSION
 Santa Fe, New Mexico
 Case No. 8190 Exhibit No. 13
 Submitted by Amoco
 Hearing Date 5-15-84



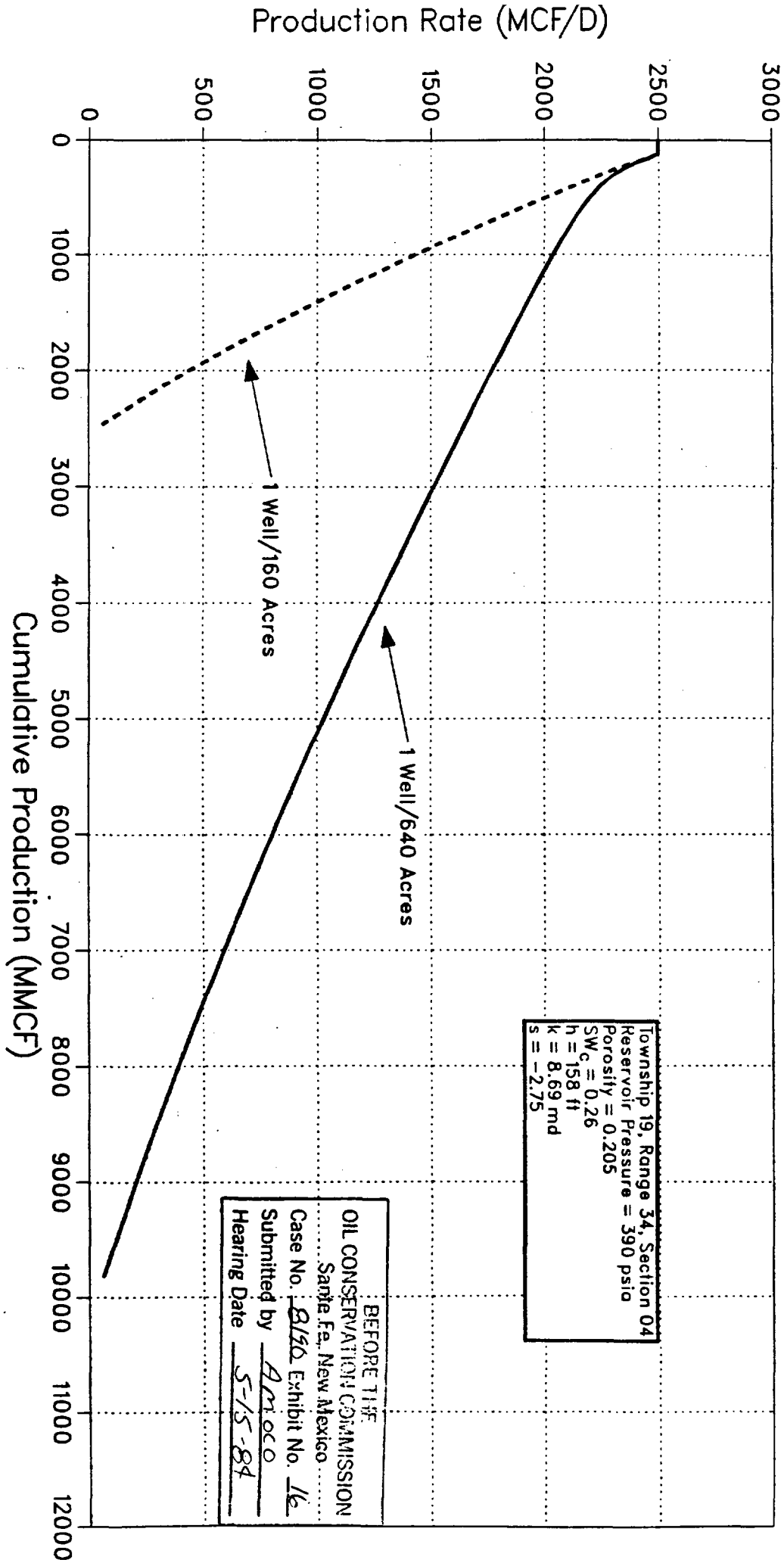
EXTENDED FLOW TEST - SIMULATED PRESSURES



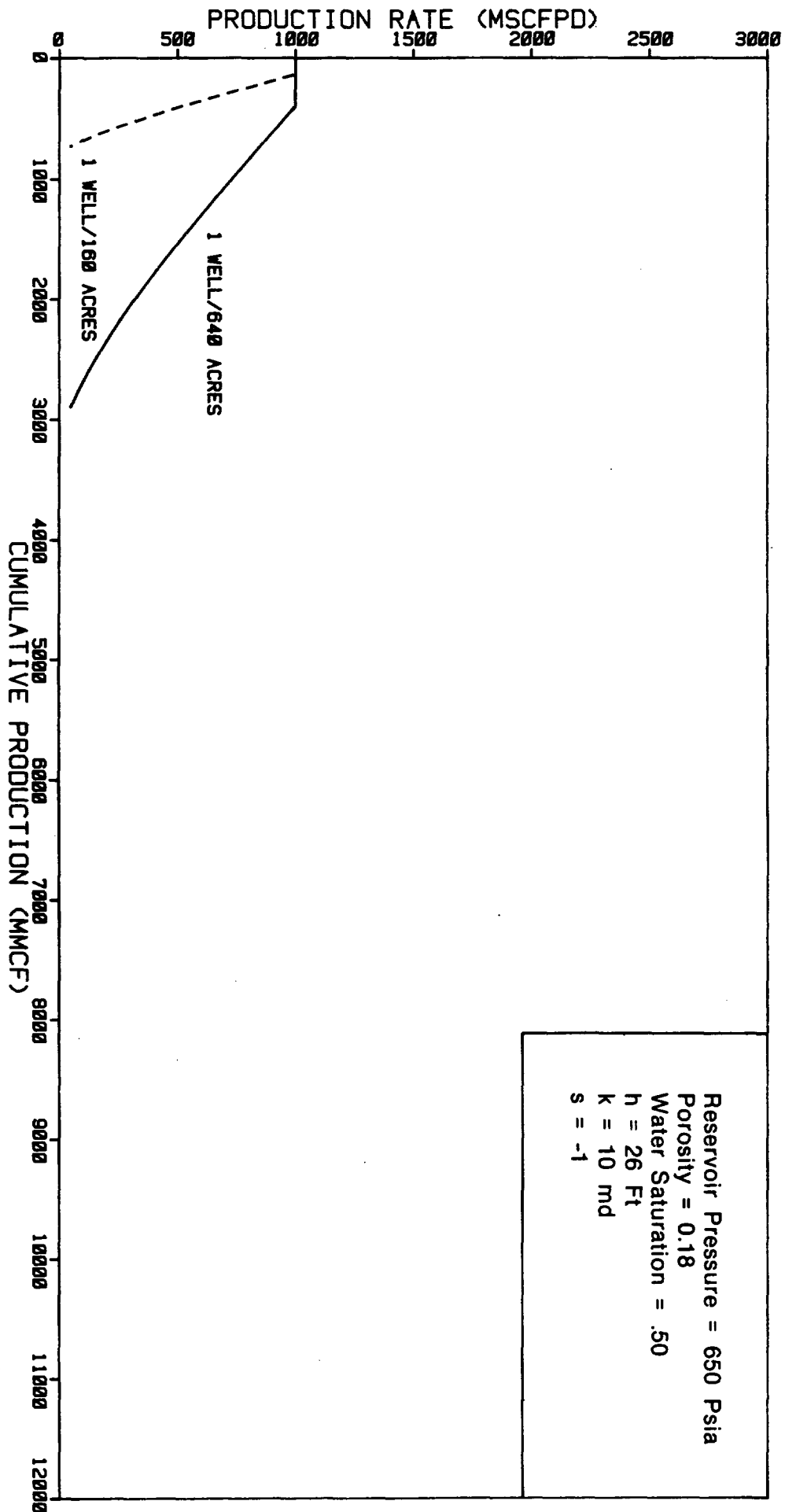
EXTENDED FLOW TEST - SIMULATED FLOW RATES



Bravo Dome CO₂ Gas Unit Typical Well Performance Curve

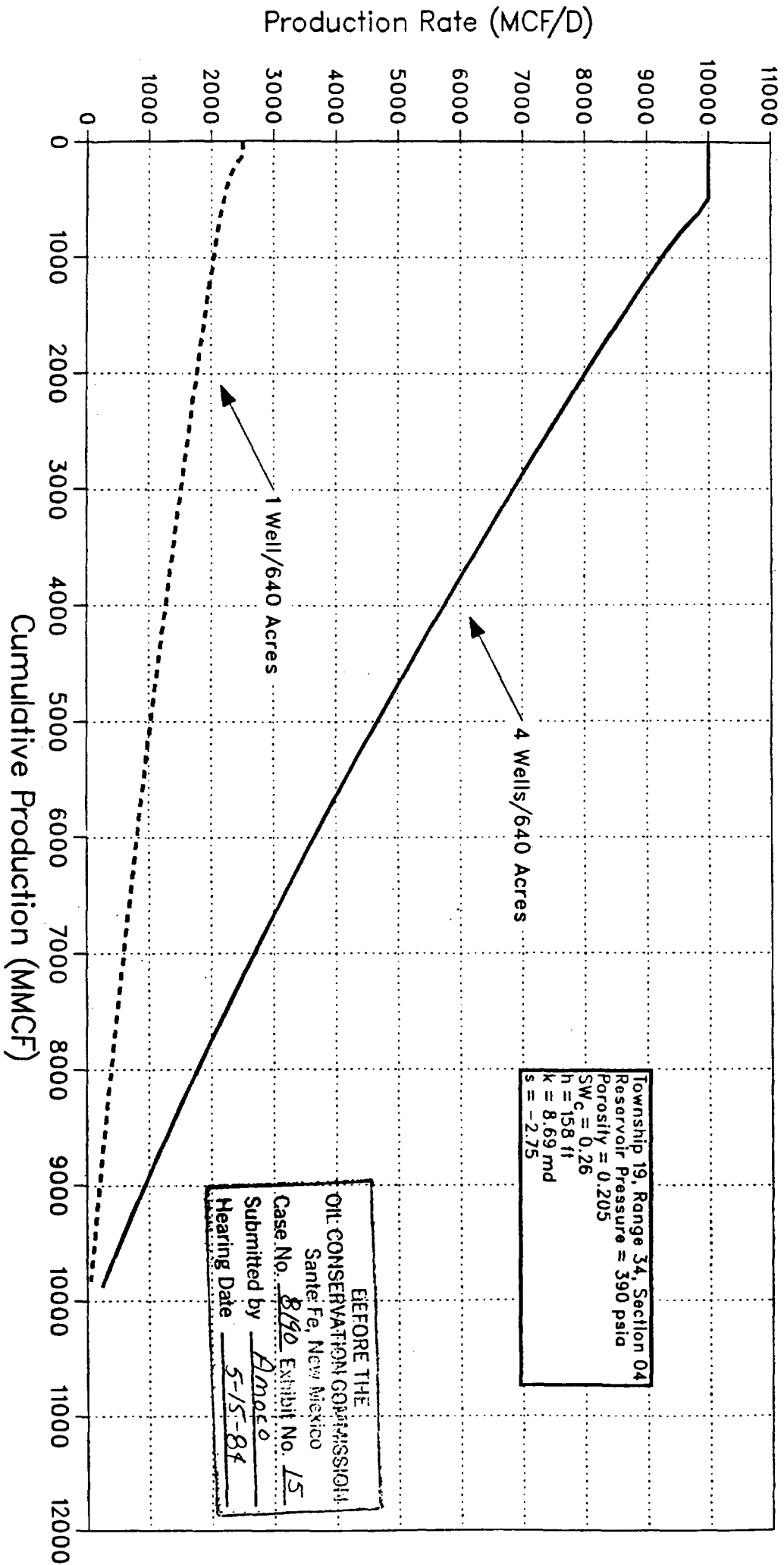


TYPICAL WELL PERFORMANCE CURVE

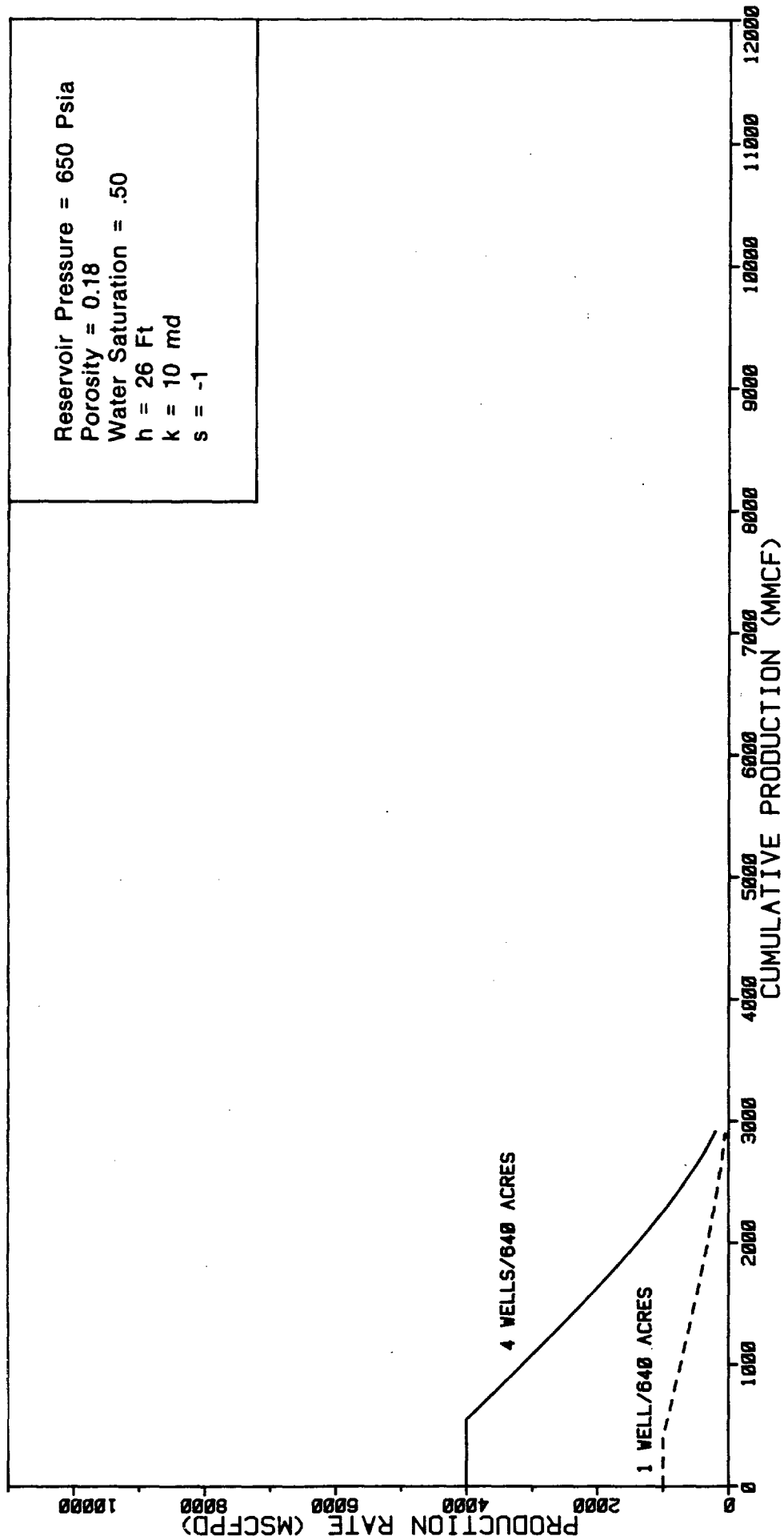


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Bravo Dome CO₂ Gas Unit Typical Well Performance Curve



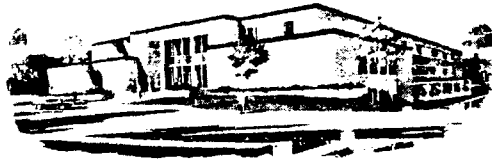
TYPICAL WELL PERFORMANCE CURVE



PRODUCTION SCHEDULES

	1 WELL 640 AC. SPACING MMCF	4 WELLS 160 AC. SPACING MMCF
1986	344	1148
1987	308	724
1988	276	456
1989	247	288
1990	221	184
1991	198	116
1992	178	48
1993	159	
1994	143	
1995	128	
1996	114	
1997	102	
1998	92	
1999	82	
2000	74	
2001	66	
2002	59	
2003	53	
2004	47	
2005	<u>43</u>	<u> </u>
	2934	2964

State of New Mexico



#8351

JIM BACA
COMMISSIONER

Commissioner of Public Lands

August 29, 1985

P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148
Express Mail Delivery Uses
910 Old Santa Fe Trail
Santa Fe, New Mexico 87501

Cities Service Oil and Gas Corp.
P. O. Box 300
Tulsa, Oklahoma 74102

Re: West Bravo Dome Carbon
Dioxide Gas Unit
Harding County, New Mexico

ATTENTION: Mr. Charles E. Creekmore

Gentlemen:

This office is in receipt of your letter dated July 24, 1985, together with several ratifications and documents in regards to the West Bravo Dome Carbon Dioxide Gas Unit, Harding County, New Mexico. These documents have this date been accepted and filed in our unit file and Tract Nos. 2002 and 2069 have effectively been qualified pursuant to Section 9.1.2 of the Unit Agreement.

Also, please be advised that our records reflect that Tract No. S-527 is not committed at this time.

If we may be of further help please do not hesitate to call on us.

Very truly yours,

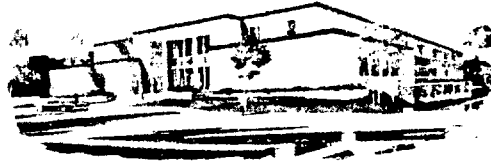
JIM BACA
COMMISSIONER OF PUBLIC LANDS

BY: *Ray D. Graham*
RAY D. GRAHAM, Director
Oil and Gas Division
AC 505/827-5744

JB/RDG/pm
cc:

OCD-Santa Fe, New Mexico
BLM-Albuquerque, New Mexico Attn: Fluids Branch
BLM-Roswell, New Mexico Attn: Mr. Armando Lopez

State of New Mexico



JIM BACA
COMMISSIONER

Commissioner of Public Lands

October 4, 1985

P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148
Express Mail Delivery Used
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

Cities Service Oil and Gas Corp.
P. O. Box 300
Tulsa, Oklahoma 74102

Re: West Bravo Dome Carbon Dioxide Gas Unit
Harding County, New Mexico

ATTENTION: Mr. Charles E. Creekmore

Gentlemen:

This office is in receipt of your letter of October 24, 1985, together with copies of Ballots entitled Acquisition of Uncommitted Interests executed by Cities Service Oil and Gas Corp., as Unit Operator, Amerada Hess Corporation, Amerigas II, Inc., Chevron U.S.A. Inc. and CO₂-In-Action as Working Interest Owners in the captioned Unit, signifying the Working Interest Owners approval of the Subsequent joinder or Acquisition of Uncommitted Interests in the Unit.

As per Article 9 of the West Bravo Dome Carbon Dioxide Gas Unit, these documents have this date been accepted and the following parties interests have been committed to the unit effective as of this date.

J. T. Boyett (Overriding royalty interest in Tracts 2004, 2031, 2038, 2050, 2053 and 2067).

Lena Brown (new lease in Tract 2029).

Fred Garms (remainderman in Tract 2003).

Sun Exploration and Production Company (renewal of lease in Tracts 2017 and 2060).

Juanita Trujillo (wife of Ernest Trujillo).

Nora Trujillo (wife of George Trujillo).

Cities Service Oil and Gas Corp.
October 4, 1985
page 2

Betty Lou White (remainderman in Tract 2003).

Cities Service Oil and Gas Corp. (new lease in Tract S-527)

If we may be of further help please do not hesitate to call on
us.

Very truly yours,

JIM BACA
COMMISSIONER OF PUBLIC LANDS

BY: 
RAY D. GRAHAM, Director
Oil and Gas Division
AC 505/827-5744

JB/RDG/pm
encls.

cc: OCD-Santa Fe, New Mexico
 BLM-Albuquerque, New Mexico Attn: Fluids Branch
 BLM-Roswell, New Mexico Attn: Mr. Armando Lopez