RELEASE 11-3-93 DHC

MARTIN YATES, III
1912 - 1985
FRANK W. YATES
1936 - 1986

YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 748-1471

October 11, 1993

State of New Mexico
OIL CONSERVATION DIVISION
P. O. Box 2088
Santa Fe, NM 87501

ATTN: Mr. David Catanach

Dear Mr. Catanach,

Enclosed are the necessary documents for obtaining approval for the downhole commingling of the Morrow and Strawn for the Bluffside WF Federal #1 located in Unit E of Section 9, Township 19 South, Range 27 East.

Should you have any questions, please feel free to contact me at (505) 748-1471. Thank you.

Sincerely,

Brian Collins
Engineer

BC/th

Enclosures

YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 748-1471

October 11, 1993

State of New Mexico
OIL CONSERVATION DIVISION
P. O. Drawer DD
Artesia, NM 88210

ATTN: Mr. Mike Williams

Dear Mr. Williams,

Enclosed are the necessary documents for obtaining approval for the downhole commingling of the Morrow and Strawn for the Bluffside WF Federal #1 located in Unit E of Section 9, Township 19 South, Range 27 East.

Should you have any questions, please feel free to contact me at (505) 748-1471. Thank you.

Sincerely,

Brian Collins
Engineer

BC/th

Enclosures

YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 748-1471

October 11, 1993

Bureau of Land Management
P. O. Box 1778
Carlsbad, NM 88220

Attn: Mr. Shannon Shaw

Dear Mr. Shaw,

Enclosed are the necessary documents submitted to the NMOCD for obtaining approval for the downhole commingling of the Morrow and Strawn for the Bluffside WF Federal #1, located in Unit E of Section 9, Township 19 South, Range 27 East.

Should you have any questions, please feel free to contact me at (505) 748-1471. Thank you.

Sincerely,

Brian Collins
Engineer

BC/th

Enclosures

YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 748-1471

October 11, 1993

BTA 8600 Venture Properties
104 S. Pecos
Midland, TX 79701

Gentlemen:

Enclosed please find a copy of the application for commingling the Morrow and Strawn in the Bluffside WF Federal #1 located in Unit E of Section 9-T19S-R27E. This copy of the application to commingle fulfills our requirement to notify offset operators per NMOCD Rule 303 D (10).

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Brian Collins
Engineer

BC/th

Enclosures

YATES PETROLEUM CORPORATION
105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 748-1471

October 11, 1993

Meridian Oil Inc.
P. O. Box 51810
Midland, TX 79710

Gentlemen:

Enclosed please find a copy of the application for commingling the Morrow and Strawn in the Bluffside WF Federal #1 located in Unit E of Section 9-T19S-R27E. This copy of the application to commingle fulfills our requirement to notify offset operators per NMOCD Rule 303 D (10).

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Brian Collins
Engineer

BC/th

Enclosures

YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 748-1471

October 11, 1993

MW Petroleum Corporation
2000 Post Oak Blvd.
Suite 100
Houston, TX 77056-4400

Gentlemen:

Enclosed please find a copy of the application for commingling the Morrow and Strawn in the Bluffside WF Federal #1 located in Unit E of Section 9-T19S-R27E. This copy of the application to commingle fulfills our requirement to notify offset operators per NMOCD Rule 303 D (10).

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Brian Collins
Engineer

BC/th

Enclosures

COMMINGLING DATA FOR THE BLUFFSIDE WF FEDERAL #1

1> Name and Address of the Operator:

Yates Petroleum Corporation
105 South Fourth Street
Artesia, NM 88210
ATTN: Brian Collins

2> Lease Name, Well Number, Well Location, Name of the Pools to be Commingled:

Bluffside WF Federal #1
Unit E Sec. 9-T19S-R27E
1980'FNL & 660'FWL
Pools: Angell Ranch Atoka Morrow
Undesignated Strawn

3> A plat of the area showing the acreage dedicated to the well and the ownership of all offsetting leases.

See Attachment A (map).

4> A current (within 30 days) 24-hour productivity test on Division Form C-116 showing the amount of oil, gas, and water produced from each zone.

The approximate test rates for each zone are:
Morrow
9912'-9920', 10171'-10195'
50 MCFPD
See Attachment B (Production History)

Strawn
8762'-8777', 9098'-9131'
30 MCFPD
See Attachment C (Production History).

5> A production decline curve for both zones showing that for a period of at least one year a steady rate of decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes. (This requirement may be dispensed within the case of a newly completed or recently completed well which has little or no production history. However, a complete description of treating testing, etc., of each zone, and a prognostication of future production from each zone shall be submitted.)

Prognostication of future Strawn production:
Best engineering estimate is that Strawn will decline at an exponential decline rate of 20%/yr. to an economic limit of 10 MCFPD.

- Gas: IP = 30 MCFPD d = 20%/year

$$N = \frac{365\ (Q-Qi)}{\ln\ (1-d)} = \frac{365\ (10-30)}{\ln\ (1-.2)} = 32714\ MCF$$

- Condensate: Negligible amounts of condensate will be produced from the Morrow and Strawn. Best engineering estimate is to allocate condensate the same as gas.

Prognostication of future Morrow Production:
Best engineering estimate is that Morrow will decline at an exponential decline rate of 20%/yr. to an economic limit of 10 MCFPD.

- Gas: IP = 50 MCFPD d = 20%/year

$$N = \frac{365\,(Q-Qi)}{\ln\,(1-d)} = \frac{365\,(10-50)}{\ln\,(1-.2)} = 65{,}429 \text{ MCF}$$

6> Estimated bottom-hole pressure for each artificially lifted zone. A current (within 30 days) measured bottomhole pressure for each zone capable of flowing.

Estimated BHP of Morrow = 1580 psi from SITP (1300 psi) measurement taken 3-93.

Convert SITP to BHP: $P = P_0 e^{\frac{MO}{1544\,ZT}}$

M = 16 methane
D = 10050'
T = 140°F = 600°R
Z = 0.9

$$p = 1300\ e^{\frac{(16)(10150)}{1544\,(.9)(600)}} = 1580 \text{ psi}$$

Estimated BHP of Strawn = 3579 psi from BHP measurement taken 9-2-93. (See Attachment D)

7> A description of the fluid characteristics of each zone showing that the fluids will not be in-incompatible in the well-bore.

Wellbore fluids will not be incompatible. The Morrow and Strawn will produce dry, sweet gas.

8> A computation showing that the value of the commingled production will not be less than the sum of the values of the individual streams.

Morrow and Strawn gas are sweet and will not decrease the value of the commingled gas streams.

Prognistication of each formation's reserves indicates that an additional 65,429 MCF of gas will be recovered by commingling production from the Morrow and Strawn.

9> A formula for the allocation of production to each of the commingled zones and a description of the factors or data used in determining such formula.

Gas:

$$\text{Morrow} - \frac{65{,}429 \text{ MCF}}{98{,}143 \text{ MCF}} = 66.7\%$$

$$\text{Strawn} - \frac{32{,}714 \text{ MCF}}{98{,}143 \text{ MCF}} = 33.3\%$$

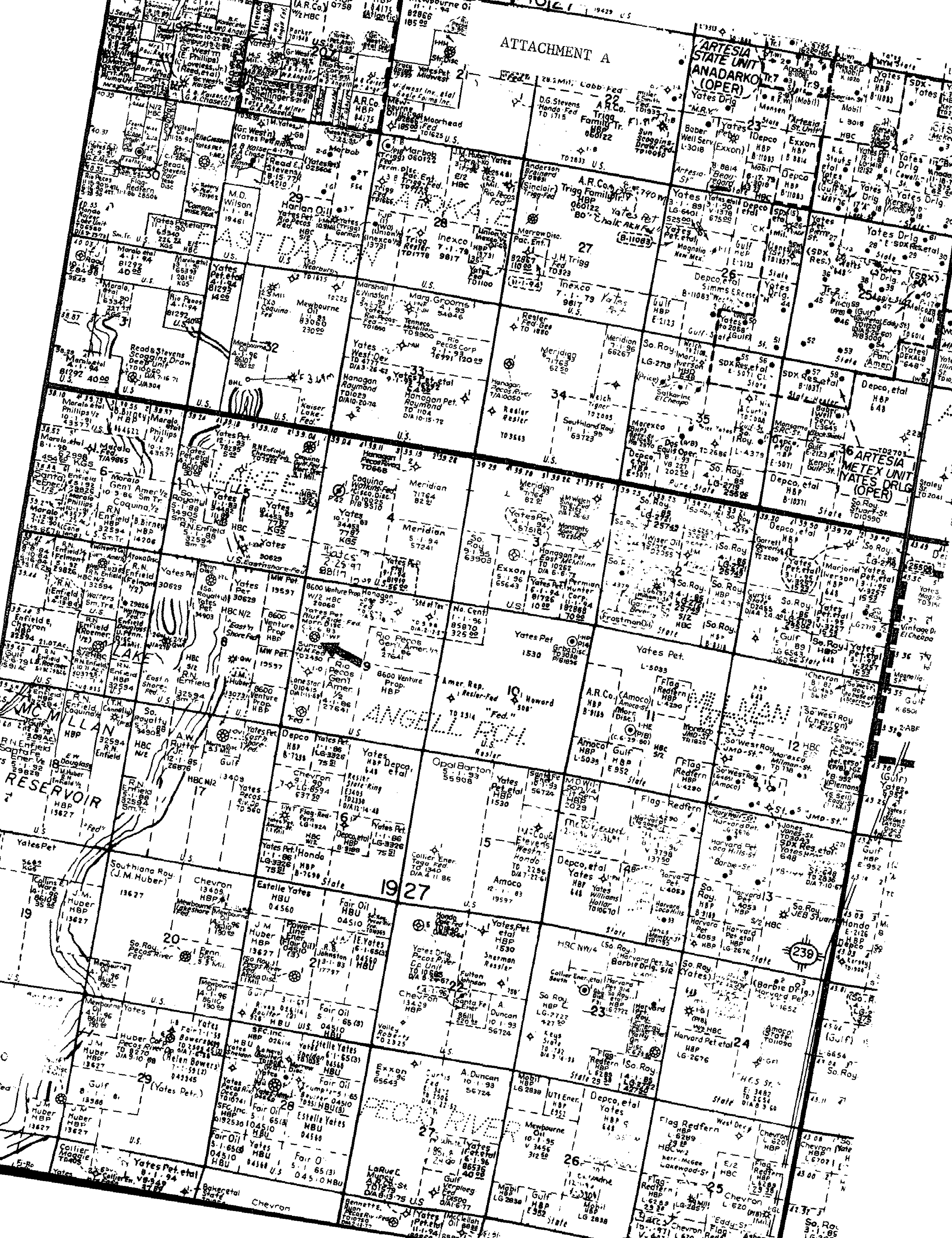
Condensate: Morrow - 66.7%

Strawn - 33.3%

10> A statement that all offset operators and, in the case of a well on federal land, the US BLM, have been notified in writing of the proposed commingling.

The offset operators for this area and the US BLM were notified of the proposed commingling of the Bluffside WF Federal #1.

ATTACHMENT A



MPSR8291 MONTHLY PRODUCTION HISTORY - ONE WELL
COMPANY 003 YATES PETROLEUM CORPORATION

15:40:10 9/23/93

PROPERTY: 013240-001 BLUFFSIDE WF FEDERAL

Production Dates: 09/92 - 09/93

Mo/Yr	Prod Days Prod	Oil Produced	Oil Sold	Gas Produced	Gas Sold	Water Produced	Field-Sub	Pool
07/93	11	0	0	435	435	0	22 ANGELL RANCH	29 ATOKA MORROW
06/93	30	0	0	436	436	0	22 ANGELL RANCH	29 ATOKA MORROW
05/93	30	0	0	721	721	0	22 ANGELL RANCH	29 ATOKA MORROW
04/93	22	0	0	1013	1013	0	22 ANGELL RANCH	29 ATOKA MORROW
03/93	19	0	0	1168	1168	0	22 ANGELL RANCH	29 ATOKA MORROW
02/93	8	0	0	528	528	0	22 ANGELL RANCH	29 ATOKA MORROW
01/93	28	0	0	1453	1453	0	22 ANGELL RANCH	29 ATOKA MORROW
12/92	23	0	0	1376	1376	0	22 ANGELL RANCH	29 ATOKA MORROW
11/92	28	0	0	1035	1035	0	22 ANGELL RANCH	29 ATOKA MORROW
10/92	30	0	0	1448	1448	0	22 ANGELL RANCH	29 ATOKA MORROW
09/92	28	0	0	1366	1366	0	22 ANGELL RANCH	29 ATOKA MORROW
TOTALS:	257	0	0	11179	11179	0		

ATTACHMENT B

= MORROW

ENGR502 INTERNAL PRODUCTION REPORT — PAGE 1
PRODUCTION DATE...August, 1993 — 15:54:45 9/23/93

WELL..... 13240 001 S1 GAS BLUFFSIDE WF FEDERAL #1 YPC — OPENING STOCK.. 23.23
FIELD..... 22 ANGELL RANCH — CLOSING STOCK.. 23.23
LOCATION..
PUMPER....

DAY	TP	CP	CHOKE	METER	ORF	STATIC	DIFF	WATER	OIL	GAS	WATER PULLED	OIL SOLD	REMARKS
01	450/	0	06/64	2.000	.375	420.0	6.0	.00	.00	44			
02	460/	0	06/64	2.000	.375	460.0	4.0	.00	.00	38			
03	460/	0	06/64	2.000	.375	460.0	2.0	.00	.00	27			
04	460/	0	06/64	2.000	.375	460.0	2.0	.00	.00	27			
05	460/	0	06/64	2.000	.375	460.0	2.0	.00	.00	27			
06	460/	0	06/64	2.000	.375	460.0	2.0	.00	.00	27			
07	460/	0	06/64	2.000	.375	460.0	2.0	.00	.00	27			
08	460/	0	06/64	2.000	.375	460.0	2.0	.00	.00	27			
09	480/	0	06/64	2.000	.375	480.0		.00	.00	0			
10	0/	0	00/00					.00	.00	0			
11	0/	0	00/00					.00	.00	0			
12	0/	0	00/00					.00	.00	0			
13	0/	0	00/00					.00	.00	0			
14	0/	0	00/00					.00	.00	0			
15	0/	0	00/00					.00	.00	0			
16	0/	0	00/00					.00	.00	0			
17	0/	0	00/00					.00	.00	0			
18	0/	0	00/00					.00	.00	0			
19	0/	0	00/00					.00	.00	0			
20	480/	0	09/64	2.000	.375	430.0	8.0	.00	.00	51			
21	440/	0	09/64	2.000	.375	440.0	4.0	.00	.00	37			
22	440/	0	09/64	2.000	.375	440.0	3.0	.00	.00	32			
23	440/	0	09/64	2.000	.375	440.0	2.0	.00	.00	26			
24	450/	0	09/64	2.000	.375	450.0	2.0	.00	.00	26			
25	44/	0	09/64	2.000	.375	44.0	2.0	.00	.00	26			
26	440/	0	09/64	2.000	.375	440.0	2.0	.00	.00	26			
27	440/	0	09/64	2.000	.375	440.0	1.0	.00	.00	18			
28	460/	0	09/64	2.000	.375	460.0		.00	.00	0			
29	0/	0	00/00					.00	.00	0			
30	0/	0	00/00					.00	.00	0			
31	0/	0	00/00					.00	.00	0			
TOTALS....								.00	.00	486			PRODUCED 16 DAYS

ATTACHMENT C

"STRAWN"

OWNER REPORTING REPORTS

ATTACHMENT D

GIST & STATTON, INC.
PETROLEUM CONSULTANTS
401 WEST TEXAS STREET, STE 1005
MIDLAND, TEXAS 79701

MIDLAND AMERICAN BANK BLDG
10TH FLOOR

TELEPHONE: 915-683-6852
FAX: 915-683-8720

September 13, 1993

Yates Petroleum Corporation
105 S. Fourth Street
Artesia, New Mexico 88210

Attn: Mr. Brian Collins

The following presents the analysis results of the buildup test conducted on September 2, 1993 on the Yates Petroleum Corporation - Bluffside 'WF' Federal #1 well, Eddy County, New Mexico.

SUMMARY

The Bluffside 'WF' Federal #1 well produces from the Strawn with perforations from 8762 to 8777 feet. The net pay is 20 feet. The well was recompleted on August 18, 1993. The formation was treated with 3000 gallons of acid. The well produced for 8 days prior to the test. Producing rates declined from 51 MCFPD to 18 MCFPD. The effective producing time was 322 hours. The flowing bottomhole pressure at shutin was 833.2 psia at a mid-perf of 8769 feet. The maximum pressure recorded at the end of the 140 hours of buildup was 3014 psia.

Both the static and flowing gradients showed liquids in the wellbore. The current flow rate is not high enough to unload the wellbore.

CONCLUSIONS

The buildup response for the well is that of a very low permeability, slightly stimulated reservoir. Radial flow conditions never developed. The late time data (60 hours to the end of the test) have an downward trend that does not match any of the typical flow models.

Bluffside 'WF' Federal #1

Permeability, md	0.001
Fracture half length, ft	24
Fcd, dimensionless conductivity	100
P_{res}, psia	- 3579

The values for permeability and fracture properties were calculated from a type curve match. The value for P_{res} was taken from a Horner plot extrapolation and confirmed by model verification.

PRESSURE ANALYSIS

Figure 1 is a log-log plot showing the pressures and pressure derivatives. Pseudo-pressures and pseudo-times are used to account for gas compressibility. The trend marked with **A** identifies wellbore storage. The derivative data marked by **B** show the trend matched on the finite conductivity type curve. The trend marked by **C** is not explainable.

Figure 2 is a suite of finite conductivity type curves for a range of dimensionless fracture conductivity (F_{cd}) values. Figure 3 shows the same type curves with wellbore storage taken into account. The values obtained for permeability, fracture half-length and F_{cd} are 0.0011 md, 24 feet and 100, respectively. Figure 4 is an individual type curve for F_{cd} = 100.

Figure 5 is a Horner plot of the buildup. A straight line through the late time data results in an extrapolated pressure of 3579 psia.

Figure 6 is a model verification. To obtain a match on flowing bottomhole pressures required increasing the permeability to 0.002 md and decreasing fracture length to 13 feet. Given the low flow rates and low permeability, this is considered to be reasonable.

If you have any question concerning this report, please do not hesitate to call me at 915-683-6852.

Very truly yours,

Rhett Gist

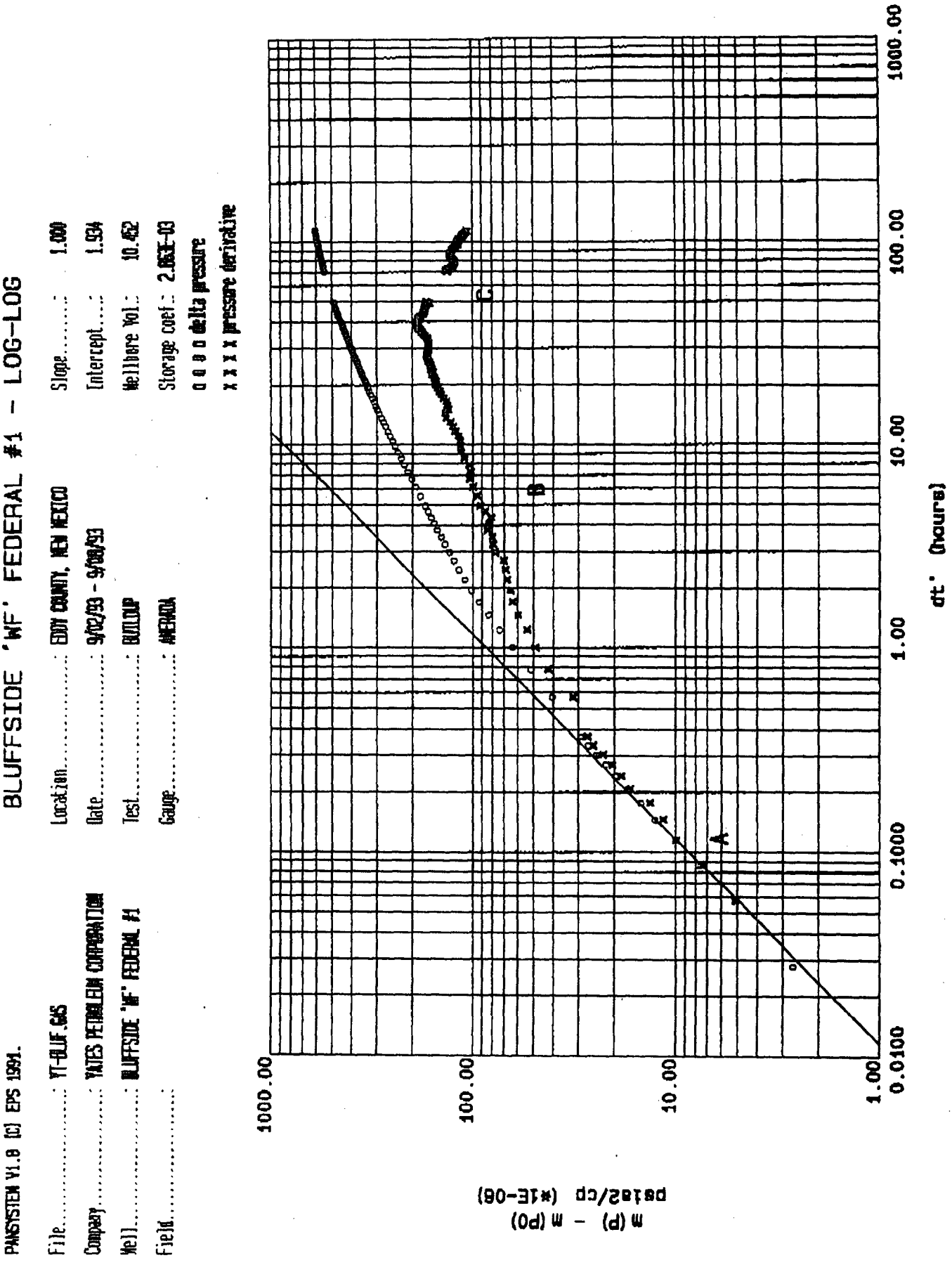

PANSYSTEM V1.0 (C) EPS 1994.
BLUFFSIDE 'WF' FEDERAL #1 - LOG-LOG
File: YT-BLUF.GAS
Company: YATES PETROLEUM CORPORATION
Well: BLUFFSIDE 'WF' FEDERAL #1
Field:
Location: EDDY COUNTY, NEW MEXICO
Date: 9/02/93 - 9/08/93
Test: BUILDUP
Gauge: AMERADA
Slope: 1.000
Intercept: 1.934
Wellbore Vol: 10.452
Storage coef: 2.863E-03
o o o o delta pressure
x x x x pressure derivative
A
B
C
m(P) - m(P0)
psia2/cp (*1E-06)
dt' (hours)
1000.00
100.00
10.00
1.00
0.0100
0.1000
1.00
10.00
100.00
1000.00

Figure 1

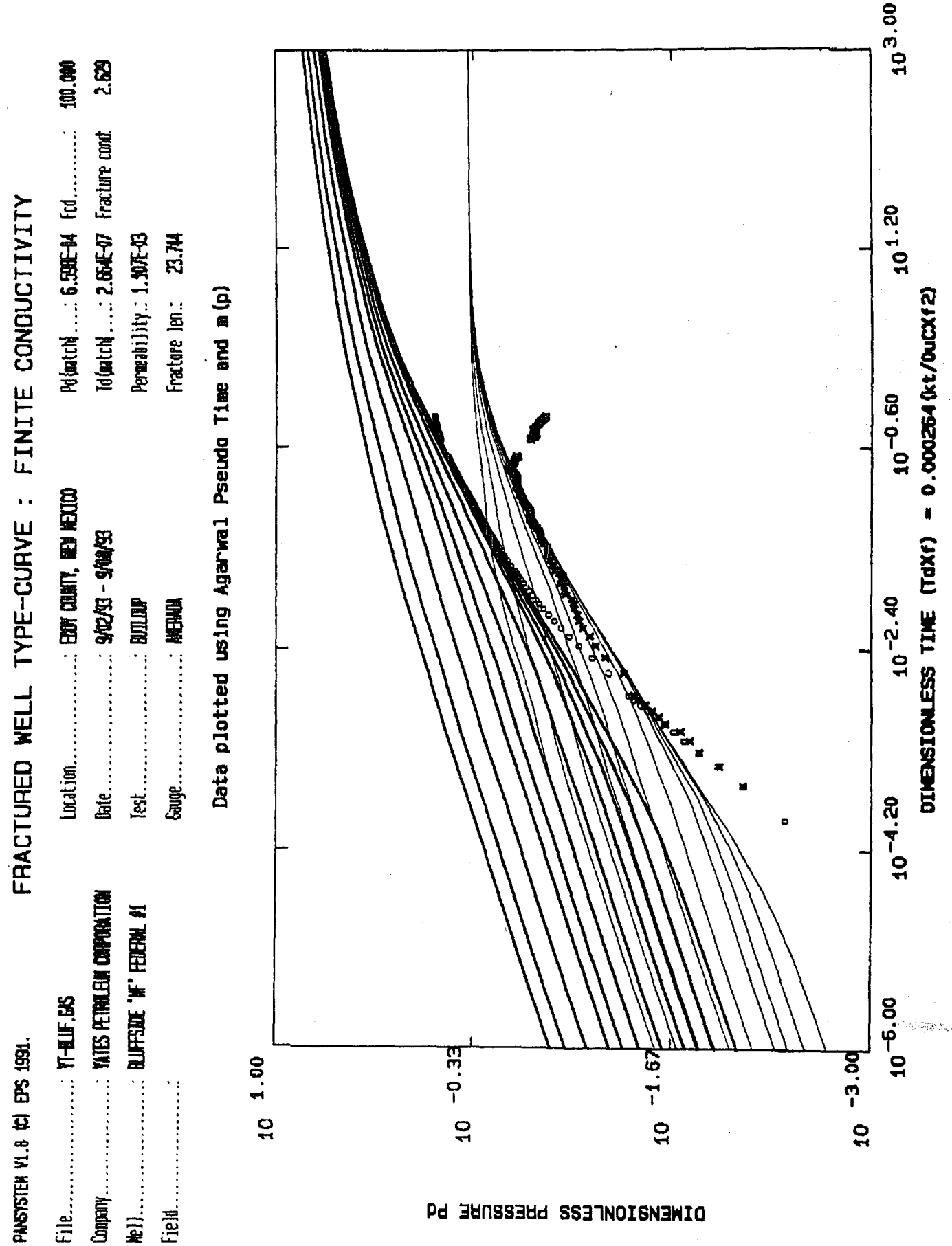

FRACTURED WELL TYPE-CURVE : FINITE CONDUCTIVITY
PANSYSTEM V1.8 (C) EPS 1991.
File.....: YT-BLUF.EKS
Company.....: YATES PETROLEUM CORPORATION
Well.....: BLUFFSIDE "WF" FEDERAL #1
Field.....:
Location.....: EDDY COUNTY, NEW MEXICO
Date.....: 9/02/93 - 9/08/93
Test.....: BUILDUP
Gauge.....: ANEMONA
Pd(patch).....: 6.598E-04 Fcd.....: 100.000
Td(patch).....: 2.664E-07 Fracture cond: 2.629
Permeability.: 1.907E-03
Fracture len.: 23.744
Data plotted using Agarwal Pseudo Time and m(p)
DIMENSIONLESS PRESSURE Pd
DIMENSIONLESS TIME (TdXf) = 0.0002634(kt/0uCXf2)
10 1.00
10 -0.33
10 -1.67
10 -3.00
10 -6.00
10 -4.20
10 -2.40
10 -0.60
10 1.20
10 3.00

Figure 2

PANSYSTEM V1.8 (C) EPS 1991.

FRACTURED WELL : WHC FINITE CONDUCTIVITY STAGE TWO

File:	YT-BLUF.GAS	Location:	EDDY COUNTY, NEW MEXICO	Pd(match):	0.2652
Company:	YATES PETROLEUM CORPORATION	Date:	9/02/93 - 9/08/93	Td(match):	0.3403
Well:	BLUFFSIDE 'WF' FEDERAL #1	Test:	BUILDUP	Permeability:	1.107E-03
Field:		Gauge:	AMERADA	Fracture len:	24.814

Fcd:	100.000		
Fracture cond:	2.748		
Cs:	3.326E-03		
Sf:	0.0000		

Data plotted using Agarwal Pseudo Time and m(p)

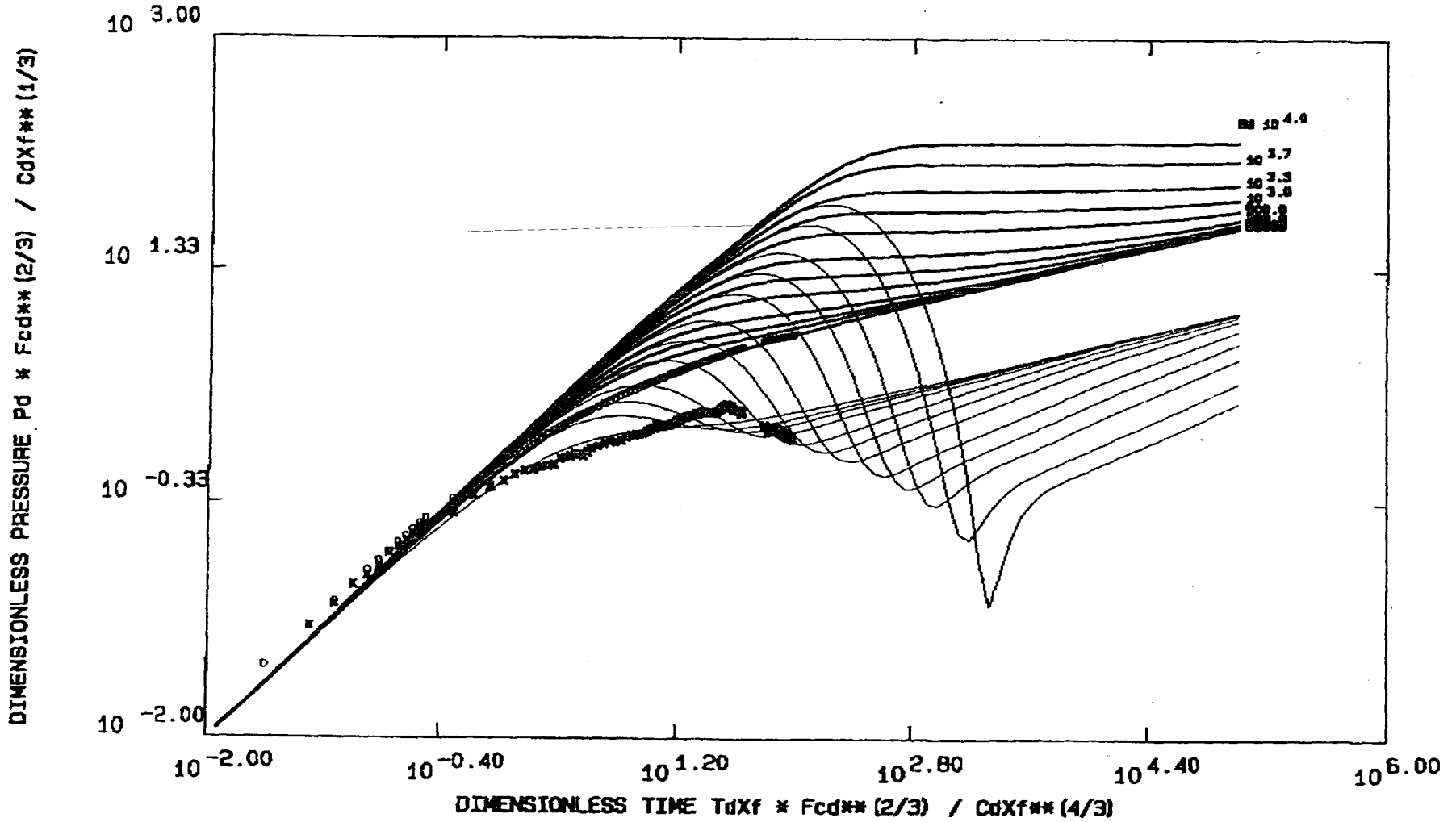


Figure 3

ATTACHMENT D
Page 5

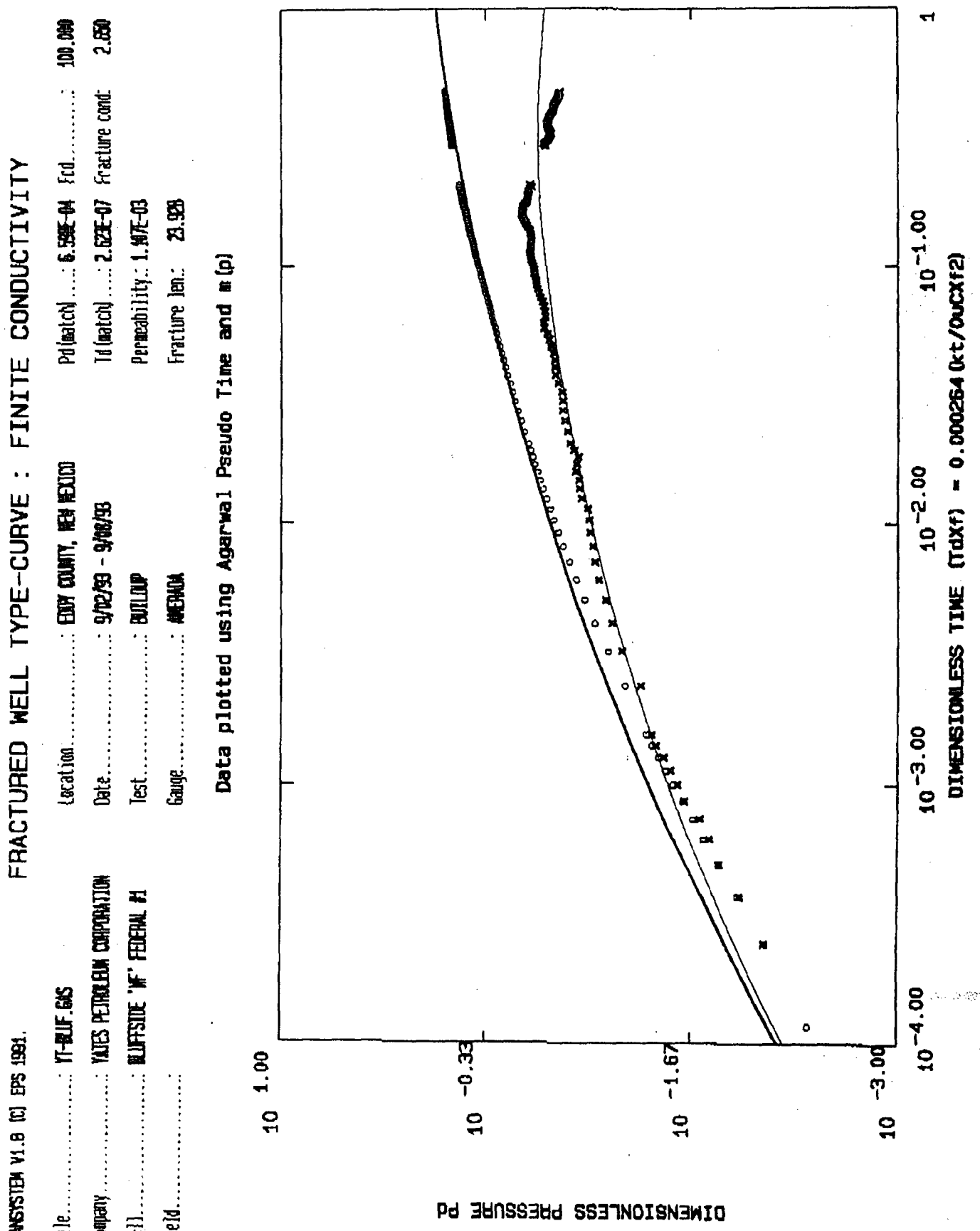

FANSYSTEM V1.0 (C) EPS 1991.
FRACTURED WELL TYPE-CURVE : FINITE CONDUCTIVITY
File.....: YT-BLUF.GAS
Company.....: YATES PETROLEUM CORPORATION
Well.....: BLUFFSIDE 'WF' FEDERAL #1
Field.....:
Location.....: EDDY COUNTY, NEW MEXICO
Date.....: 9/02/93 - 9/08/93
Test.....: BUILDUP
Gauge.....: ANERADA
Pd(match).....: 6.598E-04 Fcd.....: 100.000
Td(match).....: 2.62E-07 Fracture cond: 2.650
Permeability.: 1.40E-03
Fracture len.: 23.928
Data plotted using Agarwal Pseudo Time and m(p)
DIMENSIONLESS PRESSURE Pd
DIMENSIONLESS TIME (TdXf) = 0.000264 (kt/ouCXf2)
10 1.00
10 -0.33
10 -1.67
10 -3.00
10 -4.00
10 -3.00
10 -2.00
10 -1.00
1

Figure 4

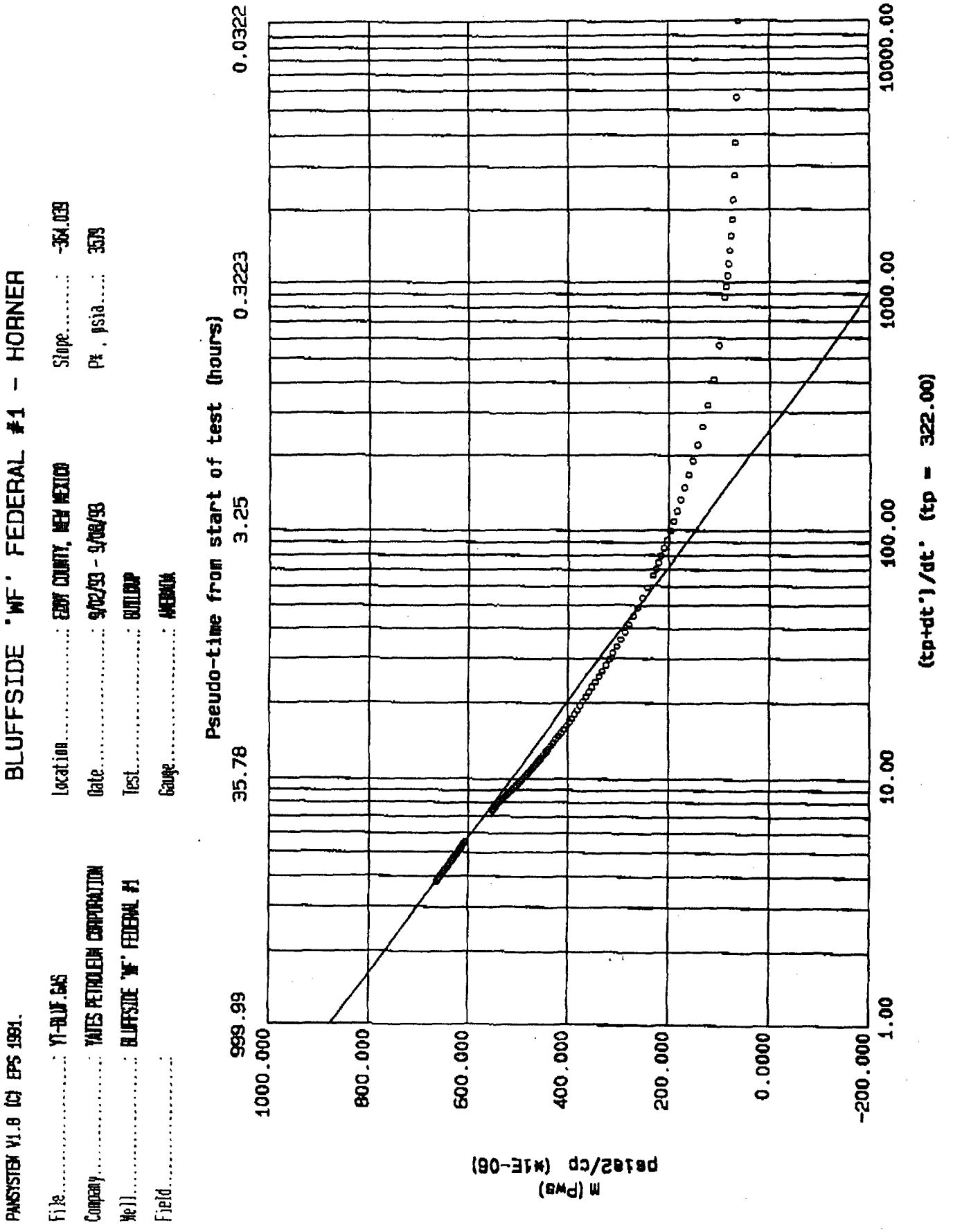

PANSYSTEM V1.8 (C) EPS 1991.
BLUFFSIDE 'WF' FEDERAL #1 - HORNER
File..... : YT-BLUF.GAS
Company..... : YATES PETROLEUM CORPORATION
Well..... : BLUFFSIDE 'WF' FEDERAL #1
Field..... :
Location..... : EDDY COUNTY, NEW MEXICO
Date..... : 9/02/93 - 9/08/93
Test..... : BUILDUP
Gauge..... : AMERADA
Slope..... : -364.039
Pi , psia.... : 3575
Pseudo-time from start of test (hours)
999.99
35.78
3.25
0.3223
0.0322
1000.000
800.000
600.000
400.000
200.000
0.0000
-200.000
1.00
10.00
100.00
1000.00
10000.00
m (Pws)
psi^2/cp (x1E-06)
(tp+dt')/dt' (tp = 322.00)

Figure 5

PANSYSTEM V1.8 (C) EPS 1991.

PRESSURE v TIME

File.....: BLUF.GAS
Company .....: YATES PETROLEUM COMPANY
Lease Name & Well No....: BLUFFSIDE 'MF' FEDERAL #1
Field Name .....: STRAWN

County, State .....: EDDY COUNTY, NEW MEXICO
Test Dates .....: 9/02/93 - 9/08/93
Test Type .....: BUILDUP
Gauge Type .....: AMERADA

—— Actual
o o o COMPUTED

Model Verification of Finite Conductivity Type Curve Match
K = 0.002 md, Xf = 13 ft, P = 3579 psia

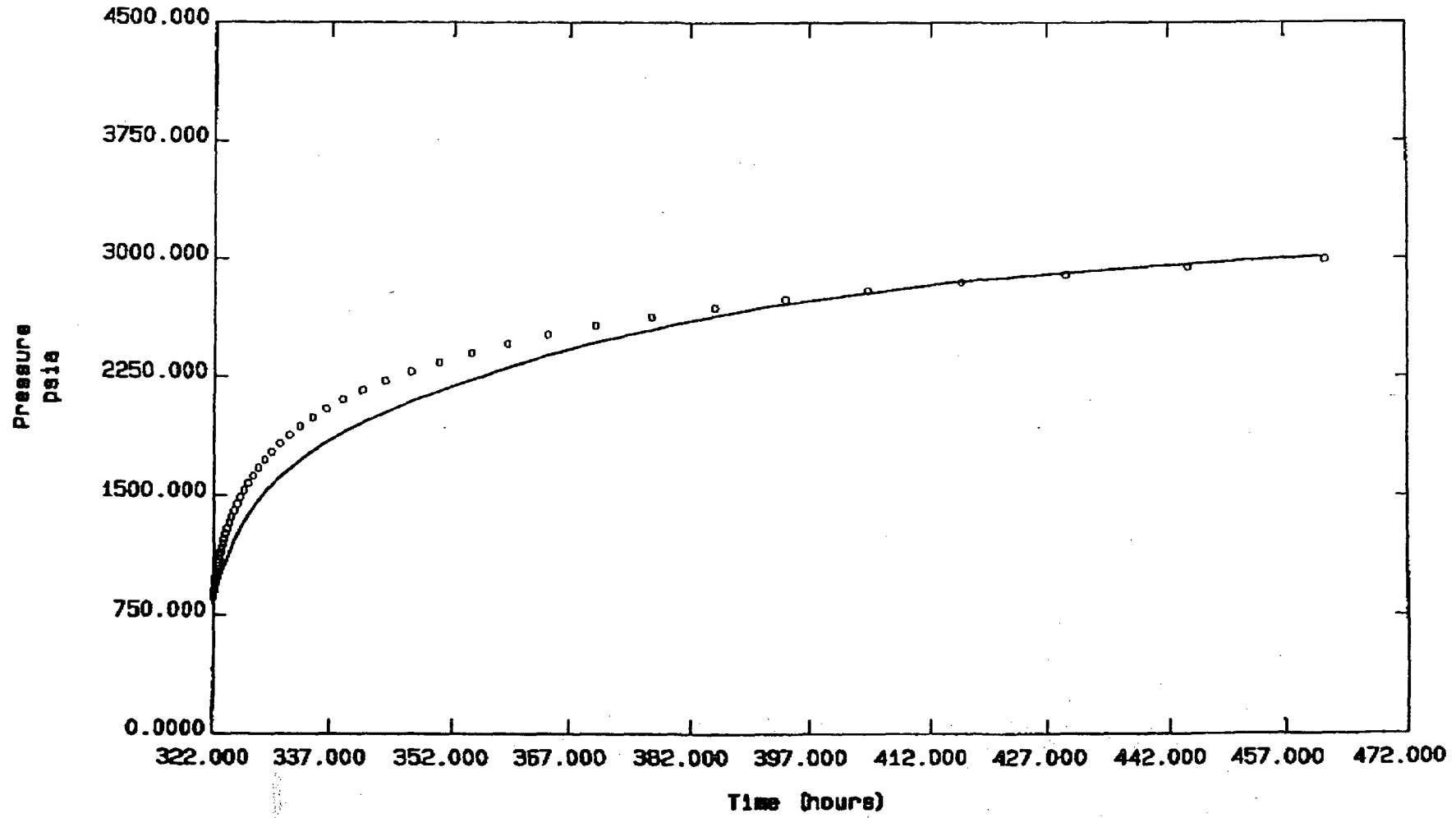


Figure 6