NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

CF-10960
R-10151, R-10151-A
EOR-19
PEOR0000192002

May 5, 1998

Mewbourne Oil Company
P.O. Box 7698
Tyler, Texas 75711-7698

Attn: Mr. K.M. Calvert

RE: Injection Pressure Increase Quercho Plains Queen Associated Sand Unit EOR Waterflood Project Lea County, New Mexico.

Dear Mr. Calvert:

Reference is made to your request dated September 25, 1997 and revised April 22, 1998, to increase the surface injection pressure on six wells in the above referenced project. This request is based on step rate tests conducted on these wells immediately prior to your original request, and additional information supplied on April 22, 1998. The results of the tests and additional data have been reviewed by my staff and we feel an increase in injection pressures on these wells is justified at this time.

You are therefore authorized to increase the surface injection pressure on the following wells:

Well Name and Number	*Maximum Injection Surface Pressure*
QPQASU Well No.13	1550 PSIG
QPQASU Well No.18	1985 PSIG
QPQASU Well No.22	1650 PSIG
QPQASU Well No.25	1650 PSIG
QPQASU Well No.26	1660 PSIG
QPQASU Well No.27	1700 PSIG
All wells located in Lea County, New Mexico.	

The Division Director may rescind any injection pressure increase if it becomes apparent that the injected water is not being confined to the injection zone or is endangering any fresh water aquifers.

Sincerely,

Lori Wrotenbery
Director

LW/BES/kv

cc: Oil Conservation Division - Hobbs
Files: Case File No.10960; EOR-19; PSI-X 4th QTR 98

PSI-X N/R

Held for Hobbs info 10-20-97

RECEIVED
SEP 29 1997
CONSERVATION DIVISION

MEWBOURNE OIL COMPANY

P. O. BOX 7698
TYLER, TEXAS 75711
(903) 561-2900
FAX (903) 561-1870

September 25, 1997

R-9737
10151
CS 10960

WFX 673
680

New Mexico Oil Conservation Commission
2040 South Pacheco
Santa Fe, New Mexico 87505

Att: Mr. David Catanach

Re: ***Application for Increased Surface Pressure***
Querecho Plains Associated Waterflood Project
Lea County, New Mexico

Dear Mr. Catanach:

Mewbourne Oil Company requests administrative approval to increase surface injection pressure for the following wells at the referenced project (see attached step-rate graphs):

Well	CURRENT	Requested Pressure
QPQASU No. 13	1550 NOT FRACING	1425 psig
QPQASU No. 18	1860	2035 psig 1985
QPQASU No. 22	1610	1650 psig
QPQASU No. 25	1640	1650 psig
QPQASU No. 26	1660 " "	1650 psig
QPQASU No. 27	1700 " "	1650 psig

Administrative approval is requested as interpreted in Division Order No. R-10151 and Division Rule 704.C. The attached step-rate tests demonstrate that the subject wells can inject at the requested surface pressures without propagating the existing fracture stimulation out of the Queen and/or Penrose formations.

The step-rate tests, as represented on the graphs, have water gravity, friction factors and depth to top perforation incorporated in the calculations. Stabilization times between test were held constant.

I have attached a copy of the most recent QPQASU performance graph. You will note by the recent increase in oil production that fillup has apparently been reached in the reservoir. As a result of continued pore volume pressure increasing the fracture pressure and difficulty in maintaining injectivity is increasing. The fracture pressure is directly proportional to the pore volume pressure plus other rock matrix stress relationships. Decreasing injectivity is demonstrated by the injection curve shown in violet color. I point this out for the fact that the most recently approved injection pressures in your letter of July 8, 1997 approved a pressure 50 psig

below the fracture pressure as shown on the step-rate test curves provided. Fracture pressure is a continually moving target. Since recent time of gathering the attached data, and by the time that approval is obtained, fracture pressure will have progressed above the current request. If you refer to your approval letter of July 8, you will note that five of the wells for which increased injection pressure was applied are on this application. The running of step-rate tests is an ongoing activity of the field. For this reason, I respectfully request the approval of the requested pressures without a reduction of 50 psig . If you have any questions, please contact me at the above number. Thank you for your consideration in this matter.

Yours truly,

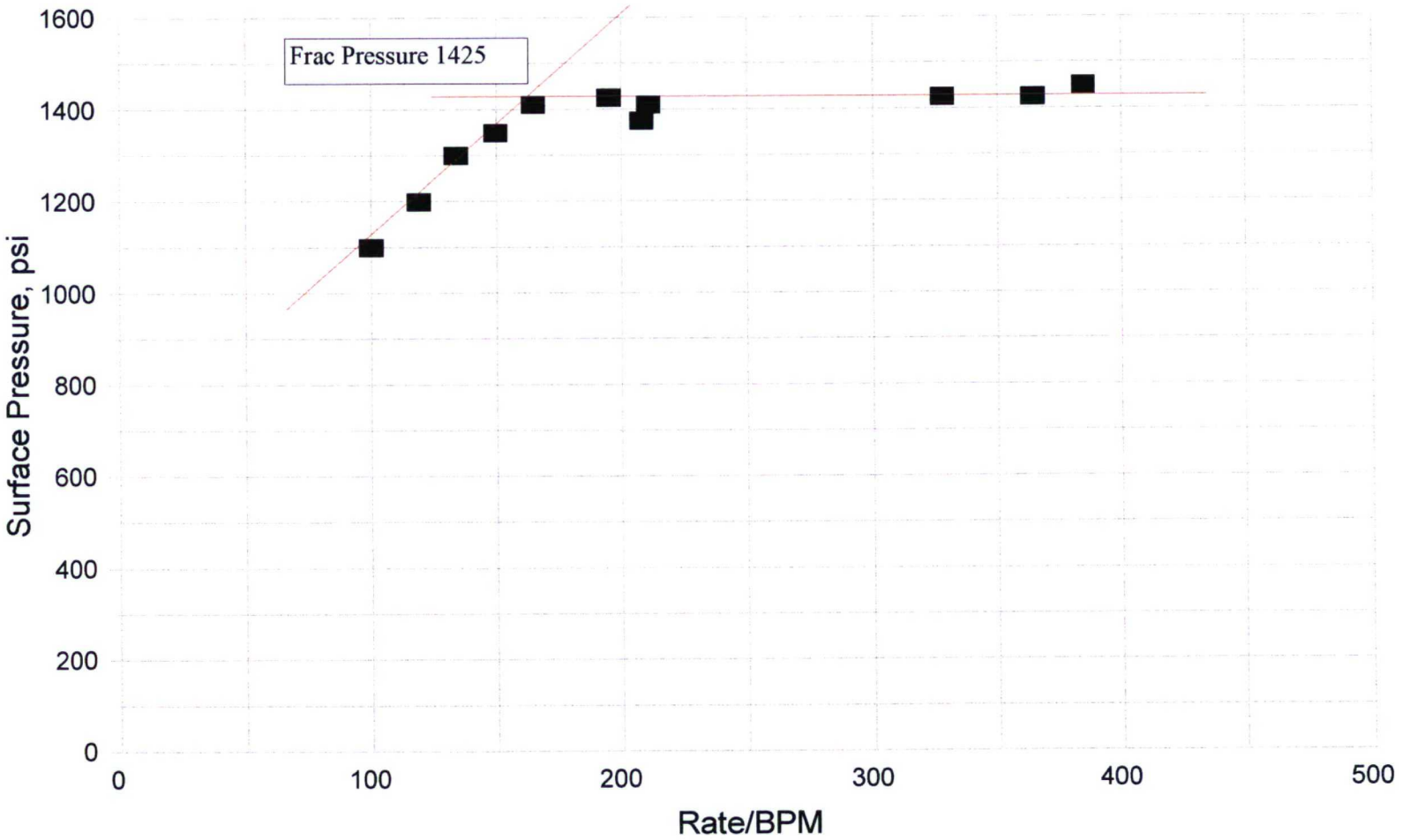
K. M. Calvert

K. M. Calvert
Engineering Manager
Secondary Recovery

KMC/sh
Attachments: Step-Rate Graphs

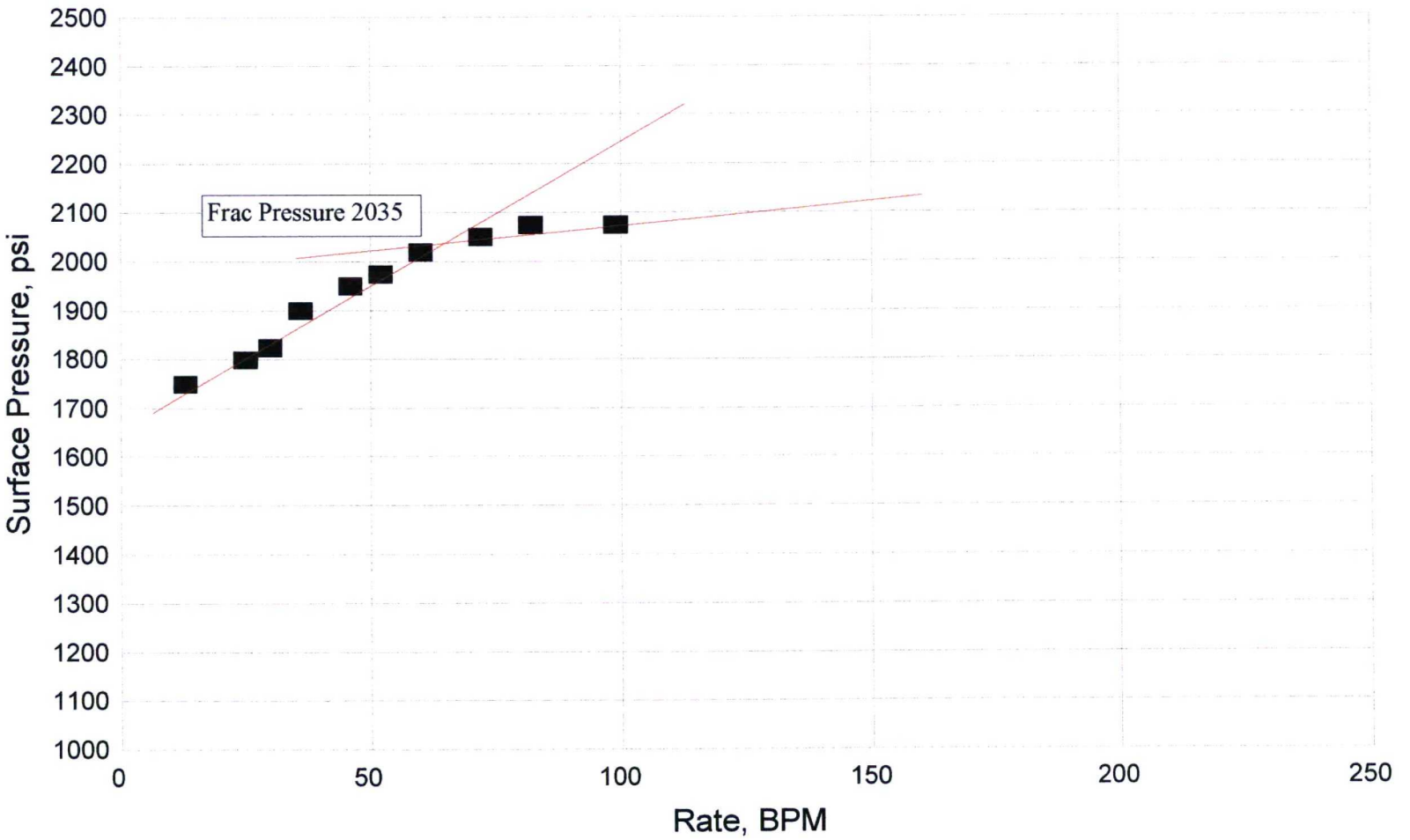
QPQASU NO. 13 (Bennett Fed. 3)

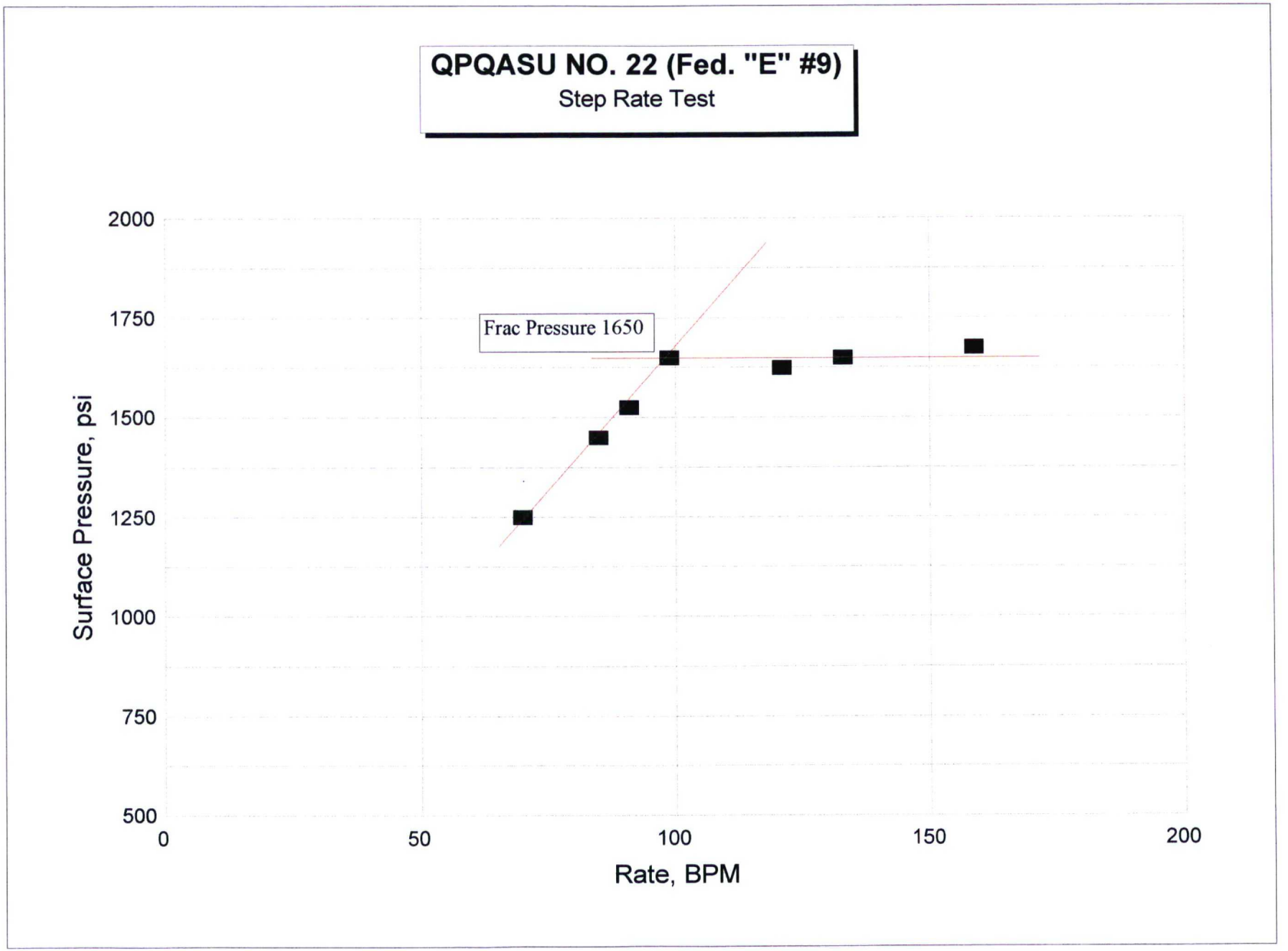
Step Rate Test



QPQASU NO. 18 (Walker #1)

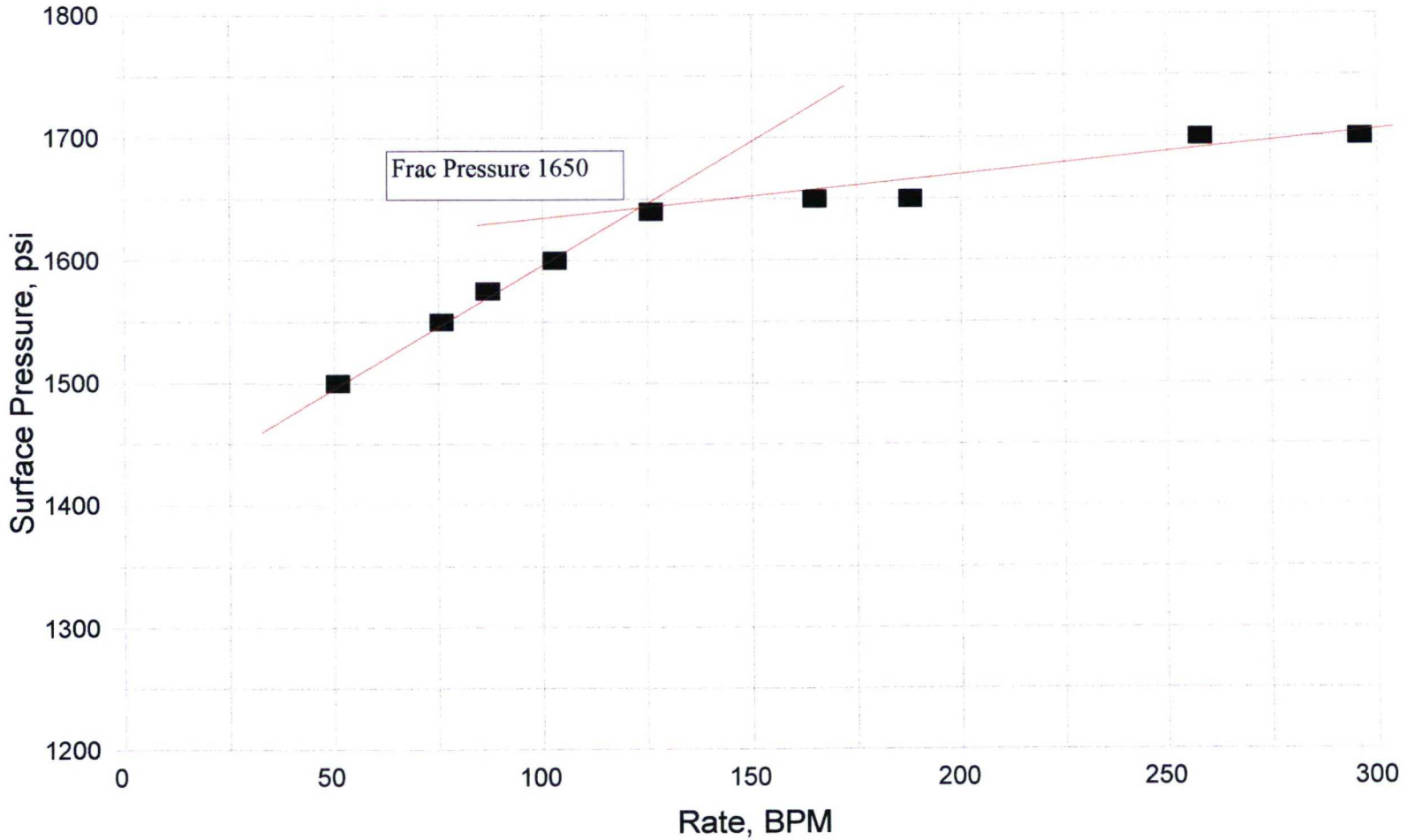
Step Rate Test




QPQASU NO. 22 (Fed. "E" #9)
Step Rate Test
Frac Pressure 1650
Surface Pressure, psi
2000
1750
1500
1250
1000
750
500
0
50
100
150
200
Rate, BPM

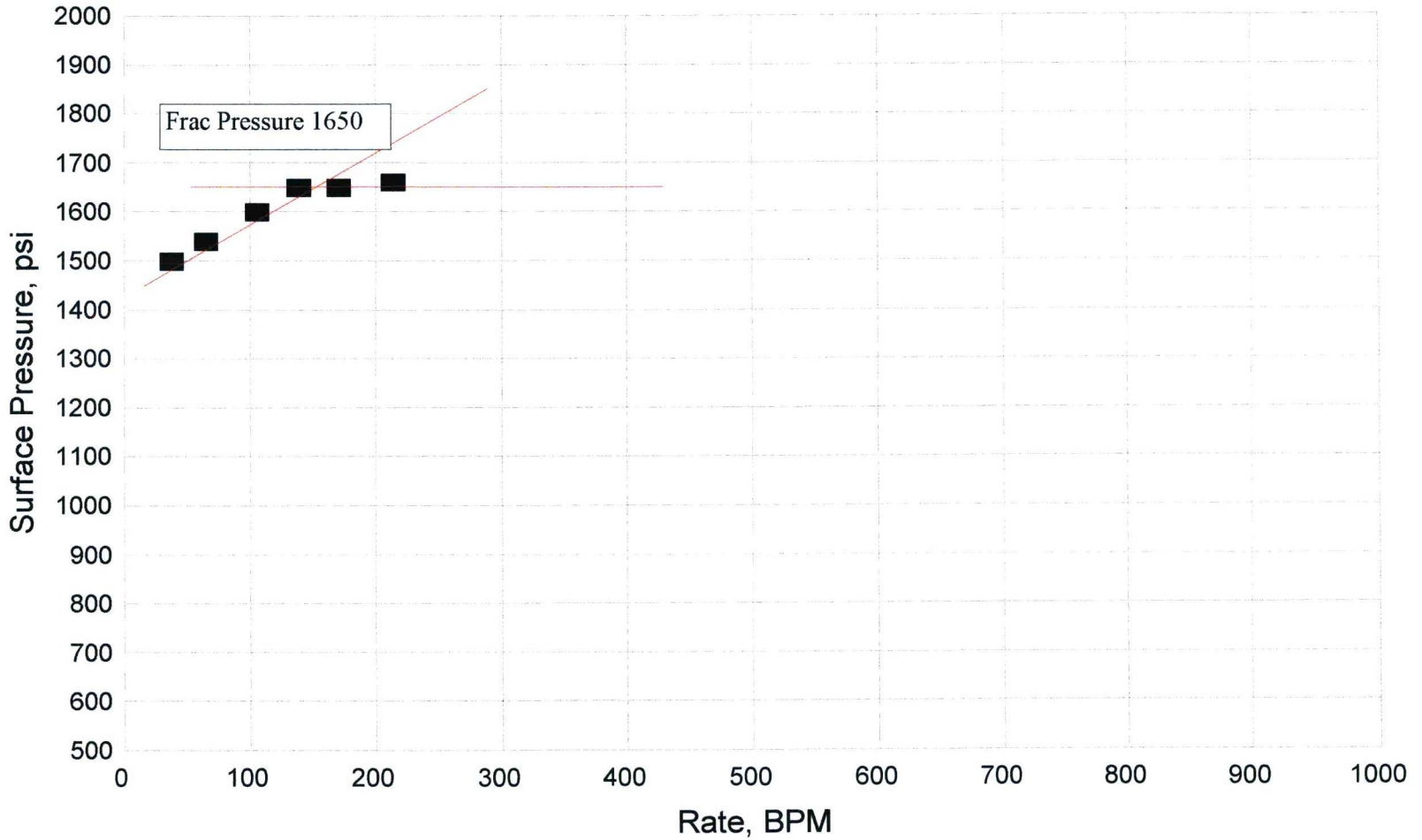
QPQASU NO. 25 (Fed. "E" #8)

Step Rate Test



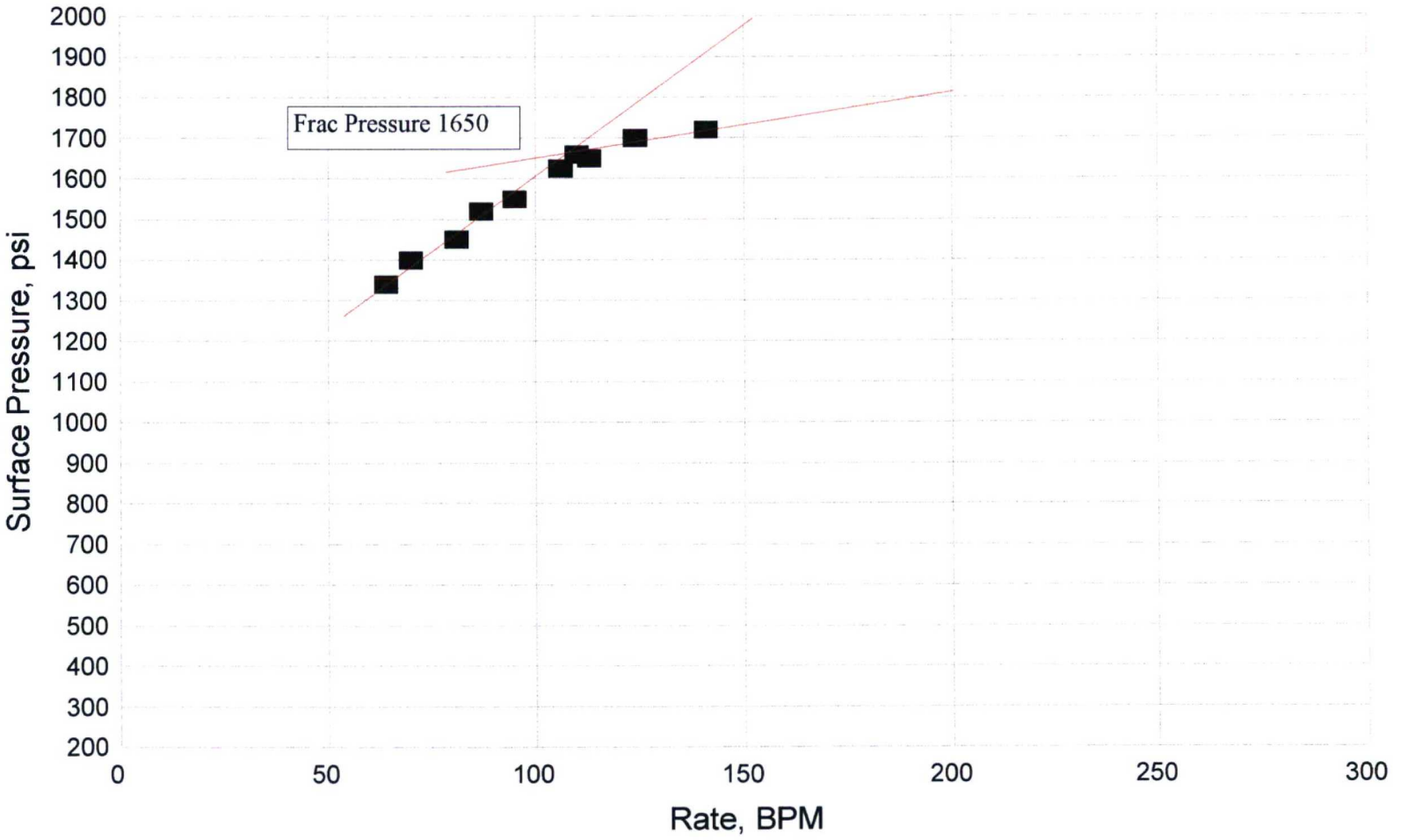
QPQASU NO. 26 (Anadarko #2)

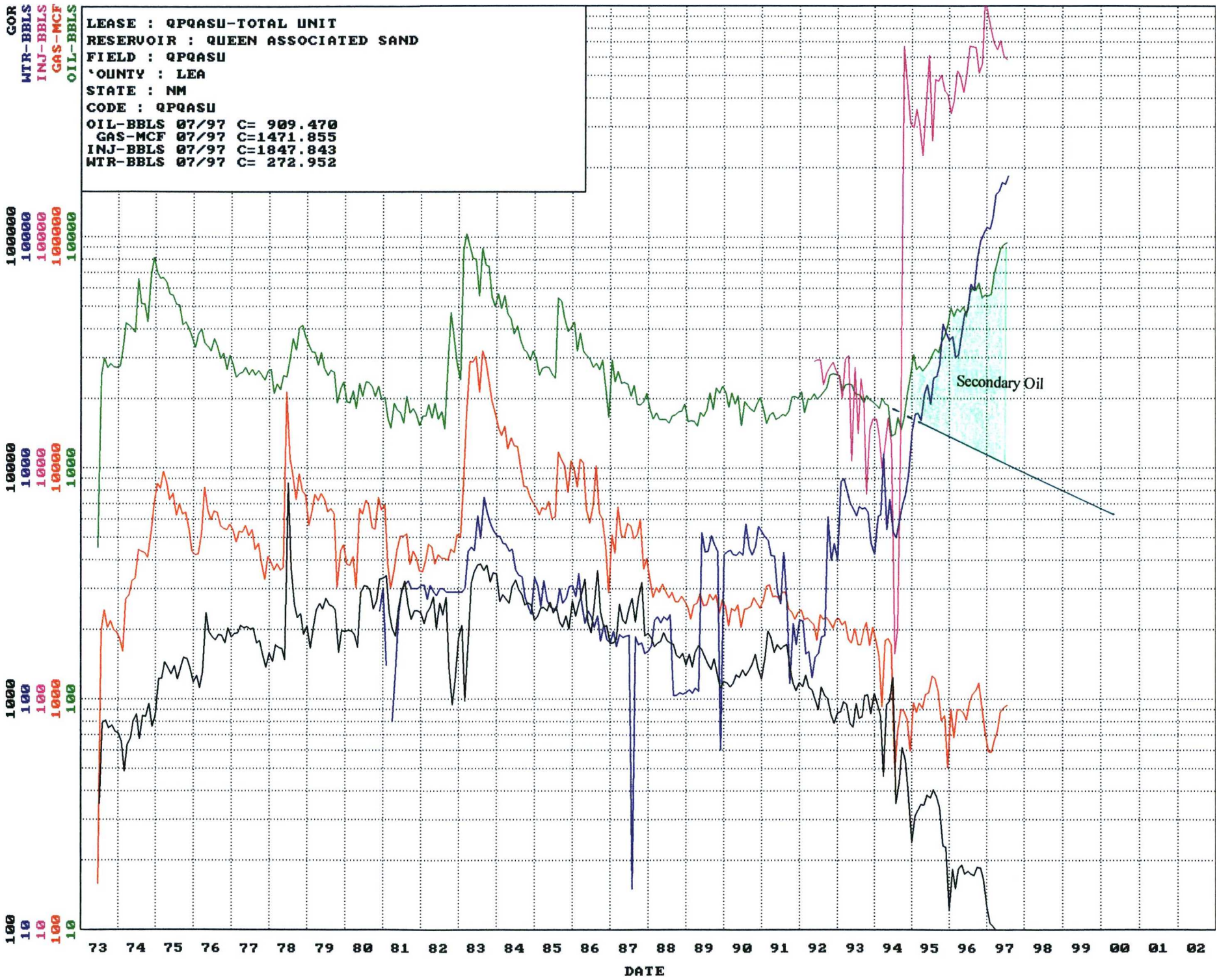
Step Rate Test



QPQASU NO. 27 (Anadarko #3)

Step Rate Test




LEASE : QPQASU-TOTAL UNIT
RESERVOIR : QUEEN ASSOCIATED SAND
FIELD : QPQASU
'OUNTY : LEA
STATE : NM
CODE : QPQASU
OIL-BBLS 07/97 C= 909.470
GAS-MCF 07/97 C=1471.855
INJ-BBLS 07/97 C=1847.843
WTR-BBLS 07/97 C= 272.952
GOR
WTR-BBLS
INJ-BBLS
GAS-MCF
OIL-BBLS
Secondary Oil
73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02
DATE