

BASIN DISPOSAL STEP-RATE TEST 4/1/01

$$\begin{array}{r} \text{At 3 BPM SURFACE PRESSURE} = 970 \\ + \text{HYDROSTATIC } 8.46 \times 3650 \times 0.052 = 1605 \\ \hline 2575 \end{array}$$

$$\begin{array}{r} - \text{FRICTION } 1.8 \times 36 = 65 \\ \hline \text{CALCULATED BHP} \rightarrow 2510 \\ \text{MEASURED BHP} \rightarrow 2511 \end{array}$$

FROM FRESH WTR FRICTION CHART $\phi 3.5$ " TBG

$$\begin{array}{r} \text{At 6 BPM SURFACE PRESSURE} = 1250 \\ + \text{HYDROSTATIC} = 1605 \\ \hline 2855 \end{array}$$

$$\begin{array}{r} - \text{FRICTION } 6.5 \times 36 = 234 \\ \hline \text{CALCULATED BHP} \rightarrow 2621 \\ \text{MEASURED BHP} \rightarrow 2625 \end{array}$$

$$\begin{array}{r} \text{At 9 BPM SURFACE PRESSURE} = 1575 \\ + \text{HYDROSTATIC} = 1605 \\ \hline 3180 \end{array}$$

$$\begin{array}{r} - \text{FRICTION } 13.3 \times 36 = 478 \\ \hline \text{CALC. BHP} = 2702 \\ \text{MEASURED BHP} = 2733 \end{array}$$

CLOSE AGREEMENT IN CALCULATED & MEASURED VALUES SHOW THAT THE ASSUMPTIONS OF 8.46 #/GAL FLUID & FRESH WATER FRICTION CURVES ARE VALID.

ORIGINAL STEP-RATE TEST RUN 4/14/88

$$\begin{array}{r} \text{At 1.5 BPM SURFACE PRESSURE} = 1750 \\ + \text{HYDROSTATIC} = 1605 \\ \hline 3355 \end{array}$$

$$\begin{array}{r} - \text{FRICTION } 1.4 \times 36 = 50 \\ \hline \text{CALC BHP} = 3305 \end{array}$$

FROM FRESH WATER CHART $\phi 2\frac{7}{8}$ " TBG

BEFORE BREAKOVER

ORIGINAL STEP RATE TEST - CONT

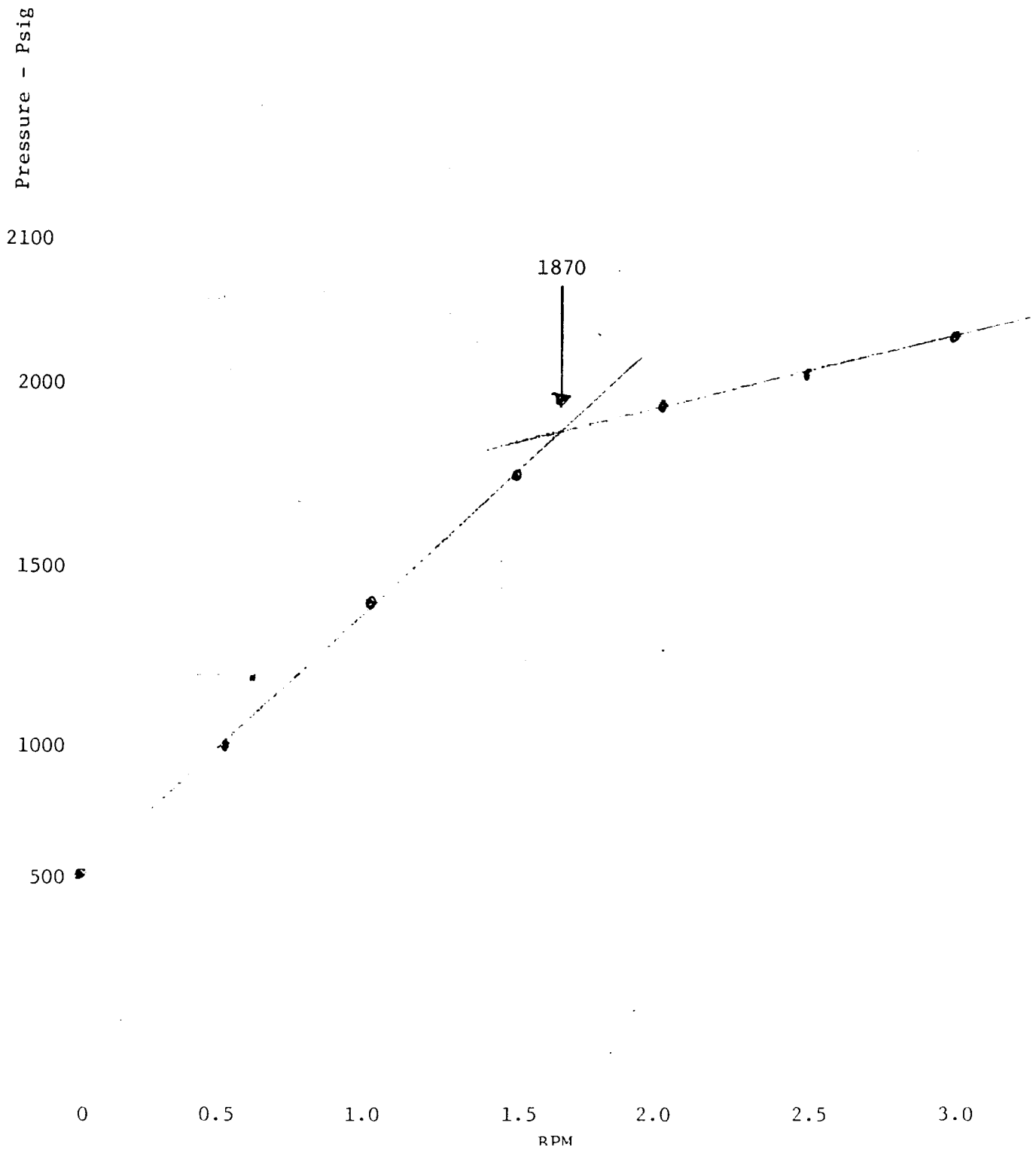
$$\begin{array}{rcl} \text{AT 2 BPM SURFACE PRESSURE} & = & 1940 \\ + \text{HYDRASTATIC} & & \underline{1605} \\ & & 3545 \\ - \text{FRICTION } 2.3 \times 36 = & & \underline{83} \\ \text{CALC. BHP} & & 3462 \\ \text{PAST BREAKOVER} & & \end{array}$$

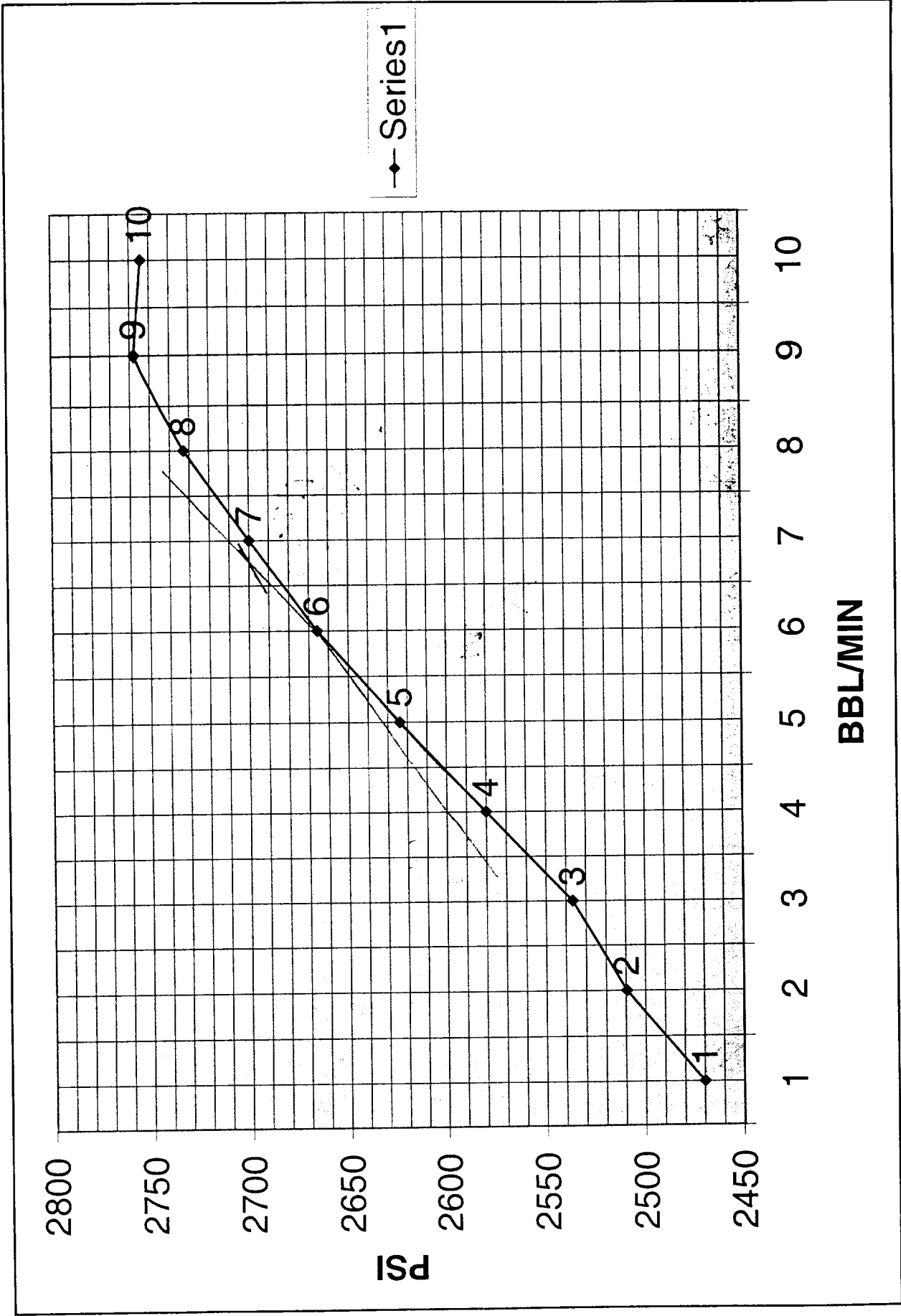
SINCE THE FRACTURE PRESSURE DURING THE ORIGINAL TEST WAS BETWEEN 3305 PSI AND 3462 PSI BOTTOM HOLE PRESSURE, THEN THE FRACTURE PRESSURE WAS NEVER REACHED ON THE SECOND STEP RATE TEST (4/1/2001) BECAUSE THE MAXIMUM BOTTOM HOLE PRESSURE WAS ONLY 2770 PSI.

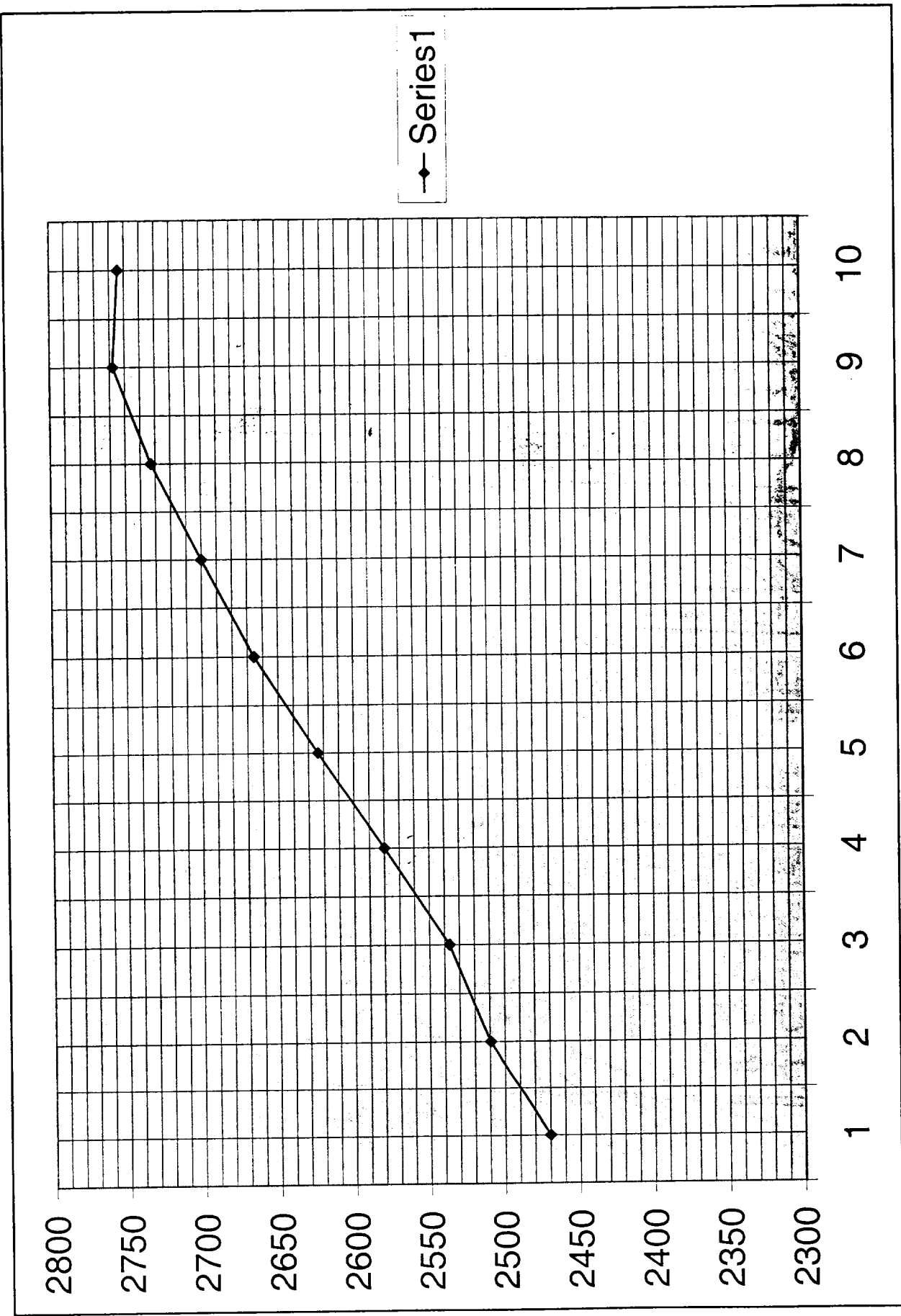
BASIN DISCREET REQUESTS THAT THE MAXIMUM ALLOWABLE SURFACE INJECTION PRESSURE BE 1650 PSI, WHICH IS THE MAXIMUM PRESSURE ACHIEVED DURING THE 4/1/01 TEST AND IS STILL BELOW THE FORMATION FRACTURE PRESSURE.

<u>BPM</u>	<u>PRESS. PSIG</u>
0	640
0.5	1000
1.0	1400
1.5	1750
2.0	1940
2.5	2030
3.0	2140

BASIN DISPOSAL, INC.
DISPOSAL NO. 1
Injectivity Test
April 14, 1988







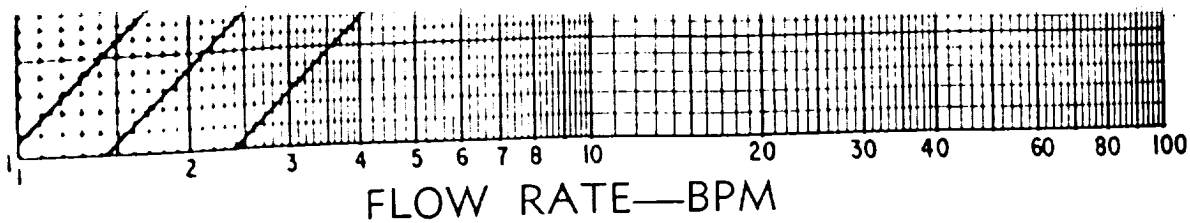
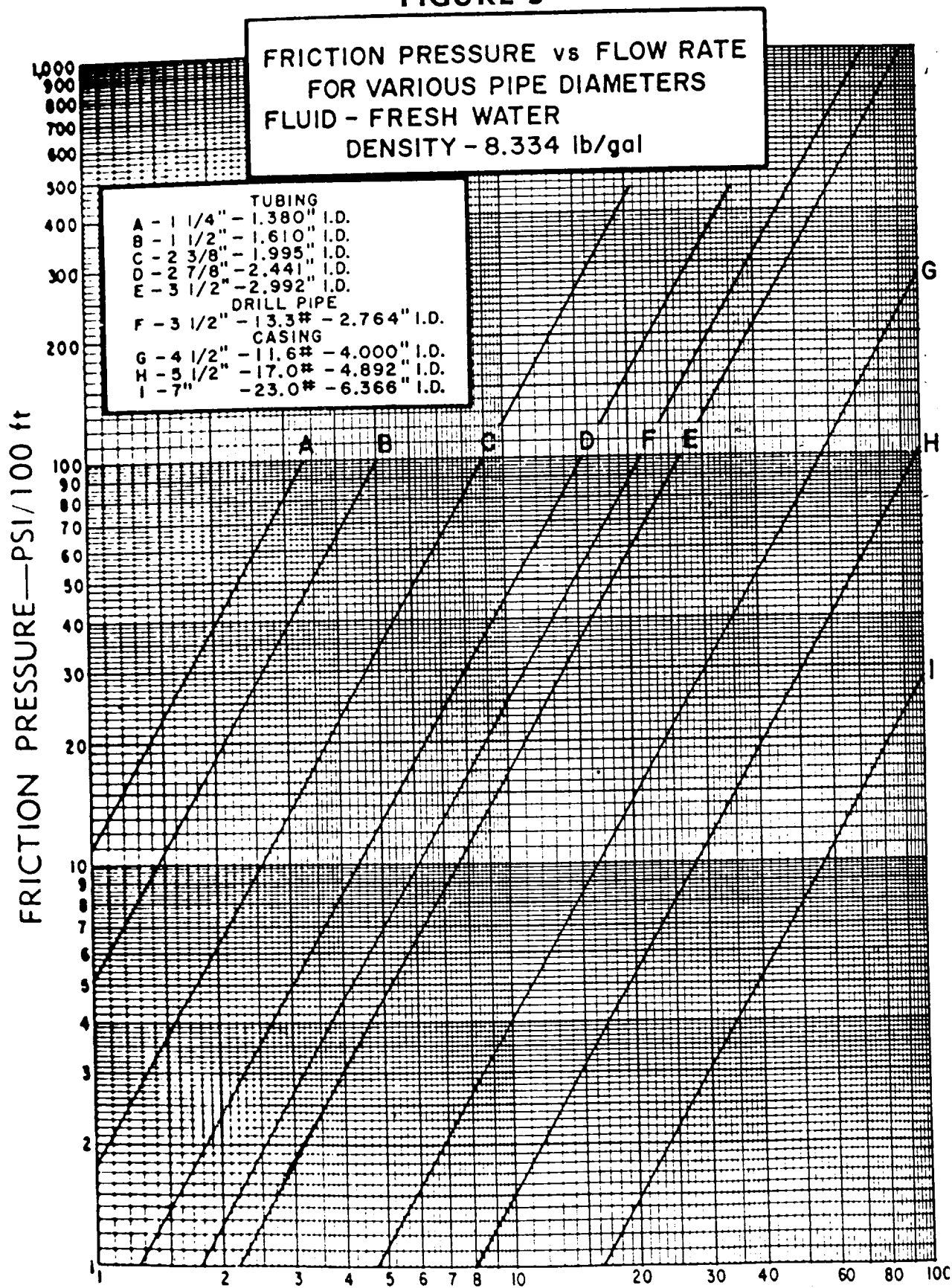


FIGURE 5



Prepared by

Company Name: American Energy Services

Well Name: Basin Disposal

Field:

Formation:

County: San Juan

State: NM

Job Date: 04/01/01

Comments: step rate

Fluids: water

Proppants:

Average Rate: 1 to 10 BPM

Average STP: 860 to 1560

Tubing: 3 1/2

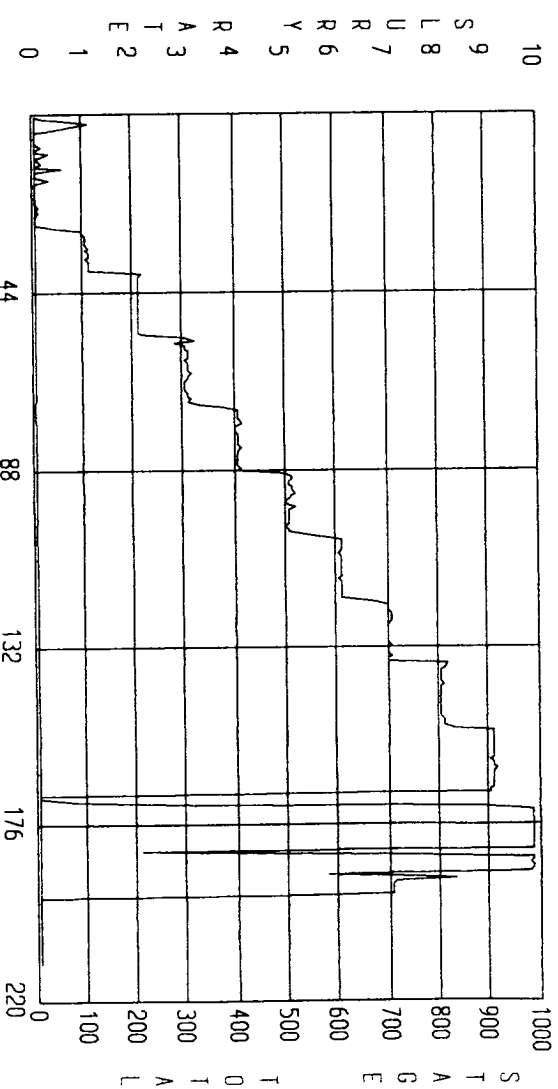
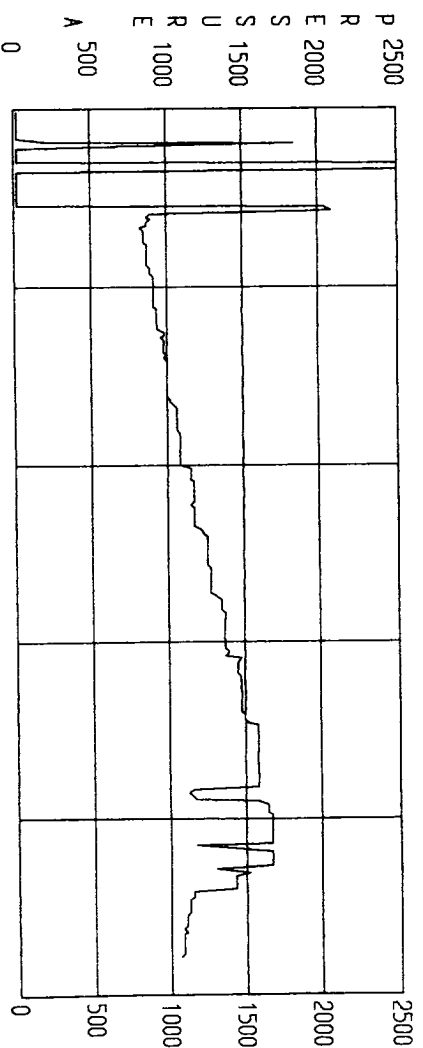
Casing:

Packer:

Filename:

Closure Pres: 4000

LINEAR PLOT

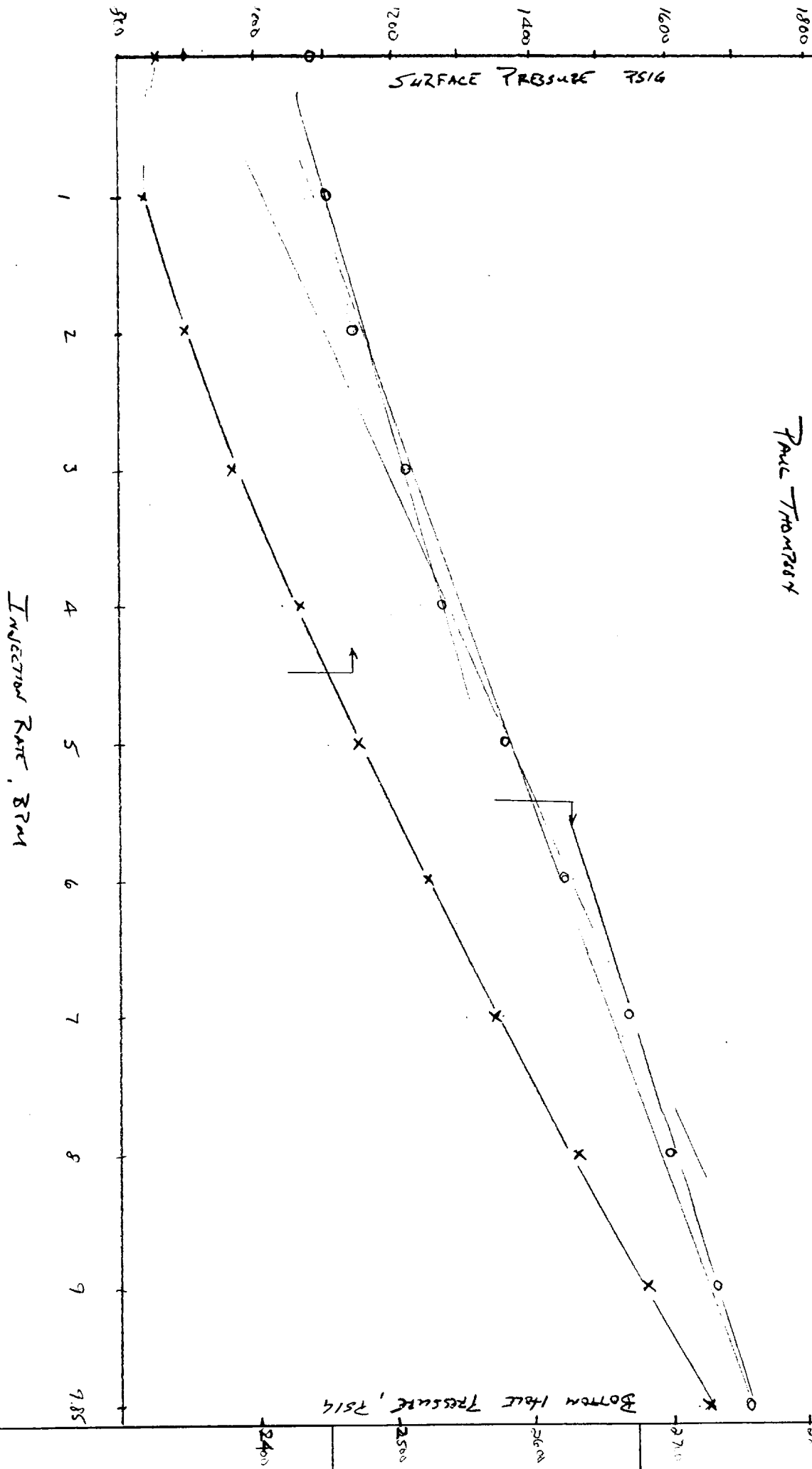


Elapsed Time (min), Start at 13 10 29



22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

BASIN DISPOSAL SWD #1
STEP RATE TEST 4/1/01
Paul Thompson





22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

BASIN DISPOSAL SWD #1
STEP RATE TEST 4/1/01
Paul Thompson

