

M E M O R A N D U M

October 27, 1976

State of
Washington
Department
of Ecology



To: Ted Olsen, Eastern Region

From: Harry Tanaka

Subject: Sagebrush Flats -- Stan Schell

This is written in response to your memo of September 30 requesting an evaluation of the water level measurements taken during the 1976 irrigation season near the Schell irrigation well.

The transmissivity and storage coefficient of the aquifer was calculated based on measurements from the recorder chart on well 23/25-31^W, 2600 feet east of the pumped well. These calculations are based only on the first 14 1/2 hours of the chart since the times of the remaining pumping periods are not available. Data on depth to water, recovery, and elapsed time are shown on Table 1. Figure 1 reconstructs the drawdown in the well in order to determine the amount of recovery. Based on this data, the transmissivity of the aquifer from the semi-log plot is about 21,000 gpd/ft (Figure 2). Transmissivity and storage calculated from the log-log plot is about 18,000 gpd/ft and 0.00015 (Figure 3). Figure 4 shows the estimated drawdown at various distances from the pumped well at several time periods for wells of comparable depths, based on a transmissivity value of 20,000 gpd/ft, storage of 0.00015, and pumping rate of 1000 gpm.

Figure 5 superimposes the hydrographs of the pumped well, Mayer well, recorder well, and well 23/25-31Q during the same time period. The large differences in the depth to water suggests that each well tops a different water-bearing zone in the basalt aquifer. Although the principal water-bearing zones are different, the pumping effect of the Schell well has a direct influence on the other wells. Figure 5 indicates that the hydraulic connection is good in wells comparable in depth to the pumped well but is attenuated in the shallower wells.

HT:ee



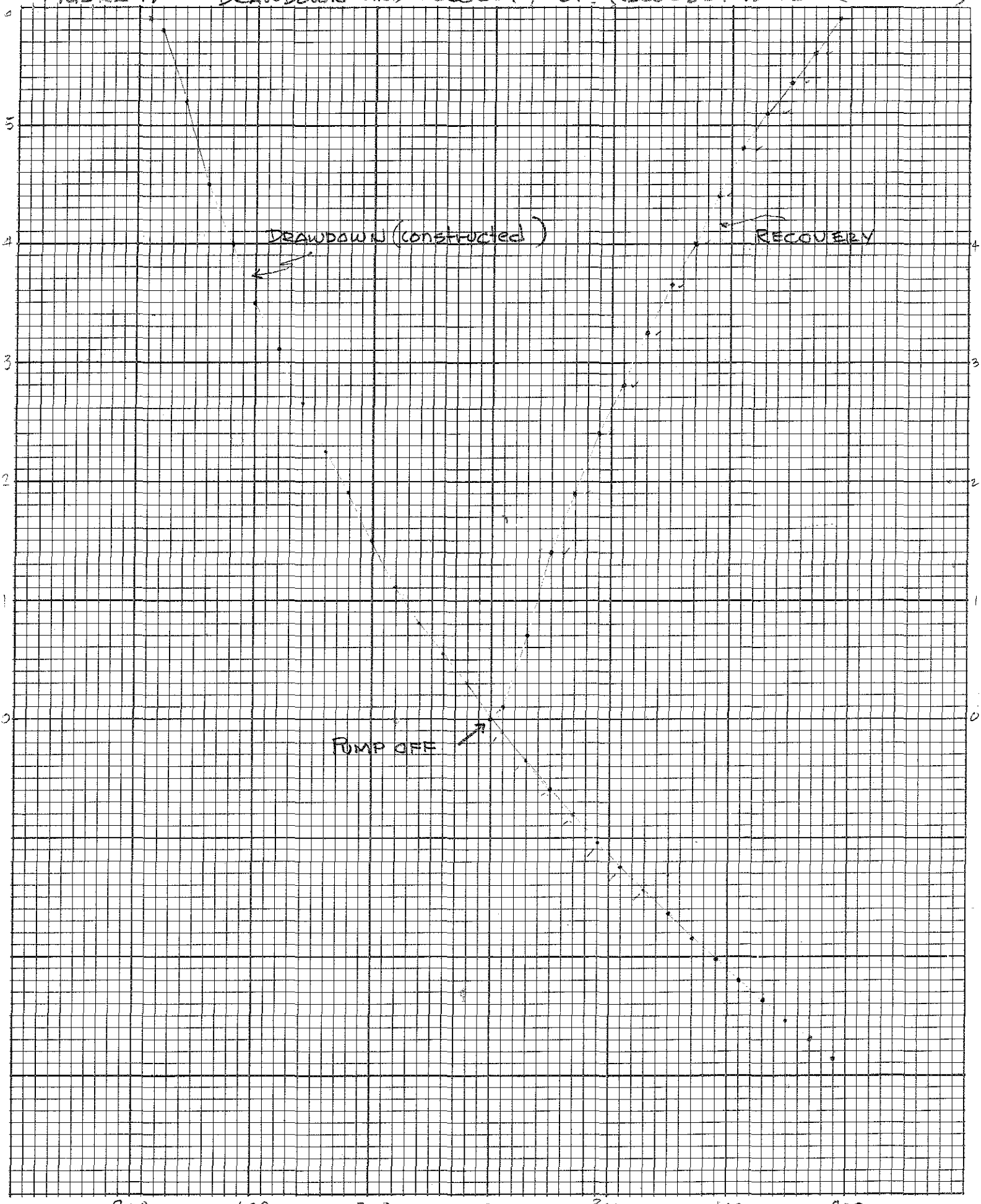
AQUIFER TEST

Owner STAN SCHELL Location DOUGLAS CO. Well No. 23/25-31R
 Date 6/17/76 Meas. by _____ Test _____ County Douglas
 Meas. point Top CSA. Elev. Meas. Point _____
 Meas. equipment A-35 Recorder
 DTW 153.4 ft. t_0 6/17 @ 1830 hrs Q 1000 (est) r 2600 ft.

Date	Hour	Water level			s (Recovery)	t (min)	$\frac{1440r^2}{t}$	Remarks
		Held	Wet	Depth (DTW)				
6/17	1830			153.4	0	0	0	
	1900			153.3	.2	30	3.24×10^8	
	2000			152.7	1.1	90	1.08×10^8	
	2100			152.0	2.0	150	6.49×10^7	
	2200			151.5	2.7	210	4.63	
	2300			151.0	3.45	270	3.60	
6/17	2400			150.6	4.05	330	2.95	
6/18	0100			150.15	4.7	390	2.49	
	0200			149.75	5.3	450	2.16	
	0300			149.4	5.85	510	1.91	
	0400			149.0	6.4	570	1.71	
	0500			148.6	7.0	630	1.55	
	0600			148.3	7.47	690	1.41	
	0700			148.05	7.9	750	1.30	
	0800			147.8	8.3	810	1.20	
6/18	0900			147.5	8.75	870	1.12×10^7	

TABLE 1. -- DEPTH TO WATER AND RECOVERY OF WELL
23/25-31R

FIGURE 1. -- "DRAWDOWN" AND RECOVERY OF RECORDER WELL (SCHELL)



TIME, IN MINUTE SINCE PUMP STOPPED

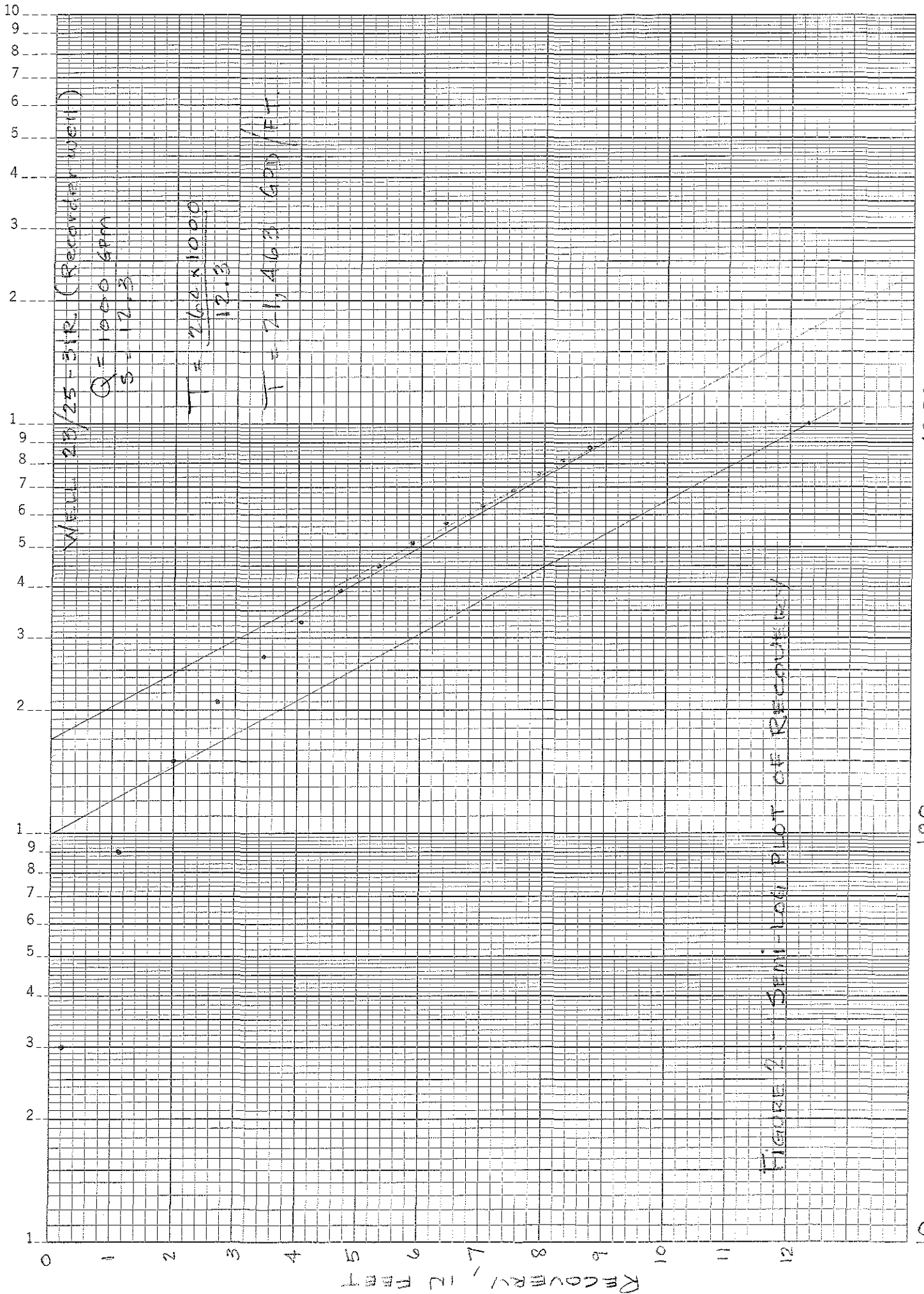


FIGURE 2. SEMI-LOG PLOT OF RECOVERY

100 / TIME SINCE PUMP STOPPED, IN MINUTES.

FIGURE 3.-- LOG-LOG PLOT OF RECOVERY

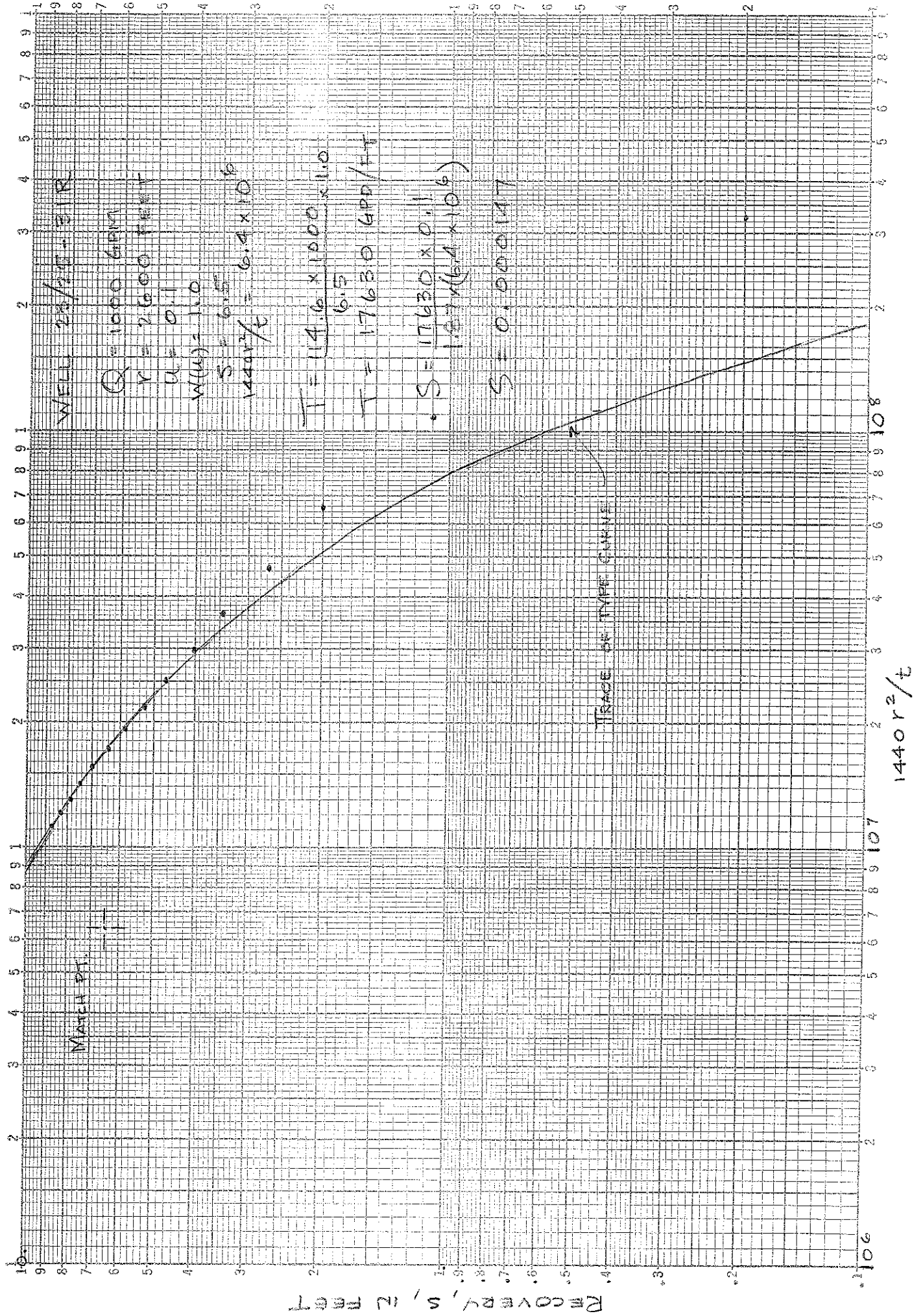
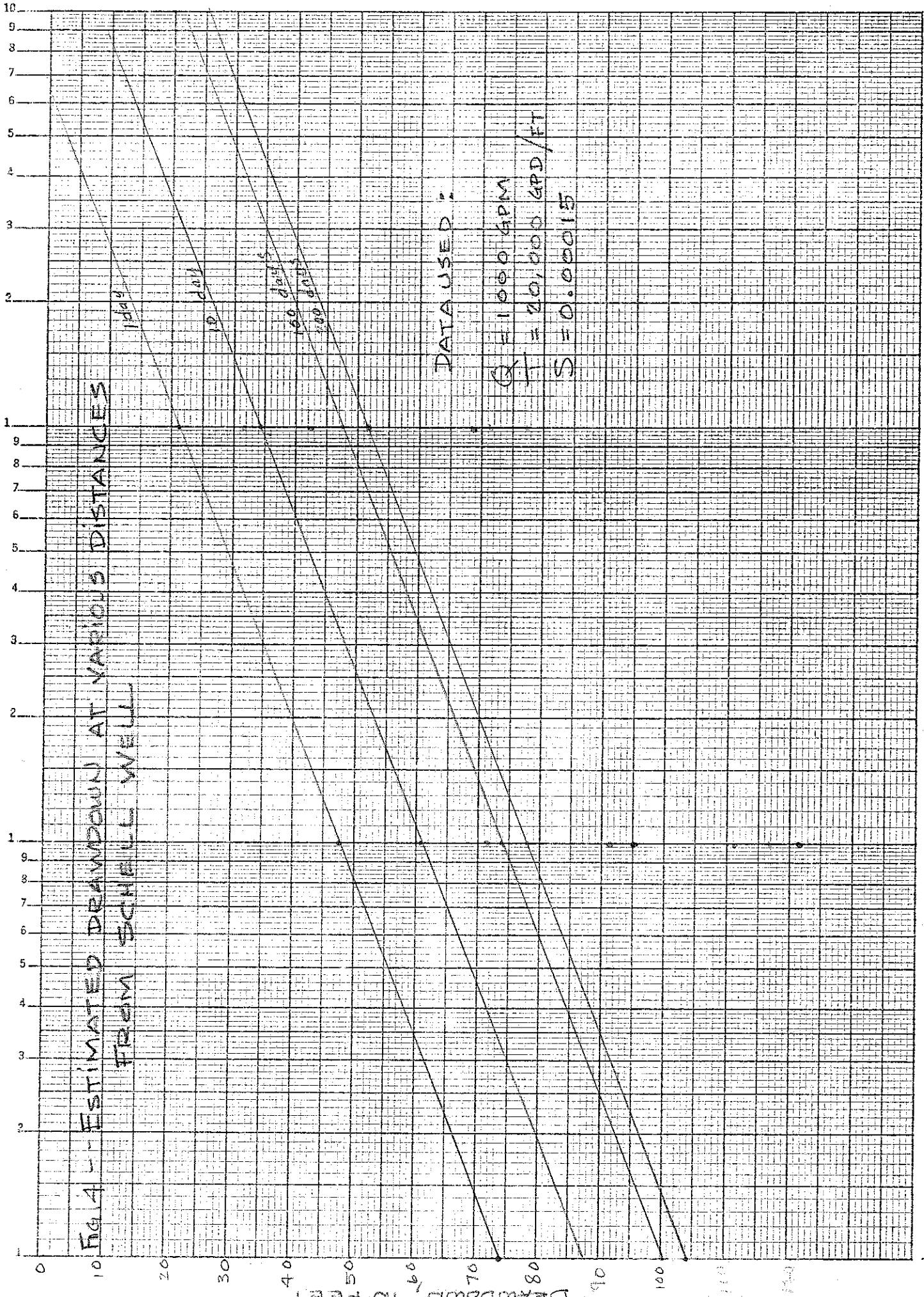


FIG. 4 - ESTIMATED DRAWDOWN AT VARIOUS DISTANCES FROM SCHMELL WELL



10000
 1000
 100
 DISTANCE FROM PUMPING WELL, IN FEET

1976

DEPTH TO WATER (FEET)

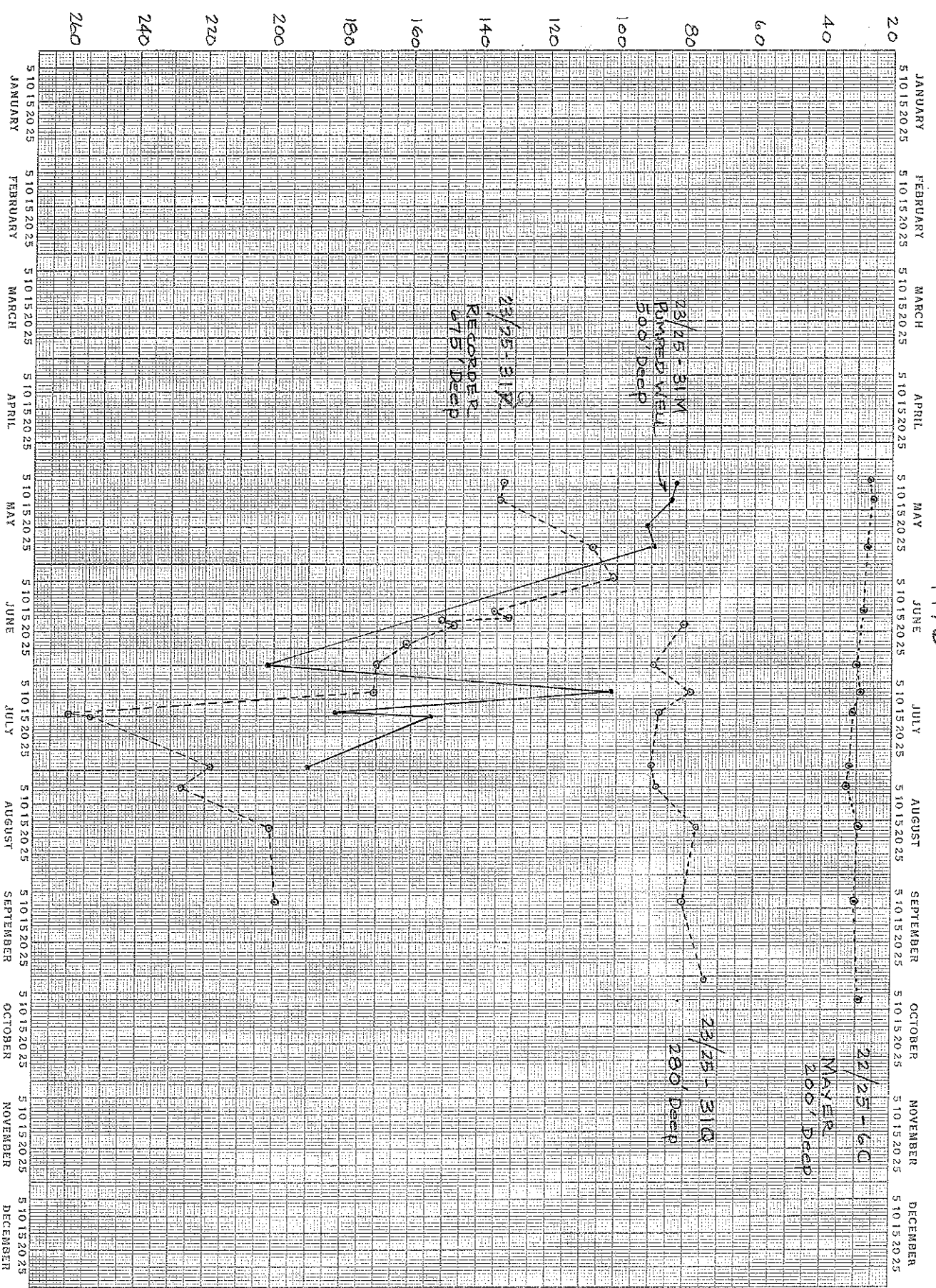


FIGURE 5. -- HYDROGRAPHS OF SELECTED WELLS