

UNPUBLISHED REPORT 1964/06

Pump test — T.G. Pearsall property — Kingston

by I. B. Jennings

This test was carried out on 28th March, 1963 in order to assess the safe yield of this bore hole and to test the effectiveness of the equipment. Following preliminary test of the equipment pumping at a standard rate of 400 gals./hour commenced at 1.53 p.m. and ceased at 2.46 following a temporary failure of the pump probably caused by sediment in the borewater. The drawdown was unexpectedly rapid and it is clear that in future tests a stop watch would be necessary to record the early drawdown accurately. Time intervals in the following table should be treated with caution over the first 10 feet. Details are given below:

DRAWDOWN

Depth to Water (from top of casing)	Time	Time in secs. elapsed for interval measured	Total time from commencement in seconds
2 ft. 4 ins.	1.53 p.m.	commencement	
5'	1.53.10	10	10
10'	1.53.50	40	50
15'	1.55.45	115	165
20'	1.58.20	155	320
25'	2.02.45	265	585
30'	2.08.15	330	915
35'	2.20.00	705	1620
40'	2.23.40	220	1840
45'	2.26.45	185	2025
50'	2.36.00	555	2580
	2.46	pumping ceased	

RECOVERY

45'	2.47	
40'	2.47.45	45
35'	2.48.30	45
30'	2.49.50	80
25'	2.51.30	100

The table indicates that the drawdown proceeded normally to 35' and beyond that depth it appears to be anomalous. This is thought to be due to sediment from the bore lodging in the flow meter resulting in under-reading and consequently higher pump rates. A subsequent test indicated a 25% error in the flow meter reading due to sediment.

Results

Since the drawdown test could not be carried to finality the safe yield from the bore must be estimated from the recovery figures. These indicate that under the conditions operating at the time of the test a continuous yield of about 250 gals./hour could be obtained with a drawdown of about 45 feet. At present the water carries a good deal of sediment which may temporarily affect the pump performance but this is expected to improve with further usage. The bore could be operated intermittently at higher rates (400/gals./hour) for up to half an hour at a time provided adequate time was allowed for recovery between runs.

Salinity

Before commencing pumping the standing water in the bore was tested with a field conductivity meter which indicated a total content of dissolved solids of 640 parts per million. After half an hour's pumping the salinity rose to 1360 p.p.m. and finally to. 1800 p.p.m. at which value it remained constant for the duration of the test. The water would therefore be of good enough quality for all stock purposes and could possibly-be used for limited domestic use but would be somewhat unpalatable.

[1 April 1964]