UR1973_09

Examination of an area around a water bore at Sorell.

W.L. Matthews

The Pawleena Water Committee requested an examination of the effects of a bore on the surface water in Sorell Creek. It is thought possible by the committee that a bore on 'Belle Vue' is drawing water from the rivulet because the levels in some of the water holes in the creek are becoming lower and some are drying up.

The bore is situated on the east side of Pawleena Road which runs along the east side of Sorell Rivulet. The rivulet lies within about 150-200 m of the bore at its nearest point. The bore is sited on a slope underlain by Tertiary basalt about 3 m above flood plain level. According to a farm worker 530 *l*/min are being delivered from the bore at present. When the pump was installed by Mono Pumps late last year, the static water level was 2 m below ground level and the foot valve of the pump was placed at 36.5 m.

In drilling the bore, about 40 m of basalt was penetrated before the hole entered a sandstone of Tertiary(?) age. The main source of water is stated by Leaman (1973) to be from the sandstone under the basalt although some water was obtained in the basalt. The main source of water appears to be at much greater depths than the level of the stream bed.

In the vicinity of the Pawleena Dam some 6 km north of the bore, and downstream, Jurassic dolerite, Permian mudstone and Triassic sandstone crop out. Tertiary basalt crops out on either side of the rivulet in the area surrounding the bore, with the more extensive areas on the eastern side. A narrow strip of Tertiary sediments was mapped by Blake (1958) along the rivulet north of the bore. Clay can be seen in the bed of the stream at several points in the region of Mr Newitt's property, underlying Recent gravel.

In the vicinity of the bore, a property owner (Mr Schofield) stated that although gravel occurs in the bed of the stream, clay is struck at about 0.6 m below the stream bed. Poorly sorted gravel occurs along the rivulet. The boulders consist mainly of dolerite and underlie the flood plain along the stream.

Tertiary basalt and underlying sediments similar to those at 'Belle Vue' have delivered larger quantities of water at several locations throughout the State, *e.g.* 1100-1500 *l*/min at Campbell Town and along the North West Coast. This water has been obtained without the aid of a nearby surface stream and has been due entirely to the storage capacity and permeability of the basalt and the underlying sediments. Although the bore on 'Belle Vue' is fairly close to Sorell Rivulet and several sections in this part of the stream have no water, there are other sections nearby with considerable amounts of water. If there was any significant draining of the surface stream water, it would be expected that all of the pools nearest the bore would be drained. However, this is not the case. Clay along the stream bed would prevent any large losses from the stream channel. As the bore has not drained the water holes in the rivulet near the bore, it would require very unusual circumstances for the bore to have any effect on holes further upstream.

The low rainfall for 1972 is likely to be the main cause for less water being in the stream bed as compared with other years. Rainfall figures supplied by the Bureau of Meteorology are given below:

Table 1. ANNUAL RAINFALL, SORELL

	mm	Points
1972	356.9	1405
Average (85 years)	571.5	2250

Table 2. MONTHLY RAINFALL TOTALS, SORELL, 1886-1971

	1972		Average (85 years)	
	mm	Points	mm	Points
January	52.6	207	47.5	187
February	23.6	93	42.7	168
March	9.9	39	43.2	170
April	41.9	165	54.1	213
May	9.4	37	47.2	186
June	12.2	48	53.1	209
July	59.7	235	43.7	172
August	44.2	174	39.1	154
September	15.5	61	41.9	165
October	29.7	117	55.6	219
November	31.5	124	44.7	176
December	26.7	105	59.9	236
Total	356.9	1405	571.5	2250

Not since 1914 (1327 points) has less rainfall than in 1972 been recorded at Sorell.

Low rainfall causes reductions in spring flows supplying surface streams and if the period without rain persists long enough, surface streams will dry up completely.

REFERENCES

BLAKE, F. 1958. Geological atlas 1 mile series, Zone 7 Sheet 76. Buckland. *Department of Mines, Tasmania.*

LEAMAN, D.E. 1973. Water prospects at Belle Vue, Sorell. *Tech.Rep.Dep. Mines Tasm.* 16:218.

[22 January 1973]