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DEPARTMENT OF MINES
SOUTH AUSTRALIA

Section
Rept. Bk. 59/132
G.S. 3028
D.M. 1224/60
Hyd. 1637

WALLOWAY BASIN
INTERIM REPORT

INTRODUCTION

The Walloway Basin near Orreroo has been the subject of previous reports (Sprigg et al.). Artesian water is known to occur throughout the central portion of the basin. A number of bores have been drilled but most of these have failed, presumably due to blockage by fine sand from the aquifer. The Orreroo District Progress Association is interested in reviving the Pekina irrigation area and to prevent a further decline in the population of the district.

PRESENT INVESTIGATION

All artesian bores have been accurately levelled and a series of barometric levels has been established along roadways for the levelling of other bores. A field survey has been commenced to collect all bore information throughout the basin.

Ischalsines have been drawn for the deeper or artesian aquifer in the central portion of the basin. The salinity is lowest in the central northeast-southwest trending zone and increases outwards.

A recent bore on Section 88 (H.E. Bright) is reported to have obtained an artesian flow from Precambrian bedrock, but this cannot be confirmed. The quality of the water is similar to the artesian water in the younger sands. This bore is 765 feet deep and flows at 3,200 gallons per hour, and is used for irrigation. Another bore on Section 88, 405 feet deep, approximately a quarter of a mile south, flows 1,700 gallons per hour. One Government bore on the roadside adjacent to the Pekina area flows 1,400 gallons per hour and is used for irrigation. All other artesian bores have either ceased to flow completely or trickle at about 10 gallons per hour.

Three explanations can be given for the better quality artesian water in the central area:


- (1) The water is connate and continual use would result in depletion of the aquifer.
- (2) The water is fossil recharge water from an ephemeral stream on an old land surface, buried beneath the overlying clays.
- (3) The water is recharge water of Recent origin from the Pekina Creek.

If pressure readings could be taken on some bores isopotential lines could be drawn and the direction of water movement could be found.

Shallow non-artesian water is available over most of the basin but the quality is variable and depends on local recharge. Generally, stock quality water is available, except in a few areas where it is too saline. Shallow water of good quality is available in quantities sufficient for irrigation of pastures on the southwestern corner of the Pekina irrigation area.

CONCLUSIONS AND RECOMMENDATIONS

Artesian water occurs in at least the central portion of the Walloway Basin northeast of Orreroo. Isochalsines show that better quality water occurs through a northeast-southwest trending zone. The artesian aquifer is a very fine grained sand and most of the bores have ceased to flow, presumably due to blockage by fine sand. None of these bores were fitted with properly constructed sand screens. Static pressures have not been measured on any of the bores and hence the direction of water movement cannot be established.


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