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Groundwater prospects at Nine Mile Beach

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The Department of Mines conducted a survey of the water prospects at Nine Mile Beach, Swansea, during January 1969.

The beach consists of a sand spit on which active sand dunes front the sea to the south, but the sands on the north side of the spit towards the enclosed lagoon are tied by vegetation, and medium-sized trees are growing. The solid rocks beneath the spit are unknown.

Access is by way either of the foreshore from Swansea or by a track running along the north side of the spit. Four-wheel drive vehicles are necessary.

The survey party drilled 27 four-inch holes with a hand-held petrol-driven screw auger, to a maximum depth of 12 feet. Holes were drilled at approximately half mile intervals along two lines, one parallel to the seaward shore and from 50 to 100 yards inland, and another at half mile intervals about 200 yards inland from the track along the landward shore. In addition four holes were drilled along the approximate east-west centre line of the spit. Eight holes at 4½ feet intervals inland in a line from high tide mark indicated the detailed variation of water quality.

The holes were usually drilled in low lying sites between tied or active sand dunes. Water levels below ground surface and electrical conductivity of the water were recorded.

Results

Water was struck at depths from 2 to 12 feet in sand. Four holes did not strike water, probably because it lay at more than 12 feet, the maximum depth of the drill.

Water quality in parts per million of total dissolved solids varied from 200 in the centre line of the spit to 2,000 near the eastern end. Over most of the area qualities of 800 ppm or less are obtainable. The impurity is assumed to be almost wholly sodium chloride, and at this concentration would be acceptable for domestic and garden purposes.

The closely spaced holes near the high tide mark showed that freshwater may be found within about forty yards of the beach.

The behaviour of the fresh groundwater on pumping has not been examined, and this would need to be done, but techniques exist to prevent the intrusion of salt water at moderate yields.

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