



USE OF THE MAP

Both surficial and bedrock probability maps must be referred to for complete evaluation of groundwater probability at any site. The map shows the locations of all major surface and bedrock aquifers and areas of artesian flow.

Diagrammatic sections show the succession of formations across the centre and along the east boundary of the map. Block diagrams indicate where insufficient data available to show groundwater probability.

A prospective well site can be evaluated by the following steps:

1. Locate the well site on the map.

2. The depth to the main bedrock aquifer can be approximated by subtracting 1,500 feet from the elevation of the well site.

3. Note the bedrock aquifer(s) indicated by the shaded areas (coloured legend). Water quality contours show values of total dissolved solids lying between 1,500 and 3,000 parts per million.

4. The static water level of wells in bedrock is indicated by piezometric contours.

5. Possible aquifers above or below the main bedrock aquifer are indicated on the sections.

PROPERTIES OF THE AQUIFERS

Bedrock consists of a share series containing lenticular sandy shale or shaly sandstone aquifers.

The main aquifers (3,4) are within the Belly River Formation and are located between elevations of 1,350 and 1,600 feet above sea-level, and between elevations of 1,400 and 1,700 feet in the western part.

Quality—Water quality in the main aquifers ranges from moderately hard (3,000 ppm total dissolved solids) to poor (3,000-3,500 ppm total dissolved solids). Water in the higher aquifer (5) has about the same quality, but water in the lower aquifers (1,2,3) is generally harder (3,500-4,000 ppm total dissolved solids). Water of high salinity is found in the 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27, rge. 1, and in tps. 30 and 31, rges. 4, 5, and 6.

Quantity—A properly constructed bedrock well should yield between 10 and 20 gallons per minute. Yields less than 1 gallon per minute, generally reported from older fashioned wells in the main bedrock, probably result from well construction. In many wells a screen length of 20 feet will not be able to extract 1 gallon per minute, as the aquifers are generally of low permeability.

Erratic water levels reported from adjacent wells tapping the same aquifer may be largely the result of inadequate well completion and development.

SOURCES OF INFORMATION

Fraser, F. J., McLaren, P. H., Russell, L. S., Warren, P. S., and Wickenden, R. T. D., Geology of the South Saskatchewan River Valley, Mem. 176 (1935).

MacKay, B. R., Heinstock, H. N., and Graham, G., Geol. Surv. Can., Water Supply Papers, Nos. 3, 35, 196, 200, 201, 202, 214, 215, 216 (1936).

MacKay, B. R., and Madox, D. C., Geol. Surv. Can., Water Supply Paper No. 220 (1937).

Saskatchewan Dept. of Agriculture, Water Rights Division, Water Well Records for 1959, 1960, and 1961.

SECTION ALONG LINE A-A'

Section along line A-A'

Metres

Feet

Metres