

- EXPLANATION**
- Well used to determine depth to top of principal aquifer
 - 300— Line of approximate equal depth to the top of the principal aquifer. Interval 50 feet. Datum is land surface
 - — — — — Approximate eastern limit of principal aquifer
 - - - - - Approximate location of boundary between confined and unconfined conditions, principal aquifer, February, 1972

DISCUSSION

The depth to the top of the principal aquifer in the Sugar House quadrangle ranges from about 50 feet to more than 400 feet below land surface. The principal aquifer supplies about 4 percent, or 9,000 acre-feet, of the municipal and industrial water used annually in Salt Lake County during 1964-68. The least depths occur in topographically low areas of the Jordan Valley, such as near Murray in the southwest corner of the Sugar House quadrangle. The greatest depths occur near the mountain front in the vicinity of Mill Creek and Neffs Canyons where thick alluvial-fan deposits overlie the principal aquifer.

The deposits comprising the principal aquifer consist of interbedded gravel, sand, silt, and clay. Individual beds range from a few inches to several tens of feet thick. The more permeable coarse-grained beds occur near the mountain front. The confined part of the principal aquifer, as shown on the accompanying map, is overlain by poorly permeable beds of blue clay, silt, and fine sand. The blue clay confining beds are at least several feet thick, whereas clay beds within the principal aquifer are usually only a few inches thick. The top of the principal aquifer is readily identified during the drilling of a well in the area of confined conditions because the bottom blue clay confining bed immediately overlies a bed of sand or sandy gravel several feet thick at the top of the principal aquifer.

In the area east of the boundary between confined and unconfined conditions shown on the map, the top of the principal aquifer is defined as being at the water table as it existed in February 1972.

The confining bed slopes generally westward. The actual boundary between confined and unconfined conditions therefore shifts with changes of water level, and is farthest west at times when water levels are lowest.

The map showing depth to the top of the principal aquifer is based primarily on drillers' logs of about 50 wells. Well-log data were used to construct a map showing contours of equal altitude on the top of the principal aquifer. The depth to the top of the principal aquifer at any point can be determined by subtracting the altitude of the top of the aquifer from the altitude of the land surface at that point. Altitude of the land surface is shown by the topographic contours on the map. The manipulation described above was performed for many points and the values determined were used along with the well data to construct the lines of approximate equal depth shown on the map.

Reports in the list of selected references that follows contain other information about the principal aquifer in this and adjacent parts of Jordan Valley, Utah. The basic-data reports and releases contain well logs and water-level measurements and other types of basic data. The interpretive reports contain discussions of various aspects of the occurrence of ground water, recharge, discharge, and related subjects. Ground-water terms used in this report have been defined by Lohman and others, (1972).

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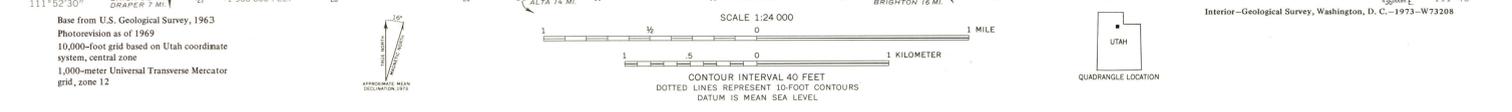
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— 1972b, Map showing relative ages of faults in the Sugar House quadrangle, Salt Lake County, Utah: U.S. Geol. Survey Misc. Geol. Inv. Map I-766-B.



MAP SHOWING DEPTH TO TOP OF THE PRINCIPAL AQUIFER, SUGAR HOUSE QUADRANGLE, SALT LAKE COUNTY, UTAH, FEBRUARY 1972

By
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