SATURATED THICKNESS OF CONFINED AQUIFER

The confined aquifer in the Clifton Park area, also referred to as the Colonie channel aquifer, consists of icecontact sand and gravel deposits that are overlain in most places by a thick sequence of lacustrine silt and clay. This confined aquifer receives recharge from areas in which the ice-contact material is exposed at land surface or is directly overlain by permeable lake sand. The confinedaquifer material consists of kames, kame deltas, eskers, and esker deltas that were deposited against, atop or beneath glacial ice and prograded into glacial Lake Albany. These ice-contact deposits form a productive, although somewhat discontinuous, confined aquifer of limited areal extent whose confined thickness ranges from 70 feet in the Colonie channel to less than 5 feet in other areas. Surface exposures of the ice-contact deposits, in the form of kames and kame deltas, provide recharge areas in which the aquifer is under water-table (unconfined) conditions. In these areas the saturated thickness of these deposits varies seasonally and may exceed 100 feet.

Several public water-supply systems tap the Colonie channel aquifer, and several production wells have yields of more than 500 gallons per minute (Dunn Geoscience, 1981). These wells are generally closely spaced, and pumping interference has been reported between wells within well fields (Dunn Geoscience, 1981). Because the aquifer is confined as well as narrow, rapid propogation of pumping effects within the aquifer can be expected over substantial distances. Waller (1983) observed pumping interference between a production well and a flowing test well over a 3/4-mile distance.

Potentiometric heads in wells tapping the confined aquifer are generally near or above land surface under static (nonpumping) conditions. Waller (1983) reports that heads in the Colonie channel aquifer are approximately 4 feet above land surface at the Latham Water District well field near Albany Airport, about 9 miles south of Clifton Park. This head was sufficient to cause water to flow out of a 20-inch temporary well casing at a rate exceeding 300 gallons per minute in a U.S. Geological Survey test hole near the well field (Waller, 1983).

Overlying the lacustrine silt and clay is a veneer of lake and dune sands that form a surficial aquifer. This aquifer is hydraulically connected to the lower confined aquifer through ice-contact deposits that are exposed at land surface. The approximate areal extent of the surficial aquifer is shown on the map.

Although not part of the Colonie channel aquifer system, recent alluvial deposits along the Mohawk River form a water-table aquifer that is hydraulically connected to the river. Both the Latham and Niskayuna Water Districts have installed high-capacity shallow wells in these deposits for public supply. Large ground-water withdrawals from this aquifer are possible because of its proximity to the river, which allows induced infiltration to occur after several days or weeks of pumping.

EXPLANATION

- WELL OR TEST HOLE--penetrating confined
 Colonie channel aquifer or hydraulically
 connected ice-contact sand and gravel deposits.
 Number indicates approximate saturated thickness of ice-contact material. A ">" preceding
 number indicates "greater than."
- LINE OF EQUAL SATURATED THICKNESS OF ICE-CONTACT SAND AND GRAVEL DEPOSITS--approximately located, dashed where inferred. Contour interval 10 feet. Line of zero (0) saturated thickness indicates approximate limit of confined aquifer.
- LIMIT OF SHALLOW (WATER-TABLE) AQUIFER-indicates approximate areal extent of surficial lake sands that form the aquifer.
- ALLUVIAL FLOOD PLAIN--indicates areal extent of alluvial flood-plain aquifer, which is hydraulically connected to the Mohawk River. Continuous and large ground-water withdrawals from this aquifer could induce infiltration to the aquifer from the Mohawk River.
 - KAME SAND AND GRAVEL--indicates areal extent of surface exposure of ice-contact sand and gravel deposits that form the confined Colonie channel aquifer. These surface exposures, in the form of kames and kame deltas, provide recharge areas where the aquifer is locally under water-table (unconfined) conditions.
- A———A TRACE OF SECTION--geologic sections are shown on plate 3.
- THALWEG OF COLONIE CHANNEL approximately located

SELECTED REFERENCES

- Dineen, R. J., and Hanson, E. L., 1983, Bedrock topography and glacial deposits of the Colonie channel between Saratoga Lake and Coeymans, New York: New York State Museum Map and Chart Series, no. 37, 55 p.
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HYDROGEOLOGY OF THE CLIFTON PARK AREA, SARATOGA COUNTY, NEW YORK

By Richard J. Reynolds

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