DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

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NEW YORK STATE DEPARTMENT OF HEALTH

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(SHEET 5 OF 7)

POTENTIOMETRIC SURFACE

By
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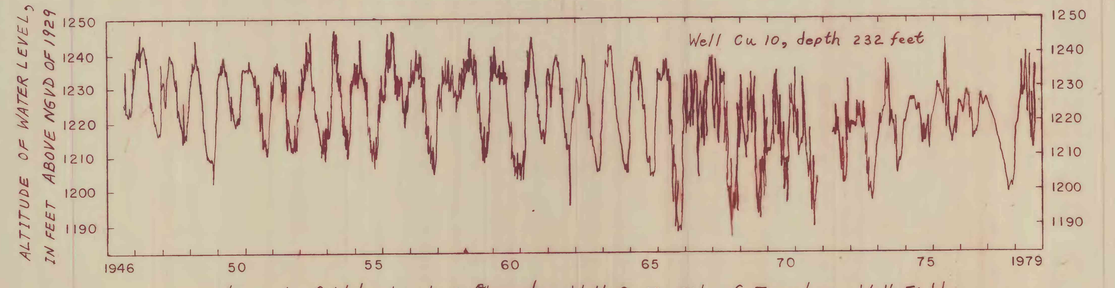

Hydrograph of Water Levels in Observation Well Cu 10, City of Jamestown Well Field

EXPLANATION

1260 — POTENTIOMETRIC CONTOUR--shows approximate altitude at which water level would stand in tightly cased wells. Contour interval 10 feet. National Geodetic Vertical Datum of 1929. Arrows indicate direction of ground-water flow.

MAJOR INFLOW TO AQUIFER--stream and ground-water flow along main valleys beyond extent of mapped aquifer

MAJOR OUTFLOW FROM AQUIFER--stream and ground-water flow along main valley beyond extent of mapped aquifer

AQUIFER BOUNDARY--dashed where full extent of aquifer is not shown

BOUNDARY OF CONFINED AQUIFER

WELL SYMBOLS

X — DATA POINT

00676000 — COMMUNITY WATER SYSTEM WELL OR WELL FIELD--numbered by New York State Department of Health

Cu 10 — OBSERVATION WELL--location for which hydrograph is shown, numbered by U.S. Geological Survey

NOTE

The potentiometric-surface map is a composite of the water-table aquifer along the margin of the valley and the confined (artesian) aquifer in the center. Water-table conditions occur in unconfined sand and gravel of the alluvial fans along the valley margin. Artesian conditions are found in the confined sand and gravel buried under silt and clay in the middle of the valley. Recharge occurs along the margin of the valley, where highly permeable land-surface conditions exist and runoff from the hillsides is concentrated. Recharge also occurs from underlying and adjacent till and bedrock. The overall drainage area contributing recharge to the aquifer is depicted on the location map.

The water levels (Crain, 1966) plotted for individual wells are from different years and seasons, usually measured at the time of well completion. Consequently, the potentiometric surface map is a general configuration of the water table and artesian-pressure surface. The actual water levels fluctuate with the season, being higher in the spring and lower in the fall. Seasonal fluctuations are greatest along the margin of the valley and least towards the center.

The hydrograph of USGS well Cu 10 shows water levels in a well near the Jamestown well field (site 00676000, northeast of Jamestown). Observed are seasonal fluctuations and fluctuations due to pumpage. Also observed is a general decline in water level from 1946 to the early 1970's, after which water levels in that part of the aquifer seem to have recovered slightly.

REFERENCE CITED

Crain, L. J., 1966, Ground-water resources of the Jamestown area, New York, with emphasis on the hydrology of the major stream valley: New York State Water Resources Commission Bulletin 58, 167 p.

INDEX MAP

DRAINAGE AREA

AQUIFER

SCALE 1:24 000

BASE FROM NEW YORK STATE DEPARTMENT OF TRANSPORTATION ELLERY CENTER, N.Y., 1978; GERRY, N.Y., 1978; IVORY, N.Y., 1978; JAMESTOWN, N.Y., 1978; AND KENNEDY, N.Y., 1978. 1:24,000

HYDROLOGY MODIFIED FROM L.J. CRAIN (1966)

GEOHYDROLOGY OF THE VALLEY-FILL AQUIFER IN THE JAMESTOWN AREA, CHAUTAUQUA COUNTY, NEW YORK

1982