UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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WATER RESOURCE INVESTIGATIONS
REPORT 85-4096 (SHEET 1 OF 7)

78°17'30" 78°15' 78°12'30" 78°10'

43°02'30"

SURFICIAL GEOLOGY

By
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INTRODUCTION

The mapping was undertaken to compile available information on the limits and characteristics of one of the principal aquifers in upstate New York, the glacial outwash aquifer. The glacial outwash aquifer in the Batavia area underlies a 23 square mile area along the Tonawanda Creek valley. It is a primary source of water for rural residents, industry, and community water systems in central Genesee County.

Findings relating to the aquifer are presented in this series of maps to provide water managers with current knowledge to aid in protecting and managing this prolific aquifer. The hydrologic data used in preparing these maps are available in the cited references and in the New York Subdistrict Office of the U.S. Geological Survey in Ithaca, New York.

The mapping is a continuation of a series begun in 1980 by the U.S. Geological Survey in cooperation with the New York State Dept. of Health. The style and format have been freely adapted from Miller and others (1982).

EXPLANATION

GEOLOGIC CONTACTS - dashed where approximately located

AQUIFER BOUNDARY—dashed where full extent of aquifer is not shown. The aquifer is interpreted to extend outward to where the saturated thickness is less than 15 feet thick.

B — B' LINE OF SECTION—see sheet 2, "Geologic Sections"

258-809-2 ○ Well on which geologic sections, sheet 2, are based; number represents latitude and longitude, after LaSala (1968).

D79-5 ○ Borehole on which geologic sections, sheet 2, are based; numbered by U.S. Army Corps. of Engineers (1981).

QUATERNARY

w — Open-water areas

als — Alluvial silt and sand; floodplain deposits of postglacial to recent age; low permeability

alg — Alluvial sand and gravel; alluvial fan and stream deposits of postglacial to recent age; high permeability

pm — Peat, marl, muck, and clay; bog and swamp deposits of postglacial to recent age; often occupy depressions of postglacial lakes; low to moderate permeability

lsc — Lake silt and/or clay; thin bedded to massive offshore deposits in proglacial and postglacial lakes; low permeability

osg — Outwash sand and gravel; stratified and well sorted glacial meltwater deposits; high permeability

ic — Ice contact sand and gravel; kames, kame terraces, kame moraines and eskers; poorly to moderately well sorted and stratified; high permeability

mt — Morainal till; generally stony, unsorted glacial deposit, with limited admixture of poorly sorted gravel; deposited at edge of stationary active ice sheet; variable thickness, generally 5 - 30 feet; low permeability

QUATERNARY

t/r — Till over bedrock (undifferentiated); unsorted glacial deposit of silt, sand, clay, cobbles, gravel, and boulders, generally less than 10 feet thick; low permeability

DEVONIAN

r — Undifferentiated bedrock

43°00'

42°57'30"

42°55'

45°52'30"

AQUIFER AREA

DRAINAGE AREA

SCALE 1:24000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

REFERENCES

LaSala, A. M., 1968, Ground Water Resources of the Erie-Niagara Basin, New York, New York State Conservation Dept. Basin Planning Report ENB-3, 114 p.

Miller, T.S., Belli, J.L., and Allen, R.V., 1982, Geohydrology of the Valley-Fill Aquifer in the Corning Area, Steuben County, New York. U.S. Geological Survey Open File Report 82-85

Muller, E.H., 1975, Quaternary Geology of New York, Niagara Sheet, New York State Museum and Science Service, Map and Chart Series, 28

Wulforst, J.P., Wertz, W.A., Leonard, R.P., 1969, Soil Survey, Genesee County, New York. U.S. Dept. Agriculture

U.S. Army Corps of Engineers, 1981, Interim report on feasibility of flood management in Tonawanda Creek Watershed, U.S. Army Corps. of Engineers, Buffalo, New York

GEOHYDROLOGY OF THE GLACIAL-OUTWASH AQUIFER IN THE BATAVIA AREA, TONAWANDA CREEK, GENESEE COUNTY, NEW YORK

1984

BASE FROM NEW YORK STATE DEPARTMENT OF TRANSPORTATION PLANIMETRIC MAPS, BATAVIA SOUTH, N.Y. 1977, BATAVIA NORTH, N.Y. 1977, ALEXANDER, N.Y. 1977, ATTICA, N.Y. 1977, DALE, N.Y. 1977, 1:24,000

Geology mapped in 1983 by authors, and modified from Wulforst and others (1969), Muller (1975) and unpublished field maps, LaSala (1968), and U.S. Army Corps. of Engineers (1981).