Groundwater Availability
At
Tower Hill
(Shelby County)

Project Overview
This project is an outgrowth of the Public Service Program of the Center for Groundwater Science (CGS) at the Illinois State Water Survey. For over 50 years, the CGS has provided groundwater information to any requesting individual, commercial facility or public water facility. Groundwater resource assessments have been an integral part of this public service and have been undertaken for thousands of individuals and facilities throughout its history. Community groundwater supplies that have been identified as potentially “deficient” are the targets for this project. The criterion used for determining community deficiency were; 1) Water Supply and Demand (operating time), 2) Aquifer Limitation, 3) Well Specific Capacity, and 4) Facility History. The Village of Tower Hill has been identified as a target community for groundwater assessment through this project.

Project Goal
To provide a resource tool of pertinent groundwater information to each target facility. This document describes a summary of historic information, current conditions and the potential for expansion of the water supply of Tower Hill.

Tower Hill (Shelby County)
The Village of Tower Hill (Facility Number 1730500) utilizes two active community water supply wells. Well Nos. 4, also known as the North well, (Illinois EPA No. 45184) and 5, also known as the South well (Illinois EPA No. 45185) distribute 37,500 gallons per day to 265 service connections which serve an estimated population of 650.

Tower Hill was determined to be “Adequate” by the project criteria and this report serves as a summary of information should they need to increase their current supply. The shallow depth of Wells No. 4 and No. 5 (both 48 feet) included this facility within the study.

**Historic Information**

**Background Well Information**

**Well No. 4 (Locally North Well)**
Constructed within sand and gravel in 1972 to a depth of 48 feet, the well is located in Section 20, T.11N., R.3E., Shelby County. A drawdown of 14.34 feet was reported while pumping at a rate of 107 gpm for 2.5 hours. The nonpumping water level was 9.58 feet and the calculated specific capacity was 7.46 gpm/ft., upon construction.

**Well No. 5 (Locally South Well)**
Constructed within sand and gravel in 1972 to a depth of 48 feet, the well is located in Section 20, T.11N., R.3E., Shelby County. A drawdown of 11.46 feet was reported while pumping at a rate of 107 gpm for 3 hours. The nonpumping water level was 7.83 feet and the calculated specific capacity was 9.34 gpm/ft., upon construction.

**Background Pumpage Information**

![Tower Hill Pumpage](Image)

Source: ISWS Illinois Water Inventory Program
Regional Information

Resources within the Tower Hill area

Domestic Groundwater Supplies
The available regional data indicate that groundwater for domestic and farm use in this part of Illinois is obtained from mainly large-diameter bored and drilled wells, typically 20 to 40 feet deep. These wells tap both unconsolidated (sand and gravel or till) and consolidated (sandstone or shale) material. The wells are reported as low-yielding but sufficient for domestic home supplies.

Municipal Groundwater Supplies
There are no towns within the local area of Tower Hill that use groundwater as their source.

Figures 1 and 2 picture the ISWS Potential Yield maps for sand and gravel and bedrock aquifers in Illinois, respectively. The pertinent counties for Tower Hill are highlighted. Figure 1 indicates that sand and gravel deposits are limited within the local Tower Hill area. The bedrock map (Figure 2) indicates that bedrock deposits suitable for development are very limited throughout the Tower Hill area. Figures 3 and 4 present the probability of occurrence of the sand and gravel and the water-yielding character of the shallow bedrock for the Tower Hill area as depicted in the Illinois State Geologic Survey Circular 225, Groundwater Geology in South-Central Illinois (Selkregg, et al., 1957). Figure 3 indicates “Fair to Good,” possibilities for the occurrence of water-bearing sand and gravel deposits locally. Figure 4 indicates low-yielding shales and sandstone units directly
beneath the drift and only small supplies are generally available from these shallow bedrock units. The domestic well construction records verify these map outlooks.

Groundwater Availability Summary

The available information indicates that, although the sand and gravel deposits the village currently uses are local and variable, they are capable of providing for the village with their water needs now and into the future. Should Tower Hill need to expand and the town elects to drill another well, exploration of the same general area is recommended, however, care should be taken in properly spacing any new well away from the current wells to ensure drawdown interference is minimal. Several communities within this area have also constructed wells within the floodplain of the Kaskaskia River to the south and east of Tower Hill. This can also be considered for expansion if necessary, however, test drilling and well testing would be required.

References

Figure 1.
Estimated Potential Yields of Shallow Bedrock Aquifers in Tower Hill Area

Figure 2.
Figure 3.

Figure 4.
ISWS publications list for Tower Hill and surrounding areas.

* = Publication is out of print.
$ = Payment required.

CHRISTIAN


*1961 RS-17  Evaluating wells and aquifers by analytical methods. Walton-Walker.


MONTGOMERY


**SHELBY**

*1966 RI-55*  

1967 C-92  

1997 CR611  
Delination of Time-Related Recharge Areas for the City of Shelbyville Well Fields. Anliker-Roadcap. 69p.

1972 RI-70  

*1978 CR-209*  

1982 COOP-8  

*1982 CR-299*  

1997 CR-611  
Delineation of time-related recharge areas for the city of Shelbyville well fields. Anliker-Roadcap. 69p.