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 Sparland 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 Sparland.

Sparland (Marshall County)
The Village of Sparland (Facility Number 1230200) utilizes two active community water supply wells. Well Nos. 2 and 3 (Illinois EPA No. 31312 and No. 31313, respectively) produce approximately 75,000 gallons per day delivered to 210 service connections and serve an estimated population of 412. The major consumer of Sparland’s water supply is the school which uses 10,000 gallons per day.

Sparland 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 Well Nos. 2 and 3 (33 and 34 feet, respectively) included this facility within the study.

Historic Information
Background Well Information

Well No. 2
Constructed within sand and gravel deposits associated with the Illinois River in 1954 to a depth of 33 feet, the well is located in Section 14, T.12N., R.9E., Marshall County. No information about this well is available except that its current capacity is about 110 gpm.

Well No. 3
constructed within sand and gravel deposits associated with the Illinois River in 1966 to a depth of 34 feet, the well is located in Section 14, T.12N., R.9E., Marshall County. No information about this well is available except that its current capacity is about 110 gpm.

Background Pumpage Information

![Sparland Pumpage Graph]

Source: ISWS Illinois Water Inventory Program
Historic Population Information

Source: ISWS Illinois Water Inventory Program

Regional Information

Resources within the Sparland area

Domestic Groundwater Supplies
The available regional data indicate that groundwater for domestic and farm use in this part of Illinois is obtained mainly from large-diameter bored wells finished within the unconsolidated materials above bedrock and from small-diameter drilled wells finished within the deep bedrock of this area. The bored wells tap stringers or lenses of silt, sand, or gravel only a few inches thick contained in the unconsolidated materials above bedrock. They range in depth from about 20 to 52 feet. The yield of this type of well is limited to a few hundred gallons per day and may be only barely adequate for normal household uses.

The small-diameter (4- to 6-inch) drilled wells are finished within shale and creviced limestone beds in the underlying bedrock. These wells range in depth from 378 to 745 feet. Upon completion, these wells were pumped at rates of about 5 to 20 gallons per minute for short periods of time.

Municipal Groundwater Supplies
There is one town within the local area of Sparland that uses groundwater as their source; the City of Lacon, located across the Illinois River to the east in Marshall County.
The City of Lacon uses three wells, Nos. 2, 3, and 4, located in Section 26, T.30N., R.3W., Marshall County. All of these wells are finished within sand and gravel deposits associated with the Illinois River. They range in depth from 50 to 60 feet and have capacities that range from 365 to 570 gpm.

Figures 1 and 2 picture the ISWS Potential Yield maps for sand and gravel and bedrock aquifers in Illinois, respectively. The pertinent counties for Sparland are highlighted. Figure 1 indicates that sand and gravel deposits are present and with excellent potential for development within the local Sparland area. The bedrock map (Figure 2) indicates that bedrock deposits suitable for development are very limited throughout the 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 Sparland area as depicted in the Illinois State Geologic Survey Circular 248, *Groundwater Geology in East-Central Illinois* (Selkregg, et al., 1958). Figure 3 indicates “Good to Excellent,” possibilities for highly permeable and widely distributed aquifers 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 the sand gravel deposits the city currently uses are capable of providing for the village with their water needs now and into the future. The capacities of these wells, 110 to 115 gpm, indicate the source for groundwater is excellent within the local area. If expansion is necessary, the exploration within the local area of the current well field is recommended. If the village adds a well within this current location, care should be taken in properly spacing any new well away from the current wells to ensure drawdown interference is minimal.

**References**

Figure 1:

Estimated Potential Yields of Sand and Gravel Aquifers in Sparland Area

Gallons per day per square mile (gpd/mi²)

- **Sparland**
- **Other Sources Preferred**

- < 50,000
- 100,000 - 150,000
- 150,001 - 200,000
- 200,001 - 300,000
- 300,001 - 400,000
- 400,001 - 3,000,000
- 3,000,001 - 5,000,000

Counties
Estimated Potential Yields of Shallow Bedrock Aquifers in Sparland Area

Figure 2.
Figure 3.
Figure 4.
ISWS publications list for Sparland and surrounding areas.

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

MARSHALL


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