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 Ashmore 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 within 5 and 10 miles of Ashmore.

Ashmore (Coles County)
The Village of Ashmore, Coles County, currently obtains groundwater from two community supply wells (Well #1 and Well #2). The wells supplied an average of 106,000 gallons of water per day during 2004 to the Villages' 806 residents. Well #1 is 42 feet deep and pumps at 92 gallons per minute while Well #2 is 44 feet deep and pumps at 79 gallons per minute. The project criterion ranked Ashmore as "deficient" mainly due to its shallow water table wells, moderate specific capacities, and a history of groundwater-related problems in the Water Survey files.

**Historic Information**

**Background Well Information**

**Well No.1**
Finished in shallow sand and gravel deposits located south of the village along Polecat Creek in Section 6, T.12N., R.11E., Coles County. The well was drilled to a depth of 42 feet in 1955 and, upon completion, reportedly produced 50 gallons per minute (gpm) for 3 hours with 3 feet of drawdown. Calculated specific capacity from this test was 16.7 gpm/ft. Static water level was reported as 21.6 feet below land surface.

**Well No.2**
Finished in shallow sand and gravel deposits located south of the village along Polecat Creek in Section 6, T.12N., R.11E., Coles County. The well was drilled to a depth of 44 feet in 1974 and, upon completion, reportedly produced 70 gpm for 4 hours with 6 feet of drawdown. Calculated specific capacity from this test was 11.7 gpm/ft. Static water level was reported as 22.2 feet below land surface.

**Background Pumpage Information**

![Ashmore Pumpage](Image)

Source: ISWS Illinois Water Inventory Program
Regional Information

Resources within 5 miles of Ashmore (Figure 1).

**Domestic Groundwater Supplies**
The available regional data indicate that groundwater for domestic and farm use in this part of Illinois is obtained from large-diameter (approximately 3 feet) bored wells finished in the unconsolidated materials above bedrock, and from small-diameter drilled wells tapping the underlying bedrock formations. 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 54 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.

A few reported wells in the area have been drilled into the underlying Pennsylvanian bedrock formations. These wells are finished in thin sandstone and creviced limestone beds in the shallow bedrock and range in depth from about 118 to 247 feet. Upon completion, these wells were pumped at rates of 5 to 10 gallons per minute for short periods of time.

**Municipal Groundwater Supplies**
There is only one town within five miles of Ashmore, the Village of Kansas located to the east. This town operates a municipal groundwater supply and uses two wells located in Section 26, T.13N., R.14W., Edgar County. The wells are finished around 80 feet and tap a buried sand and gravel aquifer that are
associated with the Embarrass River Valley. The wells reportedly pump between 100 and 125 gallons per minute for the towns’ water needs.

Resources with 10 miles of Ashmore (Figure 2).

**Municipal Groundwater Supplies**

Towns within 5 to 10 miles of Ashmore include:
Charleston, Fairgrange, Hutton, Oakland, and Rardin in Coles County; Boron, Dudley, and Isabel, in Edgar County; and Westfield in Clark County.

Other than the Village of Kansas (Edgar Co), there is only one other town that operates wells for their supply. The Village of Westfield in Clark County uses two wells, both finished in sand and gravel at depths of 53 and 58 feet below land surface. The most recent report indicates they pump at a combined rate of 55 gallons per minute. The wells are located in Section 20, T.12N., R.14W., Edgar County. The Village has also proposed construction of another well in this section to add to their well field.

Two other towns maintain a public water supply within 10 miles of Ashmore. The City of Charleston uses surface water for its supply and Oakland purchase water from the Embarras Area Water District and maintains its own lake. The other small communities in this area obtain their water by purchasing it from either the City of Charleston or the Embarras Area Water District.

Figures 3 and 4 picture the ISWS Potential Yield maps for sand and gravel and bedrock aquifer in Illinois, respectively. The pertinent counties for Ashmore are highlighted. Figure 3 indicates that sand and gravel deposits are variable throughout most of the Ashmore area. There are areas to the southeast and southwest of Ashmore that are indicated as having potential for sand and gravel well development. These deposits are most likely associated with the Embarrass Buried Bedrock Valley which begins near Ashmore and continues to the southeast and finally turns southwest toward the Embarrass River floodplains. The bedrock map (Figure 4) indicates poor availability of groundwater from the bedrock throughout the Ashmore area. Figures 5 and 6 present the probability of occurrence of the sand and gravel and the water-yielding character of the shallow bedrock for the Ashmore area as depicted in the Illinois State Geologic Survey Circular 248, *Groundwater Geology in East-Central Illinois* (Selkregg, et al., 1958). Figure 5 indicates “Fair to Good,” variable and discontinuous sand and gravel deposits and Figure 6 indicates only small supplies are available from the shallow bedrock units. The domestic well construction records verify these map outlooks.
Figure 1. 5-mile radius map- Ashmore
Figure 2. 10-mile radius map - Ashmore
Groundwater Availability Summary
Available information indicates that the sand and gravel deposits that the Village uses are capable of supplying the current needs of the town; however, should expansion of the well field be proposed, the information indicates that the area to the southwest of town has a highest potential. Test drilling to the east and northeast of town did indicate sand and gravel deposits; however, when tested, they produced less than 10 gpm. Our records also indicate that the Village wells are likely finished in the sands that make up the northern edge of the Embarrass Buried Bedrock Valley. Figures 3 and 5 indicate this geologic structure. Test drilling to the southeast of the village well field in Sections 1, 11, and 12 of T.12N., R.10E., Coles County should be considered for expansion of the well field. Should these areas prove unsuccessful for groundwater development, consideration can be given to connecting to the City of Charleston or the Embarrass Area Water District.
Figure 3.

Estimated Potential Yields of Sand and Gravel Aquifers in Ashmore Area

Gallons per day per square mile (gpd/mi²)

- Ashmore
- Other Sources Preferred
- ≤ 50,000
- 100,001 - 150,000
- 150,001 - 200,000
- 200,001 - 300,000
- 300,001 - 400,000
- 400,001 - 3,000,000
- > 3,000,000

Counties

Miles
Estimated Potential Yields of Shallow Bedrock Aquifers in Ashmore Area

Figure 4.
References


ISWS publications list for Ashmore and surrounding area
(* indicates out of print)

CLARK


COLES


CUMBERLAND


DOUGLAS

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


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