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Public Groundwater Supplies in Ford County

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Introduction

This publication presents all available information on production wells used for public groundwater supplies in Ford County. Bulletin 60, which is divided by county into separate publications, supersedes Bulletin 40 and its Supplements 1 and 2.

The definition of public water supply as contained in the Environmental Protection Act of 1970 was used to determine those water systems and wells to be included. Systems and wells described furnish water for drinking or general domestic use in: 1) incorporated municipalities; 2) unincorporated communities where 10 or more separate lots or properties are being served or are intended to be served; 3) state-owned parks and memorials; and 4) state-owned educational, charitable, or penal institutions.

This report includes separate descriptions for groundwater supplies of 9 municipalities in Ford County. These are preceded by brief summaries of the groundwater geology of the county and the development of groundwater sources for municipal use. An explanation of the format used in the descriptions is also given.

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Geology

The geology of Ford County is described generally in Illinois State Geological Survey Circular 248, *Groundwater Geology in East-Central Illinois,* and Illinois State Water Survey Circular 97, *Groundwater Availability in Ford County.* The following brief discussion of geologic conditions in the county is taken largely from these publications. For a more detailed definition of the geology in this portion of the state, the reader is referred to the State Geological Survey which is located on the University of Illinois campus, Urbana.

Glacial deposits blanket all of Ford County resulting in a relatively level plain broken only by isolated knobs, stream valleys, and long ridges formed at the front of the glaciers (end moraines). The glacial deposits include those of Wisconsinan, Illinoian, and pre-Illinoian age. Information from wells indicates that the topography of the county has been shaped principally by ice and modified by running water. Features produced by ice were developed long ago when the glaciers, nourished by snow accumulation in Canada, several times advanced across Ford County and melted away leaving vast quantities of rock debris. In front of the ice, sediment-laden meltwaters escaped down valleys, partially filling them with outwash deposits of sorted sand, gravel, and finer materials. Thick extensive till sheets of unsorted clay, silt, sand, and pebbles also were laid down by the advancing ice. The thickness of the glacial deposits varies from about 50 to more than 400 ft, the thicker sections being associated with the bedrock valleys and the morainic ridge just northwest of Gibson City.

The Wisconsinan deposits form the present-day land surface of Ford County. Running water continues to modify this surface by cutting into the land, carrying away soil and rock particles, and depositing the debris in river bottoms. This modification is a small-scale version of the changes made on the bedrock surface by preglacial drainage. The Wisconsinan deposits in the study area consist primarily of

till materials interspersed with somewhat discontinuous pockets and lenses of sand and gravel.

Underlying the Wisconsinan materials from the Piper City area southward are the Illinoian age deposits. The materials in these deposits are more uniform and occur as relatively impermeable till units interbedded with continuous layers of sand and gravel. The pre-Illinoian age deposits occupy the basal position in the drift section and consist primarily of permeable sands and gravels, particularly in the bedrock channels.

The bedrock formations in Ford County are layers of consolidated rocks of Pennsylvanian, Mississippian, Devonian, and Silurian geologic age. These rocks consist of beds of shale, sandstone, limestone, and dolomite arranged one upon the other; the top surface of these rocks is called the bedrock surface. Originally the bedrock formations were unconsolidated materials, deposited over many years as sediments in shallow seas or bordering marshes. They were then buried and hardened into solid rock during the millions of years after the seas retreated from the area.

Erosion of the bedrock surface was not uniform through the county. In some areas, valleys were formed by water and ice action; other areas remained to form ridges and hills on the bedrock surface. Some of the old bedrock valleys coincide with present-day stream valleys, but others are partially or even completely buried by the glacial deposits so that there is little or no surface evidence of their presence. The principal buried valley system in Ford County is part of the ancient Teays River system, a master preglacial stream which headed in the Appalachian plateau area in West Virginia and discharged into the ancient Mississippi River west of Delavan in Tazewell County. The Teays River Valley, or Mahomet Valley as it is known in Illinois, enters the state in Vermilion County, east of Hoopeston, and continues westward into Ford County just east of Paxton. The valley proceeds westward across the county beneath Paxton turning southwest into Champaign County about 8 miles northwest of Rantoul. The major tributaries to the Mahomet Valley include the Onarga Valley, with its major tributaries, and the Kempton and Chatsworth Valleys.

Groundwater Development for Municipal Use

Sand and gravel deposits in the unconsolidated materials above bedrock are tapped as the sources for municipal water supplies at Elliott, Gibson City, Kempton, Melvin, Paxton, Piper City, Roberts, and Sibley. There are presently 17 municipal production and standby wells, ranging in depth from 56 to 340 ft, finished in the sand and gravel deposits. Their reported yields range from 74 to 1900 gpm depending primarily upon the type of well and the permeability, thickness, and areal extent of the sand and gravel unit tapped by each well. Estimated production from these wells averaged about 1,240,000 gpd in 1972 and 1973. Past and present analyses of water they produce indicate that the iron content ranges from 0.0 to 8.6 mg/l, and the hardness from 194 to 785 mg/l. Water at Gibson City, Melvin, Paxton, Piper City, Roberts, and Sibley is fluoridated; the natural fluoride content is adequate to satisfy state requirements at Elliott. In addition, water for Melvin, Paxton, and Piper City is chlorinated, and at Paxton and Roberts, the water is treated with chlorinated polyphosphate.

A consolidated bedrock aquifer, principally the Silurian dolomite, is tapped as the primary source of municipal supply for the village of Cabery, located in the northernmost part of the county. The Cabery wells are 233 and 357 ft deep and their reported yields range from 19 to 133 gpm. The estimated production of these wells was 40,000 gpd in 1973. Past and present analyses of water from these wells indicate that the iron content ranges from 0.2 to 1.6 mg/l, and the hardness from 544 to 820 mg/l. The water is not treated and fluoridation is not required because of natural fluoride content.

Format

In this publication the descriptions of public groundwater supplies are presented in alphabetical order by place name as follows: Cabery, Elliott, Gibson City, Kempton, Melvin, Paxton, Piper City, Roberts, Sibley.

At the beginning of each description the U. S. Census of population for 1970 is given for incorporated places.

The number of services and quantity of water distributed at each supply are given where available for the earliest and the latest reported values.

Individual production wells for each supply are described in the order of their construction. The description for each well includes the *aquifer tapped, date drilled, depth, driller, legal location, elevation in feet above mean sea level, log, construction features, yield, pumping equipment, and chemical analyses.*

When available, sample study logs by the Illinois State Geological Survey are presented. When these are not available, drillers logs are used as reported. Commonly used drillers terms such as clay, silt, or pebbly clay generally are synonymous with the glacial tills tabulated by the State Geological Survey. Similarly, limestones or dolomites reported by drillers usually are calciferous rocks which in most of Illinois are dolomitic in composition.

The screen sizes given in this publication are for continuous slot type screens unless stated otherwise. Slot sizes given indicate the width of the slot openings in thousandths of an inch. For example, a 20 slot screen has slot openings 0.020 in. wide and a 100 slot screen has slots 0.100 in. wide. Approximate equivalent slot openings for other types of screens are given in parentheses after the screen designation.

Abbreviations Used

ft	foot (feet)
gpd	gallons per day
gpm	gallons per minute
hp	horsepower
hr	hour(s)
ID	inside diameter
in	inch(es)
Lab	laboratory
lb	pound(s)
me/l	milliequivalents per liter
mg/l	milligrams per liter
min	minute(s)
No.(s)	number(s)
pc/l	picocuries per liter
R	range
rpm	revolutions per minute
T	township
TDH	total dynamic head

CABERY

The village of Cabery (287) installed a public water supply in 1885. This village also extends into Kankakee County, but the present water supply is from wells in Ford County. One well (No. 3) is in use and another well (No. 2) is available for emergency use. In 1951 there were 78 services, none metered; the average daily pumpage was 12,000 gpd. In 1973 there were 108 services, none metered; the estimated average and maximum daily pumpages were 40,000 and 50,000 gpd, respectively. The water is not treated. The natural fluoride concentration in the water is adequate to satisfy state requirements for this ingredient.

The initial supply for this village was from an 8-in. diameter well 200 ft deep, located on the west side of Ames St. between Chester and Main Sts. In 1920 a hole developed in the casing and mud was drawn into the well. Shortly after, the well was abandoned.

WELL NO. 1, finished in Silurian dolomite, was constructed about 1907 to a depth of 330 ft, and reportedly deepened to a depth of 358 ft in June 1940 by George Berns, Chebanse. This well has not been in use since 1930 because of its limited supply. The well was located north of Norton St. and east of Wagner St. extended, approximately 650 ft N and 830 ft E of the SW corner of Section 9, T29N, R9E, Kankakee County. The land surface elevation at the well is approximately 695 ft.

A 6-in. diameter hole was drilled to a depth of 200 ft, reduced to 4.5 in. between 200 and 277 ft, reduced to 4 in. between 277 and 312 ft, and finished 3 in. in diameter from 312 to 358 ft. The well was cased with 6-in. black pipe from land surface to a depth of 196 ft and a 4.5-in. liner from 196 ft to a depth of 277 ft.

In June 1940, this well was deepened, initially to 342 ft and finally to 358 ft below land surface. At the 342-ft depth, a production test showed that after 10 min of pumping at a rate of 16 gpm, the drawdown was 54 ft from a nonpumping water level of 33 ft below land surface. During the next 15 min water was bailed out at a rate of 12 gpm and the water was drawn down to 180 ft, the limiting depth to which the bailer could reach. Continued bailing at 7 gpm kept the water level at 185 ft, a total drawdown of 151 ft. After bailing was stopped, the water level recovered to 142 ft within 15 min.

After deepening to 358 ft, another production test was conducted by the driller. During this test, the well reportedly produced 15.3 gpm with a drawdown of 84 ft from a nonpumping water level of 3 3 ft below the top of the casing. After the pumping rate was increased to 30 gpm, a maximum drawdown of 143 ft from a nonpumping water level of 32 ft below the top of the casing was recorded. At this pumping level (175 ft below land surface), the well's production was only 23.5 gpm after 30 min of pumping. Thirty-five min after the pumping was stopped, the water level recovered to 45 ft.

A partial analysis of a sample (Lab. No. 91426) collected September 17, 1941, showed the water to have a hardness of 59 mg/l, total dissolved minerals of 925 mg/l, and an iron content of 0.7 mg/l.

In hopes of securing an adequate supply of soft water, a well located only 8 ft from Well No. 1 was drilled in 1941 to a depth of 370 ft by George Berns, Chebanse. The well was cased with 8-in. pipe to a depth of 220 ft and 6-in. pipe from 220 ft to a depth of 280 ft. Upon completion, because of insufficient production, all but 12 ft of the casing was removed from the hole, and the well was abandoned.

WELL NO. 2, finished in dolomite, was completed in 1920 to a depth of 233 ft by Lars Jensen, Clifton. This well is maintained for emergency use. The well is located at the intersection of Chester and Ames Sts., approximately 250 ft S and 320 ft E of the NW corner of Section 16, T29N, R9E. The land surface elevation at the well is approximately 703 ft.

A 6-in. diameter hole was drilled to a depth of 23 3 ft and cased with 6-in. pipe from 2 ft above land surface to a depth of 200 ft.

A production test was conducted by the State Water Survey on March 9, 1942. After 5 hr of pumping at a rate of 19 gpm, the drawdown was 11.0 ft from a nonpumping water level of 42.0 ft below land surface.

In 1972, this well was acidized by the J. P. Miller Artesian Well Co., Brookfield, but very little noticeable effect was reported.

The pumping equipment presently installed is a Deming oil-lubricated turbine pump rated at 25 gpm, and powered by a 3-hp U. S. electric motor.

A partial analysis of a sample (Lab. No. 140893) collected June 29, 1956, showed the water to have a hardness of 684 mg/l, total dissolved minerals of 1406 mg/l, and an iron content of 1.6 mg/l.

WELL NO. 3, finished in dolomite, was completed in November 1956 to a depth of 357 ft by J. Bolliger & Sons, Fairbury. The well is located at the south edge of town about 650 ft SE of Well No. 2, approximately 800 ft S and 600 ft E of the NW corner of Section 16, T29N, R9E. The land surface elevation at the well is approximately 700 ft.

A correlated drillers log of Well No. 3 furnished by the State Geological Survey follows:

Strata	Thickness (ft)	Depth (ft)
PLEISTOCENE SERIES		
Top soil	2	2
Yellow clay	3	5
Sandy clay	5	10
Blue clay	30	40
Hardpan	84	124
Dirty sand	2	126
Blue clay	44	170
Hardpan	26	196
Sand	2	198
Sandstone	14	212
SILURIAN SYSTEM		
Limestone, dark	8	220
Limestone, gray	20	240
Limestone, light gray	45	285
Limestone, brown	20	305
Limestone, gray	52	357

An 8-in. diameter hole was drilled to a depth of 357 ft. The well is cased with 8-in. pipe from 3 ft above land surface to a depth of 214.8 ft.

A production test was conducted on November 26, 1956, by representatives of the driller, the village, and the State Water Survey. After 4 hr of pumping at rates of 133 to 125 gpm, the final drawdown was 34.5 ft from a nonpumping water level of 48.0 ft below land surface. Eighteen min after pumping was stopped, the water level had recovered to 64.5 ft.

In 1963 and July 1970, this well was acidized by the J. P. Miller Artesian Well Co., Brookfield, and reportedly was restored to almost its original capacity each time.

The pumping equipment presently installed is a Red Jacket submersible pump set at 150 ft, rated at 112 gpm at about 100 ft TDH, and powered by a 10-hp Red Jacket electric motor.

The following mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 01600) is for a water sample from the well collected September 20, 1971.

WELL NO. 3, LABORATORY NO. 01600

		mg/l	me/l			mg/l	me/l
Iron	Fe	0.7	0.02	Silica	SiO_2	11.5	
Manganese	Mn	0.0		Fluoride	F	1.1	0.06
Ammonium	NH_4	4.1	0.23	Nitrate	NO_3	0.0	
Sodium	Na	255	11.09	Chloride	Cl	19	0.54
Potassium	K	7	0.18	Sulfate	SO_4	950	19.76
Calcium	Ca	157	7.82	Alkalinity (as $CaCO_3$)		176	3.52
Magnesium	Mg	64	5.26				
				Hardness (as $CaCO_3$)		644	
Barium	Ba	0.0					
Copper	Cu	0.0		Total dissolved minerals		1620	
Cadmium	Cd	0.00					
Chromium	Cr	0.0		pH(as rec'd)		7.6	
Lead	Pb	0.00		Radioactivity			
Mercury	Hg	<0.0005		Alpha pc/l		2	
Nickel	Ni	0.0		±deviation		3	
Silver	Ag	0.0		Beta pc/l		7	
Zinc	Zn	0.03		±deviation		6	

ELLIOTT

The village of Elliott (365) installed a public water supply in 1951. One well (No. 2) is in use. In 1951 there were 105 services, all metered. In 1973 there were 135 services, all metered; the estimated average and maximum daily pumpages were 25,000 and 30,000 gpd, respectively. The water is not treated. The natural fluoride concentration in the water is adequate to satisfy state requirements for this ingredient.

WELL NO. 1, finished in sand and gravel, was completed in 1911 to a depth of 120 ft. This well was abandoned and capped prior to 1971. The well is located 30 ft W of the elevated tank approximately 2380 ft N and 115 ft E of the SW corner of Section 11, T23N, R8E. The land surface elevation at the well is approximately 780 ft.

A 6-in. diameter hole was drilled to a depth of 120 ft and cased with 6-in. pipe to an unknown depth.

A partial analysis of a sample (Lab. No. 113025) collected December 26, 1947, showed the water to have a hardness of 257 mg/l, total dissolved minerals of 367 mg/l, and an iron content of 0.7 mg/l.

WELL NO. 2, finished in sand and gravel, was completed in May 1950 to a depth of 126 ft by J. Bolliger & Sons, Fairbury. The well is located about 30 ft SW of Well No. 1 on Main St. just south of Market St., approximately 2350 ftNand l00 ft E of the SW corner of Section 11, T23N, R8E. The land surface elevation at the well is approximately 780 ft.

A sample study log of Well No. 2 furnished by the State Geological Survey follows:

Strata	Thickness (ft)	Depth (ft)
PLEISTOCENE SERIES		
Soil, black	4	4
Till, gray, very clayey, silty, calcareous, few pebbles	11	15
Till, gray to yellowish gray, clayey	70	85
Till, gray, silty, sandy; some coarse gravel	10	95
Till, gray, silty; some coarse gravel	10	105
Sand, brownish gray, very fine to fine, dirty; some gravel, coarse	9	114
Till, brownish gray, silty; gravel fine to coarse	3	117
Sand, very fine to very coarse, clean	3	120
Sand, fine to coarse, clean; some medium gravel	6	126

An 8-in. diameter hole was drilled to a depth of 126 ft. The well is cased with 8-in. pipe from 2.5 ft above land surface to a depth of 120 ft followed by 6 ft of 8-in. No. 80 slot Johnson Everdur wire-wound screen.

A production test was conducted on May 22, 1950, by representatives of the driller, the State Water Survey, the village, and Tracy Pitzen, Consulting Engineer. After 5 hr

of pumping at rates of 124 to 120 gpm, the drawdown was 53.4 ft from a nonpumping water level of 65.8 ft below land surface.

The pumping equipment presently installed is a 5.6-in., 11-stage Aurora deep well turbine pump set at 68 ft, rated at 75 gpm against 200 ft head, and powered by a 7 1/2-hp 1800 rpm U. S. electric motor.

The following mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 01446) is for a water sample from the well collected September 13, 1971. The iron content has been greater in previous samples.

WELL NO. 2, LABORATORY NO. 0 1446

		mg/l	me/l			mg/l	me/l
Iron	Fe	0.0		Silica	SiO_2	15	
Manganese	Mn	0.0		Fluoride	F	0.9	0.05
Ammonium	NH_4	0.6	0.03	Nitrate	NO_3	2.6	0.07
Sodium	Na	57	2.48	Chloride	Cl	4	0.11
Potassium	K	2.3	0.06	Sulfate	SO_4	117	2.43
Calcium	Ca	54.4	2.37	Alkalinity (as $CaCO_3$)		208	4.16
Magnesium	Mg	26.8	2.20				
Barium	Ba	0.0					
Copper	Cu	0.0		Hardness (as $CaCO_3$)		230	
Cadmium	Cd	0.00					
Chromium	Cr	0.0					
Lead	Pb	0.01		Total dissolved			
Mercury	Hg	<0.0005		minerals		400	
Nickel	Ni	0.0					
Silver	Ag	0.0					
Zinc	Zn	0.0		pH (as rec'd)	7.6		

GIBSON CITY

The city of Gibson City (3454) installed a public water supply in 1895. Three wells (Nos. 1, 2, and 3) are in use. In 1950 there were 885 services, 90 percent metered; the estimated average daily pumpage was between 60,000 and 70,000 gpd. In 1973 there were 1398 services, all metered; the average and maximum daily pumpages were 465,000 and 921,000 gpd, respectively. The water is fluoridated.

Initially, water was obtained from three wells drilled in 1895, each 55 ft in depth, and located at the old pumping station on the west side of Melvin St. south of the Illinois Central RR tracks, approximately 350 ft S and 1450 ft W of the NE corner of Section 11, T23N, R7E. The land surface elevation at the wells is 760 ft. The wells were cased with 6-in. pipe to a depth of 50 ft followed by 5 ft of perforated pipe wrapped with woven wire.

About 1916, a 15-in. well was drilled to a depth of 55 ft by L. Swanson, Gibson City, and located about 20 ft W of the pumping station at 521 North Melvin St. In 1930 the 10-ft length of screen was cleaned and the slots were enlarged.

In 1918 the nonpumping water level in the wells was 10 ft below land surface. During pumping operations, fine sand was being drawn around the strainers of the three original wells and the yield of the wells was seriously reduced. In 1920, four additional wells were drilled by A. Swanson, Gibson City, to a depth of 55 ft. The wells were located 30 ft apart and east of the initial three wells. The wells were cased with 3-in. pipe to a depth of 50 ft followed by 5 ft of perforated pipe screens.

All of these wells were abandoned before 1948.

WELL NO. 1, finished in sand, was completed in 1927 to a depth of 58 ft by the American Water Corp., Aurora. The well is located on the south side of Thirteenth St. between Lott Blvd and Church St., approximately 70 ft S and 2000 ft W of the NE corner of Section 11, T23N, R7E. The land surface elevation at the well is approximately 755 ft.

A drillers log of Well No. 1 follows:

Strata	*Thickness (ft)*	*Depth (ft)*
Soil	6	6
Blue clay	32	38
Sand	20	58

A 38-in. diameter hole was drilled to a depth of 58 ft. The well is cased with 38-in. outer pipe from land surface to a depth of 38 ft and a 24-in. inner pipe from land surface to a depth of 38 ft followed by 20 ft of 24-in. screen. The annulus between the 38-in. casing and the 24-in. casing-screen assembly is filled with gravel from an unknown depth to 58 ft.

A production test was conducted by the State Water Survey on November 19, 1941. After 2.2 hr of pumping at rates from 343 to 333 gpm, the drawdown was 18.2 ft from a nonpumping water level of 11.8 ft below land surface. The pumping rate was then gradually increased to 600 gpm within the next 4 hr, and the final drawdown was 37.7 ft. Thirty min after pumping was stopped, the water level had recovered to 14.5 ft.

On October 14, 1948, after a 19-hr idle period, the nonpumping water level was reported to be 13.5 ft below land surface.

After rehabilitation in March 1964 by L. F. Swanson, Gibson City, a production test using one observation well was conducted on April 1, 1964, by representatives of the city, L. F. Swanson, the State Water Survey, and the Chamlin Engineering Service. After 3 hr of pumping at 322 gpm, the drawdown was 15.66 ft from a nonpumping water level of 17.87 ft below land surface. One hr after pumping was stopped, the water level had recovered to 18.58 ft. On the basis of the production test data, it was estimated that this well should safely yield 300 gpm (432,000 gpd) on a short-term basis.

The pumping equipment presently installed is a 7.6-in., 6-stage Fairbanks-Morse Pomona turbine pump set at 39.8

ft, rated at 300 gpm, and powered by a 20-hp U. S. electric motor.

A mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 01447) of a sample collected September 13, 1971, after pumping for 37 min at 300 gpm, showed the water to have a hardness of 400 mg/l, total dissolved minerals of 477 mg/l, and an iron content of 0.2 mg/l. The iron content has been greater in previous samples.

In August 1939, a test well was drilled to a depth of 61.2 ft by Hayes & Sims, Champaign, and located on the south side of Thirteenth St. 550 ft W of Well No. 1.

A sample study log of Test Hole No. 1 furnished by the State Geological Survey follows:

Strata	Thickness (ft)	Depth (ft)
PLEISTOCENE SYSTEM		
Wisconsinan glacial drift		
Clay, calcareous, brown	10	10
Till, calcareous, brownish gray	11	21
Sand, silty, gray, very fine to coarse	9	30
Sand, clean, gray, very fine	5	35
Sand, clean, gray, very fine, some coarse	10	45
Sand, clean, gray, fine to medium; gravel, fine	5	50
Sand, clean, gray, fine	5	55
Sand, very silty, gray, medium to coarse	6	61
Till, calcareous, gray		at 61

WELL NO. 2, finished in sand, was completed in December 1939 to a depth of 56 ft by the Layne-Western Co., Aurora. The well is located at the southeast corner of Thirteenth and State Sts., approximately 75 ft S and 2280 ft E of the NW corner of Section 11, T23N, R7E. The land surface elevation at the well is approximately 750 ft.

A drillers log of Well No. 2 follows:

Strata	Thickness (ft)	Depth (ft)
Top soil	2	2
Clay	15	17
Sand and gravel	13	30
Clay	1	31
Fine sand	4	35
Medium sand	21	56

A 52-in. diameter hole was drilled to a depth of 20 ft and finished 42 in. in diameter from 20 to 56 ft. The well is cased with 30-in. outer pipe from 1.5 ft above land surface to a depth of 36 ft and an 18-in. inner pipe from 2 ft above land surface to a depth of 36 ft followed by 20 ft of 18-in. No. 2 (0.180 in.) Layne stainless steel shutter screen. The annulus between the bore hole and 30-in. casing and between the 30-in. casing and 18-in. casing-screen assembly is filled with gravel from about 25 to 56 ft.

A production test was conducted by the State Water Survey on January 8, 1940. After 8 hr of pumping at rates of 518 to 500 gpm, the drawdown was 20.5 ft from a nonpumping water level of 15.5 ft below land surface. Five min after pumping was stopped, the water level had recovered to 20.5 ft.

On October 14, 1948, after a 24-hr idle period, the well reportedly produced 375 gpm for 5 hr with a drawdown of 17.5 ft from a nonpumping water level of 20.0 ft.

In November 1955, the nonpumping water level was reported to be 12.5 ft.

A production test was conducted on June 16, 1959, by representatives of the city and the State Water Survey. After 4 hr of pumping at 320 gpm, the drawdown was 14.5 ft from a nonpumping water level of 21.8 ft below land surface.

The pumping equipment presently installed consists of a 30-hp U. S. electric motor (No. 178760), an 8-in., 9-stage Aurora Pump Co. turbine pump (No. 38164) set at 47 ft, rated at 300 gpm against 220 ft head, and 40 ft of 6-in. ID column pipe. A 5-ft section of 5-in. suction pipe is attached to the pump intake. The well is equipped with 50 ft of airline.

A mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 01448) of a sample collected September 13, 1971, after pumping for 38 min at 300 gpm, showed the water to have a hardness of 512 mg/l, total dissolved minerals of 626 mg/l, and an iron content of 0.45 mg/l. The iron content has been greater in previous samples.

Four test holes were drilled in July 1949 by the Layne-Western Co., Aurora, and located east of Sangamon St. and north of Fourteenth St. Test Hole No. 1 was reported to be 48 ft deep and cased with 6-in. pipe and a 5-ft length of 6-in. screen.

A production test using one observation well was made of Test Hole No. 1 on July 21, 1949, by representatives of the city, the driller, the State Water Survey, and Warren & Van Praag, Consulting Engineers. One hr before starting the test, the pump in Well No. 1 was stopped. During that period the water in Test Hole No. 1 recovered 1.4 ft to 20.5 ft. After 2 hr of pumping at rates of 29 to 47 gpm, the drawdown was 8.6 ft, and after the next 1.4 hr of pumping at 74 gpm, the drawdown was 16.5 ft.

WELL NO. 3, finished in sand and gravel, was completed in September 1949 to a depth of 58 ft by the Layne-Western Co., Aurora. The well is located north of Fourteenth St. between Church St. and Lott Blvd. at the site of Test Hole No. 1, approximately 725 ft N and 2000 ft W of the SE corner of Section 2, T23N, R7E. The land surface elevation at the well is approximately 755 ft.

A drillers log of Well No. 3 follows:

Strata	Thickness (ft)	Depth (ft)
Top soil	5	5
Yellow clay	10	15
Blue clay	7	22
Fine gray sand	8	30
Coarse gravel and clay	5	35
Coarse sand and gravel	23	58
Broken limestone below		

A 30-in. diameter hole was drilled to a depth of 58 ft. The well is cased with 30-in. outer pipe from 2 ft above land

surface to a depth of 38 ft and 18-in. inner pipe from 2.2 ft above land surface to a depth of 38 ft followed by 20 ft of 18-in. No. 4 (0.130 in.) Layne shutter screen. The annulus between the 30-in. casing and the 18-in. casing-screen assembly is filled with gravel from 23 to 58 ft.

A production test was conducted on September 20, 1949, by representatives of the driller, the city, the State Water Survey, and Warren & Van Praag, Consulting Engineers. After 2.8 hr of pumping at rates of 310 to 343 gpm, the drawdown was 13.8 ft from a nonpumping water level of 19.7 ft below the top of the casing. After 2.5 hr of continued pumping at rates of 422 to 430 gpm, the drawdown was 18.2 ft.

In 1955, the nonpumping water level was reported to be 17.5 ft.

The pumping equipment presently installed is a Layne oil-lubricated turbine pump rated at 400 gpm, and powered by a 30-hp 1800 rpm U. S. electric motor. The well is equipped with 45 ft of airline.

The following mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 01449) is for a water sample from the well collected September 13, 1971, after 42 min of pumping at 400 gpm. The iron content has been greater on previous samples.

WELL NO. 3, LABORATORY NO. 01449

		mg/l	me/l			mg/l	me/l
Iron	Fe	0.15	0.01	Silica	SiO_2	16	
Manganese	Mn	0.0		Fluoride	F	0.4	0.02
Ammonium	NH_4	0.9	0.05	Nitrate	NO3	0	
Sodium	Na	15	0.65	Chloride	Cl	7.0	0.20
Potassium	K	1.5	0.04	Sulfate	SO_4	64.8	1.35
Calcium	Ca	83.2	4.15	Alkalinity (as $CaCO_3$)		320	6.40
Magnesium	Mg	40	3.29				
				Hardness (as $CaCO_3$)		372	
Barium	Ba	0.15					
				Total dissolved			
Copper	Cu	0.0		minerals		438	
Cadmium	Cd	0.00					
Chromium	Cr	0.0		pH(asrec'd)		7.4	
Lead	Pb	0.00		Radioactivity			
Mercury	Hg	<0.0005		Alpha pc//		1	
Nickel	Ni	0.0	±	deviation		1	
Silver	Ag	0.0		Beta pc//		1	
Zinc	Zn	0.0	±	deviation		1	

KEMPTON

The village of Kempton (263) installed a public water supply in 1894. Two wells (Nos. 2 and 4) are in use. In 1950 there were 98 services, all metered. In 1973 there were 109 services, all metered; no estimates of the average and maximum daily pumpages were available. The water is not treated.

The initial source of water supply was from a well drilled in 1894 located at the northeast corner of First and Kemp Sts. This well was abandoned in 1909.

WELL NO. 1, finished in Silurian dolomite, was completed in 1909 to a depth of 404 ft. This well was abandoned and plugged with concrete prior to 1950. The well was located in the pumping station on First St., 2 blocks north of the initial well, approximately 75 ft S and 2120 ft E of the NW corner of Section 6, T28N, R9E. The land surface elevation at the well is approximately 737 ft.

A correlated drillers log of Well No. 1 furnished by the State Geological Survey follows:

Strata	Thickness (ft)	Depth (ft)
PLEISTOCENE SYSTEM		
Soil, clay, hardpan, blue clay	230	230
Sand and gravel	10	240
PENNSYLVANIAN SYSTEM		
Coal and "soapstone"	45	285
SILURIAN SYSTEM		
"Rock," probably dolomite	119	404

An 8-in. diameter hole was drilled to a depth of 285 ft and finished 6 in. in diameter from 285 to 404 ft. The well was cased with 6-in. pipe from land surface to a depth of about 285 ft.

In 1916, the nonpumping water level was reported to be 80 ft below land surface.

A production test was conducted by the State Water Survey on November 14, 1923. At the start of the test, the pumping rate was 5 gpm but gradually decreased to 2.5 gpm and the water was drawn down to the pump cylinder. Measurements of the water levels could not be taken.

A mineral analysis of a sample (Lab. No. 72733) collected April 4, 1933, showed the water to have a hardness of 8 mg/l, total dissolved minerals of 801 mg/l, and an iron content of 0.0 mg/l.

WELL NO. 2, finished in sand and gravel, was completed in January 1931 to a depth of 238 ft by E. W. Johnson, Bloomington. The well is located in the village hall and fire station about 20 ft W of Well No. 1, approximately 75 ft S and 2100 ft E of the NW corner of Section 6, T28N, R9E. The land surface elevation at the well is approximately 737 ft.

An 8-in. diameter hole was drilled to a depth of 238 ft. The well is cased with 8-in. wrought steel pipe from i.2 ft above land surface to a depth of 228 ft followed by 10 ft of 8-in. Johnson welded screen. The screened section consists of 7 ft of No. 20 slot followed by 3 ft of No. 30 slot.

Upon completion, the driller reported that after 4 days of pumping at 110 gpm, the drawdown was 100 ft from a nonpumping water level of 80 ft below land surface.

The pumping equipment presently installed is a Red Jacket submersible pump rated at 100 gpm at about 225 ft TDH, and powered by a 7 1/2-hp Red Jacket electric motor.

A correlated drillers log of Well No. 2 furnished by the State Geological Survey follows:

Strata	Thickness (ft)	Depth (ft)
PLEISTOCENE SYSTEM		
Soil and clay	188	188
Streak of sand, some water, 5 to 10 gpm		at 188
Clay	35	223
Streak of sand, some water about 2 gpm		at 223
Clay	5	228
Sand	7	235
Sand, some gravel	3	238
Clay	2	240

A mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 01444) of a sample collected September 12, 1971, showed the water to have a hardness of 732 mg/l, total dissolved minerals of 1700 mg/l, and an iron content of 0.9 mg/l.

WELL NO. 3, finished in sandstone, was completed in January 1949 to a depth of 386 ft by Lowell French, Ashkum. This well was abandoned and filled with crushed rock and cement grout prior to 1962. The well was located 12 ft S of Well No. 2, approximately 87 ft S and 2100 ft E of the NW corner of Section 6, T28N, R9E. The land surface elevation at the well is approximately 737 ft.

A drillers log of Well No. 3 follows:

Strata	Thickness (ft)	Depth (ft)
Top soil	5	5
Clay, blue	130	135
Hardpan	40	175
Hardpan, sandy	50	225
Clay, blue, sandy, very soft	5	230
Hardpan	5	235
Clay, sandy (very little water)	10	245
Sand and gravel	5	250
Sandstone, dark green, and coal	5	255
Shale	73	328
Sandstone, gray, soft	52	380
Shale, black	6	386

An 8-in. diameter hole was drilled to a depth of 386 ft. The well was cased with 8-in. ID pipe from 2 ft above land surface to a depth of 276.8 ft.

A production test was conducted on January 24, 1949, by representatives of the driller and the State Water Survey. After 50 min of pumping at 12.4 to 11.2 gpm, the drawdown was 145 ft from a nonpumping water level of 98 ft below land surface.

A partial analysis of a sample (Lab. No. 117231) collected February 5, 1949, after pumping for 30 hr at 12 gpm, showed the water to have a hardness of 141 mg/l, total dissolved minerals of 998 mg/l, and an iron content of 2.4 mg/l.

WELL NO. 4, finished in sand and gravel, was completed in September 1962 to a depth of 238 ft by J. Bolliger & Sons, Fairbury. The well is located north across the street from the pumphouse, approximately 45 ft N and 2050 ft E of the SW corner of Section 31, T29N, R9E. The land surface elevation at the well is approximately 740 ft.

A drillers log of Well No. 4 follows:

Strata	Thickness (ft)	Depth (ft)
Black soil	1.5	1.5
Yellow clay	2.5	4
Sandy yellow clay (some water)	4	8
Sandy blue clay	7	15
Blue clay	25	40
Hardpan	5	45
Blue clay	17	62
Light brown clay	8	70
Hardpan	85	155
Gray clay	55	210
Gray clay with some sand	21	231
Quicksand	3	234
Brownish fine sand	4	238

An 8-in. diameter hole was drilled to a depth of 238 ft. The well is cased with 8-in. steel pipe from 2 ft above land surface to a depth of 232.3 ft followed by 6.7 ft (5.7 ft exposed) of 8-in. No. 20 slot Johnson Everdur screen.

A production test using one observation well was conducted on October 16, 1962, by representatives of the driller, the village, and the State Water Survey. After 6 hr of pumping at a rate of 100 gpm, the drawdown was 63.2 ft from a nonpumping water level of 85.5 ft below land surface. One hr after pumping was stopped, the water level had recovered to 87.2 ft. On the basis of the production test data, it was estimated that this well would yield 50 gpm (72,000 gpd) on a long-term basis.

The pumping equipment presently installed is a Red Jacket submersible pump set at 198 ft, rated at 70 gpm, and powered by a 7 1/2-hp Red Jacket electric motor.

The following mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 01445) is for a water sample from the well collected September 13, 1971. Hydrogen sulfide has been apparent when previous samples were collected.

WELL NO. 4, LABORATORY NO. 01445

		mg/l	me/l			mg/l	me/l
Iron	Fe	0.75	0.03	Silica	SiO_2	9.5	
Manganese	Mn	0.0		Fluoride	F	0.6	0.03
Ammonium	NH_4	3.0	0.16	Nitrate	NO3	0.0	
Sodium	Na	258	11.20	Chloride	Cl	18	0.51
Potassium	K	4.9	0.12	Sulfate	SO_4	1100	22.88
Calcium	Ca	150	7.48	Alkalinity (as $CaCO_3$)		116	2.32
Magnesium	Mg	85	6.99				
				Hardness (as $CaCO_3$)		745	
Barium	Ba	0.05					
				Total dissolved			
Copper	Cu	0.0		minerats		1800	
Cadmium	Cd	0.00					
Chromium	Cr	0.0		pH(asrec'd)		7.5	
Lead	Pb	0.00		Radioactivity			
Mercury	Hg	<0.0005		Alpna *pc/l*		1	
Nickel	Ni	0.0		±deviation		3	
Silver	Ag	0.0		Beta *pc/l*		3	
Zinc	Zn	0.0		±deviation		7	

MELVIN

The village of Melvin (492) installed a public water supply in 1908. One well (No. 4) is in use and another well (No. 3) is available for emergency use. In 1950 there were 181 services, 96 percent metered; the estimated average daily pumpage was 21,500 gpd. In 1973 there were 225 services, all metered; the average and maximum daily pumpages were 45,000 and 70,000 gpd, respectively. The water is chlorinated and fluoridated.

WELL NO. 1, finished in sand and gravel, was completed in 1908 to a depth of 242 ft. This well was abandoned in 1950 and sealed in 1955. The well was located on the east side of Center St. and just west of the Illinois Central RR right-of-way, approximately 1288 ft S and 1700 ft E of the NW corner of Section 1, T24N, R8E. The land surface elevation at the well is approximately 808 ft.

The well was cased to a depth of 232 ft followed by 10 ft of screen.

Upon completion, water was pumped from the well into five storage cisterns, each cistern 10 ft in diameter and 15 ft deep. The cisterns were located in various parts of town. Water was withdrawn from the cisterns by hand pumps.

WELL NO. 2, finished in sand and gravel, was constructed in 1913 to a depth of 231 ft, and reportedly deepened in about 1917 to a depth of 245 ft. This well was abandoned in 1926 and sealed in 1947. The well was located on the west side of Center St. opposite Well No. 1, approximately 1340 ft S and 1580 ft E of the NW corner of Section 1, T24N, R8E. The land surface elevation at the well is approximately 808 ft.

Originally, the well was cased with 8-in. pipe from land surface to a depth of 221 ft. After deepening, a 19.5-ft length of Cook screen was installed. In January 1926, a new screen was installed, but this did not improve the yieid.

At the time of deepening the well, the nonpumping water level was reported to be 120 ft.

WELL NO. 3, finished in sand and gravel, was constructed in 1923 to a depth of 243 ft, deepened in 1926 to a depth of 258 ft by E. W. Johnson, Bloomington, and later deepened to a depth of 265 ft. This well is maintained for emergency use and is pumped twice a month for short periods of time. The well is located in the pumping station on the west side of Center St., 10 ft S of Well No. 2 and 120 ft W of Well No. 1, approximately 1350 ft S and 1580 ft E of the NW corner of Section 1, T24N, R8E. The land surface elevation at the well is approximately 805 ft.

An 8-in. diameter hole was drilled to a depth of 258 ft and finished 6 in. in diameter from 258 to 265 ft. The well was cased with 8-in. pipe from 1 ft above the pump station floor to a depth of 240 ft followed by 19 ft (18 ft exposed) of 8-in. screen. Later, the screen was replaced with a 30-ft long (25 ft exposed) 6-in. diameter No. 10 slot Johnson screen set between depths of 240 and 265 ft. Considerable sand continued to be drawn into the well and in 1935 the well was repaired by J. Bolliger & Sons, Fairbury. A 6-in. casing was installed within the 8-in. casing from land surface to the top of the screen at 240 ft. The 6-in. screen was cleaned, repaired, and reinstalled with the bottom set at 265 ft (25 ft exposed). After this repair work very little sand was extracted when pumping at a rate of 35 gpm.

In April 1938, the nonpumping water level was reported to be 156 ft below land surface.

The pumping equipment presently installed is a 10-hp 1760 rpm Westinghouse electric motor (No. 8105051), a 6-in., 31-stage Pomona turbine pump (No. N406) set at 220 ft, rated at 60 gpm at about 360 ft head, and 220 ft of 4.5-in column pipe. A 30-ft section of 3-in. suction pipe is attached to the pump intake. The well is equipped with 231 ft of airline.

A mineral analysis of a sample (Lab. No. 116241) collected October 22, 1948, after pumping for 5 hr at 60 gpm, showed the water to have a hardness of 335 mg/l, total dissolved minerals of 427 mg/l, and an iron content of 0.6 mg/l.

WELL NO. 4, finished in sand and gravel, was completed in June 1954 to a depth of 260 ft by J. Bolliger & Sons, Fairbury. The well is located on the east side of Center St. just opposite the elevated tank about 12 ft S of Well No. 1, approximately 1300 ft S and 1700 ft E of the NW corner of Section 1, T24N, R8E. The land surface elevation at the well is approximately 805 ft.

A sample study log of Well No. 4 furnished by the State Geological Survey follows:

Strata	*Thickness (ft)*	*Depth (ft)*
QUATERNARY SYSTEM		
Pleistocene Series		
Wisconsinan		
Woodfordian		
Till, silty, practically no sand or pebbles, calcareous, gray with pinkish tinge, stained buff in upper 10 ft	50	50
Altonian		
Silt, sandy, calcareous, gray; sand with many soil aggregates and much fine organic debris in upper 5 ft	40	90
Sangamonian		
Slit, sandy, dolomitic or slowly calcareous, gray but stained buff in upper 10 ft; more or less fine organic debris throughout	30	120
Illinoian		
Till, silty, more or less sandy, more or less pebbly, strongly calcareous, pinkish gray except light buff at 140-150 ft and 190-195 ft and light red at 180-190 ft	75	195
Yarmouthian (?)		
Silt, slightly sandy, nonpebbly, light yellowish brown in upper 10 ft, pinkish gray with fine organic debris in lower 25 ft	35	230
Kansan		
Sand, nonsilty, gray	30	260

An 8-in. diameter hole was drilled to a depth of 260 ft. The well is cased with 8-in. pipe from 0.3 in. above the pump station floor to a depth of 240 ft followed by 20 ft of 8-in. No. 12 slot Johnson Everdur screen.

A production test was conducted on June 9, 1954, by representatives of the driller and the State Water Survey. After 4.3 hr of pumping at a rate of 153 gpm, the drawdown was 13.0 ft from a nonpumping water level of 118.0 ft. Ten min after pumping was stopped, the water level had recovered to 118.5 ft. Well No. 3 was pumping at approximately 70 gpm throughout the entire test.

The pumping equipment presently installed is a Peerless turbine pump rated at 250 gpm, and powered by a 15-hp General Electric motor.

The following mineral analysis made by the Illinois Environmental Protection Agency XLab. No. 01442) is for a water sample from the well collected September 13, 1971, after 35 min of pumping at 125 gpm. The iron content has been greater in previous samples.

WELL NO. 4, LABORATORY NO. 01442

		mg/l	me/l			mg/l	me/l
Iron	Fe	0.05	0.00	Silica	SiO_2	20	
Manganese	Mn	0.0		Fluoride	F	0.7	0.04
Ammonium	NH4	2.1	0.12	Nitrate	NO3	0.0	
Sodium	Na	45	1.96	Chloride	Cl	1.2	0.03
Potassium	K	2	0.05	Sulfate	SO4	48	1.00
Calcium	Ca	75	3.74	Alkalinity (as $CaCO_3$)		380	7.60
Magnesium	Mg	38	3.12				
				Hardness (as $CaCO_3$)		336	
Barium	Ba	0.35					
Copper	Cu	0.0		Total dissolved minerals		435	
Cadmium	Cd	0.00					
Chromium	Cr	0.0		pH(as rec'd)		7.6	
Lead	Pb	0.00		Radioactivity			
Mercury	Hg	<0.0005		Alpha *pc/l*		1	
Nickel	Ni	0.0		± deviation		1	
Silver	Ag	0.0		Beta *pc/l*		2	
Zinc	Zn	0.0		± deviation		2	

PAXTON

The city of Paxton (4373) installed a public water supply in 1887. One well (No. 8) is in use and three wells (Nos. 5, 6, and 7) are available for emergency use. In 1950 there were 1215 services, all metered; the estimated average daily pumpage was 200,000 gpd. In 1973 there were 1800 services, all metered; the average and maximum daily pumpages were 450,000 and 750,000 gpd, respectively. The water is chlorinated, fluoridated, and treated with chlorinated polyphosphate to keep iron in solution.

Initially, a well was completed in August 1875 to a depth of 2666 ft by the J. P. Miller Artesian Well Co., Brookfield. The well was located near the corner of Taft and State Sts. In 1912, an attempt was made to obtain water by blasting in the upper 400 ft but without success. At this time the well was abandoned because the water was highly mineralized and not suitable for public usage.

Two wells were drilled between 1887 and 1912 to depths of 142 and 158 ft, respectively. The diameters of the wells were 6 in. and 5 in., respectively. The wells were located at the pumping station in the rear of the city hall at Market and Center Sts. and were 18 ft apart. In 1912, the 6-in. well was deepened to a depth of 200 ft by the M. Ebert Co., Washington. No additional water-bearing formation was encountered and the well was abandoned. The 5-in. well was abandoned and sealed in 1924.

WELL NO. 1, finished in sand and gravel, was completed prior to 1912 to a depth of 148 ft (measured at 144.5 ft in 1943). This well was abandoned prior to 1951 and a cap was welded over the casing top and a concrete cover was placed over the plate. The well was located in the rear of the city hall at Market and Center Sts., approximately 300 ft N and 175 ft E of the SW corner of Section 8, T23N, R10E. The land surface elevation at the well is approximately 795 ft.

The well was cased with 8-in. pipe to an unknown depth. In 1924, the yield of this well was reported to be 67 gpm.

On January 24, 1943, a production test showed the yield of the well had decreased to 30 gpm. The screen was jetted and the well treated with 25 lb of Calgon. The yield was increased to 65 gpm and the water level was reported to be 108.5 ft below the pump base.

On October 16, 1948, the water level was 119 ft below the pump base after a 3-hr idle period and 141 ft after 5 min of pumping at 65 gpm.

A well was completed in 1912 by the M. Ebert Co., Washington, to a depth of 140 ft and located on Taft St. south of State St., about 100 ft S of the old deep well and 750 ft NW of Well No. 1. The well was cased with 124 ft of 8-in. pipe and 16 ft of Cook screen. A 6-in. perforated pipe with 0.5-in. holes was placed inside of and attached to the top and bottom of the screen. In 1917, the nonpumping water level was 98 ft below the land surface. This well was abandoned and sealed in 1924.

In 1917, an 8-in. well was drilled to a depth of 150 ft by O. A. Musson, Hoopeston, and located east of Taft St., south of State St., and 25 ft N of the well drilled in 1912. This well was equipped with 14 ft of screen. In January 1924 the depth to water was 100 ft when pumping in two wells nearby. This well was abandoned prior to 1938.

WELL NO. 2, finished in sand and gravel, was completed in 1923 to a depth of 150 ft by E. W. Johnson & Son, Bloomington. This well was abandoned prior to 1948 and a cap was welded over the casing top and a concrete cover was placed over the plate. The well was located 33 ft S of

the well drilled in 1917 and 8 ft S of the well drilled in 1912, approximately 986 ft N and 25 ft W of the SE corner of Section 7, T23N, R10E. The land surface elevation at the well is approximately 795 ft.

The well was cased with 8-in. pipe to a depth of 134 ft followed by 16 ft of Cook screen.

WELL NO. 3, finished in sand and gravel, was completed in 1922 to a depth of 151 ft by Otto Stiegman, Roberts. This well was abandoned prior to 1960 and a steel plate was welded over the casing top and a 4-in. concrete cover was placed over the well. The well was located about 135 ft S of State St. and 65 ft E of Taft St., 14 ft N of Well No. 2, approximately 1000 ft N and 25 ft W of the SE corner of Section 7, T23N, R10E. The land surface elevation at the well is approximately 795 ft.

The well was cased with 8-in. pipe to a depth of 131 ft followed by 20 ft of No. 12 slot Cook screen.

Upon completion, the yield was reported to be 60 gpm.

On July 29, 1943, the nonpumping water level was reported to be 107 ft below the pump base.

A mineral analysis of a sample (Lab. No. 50983) collected February 19, 1924, after several hours of pumping, showed the water to have a hardness of 296 mg/l, total dissolved minerals of 471 mg/l, and an iron content of 1.2 mg/l.

WELL NO. 4, finished in sand and gravel, was completed in 1930 to a depth of 150 ft (measured at 145.5 ft in 1943) by E. W. Johnson, Bloomington. This well was abandoned in 1957 and a steel plate was welded over the casing top. The well is located about 50 ft E of Taft St. and 10 ft S of the alley between State and Holmes Sts., approximately 1440 ft N and 25 ft W of the SE corner of Section 7, T23N, R10E. The land surface elevation at the well is approximately 793 ft.

A sample study log of Well No. 4 furnished by the State Geological Survey follows:

Strata	*Thickness (ft)*	*Depth (ft)*
PLEISTOCENE SYSTEM		
Soil, till, and silt	130	130
Gravel, sandy, clean	17.5	147.5
Silt and clay	2.5	150

A 10-in. diameter hole was drilled to a depth of 150 ft. The well is cased with 10-in. pipe to a depth of 129 ft followed by 21 ft of 10-in. Johnson screen.

In July 1943 and January 1945, the nonpumping water level was reported to be 110 ft below the pump base.

In October 1945, it was reported that there was considerable interference between Wells No. 3 and 4. If both pumps were started at the same time, the pump in Well No. 4 would break suction in 1.5 hr.

On October 21, 1948, after 7 hr of pumping at an estimated rate of 180 gpm, the water level was 138 ft below the pump base.

In 1950, the nonpumping water level was reported to be 109.5 ft.

A mineral analysis of a sample (Lab. No. 116219) collected October 21, 1948, after pumping for 7 hr at 180 gpm, showed the water to have a hardness of 322 mg/l, total dissolved minerals of 482 mg/l, and an iron content of 1.0 mg/l.

WELL NO. 5, finished in sand and gravel, was completed in October 1945 to a depth of 148 ft by the Woollen Bros., Wapella. This well is maintained for emergency use. The well is located about 10 ft N of Pine St. and 110 ft E of Maple St., approximately 2350 ft N and 650 ft W of the SE corner of Section 7, T23N, R10E. The land surface elevation at the well is approximately 790 ft.

A drillers log of Well No. 5 follows:

Strata	*Thickness (ft)*	*Depth (ft)*
Soil, clay, yellow	8	8
Clay, blue	70	78
Clay, blue, hard	2	80
Clay, yellow, hard	10	90
Clay, blue, soft	5	95
Clay, blue	5	100
Clay, blue, sandy	5	105
Clay, sandy, drifty	4	109
Sand and gravel	7	116
Clay on bit	1	117
Gravel	18	135
Sand	7	142
Coarser sand	7	149
Clay, gray below		

An 8-in. diameter hole was drilled to a depth of 148 ft. The well is cased with 8-in. ID pipe from 2 ft above land surface to a depth of 126 ft followed by 23 ft (22 ft exposed) of 8-in. No. 40 slot Johnson Armco iron screen.

On October 10, 1945, just before the arrival of a State Water Survey representative, the well had been pumped at a maximum rate of the pump at 275 gpm with a drawdown to the top of the screen. A production test was then conducted by the State Water Survey. After 1 hr of pumping at 155 gpm, the drawdown was 13.00 ft from a nonpumping water level of 101.00 ft below the top of the casing. Eight min after pumping was stopped, the water level had recovered to 101.75 ft.

On October 21, 1948, the nonpumping water level was reported to be 106 ft belowthe pump base.

In 1957, the nonpumping water level was reported to be 102 ft.

The pumping equipment presently installed is a Peerless water-lubricated turbine pump set at 115 ft, rated at 100 gpm, and powered by a 10-hp General Electric motor.

A mineral analysis of a sample (Lab. No. 104473) collected during the initial production test, after pumping for 1 hr at 155 gpm, showed the water to have a hardness of 194 mg/l, total dissolved minerals of 311 mg/l, and an iron content of 1.4 mg/l.

WELL NO. 6, finished in sand and gravel, was completed in July 1950 to a depth of 153 ft by Hayes & Sims, Champaign. This well is maintained for emergency use. The well is located in the northwest part of town, approximately 2190 ft N and 1440 ft E of the SW corner of Section 7, T23N, R10E. The land surface elevation at the well is 795 ft.

A sample study log of Well No. 6 furnished by the State Geological Survey follows:

Strata	Thickness (ft)	Depth (ft)
QUATERNARY SYSTEM		
Pleistocene Series		
Wisconsinan		
Woodfordian		
Till, very silty, slightly pebbly, noncalcareous to weakly calcareous, yellowish brown	10	10
Same, calcareous, gray	20	30
Same, more pebbly, pinkish gray	20	50
Altonian		
Sand, mostly coarse grained, little silt, weakly calcareous, gray with fragments of light brown noncalcareous clayey silt	10	60
Same, without silt fragments	15	75
Same, with pinkish gray laminations, noncalcareous silt	5	80
Sangamonian		
Sand, noncalcareous, light brown with brown to black soil aggregates	10	90
Same, calcareous, gray	10	100
Same, with silt, noncalcareous, and numerous fragments of brown to black soil	10	110
Illinoian		
Sand, well graded, calcareous, gray	15	125
Same, mostly coarse grained and fine gravel, nonsilty, calcareous, clean, gray	32.5	157.5

A 10-in. diameter hole was drilled to a depth of 153 ft. The well is cased with 10-in. pipe from within the pump base to a depth of 133 ft followed by 21.3 ft (20 ft exposed) of 10-in. Johnson Everdur screen. From top to bottom, the screened section consists of 6 ft of No. 30 slot, 5 ft of No. 25 slot, and 9 ft of No. 18 slot.

A production test was conducted on July 27, 1950, by representatives of the driller, the city, the State Water Survey, and Tracy Pitzen, Consulting Engineer. After 1.6 hr of pumping at a rate of 150 gpm, the drawdown was 14.3 ft from a nonpumping water level of 100.2 ft below land surface. Continued pumping at 200 gpm for 2.5 hr resulted in a final drawdown of 20.2 ft.

The pumping equipment presently installed is an Aurora turbine pump rated at 200 gpm at about 225 ft head, and powered by a 15-hp electric motor.

A mineral analysis of a sample (Lab. No. 122482) collected during the initial production test, after pumping for 5 hr at 200 gpm, showed the water to have a hardness of 295 mg/l, total dissolved minerals of 451 mg/l, and an iron content of 1.3 mg/l.

WELL NO. 7, finished in sand and gravel, was completed in October 1956 to a depth of 340 ft by the J. P. Miller Artesian Well Co., Brookfield. This well is maintained for standby use and is pumped once a month. The well is located about 2 miles west of the corporate limits of the city on 111. Route 9, approximately 1200 ft S and 1200 ft W of the NE corner of Section 14, T23N, R9E. The land surface elevation at the well is approximately 755 ft.

A sample study log of Well No. 7 furnished by the State Geological Survey follows:

Strata	Thickness (ft)	Depth (ft)
QUATERNARY SYSTEM		
Recent Series		
"Soil"	2	2
Pleistocene Series		
Wisconsinan		
Woodfordian		
Silt, clayey, nonsandy, calcareous, light gray, upper 3 ft faintly calcareous, oxidized light tan, and includes soil aggregates	33	35
Altonian		
Same, oxidized light brown, with soil aggregates	10	45
Sand, silty, calcareous, gravelly, gray with pinkish cast	5	50
Gravel, clean	5	55
Till, more or less silty, somewhat sandy and pebbly, calcareous, gray with pinkish cast	20	75
Gravel, clean, gray	5	80
Sangamonian		
Silt, clayey, very sandy, pebbly, calcareous, tan, with soil aggregates	5	85
Illinoian		
Grave), stained brown	5	90
Sand, medium grained, calcareous, clean with numerous oxidized grains and a few soil aggregates in upper part	10	100
Gravel, fine, more or less sandy, calcareous clean, gray	15	115
Till, silty, sandy calcareous, pinkish, some soil aggregates at 120-135 ft	40	155
Gravel, little sand, no silt	30	185
Yarmouthian		
Silt, sandy, pebbly, more or less calcareous, gray, with pinkish cast or oxidized tan, light brown, light buff, light organic debris	20	205
Kansan		
Gravel, coarse, little else	15	220
Sand and silt	5	225
Silt, sandy, strongly calcareous, light brown	5	230
Sand, well graded fine to medium, nonsilty, pebbly, very calcareous, clean gray, with much black organic debris	10	240
Silt, clayey, sandy, pebbly, calcareous	5	245
Sand, like that from 230-240 ft	10	255
Gravel, clean	70	325
Sand, gravelly, clean, with calcareous laminated silt in lower 5 ft	15	340

A 36-in. diameter hole was drilled to a depth of 340 ft. The well is cased with 16-in. pipe from 0.8 ft above the pumphouse floor to a depth of 240 ft followed by 100 ft of 16-in. No. 80 slot Cater screen. The annulus between the bore hole and casing-screen assembly is filled with cement

from 0 to 30 ft, with sand and bentonite from 30 to 185 ft, and with 1/4- by 1/8-in. Muscatine gravel from 185 to 340 ft.

A production test using one observation well was conducted on November 7-8, 1956, by representatives of the driller, the State Water Survey, and Tracy Pitzen, Consulting Engineer. After 12 hr of pumping at rates of 880 to 1100 gpm, the drawdown was 8.0 ft from a nonpumping water level of 65.5 ft below land surface. Pumping was then continued at a rate of 1600 gpm for the next 18 hr with a total drawdown of 12.3 ft. After an additional 6 hr of pumping at rates from 1850 to 1900 gpm, the final drawdown was 14.5 ft. Thirty min after pumping was stopped, the water level had recovered to 66.0 ft.

On October 26, 1959, the well reportedly produced 1000 gpm for 1 hr with a drawdown of 2 ft from a nonpumping water level of 68 ft.

The pumping equipment presently installed is a Peerless water-lubricated turbine pump set at 90 ft, rated at 1000 gpm, and powered by a 75-hp Peerless electric motor.

A mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 01469) of a sample collected September 14, 1971, after pumping for 15 min at 1000 gpm, showed the water to have a hardness of 304 mg/l, total dissolved minerals of 330 mg/l, and an iron content of 0.5 mg/l. The iron content has been greater in previous analyses.

WELL NO. 8, finished in sand and gravel, was completed in August 1959 to a depth of 335 ft by the J. P. Miller Artesian Well Co., Brookfield. The well is located about 0.2 mile southeast of Well No. 7, approximately 1250 ft straight S of the NE corner of Section 14, T23N, R9E. The land surface elevation at the well is approximately 765 ft.

A 36-in. diameter hole was drilled to a depth of 340 ft. The well is cased with 16-in. pipe from 2 ft above the pumphouse floor to a depth of 235 ft followed by 100 ft of 16-in. No. 80 slot Cater stainless steel screen.

A production test was conducted by the driller on August 20-21, 1959. After 24 hr of pumping at rates of 1000 to 1200 gpm, the drawdown was 8 ft from a nonpumping water level of 68 ft below the top of the casing.

The pumping equipment presently installed is a Peerless oil-lubricated turbine pump (Serial No. 131830) set at 90 ft, rated at 950 gpm, and powered by a 75-hp U. S. electric motor.

A drillers log of Well No. 8 follows:

Strata	Thickness (ft)	Depth (ft)
Top soil	5	5
Clay	18	23
Gravel	1	24
Blue clay	31	55
Sand and gravel	6	61
Blue clay with boulders	104	165
Gravel and boulders	28	193
Clay with layers of gravel	32	225
Blue clay	7	232
Sandy clay	3	235
Fine sand	10	245
Layers of sand and gravel with streaks of clay	95	340

The following mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 01470) is for a water sample from the well collected September 14, 1971, after 2 hr of pumping at 900 gpm. The iron content has been greater in previous analyses.

WELL NO. 8, LABORATORY NO. 01470

		mg/l	me/l			mg/l	me/l
Iron	Fe	0.0		Silica	SiO_2	18	
Manganese	Mn	0.0		Fluoride	F	0.25	0.01
Ammonium	NH_4	2.1	0.11	Nitrate	NO_3	0.0	
Sodium	Na	27	1.18	Chloride	Cl	1.2	0.03
Potassium	K	1.6	0.04	Sulfate	SO_4	26	0.54
Calcium	Ca	71	3.54	Alkalinity (as $CaCO_3$)		344	6.88
Magnesium	Mg	37.2	3.06	Hardness (as $CaCO_3$)		330	
Barium	Ba	0.1		Total dissolved minerals		390	
Copper	Cu	0.0					
Cadmium	Cd	0.00					
Chromium	Cr	0.0		pH (as rec'd)		7.8	
Lead	Pb	0.00		Radioactivity			
Mercury	Hg	<0.0005		Alpha pc/l		1	
Nickel	Ni	0.0		± deviation		1	
Silver	Ag	0.0		Beta pc/l		2	
Zinc	Zn	0.05		± deviation		2	

PIPER CITY

The village of Piper City (817) installed a public water supply in 1913. One well (No. 7) is in use and another well (No. 6) is available for emergency use. In 1950 there were 270 services, all metered; the estimated average daily pumpage was 54,000 gpd. In 1973 there were 310 services, all metered; the estimated average and maximum daily pumpages were 105,000 and 148,000 gpd, respectively. The water is chlorinated and fluoridated.

WELL NO. 1, finished in sand and gravel, was completed in 1913 to a depth of 70 ft by Townsell & Park. This well was abandoned and filled prior to 1950. The well was located just east of the pumping station, approximately 1633 ft S and 1551 ft W of the NE corner of Section 4, T26N, R9E. The land surface elevation at the well is approximately 670 ft.

The well was cased with 8-in. pipe to a depth of 58 ft followed by 12 ft of screen.

Upon completion, the normal water level was reported to be at land surface and in May 1922, it was reported at 9 ft below land surface.

WELL NO. 2, finished in sand and gravel, was completed in 1913 to a depth of 70 ft by Townsell & Park. This well

was abandoned and filled prior to 1950. The well was located about 20 ft N of Well No. 1, approximately 1614 ft S and 1551 ft W of the NE corner of Section 4, T26N, R9E. The land surface elevation at the well is approximately 670 ft.

The well was cased with 6-in. pipe to a depth of 62 ft followed by 8 ft of screen.

Upon completion, the normal water level was reported to be at land surface and in May 1922, it was reported at 9 ft below land surface.

WELL NO. 3, finished in sand and gravel was completed in 1913 to a depth of 70 ft by Townsell & Park. This well was abandoned and filled prior to 1950. The well was located about 40 ft W of Well No. 2, approximately 1602 ft S and 1588 ft W of the NE corner of Section 4, T26N, R9E. The land surface elevation at the well is approximately 670 ft.

The well was cased with 8-in. pipe to a depth of 62 ft followed by 8 ft of screen.

Upon completion, the normal water level was reported to be at land surface and in May 1922, it was reported at 9 ft below land surface.

WELL NO. 4, finished in sand and gravel, was completed in December 1942 to a depth of 39 ft by J. Bolliger & Sons, Fairbury. This well was abandoned and filled prior to 1950. The well was located just east of the pumping station, approximately 1639 ft S and 1551 ft W of the NE corner of Section 4, T26N, R9E. The land surface elevation at the well is approximately 670 ft.

A drillers log of Well No. 4 follows:

Strata	Thickness (ft)	Depth (ft)
Soil, black	2	2
Soil, yellow	13	15
Soil, gray	5	20
Gravel, some water	3	23
Hardpan	8.5	31.5
Sand and gravel	7.5	39

An 8-in. diameter hole was drilled to a depth of 39 ft. The well was cased with 8-in. pipe to a depth of 30 ft followed by 9 ft of 8-in. No. 50 slot Johnson screen.

Upon completion, the well reportedly produced 60 gpm with a drawdown of 18 ft from a nonpumping water level of 3 ft below land surface.

WELL NO. 5, finished in sand and gravel, was completed in December 1942 to a depth of 79 ft by J. Bolliger & Sons, Fairbury. This well was abandoned and filled prior to 1950. The well was located about 9 ft E of Well No. 2, approximately 1618 ft S and 1542 ft W of the NE corner of Section 4, T26N, R9E. The land surface elevation at the well is approximately 670 ft.

A correlated drillers log of Well No. 5 furnished by the State Geological Survey follows:

Strata	Thickness (ft)	Depth (ft)
PLEISTOCENE SYSTEM		
Soil and till	35	35
Sand and gravel, clean	3	38
Till	22	60
Sand, clean	15	75
Sand, some gravel, clean	4	79

An 8-in. diameter hole was drilled to a depth of 79 ft. The well was cased with 8-in. pipe to a depth of 73 ft followed by 6 ft of 8-in. No. 20 slot Johnson screen.

Upon completion, the well reportedly produced 40 gpm with a drawdown of 10.7 ft from a nonpumping water level of 1.3 ft below land surface.

WELL NO. 6, finished in sand and gravel, was completed in May 1944 to a depth of 78.5 ft by Hayes & Sims, Champaign. This well is available for emergency use. The well is located 100 ft W of the city building, approximately 1615 ft S and 1165 ft W of the NE corner of Section 4, T26N, R9E. The land surface elevation at the well is approximately 670 ft.

A drillers log of Well No. 6 follows:

Strata	Thickness (ft)	Depth (ft)
Top soil	2	2
Yellow clay	8	10
Blue clay, soft	24	34
Sand and gravel	4	38
Hardpan	19	57
Fine sand, little dirty	21.5	78.5

A 16-in. diameter hole was drilled to a depth of 78.5 ft. The well is cased with 16-in. outer pipe from 2.5 ft above the pumphouse floor to a depth of 66.5 ft and an 8-in. inner pipe was set from 2.5 ft above the pumphouse floor to a depth of 64.8 ft followed by 13.7 ft of 6.6-in. No. 60 slot Johnson Everdur screen. The annulus between the outer casing-bore hole and casing-screen assembly is filled with approximately 5.5 cubic yards of pea gravel.

A production test was conducted by the State Water Survey on May 29, 1944. After 7 hr of pumping at rates of 90.5 to 83 gpm, the final drawdown was 12.12 ft from a nonpumping water level of 3.18 ft below the top of the casing. Twenty-two min after pumping was stopped, the water level had recovered to 4.50 ft.

On May 29, 1948, the well reportedly produced 83 gpm for 7 hr with a drawdown of 10.8 ft from a nonpumping water level of 2.0 ft below land surface.

The pumping equipment presently installed is a 7-in. American Well Works turbine pump rated at 100 gpm at about 170 ft TDH, and powered by a 7 1/2-hp U. S. electric motor.

A mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 00907) of a sample collected August 10, 1971, showed the water to have a hardness of

400 mg/l, total dissolved minerals of 445 mg/l, and an iron content of 0.15 mg/l. The iron content has been greater in previous samples.

WELL NO. 7, finished in sand, was completed in September 1953 to a depth of 127 ft by Hayes & Sims, Champaign. The well is located at the west edge of town just south of the Toledo, Peoria, and Western RR, approximately 1750 ft S and 2050 ft E of the NW corner of Section 4, T26N, R9E. The land surface elevation at the well is approximately 672 ft.

A 16-in. diameter hole was drilled to a depth of 130 ft. The well is cased with a 16-in. outer pipe to a depth of 98 ft and an 8-in. pipe from 2 ft above the pump station floor to a depth of 98 ft followed by 29 ft of 8-in. No. 60 slot Johnson Everdur screen. The annulus between the outer casing-bore hole and casing-screen assembly is filled with gravel from 88 to 127 ft.

A production test was conducted on October 1, 195 3, by representatives of the driller, the village, the State Water Survey, and Tracy Pitzen, Consulting Engineer. After 58 min of pumping at rates of 98 to 108 gpm, the drawdown was 8.5 ft from a nonpumping water level of 9.0 ft below the pump station floor. Continuous pumping for an additional 4.5 hr at rates of 151 to 415 gpm resulted in a final drawdown of 37.5 ft. Five min after pumping was stopped, the water level had recovered to 16.0 ft.

The pumping equipment presently installed is a Deming turbine pump rated at 140 gpm, and powered by a 15-hp U. S. electric motor.

The following mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 00886) is for a water sample from the well collected August 10, 1971. The iron content has been greater in previous samples.

WELL NO. 7, LABORATORY NO. 00886

		mg/l	me/l			mg/l	me/l
Iron	Fe	0.2	0.01	Silica	SiO_2	20	
Manganese	Mn	0.0		Fluoride	F	0.5	
Ammonium	NH_4	3.7	0.21	Nitrate	NO_3	0	
Sodium	Na	34	1.48	Chloride	Cl	2.5	0.07
Potassium	K	2.0	0.0 5	Sulfate	SO4	2.5	0.0 5
Calcium	Ca	83.2	4.15	Alkalinity (as $CaCO_3$)		420	8.40
Magnesium	Mg	36	2.96				
				Hardness (as $CaCO_3$)		356	
Barium	Ba	0.0					
Copper	Cu	0.0		Total dissolved			
Cadmium	Cd	0.00		minerals		464	
Chromium	Cr	0.0		pH (as rec'd)		7.3	
Lead	Pb	0.00		Radioactivity			
Mercury	Hg	<0.0005		Alpha *pc/l*		0	
Nickel	Ni	0.0		± deviation		1	
Silver	Ag	0.0		Beta *pc/l*		3	
Zinc	Zn	0.03		±deviation		2	

ROBERTS

The village of Roberts (506) installed a public water supply in 1890. One well (No. 6) is in use and another well (No. 5) is available for emergency use. In 1949 there were 150 services, all metered; the estimated average daily pumpage was 20,000 gpd. In 1973 there were 200 services, all metered; no estimates of the average and maximum daily pumpages were available. The water is fluoridated and treated with a chlorinated polyphosphate to keep iron in solution.

WELL NO. 1, finished in sand and gravel, was completed in 1890 to a depth of 216 ft. This well was abandoned and filled in 1916 when a pump cylinder was dropped in the well. The well was located in the center of the village adjacent to Main St., approximately 2200 ft S and 1600 ft W of the NE corner of Section 21, T25N, R9E. The land surface elevation at the well is approximately 780 ft.

A 3-in. diameter hole was drilled to a depth of 216 ft. In 1907, the well was reamed out from the original diameter of 3 in. and cased with 4-in. pipe to a depth of 206 ft followed by 10 ft of screen.

In 1915, the nonpumping water level was reported to be 95 ft below land surface and lowered very little during pumping.

WELL NO. 2 (former Creamery well), finished in sand and gravel, was completed in 1916 to a depth of 220 ft by Otto Stiegman, Roberts. This well was abandoned and filled prior to 1960. The well was located at the pumping station back of the village hall on Main St. north of Maple St., approximately 2255 ft S and 1438 ft W of the NE corner of Section 21, T25N, R9E. The land surface elevation at the well is approximately 780 ft.

A drillers log of Well No. 2 follows:

Strata	*Thickness (ft)*	*Depth (ft)*
Black soil	3	3
Clay	12	15
Blue clay	95	110
Dark gray gravel	2 5	135
Blue hardpan and grit	55	190
Brown peat	20	210
Sandstone	3	213
Soft material	2	215
Fine sandstone	3	218
No record	2	220

A 3-in. diameter hole was drilled to a depth of 220 ft. The well was cased with 3-in. pipe to a depth of 210 ft followed by 10 ft of 3-in. No. 60 (0.010 in.) gauze perforated pipe.

WELL NO. 3, finished in sand and gravel, was completed in 1917 to a depth of 225 ft by Charles Roberts, Roberts. This well was abandoned and filled with concrete in 1939

when the casing rusted out. The well was located 13 ft W of Well No. 2, approximately 2255 ft S and 1451 ft W of the NE corner of Section 21, T25N, R9E. The land surface elevation at the well is approximately 780 ft.

A 4-in. diameter hole was drilled to a depth of 225 ft. The well was cased with 3-in. pipe to a depth of 215 ft followed by 10 ft of 3-in. No. 60 (0.010 in.) gauze perforated pipe.

In 1922, the nonpumping water level was reported to be 100 to 125 ft.

A mineral analysis of a sample (Lab. No. 75975) collected April 21, 1935, showed the water to have a hardness of 450 mg/l, total dissolved minerals of 672 mg/l and an iron content of 1.4 mg/l.

WELL NO. 4, finished in sand and gravel, was completed in April 1940 to a depth of 232 ft by the M. Ebert Co., Washington. This well was abandoned and filled prior to 1960. The well was located 13 ft S of Well No. 2, approximately 2268 ft S and 1438 ft W of the NE corner of Section 21, T25N, R9E. The land surface elevation at the well is approximately 780 ft.

A correlated drillers log of Well No. 4 furnished by the State Geological Survey follows:

Strata	*Thickness (ft)*	*Depth (ft)*
PLEISTOCENE SYSTEM		
Loam and clay	104	104
Sand	26	130
Clay and hardpan	78	208
Sand	24	232

A 4-in. diameter hole was drilled to a depth of 232 ft. The well was cased with 4-in. pipe to a depth of 222 ft followed by 10 ft of 4-in. No. 14 slot Cook screen.

Upon completion, the nonpumping water level was reported to be 86 ft below land surface.

A mineral analysis of a sample (Lab. No. 95278) collected February 3, 1943, after pumping for 10 min at 19 gpm, showed the water to have a hardness of 409 mg/l, total dissolved minerals of 658 mg/l, and an iron content of 2.04 mg/l.

WELL NO. 5, finished in sand and gravel, was completed in September 1950 to a depth of 226 ft by J. Bolliger & Sons, Fairbury. This well is maintained for emergency use. The well is located about 0.2 mile northwest of Well No. 2 on the west side of Locust St. where it passes along the west side of the high school building, approximately 920 ft S and 2550 ft E of the NW corner of Section 21, T25N, R9E. The land surface elevation at the well is approximately 775 ft.

A drillers log of Well No. 5 follows:

Strata	*Thickness (ft)*	*Depth (ft)*
Soil	2	2
Clay, yellow	8	10
Clay, blue	200	210
Sand, dirty	5	215
Sand, clean	11	226

An 8-in. diameter hole was drilled to a depth of 226 ft. The well is cased with 8-in. steel pipe from 1.5 ft above land surface to a depth of 216.5 ft followed by 12.3 ft (9 ft exposed) of 8-in. Johnson Everdur screen. The screened section consists of 5 ft of No. 10 slot followed by 6 ft of No. 20 slot.

A production test was conducted on September 22, 1950, by representatives of the driller, the village, the State Water Survey, and Tracy Pitzen, Consulting Engineer. After 3.8 hr of pumping at rates of 74 to 105 gpm, the final drawdown was 34.6 ft from a nonpumping water level of 79.6 ft below land surface. Twenty-five min after pumping was stopped, the water level had recovered to 80.2 ft.

On September 20, 1951, the well reportedly produced 105 gpm with a drawdown of 21 ft from a nonpumping water level of 85 ft.

The pumping equipment presently installed is a Sterling turbine pump set at 140 ft, rated at 105 gpm, and powered by a 15-hp 1800 rpm U. S. electric motor. The well is equipped with 155 ft of airline.

The following mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 03616) is for a water sample from the well collected January 12, 1972, after 1 hr of pumping at 100 gpm. The iron content has been greater in previous samples. Hydrogen sulfide also was apparent when a previous sample was collected.

WELL NO. 5, LABORATORY NO. 03616

		mg/l	*me/l*			*mg/l*	*me/l*
Iron	Fe	0.2	0.01	Silica	SiO_2	18	
Manganese	Mn	0.05	0.00	Fluoride	F	0.6	0.03
Ammonium	NH4	2.3	0.13	Boron	B	0.9	
Sodium	Na	52	2.26	Nitrate	NO3	0.0	
Potassium	K	2.2	0.06	Chloride	Cl	3.5	0.10
Calcium	Ca	108	5.39	Sulfate	SO4	250	5.20
Magnesium	Mg	45	3.70	Alkalinity (as $CaCO_3$)		308	6.16
				Hardness (as $CaCO_3$)		460	
Barium	Ba	0.2					
Copper	Cu	0.0		Total dissolved minerals		660	
Cadmium	Cd	0.00					
Chromium	Cr	0.0		pH(as rec'd)		7.5	
Lead	Pb	0.01		Radioactivity			
Mercury	Hg	<0.0005		Alpha *pc/l*		0	
Nickel	Ni	0.0		±deviation		2	
Silver	Ag	0.0		Beta *pc/l*		1	
Zinc	Zn	0.0		±deviation		3	

WELL NO. 6, finished in sand, was completed in November 1960 to a depth of 228 ft by J. Bolliger & Sons, Fairbury. The well is located about 250 ft W of Well No. 5, approximately 900 ft S and 2300 ft E of the NW corner of Section 21, T25N, R9E. The land surface elevation at the well is approximately 775 ft.

An 8-in. diameter hole was drilled to a depth of 228 ft. The well is cased with 8-in. steel pipe from 1 ft above land surface to a depth of 215 ft followed by 13 ft of 8-in. No. 16 slot Johnson Everdur screen.

A sample study log of Well No. 6 furnished by the State Geological Survey follows:

Strata	Thickness (ft)	Depth (ft)
QUARTERNARY SYSTEM		
Pleistocene Series		
Wisconsinan		
Woodfordian		
Chatsworth		
Soil, silty, noncalcareous, black	3	3
Silt, nonsandy, weakly calcareous, light yellowish brown, laminated	12	15
Paxton-Cropsey (?)		
Till, silty; nonsandy, no pebbles, noncalcareous, gray; much soil aggregates	5	20
Same, calcareous, a few pebbles below 30 ft	30	50
Bloomington and older		
Till as above, pinkish cast in upper 15 ft, tan in lower 15 ft	35	85
Sangamonian		
Silt, slightly sandy, slightly pebbly, calcareous, tannish gray, wood fragments at base	15	100
Sand, mostly medium grained, mostly quartz	8	108
Illinoian		
Till, silty, sandy, slightly pebbly, strongly calcareous, pinkish gray, some yellowish brown staining, fine organic debris and soil aggregates in upper 7 ft	22	130
Same, more sandy, red	10	140
Sand, fine to coarse grained, silty, pebbly, calcareous	5	145
Till, silty, very sandy, pebbly, strongly calcareous, gray, yellowish in upper 5 ft and brownish in lower 5 ft	25	170
Yarmouthian and older (?)		
Silt, sandy, pebbly, strongly calcareous, dark brown, laminated	18	188
Sand, almost entirely medium grained, largely quartz, slightly silty in middle part, clean at top and bottom	41	229

A production test was conducted on November 17, 1960, by representatives of the driller, the village, the State Water Survey, and Vail H. Moore, Consulting Engineer. After 5 hr of pumping at a rate of 128 gpm, the drawdown was 19.84 ft from a nonpumping water level of 85.61 ft below land surface. Thirty min after pumping was stopped, the water level had recovered to 86.20 ft. On the basis of the production test data, it was estimated that this well would yield 130 gpm (187,000 gpd) on a long-term basis.

The pumping equipment presently installed is a submersible pump set at 160 ft, rated at 130 gpm at about 225 ft TDH, and powered by an electric motor.

A partial analysis of a sample (Lab. No. 153647) collected during the initial production test, after pumping for 5 hr at 128 gpm, showed the water to have a hardness of 426 mg/l, total dissolved minerals of 681 mg/l, and an iron content of 1.2 mg/l.

SIBLEY

The village of Sibley (381) installed a public water supply in 1907. One well (No. 1) is in use. In 1950 there were 132 services, 96 percent metered; the estimated average daily pumpage was 12,000 gpd. In 1973 there were 150 services, 95 percent metered; no estimates of the average and maximum daily pumpages were available. The water is fluoridated.

WELL NO. 1, finished in sand and gravel, was completed in 1907 to a depth of 115.5 ft (originally 117 ft deep) by Otto Stiegman, Roberts. The well is located about 200 ft S of Ohio St. and 200 ft E of Sciota St., approximately 870 ft S and 770 ft E of the NW corner of Section 35, T25N, R7E. The land surface elevation at the well is approximately 814 ft.

A drillers log of Well No. 1 follows:

Strata	Thickness (ft)	Depth (ft)
Black dirt	6	6
Clay and hardpan	100	106
Sand	12	118

An 8-in. diameter hole was drilled to a depth of 117 ft. The well is cased with 8-in. cast iron pipe from 0.2 ft above the pump station floor to a depth of 107 ft. Originally, 10 ft of 7.8-in. No. 10 slot Cook screen was installed. In 1933 a new screen was installed by L. F. Swanson, Gibson City. The slot openings were too small so it was replaced by John Bolliger, Fairbury, with 8.5 ft of the old original screen in which additional openings were made.

In 1925, the nonpumping water level was reported to be 46 ft below land surface.

In 1945, the nonpumping water level was reported to be 50 ft below the pump base floor.

The following mineral analysis made by the Illinois Environmental Protection Agency (Lab. No. 01040) is for a water sample from the well collected August 23, 1971. The iron content has been greater in previous samples.

WELL NO. 1, LABORATORY NO. 01040

		mg/l	me/l			mg/l	me/l
Iron	Fe	0.05	0.00	Silica	SiO_2	15	
Manganese	Mn	0.0		Fluoride	F	0.6	0.03
Ammonium	NH_4	0.7	0.04	Nitrate	NO_3	0.0	
Sodium	Na	20	0.87	Chloride	Cl	0.7	0.20
Potassium	K	2.4	0.06	Sulfate	SO4	19	0.40
Calcium	Ca	60.8	3.04	Alkalinity (as $CaCO_3$)		306	6.12
Magnesium	Mg	32.7	2.69	Hardness(as $CaCO_3$)		278	
Barium	Ba	0.0		Total dissolved			
Cadmium	Cd	0.00					
Chromium	Cr	0.0		pH(as rec'd)		7.6	
Lead	Pb	0.00		Radioactivity			
Mercury	Hg	<0.0005		Alpha pc/l		1	
Nickel	Ni	0.0		±devlation		1	
Silver	Ag	0.0		Beta pc/l		2	
Zinc	Zn	0.0		±deviation		2	

The pumping equipment presently installed is a Peerless water-lubricated turbine pump rated at 58 gpm, and powered by a 5-hp 3000 rpm U. S. electric motor (Serial No. 2455594).

WELL NO. 2, finished in sand and gravel, was completed in 1925 to a depth of 108 ft. This well was not used after July 1950 and was abandoned and sealed in 1965. The well was located at the south end of the pumping station about 30 ft S of Well No. 1, approximately 900 ft S and 770 ft E of the NW corner of Section 35, T25N, R7E. The land surface elevation at the well is approximately 812 ft.

A 4-in. diameter hole was drilled to a depth of 108 ft. The well was cased with 4-in. pipe from 2.5 in. above the pump station floor to a depth of 108 ft.

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