

SWS/CIR-125/77

Circular 125

STATE OF ILLINOIS

DEPARTMENT OF REGISTRATION AND EDUCATION



*Water-Level Decline and Pumpage in Deep Wells
in the Chicago Region, 1971-1975*

by R. T. SASMAN, C. R. BENSON, J. S. MENDE, N. F. GANGLER, and V. M. COLVIN

ILLINOIS STATE WATER SURVEY

URBANA

1977

CONTENTS

	PAGE
Summary.1
Introduction.	2
Geology and hydrology.	3
Pumpage from deep wells.	5
Pumpage, 1971 through 1975.	6
Pumpage related to practical sustained yield, 1975.11
Water levels in deep wells.11
Water-level decline, October 1971 to October 1975.12
Piezometric surface of aquifer, 1975.16
References.19
Appendix.	20

Printed by the Authority of the State of Illinois



(P.O. 78981—2 M—4.77)

**Water-Level Decline and Pumpage in Deep Wells
in the Chicago Region, 1971-1975**

*by R. T. Sasman, C. R. Benson, J. S. Mende,
N. F. Gangler, and V. M. Colvin*

SUMMARY

This report considers pumpage and water-level declines from October 1971 through November 1975 in deep sandstone wells penetrating the Cambrian-Ordovician aquifer, the most highly developed aquifer for large groundwater supplies in northeastern Illinois. Emphasis has been given to eight counties of the Chicago metropolitan area, with some supplemental information on seven additional counties of northeastern Illinois. The Cambrian-Ordovician aquifer is encountered at depths ranging from less than 300 feet in areas of central northern Illinois to an average of about 500 feet below land surface at Chicago. It has an average thickness of 1000 feet and is composed chiefly of sandstones and dolomites; most of the water is obtained from the sandstones.

Pumpage from deep wells in the Chicago region increased from 200,000 gallons per day (gpd) in 1864 to 150.7 million gallons per day (mgd) in 1971. As a result, artesian pressure in the Cambrian-Ordovician aquifer in Chicago has declined more than 850 feet. Pumpage from deep wells in the Chicago region is concentrated in northwestern and western Cook County, eastern Du Page and eastern Kane Counties, and around Joliet in Will County. Heavy pumpage from deep wells outside the Chicago region occurs at Rockford, Belvidere, De Kalb-Sycamore, Rochelle, and Ottawa-Peru. Numerous other municipalities and industries throughout northeastern Illinois pump small to moderate quantities of water from deep wells.

During the period from October 1971 through November 1975, pumpage from deep wells in the Chicago region increased to 165.7 mgd, an increase of 15.0 mgd or 10 percent more than the 1971 pumpage. This increase has resulted in excessive water-level declines in some deep wells. For the Chicago region, average annual water-level declines during the 4-year period ranged from 6 feet in McHenry County to 16 feet in Grundy County and averaged about 12 feet. Water levels in 6 selected observation wells outside the Chicago region declined an average of 1.7 feet per year during the same period.

Withdrawals since 1971 within the Chicago region exceeded the practical sustained yield of the Cambrian-Ordovician aquifer, as they have each year since 1958, with the result that groundwater users continue to mine water and to borrow water from future generations. By the end of 1975, more than half of the upper units of the aquifer had already been dewatered in many areas. If the distribution of pumpage remains the same and pumpage continues to increase as indicated by recent trends, the principal water-yielding units of the aquifer will be partially dewatered in many areas much sooner than previously anticipated. Only a few pumping levels exceeded 1000 feet in 1971. In 1975, at least 17 municipal and industrial wells had pumps set at 1000 feet or deeper.

INTRODUCTION

In May 1959 the State Water Survey and State Geological Survey issued a Cooperative Groundwater Report¹ which discussed the geology and hydrology of the groundwater resources of the Chicago region, the yields of aquifers, and the possible consequences of future groundwater development. Special emphasis was placed on the deep water-yielding aquifers which have been most widely used for large groundwater supplies. Cooperative Report 1 indicated that pumpage from deep wells during 1958 approached the amount that could be continuously withdrawn without eventually dewatering the lowermost and most productive formation of the deep aquifer. Future (1958-1980) water-level declines, ranging from 190 feet at Elgin to 300 feet at Chicago and Des Plaines, were predicted. It was recognized that actual water-level declines would vary from the predicted declines if future distribution and rates of pumpage deviated from extrapolations of past groundwater use. As a result of the findings of Cooperative Report 1, the program of collecting and reporting water-level and pumpage data, which is one of the functions of the State Water Survey, was accelerated for deep wells in the Chicago region in 1959 and has been conducted on a continuing basis since.

The objectives of this program are 1) to provide a continuous evaluation of trends in water levels and pumpage, 2) to delineate problem areas, 3) to provide long-term continuous records of fluctuations of water levels and pumpage, and 4) to collect and report all hydrologic information which will facilitate the planning and development of the water resources of the deep aquifer in the Chicago region. The program continues to be urgent because of the progressively increasing demands for water supplies and the continuing decline of water levels.

Five reports on water levels and pumpage have been issued by the State Water Survey subsequent to Cooperative Report 1. These are Circulars 79, 83, 85, 94, and 113²⁻⁶ which summarized trends in water levels and pumpage from deep wells during 1959, 1960, 1961, 1962-1966, and 1966-1971, respectively. In addition, Reports of Investigation 50 and 52^{7,8} summarized trends in groundwater pumpage in 17 counties of northern Illinois through 1962 and 1963, respectively. Report of Investigation 73⁹ discussed groundwater pumpage in 20 counties of northern Illinois during the period 1960-1970.

This current report covers a 15-county area of northeastern Illinois, from Lake Michigan to north-central Illinois and from the Wisconsin border to a line generally east-west across the southern borders of Will and Grundy Counties. Particular emphasis has been given to the Chicago region, because of the continuing increase in pumpage and corresponding decline in water levels from the deep wells in that area.

The eight counties of the Chicago region, with the abbreviations used in this report, are:

Cook	COK	Kendall	KEN
Du Page	DUP	Lake	LKE
Grundy	GRY	McHenry	MCH
Kane	KNE	Will	WIL

The seven counties outside the Chicago area included in some sections of this report are:

Boone	BNE	Lee	LEE
De Kalb	DEK	Ogle	OGL
Kankakee	KNK	Winnebago	WIN
La Salle	LAS		

Pumpage from deep wells in the Chicago region increased from 71.4 in 1950 to 98.4 mgd in 1960, an average rate of increase of 2.7 mgd per year. Pumpage increased to 150.7 mgd by 1971, an average rate of increase of 4.7 mgd. Pumpage in the region has exceeded the sustained yield of the Cambrian-Ordovician aquifer every year since 1958.

As a result of this rapid rate of pumpage growth, water levels have declined drastically in many areas of the Chicago region. Average annual water-level declines for the period October 1958 to October 1971 ranged from approximately 3 feet in Grundy and McHenry Counties to 14 feet in Du Page County and averaged about 12 feet per year in the Chicago region. The 1958-1971 average decline was considerably greater than the long-term average annual decline of 7.8 feet per year. Water-level changes in northeastern Illinois outside the Chicago region varied from about a 1-foot rise to a 3-foot decline.

This report summarizes trends in water levels and pumpage from deep wells from October 1971 through November 1975. A summary of the essential findings of previous publications regarding the deep aquifers is presented to serve as a background for interpretation of the records.

Acknowledgment needs to be made of the numerous individuals and organizations who have generously contributed information incorporated into this report. A special expression of gratitude is extended the staff of the Suburban Hospital and Sanitarium of Cook County, Hinsdale, for their water pumpage and water level data at the beginning of each year. More than 75 percent of the public and industrial water supply systems reported their annual pumpage in response to a mail questionnaire. Water level data are largely obtained by visits of Water Survey personnel in cooperation with system operators. Numerous water levels, well construction records, and pump capacity records are obtained from well construction contractors and consulting engineers. Representatives of the Wisconsin Department of Natural Resources and of the U.S. Geological Survey in Madison, Wisconsin, provided water level and pumpage data for southeastern Wisconsin. These data are useful in interpretation of the groundwater hydrology along the Illinois-Wisconsin state line.

GEOLOGY AND HYDROLOGY

Groundwater resources in the Chicago region are developed from four aquifer systems: 1) sand and gravel deposits of the glacial drift, 2) shallow dolomite formations mainly of Silurian age, 3) sandstone aquifers of Cambrian and Ordovician age, of which the Iron-ton-Galesville and Glenwood-St. Peter sandstones are the most productive formations, and 4) the Mt. Simon aquifer, consisting of sandstones of the Mt. Simon and lower Eau Claire Formations of Cambrian age. The sequence, structure, and general characteristics of these rocks are shown in figure 1.

The Glenwood-St. Peter sandstone is present throughout northeastern Illinois and frequently exceeds 200 feet in thickness. In some sections of central northern Illinois, this sandstone is immediately below the glacial drift. The majority of public and industrial wells finished in the St. Peter sandstone in the Chicago region produce less than about 200 gpm. Records are available of only very few of these wells that have present capacities greater than 250 gpm. In the central part of northern Illinois, the Glenwood-St. Peter sandstone yields several hundred gallons per minute to wells and is the primary source of groundwater for some municipal and industrial supplies.

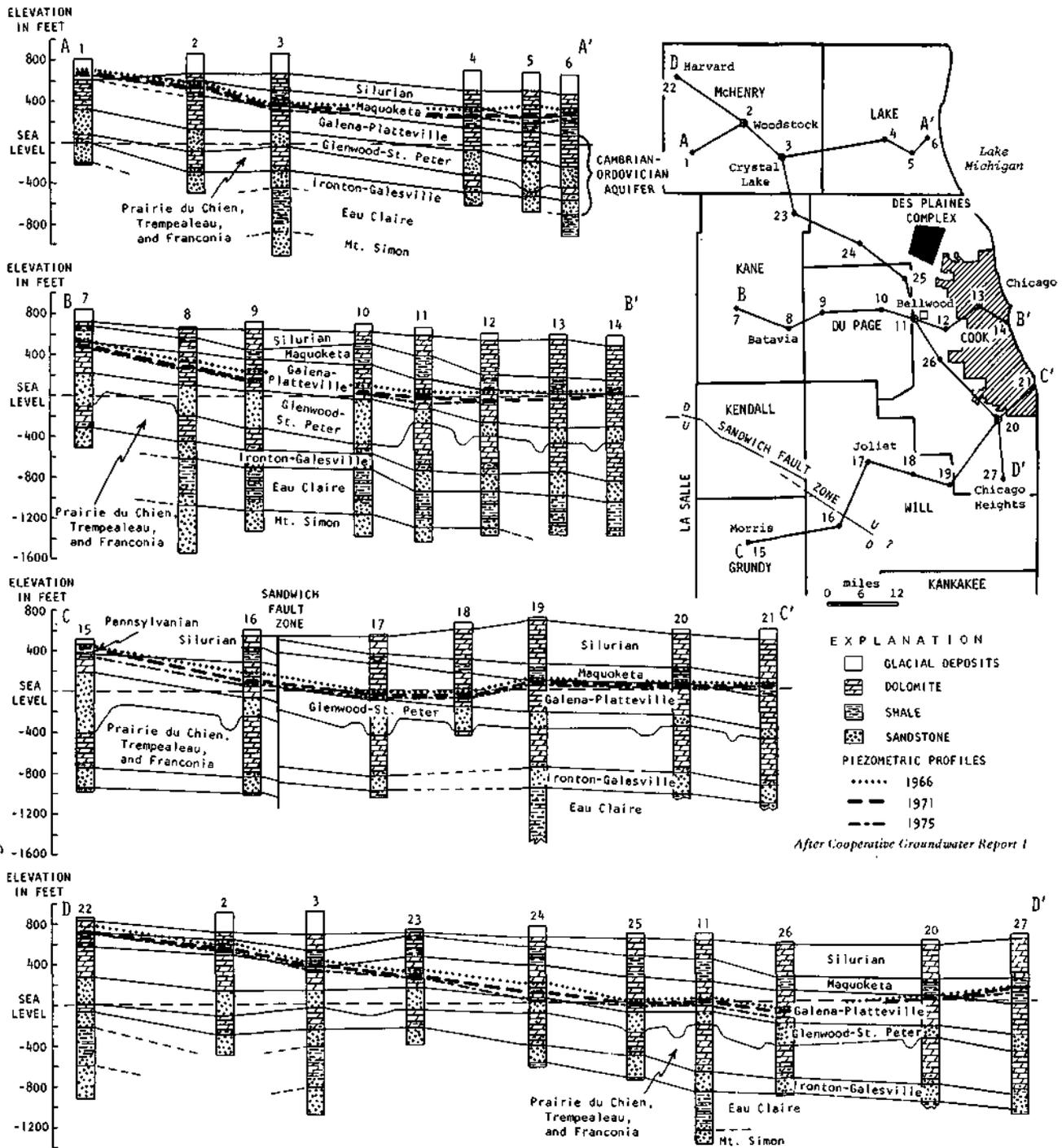


Figure 1. Cross sections of the structure and stratigraphy of the bedrock and piezometric profiles of the Cambrian-Ordovician aquifer in the Chicago region

The Ironton-Galesville sandstone overlies the Eau Claire Formation and underlies the Franconia Formation. It occurs throughout northeastern Illinois, and on a regional basis is the most consistently permeable and productive unit of the Cambrian-Ordovician rocks. Most of the high capacity deep sandstone municipal and industrial wells in the Chicago region obtain a major part of their yields from this formation.

Moderate to high yields are obtained from wells penetrating the Mt. Simon aquifer, particularly in parts of northwestern Cook County, and Kane County, in the Chicago region, and farther west in Lee, Ogle, and Winnebago Counties. A major problem with the Mt. Simon sandstone is the possibility of obtaining water with high concentrations of chlorides. Generally in the Chicago region, water below an elevation of about 1300 feet below sea level is commonly too salty for municipal or industrial use. In some areas it appears as though water with high chloride concentrations is moving upward to shallower depths. Numerous wells in Cook, Du Page, and Kane Counties originally drilled into the Mt. Simon aquifer, have been plugged above that formation in efforts to obtain water of more suitable quality. Additional study is necessary to determine recommended depth limits, yield characteristics, and plugging conditions for wells into this formation.

The primary area of recharge to the deep sandstone aquifers of northeastern Illinois is in areas of Boone, De Kalb, Kane, Kendall, and McHenry Counties, and in southeastern Wisconsin, where the Galena-Platteville dolomite is the uppermost bedrock formation below the glacial deposits. This is west of the Maquoketa Formation. The deep sandstone aquifers receive water from the overlying drift deposits. Recharge of the drift occurs from precipitation that falls locally. In the Chicago region, the sandstone aquifers receive water both from vertical leakage through the overlying Maquoketa Formation and from horizontal movement of water east and south from recharge areas in central northern Illinois and southeastern Wisconsin. Vertical leakage is appreciable under the influence of large differentials in head between the shallow deposits and the deep sandstone aquifers.¹⁰

PUMPAGE FROM DEEP WELLS

The first deep well in northern Illinois was drilled in Chicago in 1864 and had an artesian flow estimated at 150 gallons per minute (gpm), or about 200,000 gpd. A considerable number of deep wells were in operation in the Chicago region by 1900, and pumpage was estimated at 23.2 mgd. Pumpage increased at a rather irregular rate during the first half of this century and was 75.6 mgd in 1955 as shown in figure 2. During the next 16 years, pumpage increased almost 100 percent at an average rate of 4.6 mgd per year, and was 150.7 mgd in 1971.

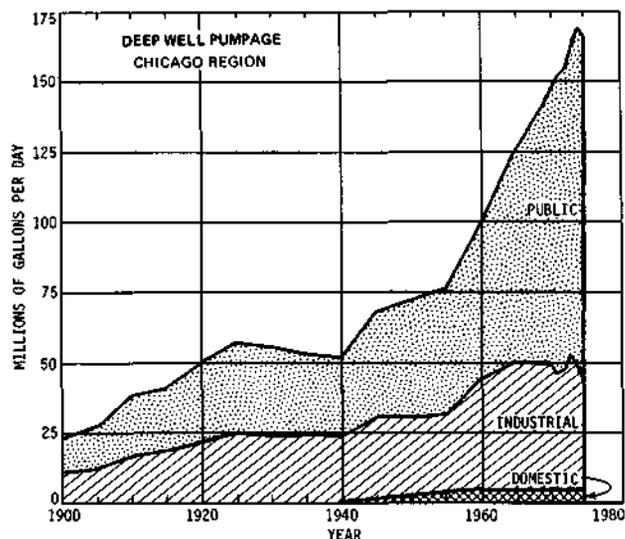


Figure 2. Pumpage from deep wells in the Chicago region, 1900 through 1975, subdivided by use

Pumpage, 1971 through 1975

During the 4-year period from October 1971 through November 1975, pumpage from sandstone wells increased from 150.7 mgd to a record high of 167.5 mgd in 1974 and was 165.7 mgd in 1975. The average rate of increase, 3.7 mgd per year, was only slightly higher than during the period 1966 through 1971. Total pumpage in 1975 was 10 percent more than in 1971. Pumpage increased 10.2 mgd in 1973, the greatest annual increase to date. Other increases greater than 8.0 mgd occurred in 1958, 1959, 1965, 1966, and 1968. Pumpage has decreased only twice since the late 1930s, 3.6 mgd in 1967 and 1.8 mgd in 1975. The distribution of pumpage from 1971 through 1975 is shown in table 1.

Pumpage in each of the four counties, Cook, Du Page, Kane, and Will, was more than 20 mgd in 1975 and totaled 144.8 mgd, or 87 percent of the deep well pumpage in the region. Pumpage in Cook County, the highest of the eight counties, was more than double that of Kane, which had the second highest pumpage. Pumpage was less than 10 mgd in each of the other four counties, and least in Kendall County, with 2.2 mgd in 1975.

The distribution of pumpage, subdivided by use, is shown for 1900-1975 in figure 2 and for 1971-1975 in table 1. In 1975, withdrawals for public water supply systems in the Chicago region amounted to 75 percent of the total deep well pumpage, industrial pumpage amounted to 23 percent, and domestic pumpage 2 percent.

Pumpage increased in all the counties except Will during the period, with increases ranging from 140,000 gpd to 7.7 mgd or from 2 to 57 percent. Cook County had the greatest volume of increase, followed by Du Page and Grundy, all with increases greater than 2.5 mgd. Grundy County had the greatest percentage increase. Increases of 11 to 25 percent occurred in Cook, Du Page, Kendall, and McHenry Counties. Pumpage in Will County decreased 1.4 mgd or 5 percent.

During the 4-year period since 1971, there were 86 new deep wells drilled in the Chicago region. Of these wells, 46 were drilled to augment existing municipal water-supply systems or to develop new ones, 14 were for other public supplies, and 26 were for industrial and commercial purposes. Ninety-five new deep wells were drilled in the same region during the 5-year period 1966-1971. Many of the existing deep wells and deep well pumps were rehabilitated to meet increased demands. Four public supply systems and six industries discontinued withdrawing water from the deep sandstone during the period.

Table 2 gives the rates of change in pumpage from deep wells for each of the counties in the metropolitan area during the recent 4-year period and for the two preceding 5-year periods. The rate of pumpage growth during 1971-1975 was greater than during the two preceding 5-year periods only in Grundy County; in addition, the recent rate of growth was greater than during the immediately preceding 5-year period in Cook, Du Page, and McHenry Counties. Rates of growth have shown continuous regression during the three periods in Kane, Lake, and Will Counties and the region as a whole.

Because of increased capabilities for data analysis, public and industrial pumpage in the Chicago region is now being tabulated by township as well as for each county area. Figures 3 and 4 show the pumpage for 1971 and 1975 for each of the 134 full or partial townships in the region. Records indicate that 1975 deep well pumpage of more than 10,000 gpd occurred in 91 townships, and more than 1.0 mgd in 35 townships. Eight townships had pumpage of more than 5.0 mgd and 4 had more than 10.0 mgd. Pumpage continues to be concentrated in northwestern and western Cook County, eastern Du Page and Kane Counties, and in the Joliet area in Will County.

In the 35 townships with more than 1.0 mgd pumpage in 1975 (2 more than in 1971), pumpage increased in 22 and decreased in 13 since 1971. Increases occurred in 3 of the 8 townships that pumped more than 5.0 mgd in 1975. Pumpage increases of 2.1 to 3.0

Table 1. Distribution of Pumpage from Sandstone Wells, Chicago Region, 1971-1975, Subdivided by Use
(Pumpage in million gallons per day)

County	1971				1972				1973			
	Public	Industrial	Domestic	Total	Public	Industrial	Domestic	Total	Public	Industrial	Domestic	Total
COK	41.79	16.63	0.24	58.66	42.01	15.78	0.24	58.03	46.52	18.05	0.24	64.81
DUP	15.46	1.22	0.08	16.76	15.63	1.21	0.08	16.92	16.93	0.68	0.08	17.69
GRY	1.54	2.52	0.36	4.42	1.64	7.33	0.36	9.33	1.86	8.35	0.36	10.57
KNE	25.65	2.28	1.28	29.21	25.39	2.29	1.28	28.96	25.17	1.84	1.28	28.29
KEN	0.38	0.72	0.75	1.85	0.47	0.98	0.75	2.20	0.52	1.02	0.75	2.29
LKE	5.02	2.18	0.70	7.90	5.64	1.56	0.70	7.90	4.64	2.00	0.70	7.34
MCH	1.97	1.17	0.21	3.35	2.09	1.24	0.21	3.54	2.14	1.26	0.21	3.61
WIL	14.29	14.07	0.23	28.59	14.05	12.88	0.23	27.16	14.39	15.03	0.23	29.65
Total	106.10	40.79	3.85	150.74	106.92	43.27	3.85	154.04	112.17	48.23	3.85	164.25

County	1974				1975			
	Public	Industrial	Domestic	Total	Public	Industrial	Domestic	Total
COK	46.62	16.36	0.24	63.22	51.54	14.53	0.24	66.31
DUP	18.63	0.55	0.08	19.26	20.30	0.61	0.08	20.99
GRY	1.89	9.23	0.36	11.48	1.97	4.62	0.36	6.95
KNE	26.93	1.80	1.28	30.01	27.39	1.62	1.28	30.29
KEN	0.55	0.77	0.75	2.07	0.63	0.80	0.75	2.18
LKE	5.33	1.67	0.70	7.70	5.85	1.49	0.70	8.04
MCH	2.56	1.11	0.21	3.88	2.48	1.08	0.21	3.77
WIL	14.62	15.07	0.23	29.92	13.91	13.05	0.23	27.19
Total	117.13	46.56	3.85	167.54	124.07	37.80	3.85	165.72

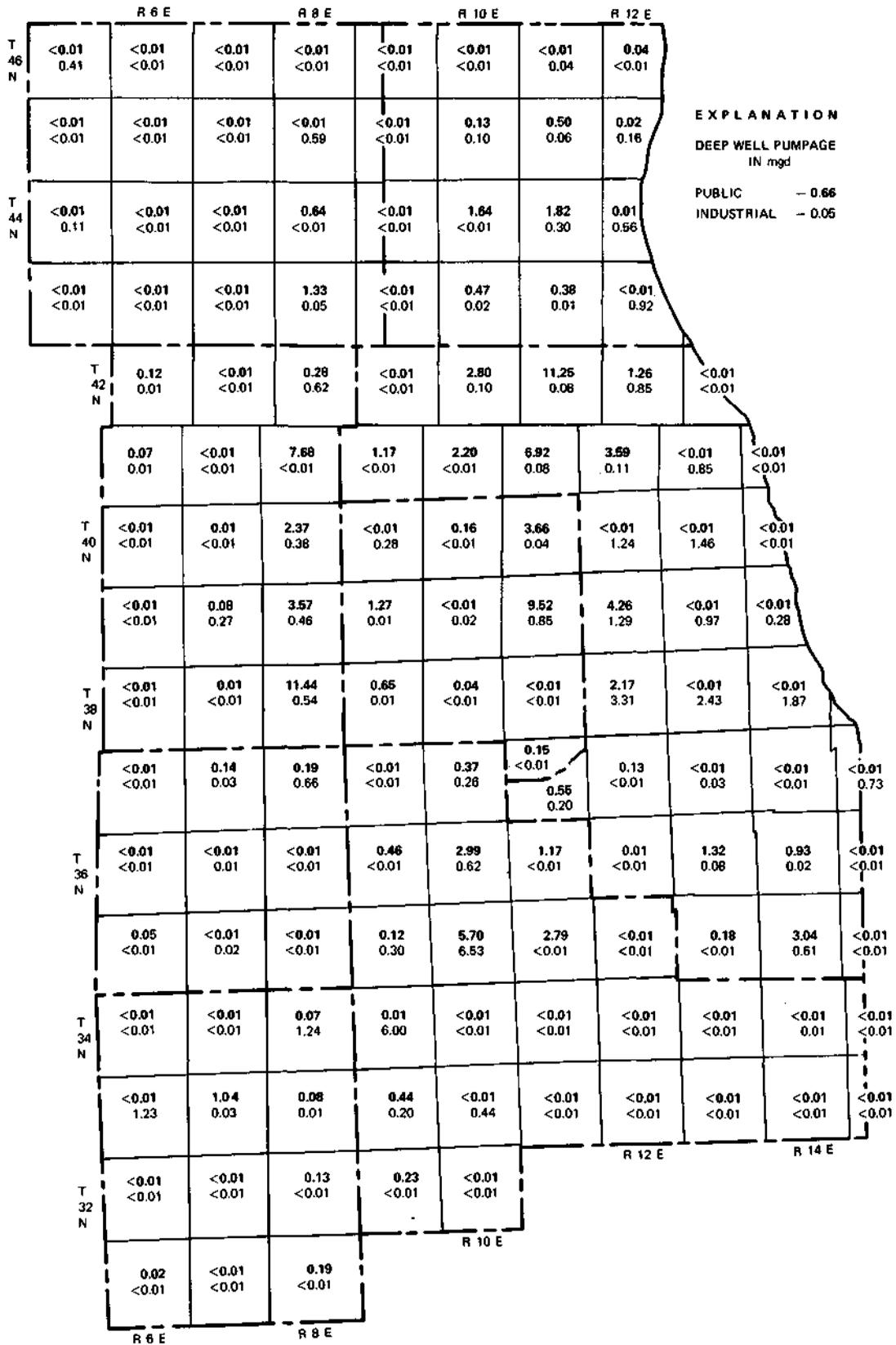


Figure 3. Distribution of pumpage from deep wells in the Chicago region, 1971

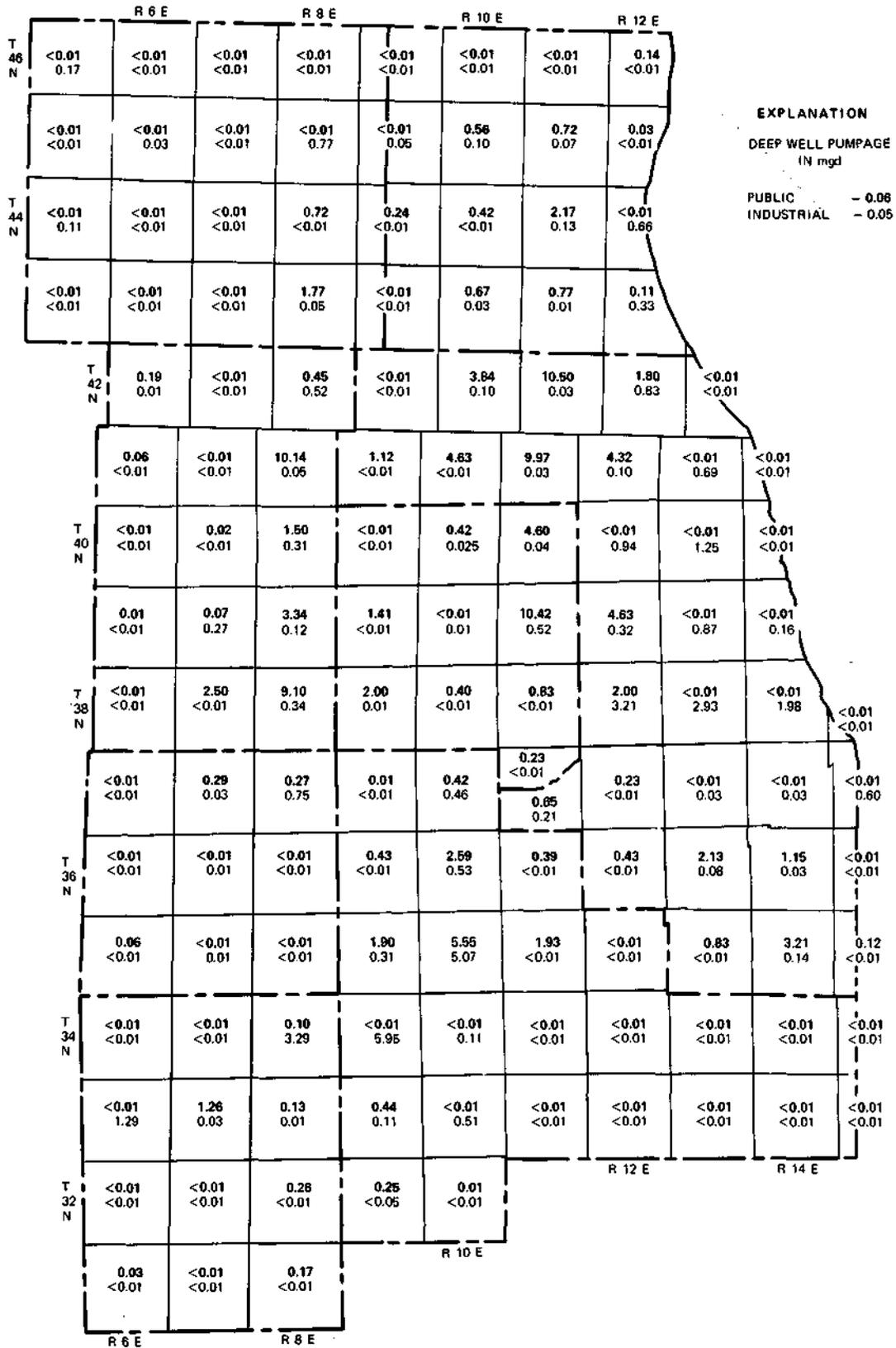


Figure 4. Distribution of pumpage from deep wells in the Chicago region, 1975

Table 2. Rates of Change in Pumpage from Deep Wells in the Chicago Region
(Rate of change in percent)

County	1961-1966			1966-1971			1971-1975		
	Public	Industrial	Total*	Public	Industrial	Total*	Public	Industrial	Total*
Cook	43	19	31	37	-31	6	23	-13	13
Du Page	32	17	32	36	71	38	31	-50	25
Grundy	20	64	46	25	9	14	28	83	57
Kane	22	13	21	12	-12	10	7	-29	4
Kendall	100	<1	14	100	17	38	66	11	18
Lake	533	50	211	163	144	157	17	-32	2
McHenry	67	50	60	<1	<1	<1	26	-8	13
Will	28	15	20	21	-9	4	-3	-7	-5
Chicago Region	35	20	29	30	-15	13	17	-7	10

*Exclusive of domestic pumpage

mgd occurred in 5 townships, COK41N10E, COK41N11E, GRY34N8E, KNE38N7E, and KNE41N8E; COK41N11E had an increase of 2.5 mgd between 1966 and 1971. Decreases of 1.6 and 2.5 mgd occurred in KNE38N8E, and WIL35N10E, respectively. The decrease in KNE38N8E is the result of greater dispersion of wells at Aurora and the decrease in WIL35N10E is primarily the result of a decrease in pumpage for one major industry, although several industries reduced their pumpage by more than 50,000 gpd.

Public Pumpage. Public pumpage was 124.1 mgd in 1975, an increase of 18.0 mgd or 16.9 percent since 1971. Ninety-one percent of the 1975 public pumpage was for municipal supplies. Thirty-three municipalities, two subdivisions, and one institution pumped more than 1.0 mgd in 1975; 9 of these municipalities pumped more than 3.0 mgd and 4 pumped more than 6.0 mgd.

The greatest increases in pumpage for public supplies were for Arlington Heights, Elgin, Hoffman Estates, Homewood, and Schaumburg, where increases of more than 1.0 mgd were recorded for the 4-year period. Pumpage at Arlington Heights also increased more than 1.0 mgd during the preceding 5-year period. Pumpage at Elgin and Homewood increased more than 2.0 mgd. Of the 33 municipalities that pumped more than 1.0 mgd in 1975, pumpage decreased from 0.1 to 0.8 mgd at six of the municipalities including 0.8 mgd at St. Charles. Pumpage for the two subdivisions using large amounts of deep well water increased 0.4 and 0.9 mgd. Pumpage at the Illinois Correction Center, Stateville, decreased 0.4 mgd.

Industrial Pumpage. Industrial pumpage decreased 3.0 mgd or 7 percent since 1971. Pumpage in the area increased 2.9 and 5.0 mgd during 1972 and 1973, respectively, and then decreased 1.7 and 8.8 mgd during 1974 and 1975 respectively. Pumpage declined in all counties except Grundy and Kendall, in amounts ranging from 0.1 mgd in McHenry County to 2.1 mgd in Cook County. Pumpage increased 2.1 and 0.1 mgd in Grundy and Kendall Counties, respectively. Industrial pumpage in Grundy County increased from 2.5 mgd in 1971 to 9.2 mgd in 1974 and then decreased to 4.6 mgd in 1975.

Eight industries in the Chicago region pumped more than 1.0 mgd in 1975 and had a combined pumpage of 16.4 mgd. This represented 43.3 percent of the deep well industrial pumpage, and 9.9 percent of the total deep well pumpage. There were also 8 industries that pumped more than 1.0 mgd in 1971, but two of the eight are not the same as in 1975. Pumpage for the 8 largest industrial water users in 1971 was 16.5 mgd.

Table 2 compares the rate of change in industrial pumpage growth for the periods

1961-1966 , 1966-1971, and 1971-1975. The rate of growth increased significantly during the recent period in Grundy County. The rate of growth increased at a less rapid rate in Kendall County. Decreases in the growth rate occurred in the other six counties and in the region as a whole.

Domestic Pumpage. Pumpage for domestic supplies is calculated from reports by the U.S. Bureau of the Census and from the livestock population as reported by the Illinois Cooperative Crop Reporting Service. Since useful data are available only on a 10-year basis, no changes were made in the pumpage data between 1971 and 1975. Deep wells furnish only relatively small amounts of water for domestic supplies in the Chicago region. Domestic pumpage is approximately 3.9 mgd, or 2 percent of the total deep well pumpage.

Pumpage Related to Practical Sustained Yield, 1975

In Cooperative Report 1 it was estimated that the practical sustained yield of the Cambrian-Ordovician aquifer in the Chicago region (46 mgd) would be developed when the total pumpage from deep wells was about 81 mgd. The practical sustained yield of the aquifer is the maximum amount of water that can be withdrawn without eventually dewatering the most productive water-yielding formation, the Ironton-Galesville sandstone. The practical sustained yield is largely limited by the rate at which water can move from recharge areas eastward through the aquifer to pumping centers.

Estimates in Cooperative Report 1, based on past records of pumpage and water levels, indicated that the practical sustained yield would be exceeded by 1965. However, total pumpage from deep wells in every year since 1958 actually exceeded the withdrawal rate anticipated for 1965. Thus, the practical sustained yield of the aquifer has been exceeded each year since 1958. Sustained pumping at these excessive rates has already resulted in dewatering the St. Peter sandstone in some parts of the Chicago region and will result in water levels approaching the Ironton-Galesville sandstone in many areas much sooner than anticipated in Cooperative Report 1. Predictions when pumping levels reach the top of the Ironton-Galesville sandstone were made by Schicht et al.¹¹ According to their report, pumping levels will be at the top of the Ironton-Galesville in four townships: T41NR8E, Kane County, T41NR10 and HE, Cook County, and T40NR11E Du Page County, by 1995. Yields of wells will gradually decline as pumping levels approach the top of the Ironton-Galesville. Dewatering the Ironton-Galesville is not recommended because this will result in large reductions in well yields.

WATER LEVELS IN DEEP WELLS

In 1864 the artesian pressure in the Cambrian-Ordovician aquifer was sufficient to cause wells to flow above the ground surface in many parts of the Chicago region. The average elevation of water levels in deep wells at Chicago and at Joliet was about 700 feet above mean sea level. As a result of continued heavy pumping, the nonpumping water levels in deep wells had declined by 1971 to elevations of 75 to more than 100 feet below sea level at Bellwood, Elmhurst, and Joliet. From 1864 to 1971, the artesian pressure at Chicago declined more than 850 feet, the average rate of decline of the artesian pressure was more than 7.5 feet per year.

Water-Level Decline, October 1971 to October 1975

The water levels in 553 deep wells in northeastern Illinois were measured during October and November 1975. Data for these wells are given in the appendix. Water levels for 399 of these wells, including 290 in the Chicago region, had been measured during the same period in 1971, and these data were compared with that for 1975. Computed declines and rises are given in the appendix.

Examples of fluctuations in nonpumping water levels in northeastern Illinois from 1971 through 1975 are shown in figure 5. Hydrographs of observation wells reflect seasonal and long-time pumping trends. Steady declines of water levels generally are indicative of increasing rates of concentrated and regional pumpage. The locations of observation wells for which hydrographs are available are shown in figure 6.

The computed changes for the wells measured in both 1971 and 1975 and the piezometric maps for 1971 and 1975 were used to construct figure 7. The average declines in nonpumping water levels, October 1971 to October 1975, for each county of the Chicago region are given in table 3, along with comparable data for the 1966-1971 and 1961-1966 periods.

Table 3. Decline in Nonpumping Water Levels in the Chicago Region

County	Average decline (feet per year)		
	1961-1966	1966-1971	1971-1975
Cook	15	9	11
Du Page	16	10	13
Grundy	3	4	16
Kane	9	10	9
Kendall	9	12	12
Lake	17	14	10
McHenry	1	5	6
Will	13	8	14
Average	13	9	12

As shown in figure 7, the water-level change from 1971 to 1975 varies considerably from place to place, even within areas of heavy pumpage. The average water-level decline in the Chicago region was about 12 feet per year (table 3). The greatest average declines occurred in Grundy and Will Counties; the least average decline was recorded in McHenry County. Average declines of 10 feet or more were computed for Cook, Du Page, Grundy, Kendall, Lake, and Will Counties.

Table 3 shows that average water level declines in the Chicago region were considerably greater during the period 1971-1975 than during the period 1966-1971 in Grundy and Will Counties. Average declines were less during the period 1971-1975 than during the period 1966-1971 only in Kane and Lake Counties. Average water-level declines during 1971-1975 were less than declines during 1961-1966 in Cook, Du Page, and Lake Counties. Of the 399 wells measured in both 1971 and 1975, only 61 had water-level rises. Only 13 of the 290 wells measured in the Chicago region had water-level rises.

Water levels declined more than 50 feet between 1971 and 1975 in large areas of Cook, Du Page, Grundy, Lake, eastern Kane, and western Will Counties (figure 7). In many areas of Cook, Du Page, Grundy, Kane, Lake, and Will Counties, water levels declined more than 100 feet. Water level declines of 150 feet or more were measured in isolated wells in northwestern Cook County, northeastern Grundy County, southeastern Kane County, and western Will County.

Regional water-level trends in areas of northeastern Illinois outside the Chicago region are less well defined. Prior to 1966, water-level fluctuations for periods of 16 to 71 years in 6 selected observation wells ranged from 0 to 1.9 feet per year, as shown in table 4. For 1971-1975, average water-level changes in these observation wells ranged from a rise of 1.0 foot to a decline of 3.2 feet, and averaged -1.7 feet. Comparison of the water-level fluctuations in these 6 wells for the periods 1966-1971 and 1971-1975 shows

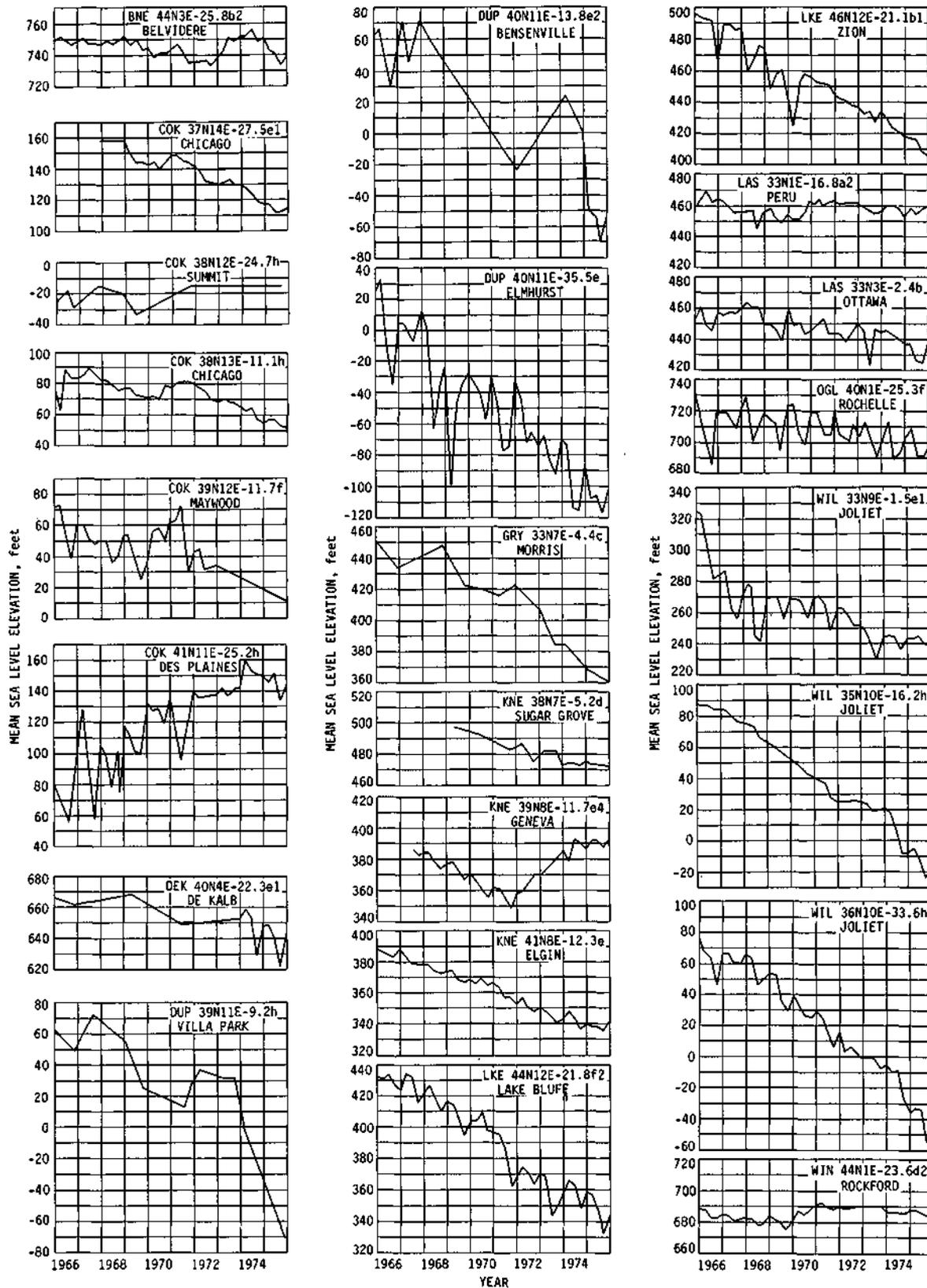


Figure 5. Water levels in selected observation wells, 1966-1975

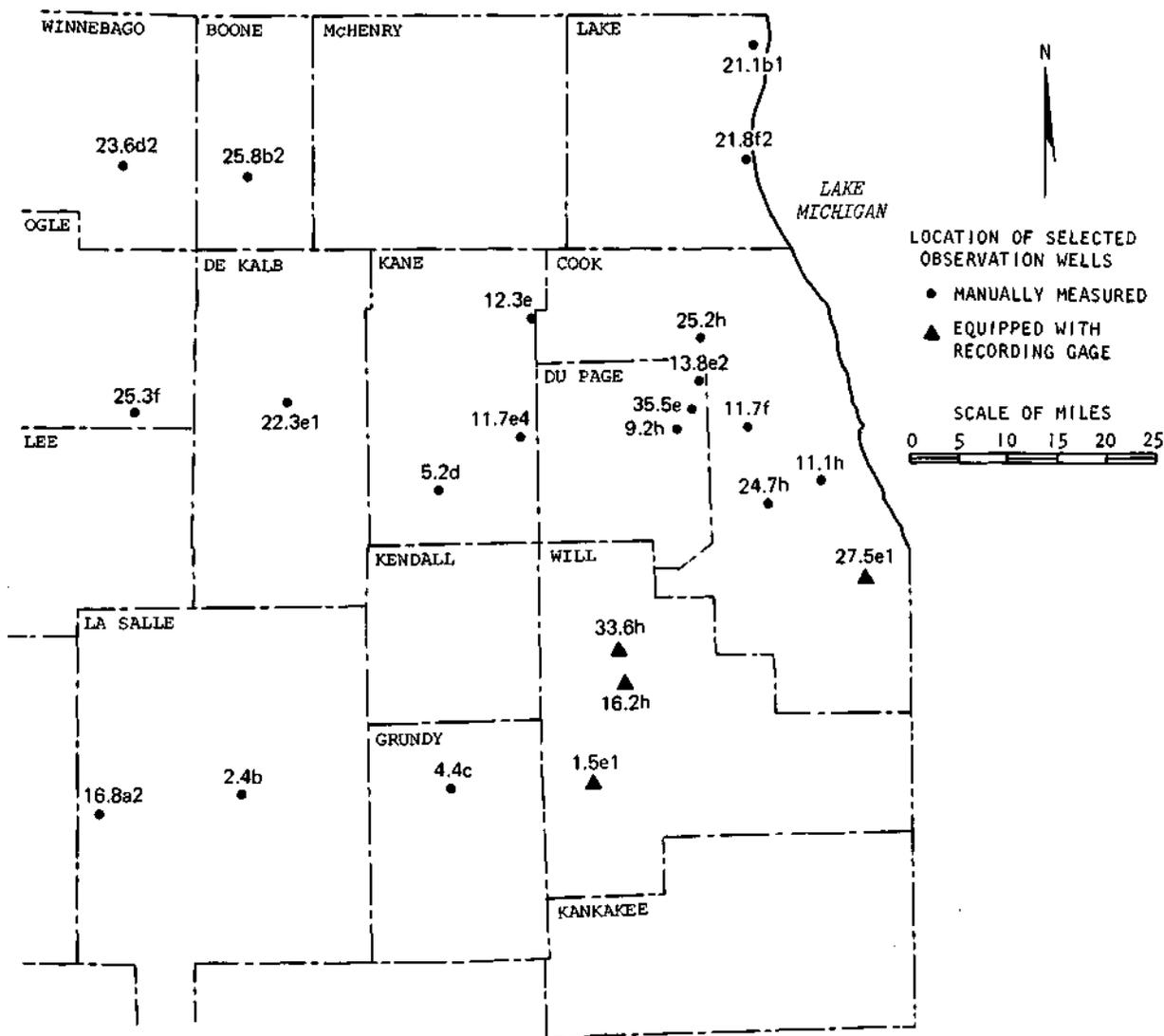


Figure 6. Location of selected observation wells

that one changed from a rise to a decline, two from a decline to a rise, two declined less rapidly, and one declined at the same rate.

Water levels in some wells did not reflect the regional trends. Water-level fluctuations in these wells outside the Chicago region ranged from rises of more than 40 feet in some wells in Kane, La Salle, Ogle, and Winnebago Counties. Declines of more than 70 feet were recorded in some wells in Cook, Du Page, Grundy, Kane, Kankakee, Kendall, Lake, and Will Counties. Water-level declines of more than 50 feet were recorded in 10 counties of northeastern Illinois; declines of more than 20 feet occurred in all but Boone, Lee, and Winnebago Counties. Declines in excess of 100 feet were recorded in all counties of the Chicago region except Kendall and McHenry Counties. Water-level rises ranging from 1 to 57 feet were recorded in wells in 11 counties, including 4 in the Chicago region.

Superimposed on the long-term trend of water-level fluctuations in deep wells are seasonal fluctuations caused chiefly by changes in rates of pumping from nearby wells. Water levels in deep wells generally recede during the summer and early fall when pumpage is greatest. Water levels may start to recover during the late fall when pumpage is reduced.

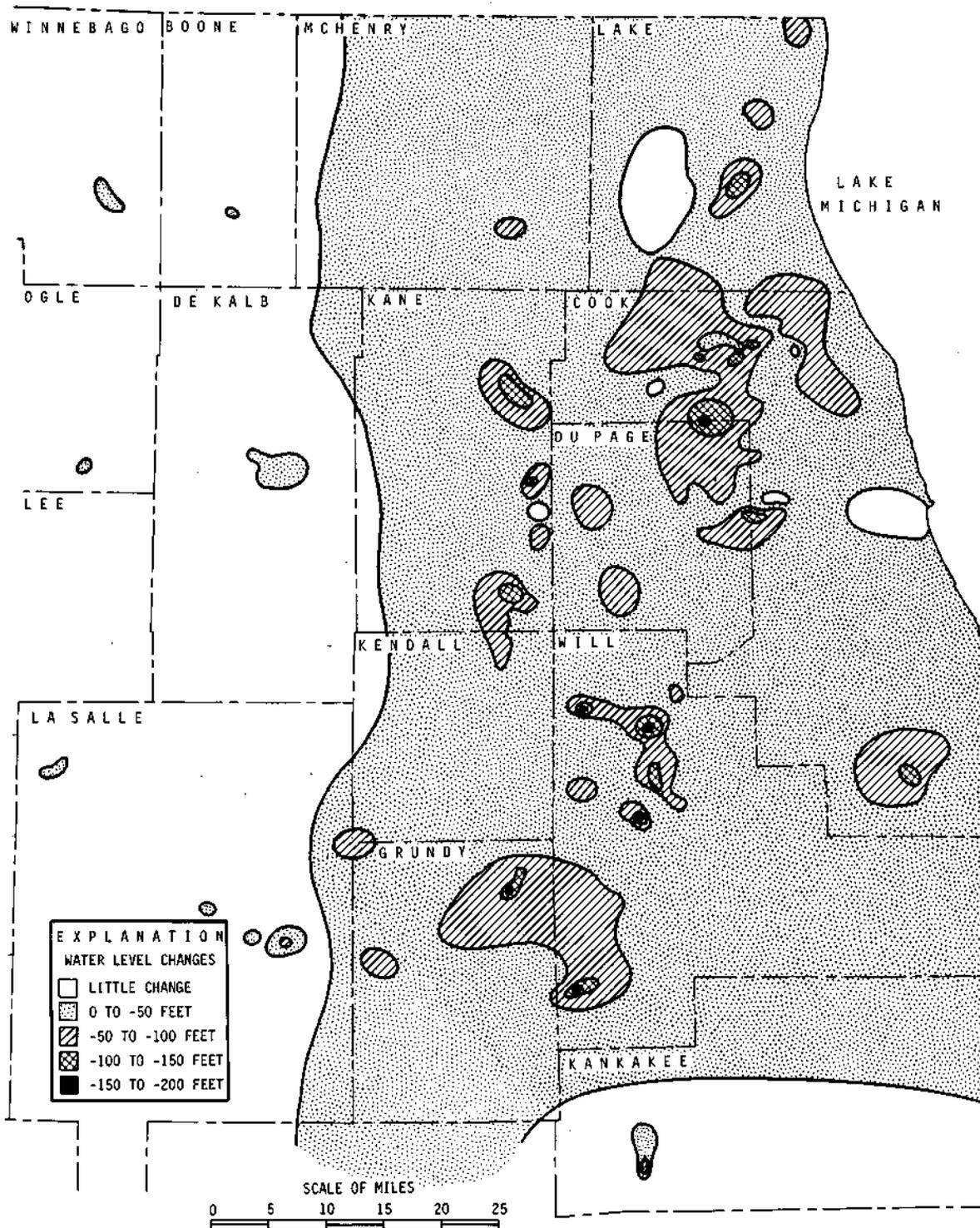


Figure 7. Changes in water levels in deep wells, 1971-1975

**Table 4. Fluctuations in Nonpumping Water Levels
in Selected Observation Wells**

<i>Well number</i>	<i>Average fluctuations (feet per year)</i>		
	<i>Prior to 1966</i>	<i>1966-1971</i>	<i>1971-1975</i>
BNE 44N3E-25.8b2 (Belvidere)	-0.1	-2.6	+1.0
DEK 40N4E-22.3e1 (De Kalb)	-1.7	-2.6	-1.7
LAS 33N1E-16.8a2 (Peru)	0.0	-0.2	-0.2
LAS 33N3E-2.4b (Ottawa)	-1.9	-1.2	-0.5
OGL 40N1E-25.3f (Rochelle)	-1.9	+1.4	-3.2
WIN 44N1E-23.6d2 (Rockford)	-0.7	+1.2	-1.0
Average	-1.0	-0.7	-1.7

Minimum annual water levels are usually recorded during August and September; maximum annual water levels occur during the late winter and spring months. Short-term fluctuations reflect intermittent pumping, day to day variations in nearby pumping, or changes in atmospheric pressure.

Piezometric Surface of Aquifer, 1975

The piezometric surface is an imaginary surface to which water will rise in artesian wells. Figure 8 shows the piezometric surface of the Cambrian-Ordovician aquifer in October 1975. Water level data in the appendix were used to prepare the map. The general features of the 1975 piezometric surface map for the Chicago region differ very little from those of the piezometric surface map for 1971 in Circular 113.⁶

During 1972 through 1975 the extent of the lowest water levels in the Chicago region advanced in all directions from the areas of Bellwood and Joliet where the deepest water levels were recorded in 1971. In Cook and Du Page Counties, the 100-foot piezometric surface contour migrated in westerly and northwesterly directions several miles from its position in 1971 to include nearly all the eastern half of Du Page County and the north-central part of Cook County. The 100-foot contour also migrated southeasterly in southern Cook and central Will Counties.

The deepest cones of depression in the Chicago region in 1975 were in the vicinities of Bellwood and Joliet, where levels were more than 150 feet below mean sea level (msl). Pronounced cones of depression that were apparent in 1971 at Elmhurst, Mt. Prospect-Arlington Heights, Aurora, and Elgin deepened and enlarged considerably since that time. The 50-foot piezometric surface contour migrated several miles in all directions from Joliet and Bellwood to include all of western Cook, most of eastern Du Page, and northwestern Will Counties, and connected with a large and formerly separate area in north-central Cook County. Contours of -50 feet msl, formerly limited to small isolated areas, enclosed large areas of western Cook-eastern Du Page Counties, northeast Du Page-north-central Cook Counties, and the Joliet area in Will County. Nearly 60 percent of the deep wells in western Cook County and almost all within the city of Joliet had water-level elevations below mean sea level in 1975. Other depressions in the piezometric surface in the Chicago region are also apparent in southern and northern Cook County, southeastern McHenry County, and at Naperville, Geneva, Liberty ville-Mundelein, and Morris. The 400-foot contour migrated 7 to 8 miles westerly in Grundy County. The piezometric surface was below the middle of the Galena-Platteville dolomite in large areas of the Chicago region, as far west as eastern Kane County, and below the top of the St. Peter sandstone in the deepest cones

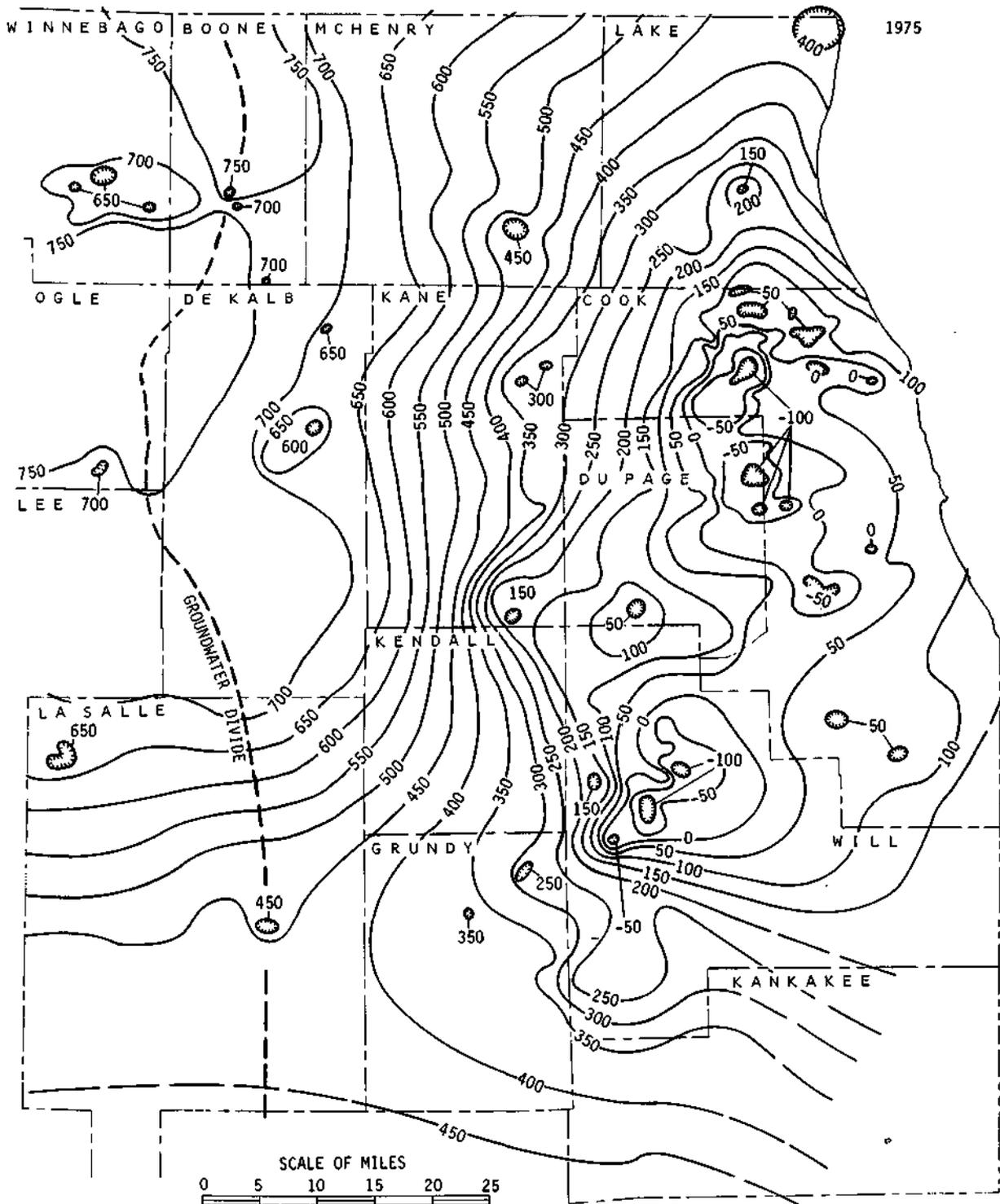


Figure 8. Piezometric surface of Cambrian-Ordovician aquifer in October 1975

of depression near Bellwood, Elmhurst, and Joliet. More than half the Galena-Platteville dolomite has been dewatered in most of Cook and Du Page Counties, and in eastern Kane and northern Will Counties.

An earlier piezometric surface map of northern Illinois showed a relatively uniform surface west of Chicago and Joliet, with highest elevations in parts of north-central, northwestern, and extreme northern Illinois.¹² There was evidence of some discharge into the Rock River.

The 1975 piezometric surface map shows the areas of highest elevation in Boone and De Kalb Counties in north-central Illinois. Significant depressions in the 1971 piezometric surface at Rockford, Belvidere, Rochelle, De Kalb-Sycamore and Ottawa showed some expansion and deepening, and a new depression was evident in northwest La Salle County.

The general pattern of flow of water in the deep sandstone wells in 1975 was from all directions toward the deep cones of depression, primarily centered at Mt. Prospect-Arlington Heights, Elmhurst, Bellwood, and Joliet. Some of the water flowing toward these areas is intercepted by enlarging cones of depression at Elgin, Aurora, Naperville, Libertyville-Mundelein, Morris, and other pumping centers. In addition, water from the recharge area west of the Chicago region is being diverted into expanding cones of depression at Belvidere, Rockford, Rochelle, De Kalb, Mendota, and Ottawa. The lowering of water levels accompanying the withdrawals of groundwater has established steep hydraulic gradients north, west, and southwest of Chicago and Joliet, so that large quantities of water from recharge areas in northern Illinois, and minor quantities from southeastern Wisconsin, are at present being transmitted toward pumping centers. The approximate limits of diversion for the Cambrian-Ordovician aquifer north and west of the Chicago region are shown by the groundwater divide in figure 8. Large amounts of water derived from storage within the aquifer and from vertical leakage of water through the Maquoketa Formation move toward cones of depression from the east in Indiana, from the south and west in Illinois, and from the north-east beneath Lake Michigan.

The Sandwich Fault Zone (see figure 1), previously described in Cooperative Report 1, extends southeast-northwest from Sandwich, De Kalb County, into Will County south of Joliet. Sufficient water level and other hydrologic data in the vicinity of the fault zone are not currently available to permit a detailed interpretation of its effect on water levels.

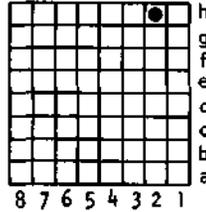
REFERENCES

- 1 Suter, Max, R. E. Bergstrom, H. F. Smith, G. H. Emrich, W. C. Walton, and T. E. Larson. 1959. *Preliminary report on ground water resources of the Chicago region, Illinois*. Illinois State Water Survey and Geological Survey Cooperative Ground Water Report 1.
- 2 Walton, W. C, R. T. Sasman, and R. R. Russell. 1960. *Water-level decline and pumpage during 1959 in deep wells in the Chicago region, Illinois*. Illinois State Water Survey Circular 79.
- 3 Sasman, R. T., T. A. Prickett, and R. R. Russell. 1961. *Water-level decline and pumpage during 1960 in deep wells in the Chicago region, Illinois*. Illinois State Water Survey Circular 83.
- 4 Sasman, R. T., W. H. Baker, Jr., and W. P. Patzer. 1962. *Water-level decline and pumpage during 1961 in deep wells in the Chicago region, Illinois*. Illinois State Water Survey Circular 85.
- 5 Sasman, R. T., C. K. McDonald, and W. R. Randall. 1967. *Water-level decline and pumpage in deep wells in northeastern Illinois, 1962-1966*. Illinois State Water Survey Circular 94.
- 6 Sasman, R. T., C. R. Benson, G. L. Dzurisin, and N. E. Risk. 1973. *Water-level decline and pumpage in deep wells in northern Illinois, 1966-1971*. Illinois State Water Survey Circular 113.
- 7 Sasman, R. T. 1965. *Ground-water pumpage in northeastern Illinois through 1962*. Illinois State Water Survey Report of Investigation 50.
- 8 Sasman, R. T., and W. H. Baker, Jr. 1966. *Ground-water pumpage in northwestern Illinois through 1963*. Illinois State Water Survey Report of Investigation 52.
- 9 Sasman, R. T., C. R. Benson, G. L. Dzurisin, and N. E. Risk. 1974. *Groundwater pumpage in northern Illinois, 1960-1970*. Illinois State Water Survey Report of Investigation 73.
- 10 Walton, W. C. 1960. *Leaky artesian aquifer conditions in Illinois*. Illinois State Water Survey Report of Investigation 39.
- 11 Schicht, Richard J., J. Rodger Adams, and John B. Stall. 1976. *Water resources availability, quality, and cost in northeastern Illinois*. Illinois State Water Survey Report of Investigation 83.
- 12 Foley, Frank C, and Harmon F. Smith. 1954. *Ground-water recharge of a deeply buried artesian aquifer in Illinois and Wisconsin, U.S.A.* International Association Scientific Hydrology, Assembly of Rome (Gentlerugge) Belgium, Publication 37, Book 11.

APPENDIX

The well-numbering system used in this report is based on the location of the well, and uses the township, range, and section for identification. The well number consists of five parts: county abbreviation, township, range, section, and coordinate within the section. Sections are divided into rows of 1/8-mile squares. Each 1/8-mile square contains 10 acres and corresponds to a quarter of a quarter of a quarter section. A normal section of 1 square mile contains eight rows of 1/8-mile squares; an odd-sized section contains more or fewer rows. Rows are numbered from east to west and lettered from south to north as shown below.

The number of the well shown in sec. 25 at the right is as follows:
COK41N11E-25.2h



Cook County
T41N, R11E
sec. 25

Where there is more than one well in a 10-acre square they are identified by arabic numbers after the lower case letter in the well number.

Any number assigned to the well by the owner is shown in parentheses after the location well number. For example, the second well listed in the table on the next page is owned by the Midwest Plating Company and is known as Well No. 2, which is indicated by (2) in the well number BNE 43N4E-33.5b2 (2).

Well data are presented by counties in alphabetical order as follows:

Boone	BNE	Kane	KNE	Lee	LEE
Cook	COK	Kankakee	KNK	McHenry	MCH
DeKalb	DEK	Kendall	KEN	Ogle	OGL
Du Page	DUP	Lake	LKE	Will	WIL
Grundy	GRY	La Salle	LAS	Winnebago	WIN

Municipal ownership is indicated by (V) for village owned and (C) for city owned after the place name.

Water Levels in Deep Wells in Northern Illinois, 1971-1975

(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
BNE--									
43N3E-2.6h	(1) Four Seasons Trailer Park	600	800	762				763	+1
43N4E-33.5b2	(2) Midwest Plating Company	700	870					693	
44N3E-									
24.8a	(6) Belvidere (C)	870	784		715	739		709	
25.6d	(2) Deans Foods Company	868	770			755		750	
25.7c	(2) Belvidere (C)	1861	763		755		755	755	
25.8b2	(3) Belvidere (C)	1803	765	737	735	751	751	741	+4
26.1e	(4) Belvidere (C)	1800	778	694		709	709	726	+32
34.2a	(8) Belvidere (C)	1393	780	603		700	685		
35.1e	(5) Belvidere (C)	610	800	715	732	755	729	745	+30
36.2g	(7) Belvidere (C)	967	840	680			708	666	-14
45N4E-									
11.7h	(1) Capron (V)	880	912	873	872	880	873	874	+1
19.8f3	(1) McLay Grain Company	570	892	838				840	+2
COK--									
35N13E-									
1.1d	(2a) Flossmoor (V)	1764	674			126		74	
2.3a2	(6a) Flossmoor (V)	1784	705	129	135	121	104	58	-71
12.3b3	(7a) Flossmoor (V)	1722	653	143	98	119	123	78	-65
35N14E-									
3.3b	(3) Glenwood (V)	1776	618	138	158			130	-8
8.5e	(32) Chicago Heights (C)	1777	652	217	137		217	90	-127
19.4c	(22) Chicago Heights (C)	1800	677		182		162	132	
21.2h ²	(2) Stauffer Chemical Company	1800	640	160	190		140	133	-27
21.3h	(2) Borg Warner (Calumet Steel Division)	1805	638	177			141	142	-35
35N15E-									
7.5d	(2) Lynwood (V)	1827	615		220			177	
36N12E-									
13.1d2	(6) Orland Park (V)	1809	732			61	52	42	
22.6d	(3) Fernway (Citizens Utilities)	1712	720		106			76	
36N13E-									
1.2g	(1) R.E.S.C.O.	1618	597					77	
9.8b2	(1) Oak Forest (V)	1701	672	92	82	82	22	71	-21
36.6b	(12) Homewood (V)	1713	660	130				47	-83
36N14E-									
31.1f	(11) Homewood (V)	1735	627	137			122	54	-83
32.3h	(1) Washington Park Race Course	1686	624					89	
34.5d2	(4) Thornton (V)	1785	617	142	156		117		
34.5g1	(V) Thornton (V)	1724	612	130	151		112	74	-56
37N11E-									
21.3c ³	(3) Franciscan Sisters Training Ctr.	1633	705	80	75	65		54	-26
28.3b	(3) DeAndreis Seminary	1690	740	48	43	33	28	22	-26
29.4b	(3) Village of Lemont (V)	1723	746	54	52	43	39	27	-27
37N13E-									
12.7d	(1) Evergreen Park Community High School	1637	622	78				66	-12
32.5h ²	(2) Palos Heights (V)	1580	617	91				71	-20
37N14E-									
27.5e1	(TW1) Met. San. Dist. (Cal. Trmt. Wrks.)	1683	590	141	131	130	117	112	-29
37N15E-									
8.1b2	(C) Falstaff Brewing Corporation	1678	589	90			84		
8.1c1	(A) Falstaff Brewing Corporation	1675	593		89				
8.1c2	(B) Falstaff Brewing Corporation	1627	592	107		75			

(Continued on next page)

Water Levels (Continued)

(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)	
				1971	1972	1973	1974	1975		
BNE-- (Continued)										
38N12E-										
5.8d2 (3)	Western Springs (V)	1256	678	-10	8	18	2	-47	-37	
6.6b (4)	Western Springs (V)	1913	642	-19	6	-28	-28	-36	-17	
12.1f (81B)	Met. San. District	826	592	31	29	26		22	-9	
12.5c	Met. San. District	1193	600			25		28		
18.8f3 (3)	Suburban Cook Co. TB San.	1540	689	72				58	-14	
22.8g (Q2)	Met. San. District	846	613	66	64	60		58	-8	
23.1h (11)	CPC International, Inc.	1543	596		-75			-145		
23.2g (13)	CPC International	1525	600	-70			-40	-80	-10	
24.1g (12)	CPC International	1507	597	-73			-81	-75	-2	
24.7h (14)	CPC International	1481	597	-15				-15	0	
28.7d (2)	Fisher Body Division (GMC)	1542	605	10	10	4	14	0	-10	
29.1d (1)	Fisher Body Division (GMC)	1517	605	27				10	-17	
38N13E-										
4.8d1 (77b)	Met. San. District	895	598	43		31				
4.8d2 (77c)	Met. San. District	1297	598	41		36				
5.7h (80b)	Met. San. District	876	604	37		32		28	-9	
8.1f (4)	Rose Packing Company	1590	594	46		2	37	31	-15	
11.1h (1)	Bradshaw-Praeger and Company	1224	597	78	69	66	56	52	-26	
19.4e1 (2)	Union Carbide Corporation	1550	619					-39		
21.1f2 (2)	Cracker Jack Company	1585	620	51	51	51		37	-14	
27.5g (1)	Tootsie Roll Industries	1565	617					22		
38N14E-										
7.6c (1)	Fleischmann Malting Company	1925	594	61	64	53	49			
7.6d (2)	Fleischmann Malting Company	1964	594	53	56	44	44	29	-24	
7.7g1 (1)	Standard Brands Incorporated	1637	602		70			62		
7.7g3 (3)	Standard Brands Incorporated	1740	602			51				
39N12E-										
8.5g (4)	Bellwood (C)	1960	645	-149	-90	-109				
9.3g (1)	Bellwood (C)	1952	636	-9	20	39		-4	+5	
9.5a (3)	Bellwood (C)	1450	624	-61	-36	-119		-153	-92	
9.5f (2)	Bellwood (C)	1954	632	-63	-44	-33		-74	-11	
11.7f (3)	Maywood (V)	1640	630	39	34			12	-27	
13.7g (2)	Altenheim-German Old Folks Home	1661	626	76			62	58	-18	
16.2f (5)	Bellwood (C)	1845	627	17	-131	-103		-8	-25	
25.5d (4)	Riverside (V)	2050	620	27	16	15	12	0	-27	
35.3h (2)	Chicago Zoological Park	2081	615		30	7		4		
36.8d (3)	Riverside (V)	2047	618	-19	3	-6	-8			
39N13E-										
21.6g (1)	Kropp Forge Company	1636	608	38		43		38	0	
21.8f2 (2)	Chicago Vitreous Enamel Company	1607	608		5					
21.8f3 (3)	Chicago Vitreous Enamel Company	1515	608	33	22			25	-8	
33.4a (1)	Incinerator Incorporated	1650	589					-7		
39N14E-										
5.5e (52b)	Met. San. District	922	591	119		109		101	-18	
9.5c (54b)	Met. San. District	1010	589	118	112	108		99	-19	
9.5c (54c)	Met. San. District	1400	589	115	113	105		95	-20	
16.4b (67b)	Met. San. District	910	587	132	126	125		117	-15	
16.6h (1)	Illinois Bell Telephone	1689	595	68				76	+8	
21.7b1 (1)	Joanna Western Mills Company	1610	593				56			
30.1d (71b)	Met. San. District	878	589	78	65	65				
32.5a (72b)	Met. San. District	890	593	74	65	65		68	-6	
40N12E-										
18.6c1 (1)	Clow Corporation	1457	663	2	-27	-12	-64	-67	-69	
18.6c2 (2)	Clow Corporation	1456	663	9			33	-22	-31	
22.3c (F2)	Met. San. District	798	618	109		105		99	-10	
31.4c (2)	Automatic Electric Company	1468	655				-80	-105		
31.4d1 (1)	Automatic Electric Company	1973	655	-41	-33	-25	-53	-60	-19	
31.4d2 (3)	Automatic Electric Company	1487	655	-19	-8	-34	-49	-45	-26	

(Continued on next page)

Water Levels (Continued)

(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
BNE-- (Continued)									
40N13E-									
24.4e	(49b) Met. San. District	861	591	145	140	132		123	-22
31.4e1	(1) Mars Incorporated	1975	651	-14	-29	41	-27		
31.4e2	(2) Mars Incorporated	1978	653	22		-9		-15	-37
40N14E-									
30.7d	(50b) Met. San. District	886	592	140	135	125		116	-24
41N9E-									
23.5g3	(3) Streamwood (V)	1410	820	327	313		323		
36.3f2	(2) Hanover Park (V)	1429	828	212				194	-18
36.6b	(4) Hanover Park (V)	1400	820	231			223	210	-21
41N10E-									
6.5b	(10) Hoffman Estates (V)	1357	810	285	255			201	-84
7.6d	(11) Hoffman Estates (V)	1380	812					232	
8.8g	(12) Hoffman Estates (V)	1405	822			198		163	
10.8c	(16) Schaumburg (V)	1615	775		210			121	
14.1b	(18) Schaumburg (V)	1359	731			119		66	
15.1f2	(2) Hoffman Estates (V)	1391	750	145				98	-47
15.4h1	(4) Hoffman Estates (V)	1382	774	127				154	+27
31.3e	(3) Hanover Park (V)	1952	798	209			188	175	-34
36.4g	(7) Elk Grove (V)	1365	730	30	15	23	-15	-52	-82
41N11E-									
7.1c	(4) Rolling Meadows (C)	1603	710	107	56	70		62	-45
8.3a	(6) Rolling Meadows (C)	1602	692			-3		-46	
9.1h	(8) Arlington Heights (V)	1455	706	-45		-10	16		
9.7g	(1) U.S. Army	1812	712		205			161	
10.3f2	(8) Mt. Prospect (V)	1765	680	10	30	10	-40	-81	-91
11.6c	(11) Mt. Prospect (V)	1446	655	-52		-117	-67	-142	-90
12.8h2	(3) Mt. Prospect (V)	1935	670	-20			-100	-100	-80
13.4a	(5) Des Plaines (C)	1800	655	4		-33	-33	-53	-57
15.7b	(15) Arlington Heights (V)	1414	690			-27	-90	-100	
16.2h	(12) Arlington Heights (V)	1780	713	-9		43	3	-37	-28
21.3b	(1) Elk Grove (V)	1415	717	-6	-36	-16	-46	-81	-75
23.7f	(16) Mt. Prospect (V)	1950	675		24			-85	
24.1g2	(2) Waycinden Park Subdivision	1652	660	-20			-2	-52	-32
25.2h	(7) Des Plaines (C)	1815	655	135	150	142	150	138	+3
25.6b3	(3) Touhy Mobil Homes	1515	657					-1	
25.6g1	(F9B) Met. San. District	800	660	232	219	203		213	-19
25.6g2	(F9C) Met. San. District	1220	660	52	51	25		-9	-61
26.8a	(2) Elk Grove (V)	1395	682	21	-6	-16	-18	-78	-99
27.3f	(9) Elk Grove (V)	1403	682	64		-47	-58		
27.6a	(4) Elk Grove (V)	1416	698	13	3		-62	-89	-102
32.5g	(3) Elk Grove (V)	1408	705	43	40	-87			
33.7b	(5) Elk Grove (V)	1403	680	67	1	-38	-35	-93	-160
35.8f	(6) Elk Grove (V)	1396	675	-40	-120	-158	-115		
41N12E-									
12.7b	(3) Domestic Utilities Company (Eugenia Subdivision)	1423	661	86			31		
12.7d	(2) Domestic Utilities Company (Eugenia Subdivision)	1390	658	85			25		
12.8b	(1) Domestic Utilities Company (Eugenia Subdivision)	1342	666	81			46	-1	-82
18.5d	(6) Des Plaines (C)	1840	644	77	32	37	42	37	-40
18.6a	(1) Des Plaines (C)	1735	652	102	112	82	92	92	-10
18.7a	(2) Des Plaines (C)	1750	652	23	45	-27	-12		
19.5d	(3) Des Plaines (C)	1821	652	70	59	15	30	2	-68
19.5g	(4) Des Plaines (C)	1232	650		51		16	16	
26.6e	(1) Park Ridge Country Club	1355	643	79				49	-30
41N13E-									
8.6d	(2) Glenview Club	1546	649	90		47	57	47	-43
12.1d	(33b) Met. San. District	891	612	202	196	188		175	-27

(Continued on next page)

Water Levels (Continued)
(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
BNE 41N13E- (Continued)									
18.5g	(1) Avon Products Incorporated	1410	644	124	119	114	114		
19.6f	(7b) Met. San. District	856	628	122	115	105		78	-44
20.7e	(1) Baxter Laboratories, Inc.	1414	627	97		67	69	52	-45
22.4g	(2) Evanston Country Club	1465	608				143	-30	
23.1g	(38b) Met. San. District	906	596	169	166	158		146	-23
23.7h	(27b) Met. San. District	850	599	165		143		142	-23
26.1e	(39b) Met. San. District	896	600	166	163	155		143	-23
26.4f1	(28b) Met. San. District	.883	602	164	160	151			
26.4f2	(28c) Met. San. District	1290	602	154	150	140			
26.8d	(29b) Met. San. District	876	599	160		148		136	-24
42N10E-									
1.8d	(3) Ferndale Heights Utility Co.	1350	740	230				143	-87
1.8f	(5) Ferndale Heights Utility Co.	1603	750				227		
11.4g	(1) Ferndale Heights Utility Co.	1521	760		208			115	
12.5e	(4) Ferndale Heights Utility Co.	1600	740		195			135	
14.2c	(1) Palatine (V)	1380	738		148	118	68	98	
15.3f	(7) Palatine (V)	1350	750		185	130	130	115	
22.2a2	(8) Palatine (V)	1950	735	210		160	125	130	-80
24.3h	(2) Palatine (V)	1350	732	161	177	147	115	87	-74
25.1b	(1) Rolling Meadows (C)	1530	720	145		135		132	-13
25.6b	(2) Rolling Meadows (C)	1537	714	114	117	39		48	-66
26.4h	(5) Rolling Meadows (C)	1555	733			93		121	
29.7e	(9) Hoffman Estates (V)	1392	820	220				169	-51
36.4d	(3) Rolling Meadows (C)	1585	717	139	121	157	47	34	-105
42N11E-									
3.3b	(5) Wheeling (V)	1355	650					65	
4.7a2	(4) Buffalo Grove (V)	1355	685	105	97	100	40	71	-34
5.1g	(3) Buffalo Grove (V)	1340	686		96	85	76	39	
5.8e	(1) Buffalo Grove (V)	1335	725			118	52	50	
6.5c	(13) Arlington Heights (V)	1790	730	188		120	140	110	-78
8.1a	(11) Arlington Heights (V)	1647	688	48	98	95	93	58	+10
11.6e1	(3) Wheeling (V)	1370	645					80	
11.8b2	(2) Ekco Products, Incorporated	1320	650	82	80	80	50	30	-52
16.7a2	(10) Arlington Heights (V)	1778	687	142		114	95	70	-72
17.7e	(9) Arlington Heights (V)	1532	692	115		95	80	60	-55
19.4a	(14) Arlington Heights (V)	1320	720		110	20	82	38	
23.2e	(6) Wheeling (V)	1345	650					88	
24.3g	(5) Brickman Manor (Citizens Utility)	1320	638	88	88	53		88	0
24.4d	(4) Brickman Manor (Citizens Utility)	1323	642	104	104	55	57	35	-69
24.5f	(6) Brickman Manor (Citizens Utility)	1323	643	98	70		70		
26.7d	(2) Brickman Manor (Citizens Utility)	1468	661	98	98		56	-9	-107
27.3a	(6) Mt. Prospect (V)	1468	670	-3		25	5	0	+3
29.4h	(7) Arlington Heights (V)	1525	687	54	59		59	7	-47
29.5a	(5) Arlington Heights (V)	1525	689	59	46	61	51	-3	-62
30.1g	(2) Arlington Heights (V)	1345	724		49	21	79	-19	
30.3b	(6) Arlington Heights (V)	1490	707	42		62	27	12	-30
31.7a	(16) Arlington Heights (V)	1810	700					-45	
33.3b	(4) Mt. Prospect (V)	1370	693	11		-117	-17	-97	-108
33.5d	(7) Mt. Prospect (V)	1950	677	5	-55	-90	-40	-70	-75
34.4g	(5) Mt. Prospect (V)	1822	673	43	58	18	18	-7	-50
35.2a	(13) Mt. Prospect (V)	1337	655		55	55	40	5	
35.3d	(14) Mt. Prospect (V)	1328	652		52				
36.3b1	(1) Maryville Academy	1604	651	158				124	-34
36.3b2	(2) Maryville Academy	1529	651	153				122	-31
42N12E-									
2.5b	(1) Green Acres Country Club	1376	655					129	
14.2a	(4) Sunset Ridge Country Club	1410	655	100				55	-45

(Continued on next page)

Water Levels (Continued)

(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface eleva- tion	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
BNE 42N12E- (Continued)									
14.2c1	(1) Sunset Ridge Country Club	1385	655	130				85	-45
14.8e	(1) St. Ann's Home	1190	665					110	
18.1e	(1) Mission Hills	1399	688		253		63	53	
18.2b	(1) Illinois Bell Telephone Co.	1380	660		90			52	
18.3a	(1) Culligan, Incorporated	1380	652	100	17	22		64	-36
18.3e	(3) Mission Hills	1400	659		79			24	
19.1b	(3) Allstate Insurance Company	1401	662	84		91	41		
19.1c	(1) Allstate Insurance Company	1400	663	137	68			39	-98
19.1d	(2) Allstate Insurance Company	1404	663	90			45	41	-49
19.2a	(4) Allstate Insurance Company	1400	655			75	50	39	
19.2e	(2) Nielsen Company	1400	657		67	47	52	45	
19.2h	(2) Culligan, Incorporated	1400	655	107				55	-52
19.3f	(1) Nielsen Company	1400	655	85	65	45	55	15	-70
23.5f3	(3) Convent of the Holy Spirit	1451	648	166				120	-46
28.8c	(5) Illinois Municipal Water Co.	1405	672	5		55		3	-2
29.1a	(4) Illinois Municipal Water Co.	1405	677	19				27	+8
30.4f	(1) Moore Business Forms	1450	670					109	
32.6f	(2) Zenith Radio Corporation	1368	662					67	
32.7f	(1) Zenith Radio Corporation	1324	660					75	
36.7e2	(2) North Shore Country Club	2400	645					105	
42N13E-									
35.5g	(31b) Met. San. District	939	593	210	203	195		180	-30
35.5g	(31c) Met. San. District	1330	593	186	178	165		150	-36
35.6c	(32b) Met. San. District	898	603	196	190	171		168	-28
DEK--									
37N5E-									
32.1c1	(1) Somonauk (V)	190	685	667			666	663	-4
32.1c2	(2) Somonauk (V)	502	685	669			666	669	0
36.7h1	(1) Sandwich (C)	600	667					648	
36.7h2	(2) Sandwich (C)	600	667	644				647	+3
38N5E-									
14.4d	(3) Hinckley (V)	605	740	700			704	706	+6
15.2d	(2) Hinckley (V)	708	740	725	728		726	722	-3
40N3E-									
15.7c	(2) Kishwaukee College	920	910	741				740	-1
23.6e	(2) Malta (V)	1254	915	743				739	-4
23.7e	(1) Malta (V)	853	915	775				775	0
23.8e1	C & NW Railroad	1007	910	779	783	782	766		
40N4E-									
13.2h	(11) DeKalb (C)	1312	885	641	639	629	634	644	+3
15.7a	(6) DeKalb (C)	1291	855			668	677	607	
16.1g	(1) DeKalb University Dev. Corp.	803	880	779				790	+11
16.2g	(2) DeKalb University Dev. Corp.	701	883	763				760	-3
21.5f	(10) DeKalb (C)	1310	880	659	667	664	677	668	+9
22.2d	(1) DeKalb (C)	1331	870	662	660	654	620		
22.2e	(2) DeKalb Retread & Vulcan Company	775	870	725	737	736			
22.3e1	(2) DeKalb (C)	1306	860	649		653	649	642	-7
23.1g	(9) DeKalb (C)	1330	885	735	732	722	710		
23.4d	(4) DeKalb (C)	1178	885	652	652	649			
23.8e	(8) DeKalb (C)	949	875	643	650	632	651	633	-10
26.3g1	(1) Del Monte Corporation-Plant III	1324	890	668	650	650	665	660	-8
26.3g2	(2) Del Monte Corporation-Plant III	1345	890	658	680	660	660	650	-8
26.7d	(7) DeKalb (C)	1315	885	659	605	632	635	640	-19
33.1h	(12) DeKalb (C)	1200	862		672	707	700	700	
40N5E-									
5.5e	(5) Sycamore (C)	1227	872					592	
41N5E-									
32.1g	(3) Sycamore (C)	932	840	802				804	+2
32.3e1	(1-N) Sycamore (C)	902	870	818				814	-4
32.7g	(6) Sycamore (C)	1213	840	628				613	-15

(Continued on next page)

Water Levels (Continued)
(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
DEK-- (Continued)									
42N3E- 26.3h2 (2)	Kirkland (V)	636	775	758				770	+12
42N4E- 22.7a (2)	Kingston (V)	755	825	741				740	-1
42N5E- 19.4b (3)	Genoa (C)	732	830	717				730	+13
19.6b2 (2)	Genoa (C)	730	820	710				725	+15
20.7a (4)	Genoa (C)	770	847	676			667	647	-29
DUP--									
37N11E- 2.7d (1)	Ramblin Rose South	1610	710	68		43	41	32	-36
3.8a1 (1A)	Argonne National Laboratory	1595	670	117				100	-17
38N9E- 13.2b3 (7)	Naperville (C)	1445	680	158			131	72	-86
15.7d (1)	J. S. Plastics Company	1000	704	220				192	-28
29.5g (22)	Aurora (C)	1420	684			169		109	
38N10E- 30.4d2 (16)	Naperville (C)	1478	690	145			103	95	-50
38N11E- 11.5c2 (7)	Clarendon Hills (V)	1585	722		67	82	72	37	
23.5e2 (3)	Willowbrook (V)	1620	734				59	66	
39N9E- 4.1b (3)	West Chicago (C)	1378	762					217	
5.5d (5)	West Chicago (C)	1376	751	343	339		311	293	-50
15.7h (4)	West Chicago (C)	1362	746	218	216		156	157	-61
19.6c (4)	Fermi Nat. Accelerator Lab.	1432	756	241			231	211	-30
39N10E- 1.4d (1)	Commonwealth Edison Company	1465	740	84		81	81	33	-51
39N11E- 1.8f1 (1)	Elmhurst (C)	1475	678	-91	-106	-137			
4.1f (7)	Villa Park (V)	1418	702	-6				-63	-57
5.1c (9)	Lombard (V)	1431	710		80	85	75	-19	
6.3a (4)	Lombard (V)	1560	700	56	82	42		36	-20
9.1h (1)	Villa Park (V)	1441	694	-10	-30			-68	-58
9.2h (2)	Villa Park (V)	2125	699	28	29	34	-1	-71	-99
10.1h (4)	Elmhurst (C)	1390	669	-71	-69	-70	-106	-93	-22
10.4g6 (7)	Ovaltine Food Products	1936	675	5		-23	-21	-40	-45
10.4g8 (9)	Ovaltine Food Products	1987	670	-50		-57	-66	-95	-45
12.8e (5)	Elmhurst (C)	1480	677	-31	-178	-178	-83		
13.3g2 (10)	Elmhurst (C)	1567	705	25	-15	-30	-115	-100	-125
16.1b (8)	Villa Park (V)	1485	705	17				-17	-34
17.8d (7)	Lombard (V)	1520	730	25		25	19	10	-15
20.7a (8)	Lombard (V)	1630	775	35		23		-20	-55
26.5h (2)	Oakbrook (V)	1521	685	32	-50			-31	-63
26.8h (1)	Oakbrook (V)	1405	690	35	-16	15			
40N9E- 11.6h (4)	Bartlett (V)	1985	770					250	
40N10E- 14.8c2 (2)	Bloomington (V)	1395	750	97	110	81	62	37	-60
32.1c2 (4)	Carol Stream (V)	1963	790					153	
40N11E- 3.5e (8)	Elk Grove (V)	1445	700	35	53	-21	-50	-100	-135
10.4h (5)	Wood Dale (C)	1400	695		170		95	0	
11.4e (5)	Bensenville (V)	1450	672	82	62	32	2	2	-80
13.8a2 (2)	Bensenville (V)	1442	676	-24		16	1	-69	-45
14.4e (3)	Bensenville (V)	1445	670	-15	-20	-40	-60	-66	-51
26.1d (9)	Elmhurst (C)	1479	675	-80			-103	-113	-33

(Continued on next page)

Water Levels (Continued)

(Elevations in feet above mean sea level)

Well number		Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
					1971	1972	1973	1974	1975	
DUP 40N11E- (Continued)										
31.5a	(5)	Lombard (V)	1793	738	63	60	40		20	-43
35.5e	(6)	Elmhurst (C)	1471	703	-52	-60	-69	-87	-102	-50
GRY--										
31N8E-										
4.1a2	(4)	Gardner (V)	1933	588	419		374	389	384	-35
4.2b	(3)	Gardner (V)	976	586				400	398	
11.6a	(4)	South Wilmington (V)	970	585		379	379			
11.6b3	(3)	South Wilmington (V)	970	586	308	322				
32N8E-										
3.1e	(4)	Coal City (V)	793	567	352				307	-45
14.8e	(1)	Adams Laboratory	735	576					359	
26.1f	(1)	Braceville (V)	868	580			447	424		
33N6E-										
29.3d	(2)	E. I. DuPont	1428	501	371			371		
29.3e	(6)	E. I. DuPont	1530	610	410		385	382		
29.4e	(3)	E. I. Dupont	1545	606			401	397	371	
29.5e	(1)	E. I. Dupont	1515	606	446	406	401	406	354	-92
33N7E-										
4.2a3	(3)	Morris (C)	865	523	445		398		373	-72
4.4c	(5)	Morris (C)	1462	506	416	406	384	384	345	-71
6.3g	(1)	Heatherfield Subdivision	520	549	488				464	-24
9.3h	(4)	Morris (C)	1492	519	429	429	389	381	371	-58
33N8E-										
7.4c	(3)	Commonwealth Edison Company	1513	525			385		359	
7.5d	(2)	Commonwealth Edison Company	1477	525					360	
7.5f	(1)	Commonwealth Edison Company	1510	515			384		343	
7.8d	(4)	Commonwealth Edison Company	1495	520			378		362	
35.4b	(1)	Eileen (V)	700	563					318	
35.4e	(1)	DeMert & Dougherty Incorporated	805	560	380	363		360	360	-20
34N8E-										
1.3e1	(3)	Minooka (V)	1508	610	337	316	308	295	298	-39
1.3e2	(4)	Minooka (V)	725	610			387	383	382	
20.2e	(1)	Northern Petrochemical Company	1453	524	350	294	294		290	-60
21.3f	(2)	Alumax Company	1515	525	335	295	275	247	243	-92
21.3g	(1)	Alumax Company	1540	525	385	305	285	247	246	-139
21.9a	(3)	Northern Petrochemical Company	1463	523	378	288	268	220	216	-162
21.9c	(2)	Northern Petrochemical Company	1470	523	360	274	246	213		
22.6e	(2)	N. I. Gas-SNG Plant	1519	523			285	293	265	
22.8e	(1)	N. I. Gas-SNG Plant	1511	522		340		282	277	
28.1d2	(7)	Northern Petrochemical Company	1492	490	400	349	257	243		
28.5f	(5)	Northern Petrochemical Company	1455	503		374	263	249	275	
34.5h	(1)	Reichhold Chemicals, Incorporated	706	510	445	440			435	-10
35.1e	(2)	Dresden Nuclear Power Station	1500	515	346	323	323		288	-58
35.1g	(1)	Dresden Nuclear Power Station	1499	519	339	314	279		275	-64
KNE--										
38N7E-										
5.2d	(1)	Waubensee Community College	1323	703	484	479	473	475	472	-12
24.6h3	(21)	Aurora (C)	1447	670		327			230	
25.5b	(23)	Aurora (C)	1420	670			275	247	217	
38N8E-										
1.2c	(20)	Aurora (C)	1400	715	225			170	188	-37
4.1f	(2)	North Aurora (V)	1272	635	255				227	-28
4.3g	(3)	North Aurora (V)	1305	675	271			263	231	-40
8.3e	(25)	Aurora (C)	1460	695				227		
13.7b1	(2)	Aurora Paperboard Company	1787	696	180				165	-15
13.8b	(1)	Aurora Paperboard Company	1397	696	181				166	-15
15.3h	(12-A)	Aurora (C)	2251	669		379			300	

(Continued on next page)

Water Levels (Continued)

(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
KNE 38N8E- (Continued)									
15.4g2 (12)	Aurora (C)	2253	644	199				204	+5
15.4h (11)	Aurora (C)	1434	635	200				160	-40
15.5f (2)	Aurora Bleachery	1368	650		214	220	210		
15.6f (1)	Oberweis Dairy	875	660		298	314	299	185	
16.4d (17)	Aurora (C)	2152	685	295				145	-150
19.5a (19)	Aurora (C)	1424	685	227				160	-67
22.7b (8)	Aurora (C)	1386	628					153	
24.7c (18)	Aurora (C)	1486	715	202	123		177	157	-45
29.2h (15)	Aurora (C)	1719	665	150			182	174	+24
32.4f (4)	Montgomery (V)	1333	642	205		167	180	147	-58
33.7c (3)	Montgomery (V)	1331	633	193			153	158	-35
34.7b (8)	Montgomery (V)	1378	668					158	
34.8a (16)	Aurora (C)	2139	660	217			235		
39N7E-									
5.8f (1)	Elburn (V)	1350	850	516	510	496	510	508	-8
6.3f2 (4)	E. W. Kneip, Incorporated	1311	840			472			
11.2h (1)	National Electronics, Inc.	1060	780				455		
39N8E-									
2.4c (5)	Geneva (C)	2292	753	353				345	-8
3.1b2 (2)	Geneva (C)	2172	678	393				310	-83
3.2b (4)	Geneva (C)	2267	719	339				294	-45
3.5e (1)	Burgess-Norton Manufacturing Co.	1308	760			389	350	365	
3.8g (3)	Geneva (C)	1578	759	359				314	-45
9.8h2 (6)	Geneva (C)	1350	755	358			333		
11.7e (4)	Illinois Youth Center, Geneva	2001	730	347	373	385	392	389	+42
21.1f (2)	Furnas Electric Company	620	722	512			362		
22.3e1 (2)	Batavia (C)	2200	667	324	324			324	0
22.3e2 (3)	Batavia (C)	2200	667	432	407			417	-15
23.8f (4)	Batavia (C)	1357	721	341	351			261	-80
33.4g (1)	Mooseheart	2284	694	420		426			
33.5g1 (2)	Mooseheart	1485	708	306				267	-39
33.5g2 (3)	Mooseheart	1386	713		300	279		269	
40N7E-									
32.8b (3)	Elburn (V)	1393	900	538				507	-31
40N8E-									
27.5a1 (3)	St. Charles (C)	1191	690	314	247			214	-100
27.6b (4)	St. Charles (C)	1647	692	328	328			324	-4
31.6f (5)	Illinois Youth Center, St. Charles	1292	763	422			455	413	-9
31.6h (4)	Illinois Youth Center, St. Charles	1322	790	420			443	445	+25
34.5g2 (2)	Howell Company	1268	685	328	327	321		319	-9
34.6e2 (6)	St. Charles (C)	1502	755	395	385		355	325	-70
41N6E-									
9.1g2 (2)	Burlington (C)	1105	922	587	592			582	-5
41N7E-									
19.3d (2)	Central High School	1022	1037	540				527	-13
41N8E-									
11.3f1 (1)	Elgin (C)	1945	741	266	303	282			
11.3f2 (2)	Elgin (C)	1935	743	273	305	254			
11.3f3 (3)	Elgin (C)	1793	745	285		277			
11.3f4 (4)	Elgin (C)	1880	740	270		258			
11.3f5 (5)	Elgin (C)	1255	740	290		265			
11.3f6 (6)	Elgin (C)	1300	740	260		283			
12.3e (1)	Simpson Company	998	805	356	351	346	339	342	-14
16.2d (4A)	Elgin (C)	1345	835		385			337	
16.4c (1A)	Elgin (C)	1268	840	377		351		276	-101
16.4d1 (2A)	Elgin (C)	1353	860	382		382		239	-143
16.4d2 (3A)	Elgin (C)	1378	860	383		373		285	-98

(Continued on next page)

Water Levels (Continued)

(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
KNE 41N8E- (Continued)									
24.1a	Elgin (C)	1978	710	338		233			
24.3b3	Elgin (C)	1255	718	343				337	-6
42N6E-									
3.1e	Illinois Toll Highway Commission	962	910	665				653	-12
21.4b	(5) Hampshire (V)	804	878		701		638	643	
42N8E-									
22.7f	(1) D. Hill Nursery	1227	790	375				365	-10
27.1e	(1) West Dundee (V)	1200	725	361	320	371			
KNK--									
29N10E-									
4.2a	(1) Natural Gas Pipeline Company	1837	690	455	453	451	447	458	+3
30N9E-									
6.8a	(1) Reddick (V)	1188	612	402				407	+5
30N10E-									
8.5a	(1) Natural Gas Pipeline Company	2582	628	449	438	436	431	431	-18
16.8c	(1) Natural Gas Pipeline Company		635	431	428	427	423	403	-28
19.3h	(1) Natural Gas Pipeline Company	1769	638		433	433	427	433	
28.8h	(6) Herscher (V)	773	645	425	450	450	450	425	0
29.2h	(5) Herscher (V)	789	650	515	435	435	435	431	-84
30.1h	(1) Natural Gas Pipeline Company		649	444	445	443	437	447	+3
34.8f	(1) Natural Gas Pipeline Company	1881	670	447	452	450	444	458	+11
KEN--									
36N7E-									
6.1g	(1) Fox Lawn Development Company	715	665	516	526			484	-32
37N7E-									
31.5b	(1) Boy Scouts of America	850	640					488	
32.1e2	(3) Yorkville (C)	1335	584	410	423	392		405	-5
37N8E-									
5.5i	(1) Western Electric Company	1332	640	196	190	180	155	155	-41
5.6e2	(2) Aurora Sanitary District	1325	628	251				176	-75
5.9f	(1) Caterpillar Tractor Company	1384	661	254	208		208	188	-66
6.2d	(3) Caterpillar Tractor Company	1352	661	263	255	240	231	209	-54
6.2f	(2) Caterpillar Tractor Company	1346	660	262	257	238	244	194	-68
17.2e	(4) Oswego (V)	1344	658	277	314	311	292	239	-38
20.8h	(3) Oswego (V)	1378	640	305	300		274	254	-51
LKE--									
43N10E-									
14.7d	(1) Kemper Insurance	1400	796					271	
15.2d	(2) Kemper Insurance	1402	796					261	
18.4h	(5) Lake Zurich (V)	1345	822	254	252			257	+3
21.5e	(7) Lake Zurich (V)	1333	846	276				220	-56
43N11E-									
22.6d	(3) Lincolnshire (V)	1300	667	167			117		
23.5f	(1) Lincolnshire (V)	1305	645	155	150		95		
32.8f	(2) Buffalo Grove (V)	1355	703	160	148	108	128	110	-50
43N12E-									
30.7e	(1) Ravinia Country Club	1367	677	134				120	-14
31.3c	(1) Walgreen Company	1465	680	125				70	-55
31.6e1	(1) Baxter Corporation	1456	685					81	
44N9E-									
24.5d	(4) Wauconda (V)	1264	792			394			
44N10E-									
12.8a	(9) Mundelein (V)	1380	830	305		275	306	299	-6

(Continued on next page)

Water Levels (Continued)

(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
LKE 44N10E- (Continued)									
44N11E-									
19.3c	(6A) Mundelein (V)	1405	743	248		223	208	211	-37
19.8f1	(1) St. Mary's of the Lake Seminary	1318	729	379				374	-5
21.7f2	(11) Libertyville (V)	1490	703	263		128	141	143	-120
28.4e	(12) Libertyville (V)	1926	700			293		236	
31.4h	(8) Mundelein (V)	1383	730	260		220	212	204	-56
32.6a	(1) Vernon Hills, New Century Town	1912	725		297	275		225	
33.3g	Hawthorn Melody Farms	1290	690	235				205	-30
33.5a	(2) Vernon Hills, New Century Town	1870	685		330			230	
44N12E-									
4.7f2	(2) North Chicago Refining and Smelting, Incorporated	1276	650			322	300		
21.8f2	(4) Lake Bluff (V)	1804	680	365	370	358	359	340	-25
45N9E-									
36.6c	(3) Baxter Travenol Labs	2010	810		455				
45N10E-									
15.7e	(6) Round Lake Beach	1287	790		432			400	
26.2b	(4) Grayslake (V)	1354	780			375		365	
45N11E-									
1.5d	(1) Commonwealth Edison Company	1040	687			377			
14.5a	(1) Gurnee (V)	1517	665	401	410		357	337	-64
16.2g	(M-4) Illinois Toll Highway Commission	980	730	398				355	-43
29.8a	(2) Wildwood (Lake Co. Public Works)	1845	785	442					
30.4g	(1) Wildwood (Lake Co. Public Works)	1320	795					330	
46N12E-									
8.1d	(6) Winthrop Harbor (V)	1500	690	430	380		380	364	-66
21.1b1	(1) Zion (C)	1100	633	448	438	436	421	408	-40
LAS--									
32N5E-									
17.1a	(2) Commonwealth Edison Company	1620	711		461			437	
17.2f	(1) Commonwealth Edison Company	1629	712				452	441	
33N1E-									
16.8a2	(4) Peru (C)	1505	460	461	462	456	457	460	-1
16.8a3	(6) Peru (C)	2665	540	423	404	385		400	-23
20.2h2	(5) Peru (C)	2601	465	412	395	395			
20.8h	(1) American Nickeloid Company	1632	595	484	472			480	-4
21.8h	(7) Peru (C)	2591	460	366	424	374	364	419	+53
36.6h	(2) Oglesby (C)	2784	630					406	
36.6g2	(3) Oglesby (C)	2812	630		446	403	390	401	
36.6g3	(4) Oglesby (C)	2747	630	445		405	392	404	-41
33N2E-									
9.5c	(3) Bell Rose Silica Company	345	540					479	
9.8b	(1) Utica (V)	618	480	480			494	495	+15
21.2g	(1) Starved Rock State Park	475	470	478				485	+7
21.3g	(2) Starved Rock State Park	401	470					479	-36
33N3E-									
1.6b	(7) Ottawa (C)	1180	489	439				446	+7
1.7c	(11) Ottawa (C)	1203	488			438		435	
1.8a	(8) Ottawa (C)	1180	489	431		399	423	434	+3
2.4b	(9) Ottawa (C)	1220	495	444	452	444	439	442	-2
3.2b	(1) Union Carbide Corporation	1225	490		385	413	418	414	
3.5a	(2) Union Carbide Corporation	1255	490	413	385	404	395	414	+1
10.8d	Ottawa Silica Company	1060	480	430				439	+9
16.1g	(1) Naplate (V)	420	488	431	428	428	433	426	-5
17.6c2	(2) Buffalo Rock State Park	480	542	455				454	-1
33N4E-									
13.2a	(2) National Biscuit Company	546	483	454				439	-15
13.3c	(2) Marseilles (C)	850	498	470				415	-55

(Continued on next page)

Water Levels (Continued)

(Elevations in feet above mean sea level)

Well number		Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
					1971	1972	1973	1974	1975	
LAS 33N4E- (Continued)										
14.7a	(1)	Illini State Park	500	496	473				460	-13
15.7e	(2)	Borg Warner Chemicals	1292	480	393	437	432	422	415	+22
15.7f	(1)	Borg Warner Chemicals	1253	480	432	434	433	422	411	-21
15.8g	(3)	Borg Warner Chemicals	1243	490		457	431	427	417	
33N5E-										
7.6a	(3)	Marseilles (C)	1466	688		457			423	
21.5c	(1)	Baker Industries	575	490	381				433	+52
24.8c1	(1)	Seneca (V)	700	510	425				412	-13
24.8c2	(2)	Seneca (V)	700	510					410	
25.4e	(3)	Thruput Terminals Incorporated	654	505	439				421	-18
25.4g1	(1)	Thruput Terminals Incorporated	451	505	447				454	+7
25.4g2	(2)	Thruput Terminals Incorporated	1447	505	439				418	-21
34N1E-										
5.1h	(15)	Northern Illinois Gas Company	1007	678	591	593	592	592	590	-1
5.2h	(9)	Northern Illinois Gas Company	1022	676	589	590	590	590	588	-1
34N3E-										
35.4a1	(1)	Oaklane Development Corp.	288	610					479	
35.4a2	(2)	Oaklane Development Corp.	504	610	461				445	-16
35.8a	(1)	Bona Terra Subdivision	504	611					449	
34N4E-										
9.4g	(1)	Wedron Silica Company	261	545	495				490	-5
25.2b	(1)	Prairie Estates Subdivision	681	760					475	
34N5E-										
2.2i	(1)	American Telephone & Telegraph Company	1348	770	511	522			452	-59
35N1E-										
29.4e	(3)	Northern Illinois Gas Company	1196	688	596	597	595	596	593	-3
34.8g	(1)	Northern Illinois Gas Company	1292	675	599	600	598	599	596	-3
35N5E-										
8.6b	(1)	Illinois Correctional Center	885	591	574	574	574	574	577	+3
17.7h	(3)	Illinois Correctional Center	900	592	561	567	567	567	567	+6
36N1E-										
27.4a1	(1)	Del Monte Corporation	1384	730	601	605		605	590	-11
27.5b	(2)	Del Monte Corporation	1385	740	630	622		622		
32.1a	(4)	Mendota (C)	1450	740	604			581	580	-24
33.3h	(3)	Mendota (C)	1377	740	594	606	610	600	607	+13
33.4e2	(5)	Mendota (C)	522	745	650	651	654	654	652	+2
36N3E-										
18.4d2	(2)	Earlville (C)	150	700	662				670	+8
18.4d3	(1)	Earlville (C)	625	703	668				668	0
18.10a3	(3)	Marathon Electric Company	887	699	668	673	672		667	-1
36N5E-										
4.2f	(2)	Lake Holiday	708	673					631	
LEE--										
19N11E-										
9.1a2	(2)	Sublette (V)	771	920	619	619		601	650	+31
37N2E-										
10.2b1	(2)	Paw Paw (V)	1018	928					728	
10.2b2	(3)	Paw Paw (V)	1055	940	715				750	+35
LIV--										
29N6E-										
10.8e	(3)	Odell (V)	1935	720					492	
30N6E-										
1.1a	(2)	Dwight Correctional Center	1201	648	468	470	467	462	458	-10
1.2a	(1)	Dwight Correctional Center	1203	645	484	459	463	453	445	-39

(Continued on next page)

Water Levels (Continued)

(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
MCH--									
43N8E-									
5.4g	(2)	Crystal Lake (C)	1218	917		517		507	
6.4a	(6)	Crystal Lake (C)	1295	892	457	405		400	-57
8.2c	(8)	Crystal Lake (C)	1300	900			476	466	
12.3d	(4)	Cary (V)	1350	855	440	382	426	422	405
20.4c2	(5)	Lake-in-the-Hills Water Company	910	870			580	574	581
21.3a	(1)	Material Service Company	1262	835					466
34.1f	(2)	Algonquin (V)	1265	860			523	397	413
44N5E-									
35.3g	(3)	Marengo (C)	1028	817	698			692	691
35.5h	(1)	Arnold Engineering Company	846	818	705	698	703	703	692
44N8E-									
33.5a2	(7)	Crystal Lake (C)	1400	930	465		480	490	
45N8E-									
10.7c	(8)	Morton Chemical Company	1160	835				490	437
10.8a	(2)	Modine Manufacturing Company	1200	843	540				500
46N5E-									
33.8a	(2)	Dean Food Company	1775	880	688	675		690	688
OGL--									
40N1E-									
12.6b	(1)	Hillcrest (C)	387	825		802		802	
23.2a2	(2)	Del Monte Corporation Plant 109	465	790	674				646
23.2d	(5)	Rochelle (C)	502	810					734
23.4c1	(2)	Del Monte Corporation Plant 110	404	793			750		749
24.5h	(7)	Rochelle (C)	925	795					705
24.7a2	(4)	Rochelle (C)	1450	793	730				703
25.2i	(9)	Rochelle (C)	888	785	649				697
25.3f	(6)	Rochelle (C)	867	800	704	711	691	693	691
26.5h	(3)	Del Monte Corporation Plant 109	420	778	688				745
36.2h	(10)	Rochelle (C)	920	785	713				719
40N2E-									
21.1e	(1)	Del Monte Corporation	452	840	782				781
23.1f	(2)	Creston (V)	737	905	772				771
30.4c	(8)	Rochelle (C)	935	793	700				711
WIL--									
32N9E-									
8.5c	(1)	Braidwood (V)	1050	575	293				235
8.5d	(2)	Braidwood (V)	846	572	320				285
32N10E-									
36.2d	(2)	Illinois Youth Center-Kankakee	751	610	382				368
33N9E-									
1.5e1	(5)	Joliet Army Ammunition Plant	935	570	253	253	244	242	239
4.8a		Illinois Conservation Department, Des Plaines Wildlife Refuge	775	517					293
25.4g	(1)	Diamond International Company	708	565	270				230
25.6b2	(2)	Wilmington (C)	1566	546	289				227
36.7h	(3)	Wilmington (C)	1578	530	295				230
33N10E-									
9.1f	(2E)	Joliet Army Ammunition Plant	1672	646	310	298	296	284	287
9.4h	(1W)	Joliet Army Ammunition Plant	1614	641	296	293	284	279	284
34N9E-									
10.1h	(2)	AMOCO Chemical Corporation	1405	568					-50
11.2d	(2)	Stepan Chemical Company	1402	520	37	42	6		-18
11.2e1	(1)	Stepan Chemical Company	1407	525	35	45			
11.2e2	(3)	Stepan Chemical Company	1410	525			20		13
11.7g	(1)	AMOCO Chemical Corporation	1422	569	-3	-56			

(Continued on next page)

Water Levels (Continued)

(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
WIL 34N9E- (Continued)									
11.8f	(3) AMOCO Chemical Corporation	1400	575						-9
21.2d	(1) Rexene Polymers Company	1573	545	294	227	227	229	229	-65
22.7d	(1) Mobil Oil Corporation	1578	555					225	
25.5a	(8) Joliet Army Ammunition Plant	1639	606	228	238	158		178	-50
25.5d	(9) Joliet Army Ammunition Plant	1602	590		106	61		96	
25.5h	(10) Joliet Army Ammunition Plant	1569	591	243	248	161		223	-20
28.5h	(1) Dow Chemical Company	1605	534				254	237	
34.3a	(3) Joliet Army Ammunition Plant	1593	528	204	214	189			
34.7d1	(1) Chicago-Joliet Livestock Center	796	530	297				260	-37
34.7d2	(2) Chicago-Joliet Livestock Center	1593	530		240				
35.5a	(1) Joliet Army Ammunition Plant	1597	539	160	182	50			
35.8a1	(2) Joliet Army Ammunition Plant	1612	532		248			208	
36.5a	(6) Joliet Army Ammunition Plant	1648	578	213	128	85		98	-115
34N10E-									
7.5a	Peoples Gas Company	1581	609		130	148		76	
7.6b	Peoples Gas Company	1597	609			139		76	
31.6a	Joliet Army Ammunition Plant	1670	625	251	256	206			
35N9E-									
9.3c	(2) Will County Water Company	1499	605	208	145			140	-68
10.3a2	(2) Holiday Inn Motel	1556	570	150				172	+22
11.1b	(10D) Joliet (C)	1572	610			40		5	
25.1e	(3) Caterpillar Tractor Company	1556	547	7	-63	-15	-27	-28	-35
35N10E-									
2.8b	(4D) Joliet (C)	1563	558				-62	-112	
3.4e	(3) Illinois State Penitentiary	1518	560	-38	-43			-105	-67
3.5e	(2) Illinois State Penitentiary	1550	549	-43	-47				
4.2h	(1) Penn Dixie Steel	1595	553	31	-23	-24	-71	-73	-104
7.4b	(9D) Joliet (C)	1671	647	-25			-40	-30	-5
9.1d	(1D) Joliet (C)	1525	536	-12	-12		-94	-119	-107
11.6g	(1) E. J. & E. Railroad	1589	560	-50	-112				
14.5d	(1) Prairie State Paper Mills	1639	593	-2			-77	-77	-75
14.6h1	(5D) Joliet (C)	1609	564	-36			-46	-71	-35
15.8e	(2D) Joliet (C)	1565	529				-157	-231	
16.2h	Joliet (C)	1575	531	26	25	23	-8	-21	-47
19.2b	(4) Commonwealth Edison Company	1525	523	-63		-150		-149	-86
20.6a	(2) Commonwealth Edison Company	1487	536	-64	-84			-179	-115
20.7g	(2) Rockdale (V)	1586	556	-24		-54	-92		
21.4b	(2) American Cyanamid Company	1612	583	4		-2		-13	-17
29.8c	(5) Olin Company, Blockson Works	1490	567			-158		-238	
29.8h	(5) Commonwealth Edison Company	1505	527	77				-116	-193
30.1c	(4) Olin Company, Blockson Works	1555	583					-322	
30.1e1	(1) Olin Company, Blockson Works	1520	548				-187	-152	
30.2h	(3) Commonwealth Edison Company	1525	510	-76		-110	-118	-113	-37
30.3c	(6) Olin Company, Blockson Works	1500	543			-335		-368	
30.6e	(2) Caterpillar Tractor Company	1543	546	-32	-40	-48	-62	-69	-37
30.7f	(1) Caterpillar Tractor Company	1560	544	-52	-56	-66	-56	-82	-30
35N11E-									
5.7h1	(8D) Joliet (C)	1660	648				-12	-54	
36N9E-									
4.4a	(4) Plainfield (V)	1443	620	233		151		76	-157
10.8d	(3) Plainfield (V)	1481	612	162	132	152	137	114	-48
36N10E-									
2.7f	(1) Commonwealth Edison Company	1500	587	40	27	15	18	-5	-45
2.8f	(3) Commonwealth Edison Company	1507	590	39	34	20	20	16	-23
2.8h	(2) Commonwealth Edison Company	1536	590	37	23	15	15	15	-22
4.6g	(4) Romeoville (V)	1524	670	48	43	43		10	-38
16.4d3	(3) Lewis College	1523	666	96				-64	-160
21.4a	(6) Illinois Correctional Center-Stateville	1611	642	-4	-36	-41	-40		
23.2f	(4) Lockport (C)	1572	650	15	0	0	-2	-17	-32

(Continued on next page)

Water Levels (Continued)

(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface elevation	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
WIL 36N10E- (Continued)									
23.6d	(2) Lockport (C)	1446	589	-13		-19		-41	-28
27.6b	(1) U.S. Army	812	581	24				-49	-73
27.7a	(1) Met. Sanitary District	852	547	36				-9	-45
28.6f2	(4) Illinois Correctional Center-Stateville	1537	640	32				-60	-92
28.6h	(3) Illinois Correctional Center-Stateville	1527	643		33			-64	
29.2g	(5) Illinois Correctional Center-Stateville	1570	645	-5			-25	-40	-35
33.6h	(1) Nash Brothers	1558	593	15	2	-5	-37	-45	-60
37N9E-									
12.8c	Naperville (C)	1441	645					85	
37N10E-									
25.3f2	(2) Lemont Manufacturing Company	1500	580	82	72	59		51	-31
33.1h2	(2) Romeoville (V)	1520	640	70	61		36	26	-44
35.3c1	(1) Union Oil Company	1460	585	55	50	45	-11	4	-51
35.3c2	(2) Union Oil Company	1460	585	60	50	45	0		
WIN--									
43N1E-									
3.2f1	(1) Commonwealth Edison Company	354	700	687		682	676	680	-7
3.2f2	(2) Commonwealth Edison Company	825	710	619		641	647		
2E-									
3.7e	(1) Coventry Hills East Subdivision	525	820			743			
4.3h	(1) Holiday Acres	590	855			697			
6.6a	(1) Rockford Park District	853	822					760	
8.2d	(1) E. Rose & Sons	613	855				663		
17.7h	(36) Rockford (C)	1505	864		665		654		
44N1E-									
2.3b	(3) Rockford (C)	1127	760	643	643		674		
9.8c	(20) Rockford (C)	1200	735	644	644		650		
11.1c	(2) Atwood Vacuum Machine Company	709	745	695		695			
11.2c2	(3) Atwood Vacuum Machine Company	710	743	688		688			
12.6b	(1) Ingersoll Milling Machine Co.	750	746				697	700	
12.7b	(2) Ingersoll Milling Machine Co.	1204	745	683			697		
13.6e1	(8) Rockford (C)	1500	724	594	644		644	614	+30
15.3c1	(1) Dean Milk Company	1125	725	618			625		
17.3d	(22) Rockford (C)	1380	760	686	684		671		
20.7f	(21) Rockford (C)	1205	820	672	672		670		
21.8e	(15) Rockford (C)	1355	810	655	655		649		
22.5c2	(3) Rockford (C)	1600	730	637	637		626	658	+21
23.6d2	Rockford (C)	1300	708	691	691	689	688	687	-4
23.7c4	(1) Central National Plaza	465	710				673	677	
23.7e1	(1) Rockford (C)	1530	711	674	674		679	677	+3
27.1e2	(2) Barber-Coleman	450	705	628		624	626	676	+48
28.5c	(18) Rockford (C)	1380	820	643	658		643		
33.8f1	(1) Muller's Pinehurst Dairy	482	760	716				718	+2
33.8f2	(2) Muller's Pinehurst Dairy	465	759	716				720	+4
34.6h	(4) Rockford (C)	1219	731	661	661		666		
35.2f2	(2) National Lock Company	1140	731					681	
36.6d	(1) Greenlee Bros. & Company	743	735	660	660		660		
36.7f1	(7) Rockford (C)	1503	732	648	648		648		
44N2E-									
3.4c	(30) Rockford (C)	1325	905	642	646		645		
7.8e1	(2) Woodward Governor Company	1227	725	603			588		
9.2a	(25) Rockford (C)	1290	878	631	623		651		
16.2a	(27) Rockford (C)	1280	840	612	626		620		
17.6g3	(17) Rockford (C)	1195	785	667	661		677		
18.6a1	(5) Rockford (C)	1312	792	639	625		641	626	-13
19.6b1	(9) Rockford (C)	1600	809	685	685		681	678	-7

(Concluded on next page)

Water Levels (Concluded)

(Elevations in feet above mean sea level)

Well number	Owner	Depth of well (ft)	Surface eleva- tion	Water-level elevations					Water level change, 1971-1975 (ft)
				1971	1972	1973	1974	1975	
WIN 44N2E- (Continued)									
20.3e	(13) Rockford (C)	1457	835	642	642		642		
23.4b	(1) Ramada Inn	570	864				678		
25.7g	(1) Rockford Park District	1185	793					663	
28.5g	(26) Rockford (C)	1326	835	620	677		654		
29.3a	(10) Rockford (C)	1426	865	639	645		640		
31.7f	(6) Rockford (C)	1372	790	691	690		694	696	+5
32.4a1	(16) Rockford (C)	1310	840	670	670		649		
35.6h	(2) Cherry Vale Mall	1206	800			644			
35.8e	(1) Cherry Vale Mall	1201	800	664				648	-16
45N2E-									
34.7g	(3) Loves Park (C)	865	840	804		800			
46N1E-									
24.6h4	(4) Rockton (V)	429	738	720			720		0
24.8a	(6) Rockton (V)	728	828	726			731		+5
46N2E-									
5.7d	(3) Wisconsin Power & Light Company	1200	745	735	735		735		
15.5b	(1) Yates American Company	301	820	779			772		-7
22.7b	(NP1) Illinois Toll Highway Commission	365	770				729		