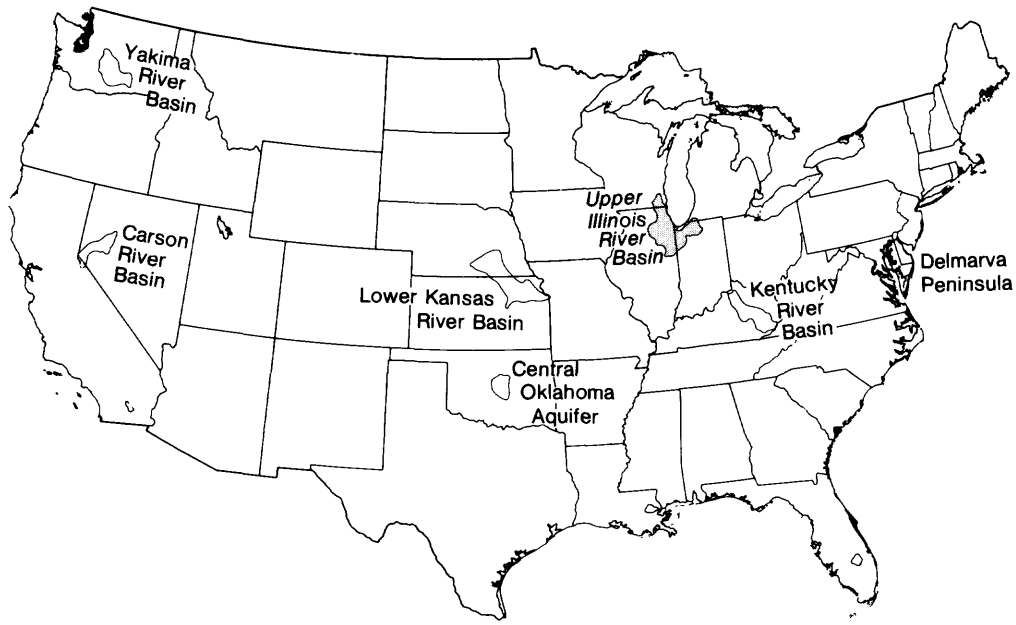
SURFACE-WATER-QUALITY ASSESSMENT OF THE UPPER ILLINOIS RIVER BASIN IN ILLINOIS, INDIANA, AND WISCONSIN: FIXED-STATION NETWORK AND SELECTED WATER-QUALITY DATA FOR APRIL 1987-AUGUST 1990

by Daniel J. Sullivan and Stephen F. Blanchard



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ILLUSTRATIONS

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CONVERSION FACTORS

Multiply	By	To obtain
inch (in.)	25.4	millimeter
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
square mile (mi^2)	2.590	square kilometer
ounce, fluid (fl. oz)	0.02957	liter
quart (qt)	0.9464	liter
foot per second (ft/s)	0.3048	meter per second
cubic foot per second (ft^3/s)	0.02832	cubic meter per second
million gallons per day (Mgal/d)	0.04381	cubic meter per second

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degree Celsius (°C) $°F = 1.8 \times °C + 32$ degree Fahrenheit (°F)

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ABSTRACT

This report describes and presents the sampling design, methods, quality-assurance methods and results, and information on how to obtain data collected at eight fixed stations in the upper Illinois River Basin as part of the pilot phase of the National Water-Quality Assessment program. Data were collected monthly from April 1987-August 1990; these data were supplemented with data collected during special events, including high and low flows. Each fixed station represents a cross section at which the transport of selected dissolved and suspended materials can be computed. Samples collected monthly and during special events were analyzed for concentrations of major ions, nutrients, trace elements, organic carbon, chlorophyll-a, suspended sediment, and other constituents. Field measurements of water temperature, pH, dissolved oxygen, specific conductance, and indicator bacteria also were made at each site. Samples of suspended sediment were analyzed for concentrations of major ions and trace elements. In addition, samples were analyzed seasonally for concentrations of antimony, bromide, molybdenum, and the radionuclides gross alpha and gross beta.

INTRODUCTION

In 1986, the U.S. Geological Survey (USGS) began a National Water-Quality Assessment (NAWQA) program to (1) provide nationally consistent descriptions of the current status of water quality for a large, diverse, and geographically distributed part of the Nation's water resources; (2) define trends in water quality that have occurred in recent decades and provide a baseline for evaluating future trends in water quality; and (3) identify and describe the relations of the status and trends in water quality to relevant natural factors and the history of land use and land- and waste-management practices. This information will be useful for planning future management actions and examining their likely consequences.

The NAWQA program selected seven pilot-project areas to test and modify, as necessary, assessment concepts and approaches in preparation for full implementation of the program. The seven pilot projects include four surface-water and three ground-water sites. The surface-water pilot-study areas are the Yakima River Basin in Washington; the lower Kansas River Basin in Kansas and Nebraska; the upper Illinois River Basin in Illinois, Indiana, and Wisconsin; and the Kentucky River Basin in Kentucky.

Purpose and Scope

This report describes and presents the approach, sampling design, and methods used in the fixed-station water-quality sampling program of the upper Illinois River Basin NAWQA pilot project. Information is provided on how to obtain data for the following groups of water-quality constituents for samples collected monthly and during special events: major ions, nutrients, trace elements, organic carbon, chlorophyll-a, suspended sediment, major ions and trace elements in suspended sediment, and other constituents. Information is also provided on how to obtain data for field measurements of water temperature, pH, dissolved oxygen, specific conductance, indicator bacteria, and other physical properties. In addition, information is presented on how to obtain data for water samples analyzed seasonally for concentrations of antimony, bromide, molybdenum, and the radionuclides gross alpha and gross beta. In addition, sample-collection, preparation, and analysis methods are described, and quality-assurance methods and results are documented.

Acknowledgments

The authors wish to thank the Illinois Environmental Protection Agency (IEPA) for their laboratory analysis of many of the water-quality samples for the upper Illinois River Basin NAWQA pilot study.

THE UPPER ILLINOIS RIVER BASIN

A detailed description of the physical characteristics, geology, climate, land use, and water use of the upper Illinois River Basin are presented in Mades (1987, p. 4-25). This section only presents a brief description of relevant basin characteristics. The upper Illinois River Basin drains 10,949 mi^2 in northeastern Illinois, northwestern Indiana, southeastern Wisconsin, and southwestern Michigan (fig. 1) (all figures and tables are at end of report). The areas of the upper Illinois River Basin in each of these States as percentages of total basin drainage area are 62, 28, 10, and less than 1, respectively.

The basin is drained by three principal rivers--the Kankakee, the Fox, and the Des Plaines Rivers. The Kankakee River drains 47.2 percent of the study area; the Fox River, 24.3 percent; and the Des Plaines River, 19.3 percent. The Kankakee and Des Plaines Rivers join near Morris, Ill., to form the Illinois River. The Fox River discharges into the Illinois River at the southwestern boundary of the basin near Ottawa, Ill. The Illinois River, after leaving the study area, flows to the west and southwest 273 mi to the Mississippi River.

The upper Illinois River Basin lies in what was formerly a prairie plain. Most of the underlying bedrock surface is covered by glacial-drift deposits of variable thickness. Local relief ranges up to 300 ft but is typically less than 100 ft for most of the project area. The general geology of the study area

consists of a deep granitic basement rock that is overlain consecutively by consolidated sedimentary rock and unconsolidated glacial deposits (Willman and others, 1975).

Land use in the upper Illinois River Basin is dominated by the large metropolitan Chicago urban and industrial area and by rural areas with row-crop agriculture. Agriculture accounts for about 75 percent of the land use in the basin. Corn is the principal crop, followed by soybeans. The remaining 25 percent of land use is accounted for by urban areas (13 percent), forest and pasture (7 percent), and industrial areas (5 percent). The population in the study area is approximately 7 million, of which 6 million live in the Des Plaines River Basin. The land use above each fixed station, according to the land-use classification system developed by Anderson and others (1976, p. 8), is listed in table 1.

The climate of the upper Illinois River Basin is classified as continental. In general, summers are hot and humid, and winters are cold. July is normally the warmest month, and January is normally the coldest. The 1941-70 average July and January temperatures were 23°C and -6°C, respectively (National Oceanic and Atmospheric Administration, 1981). Average annual precipitation for 1951-80 ranges from 32 in. in the north, on the headwaters of the Des Plaines and Fox Rivers, to 40 in. in the east, on the headwaters of the Kankakee River (Moody and others, 1986, p. 217).

Average daily water use in the basin totaled 9,000 Mgal/d in 1985. The amounts of water withdrawn, according to source of supply, were 1,680 Mgal/d from Lake Michigan, 6,900 Mgal/d from surface waters other than Lake Michigan, and 420 Mgal/d from aquifers. The 2,100 Mgal/d combined withdrawal from Lake Michigan and aquifers represents water that is imported to the upper Illinois River Basin. Sixty-four percent of total water use was for power generation, and 16 percent was for public water supply.

FIXED-STATION NETWORK

The fixed-station network consists of eight stations in the upper Illinois River Basin that were sampled each month. The eight fixed-station sampling sites are each established USGS streamflow-gaging stations. Table 1 lists selected information for each of the fixed-station sampling sites. All but two of the stations, Chicago Sanitary and Ship Canal at Romeoville and Des Plaines River at Riverside, are part of the IEPA's Ambient Water-Quality-Monitoring Network (Illinois Environmental Protection Agency, 1990, p. 150). Under an agreement between the USGS and IEPA, many of the water samples collected by USGS personnel were analyzed at IEPA laboratories.

The primary goals of the fixed-station sampling program were to (1) determine the frequency of occurrence and concentration of target constituents, (2) estimate target constituent loads past stations and mass balances of selected target constituents between stations, and (3) determine trends in water quality.

The specific fixed-station locations, with the exceptions of the Du Page River at Shorewood and the Fox River at Algonquin, were selected to maximize the information obtained from calculating mass balances within the study area to

document the transport of constituents. The combined load measured at the Illinois River at Marseilles and the Fox River at Dayton represents the yield of the whole project area. Loads measured at stations on the Kankakee, Iroquois, Des Plaines, and Du Page Rivers and the Chicago Sanitary and Ship Canal will be used to help determine the relative contributions from portions of the study area upstream from the Illinois River at Marseilles. Information collected at the Kankakee and Iroquois River stations will be compared to describe the possible effects of differences in geology on the quality of water from two basins that are similar in size and have the same agricultural land use. The Du Page River at Shorewood and the Fox River at Algonquin stations were selected, in part, to determine if trends attributable to increasing urbanization could be measured.

Fixed-station sampling began in April 1987 and was continued through August 1990. Brief descriptions of the fixed-station sampling sites and short discussions of how seasonal conditions affected water-quality sampling at each site follow.

The Kankakee River at Momence station was sampled at low stages by wading across a stream section at the gage site. The wading section is a cross section of fairly uniform depth approximately 400 ft wide, with an average velocity of about 2 ft/s. The substrate consists of cobbles and boulders mixed with sand. Macrophyte growth is often heavy in the summer low-water period. In winter, ice jams occasionally clog the channel, inhibiting sampling by wading. If these conditions existed, or if the stage was too high for wading, samples were collected from the State Highways 1 and 17 bridge. At the bridge located about 1/2 mi upstream from the gage, the river is split into two channels. The left (looking downstream) channel's flow is even and swift. The velocity ranges from 2 to 6 ft/s depending on stage and location in the cross section. The right channel's flow is restricted by a low-head dam about 250 ft downstream from the bridge that nearly ponds the river. Figure 2 gives a plan view of the river and shows the cross sections where samples were collected. Figure 3A is an aerial photograph of the sampling site taken April 12, 1988.

The Iroquois River near Chebanse, like the Kankakee River at Momence, is a relatively shallow, wide stream at normal stage. Wading samples were collected about 250 ft downstream from the county road bridge on which the gage is located. At the wading site, the river is about 250 ft wide, with a fairly uniform depth. Bottom material consists of cobbles, gravel, and boulders covered with varying amounts of silt. During low water, the channel is often clogged with extremely dense periphyton growth. This condition was further exaggerated during the severe drought of the summer of 1988, when all but a narrow channel of flowing water was obscured by heavy mats of algae and macrophyte growth. In winter, ice cover can be thick. Bridge samples were collected from the downstream side of the county road bridge. At the bridge, the river's width varies from about 300 ft at medium to high stage to greater than 400 ft when the river is bankfull. Velocities at the site range up to 3 ft/s. Figure 4 gives a plan view of the river and shows the cross sections where samples were collected. Figure 3B is an aerial photograph of the sampling site taken April 12, 1988.

The gaging station at the Des Plaines River at Riverside is located about 500 ft below Hoffman Dam, a low-head dam. Another, much lower dam is located just below the gaging station. Wading samples were collected about 200 ft below this lower dam. Wading is often difficult at this site because of the

combination of generally high stream velocities and a slippery algal growth over an uneven mix of cobbles, boulders, and gravel. The river is about 100 ft wide at the wading site, when the stage is suitable for this type of sampling. A large percentage of the river's flow at normal stage consists of discharge from various wastewater-treatment plants. This warm-water discharge usually keeps water temperatures high enough that ice cover rarely hinders water-quality sampling efforts during the winter. During high stages, bridge sampling was conducted from the Barry Point Road bridge, which crosses the river about 100 ft downstream from Hoffman Dam. Figure 5 gives a plan view of the river and shows the cross sections where samples were collected. Figure 6A is an aerial photograph of the sampling site taken April 30, 1988.

The Chicago Sanitary and Ship Canal at Romeoville station was sampled from the Romeo Road swing-span bridge, which is about 50 ft downstream from the gaging station. The canal is a manmade channel with a uniform cross section and vertical banks cut out of bedrock. The water is well-mixed across the channel because of turbulence from frequent barge traffic. Flow velocities are normally less than 1 ft/s, unless downstream locks are open to release storm runoff, under which conditions flow velocities can exceed 5 ft/s. The canal is 165 ft wide at the site, with a depth of about 25 ft. The depth decreases when the locks are open. Figure 7 gives a plan view of the canal at the sampling site and shows the cross section where samples were collected. Figure 6B is an aerial photograph of the sampling site taken April 17, 1988.

The Du Page River at Shorewood drains the smallest area of the eight fixed stations. Water levels usually are low enough to allow sampling by wading. The wading section is about 150 ft downstream from a low-head dam that is located 67 ft downstream from the gage house. The sampling cross section is in a fairly uniform riffle area with a coarse gravel substrate. The stream at this point often has dense periphyton and macrophyte growths during the summer months. Ice cover is common during the winter but the turbulence of the water over the riffle usually keeps the center of the channel clear. During high stages, samples were collected from the upstream side of the U.S. Highway 52 bridge. Figure 8 gives a plan view of the river at the location of the sampling site and shows the cross sections where samples were collected. Figure 9A is an aerial photograph of the sampling site taken April 29, 1988.

Sampling is conducted from a boat attached to a fixed cableway at the Illinois River at Marseilles fixed station. The river at this point flows swift and turbulent, with water velocities averaging about 3 to 4 ft/s. The sampling cross section is about 600 ft wide, with a fairly uniform bedrock bottom. A large navigational dam, located about 1/4 mi above the gage, diverts water to a navigation canal that parallels the river. When the stage was too high for boat sampling, samples were collected from the County Highway 15 bridge which crosses the river about 300 ft below the dam. The high velocity and turbulence of the river's flow usually keeps the channel open at both sampling sections through the winter months. Figure 10 gives a plan view of the river at the sampling site and shows the cross sections where samples were collected. Figure 9B is an aerial photograph of the sampling site taken April 29, 1988.

The Fox River at Algonquin station is located just upstream from a dam that pools the river at the gage. Samples were collected from the upstream side of the State Highway 62 bridge, which crosses the river about 150 ft upstream from

the dam. Because of the pool situation, heavy phytoplankton blooms are common in the summer months. During the summer of 1989, particularly heavy blooms occurred that turned the river a bright green color. Ice presented problems at times in the winter, and, if too thick to break, samples were collected from a riffle below the dam. This was not considered desirable, however, because a small creek enters the river immediately downstream from the dam on the right bank and could alter the concentration of constituents found upstream from the dam. Figure 11 gives a plan view of the river at the location of the sampling site and shows the cross sections where samples were collected. Figure 12A is an aerial photograph of the sampling site taken April 29, 1988.

The Fox River at Dayton is located about 76 mi downstream from the Algonquin site and just over 5 mi upstream from where the Fox River discharges into the Illinois River. The gage site is located about 500 ft below a hydroelectric powerplant. A dam is located adjacent to the powerplant for the purpose of diverting streamflow to the plant's generators. Samples were collected by wading at points along a cross section located in the vicinity of the gage; the exact location varied according to stage. The stream at this point has a solid bedrock bottom that is rather uneven. When conditions made bridge sampling necessary, samples were collected from the upstream side of the County Highway 18 bridge, located just downstream from the gaging station. The width of the river ranged from a minimum of about 250 ft at low wading stages to greater than 300 ft at flood stage. Heavy phytoplankton blooms turned the river a bright green color during the summer of 1989, as occurred at the Algonquin site upstream. Ice cover occasionally forms in the winter, and, in February 1988, a very large ice jam caused extensive flooding at the site, damaging several houses along the banks of the river. Figure 13 gives a plan view of the river at the sampling location and shows the cross sections where samples were collected. Figure 12B is an aerial photograph of the sampling site taken March 25, 1988.

Constituents of Interest

Monthly water-quality samples were analyzed for a wide variety of constituents and physical properties. Most constituents and physical properties analyzed are included in the list of targeted variables developed for the NAWQA program and are discussed by Hirsch and others (1988, p. 15-21). These targeted variables were selected based on their relevance to important water-quality issues and on the existence of appropriate analytical methodologies. Required variables were the same for all surface-water pilot projects and were called target variables. Additional variables needed to help explain water-quality conditions and changes in the upper Illinois River Basin were included and called support variables. Situations unique to the upper Illinois River Basin warrant the determination of several constituents not listed as NAWQA program target variables. These included samples for chlorophyll-a analysis and samples required as part of a cooperative agreement with the IEPA. Chlorophyll-a samples were collected and analyzed to estimate phytoplankton biomass. Samples that were collected to fulfill IEPA requirements were analyzed for phenols, fecal coliform bacteria, and oil and grease. Table 2 lists all constituents and physical properties determined for water-quality samples, the laboratory responsible for the analysis, and other relevant information.

In addition to the regular monthly set of analyses, several additional constituents were determined on a seasonal basis only. These constituents included bromide, molybdenum, antimony, and radiochemicals. Because the occurrence of these constituents in the upper Illinois River Basin was unknown, seasonal analysis was performed to determine if more regular sampling was necessary. Table 2 also lists the seasonal constituents and related information.

Sample Collection

The eight fixed-station sites were visited each month. The sampling trip was generally conducted during the first full week of each month and usually lasted 3 or 4 days, depending on weather, river stages, and other factors. In addition to the monthly sampling, up to six samples per year per site were collected to document concentrations at high and low flows. This combination of fixed-interval and event sampling was conducted to collect water-quality samples over the entire range of flow conditions at each station. The instantaneous flow at the time the water-quality sample was collected was then recorded and plotted on flow-duration curves for each fixed station. The flow-duration curves were constructed with USGS daily streamflow data for each station using the techniques described in Hutchison (1975). Figures 14-20 show the hydrologic distribution of water-quality samples collected during the fixed-station sampling. Since the Chicago Sanitary and Ship Canal lacked a long-term discharge record, a flow-duration curve was not constructed for this station. However, as at all other fixed stations, efforts were made to sample over the complete range of flow conditions found at this station.

Each sampling trip was conducted by two members of the upper Illinois River Basin NAWQA pilot project team. In most cases, standard USGS sampling equipment and techniques were used to collect the water-quality samples. The following discussion lists the methods and equipment used, and describes nonstandard procedures and when they were used.

The type of sampler used at a site was determined by (1) river depth, (2) visual observation of river conditions and velocity, (3) familiarity with previously used sampling techniques at the site, and (4) the type of analysis to be used on the sample.

Generally, if the maximum velocity was less than 1.5 ft/s, an open bottle with a narrow neck was used. For sampling while wading, the bottle was hand-held; for sampling from bridges, it was attached to a weighted, epoxy-painted metal holder and suspended from a nylon rope. When water velocities exceeded 1.5 ft/s, samplers designed to collect suspended sediment were used. In wading situations, where the velocity exceeded 1.5 ft/s, a U.S. DH-81 sampler (Edwards and Glysson, 1988, p. 9) attached to a 4-ft-long wading rod was used to collect samples. Bridge samples required the use of a U.S. DH-76 sampler (Edwards and Glysson, 1988, p. 11) with a 1-qt glass bottle. The DH-76 sampler was suspended from the bridge by a bridge board fitted with an A-55 reel and cable assembly. A list of the specific types of samplers used to collect samples at each of the fixed stations is presented in table 3.

Sampling at the Chicago Sanitary and Ship Canal at Romeoville required equipment capable of acquiring depth-integrated samples from deep (about 25 ft in this case) rivers. At normal flow, when velocities were less than 1.5 ft/s, a 4-L (liter) open-bottle sampler was used. When flow velocities were greater than 1.5 ft/s, a U.S. P-72 (Edwards and Glysson, 1988, p. 14) point-integrating sampler was used because the working limit of a standard depth-integrating sampler, such as a DH-76, was exceeded.

Composite samples were collected at each section using the equal-width-increment method described by Ward and Harr (1990). Water was collected from multiple verticals and composited to form a sample that represented the total amount of water passing the cross section at the time the sample was collected. Two 20-L carboys were used for compositing the water for subsequent processing.

Some types of samples were not taken from the 20-L carboys because of special handling or container requirements. These included samples for determination of bacteria, oil and grease, and organic carbon. Bacteria samples were collected in sterile glass bottles as near-surface grab samples from the center of the stream. Oil and grease samples were collected at the center of the stream using the glass bottles designated for this analysis. The opening of the bottle was held at the water surface while filling the bottle. Organic carbon samples were collected from the center of the stream as depth-integrated samples.

In-situ measurements were made at the same verticals in the cross section from which water samples were collected. In-situ measurements were made from multiple verticals and depths in order to document constituent variation. Measurements were made using a portable water-quality-measurement system. Dissolved oxygen, pH, specific conductance, and temperature were measured and recorded along with their corresponding sample location, time, and depth. The water-quality-measurement system was calibrated before and decalibrated after each day using laboratory standards.

The depth at which in-situ measurements were made was a function of the total depth of the stream at the sampling vertical. When stream velocity was low, the following guidelines were used in making in-situ measurements. When stream depths were less than 5 ft, measurements were made at a depth of 1 ft. If the depth exceeded 5 ft but was less than 15 ft, a reading was taken at 1 ft and at another point generally 1 ft above the stream bottom. When depths exceeded 15 ft, in-situ readings were taken at 1 ft, mid-depth, and 1 ft above the bottom. When stream velocities were high, one near-surface measurement was made because of the difficulty in submerging the instrument.

Sample Preparation

Upon completion of the cross-section sampling, part of the well-mixed contents of one of the two 20-L carboys filled with stream water was transferred to a 14-L churn splitter. Samples to be analyzed for total concentrations of major ions, nutrients, trace elements, chlorophyll-*a*, and suspended sediment were transferred directly from the churn splitter to their respective containers. Specific conductance and pH also were measured on the composited sample. Samples for analysis of concentrations of antimony, bromide, molybdenum, and the

radionuclides also were taken from the churn splitter when these analyses were called for in the sampling schedule. The other carboy was covered with a dark plastic bag, to prevent biological activity from possibly altering any chemical characteristics, and transported back to the Illinois District laboratory. The water sample in this carboy was later processed to determine concentrations of major ions, phosphorus, and trace elements in suspended sediment.

Filtering of samples for analyses of dissolved concentrations of major ions, nutrients, trace elements, and alkalinity[1] were passed through a 142-mm (millimeter)-diameter, 0.45-μm (micrometer) polycarbonate filter. The sample was pushed through the filter by a peristaltic pump. Samples for dissolved organic carbon analysis were filtered through a 47-mm-diameter, 0.45-μm pore-size silver filter mounted in a stainless-steel pressure filter unit. Particulates for the suspended-organic-carbon analysis were collected on the silver filter used for the preparation of the dissolved-organic-carbon sample. Compressed nitrogen was used to push the water sample through the silver filter.

Samples for analysis of chlorophyll-a samples were prepared using water taken directly from the churn splitter. Field equipment and techniques of sample preparation are described by Woodward (1982, p. 13-18). After passing a known volume of the water sample through a glass-fiber filter, the filter was placed in a darkened scintillation vial. The vial was then immediately frozen to prevent degradation of the chlorophyll-a sample.

Escherichia-coliform (E. coli) and fecal coliform bacteria samples were prepared by the membrane filtration method. A known volume of the sample was passed through the filter, and the filter was placed on a nutrient medium and incubated for 24 hours. The E. coli methods are described in U.S. Environmental Protection Agency (USEPA) (1985, p. 7). The preparation of fecal coliform samples followed the guidelines in Britton and Greeson (1988, p. 63) with the exception that 0.45-μm, rather than 0.7-μm, pore-size filters were used to satisfy IEPA requirements.

Suspended-sediment samples for major ion, phosphorus, and trace-element analysis were prepared in the Illinois District laboratory. The settling and centrifugation method used to prepare the samples is described by Horowitz (1986, p. 156). After the bulk water sample, kept in the dark, had settled for 3 to 5 days, a peristaltic pump was used to siphon off the supernatant water. The remaining water was shaken to resuspend the sediment and then poured into centrifuge bottles. Several centrifuge cycles were completed, and the supernatant was siphoned off after each cycle until the sample fit into one centrifuge bottle. The final cycle was a distilled-water rinse. After the final cycle, all but 50 to 100 mL (milliliter) of sample was siphoned off, and the remaining water sample and all the sediment were transferred to a specimen cup and frozen. Prior to October 1987, the distilled-water rinse was not part of the preparation process.

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[1]Beginning in October 1988, all samples analyzed for alkalinity were filtered samples. Prior to this date, alkalinity was determined in whole-water samples.

Table 4 lists the types of sample containers and preservatives used for all samples. The IEPA adds the preservative to the sample bottles in the laboratory prior to sample insertion, while sample bottles for analysis at the USGS National Water Quality Laboratory (NWQL) in Denver, Colorado, required the addition of preservatives to the sample in the field.

Sample Analysis

Several laboratories conducted various analyses for the water samples collected for the upper Illinois River Basin NAWQA pilot project. The laboratory methods used by IEPA are described in their methods manuals (Illinois Environmental Protection Agency, 1987). Laboratory methods used by the USGS, except those for the analysis of suspended-sediment concentration, the percentage of suspended sediment in the sand and fine fractions, and the analysis of chlorophyll-a concentration are described in Fishman and Friedman (1989). A summary of the constituents analyzed, the laboratory conducting each analysis, and the specific analytical methods used are presented in table 2.

Most samples were analyzed for chlorophyll-a by fluorometry by a procedure similar to that described by Strickland and Parsons (1972). In this method, 15 mL of 90-percent acetone is added to the filter and then placed in a grinding tube and ground with a Teflon[2] pestle. The sample was placed in a refrigerator for at least 18 hours before the chlorophyll-a concentration was read on a Turner Designs fluorometer. Some samples for chlorophyll-a were analyzed by the NWQL by the chromatography method described in Britton and Greeson (1988, p. 409).

Concentrations of suspended sediment in water samples and the percentage of suspended sediment in the fine fraction were determined by the USGS Sediment Laboratory in Iowa City, Iowa. Suspended-sediment concentration was determined by the evaporation method. The percentages of sands and fines (silt- and finer-sized fractions) were determined by wet-sieving using a sieve with 0.062-mm-sized openings. Both techniques are described by Guy (1977).

Fecal-coliform bacteria samples were prepared and counted, and concentrations were calculated according to the guidelines described by Britton and Greeson (1988, p. 66). Escherichia-coliform bacteria samples were prepared and counted, and concentrations were calculated by the procedure described by the U.S. Environmental Protection Agency (1985, p. 8).

Major ions and trace elements in suspended sediment were analyzed by the USGS Geologic Division Laboratory in Menlo Park, California, by methods described in Fishman and Friedman (1989) for analysis of fluvial sediments. In addition, surface-area calculations of freeze-dried samples were performed at the USGS facility in Atlanta, Georgia.

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[2]Use of the brand names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.

Quality Assurance and Quality Control

An extensive program of quality assurance and quality control (QA/QC) was conducted throughout the course of the upper Illinois River Basin NAWQA pilot project. The QA/QC plan addressed all aspects of sample collection, analysis, and reporting needed to produce reliable and verifiable data in a nationally consistent manner (Mattraw and others, 1989).

Types and Frequency of Quality-Assurance and Quality-Control Measures

Types of QA/QC water samples included blanks, process duplicates, collection duplicates, laboratory comparisons, and standard references. The QA/QC samples were most often analyzed for the target constituents and infrequently for the seasonal constituents. Water samples for QA/QC were prepared in the months and years indicated in table 5. Where applicable, the specific type of blank sample or the location at which the QA/QC sample was collected also is listed. Other QA/QC measures included observation and critique of sampling procedures used by field personnel, submittal of duplicate nutrient samples to IEPA laboratory and the NWQL, separate packing of IEPA and USGS samples in different coolers used exclusively for each type of sample, and prompt chilling and mailing of samples to the appropriate laboratory. A thorough sample tracking system was used to track the sample through the shipment, analysis, and data-transmission steps. Assurance of the quality of the NAWQA data base included continued updates, checking of entries, and corrections as needed. In addition to the project QA/QC activities, all labs conducted their own internal QA/QC checks.

Blank samples were prepared and submitted to the IEPA laboratory and the NWQL on a routine basis. Blank samples consisted of distilled water as opposed to ambient stream water. Analyses of these samples were expected to reveal very low or below-detection-limit concentrations of water-quality constituents, and so were referred to as "blank" samples.

The types of blank samples were as follows:

Distilled-water blank	Distilled water taken from the source and transferred directly to the appropriate sample container.
Field blank	Distilled water samples prepared using equipment and procedures identical to those used to process stream samples.
Filter blank	Distilled water passed through the pump and filter apparatus only.

Distilled-water blanks were analyzed to ensure that the distilled water being used for rinsing during sample preparation was free of any contamination. Results of analyses of field blanks were used to check for contamination caused by the sample-collection and processing equipment. Filter blanks were analyzed,

and the results were compared with results of analyses of distilled-water blanks to check for contamination from the filtering apparatus.

"Process duplicate" samples were submitted as a QA/QC check on sample preparation and handling by field personnel. Duplicate samples were prepared from water samples that had been collected in the usual manner. After transferring a sample to the churn splitter, the sample was split to produce two sets of samples as similar as possible. All "laboratory" operations that were conducted in the field also were conducted in duplicate--once by each member of the field team. The operations performed in duplicate included titrations for determination of acidity and alkalinity, reading the specific conductance and pH of the composited sample, and filtering chlorophyll-a samples. Duplicate sets of bacteria samples also were prepared and analyzed. Two field sheets were filled out, and separate sampling times were designated to each of the two sample sets to differentiate them.

"Collection duplicate" or concurrent samples were prepared as a QA/QC check on sampling techniques. To prepare collection duplicates, two separate water samples were collected--one by each member of the field team--using techniques and equipment as nearly identical as possible. The team members collected samples from the same points along the cross section simultaneously. Each sample was then processed as a unique sample. Two field sheets were filled out, and separate sampling times were designated to differentiate the two samples.

"Laboratory comparison" samples were submitted for the purpose of comparing analytical results between the IEPA laboratory and the NWQL. Because the IEPA laboratory conducted most of the analyses for the upper Illinois River Basin NAWQA pilot project, the periodic submission of duplicate samples to the NWQL served as a check on IEPA's results. The laboratory-comparison samples analyzed by the NWQL, which were in addition to the regularly-submitted nutrient samples, are listed in table 2. The types of sample containers and preservatives used for the laboratory-comparison samples are listed in table 4.

"Standard reference" samples were submitted to both the IEPA laboratory and the NWQL. Standard-reference samples were acquired through either the NWQL or USEPA's Environmental Monitoring Systems Laboratory in Cincinnati, Ohio. These samples contained known quantities of various constituents. Standard reference samples with concentrations of constituents similar to those found in stream samples in the upper Illinois River Basin were submitted to the laboratories as blind samples to evaluate the accuracy of the laboratories' analyses of regular stream-water samples. The samples were submitted as blind samples with fictitious station numbers to avoid alerting the analyst that these were QA/QC samples, which could possibly bias the treatment of the samples.

Duplicate samples were submitted for analysis of nutrients to the IEPA laboratory and the NWQL. The IEPA laboratory uses a different preservative (sulfuric acid) than that required by the NWQL (mercuric chloride). Because of this, a duplicate nutrient sample was sent to the NWQL to satisfy USGS sample-preservation requirements. This nutrient sample was in addition to that analyzed by the IEPA laboratory as part of the fixed-station cooperative agreement. The result of having to satisfy both requirements is that a data set from split nutrient samples, preserved by different methods and analyzed at different laboratories, was produced and used as a further QA check.

The water-quality sampling techniques of upper Illinois River Basin NAWQA pilot-project personnel were observed by supervisory personnel and water-quality specialists to ensure that each project member responsible for data collection maintained the high standards necessary to collect accurate, reproducible data. Supervisors and water-quality specialists would travel to a site where water-quality sampling was taking place and observe the sample-collection and processing procedures. Upon returning to the office, any comments and suggestions the observers had on ways to improve sampling quality, efficiency, or any other aspect of the field program were made to the field team. The scheduling of observations by supervisors and water-quality specialists of field techniques varied but was conducted at least once each year.

Laboratory results from samples collected early in the fixed-station sampling indicated possible mercury contamination. The mercuric chloride ($HgCl_2$) used to preserve USGS nutrient samples was suspected to be the primary cause. Attempts were made to minimize or eliminate this contamination. First, whenever $HgCl_2$ was added to USGS nutrient samples, it was done at least 20 ft from the field vehicle, and then the empty $HgCl_2$ ampules were sealed in air-tight containers. Secondly, all samples for the IEPA laboratory, which conducted most of the mercury analyses, were kept in coolers exclusively used for IEPA samples. Lastly, the vehicle used for water-quality field work was thoroughly cleaned between sampling trips.

All samples were placed on ice as soon as possible after collection and preparation and mailed to the laboratory within 2 working days to minimize sample alteration. The water-quality data base was updated on a continuing basis, and efforts were continually made to improve methods of checking and correcting the data. Field data usually were entered in the data base within 5 working days after completing a sampling trip, and then checked twice to ensure that all entries were complete and correct. Also, laboratory results were promptly checked so that reruns could be requested within the 60-day limit on reruns imposed by the NWQL. Rerun requests were not possible through IEPA. In addition to checking each month's entries for accuracy, at the end of each water year the entire year's data were again checked and instantaneous discharges corrected for any shifts or updated ratings.

Results of Quality-Assurance and Quality-Control Measures

A principal end product of a good QA/QC program is a high-quality, reproducible data base. The QA/QC program ensured that the distilled water used to rinse equipment was free of contaminants, and that contamination from sampling and processing equipment did not occur.

In addition, statistical analysis of QA sample data can be used to indicate the quality of the sample collection and processing procedures as well as laboratory results. A summary of the statistics generated from the results of analyses of process-duplicate, collection-duplicate, laboratory-comparison, standard-reference, and nutrient-duplicate samples is presented in tables 6, 7, 8, 9, and 10, respectively.

WATER-QUALITY DATA

Tables 11-13 present examples of the available tabulated water-quality data for the eight fixed-station-sampling sites. The available data include the location, date, and time of sample collection; the laboratory where the analyses took place; and the results of those analyses. Data for the constituents and physical properties shown in tables 11-13 and listed in table 2 for the period April 1987 through August 1990 are available from the Urbana, Ill., office of the U.S. Geological Survey.

The following information is included as an aid to interpreting the data contained in tables 11-13.

Date.--Some stations may have results for more than one sample during a month. In some cases, the samples may have been collected early for the next month's sample. Quality-assurance samples, such as collection or process duplicates, have the same date and are listed 15 minutes apart. Samples not included in the above, for a given month, were probably collected as special-event samples during high or low flows.

Time.--The sample collection times indicated are expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. Duplicate IEPA and USGS analyzed samples are labeled 1 minute apart (for example, 1230 and 1231).

Agency analyzing code.--Lists the laboratory that conducted the analyses for the sample. Code number 17002 refers to the IEPA laboratory in either Chicago or Champaign, Illinois. Code number 80020 refers to the USGS laboratories in Denver, Colorado; Iowa City, Iowa; or Menlo Park, California, depending on the particular analysis (see table 2 for a listing of which USGS laboratory conducted the analysis of the constituent of interest). Code number 81700 refers to USGS field sample (in this case, field personnel from the Illinois District of the USGS).

Number of sampling points.--Number of points in the vertical from which samples were composited. A single sampling point usually indicates an in-situ measurement only.

Sampling depth.--The sample depths that appear in the tables are estimated from cable markings on cables or by visual inspection. Samples that appear in the data tables without depths are depth-integrated samples.

Sample location.--All samples appear in the data tables with a corresponding cross-section location, the distance from the left bank looking downstream. This distance locates the specific sampling point along the cross section line at which the water-quality sample was taken. Samples appearing without a sampling location indicated are composited samples.

Missing data.--Missing data will appear in the data tables as a dashed line.

Field measurements.--The field measurements of dissolved oxygen, pH, and specific conductance that appear in table 11 have been adjusted for instrument drift, where necessary, by applying corrections calculated from the calibration of the instrument before use and decalibration after use.

Parameter codes.--Each column heading in tables 11-13 has a number that is the parameter code used in the USGS National WATer Data STOrage and REtrieval System (WATSTORE) to reference parameters related to water quality (Hutchison, 1975).

Remarks.--The value for each water-quality parameter may be qualified by a remark. The remark and the corresponding symbol that may be printed in the data tables are listed below.

Symbol	Remark
E	Estimated value.
<	Actual value is known to be less than the value shown.
>	Actual value is known to be greater than the value shown.
K	Results based on colony count outside the acceptable range (20-80 colonies/plate)(non-ideal colony count). For further information on counting bacteria samples, see U.S. Environmental Protection Agency (1985).

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Figures 1-20; Tables 1-13

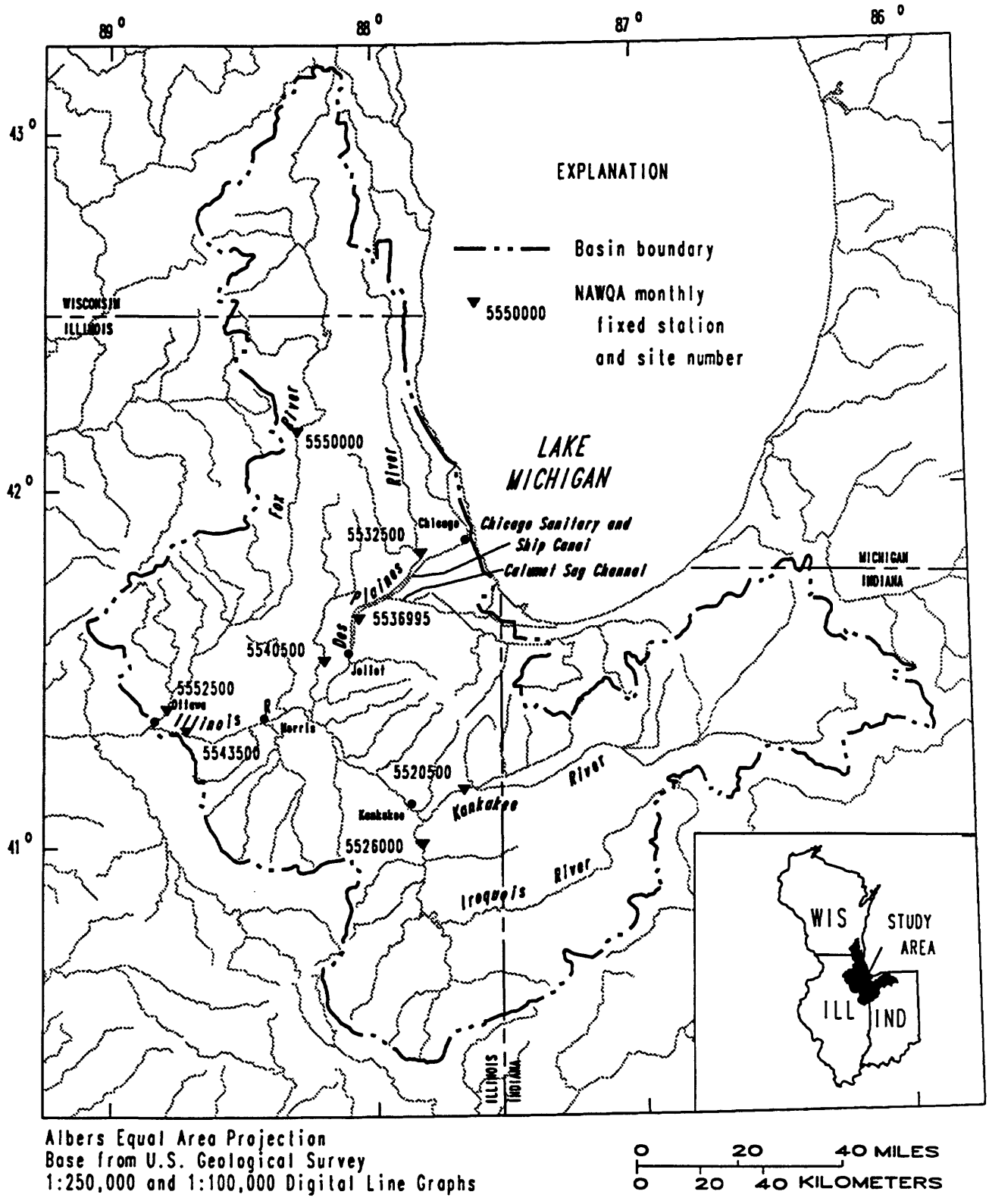

Figure 1.--Location of upper Illinois River basin and fixed stations.

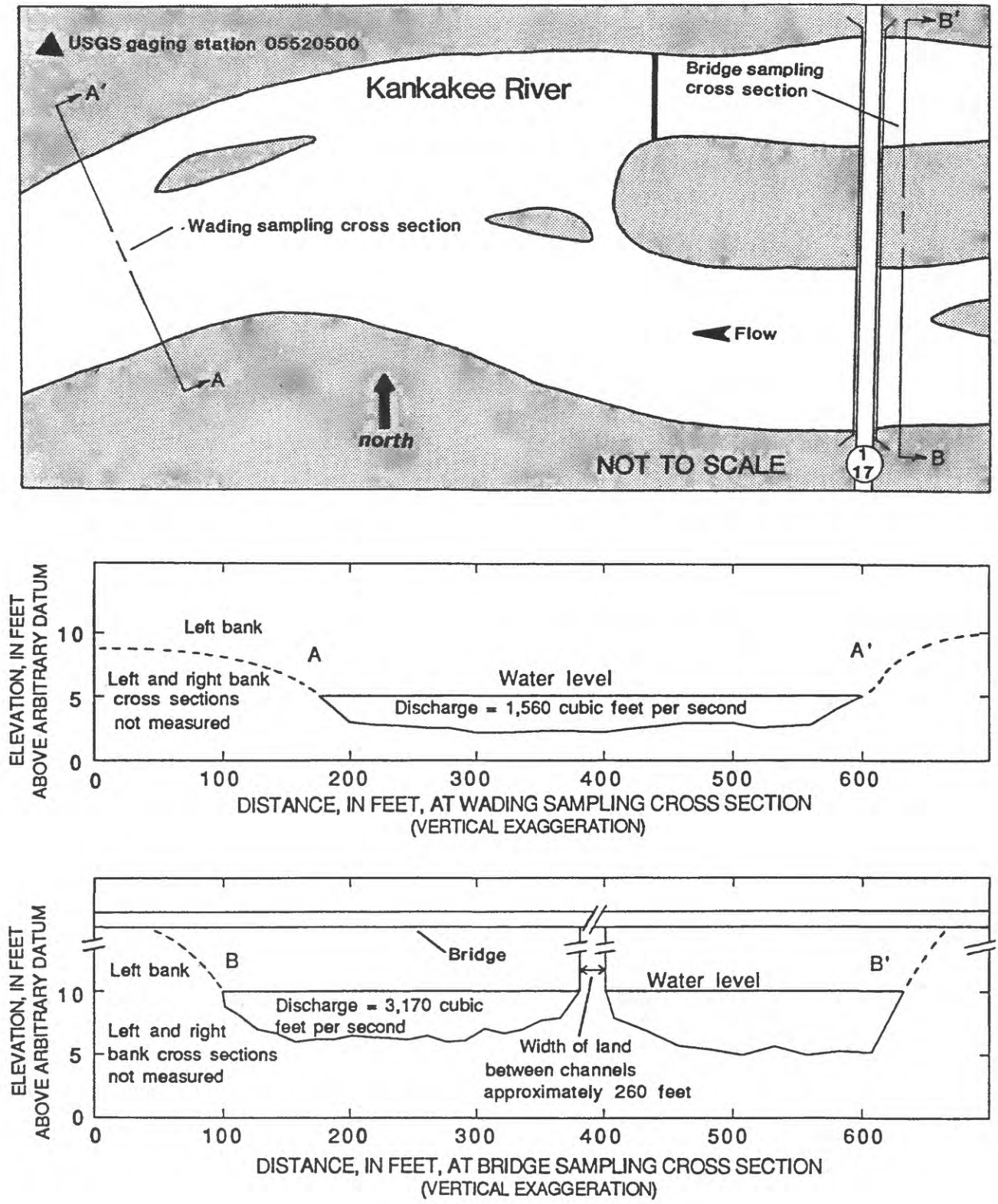

Figure 2.--Plan view of Kankakee River at Momence, Ill. (top), with details of wading and bridge sampling cross sections (lower).

A.

B.

Figure 3.--Aerial photographs of (A) Kankakee River at Momence, Ill. (05520500), and (B) Iroquois River near Chebanse, Ill. (05526000), taken April 12, 1988.

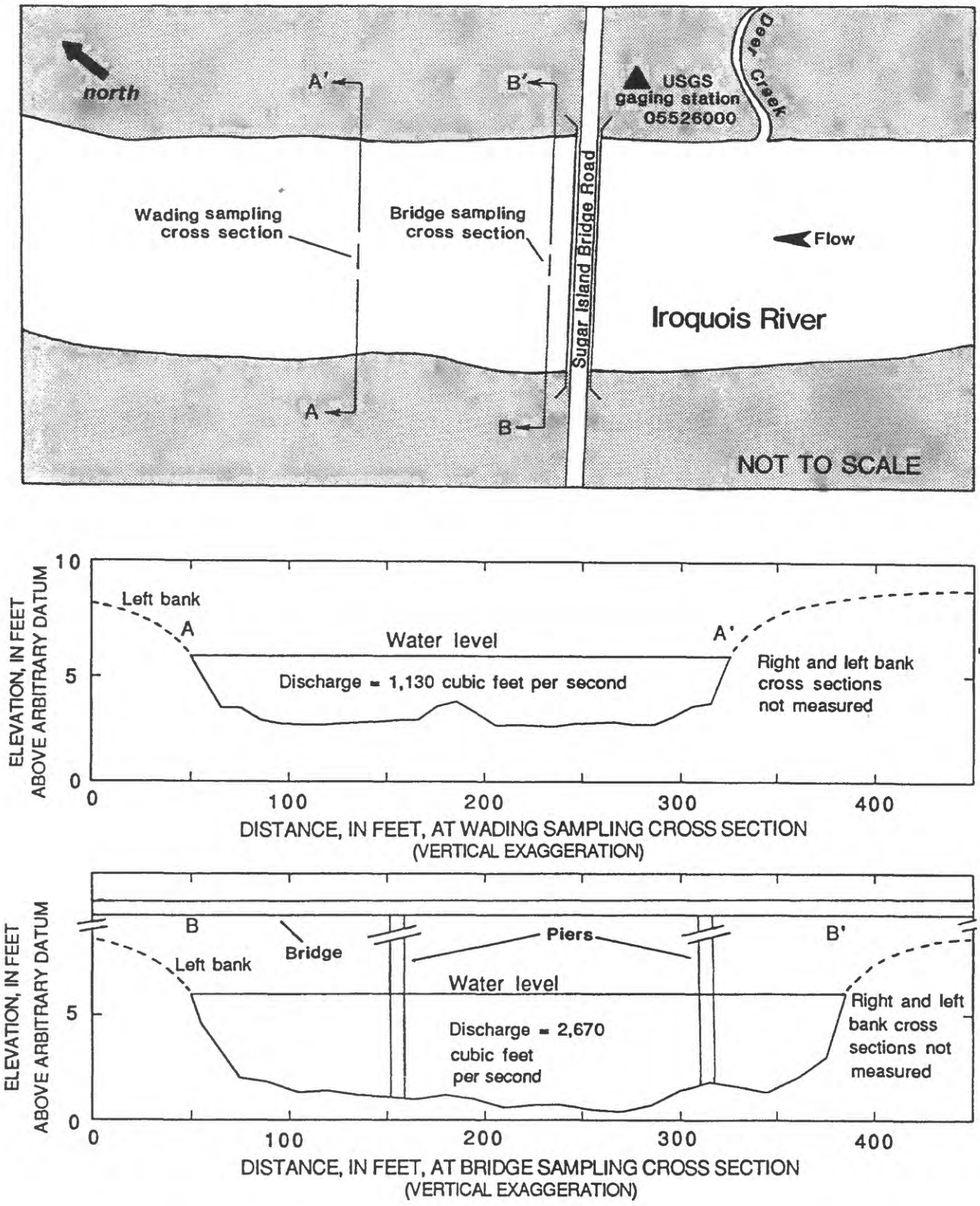

Figure 4.--Plan view of Iroquois River near Chebanse, Ill. (top), with details of wading and bridge sampling cross sections (lower).

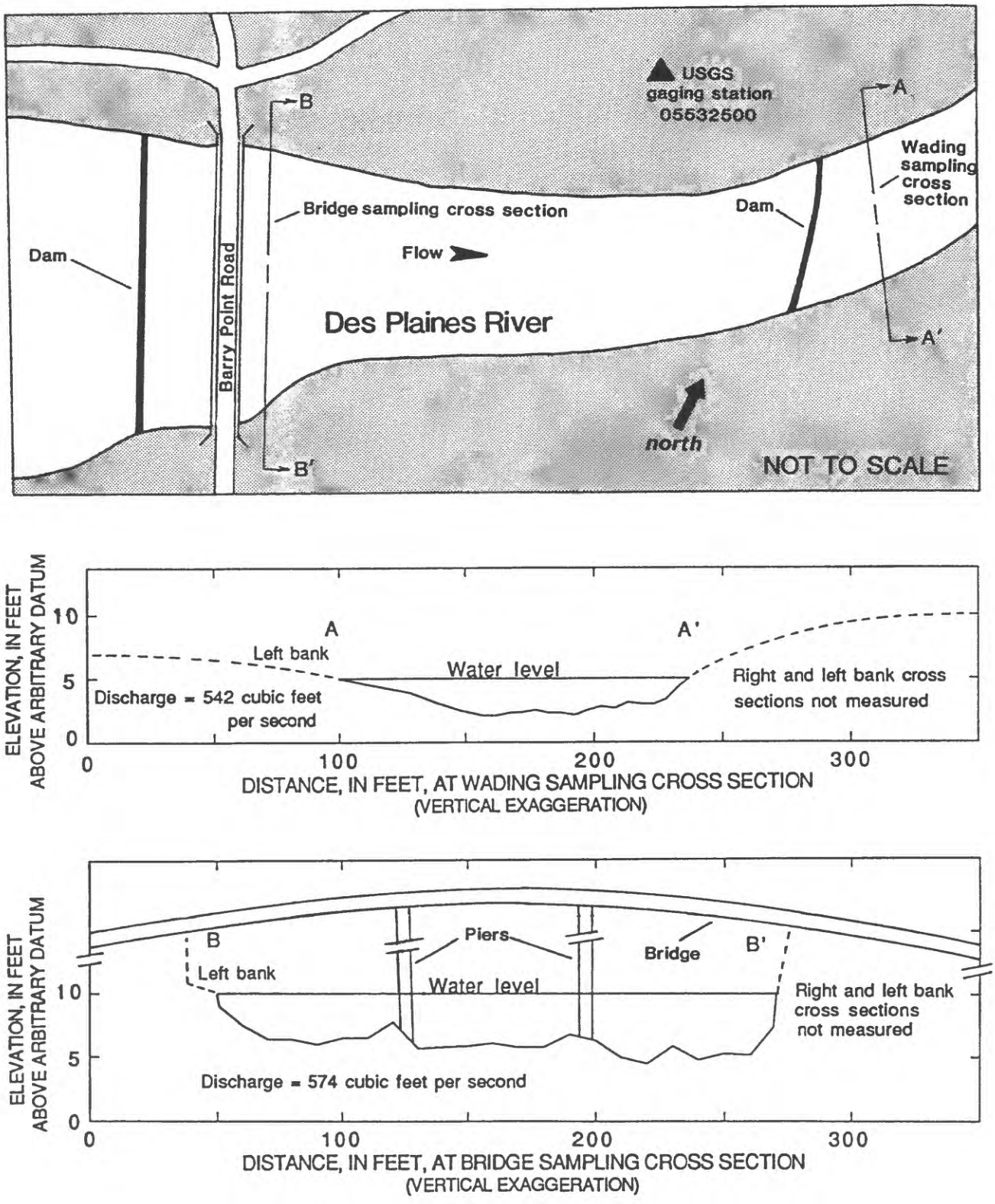

Figure 5.--Plan view of Des Plaines River at Riverside, Ill. (top), with details of wading and bridge sampling cross sections (lower).

A.

B.

Figure 6.--Aerial photographs of (A) Des Plaines River at Riverside, Ill. (05532500), and (B) Chicago Sanitary and Ship Canal at Romeoville, Ill. (05536995), taken April 30, 1988, and April 17, 1988, respectively.

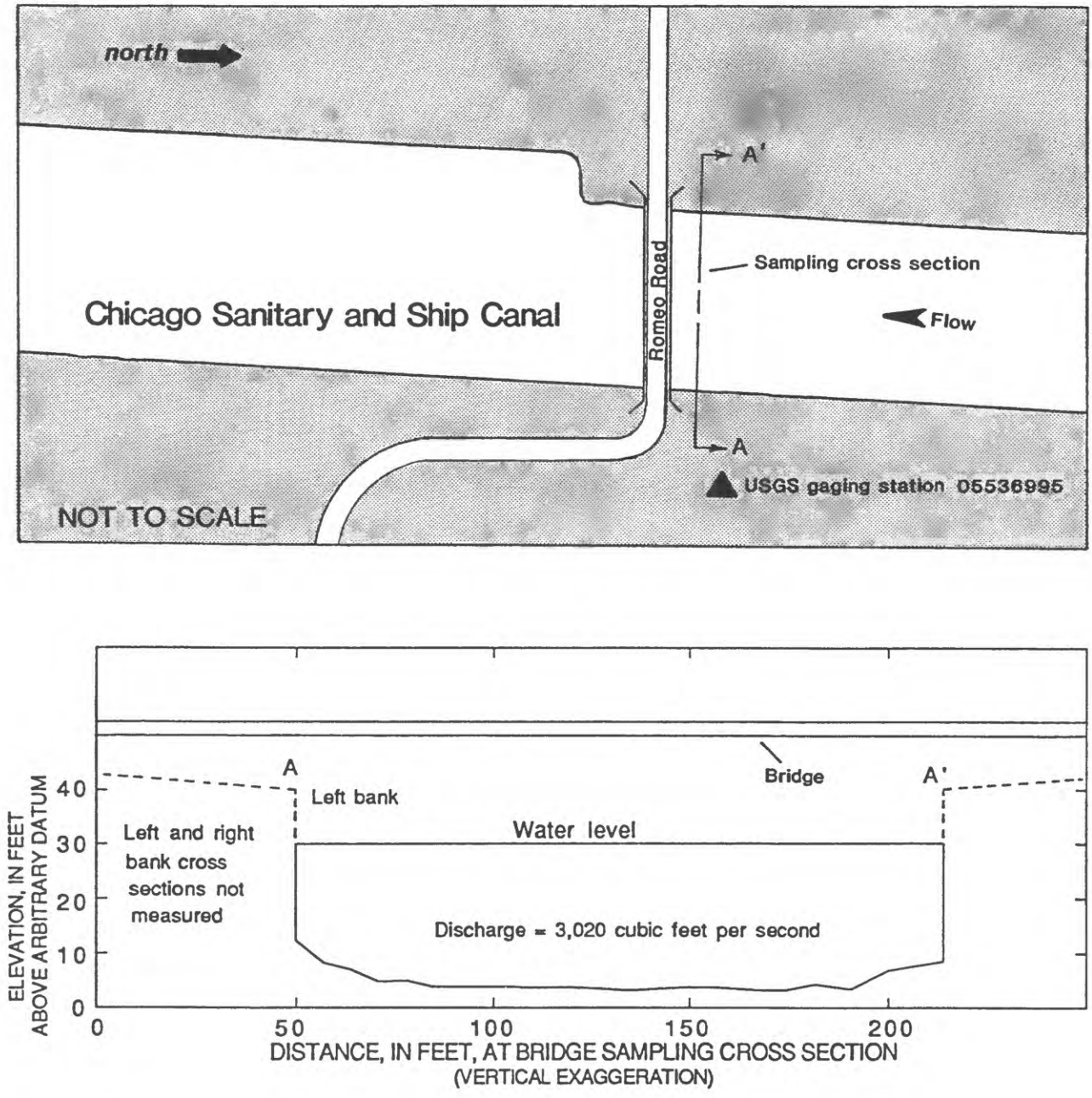

Figure 7.--Plan view of the Chicago Sanitary and Ship Canal at Romeoville, Ill. (top), with detail of sampling cross section (lower).

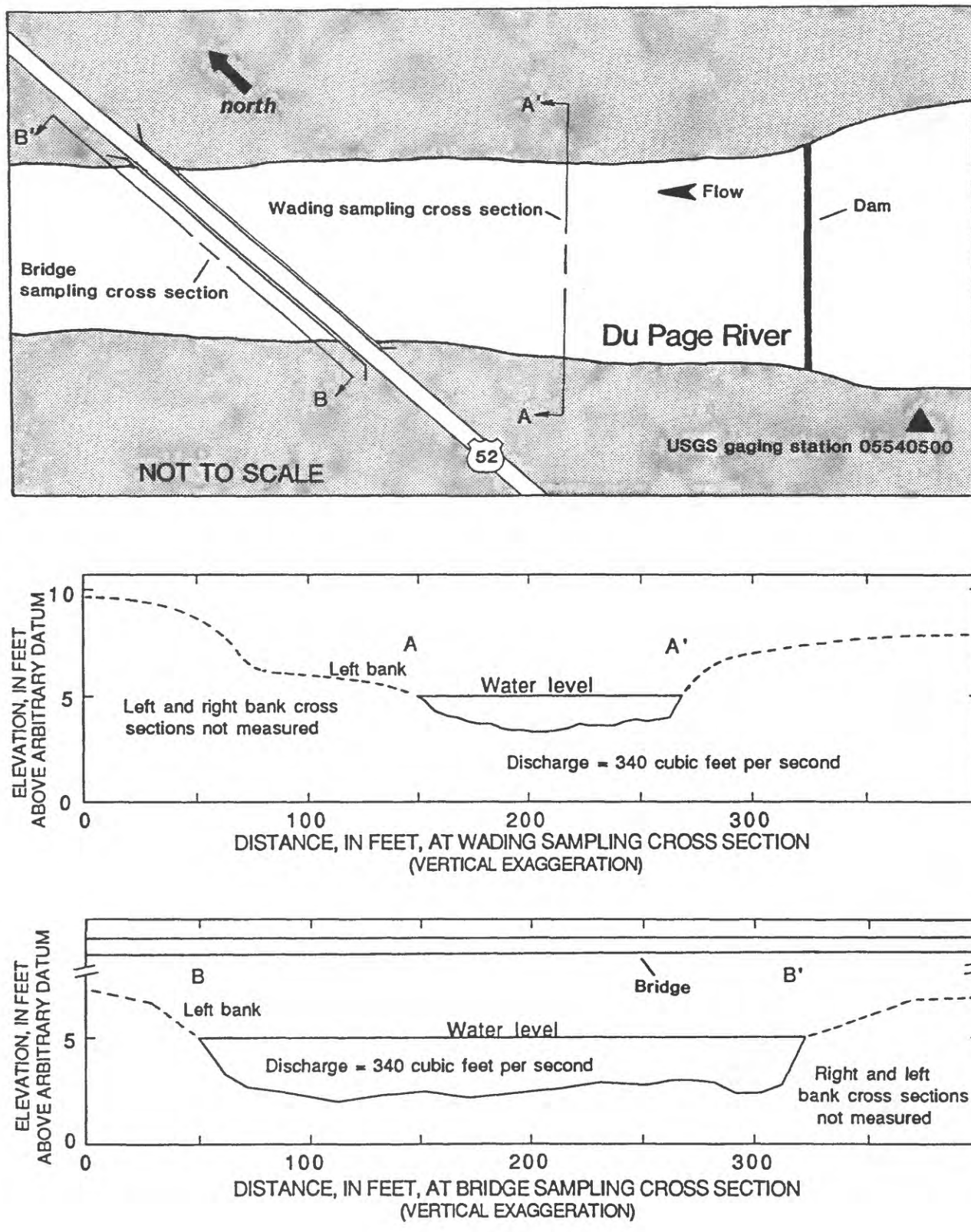

Figure 8.--Plan view of the Du Page River at Shorewood, Ill. (top), with details of wading and bridge sampling cross sections (lower).

A.

B.

Figure 9.--Aerial photographs of (A) Du Page River at Shorewood, Ill. (05540500), and (B) Illinois River at Marseilles, Ill. (05543500), taken April 29, 1988.

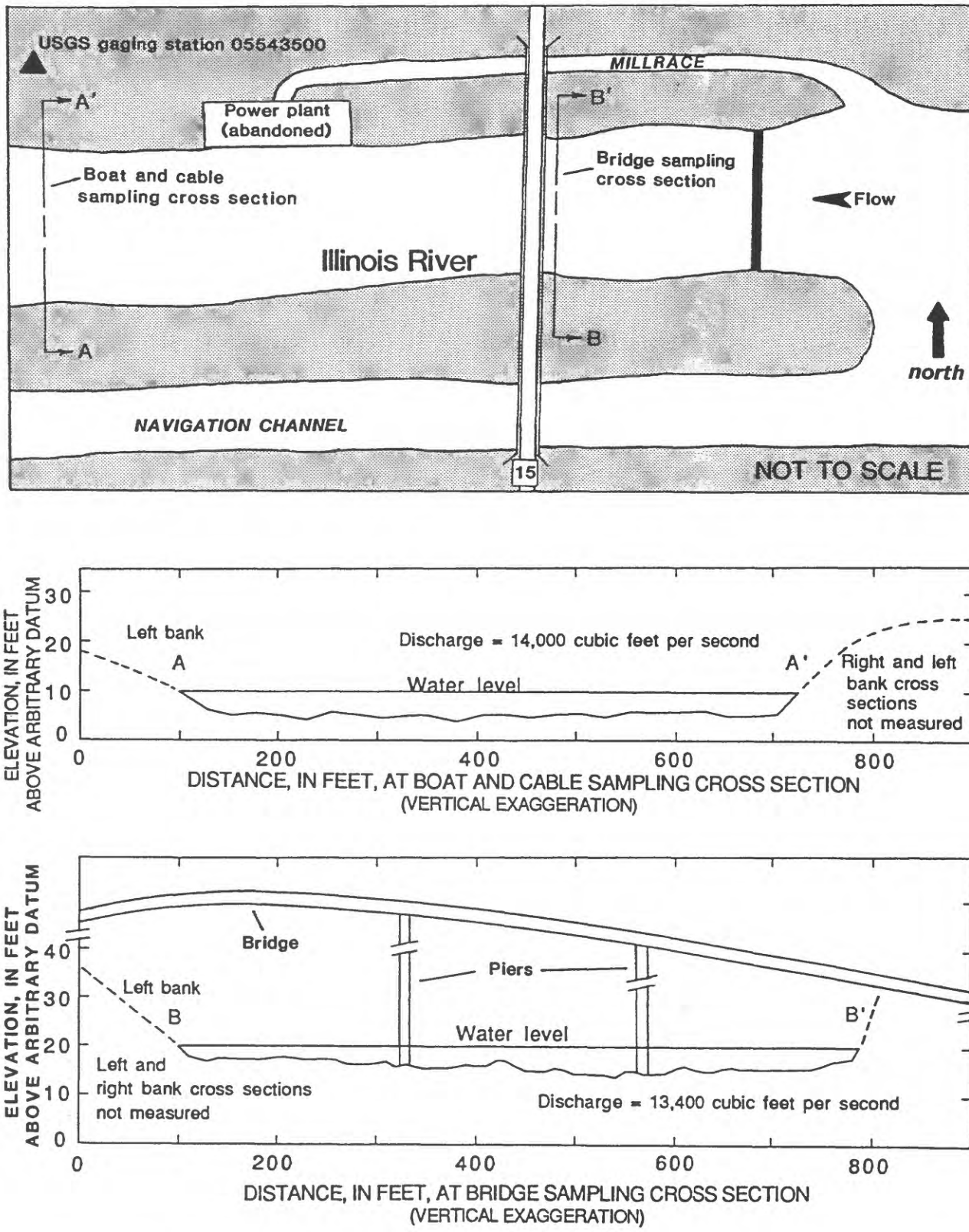

Figure 10.--Plan view of the Illinois River at Marseilles, Ill. (top), with details of boat and cable, and bridge sampling cross section (lower).

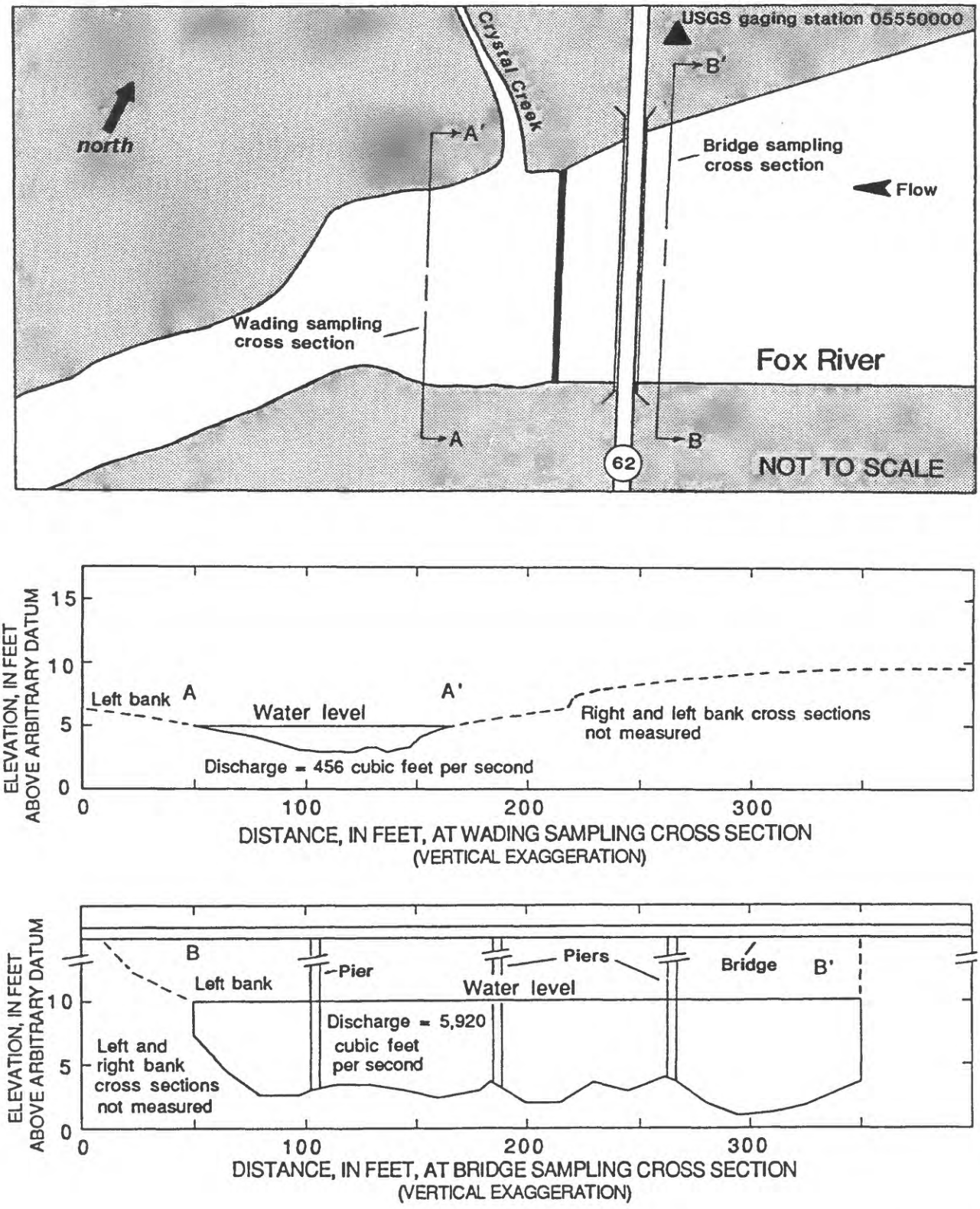

Figure 11.--Plan view of the Fox River at Algonquin, Ill. (top), with details of wading and bridge sampling cross sections (lower).

A.

B.

Figure 12.--Aerial photographs of (A) Fox River at Algonquin, Ill. (05550000), and (B) Fox River at Dayton, Ill. (05552500), taken April 29, 1988, and March 25, 1988, respectively.

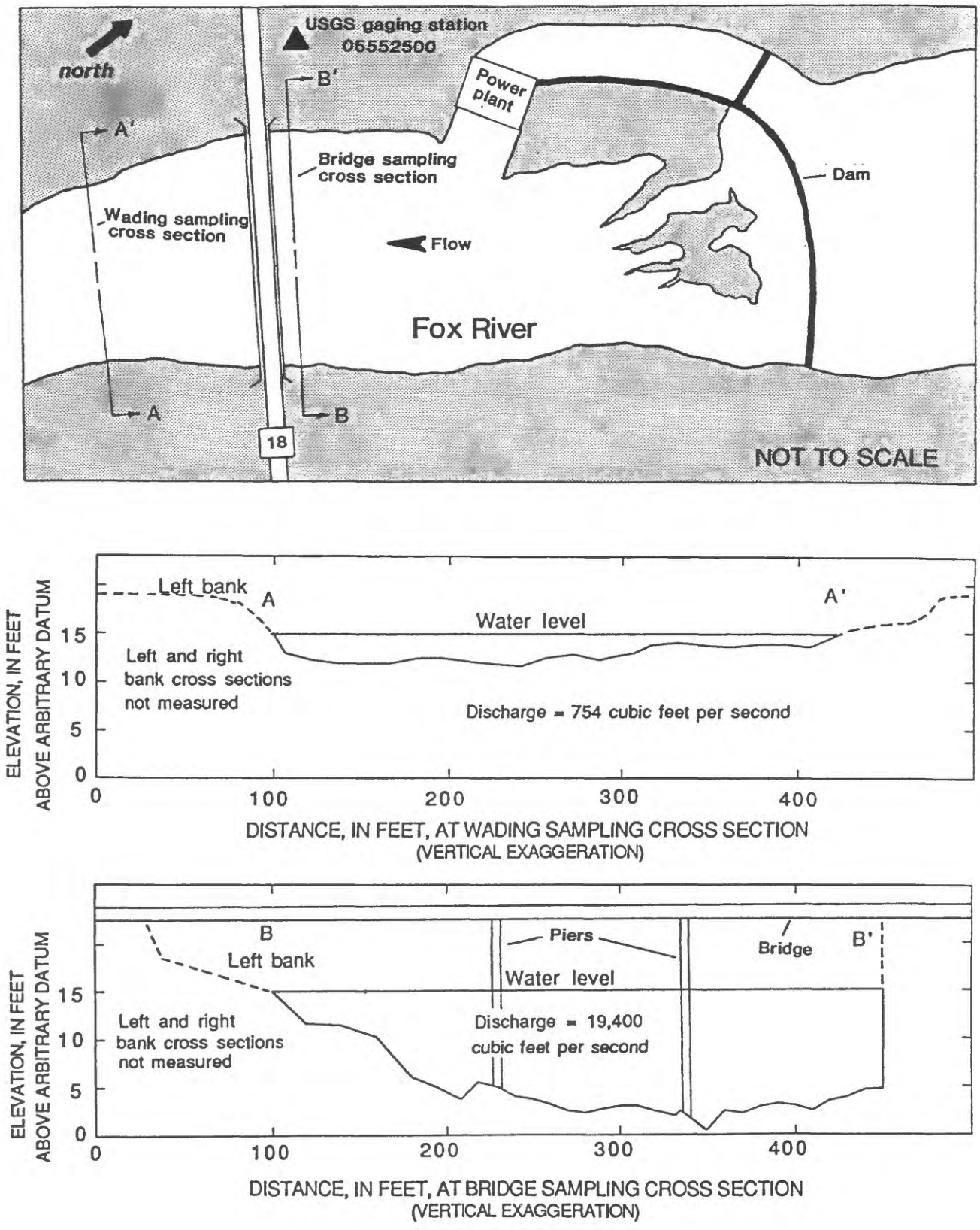

Figure 13.--Plan view of the Fox River at Dayton, Ill. (top), with details of wading and bridge sampling cross sections (lower).

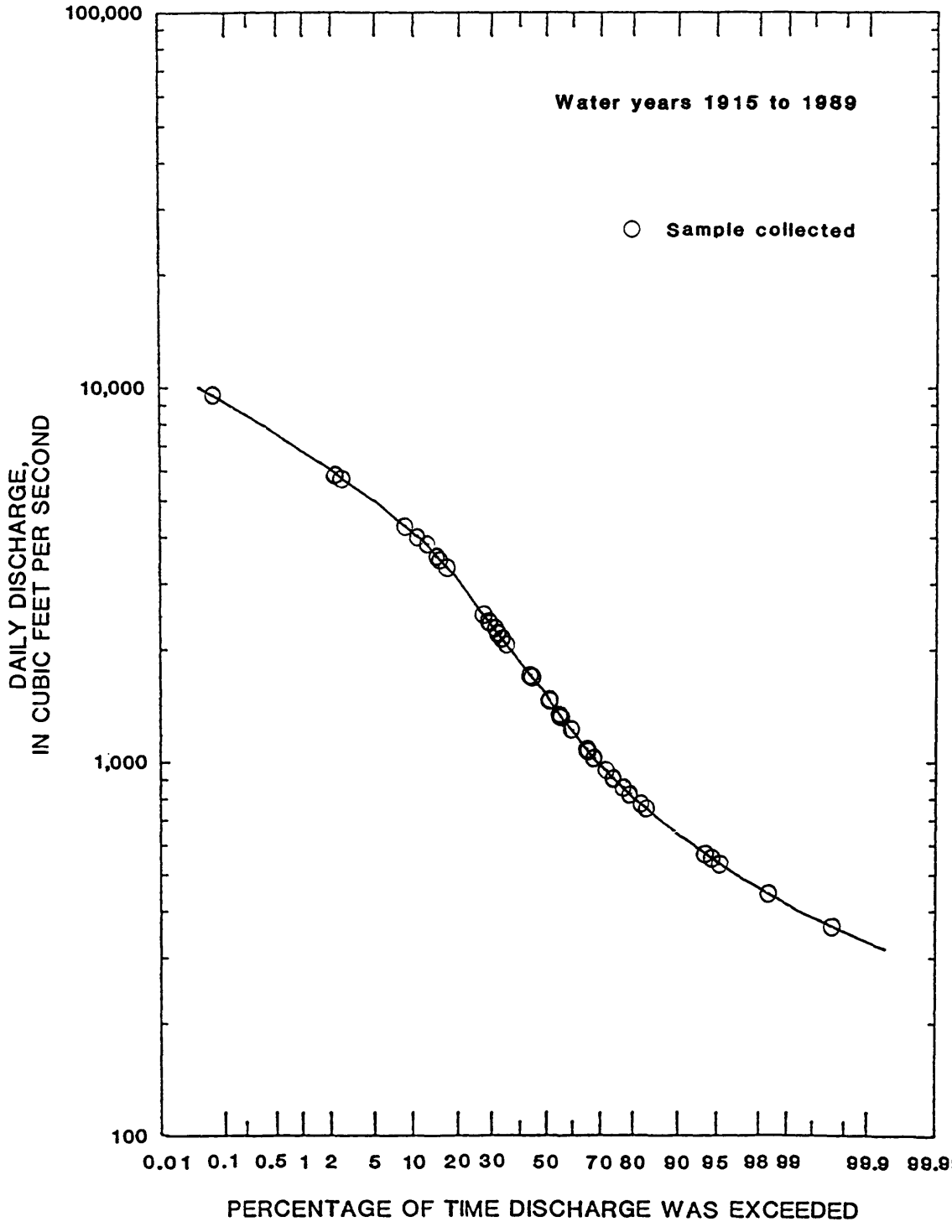

Figure 14.--Flow-duration curve for Kankakee River at Momence, Ill., showing hydrologic distribution of water-quality samples collected.

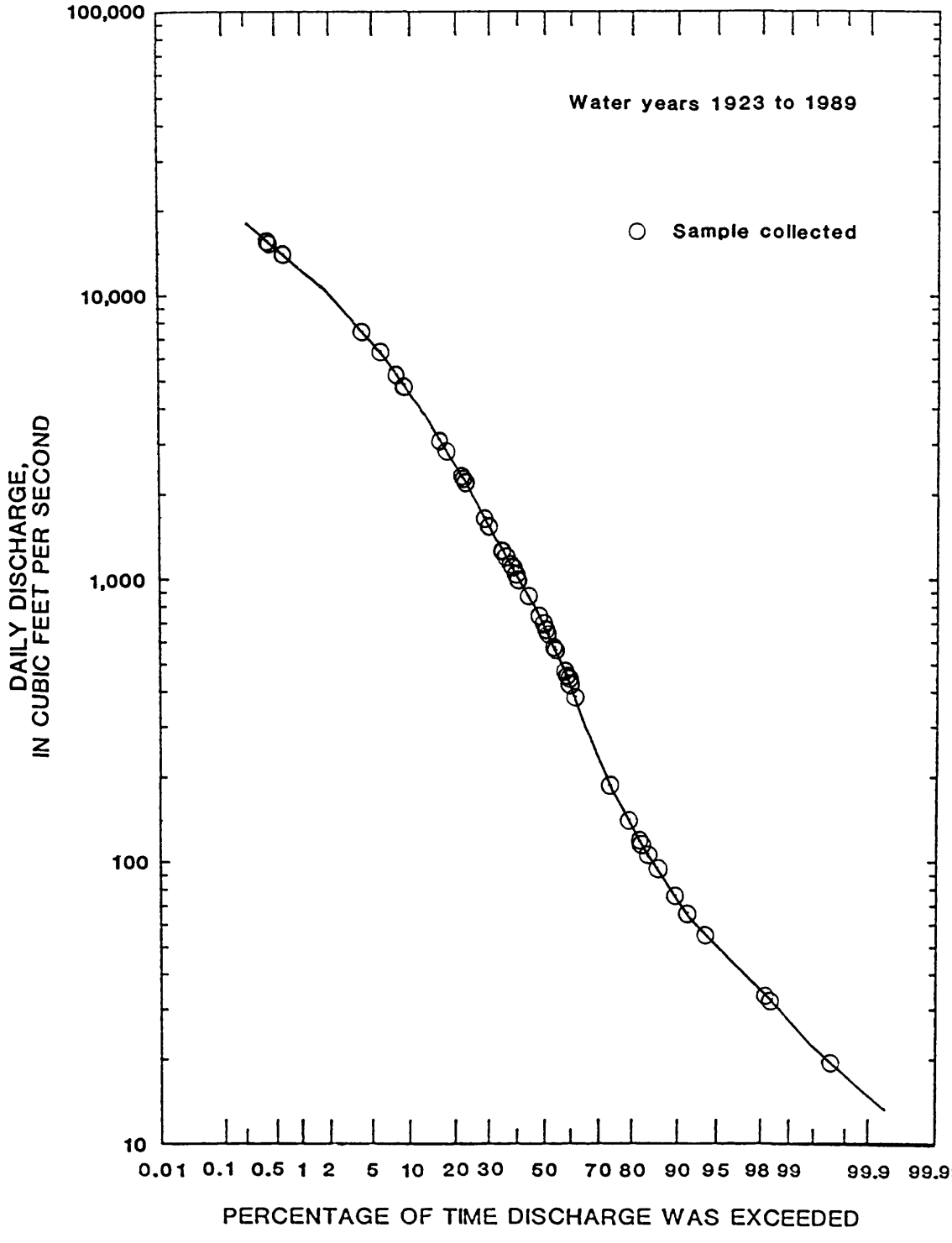

Figure 15.--Flow-duration curve for Iroquois River near Chebanse, Ill., showing hydrologic distribution of water-quality samples collected.

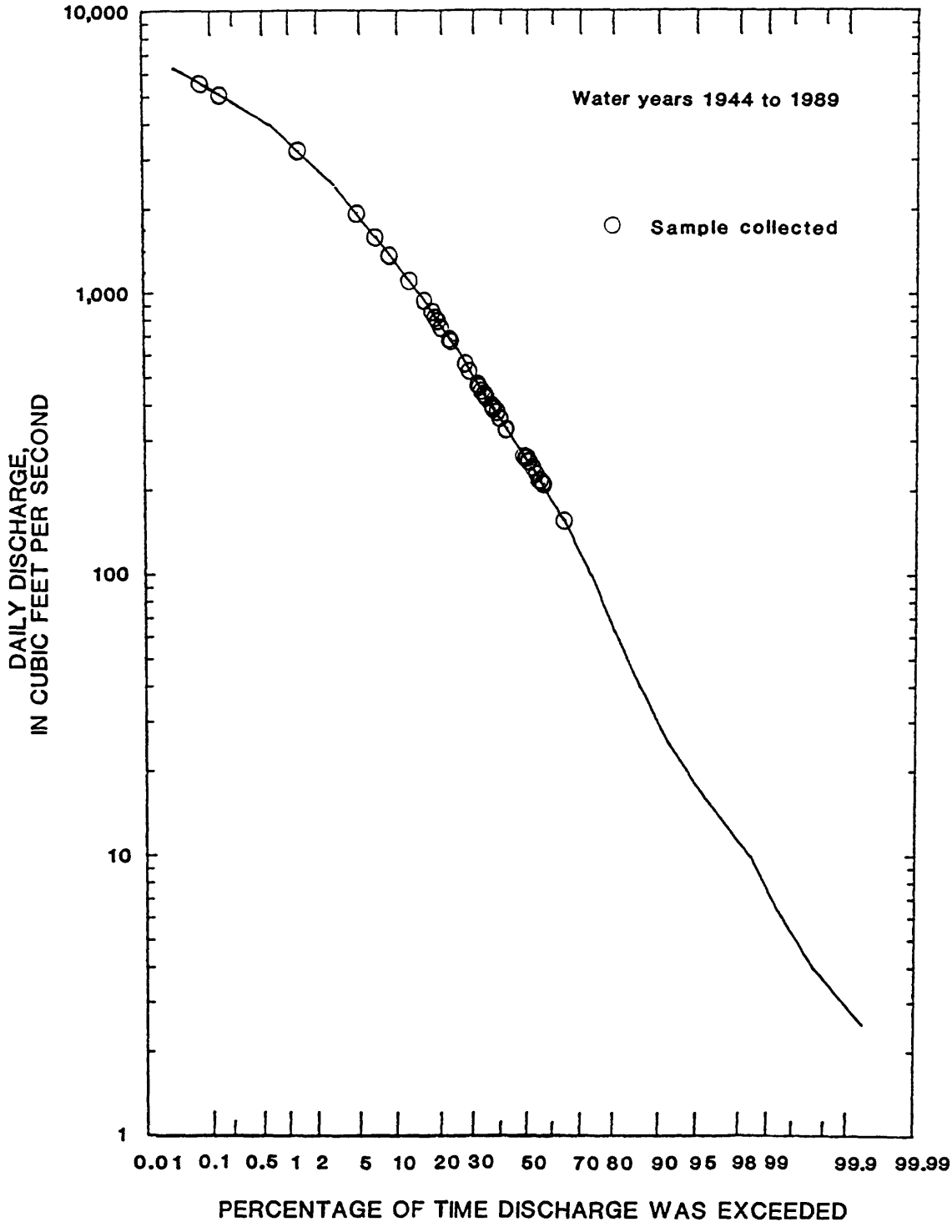

Figure 16.--Flow-duration curve for Des Plaines River at Riverside, Ill., showing hydrologic distribution of water-quality samples collected.

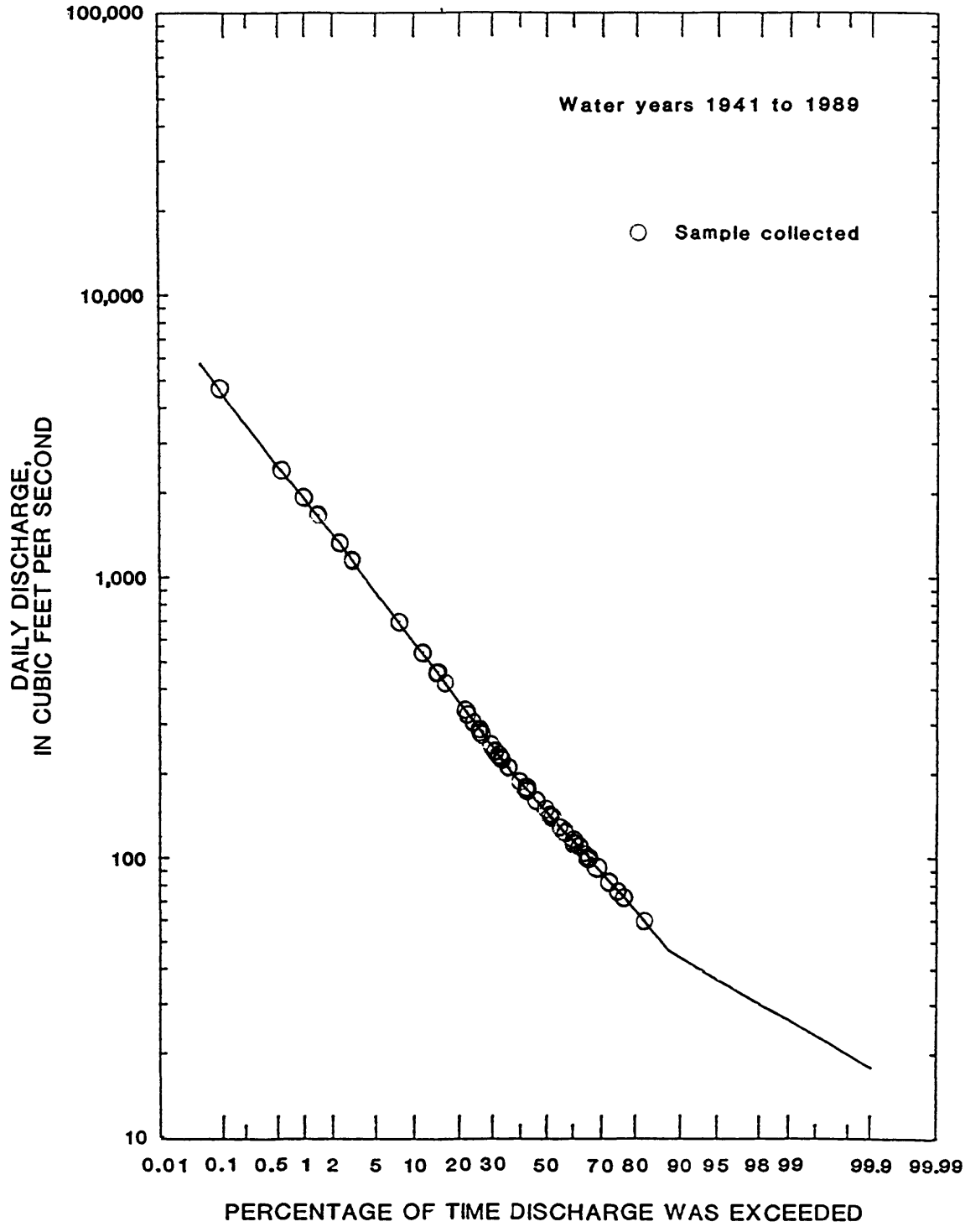

Figure 17.--Flow-duration curve for Du Page River at Shorewood, Ill., showing hydrologic distribution of water-quality samples collected.

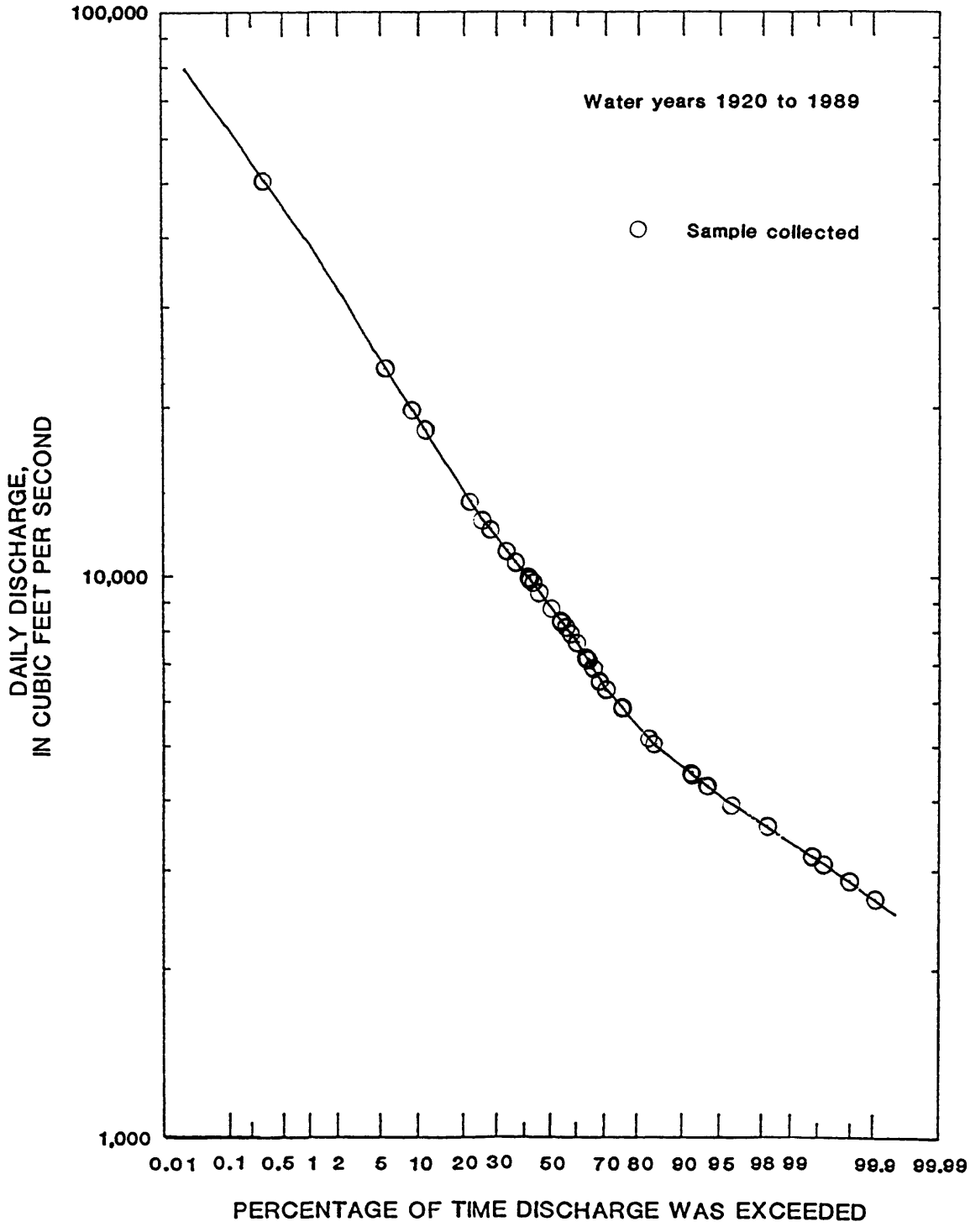

Figure 18.--Flow-duration curve for Illinois River at Marseilles, Ill., showing hydrologic distribution of water-quality samples collected.

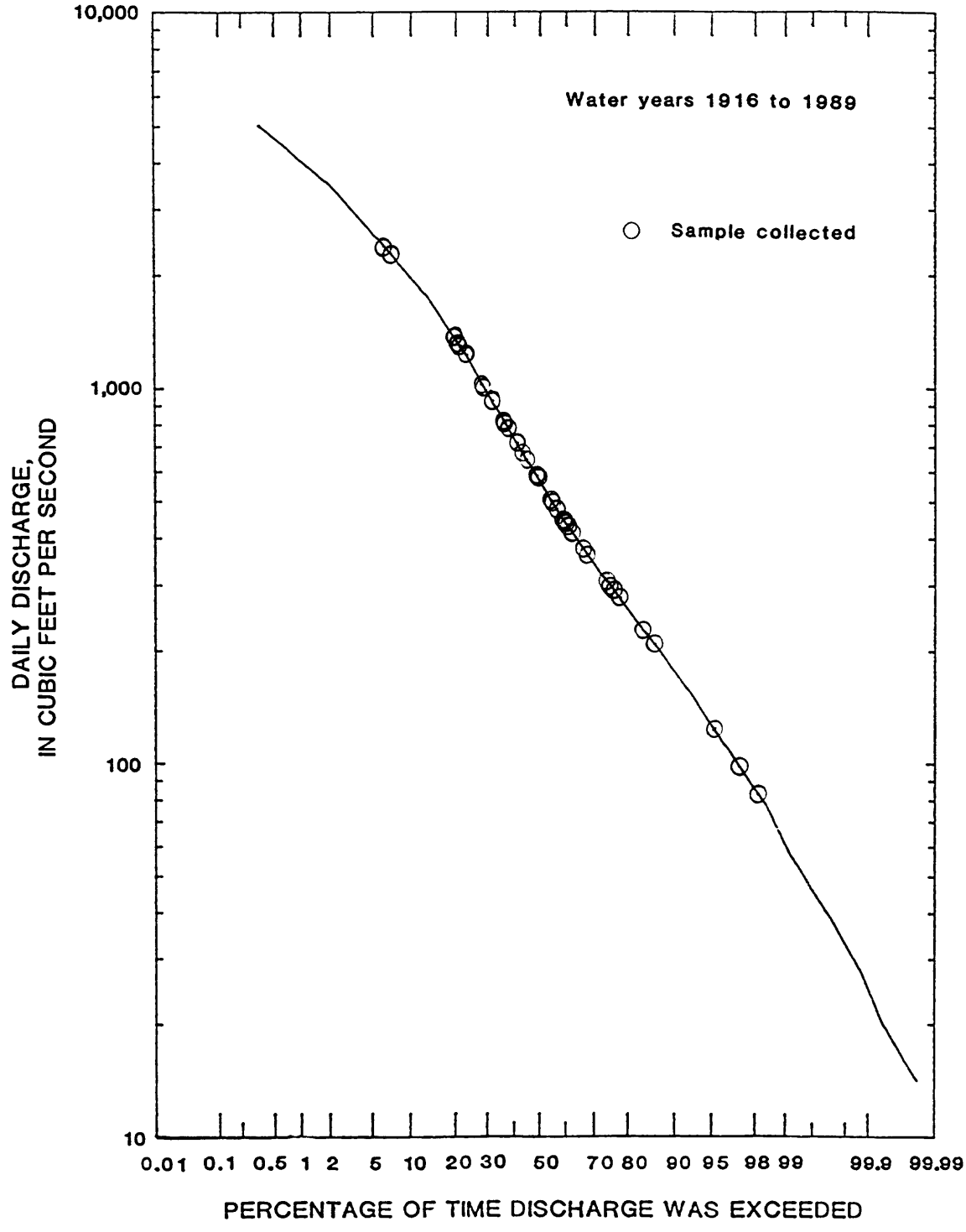

Figure 19.--Flow-duration curve for Fox River at Algonquin, Ill., showing hydrologic distribution of water-quality samples collected.

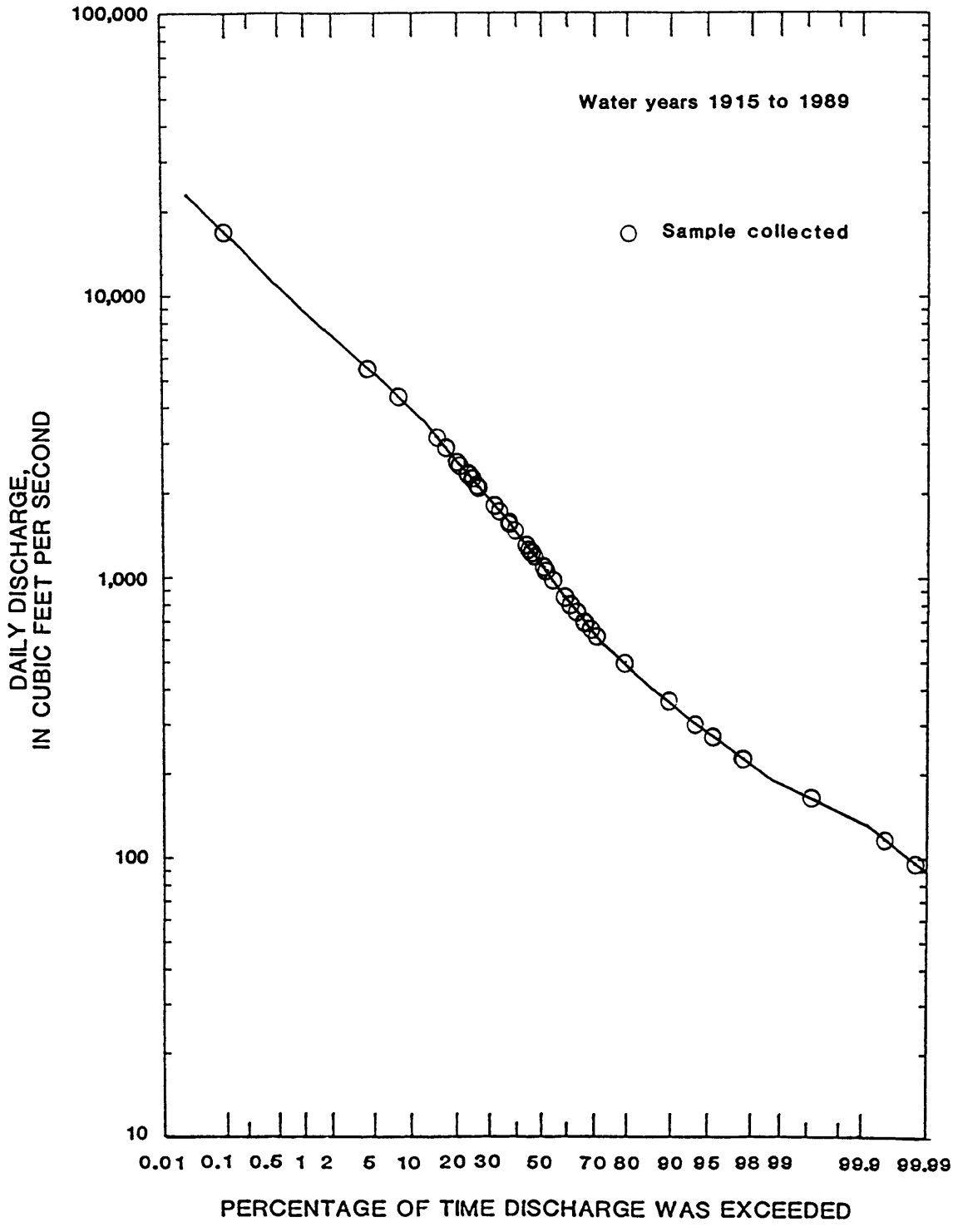

Figure 20.--Flow-duration curve for Fox River at Dayton, Ill., showing hydrologic distribution of water-quality samples collected.

Table 1.--Selected information for the fixed-station water-quality sampling sites in the upper Illinois River basin

[mi^2, square miles; ft^3/s, cubic feet per second; <, less than; >, greater than]

Station number	Station name and latitude and longitude	Drainage area (mi^2)	Through water year 1989: Years surface-water record	Years water-quality record	Average annual discharge (ft^3/s)	Estimated land use[1]: Level I Classification	Level I Percentage of total	Level II[2] Classification	Level II Percentage of level I
05520500	Kankakee River at Momence, Ill. Lat 41°09'36", Long 87°40'07"	2,294	74	15	1,988	Urban or built-up land	3.2	11	53.2
								12	23.4
								13	7.4
								14	6.4
								16	1.6
								17	7.8
						Agricultural land	87.6	21	99.9
								22	<.1
								23	<.1
								24	<.1
						Forest land	6.3	41	96.9
								42	2.0
								43	1.1
						Water	.7	52	78.2
								53	21.8
						Wetland	1.7	61	70.7
								62	29.3
						Barren land	.3	75	41.1
								76	58.9
05526000	Iroquois River near Chebanse, Ill. Lat 41°00'32", Long 87°49'27"	2,091	66	12	1,655	Urban or built-up land	1.2	11	49.6
								12	22.3
								13	2.2
								14	15.4
								16	2.5
								17	7.9
						Agricultural land	94.9	21	99.9
								22	<.1
								23	<.1
								24	<.1
						Forest land	2.8	41	100
						Water	.1	52	17.1
								53	82.9
						Wetland	.1	61	5.3
								62	94.7
						Barren land	.1	75	34.1
								76	65.9

Table 1.--Selected information for the fixed-station water-quality sampling sites in the upper Illinois River basin--Continued

Station number	Station name and latitude and longitude	Drainage area (mi^2)	Through water year 1989: Years surface-water record	Years water-quality record	Average annual discharge (ft^3/s)	Estimated land use[1]: Level I Classification	Level I Percentage of total	Level II[2] Classification	Level II Percentage of level I
05532500	Des Plaines River at Riverside, Ill. Lat 41°49'20", Long 87°49'15"	630	46	2	503	Urban or built-up land	44.7	11	53.7
								12	19.7
								13	7.8
								14	7.4
								15	<.1
								16	<.1
								17	11.2
						Agricultural land	44.0	21	98.9
								22	.9
								23	<.1
								24	.2
						Forest land	6.3	41	97.8
								42	.2
								43	1.9
						Water	1.2	51	.4
								52	59.4
								53	40.2
						Wetland	.8	61	9.5
								62	90.5
						Barren land	2.1	75	7.6
								76	92.4
05536995	Chicago Sanitary and Ship Canal at Romeoville, Ill. Lat 41°38'26", Long 88°03'38"	739	5	2	3,699	Urban or built-up land	63.6	11	57.0
								12	18.8
								13	11.0
								14	6.4
								15	<.1
								16	<.1
								17	6.6
						Agricultural land	21.6	21	>99.9
								22	<.1
								24	<.1
						Forest land	8.3	41	99.8
								42	.2
						Water	.5	52	30.5
								53	69.5
						Wetland	1.2	61	57.7
								62	42.3
						Barren	2.1	75	30.4
								76	69.6

Table 1.--Selected information for the fixed-station water-quality sampling sites in the upper Illinois River basin--Continued

Station number	Station name and latitude and longitude	Drainage area (mi^2)	Through water year 1989: Years surface-water record	Years water-quality record	Average annual discharge (ft^3/s)	Estimated land use[1]: Level I Classification	Level I Percentage of total	Level II[2] Classification	Level II Percentage of level I
05540500	Du Page River at Shorewood, Ill. Lat 41°31'20", Long 88°11'35"	324	49	25	268	Urban or built-up land	37.0	11	64.9
								12	15.0
								13	3.4
								14	3.0
								16	<.1
								17	13.7
						Agricultural land	51.3	21	99.6
								22	.2
								23	<.1
								24	.1
						Forest land	3.8	41	98.9
								42	1.1
						Water	.9	52	1.2
								53	98.8
						Wetland	<.1	62	100
						Barren land	7.0	75	9.5
								76	90.5
05543500	Illinois River at Marseilles, Ill. Lat 41°19'40", Long 88°43'10"	8,259	70	14	10,681	Urban or built-up land	14.2	11	55.8
								12	19.5
								13	9.0
								14	6.4
								15	<.1
								16	.2
								17	9.1
						Agricultural land	77.7	21	99.8
								22	<.1
								23	<.1
								24	<.1
						Rangeland	<.1	31	100
						Forest land	4.9	41	94.8
								42	4.5
								43	.6
						Water	.7	51	1.5
								52	36.0
								53	62.4
						Wetland	.8	61	52.6
								62	47.3
						Barren land	1.2	75	21.5
								76	78.5

Table 1.--Selected information for the fixed-station water-quality sampling sites in the upper Illinois River basin--Continued

Station number	Station name and latitude and longitude	Drainage area (mi^2)	Through water year 1989: Years surface-water record	Years water-quality record	Average annual discharge (ft^3/s)	Estimated land use[1]: Level I Classification	Level I Percentage of total	Level II[2] Classification	Level II Percentage of level I
05550000	Fox River at Algonquin, Ill. Lat 42°09'59", Long 88°17'25"	1,403	74	12	861	Urban or built-up land	13.8	11	68.8
								12	12.8
								13	2.1
								14	3.9
								15	.7
								16	1.1
								17	10.5
						Agricultural land	64.1	21	99.2
								22	.4
								23	<.2
								24	<.3
						Forest land	11.3	41	90.5
								42	1.4
								43	8.1
						Water	4.1	52	89.8
								53	10.2
						Wetland	4.0	61	38.2
								62	61.8
						Barren land	2.5	75	32.9
								76	67.1
05552500	Fox River at Dayton, Ill. Lat 41°23'12", Long 88°47'26"	2,642	74	12	1,738	Urban or built-up land	11.9	11	66.5
								12	14.9
								13	2.9
								14	4.0
								15	.5
								16	.9
								17	10.3
						Agricultural land	72.9	21	99.4
								22	.3
								23	.1
								24	.2
						Forest land	7.5	41	92.3
								42	1.1
								43	6.5
						Water	2.3	52	84.5
								53	15.5
						Wetland	2.2	61	37.4
								62	62.6
						Barren land	2.0	75	33.0
								76	67.0

[1]Based on Anderson and others (1976) classification system; percentages estimated from digital line graph land use/land cover from high-altitude photography taken from 1972-81 and interpreted according to methods in Fegeas and others (1983).

[2]Level II classification: 11, residential; 12, commercial and services; 13, industrial; 14, transportation, communications, and utilities; 15, industrial and commercial complexes; 16, mixed urban or built-up land; 17, other urban or built-up land; 21, cropland and pasture; 22, orchards, groves, vineyards, nurseries, and ornamental horticultural areas; 23, confined feeding operations; 24, other agricultural land; 31, herbaceous rangeland; 41, deciduous forest land; 42, evergreen forest land; 43, mixed forest land; 51, streams and canals; 52, lakes; 53, reservoirs; 61, forested wetland; 62, nonforested wetland; 75, strip mines, quarries, and gravel pits; 76, transitional areas (transition from one land use to another).

Table 2.--Field measurements and laboratory analyses determined for water-quality samples collected at the fixed stations

[ft^3/s, cubic feet per second; µS/cm, microsiemens per centimeter at 25 degrees Celsius; mg/L, milligrams per liter; col/100 mL, colonies per 100 milliliter; µg/L, micrograms per liter; µg/g, micrograms per gram; NTU, nephelometric-turbidity units; T/day, tons per day; m^2/s, square meters per gram; U, uranium; pCi/L, picocuries per liter; Sr-90, strontium-90; Y-90, yttrium-90; Cs-137, cesium-137; dashes (--) indicate not applicable. Footnotes are at end of table]

Laboratory method: Laboratory method/instrument used to analyze sample--H, portable water-quality-measurement system; ET, electrometric titration; CAL, alkalinity calculations; ICP, inductively coupled plasma-atomic emission spectrometry; AA, direct atomic absorption; AMB, automated methylthymol blue; AT, automated turbidimetry; AF, automated ferricyanide; ATC, automated thiocyanate colorimetry; AC, automated complexone; ISE, automated ion-selective electrode; G, gravimetric; NFR,G, nonfilterable residue, gravimetric; VR,G, volatile residue, gravimetric; MF, membrane filtration; MF,M-FC, membrane filtration, M-FC; MF,MTEC, membrane filtration, MTEC; ADC, automated diazotization colorimetry; ACR, automated cadmium-reduction colorimetry; AP, automated phenate; ABD+C, automated block digestion + colorimetry; APC, automated phosphomolybdate colorimetry; ASA, automated ascorbic acid; AE-DC, atomic emission, DC plasma; ICP-MS, inductively coupled plasma-mass spectrometry; GF,AAS, graphite furnace, automatic absorption spectroscopy; F,AA, flameless atomic absorption; AAS, automatic absorption spectroscopy; P/UO, persulfate/ultraviolet oxidation; WO, wet oxidation; CF, chromatography and fluorometry; F, fluorometry; NEP, nephelometric; EVAP, evaporation; Calc., calculated; W-S, wet-sieving; BET-SP, BET-single point adsorption; DR,T, dichromate reduction, titrimetric; AP-BA, automated pyridine-barbituric acid; ABC, auto barbituric colorimetry acid; A4-A, automated 4-aminoantipyrine; P-G, partition-gravimetric; AFC, auto fluorescein colorimetry; AA,H, atomic absorption, hydride; RES, residue procedure.

Analysis performed by: Personnel/agency conducting analysis/measurement--Field, field personnel of the U.S. Geological Survey, Illinois District; IEPA, Illinois Environmental Protection Agency laboratory in Chicago or Champaign, Illinois; USGS, U.S. Geological Survey National Water Quality laboratory in Denver, Colorado; USGS2, U.S. Geological Survey Geologic Division, Branch of Geochemistry in Menlo Park, California; USGS3, U.S. Geological Survey Sediment laboratory in Iowa City, Iowa; USGS4, U.S. Geological Survey personnel, Illinois District; USGS5, U.S. Geological Survey Sediment Partitioning Research Project, Atlanta, Georgia.

	Monthly and special event samples					Laboratory comparison sample		
	USGS lab code (schedule)[1]	WATSTORE code[2]	Reporting level[3]	Laboratory method	Analysis performed by	Reporting level	Laboratory method	Analysis performed by
Field measurements								
Instantaneous discharge (ft^3/s)	--	00061	1.0	H	Field	--	--	--
Specific conductance (µS/cm)	--	00095	10.0	H	Field	--	--	--
pH (standard units)	--	00400	.1	H	Field	--	--	--
Temperature (degrees Celsius)	--	00010	.5	H	Field	--	--	--
Dissolved oxygen (mg/L)	--	00300	.1	H	Field	--	--	--
Acidity (mg/L as H)	--	71825	1.0	ET	Field	--	--	--
Alkalinity, water, whole, total (mg/L as $CaCO_3$)	--	00410	1.0	ET	Field	--	--	--
Alkalinity, water, dissolved (mg/L as $CaCO_3$)	--	39036	1.0	ET	Field	--	--	--
Carbonate alkalinity (mg/L as $CaCO_3$)	--	39086	1.0	CAL	Field	--	--	--
Carbonate concentration (mg/L as CO_3)	--	00452	1.0	CAL	Field	--	--	--
Bicarbonate concentration (mg/L as HCO_3)	--	00453	1.0	CAL	Field	--	--	--

Table 2.--Field measurements and laboratory analyses determined for water-quality samples collected at the fixed stations--Continued

	Monthly and special event samples					Laboratory comparison sample		
	USGS lab code (schedule)[1]	WATSTORE code[2]	Reporting level[3]	Laboratory method	Analysis performed by	Reporting level	Laboratory method	Analysis performed by
Major ions and other constituents								
Calcium, total (mg/L as Ca)	--	00916	0.05	ICP	IEPA	--	--	--
Calcium, sediment, suspended (percent as Ca)	--	30240	.01	ICP	USGS2	--	--	--
Calcium, dissolved (mg/L as Ca)	(1043)	00915	.05	ICP	IEPA	0.02	ICP	USGS
Magnesium, total (mg/L as Mg)	--	00927	.3	ICP	IEPA	--	--	--
Magnesium, sediment, suspended (percent as Mg)	--	30277	.01	ICP	USGS2	--	--	--
Magnesium, dissolved (mg/L as Mg)	(1043)	00925	.3	ICP	IEPA	.01	ICP	USGS
Sodium, total (mg/L as Na)	--	00929	.1	ICP	IEPA	--	--	--
Sodium, sediment, suspended (percent as Na)	--	30304	.01	ICP	USGS2	--	--	--
Sodium, dissolved (mg/L as Na)	(1043)	00930	.1	ICP	IEPA	.20	ICP	USGS
Potassium, total (mg/L as K)	--	00937	.1	ICP	IEPA	--	--	--
Potassium, sediment, suspended (percent as K)	--	30294	.1	ICP	USGS2	--	--	--
Potassium, dissolved (mg/L as K)	0054	00935	.1	ICP	IEPA	.10	AA	USGS
Sulfate, total (mg/L as SO_4)	--	00946	10.0	AMB	IEPA	--	--	--
Sulfate, dissolved (mg/L as SO_4)	1572	00945	10.0	AMB	IEPA	1.00	AT	USGS
Chloride, total (mg/L as Cl)	--	00941	1.0	AF	IEPA	--	--	--
Chloride, dissolved (mg/L as Cl)	1571	00940	1.0	AF	IEPA	.10	ATC	USGS
Fluoride, total (mg/L as F)	--	00951	.1	AC	IEPA	--	--	--
Fluoride, dissolved (mg/L as F)	1573	00950	.1	AC	IEPA	.10	ISE	USGS
Solids, residue on evaporation at 180°C (mg/L)	0027	70300	1	G	IEPA	1.00	G	USGS
Solids, total suspended (mg/L)	--	00530	1	NFR,G	IEPA	--	--	--
Solids, volatile (mg/L)	--	00535	1	VR,G	IEPA	--	--	--
Bacteriological indicator organisms								
Coliform, fecal, membrane filter (col/100 mL)	--	31616	1	MF	IEPA	--	--	--
	--	31616	1	MF,M-FC	Field	--	--	--
E. coli, MTEC, membrane filter (col/100 mL)	--	31648	1	MF,MTEC	Field	--	--	--
Nutrients								
Nitrogen, NO_2, dissolved (mg/L as N)	(400)	00613	.01	ADC	USGS	--	--	--
Nitrogen, $NO_2^- + NO_3$, total (mg/L as N)	--	00630	.10	ACR	IEPA	--	--	--
Nitrogen, $NO_2^- + NO_3$, dissolved (mg/L as N)	(400)	00631	.1	ACR	USGS	--	--	--
	--	00631	.1	ACR	IEPA	--	--	--
Nitrogen, NH_4, total (mg/L as N)	(426)	00610	.1	AP	IEPA	.01	AC	USGS
Nitrogen, NH_4, dissolved (mg/L as N)	(400)	00608	.01	AC	USGS	--	--	--
	--	00608	.1	AP	IEPA	--	--	--

Table 2.--Field measurements and laboratory analyses determined for water-quality samples collected at the fixed stations--Continued

	Monthly and special event samples					Laboratory comparison sample		
	USGS lab code (schedule)[1]	WATSTORE code[2]	Reporting level[3]	Laboratory method	Analysis performed by	Reporting level	Laboratory method	Analysis performed by
Nutrients--Continued								
Nitrogen, total kjeldahl (mg/L as N)	0084	00625	0.2	ABD+C	USGS	--	--	--
	--	00625	.1	ABD+C	IEPA	--	--	--
Nitrogen, dissolved kjeldahl (mg/L as N)	0268	00623	.2	ABD+C	USGS	--	--	--
Phosphorus, total (mg/L as P)	--	00665	.01	APC	USGS	--	--	--
	--	00665	.01	ASA	IEPA	--	--	--
Phosphorus, dissolved, (mg/L as P)	0128	00666	.01	APC	USGS	--	--	--
	--	00666	.01	ASA	IEPA	--	--	--
Phosphorus, ortho, dissolved (mg/L as P)	(400)	00671	.01	APC	USGS	--	--	--
Phosphorus, sediment, suspended (percent as P)	--	30292	.01	ICP	USGS2	--	--	--
Major metals and trace elements								
Aluminum, total recoverable (µg/L as Al)	(414)	01105	50.0	ICP	IEPA	10.00	AE-DC	USGS
Aluminum, sediment, suspended (percent as Al)	--	30221	.01	ICP	USGS2	--	--	--
Aluminum, dissolved (µg/L as Al)	1284	01106	50.0	ICP	IEPA	10.00	AE-DC	USGS
Antimony, sediment, suspended (µg/g as Sb)	--	29816	.1	ICP-MS	USGS2	--	--	--
Arsenic, total recoverable (µg/L as As)	--	01002	1.0	ICP	IEPA	--	--	--
Arsenic, sediment, suspended (µg/g as As)	--	29818	.1	ICP-MS	USGS2	--	--	--
Arsenic, dissolved (µg/L as As)	--	01000	1.0	ICP	IEPA	--	--	--
Barium, total recoverable (µg/L as Ba)	(414)	01007	5.0	ICP	IEPA	100.00	ICP	USGS
Barium, dissolved (µg/L as Ba)	(1043)	01005	5.0	ICP	IEPA	2.00	ICP	--
Beryllium, total recoverable (µg/L as Be)	(414)	01012	.5	ICP	IEPA	10.00	AA	USGS
Beryllium, sediment, suspended (µg/g as Be)	--	29822	2.0	ICP	USGS2	--	--	--
Beryllium, dissolved (µg/L as Be)	(1043)	01010	.5	ICP	IEPA	.50	AA	USGS
Boron, total recoverable (µg/L as B)	(414)	01022	50.0	ICP	IEPA	10.00	AE-DC	USGS
Boron, dissolved (µg/L as B)	1183	01020	50.0	ICP	IEPA	10.00	AE-DC	USGS
Cadmium, total recoverable (µg/L as Cd)	(414)	01027	.1	GF,AAS	IEPA	1.00	GF,AAS	USGS
Cadmium, sediment, suspended (µg/g as Cd)	--	29826	.1	ICP-MS	USGS2	--	--	--
Cadmium, dissolved (µg/L as Cd)	(1043)	01025	.1	GF,AAS	IEPA	1.00	ICP	USGS
Chromium, total recoverable (µg/L as Cr)	(1043)	01034	5.0	ICP	IEPA	1.00	AE-DC	USGS
Chromium, sediment, suspended (µg/g as Cr)	--	29829	2.0	ICP	USGS2	--	--	--
Chromium, dissolved (µg/L as Cr)	(1043)	01030	5.0	ICP	IEPA	5.00	ICP	USGS
Cobalt, total recoverable (µg/L as Co)	--	01037	5.0	ICP	IEPA	--	--	--
Cobalt, sediment, suspended (µg/g as Co)	--	35031	2.0	ICP	USGS2	--	--	--
Cobalt, dissolved (µg/L as Co)	(1043)	01035	5.0	ICP	IEPA	3.00	ICP	USGS
Copper, total recoverable (µg/L as Cu)	(414)	01042	5.0	ICP	IEPA	10.00	AA	USGS
Copper, sediment, suspended (µg/g as Cu)	--	29832	2.0	ICP	USGS2	--	--	--

Table 2.--Field measurements and laboratory analyses determined for water-quality samples collected at the fixed stations--Continued

	Monthly and special event samples					Laboratory comparison sample		
	USGS lab code (schedule)[1]	WATSTORE code[2]	Reporting level[3]	Laboratory method	Analysis performed by	Reporting level	Laboratory method	Analysis performed by
Major metals and trace elements--Continued								
Copper, dissolved (µg/L as Cu)	(1043)	01040	5.0	ICP	IEPA	10.00	ICP	USGS
Iron, total recoverable (µg/L as Fe)	(414)	01045	50.0	ICP	IEPA	10.00	AA	USGS
Iron, sediment, suspended (percent as Fe)	--	30269	.01	ICP	USGS2	--	--	--
Iron, dissolved (µg/L as Fe)	(1043)	01046	50.0	ICP	IEPA	10.00	ICP	USGS
Lead, total recoverable (µg/L as Pb)	(414)	01051	1.0	GF,AAS	IEPA	1.00	GF,AAS	USGS
Lead, sediment, suspended (µg/g as Pb)	--	29836	.1	ICP-MS	USGS2	--	--	--
Lead, dissolved (µg/L as Pb)	(1043)	01049	1.0	GF,AAS	IEPA	10.00	ICP	USGS
Manganese, total recoverable (µg/L as Mn)	(414)	01055	5.0	ICP	IEPA	10.00	AA	USGS
Manganese, sediment, suspended (µg/g as Mn)	--	29839	2.0	ICP	USGS2	--	--	--
Manganese, dissolved (µg/L as Mn)	(1043)	01056	5.0	ICP	IEPA	1.00	ICP	USGS
Mercury, total recoverable (µg/L as Hg)	(414)	71900	.05	AA	IEPA	.10	F,AA	USGS
Mercury, dissolved (µg/L as Hg)	0226	71890	.05	AAS	IEPA	.10	F,AA	USGS
Molybdenum, total recoverable (µg/L as Mo)	(414)	01062	1	AAS	USGS	--	--	--
Molybdenum, sediment, suspended (µg/g as Mo)	--	29843	.1	ICP-MS	USGS2	--	--	--
Nickel, total recoverable (µg/L as Ni)	(414)	01067	5.0	ICP	IEPA	1.00	GF,AAS	USGS
Nickel, sediment, suspended (µg/g as Ni)	--	29845	4.0	ICP	USGS2	--	--	--
Nickel, dissolved (µg/L as Ni)	(1043)	01065	5.0	ICP	IEPA	10.00	ICP	USGS
Selenium, total recoverable (µg/L as Se)	--	01147	1.0	ICP	IEPA	--	--	--
Selenium, dissolved (µg/L as Se)	--	01145	1.0	ICP	IEPA	--	--	--
Silver, total recoverable (µg/L as Ag)	(414)	01077	3.0	ICP	IEPA	1.00	GF,AAS	USGS
Silver, sediment, suspended (µg/g as Ag)	--	29850	.1	ICP-MS	USGS2	--	--	--
Silver, dissolved (µg/L as Ag)	(1043)	01075	3.0	ICP	IEPA	1.00	ICP	USGS
Strontium, total recoverable (µg/L as Sr)	--	01082	5.0	ICP	IEPA	--	--	--
Strontium, dissolved (µg/L as Sr)	(1043)	01080	5.0	ICP	IEPA	.50	ICP	USGS
Thallium, soil, recoverble (µg/g)	--	29852	.1	ICP-MS	USGS2	--	--	--
Titanium, sediment, suspended (percent as Ti)	--	30317	.01	ICP	USGS2	--	--	--
Vanadium, total recoverable (µg/L as V)	--	01087	5.0	ICP	IEPA	--	--	--
Vanadium, sediment, suspended (µg/g as V)	--	29853	4.0	ICP	USGS2	--	--	--
Vanadium, dissolved (µg/L as V)	(1043)	01085	5.0	ICP	IEPA	6.00	ICP	USGS
Zinc, total recoverable (µg/L as Zn)	(414)	01092	50.0	ICP	IEPA	10.00	AA	USGS
Zinc, sediment, suspended (µg/g as Zn)	--	29855	4.0	ICP	USGS2	--	--	--
Zinc, dissolved (µg/L as Zn)	(1043)	01090	50.0	ICP	IEPA	3.00	ICP	USGS

Table 2.--Field measurements and laboratory analyses determined for water-quality samples collected at the fixed stations--Continued

	Monthly and special event samples					Laboratory comparison sample		
	USGS lab code (schedule)[1]	WATSTORE code[2]	Reporting level[3]	Laboratory method	Analysis performed by	Reporting level	Laboratory method	Analysis performed by
Organic carbon								
Carbon, organic, total (mg/L as C)	0114	00680	1.0	P/UO	IEPA	0.10	WO	USGS
Carbon, organic, dissolved (mg/L as C)	0113	00681	.1	WO	USGS	--	--	--
Carbon, organic, suspended (mg/L as C)	0305	00689	.1	WO	USGS	--	--	--
Chlorophyll								
Chlorophyll-a (µg/L)	0586	70953	.1	CF	USGS	--	--	--
Chlorophyll-a (µg/L)	--	32209	.1	F	USGS4			
Sediment								
Turbidity, NTU (NTU)	--	00076	.05	NEP	IEPA	--	--	--
Suspended sediment (mg/L)	--	80154	--	EVAP	USGS3	--	--	--
Sediment, discharge, suspended (T/day)	--	80155	--	Calc.	USGS	--	--	--
Percent finer than 0.062 mm	--	70331	--	W-S	USGS3	--	--	--
Surface area, sediment, suspended (m^2/g)	--	30334	.1	BET-SP	USGS5	--	--	--
Other								
Chemical oxygen demand (COD) (mg/L)	--	00335	5	DR,T	IEPA	--	--	--
Hardness (Ca, Mg) (mg/L as $CaCO_3$)	--	00900	5	Calc.	IEPA	5	Calc.	USGS
Cyanide, total (mg/L as CN)	0023	00720	.005	AP-BA	IEPA	.01	ABC	USGS
Cyanide, dissolved (mg/L as CN)	0880	00723	.005	AP-BA	IEPA	.01	ABC	USGS
Phenolic material (C_6H_5OH), total (µg/L)	--	32730	5	A4-A	IEPA	--	--	--
Oil, total (mg/L)	--	00556	1	P-G	IEPA	--	--	--

Table 2.--Field measurements and laboratory analyses determined for water-quality samples collected at the fixed stations--Continued

	Monthly and special event samples					Laboratory comparison sample		
	USGS lab code (schedule)[1]	WATSTORE code[2]	Reporting level[3]	Laboratory method	Analysis performed by	Reporting level	Laboratory method	Analysis performed by
Samples collected seasonally								
Major constituents								
Bromide, dissolved (mg/L as Br)	1246	71870	0.01	AFC	USGS	--	--	--
Major metals and trace elements								
Antimony, dissolved (µg/L as Sb)	0077	01095	1	AA,H	USGS	--	--	--
Molybdenum, dissolved (µg/L as Mo)	(1043)	01060	10	ICP	USGS	--	--	--
Radiochemicals								
Gross alpha, dissolved (mg/L as U, natural)	(609)	80030	.4	RES	USGS	--	--	--
Gross beta, dissolved (pCi/L as Sr-90/Y-90, natural)	(609)	80050	.4	RES	USGS	--	--	--
Gross beta, dissolved (pCi/L as Cs-137)	(609)	03515	.4	RES	USGS	--	--	--
Gross alpha, suspended (mg/g as U, natural)	(609)	80040	.4	RES	USGS	--	--	--
Gross beta, suspended (pCi/L as Sr-90/Y-90, natural)	(609)	80060	.4	RES	USGS	--	--	--
Gross beta, suspended (pCi/L as Cs-137)	(609)	03516	.4	RES	USGS	--	--	--

[1]Refers to number in U.S. Geological Survey's National Water Quality Laboratory Services Catalog used to request a specific type of analytical procedure for given constituent.
[2]National WATer data STOrage and REtrieval system; number identifies parameter in computer data base.
[3]Smallest unit results reported for given constituent or physical property.

Table 3.--Samplers used to collect water-quality samples at fixed stations

[<, less than; >, greater than; (W), sample collected by wading; (B), sample collected from bridge; (T), sample collected from boat connected to tagline]

Station number	Station name	Gage height (feet)	Sampler and sampling platform
05520500	Kankakee River at Momence, Ill.	<2.1	DH-81 (W)
		>2.1	DH-76 (B)
05526000	Iroquois River near Chebanse, Ill.	<3.8	open bottle (W)
		<4.3	DH-81 (W)
		>4.3	DH-76 (B)
05532500	Des Plaines River at Riverside, Ill.	<3.3	DH-81 (W)
		>3.3	open bottle (B)
		>4.0	DH-76 (B)
05536995	Chicago Sanitary and Ship Canal at Romeoville, Ill.	Velocity <1.5 feet per second	open bottle
		Velocity >1.5 feet per second	U.S. P-72 point-integrating sampler
05540500	Du Page River at Shorewood, Ill.	<2.5	open bottle (W)
		<3.0	DH-81 (W)
		>3.0	DH-76 (B)
05543500	Illinois River at Marseilles, Ill.[1]	<4.0	DH-81 (T)
		>4.0	DH-76 (B)
05550000	Fox River at Algonquin, Ill.	All	open bottle (B)
05552500	Fox River at Dayton, Ill.	<5.0	open bottle (W)
		<6.0	DH-81 (W)
		>6.0	DH-76 (B)

[1] From August 1989 through May 1990, all samples at Illinois River at Marseilles were collected from the County Highway 15 bridge due to inoperable tagline and boat.

Table 4.--Sample containers and preservatives for water-quality samples collected at the fixed stations

[oz., ounce; °C, degrees Celsius; mL, milliliter; L, liter; N, normal; dashes (--) indicate not applicable]

Sample designation: Type of sample contained in bottle--RC, raw and chilled; FC, filtered and chilled; LC+number, laboratory code that refers to number in U.S. Geological Survey's National Water-Quality Laboratory Services catalog and is used to request a specific type of analytical procedure for a given constituent; FU, filtered and untreated; FA, filtered and acidified; RU, raw and untreated; RA, raw and acidified; RAM, raw and acidified with $HNO_3+K_2+Cr_2+O_7$; FAM, filtered and acidified with $HNO_3+K_2+Cr_2+O_7$.

Parameter group	Container type and volume	Preservative[1] required	Sample designation or color
		Illinois Environmental Protection Agency samples	
Miscellaneous	32-oz. plastic	Chill to 4°C	Clear
Nutrients	4-oz. plastic	10 mL 20 percent H_2SO_4/L	Yellow
Bacteria	6-oz. sterile	Chill to 4°C	Clear
Cyanide	4-oz. plastic	5 mL 5 N NaOH/L	Grey
Metals	8-oz. plastic, acid rinsed	20 mL 50 percent HNO_3/L	Red[2]
Mercury	2-oz. glass	20 mL 50 percent HNO_3 + 2.5 percent K_2CrO_7/L	Tan
Organic carbon, total	2-oz. glass	10 mL 20 percent H_2SO_4/L	Purple
Oil and grease	32-oz. glass	4 mL 50 percent H_2SO_4/L	Orange
Phenolics	2-oz. glass	10 mL 20 percent H_2SO_4/L	Pink
Sulfate, chloride, chloride, fluoride	8-oz. plastic	Chill to 4°C	Clear
Nutrients	250-mL brown poly, field rinsed (2)	1 mL $HgCl_2$	RC, FC

Table 4.--Sample containers and preservatives for water-quality samples collected at the fixed stations--Continued

Parameter group	Container type and volume	Preservative[1] required	Sample designation or color
	U.S. Geological Survey samples		
Organic carbon, dissolved	150-mL baked glass	Chill to 4°C	LC0113
Organic carbon, suspended	Petri dish	Chill to 4°C	LC0305
Suspended sediment	Quart glass	--	--
Bromide, dissolved	250-mL polyethylene	--	FU
Molybdenum and antimony, dissolved	250-mL polyethylene	Acidify to pH < 2 w/ HNO_3	FA
Gross alpha and gross beta	2-L polyethylene	--	RU
Metals	500-mL polyethylene, acid rinsed	2 mL HNO_3	RA, FA
Mercury	250-mL glass, acid rinsed	10 mL HNO_3/ $K_2Cr_2O_7$	RAM, FAM
Sulfate, chloride, fluoride, and R.O.E. solids	500-mL polyethylene	--	RU
Organic carbon, total	125-mL glass	--	LC0114
Cyanide	250-mL polyethylene	Add NaOH to pH > 12	LC0880, LC0023

[1]Illinois Environmental Protection Agency sample containers contain preservative prior to water-quality sample insertion.

[2]Sample bottles for Illinois Environmental Protection Agency laboratory's metals analyses prepared at U.S. Geological Survey's Illinois District laboratory by acid-rinsing bottles before addition of preservative.

Table 5.--Quality-assurance and quality-control activities for the upper Illinois River basin National Water-Quality Assessment pilot project

Explanation of abbreviations: FD, field blank; DW, distilled water blank; FT, filter blank; X, indicates respective quality-assurance sample collected during month indicated; 26000, U.S. Geological Survey station number indicating site at which sample was collected (add number '055' to beginning of station number to obtain complete eight-digit station number).

Quality-assurance/ quality-control activity	Month											
	October	November	December	January	February	March	April	May	June	July	August	September
1987 water year												
Blanks							FD	FD	DW,FT		FD	
Collection duplicates												26000
1988 water year												
Blanks			DW,FT		DW,FT			FD			DW,FT	
Process duplicates				43500			36995			40500		
				52500						50000		
Collection duplicates												40500
Lab comparisons			26000			20500			36995			52500
			40500			32500			50000			
1989 water year												
Blanks		FD		FD		DW						FD
Standard references		X	X		X		X					
Process duplicates	26000			50000			26000			43500		
	40500			32500			40500			36995		
Collection duplicates						26000						32500
Lab comparisons			36995						26000			40500
			50000						52500			43500
1990 water year												
Blanks			FD					FD				
Standard references	X											
Process duplicates	20500										50000	
	52500											
Collection duplicates				40500						50000		
Lab comparisons			20500			26000						
			32500			40500						

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples

[USGS, U.S. Geological Survey; IEPA, Illinois Environmental Protection Agency; µS/cm, microsiemens per centimeter at 25 degrees Celsius; mg/L, milligrams per liter; col/100 mL, colonies per 100 milliliters; µg/L, micrograms per liter; mm, millimeter; NTU, nephelometric-turbidity units; dashes (--) indicate missing data or not applicable. Footnotes at end of table]

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			Field Measurements			
			Specific conductance (µS/cm) (00095)			
01-14-88	05543500	980	980	980	0	0
01-14-88	05552500	903	903	903	0	0
04-06-88	05536995	930	900	915	30	3
07-07-88	05540500	1,720	1,720	1,720	0	0
07-07-88	05550000	738	742	740	4	1
10-13-88	05526000	678	678	678	0	0
10-13-88	05540500	1,890	1,890	1,890	0	0
01-11-89	05532500	1,380	1,380	1,380	0	0
01-11-89	05550000	985	946	965.5	39	4
04-03-89	05526000	672	668	670	4	1
04-06-89	05540500	1,490	1,490	1,490	0	0
07-10-89	05543500	733	751	742	18	2
07-12-89	05536995	649	639	644	10	2
10-03-89	05552500	661	677	669	16	2
10-05-89	05520500	664	660	662	4	1
08-08-90	05550000	665	667	666	2	<1
			pH (standard units) (00400)			
01-14-88	05543500	8.19	8.19	8.19	0	0
01-14-88	05552500	8.33	8.33	8.33	0	0
04-06-88	05536995	7.74	7.83	7.785	.09	1
07-07-88	05540500	9.08	8.88	8.98	.20	2
07-07-88	05550000	8.47	8.36	8.415	.11	1
10-13-88	05526000	8.81	8.81	8.81	0	0
10-13-88	05540500	8.31	8.31	8.31	0	0
01-11-89	05532500	8.05	8.05	8.05	0	0
01-11-89	05550000	8.39	8.41	8.40	.02	<1
04-03-89	05526000	8.31	8.38	8.345	.07	1
04-06-89	05540500	8.66	8.62	8.64	.04	<1
07-10-89	05543500	8.14	8.22	8.18	.08	1
07-12-89	05536995	7.31	7.51	7.41	.20	3
10-03-89	05552500	8.92	8.95	8.935	.03	<1
10-05-89	05520500	8.18	8.26	8.22	.08	1
08-08-90	05550000	8.37	8.39	8.38	.02	<1

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			Field Measurements--Continued			
			Acidity (mg/L as H) (71825)			
01-14-88	05543500	1	1	1	0	0
01-14-88	05552500	0	0	0	0	0
04-06-88	05536995	12	11	11.5	1	8
07-07-88	05540500	0	0	0	0	0
07-07-88	05550000	0	0	0	0	0
10-13-88	05526000	0	0	0	0	0
10-13-88	05540500	0	0	0	0	0
01-11-89	05532500	10	15	12.5	5	50
01-11-89	05550000	0	0	0	0	0
04-03-89	05526000	0	0	0	0	0
04-06-89	05540500	0	0	0	0	0
07-10-89	05543500	1	2	1.5	1	100
07-12-89	05536995	16	17	16.5	1	6
10-03-89	05552500	0	0	0	0	0
10-05-89	05520500	11	16	13.5	5	45
08-08-90	05550000	0	0	0	0	0
			Alkalinity, water, whole, total (mg/L as $CaCO_3$) (00410)			
01-14-88	05543500	270	260	265	10	4
01-14-88	05552500	346	393	369.5	47	14
04-06-88	05536995	180	178	179	2	1
07-07-88	05540500	258	270	264	12	5
07-07-88	05550000	199	199	199	0	0
10-13-88	05526000	--	--	--	--	--
10-13-88	05540500	--	--	--	--	--
01-11-89	05532500	--	--	--	--	--
01-11-89	05550000	--	--	--	--	--
04-03-89	05526000	--	--	--	--	--
04-06-89	05540500	--	--	--	--	--
07-10-89	05543500	--	--	--	--	--
07-12-89	05536995	--	--	--	--	--
10-03-89	05552500	--	--	--	--	--
10-05-89	05520500	--	--	--	--	--
08-08-90	05550000	--	--	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			Field Measurements--Continued			
			Alkalinity, water, dissolved (mg/L as $CaCO_3$) (39036)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	--	--	--	--	--
07-07-88	05540500	--	--	--	--	--
07-07-88	05550000	--	--	--	--	--
10-13-88	05526000	206	198	202	8	4
10-13-88	05540500	269	255	262	14	5
01-11-89	05532500	179	172	175.5	7	4
01-11-89	05550000	286	282	284	4	1
04-03-89	05526000	179	161	170	18	10
04-06-89	05540500	252	242	247	10	4
07-10-89	05543500	153	163	158	10	7
07-12-89	05536995	136	139	137.5	3	2
10-03-89	05552500	196	196	196	0	0
10-05-89	05520500	222	217	219.5	5	2
08-08-90	05550000	188	199	193.5	11	6
			Carbonate alkalinity (mg/L as $CaCO_3$) (39086)			
01-14-88	05543500	271	258	264.5	13	5
01-14-88	05552500	346	393	369.5	47	14
04-06-88	05536995	181	179	180	2	1
07-07-88	05540500	256	271	263.5	15	6
07-07-88	05550000	198	201	199.5	3	2
10-13-88	05526000	205	199	202	6	3
10-13-88	05540500	270	251	260.5	19	7
01-11-89	05532500	176	172	174	4	2
01-11-89	05550000	286	282	284	4	1
04-03-89	05526000	176	158	167	18	10
04-06-89	05540500	253	241	247	12	5
07-10-89	05543500	153	163	158	10	7
07-12-89	05536995	136	139	137.5	3	2
10-03-89	05552500	194	195	194.5	1	1
10-05-89	05520500	221	218	219.5	3	1
08-08-90	05550000	189	191	190	2	1

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			Field Measurements--Continued			
			Carbonate concentration (mg/L as CO_3) (00452)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	--	--	--	--	--
07-07-88	05540500	--	--	--	--	--
07-07-88	05550000	--	--	--	--	--
10-13-88	05526000	0	0	0	0	0
10-13-88	05540500	0	0	0	0	0
01-11-89	05532500	0	0	0	0	0
01-11-89	05550000	0	0	0	0	0
04-03-89	05526000	0	0	0	0	0
04-06-89	05540500	0	0	0	0	0
07-10-89	05543500	0	0	0	0	0
07-12-89	05536995	0	0	0	0	0
10-03-89	05552500	0	0	0	0	0
10-05-89	05520500	0	0	0	0	0
08-08-90	05550000	0	0	0	0	0
			Bicarbonate concentration (mg/L as HCO_3) (00453)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	--	--	--	--	--
07-07-88	05540500	--	--	--	--	--
07-07-88	05550000	--	--	--	--	--
10-13-88	05526000	250	243	246.5	7	3
10-13-88	05540500	329	306	317.5	23	7
01-11-89	05532500	215	210	212.5	5	2
01-11-89	05550000	349	344	346.5	5	1
04-03-89	05526000	215	193	204	22	10
04-06-89	05540500	309	294	301.5	15	5
07-10-89	05543500	187	199	193	12	6
07-12-89	05536995	166	170	168	4	2
10-03-89	05552500	237	238	238	1	<1
10-05-89	05520500	270	266	268	4	1
08-08-90	05550000	231	233	232	2	1

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analyses			
			Coliform, fecal, membrane filter (col/100 mL) (31616)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	120	84	100	36	30
04-06-88	05536995	--	--	--	--	--
07-07-88	05540500	K12	K12	12	0	0
07-07-88	05550000	--	46	--	--	--
10-13-88	05526000	--	--	--	--	--
10-13-88	05540500	--	--	--	--	--
01-11-89	05532500	--	--	--	--	--
01-11-89	05550000	--	--	--	--	--
04-03-89	05526000	1,300	1,600	1,400	300	23
04-06-89	05540500	K9	K9	9	0	0
07-10-89	05543500	K13	K14	13.5	1	8
07-12-89	05536995	2,200	1,800	2,000	400	18
10-03-89	05552500	37	44	40.5	7	19
10-05-89	05520500	200	110	160	90	45
08-08-90	05550000	K16	23	19.5	7	44
			E. coli, MTEC, membrane filter (col/100 mL) (31648)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	--	--	--	--	--
07-07-88	05540500	--	--	--	--	--
07-07-88	05550000	--	--	--	--	--
10-13-88	05526000	--	--	--	--	--
10-13-88	05540500	--	--	--	--	--
01-11-89	05532500	2,900	1,100	2,000	1,800	62
01-11-89	05550000	--	--	--	--	--
04-03-89	05526000	1,900	1,600	1,800	300	16
04-06-89	05540500	K23	K10	16.5	13	57
07-10-89	05543500	250	K180	220	70	28
07-12-89	05536995	1,300	890	1,100	410	32
10-03-89	05552500	K30	K52	41	22	73
10-05-89	05520500	180	120	150	60	33
08-08-90	05550000	K6	K21	13.5	15	250

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analyses--Continued			
			Nitrogen, NO_2, dissolved (mg/L as N) (00613)			
01-14-88	05543500	0.100	0.100	0.100	0	0
01-14-88	05552500	.020	.020	.020	0	0
04-06-88	05536995	.25	.25	.25	0	0
07-07-88	05540500	.050	.050	.050	0	0
07-07-88	05550000	<.01	<.01	--	--	--
10-13-88	05526000	<.01	<.01	--	--	--
10-13-88	05540500	.040	.040	.040	0	0
01-11-89	05532500	.070	.070	.070	0	0
01-11-89	05550000	.030	.030	.030	0	0
04-03-89	05526000	.060	.060	.060	0	0
04-06-89	05540500	.060	.060	.060	0	0
07-10-89	05543500	.130	.130	.130	0	0
07-12-89	05536995	.330	.330	.330	0	0
10-03-89	05552500	.010	.020	.015	.010	100
10-05-89	05520500	.010	.010	.010	0	0
08-08-90	05550000	--	--	--	--	--
			Nitrogen, $NO_2 + NO_3$, dissolved (mg/L as N) (00631)			
01-14-88	05543500	6.50	6.50	6.50	0	0
01-14-88	05552500	5.10	5.00	5.05	.10	2
04-06-88	05536995	2.90	2.90	2.90	0	0
07-07-88	05540500	4.70	4.70	4.70	0	0
07-07-88	05550000	.100	.100	.100	0	0
10-13-88	05526000	.100	.100	.100	0	0
10-13-88	05540500	14.0	13.0	13.5	1.0	7
01-11-89	05532500	4.10	4.10	4.10	0	0
01-11-89	05550000	2.30	2.20	2.25	.10	4
04-03-89	05526000	10.0	10.0	10.0	0	0
04-06-89	05540500	7.10	7.10	7.10	0	0
07-10-89	05543500	3.40	3.40	3.40	0	0
07-12-89	05536995	3.00	3.00	3.00	0	0
10-03-89	05552500	.460	.550	.505	.090	20
10-05-89	05520500	.750	.820	.785	.070	9
08-08-90	05550000	--	--	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analyses--Continued			
			Nitrogen, NH_4, dissolved (mg/L as N) (00608)			
01-14-88	05543500	1.20	1.30	1.25	0.10	8
01-14-88	05552500	.270	.260	.265	.010	4
04-06-88	05536995	3.20	3.10	3.15	.10	3
07-07-88	05540500	.030	.030	.030	0	0
07-07-88	05550000	.040	.040	.040	0	0
10-13-88	05526000	.020	.020	.020	0	0
10-13-88	05540500	.050	.050	.050	0	0
01-11-89	05532500	.510	.500	.505	.010	2
01-11-89	05550000	.190	.230	.210	.040	21
04-03-89	05526000	.080	.080	.080	0	0
04-06-89	05540500	.060	.060	.060	0	0
07-10-89	05543500	.110	.110	.110	0	0
07-12-89	05536995	1.70	1.70	1.70	0	0
10-03-89	05552500	.020	.010	.015	.010	50
10-05-89	05520500	.030	.030	.030	0	0
08-08-90	05550000	--	--	--	--	--
			Nitrogen, total kjeldahl (mg/L as N) (00625)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	5.8	6.1	5.95	0.3	5
07-07-88	05540500	1.7	1.8	1.75	.1	6
07-07-88	05550000	2.3	.80	1.55	1.5	65
10-13-88	05526000	.50	.70	.60	.20	40
10-13-88	05540500	1.0	1.1	1.05	.1	10
01-11-89	05532500	1.5	1.5	1.5	0	0
01-11-89	05550000	1.3	1.3	1.3	0	0
04-03-89	05526000	1.1	1.3	1.2	.2	18
04-06-89	05540500	1.0	.90	.95	.1	10
07-10-89	05543500	.80	.80	.80	0	0
07-12-89	05536995	2.6	2.6	2.6	0	0
10-03-89	05552500	2.3	2.4	2.35	.1	4
10-05-89	05520500	.40	.70	.55	.3	75
08-08-90	05550000	--	--	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analyses--Continued			
			Nitrogen, dissolved kjeldahl (mg/L as N) (00623)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	4.1	4.0	4.05	0.1	2
07-07-88	05540500	<.2	.80	--	--	--
07-07-88	05550000	1.4	.50	.95	.9	64
10-13-88	05526000	.50	.50	.50	0	0
10-13-88	05540500	1.0	1.0	1.0	0	0
01-11-89	05532500	1.2	1.4	1.3	.2	17
01-11-89	05550000	1.1	1.2	1.15	.1	9
04-03-89	05526000	.90	.80	.85	.10	11
04-06-89	05540500	1.0	.90	.95	.10	10
07-10-89	05543500	.70	.60	.65	.10	14
07-12-89	05536995	1.0	2.9	1.95	1.9	190
10-03-89	05552500	.70	.50	.60	.20	29
10-05-89	05520500	.40	.50	.45	.10	25
08-08-90	05550000	--	--	--	--	--
			Phosphorus, total (mg/L as P) (00665)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	1.30	1.00	1.15	0.30	23
07-07-88	05540500	.780	1.70	1.24	.92	118
07-07-88	05550000	.250	.250	.250	0	0
10-13-88	05526000	.020	.020	.020	0	0
10-13-88	05540500	2.30	2.20	2.25	.10	4
01-11-89	05532500	.630	.620	.625	.010	2
01-11-89	05550000	.070	.080	.075	.010	14
04-03-89	05526000	.140	.140	.140	0	0
04-06-89	05540500	.720	.720	.720	0	0
07-10-89	05543500	.290	.300	.295	.010	3
07-12-89	05536995	.430	.410	.420	.020	5
10-03-89	05552500	.190	.190	.190	0	0
10-05-89	05520500	.040	.050	.045	.010	25
08-08-90	05550000	--	--	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analyses--Continued			
			Phosphorus, dissolved (mg/L as P) (00666)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	0.410	0.420	0.415	0.010	2
07-07-88	05540500	.620	.630	.625	.010	2
07-07-88	05550000	.040	.040	.040	0	0
10-13-88	05526000	.010	.010	.010	0	0
10-13-88	05540500	2.20	2.20	2.20	0	0
01-11-89	05532500	.580	.570	.575	.010	2
01-11-89	05550000	.010	.010	.010	0	0
04-03-89	05526000	.060	.060	.060	0	0
04-06-89	05540500	.650	.660	.655	.010	2
07-10-89	05543500	.230	.260	.245	.030	13
07-12-89	05536995	.380	.380	.380	0	0
10-03-89	05552500	.020	.010	.015	.010	50
10-05-89	05520500	<.010	<.010	--	--	--
08-08-90	05550000	--	--	--	--	--
			Phosphorus, ortho, dissolved (mg/L as P) (00671)			
01-14-88	05543500	0.200	0.210	0.205	0.010	5
01-14-88	05552500	.080	.080	.080	0	0
04-06-88	05536995	.320	.320	.320	0	0
07-07-88	05540500	.520	.550	.535	.030	6
07-07-88	05550000	.030	.020	.025	.010	33
10-13-88	05526000	.020	.020	.020	0	0
10-13-88	05540500	2.10	2.40	2.25	.30	14
01-11-89	05532500	.540	.540	.540	0	0
01-11-89	05550000	<.010	<.010	--	--	--
04-03-89	05526000	.050	.050	.050	0	0
04-06-89	05540500	.640	.620	.630	.020	3
07-10-89	05543500	.240	.240	.240	0	0
07-12-89	05536995	.320	.330	.325	.010	3
10-03-89	05552500	<.010	<.010	--	--	--
10-05-89	05520500	.020	.020	.020	0	0
08-08-90	05550000	--	--	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analyses--Continued			
			Carbon, organic, dissolved (mg/L as C) (00681)			
01-14-88	05543500	4.9	4.9	4.9	0	0
01-14-88	05552500	5.8	5.8	5.8	0	0
04-06-88	05536995	7.9	7.6	7.75	.3	4
07-07-88	05540500	6.0	5.8	5.9	.2	3
07-07-88	05550000	8.7	10	9.35	1.3	15
10-13-88	05526000	5.2	5.3	5.25	.1	2
10-13-88	05540500	5.0	5.1	5.05	.1	2
01-11-89	05532500	6.5	5.3	5.9	1.2	18
01-11-89	05550000	6.5	5.0	5.75	1.5	23
04-03-89	05526000	4.6	4.6	4.6	0	0
04-06-89	05540500	4.3	4.1	4.2	.2	5
07-10-89	05543500	5.1	5.2	5.15	.1	2
07-12-89	05536995	4.9	4.8	4.85	.1	2
10-03-89	05552500	7.3	6.6	6.95	.7	10
10-05-89	05520500	4.2	4.0	4.1	.2	5
08-08-90	05550000	8.8	8.5	8.65	.3	3
			Carbon, organic, suspended (mg/L as C) (00689)			
01-14-88	05543500	1.0	0.40	0.70	0.6	60
01-14-88	05552500	.40	.20	.30	.20	50
04-06-88	05536995	3.0	2.9	2.95	.1	3
07-07-88	05540500	1.3	3.2	2.25	1.9	146
07-07-88	05550000	>5	>5	--	--	--
10-13-88	05526000	.50	.30	.40	.20	40
10-13-88	05540500	.60	.60	.60	0	0
01-11-89	05532500	1.0	.90	.95	.1	10
01-11-89	05550000	1.1	.90	1.0	.2	18
04-03-89	05526000	.90	.90	.90	0	0
04-06-89	05540500	.50	.50	.50	0	0
07-10-89	05543500	1.2	1.1	1.15	.1	8
07-12-89	05536995	.50	.50	.50	0	0
10-03-89	05552500	3.4	>5	--	--	--
10-05-89	05520500	.40	.30	.35	.10	25
08-08-90	05550000	4.4	2.8	3.6	1.6	36

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analyses--Continued			
			Chlorophyll-a (µg/L) (32209)			
01-14-88	05543500	1.6	1.2	1.4	0.4	25
01-14-88	05552500	1.7	1.7	1.7	0	0
04-06-88	05536995	4.9	4.6	4.75	.3	6
07-07-88	05540500	--	--	--	--	--
07-07-88	05550000	--	--	--	--	--
10-13-88	05526000	2.8	12	7.4	9.2	329
10-13-88	05540500	--	2.7	--	--	--
01-11-89	05532500	1.1	.4	.75	.7	64
01-11-89	05550000	5.0	5.8	5.4	.8	16
04-03-89	05526000	3.2	3.6	3.4	.4	12
04-06-89	05540500	1.2	1.7	1.45	.5	42
07-10-89	05543500	4.9	4.7	4.8	.2	4
07-12-89	05536995	1.6	1.7	1.65	.1	6
10-03-89	05552500	62	29	45.5	33	53
10-05-89	05520500	.95	.95	.95	0	0
08-08-90	05550000	--	--	--	--	--
			Suspended sediment (mg/L) (80154)			
01-14-88	05543500	11	13	12	2	18
01-14-88	05552500	12	7	9.5	5	42
04-06-88	05536995	68	70	69	2	3
07-07-88	05540500	16	14	15	2	12
07-07-88	05550000	35	40	37.5	5	14
10-13-88	05526000	24	5	14.5	19	79
10-13-88	05540500	20	20	20	0	0
01-11-89	05532500	35	35	35	0	0
01-11-89	05550000	26	32	29	6	23
04-03-89	05526000	51	56	53.5	5	10
04-06-89	05540500	6	7	6.5	1	17
07-10-89	05543500	25	24	24.5	1	4
07-12-89	05536995	7	6	6.5	1	14
10-03-89	05552500	35	38	36.5	3	9
10-05-89	05520500	32	45	38.5	13	41
08-08-90	05550000	25	36	30.5	11	44

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analyses--Continued			
			Percent finer than 0.062 mm (70331)			
01-14-88	05543500	90	84	87	6	7
01-14-88	05552500	73	85	79	12	16
04-06-88	05536995	93	92	92.5	1	1
07-07-88	05540500	96	94	95	2	2
07-07-88	05550000	100	98	99	2	2
10-13-88	05526000	96	97	96.5	1	1
10-13-88	05540500	98	98	98	0	0
01-11-89	05532500	100	100	100	0	0
01-11-89	05550000	93	92	92.5	1	1
04-03-89	05526000	98	98	98	0	0
04-06-89	05540500	100	100	100	0	0
07-10-89	05543500	100	100	100	0	0
07-12-89	05536995	95	100	98	5	5
10-03-89	05552500	100	99	99.5	1	1
10-05-89	05520500	96	93	94.5	3	3
08-08-90	05550000	92	94	93	2	2
			IEPA Laboratory Analyses			
			Calcium, total (mg/L as Ca) (00916)			
01-14-88	05543500	98	99	98.5	1	1
01-14-88	05552500	98	97	97.5	1	1
04-06-88	05536995	69	71	70	2	3
07-07-88	05540500	95	93	94	2	2
07-07-88	05550000	53	53	53	0	0
10-13-88	05526000	69	70	69.5	1	1
10-13-88	05540500	100	49	74.5	51	51
01-11-89	05532500	77	77	77	0	0
01-11-89	05550000	81	81	81	0	0
04-03-89	05526000	89	86	87.5	3	3
04-06-89	05540500	100	100	100	0	0
07-10-89	05543500	65	65	65	0	0
07-12-89	05536995	50	49	49.5	1	2
10-03-89	05552500	49	49	49	0	0
10-05-89	05520500	99	99	99	0	0
08-08-90	05550000	48	47	47.5	1	2

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Calcium, dissolved (mg/L as Ca) (00915)			
01-14-88	05543500	97	97	97	0	0
01-14-88	05552500	96	98	97	2	2
04-06-88	05536995	66	68	67	2	3
07-07-88	05540500	94	94	94	0	0
07-07-88	05550000	48	48	48	0	0
10-13-88	05526000	69	68	68.5	1	1
10-13-88	05540500	100	49	74.5	51	51
01-11-89	05532500	75	76	75.5	1	1
01-11-89	05550000	80	80	80	0	0
04-03-89	05526000	72	--	--	--	--
04-06-89	05540500	100	100	100	0	0
07-10-89	05543500	64	64	64	0	0
07-12-89	05536995	49	50	49.5	1	2
10-03-89	05552500	44	44	44	0	0
10-05-89	05520500	98	97	97.5	1	1
08-08-90	05550000	44	44	44	0	0
			Magnesium, total (mg/L as Mg) (00927)			
01-14-88	05543500	36	37	36.5	1	3
01-14-88	05552500	48	48	48	0	0
04-06-88	05536995	27	28	27.5	1	4
07-07-88	05540500	45	44	44.5	1	2
07-07-88	05550000	41	41	41	0	0
10-13-88	05526000	32	33	32.5	1	3
10-13-88	05540500	48	17	32.5	31	65
01-11-89	05532500	31	31	31	0	0
01-11-89	05550000	47	47	47	0	0
04-03-89	05526000	30	29	29.5	1	3
04-06-89	05540500	46	46	46	0	0
07-10-89	05543500	24	24	24	0	0
07-12-89	05536995	16	16	16	0	0
10-03-89	05552500	41	41	41	0	0
10-05-89	05520500	30	30	30	0	0
08-08-90	05550000	36	36	36	0	0

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Magnesium, dissolved (mg/L as Mg) (00925)			
01-14-88	05543500	36	36	36	0	0
01-14-88	05552500	47	48	47.5	1	2
04-06-88	05536995	26	26	26	0	0
07-07-88	05540500	45	44	44.5	1	2
07-07-88	05550000	41	41	41	0	0
10-13-88	05526000	32	32	32	0	0
10-13-88	05540500	47	17	32	30	64
01-11-89	05532500	30	30	30	0	0
01-11-89	05550000	46	47	46.5	1	2
04-03-89	05526000	24	--	--	--	--
04-06-89	05540500	46	46	46	0	0
07-10-89	05543500	23	24	23.5	1	4
07-12-89	05536995	16	16	16	0	0
10-03-89	05552500	40	40	40	0	0
10-05-89	05520500	30	29	29.5	1	3
08-08-90	05550000	36	36	36	0	0
			Sodium, total (mg/L as Na) (00929)			
01-14-88	05543500	58	59	58.5	1	2
01-14-88	05552500	31	31	31	0	0
04-06-88	05536995	82	85	83.5	3	4
07-07-88	05540500	200	200	200	0	0
07-07-88	05550000	37	37	37	0	0
10-13-88	05526000	38	38	38	0	0
10-13-88	05540500	230	56	143	174	76
01-11-89	05532500	150	150	150	0	0
01-11-89	05550000	54	56	55	2	4
04-03-89	05526000	10	10	10	0	0
04-06-89	05540500	150	150	150	0	0
07-10-89	05543500	50	50	50	0	0
07-12-89	05536995	57	56	56.5	1	2
10-03-89	05552500	41	42	41.5	1	2
10-05-89	05520500	12	11	11.5	1	8
08-08-90	05550000	34	33	33.5	1	3

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Sodium, dissolved (mg/L as Na) (00930)			
01-14-88	05543500	58	57	57.5	1	2
01-14-88	05552500	31	31	31	0	0
04-06-88	05536995	83	84	83.5	1	1
07-07-88	05540500	200	200	200	0	0
07-07-88	05550000	37	37	37	0	0
10-13-88	05526000	38	38	38	0	0
10-13-88	05540500	230	56	143	174	76
01-11-89	05532500	150	160	155	10	7
01-11-89	05550000	54	56	55	2	4
04-03-89	05526000	8.6	--	--	--	--
04-06-89	05540500	--	150	--	--	--
07-10-89	05543500	49	50	49.5	1	2
07-12-89	05536995	56	57	56.5	1	2
10-03-89	05552500	41	41	41	0	0
10-05-89	05520500	11	11	11	0	0
08-08-90	05550000	34	34	34	0	0
			Potassium, total (mg/L as K) (00937)			
01-14-88	05543500	4.1	3.7	3.9	0.4	10
01-14-88	05552500	2.7	2.7	2.7	0	0
04-06-88	05536995	5.2	5.3	5.25	.1	2
07-07-88	05540500	11	11	11	0	0
07-07-88	05550000	2.9	2.9	2.9	0	0
10-13-88	05526000	3.2	3.3	3.25	.1	3
10-13-88	05540500	13	5.1	9.05	7.9	61
01-11-89	05532500	6.8	6.8	6.8	0	0
01-11-89	05550000	3.3	3.4	3.35	.1	3
04-03-89	05526000	1.4	.36	.88	1.04	74
04-06-89	05540500	6.8	6.8	6.8	0	0
07-10-89	05543500	4.0	4.5	4.25	.5	12
07-12-89	05536995	4.3	4.3	4.3	0	0
10-03-89	05552500	3.0	3.2	3.1	.2	7
10-05-89	05520500	1.1	1.6	1.35	.5	45
08-08-90	05550000	2.2	2.7	2.45	.5	23

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Potassium, dissolved (mg/L as K) (00935)			
01-14-88	05543500	3.9	3.8	3.85	0.1	3
01-14-88	05552500	2.6	2.8	2.7	.2	8
04-06-88	05536995	5.0	5.1	5.05	.1	2
07-07-88	05540500	10	10	10	0	0
07-07-88	05550000	2.8	2.7	2.75	.1	4
10-13-88	05526000	3.2	3.2	3.2	0	0
10-13-88	05540500	13	5.0	9.0	8	62
01-11-89	05532500	6.5	6.6	6.55	.1	2
01-11-89	05550000	3.2	3.4	3.3	.2	6
04-03-89	05526000	.80	--	--	--	--
04-06-89	05540500	6.3	6.9	6.6	.6	10
07-10-89	05543500	4.2	4.1	4.15	.1	2
07-12-89	05536995	5.5	4.3	4.9	1.2	22
10-03-89	05552500	3.3	3.8	3.55	.5	15
10-05-89	05520500	.87	1.8	1.34	.93	107
08-08-90	05550000	2.0	2.8	2.4	.8	40
			Sulfate, total (mg/L as SO_4) (00946)			
01-14-88	05543500	120	120	120	0	0
01-14-88	05552500	70	71	70.5	1	1
04-06-88	05536995	90	90	90	0	0
07-07-88	05540500	200	200	200	0	0
07-07-88	05550000	55	55	55	0	0
10-13-88	05526000	100	100	100	0	0
10-13-88	05540500	190	180	185	10	5
01-11-89	05532500	--	--	--	--	--
01-11-89	05550000	--	--	--	--	--
04-03-89	05526000	--	--	--	--	--
04-06-89	05540500	--	--	--	--	--
07-10-89	05543500	86	88	87	2	2
07-12-89	05536995	72	70	71	2	3
10-03-89	05552500	70	72	71	2	3
10-05-89	05520500	130	130	130	0	0
08-08-90	05550000	50	48	49	2	4

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Sulfate, dissolved (mg/L as SO_4) (00945)			
01-14-88	05543500	120	120	120	0	0
01-14-88	05552500	70	70	70	0	0
04-06-88	05536995	89	90	89.5	1	1
07-07-88	05540500	200	200	200	0	0
07-07-88	05550000	56	56	56	0	0
10-13-88	05526000	100	100	100	0	0
10-13-88	05540500	190	190	190	0	0
01-11-89	05532500	110	110	110	0	0
01-11-89	05550000	93	94	93.5	1	1
04-03-89	05526000	100	98	99	2	2
04-06-89	05540500	140	140	140	0	0
07-10-89	05543500	88	88	88	0	0
07-12-89	05536995	72	72	72	0	0
10-03-89	05552500	70	72	71	2	3
10-05-89	05520500	130	130	130	0	0
08-08-90	05550000	49	48	48.5	1	2
			Chloride, dissolved (mg/L as Cl) (00940)			
01-14-88	05543500	90	93	91.5	3	3
01-14-88	05552500	59	58	58.5	1	2
04-06-88	05536995	120	120	120	0	0
07-07-88	05540500	320	320	320	0	0
07-07-88	05550000	71	72	71.5	1	1
10-13-88	05526000	49	49	49	0	0
10-13-88	05540500	370	360	365	10	3
01-11-89	05532500	280	280	280	0	0
01-11-89	05550000	100	100	100	0	0
04-03-89	05526000	32	31	31.5	1	3
04-06-89	05540500	250	250	250	0	0
07-10-89	05543500	70	69	69.5	1	1
07-12-89	05536995	71	69	70	2	3
10-03-89	05552500	71	71	71	0	0
10-05-89	05520500	24	24	24	0	0
08-08-90	05550000	65	65	65	0	0

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Fluoride, total (mg/L as F) (00951)			
01-14-88	05543500	0.5	0.5	0.5	0	0
01-14-88	05552500	.2	.2	.2	0	0
04-06-88	05536995	.7	.8	.75	.1	14
07-07-88	05540500	.7	.7	.7	0	0
07-07-88	05550000	.2	.2	.2	0	0
10-13-88	05526000	.3	.3	.3	0	0
10-13-88	05540500	.9	.9	.9	0	0
01-11-89	05532500	.5	.5	.5	0	0
01-11-89	05550000	.3	.3	.3	0	0
04-03-89	05526000	.2	.2	.2	0	0
04-06-89	05540500	.4	.4	.4	0	0
07-10-89	05543500	.6	.6	.6	0	0
07-12-89	05536995	.8	.7	.75	.1	12
10-03-89	05552500	.4	.5	.45	.1	25
10-05-89	05520500	.2	.1	.15	.1	50
08-08-90	05550000	.2	.2	.2	0	0
			Fluoride, dissolved (mg/L as F) (00950)			
01-14-88	05543500	0.46	0.48	0.47	0.02	4
01-14-88	05552500	.22	.20	.21	.02	9
04-06-88	05536995	.70	.76	.73	.06	9
07-07-88	05540500	.69	.69	.69	0	0
07-07-88	05550000	.21	.18	.195	.03	14
10-13-88	05526000	.27	.26	.265	.01	4
10-13-88	05540500	.85	.90	.875	.05	6
01-11-89	05532500	--	--	--	--	--
01-11-89	05550000	--	--	--	--	--
04-03-89	05526000	--	--	--	--	--
04-06-89	05540500	--	--	--	--	--
07-10-89	05543500	.54	.62	.58	.08	15
07-12-89	05536995	.77	.71	.74	.06	8
10-03-89	05552500	.41	.42	.415	.01	2
10-05-89	05520500	.14	.13	.135	.01	7
08-08-90	05550000	.16	.16	.16	0	0

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Solids, residue on evaporation at 180°C (mg/L) (70300)			
01-14-88	05543500	593	570	581.5	23	4
01-14-88	05552500	532	518	525	14	3
04-06-88	05536995	542	548	545	6	1
07-07-88	05540500	1,160	1,180	1,170	20	2
07-07-88	05550000	513	500	506.5	13	3
10-13-88	05526000	453	453	453	0	0
10-13-88	05540500	1,200	1,200	1,200	0	0
01-11-89	05532500	832	832	832	0	0
01-11-89	05550000	592	616	604	24	4
04-03-89	05526000	446	454	450	8	2
04-06-89	05540500	893	876	884.5	17	2
07-10-89	05543500	504	454	479	50	10
07-12-89	05536995	386	378	382	8	2
10-03-89	05552500	394	400	397	6	2
10-05-89	05520500	459	457	458	2	<1
08-08-90	05550000	383	401	392	18	5
			Solids, total suspended (mg/L) (00530)			
01-14-88	05543500	<1	<1	--	--	--
01-14-88	05552500	<1	<1	--	--	--
04-06-88	05536995	68	74	71	6	9
07-07-88	05540500	20	17	18.5	3	15
07-07-88	05550000	61	55	58	6	10
10-13-88	05526000	4	4	4	0	0
10-13-88	05540500	19	16	17.5	3	16
01-11-89	05532500	36	33	34.5	3	8
01-11-89	05550000	6	10	8	4	67
04-03-89	05526000	56	56	56	0	0
04-06-89	05540500	8	8	8	0	0
07-10-89	05543500	20	25	22.5	5	25
07-12-89	05536995	8	6	7	2	25
10-03-89	05552500	53	53	53	0	0
10-05-89	05520500	7	8	7.5	1	14
08-08-90	05550000	49	67	58	18	37

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Solids, volatile (mg/L) (00535)			
01-14-88	05543500	<1	<1	--	--	--
01-14-88	05552500	<1	<1	--	--	--
04-06-88	05536995	25	36	30.5	11	44
07-07-88	05540500	10	9	9.5	1	10
07-07-88	05550000	26	25	25.5	1	4
10-13-88	05526000	3	2	2.5	1	33
10-13-88	05540500	7	4	5.5	3	43
01-11-89	05532500	7	8	7.5	1	14
01-11-89	05550000	6	8	7	2	33
04-03-89	05526000	10	9	9.5	1	10
04-06-89	05540500	4	3	3.5	1	25
07-10-89	05543500	10	11	10.5	1	10
07-12-89	05536995	3	2	2.5	1	33
10-03-89	05552500	30	34	32	4	13
10-05-89	05520500	2	2	2	0	0
08-08-90	05550000	21	28	24.5	7	33
			Coliform, fecal, membrane filter (col/100 mL) (31616)			
01-14-88	05543500	110	70	90	40	36
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	K13,000	--	--	--	--
07-07-88	05540500	--	--	--	--	--
07-07-88	05550000	--	--	--	--	--
10-13-88	05526000	40	<10	--	--	--
10-13-88	05540500	600	110	355	490	82
01-11-89	05532500	2,000	3,400	2,700	1,400	70
01-11-89	05550000	<10	<10	--	--	--
04-03-89	05526000	--	--	--	--	--
04-06-89	05540500	--	--	--	--	--
07-10-89	05543500	--	--	--	--	--
07-12-89	05536995	--	--	--	--	--
10-03-89	05552500	37	44	40.5	7	19
10-05-89	05520500	200	110	160	90	45
08-08-90	05550000	16	23	19.5	7	44

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Nitrogen, NO_2 + NO_3, total (mg/L as N) (00630)			
01-14-88	05543500	6.60	6.50	6.55	0.10	2
01-14-88	05552500	5.30	5.40	5.35	.10	2
04-06-88	05536995	2.70	2.70	2.70	0	0
07-07-88	05540500	4.50	4.60	4.55	.10	2
07-07-88	05550000	<.100	<.100	--	--	--
10-13-88	05526000	<.100	<.100	--	--	--
10-13-88	05540500	13.0	13.0	13.0	0	0
01-11-89	05532500	4.30	4.20	4.25	.10	2
01-11-89	05550000	2.40	2.40	2.40	0	0
04-03-89	05526000	10.7	10.7	10.7	0	0
04-06-89	05540500	7.70	7.50	7.60	.20	3
07-10-89	05543500	3.40	3.40	3.40	0	0
07-12-89	05536995	2.90	2.90	2.90	0	0
10-03-89	05552500	.500	.500	.500	0	0
10-05-89	05520500	.740	.740	.740	0	0
08-08-90	05550000	.030	.020	.025	.010	33
			Nitrogen, NO_2 + NO_3, dissolved (mg/L as N) (00631)			
01-14-88	05543500	6.50	6.50	6.50	0	0
01-14-88	05552500	5.20	5.30	5.25	.10	2
04-06-88	05536995	2.70	2.70	2.70	0	0
07-07-88	05540500	4.50	4.60	4.55	.10	2
07-07-88	05550000	.150	<.100	--	--	--
10-13-88	05526000	<.100	<.100	--	--	--
10-13-88	05540500	13.0	13.0	13.0	0	0
01-11-89	05532500	4.30	4.20	4.25	.10	2
01-11-89	05550000	2.40	2.40	2.40	0	0
04-03-89	05526000	10.7	10.6	10.65	.1	1
04-06-89	05540500	7.70	7.50	7.60	.20	3
07-10-89	05543500	3.40	3.40	3.40	0	0
07-12-89	05536995	2.90	2.90	2.90	0	0
10-03-89	05552500	.500	.500	.500	0	0
10-05-89	05520500	.740	.810	.775	.070	9
08-08-90	05550000	.030	.020	.025	.010	33

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Nitrogen, NH_4, total (mg/L as N) (00610)			
01-14-88	05543500	1.30	1.30	1.30	0	0
01-14-88	05525000	.230	.380	.305	.150	65
04-06-88	05536995	3.20	3.20	3.20	0	0
07-07-88	05540500	<.100	<.100	--	--	--
07-07-88	05550000	<.100	<.100	--	--	--
10-13-88	05526000	<.100	<.100	--	--	--
10-13-88	05540500	<.100	<.100	--	--	--
01-11-89	05532500	.490	.500	.495	.010	2
01-11-89	05550000	.200	.200	.200	0	0
04-03-89	05526000	.090	.090	.090	0	0
04-06-89	05540500	.180	.200	.190	.020	11
07-10-89	05543500	.150	.160	.155	.010	7
07-12-89	05536995	2.20	1.80	2.00	.40	18
10-03-89	05552500	.050	.050	.050	0	0
10-05-89	05520500	<.100	<.100	--	--	--
08-08-90	05550000	.120	--	--	--	--
			Nitrogen, NH_4, dissolved (mg/L as N) (00608)			
01-14-88	05543500	1.30	1.30	1.30	0	0
01-14-88	05552500	.220	.280	.250	.060	27
04-06-88	05536995	3.10	3.10	3.10	0	0
07-07-88	05540500	<.100	<.100	--	--	--
07-07-88	05550000	<.100	<.100	--	--	--
10-13-88	05526000	<.100	<.100	--	--	--
10-13-88	05540500	<.100	<.100	--	--	--
01-11-89	05532500	.490	.490	.490	0	0
01-11-89	05550000	.190	.190	.190	0	0
04-03-89	05526000	.090	.090	.090	0	0
04-06-89	05540500	.180	.140	.160	.040	22
07-10-89	05543500	.170	.160	.165	.010	6
07-12-89	05536995	2.00	1.80	1.90	.20	10
10-03-89	05552500	.030	.040	.035	.010	33
10-05-89	05520500	<.100	<.100	--	--	--
08-08-90	05550000	<.010	<.010	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Nitrogen, total kjeldahl (mg/L as N) (00625)			
01-14-88	05543500	2.4	2.4	2.4	0	0
01-14-88	05552500	1.0	1.2	1.1	.2	20
04-06-88	05536995	6.3	6.4	6.35	.1	2
07-07-88	05540500	1.5	1.5	1.5	0	0
07-07-88	05550000	2.0	2.3	2.15	.3	15
10-13-88	05526000	.70	.50	.60	.20	29
10-13-88	05540500	.80	.90	.85	.10	12
01-11-89	05532500	1.8	1.7	1.75	.1	6
01-11-89	05550000	1.5	1.4	1.45	.1	7
04-03-89	05526000	.70	1.0	.85	.3	43
04-06-89	05540500	.70	1.0	.85	.3	43
07-10-89	05543500	1.1	1.1	1.1	0	0
07-12-89	05536995	2.6	2.3	2.45	.3	12
10-03-89	05552500	2.9	2.6	2.75	.3	10
10-05-89	05520500	.20	.20	.20	0	0
08-08-90	05550000	3.2	3.1	3.15	.1	3
			Phosphorus, total (mg/L as P) (00665)			
01-14-88	05543500	0.300	0.300	0.300	0	0
01-14-88	05552500	.150	.120	.135	.030	20
04-06-88	05536995	1.01	.960	.985	.05	5
07-07-88	05540500	.720	.790	.755	.070	10
07-07-88	05550000	.260	.240	.250	.020	8
10-13-88	05526000	.028	.030	.029	.002	7
10-13-88	05540500	2.30	2.20	2.25	.10	4
01-11-89	05532500	.610	.630	.620	.020	3
01-11-89	05550000	.110	.100	.105	.010	9
04-03-89	05526000	.130	.130	.130	0	0
04-06-89	05540500	.670	.670	.670	0	0
07-10-89	05543500	.390	.360	.375	.030	8
07-12-89	05536995	.450	.440	.445	.010	2
10-03-89	05552500	.220	.190	.205	.030	14
10-05-89	05520500	.080	.100	.090	.020	25
08-08-90	05550000	.160	.136	.148	.024	15

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Phosphorus, dissolved (mg/L as P) (00666)			
01-14-88	05543500	0.240	0.240	0.240	0	0
01-14-88	05552500	.100	.100	.100	0	0
04-06-88	05536995	.380	.380	.380	0	0
07-07-88	05540500	.530	.540	.535	.010	2
07-07-88	05550000	.030	<.010	--	--	--
10-13-88	05526000	.020	.020	.020	0	0
10-13-88	05540500	2.20	2.10	2.15	.10	5
01-11-89	05532500	.570	.550	.560	.020	4
01-11-89	05550000	.010	.010	.010	0	0
04-03-89	05526000	.060	.060	.060	0	0
04-06-89	05540500	.650	.660	.655	.010	2
07-10-89	05543500	.270	.260	.265	.010	4
07-12-89	05536995	.390	.390	.390	0	0
10-03-89	05552500	.010	.010	.010	0	0
10-05-89	05520500	.050	.060	.055	.010	20
08-08-90	05550000	.020	.020	.020	0	0
			Aluminum, total recoverable (µg/L as Al) (01105)			
01-14-88	05543500	120	100	110	20	17
01-14-88	05552500	<50	<50	--	--	--
04-06-88	05536995	790	810	800	20	3
07-07-88	05540500	220	290	255	70	32
07-07-88	05550000	350	340	345	10	3
10-13-88	05526000	120	150	135	30	25
10-13-88	05540500	370	160	265	210	57
01-11-89	05532500	680	660	670	20	3
01-11-89	05550000	110	100	105	10	9
04-03-89	05526000	1,500	140	820	1,360	91
04-06-89	05540500	520	480	500	40	8
07-10-89	05543500	600	560	580	40	7
07-12-89	05536995	150	150	150	0	0
10-03-89	05552500	260	260	260	0	0
10-05-89	05520500	280	290	285	10	4
08-08-90	05550000	240	240	240	0	0

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Aluminum, dissolved (µg/L as Al) (01106)			
01-14-88	05543500	<50	<50	--	--	--
01-14-88	05552500	<50	<50	--	--	--
04-06-88	05536995	180	690	435	510	283
07-07-88	05540500	100	120	110	20	20
07-07-88	05550000	80	73	76.5	7	9
10-13-88	05526000	<50	<50	--	--	--
10-13-88	05540500	<50	<50	--	--	--
01-11-89	05532500	52	55	53.5	3	6
01-11-89	05550000	62	79	70.5	17	27
04-03-89	05526000	140	--	--	--	--
04-06-89	05540500	410	320	365	90	22
07-10-89	05543500	140	120	130	20	14
07-12-89	05536995	71	<50	--	--	--
10-03-89	05552500	88	--	--	--	--
10-05-89	05520500	88	88	88	0	0
08-08-90	05550000	<50	248	--	--	--
			Arsenic, total recoverable (µg/L as As) (01002)			
01-14-88	05543500	<1	1	--	--	--
01-14-88	05552500	<1	<1	--	--	--
04-06-88	05536995	3	3	3	0	0
07-07-88	05540500	2	3	2.5	1	50
07-07-88	05550000	4	4	4	0	0
10-13-88	05526000	2	2	2	0	0
10-13-88	05540500	2	2	2	0	0
01-11-89	05532500	7	2	4.5	5	71
01-11-89	05550000	1	1	1	0	0
04-03-89	05526000	1	1	1	0	0
04-01-89	05540500	1	<1	--	--	--
07-10-89	05543500	2	2	2	0	0
07-12-89	05536995	1	1	1	0	0
10-03-89	05552500	1	1	1	0	0
10-05-89	05520500	2	1	1.5	1	50
08-08-90	05550000	3	2	2.5	1	33

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Arsenic, dissolved (µg/L as As) (01000)			
01-14-88	05543500	1	1	1	0	0
01-14-88	05552500	<1	<1	--	--	--
04-06-88	05536995	2	2	2	0	0
07-07-88	05540500	3	2	2.5	1	33
07-07-88	05550000	3	2	2.5	1	33
10-13-88	05526000	2	2	2	0	0
10-13-88	05540500	2	2	2	0	0
01-11-89	05532500	1	1	1	0	0
01-11-89	05550000	<1	<1	--	--	--
04-03-89	05526000	<1	<1	--	--	--
04-06-89	05540500	1	<1	--	--	--
07-10-89	05543500	2	2	2	0	0
07-12-89	05536995	2	1	1.5	1	50
10-03-89	05552500	1	1	1	0	0
10-05-89	05520500	<1	1	--	--	--
08-08-90	05550000	2	2	2	0	0
			Barium, total recoverable (µg/L as Ba) (01007)			
01-14-88	05543500	50	50	50	0	0
01-14-88	05552500	70	70	70	0	0
04-06-88	05536995	40	40	40	0	0
07-07-88	05540500	50	50	50	0	0
07-07-88	05550000	70	70	70	0	0
10-13-88	05526000	60	60	60	0	0
10-13-88	05540500	50	20	40	30	60
01-11-89	05532500	30	30	30	0	0
01-11-89	05550000	50	60	55	10	20
04-03-89	05526000	60	50	55	10	17
04-06-89	05540500	60	60	60	0	0
07-10-89	05543500	40	40	40	0	0
07-12-89	05536995	20	20	20	0	0
10-03-89	05552500	60	60	0	0	0
10-05-89	05520500	60	60	60	0	0
08-08-90	05550000	60	50	55	10	17

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Barium, dissolved (µg/L as Ba) (01005)			
01-14-88	05543500	43	42	42.5	1	2
01-14-88	05552500	68	69	68.5	1	1
04-06-88	05536995	21	23	22	2	10
07-07-88	05540500	48	48	48	0	0
07-07-88	05550000	58	59	58.5	1	2
10-13-88	05526000	54	53	53.5	1	2
10-13-88	05540500	42	11	26.5	31	74
01-11-89	05532500	30	30	30	0	0
01-11-89	05550000	51	53	52	2	4
04-03-89	05526000	38	--	--	--	--
04-06-89	05540500	59	57	58	2	3
07-10-89	05543500	32	32	32	0	0
07-12-89	05536995	17	17	17	0	0
10-03-89	05552500	47	48	47.5	1	2
10-05-89	05520500	54	53	53.5	1	2
08-08-90	05550000	47	48	47.5	1	2
			Beryllium, total recoverable (µg/L as Be) (01012)			
01-14-88	05543500	<0.5	<0.5	--	--	--
01-14-88	05552500	<.5	<.5	--	--	--
04-06-88	05536995	<.5	<.5	--	--	--
07-07-88	05540500	<2	<2	--	--	--
07-07-88	05550000	<1	<1	--	--	--
10-13-88	05526000	<.5	<.5	--	--	--
10-13-88	05540500	<.5	<.5	--	--	--
01-11-89	05532500	<.5	<.5	--	--	--
01-11-89	05550000	<.5	<.5	--	--	--
04-03-89	05526000	<.5	<.5	--	--	--
04-06-89	05540500	<1	<1	--	--	--
07-10-89	05543500	<.5	<.5	--	--	--
07-12-89	05536995	<.5	<.5	--	--	--
10-03-89	05552500	<.5	<.5	--	--	--
10-05-89	05520500	<.5	<.5	--	--	--
08-08-90	05550000	<.5	<.5	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Beryllium, dissolved (µg/L as Be) (01010)			
01-14-88	05543500	<0.5	<0.5	--	--	--
01-14-88	05552500	<.5	<.5	--	--	--
04-06-88	05536995	<.5	<.5	--	--	--
07-07-88	05540500	<2	<2	--	--	--
07-07-88	05550000	<.5	<.5	--	--	--
10-13-88	05526000	<.5	<.5	--	--	--
10-13-88	05540500	<.5	<.5	--	--	--
01-11-89	05532500	<.5	<.5	--	--	--
01-11-89	05550000	<.5	<.5	--	--	--
04-03-89	05526000	<.5	--	--	--	--
04-06-89	05540500	<1	<1	--	--	--
07-10-89	05543500	<.5	<.5	--	--	--
07-12-89	05536995	<.5	<.5	--	--	--
10-03-89	05552500	<.5	<.5	--	--	--
10-05-89	05520500	<.5	<.5	--	--	--
08-08-90	05550000	<.5	<.5	--	--	--
			Boron, total recoverable (µg/L as B) (01022)			
01-14-88	05543500	140	150	145	10	7
01-14-88	05552500	67	70	68.5	3	4
04-06-88	05536995	190	190	190	0	0
07-07-88	05540500	380	380	380	0	0
07-07-88	05550000	80	80	80	0	0
10-13-88	05526000	180	180	180	0	0
10-13-88	05540500	470	170	320	300	64
01-11-89	05532500	190	190	190	0	0
01-11-89	05550000	73	70	71.5	3	4
04-03-89	05526000	51	58	54.5	7	14
04-06-89	05540500	230	230	230	0	0
07-10-89	05543500	140	140	140	0	0
07-12-89	05536995	120	120	120	0	0
10-03-89	05552500	120	120	120	0	0
10-05-89	05520500	52	51	51.5	1	2
08-08-90	05550000	60	56	58	4	7

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Boron, dissolved (µg/L as B) (01020)			
01-14-88	05543500	140	140	140	0	0
01-14-88	05552500	66	75	70.5	9	14
04-06-88	05536995	190	190	190	0	0
07-07-88	05540500	380	380	380	0	0
07-07-88	05550000	85	77	81	8	9
10-13-88	05526000	180	180	180	0	0
10-13-88	05540500	470	170	320	300	64
01-11-89	05532500	190	190	190	0	0
01-11-89	05550000	72	70	71	2	3
04-03-89	05526000	50	--	--	--	--
04-06-89	05540500	230	230	230	0	0
07-10-89	05543500	--	140	--	--	--
07-12-89	05536995	120	120	120	0	0
10-03-89	05552500	110	110	110	0	0
10-05-89	05520500	--	50	--	--	--
08-08-90	05550000	--	--	--	--	--
			Cadmium, total recoverable (µg/L as Cd) (01027)			
01-14-88	05543500	0.3	0.3	0.3	0	0
01-14-88	05552500	.1	<.01	--	--	--
04-06-88	05536995	3.5	4.2	3.85	.7	20
07-07-88	05540500	<.1	<.1	--	--	--
07-07-88	05550000	.1	.1	.1	0	0
10-13-88	05526000	.2	.2	.2	0	0
10-13-88	05540500	.2	<.1	--	--	--
01-11-89	05532500	.3	.3	.3	0	0
01-11-89	05550000	.1	<.1	--	--	--
04-03-89	05526000	.2	<.1	--	--	--
04-06-89	05540500	<.1	<.1	--	--	--
07-10-89	05543500	.2	.2	.2	0	0
07-12-89	05536995	.2	.3	.25	.1	50
10-03-89	05552500	.1	.1	.1	0	0
10-05-89	05520500	.1	<.1	--	--	--
08-08-90	05550000	<.1	<.1	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Cadmium, dissolved (µg/L as Cd) (01025)			
01-14-88	05543500	0.19	0.24	0.215	0.05	26
01-14-88	05552500	.2	.11	.155	.09	45
04-06-88	05536995	.39	.2	.295	.19	49
07-07-88	05540500	<.1	.15	--	--	--
07-07-88	05550000	.19	.14	.165	.05	26
10-13-88	05526000	<.1	.13	--	--	--
10-13-88	05540500	.26	.23	.245	.03	12
01-11-89	05532500	<.1	.2	--	--	--
01-11-89	05550000	.1	--	--	--	--
04-03-89	05526000	.2	<.1	--	--	--
04-06-89	05540500	<.1	.1	--	--	--
07-10-89	05543500	<.1	<.1	--	--	--
07-12-89	05536995	<.1	<.1	--	--	--
10-03-89	05552500	<.1	<.1	--	--	--
10-05-89	05520500	<.1	<.1	--	--	--
08-08-90	05550000	<.1	<.1	--	--	--
			Chromium, total recoverable (µg/L as Cr) (01034)			
01-14-88	05543500	<5	<5	--	--	--
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	34	33	33.5	1	3
07-07-88	05540500	11	7	9	4	36
07-07-88	05550000	9	9	9	0	0
10-13-88	05526000	<5	5	--	--	--
10-13-88	05540500	<5	8	--	--	--
01-11-89	05532500	10	11	10.5	1	10
01-11-89	05550000	11	<5	--	--	--
04-03-89	05526000	10	<5	--	--	--
04-06-89	05540500	6	<5	--	--	--
07-10-89	05543500	5.0	25	15	20	400
07-12-89	05536995	5.0	17	11	12	240
10-03-89	05552500	11	16	13.5	5	45
10-05-89	05520500	6	9	7.5	3	50
08-08-90	05550000	<5	<5	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Chromium, dissolved (µg/L as Cr) (01030)			
01-14-88	05543500	<5	<5	--	--	--
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	<5	<5	--	--	--
07-07-88	05540500	5	8	6.5	3	60
07-07-88	05550000	<5	<5	--	--	--
10-13-88	05526000	--	5	--	--	--
10-13-88	05540500	<5	<5	--	--	--
01-11-89	05532500	11	8	9.5	3	27
01-11-89	05550000	9	<5	--	--	--
04-03-89	05526000	5	--	--	--	--
04-06-89	05540500	<5	6	--	--	--
07-10-89	05543500	<5	11	--	--	--
07-12-89	05536995	<5	<5	--	--	--
10-03-89	05552500	7	7	7	0	0
10-05-89	05520500	7	5	6	2	29
08-08-90	05550000	5	8	6.5	3	60
			Cobalt, total recoverable (µg/L as Co) (01037)			
01-14-88	05543500	<5	<5	--	--	--
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	<5	<5	--	--	--
07-07-88	05540500	<5	<5	--	--	--
07-07-88	05550000	<5	<5	--	--	--
10-13-88	05526000	<5	<5	--	--	--
10-13-88	05540500	<5	<5	--	--	--
01-11-89	05532500	<5	<5	--	--	--
01-11-89	05550000	<5	<5	--	--	--
04-03-89	05526000	<5	<5	--	--	--
04-06-89	05540500	<5	<5	--	--	--
07-10-89	05543500	<5	<5	--	--	--
07-12-89	05536995	<5	<5	--	--	--
10-03-89	05552500	<5	<5	--	--	--
10-05-89	05520500	<5	<5	--	--	--
08-08-90	05550000	<5	<5	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Cobalt, dissolved (µg/L as Co) (01035)			
01-14-88	05543500	<5	<5	--	--	--
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	<5	<5	--	--	--
07-07-88	05540500	<5	<5	--	--	--
07-07-88	05550000	<5	<5	--	--	--
10-13-88	05526000	<5	<5	--	--	--
10-13-88	05540500	<5	<5	--	--	--
01-11-89	05532500	<5	<5	--	--	--
01-11-89	05550000	<5	<5	--	--	--
04-03-89	05526000	<5	--	--	--	--
04-06-89	05540500	<5	<5	--	--	--
07-10-89	05543500	<5	<5	--	--	--
07-12-89	05536995	<5	<5	--	--	--
10-03-89	05552500	<5	<5	--	--	--
10-05-89	05520500	<5	<5	--	--	--
08-08-90	05550000	<5	<5	--	--	--
			Copper, total recoverable (µg/L as Cu) (01042)			
01-14-88	05543500	<5	<5	--	--	--
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	27	26	26.5	1	4
07-07-88	05540500	5	5	5	0	0
07-07-88	05550000	<5	<5	--	--	--
10-13-88	05526000	<5	<5	--	--	--
10-13-88	05540500	12	<5	--	--	--
01-11-89	05532500	6	9	7.5	3	50
01-11-89	05550000	<5	<5	--	--	--
04-03-89	05526000	8	<5	--	--	--
04-06-89	05540500	<5	<5	--	--	--
07-10-89	05543500	<5	6	--	--	--
07-12-89	05536995	<5	<5	--	--	--
10-03-89	05552500	<5	<5	--	--	--
10-05-89	05520500	<5	<5	--	--	--
08-08-90	05550000	<5	<5	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Copper, dissolved (µg/L as Cu) (01040)			
01-14-88	05543500	<5	<5	--	--	--
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	<5	<5	--	--	--
07-07-88	05540500	5	7	6	2	40
07-07-88	05550000	<5	<5	--	--	--
10-13-88	05526000	<5	<5	--	--	--
10-13-88	05540500	<5	<5	--	--	--
01-11-89	05532500	<5	<5	--	--	--
01-11-89	05550000	<5	<5	--	--	--
04-03-89	05526000	<5	--	--	--	--
04-06-89	05540500	<5	<5	--	--	--
07-10-89	05543500	<5	<5	--	--	--
07-12-89	05536995	<5	<5	--	--	--
10-03-89	05552500	<5	<5	--	--	--
10-05-89	05520500	20	<5	--	--	--
08-08-90	05550000	<5	<5	--	--	--
			Iron, total recoverable (µg/L as Fe) (01045)			
01-14-88	05543500	390	380	385	10	3
01-14-88	05552500	140	140	140	0	0
04-06-88	05536995	1,300	1,300	1,300	0	0
07-07-88	05540500	200	180	190	20	10
07-07-88	05550000	660	660	660	0	0
10-13-88	05526000	160	180	170	20	12
10-13-88	05540500	540	320	430	220	41
01-11-89	05532500	1,100	1,100	1,100	0	0
01-11-89	05550000	180	280	230	100	56
04-03-89	05526000	1,700	50	875	1,650	97
04-06-89	05540500	270	240	255	30	11
07-10-89	05543500	720	790	755	70	10
07-12-89	05536995	200	190	195	10	5
10-03-89	05552500	330	340	335	10	3
10-05-89	05520500	890	900	895	10	1
08-08-90	05550000	490	560	525	70	14

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Iron, dissolved (µg/L as Fe) (01046)			
01-14-88	05543500	50	50	50	0	0
01-14-88	05552500	50	50	50	0	0
04-06-88	05536995	<50	<50	--	--	--
07-07-88	05540500	50	50	50	0	0
07-07-88	05550000	50	50	50	0	0
10-13-88	05526000	50	50	50	0	0
10-13-88	05540500	100	290	195	190	190
01-11-89	05532500	50	50	50	0	0
01-11-89	05550000	50	100	75	50	100
04-03-89	05526000	50	--	--	--	--
04-06-89	05540500	63	50	56.5	13	21
07-10-89	05543500	50	50	50	0	0
07-12-89	05536995	50	50	50	0	0
10-03-89	05552500	50	50	50	0	0
10-05-89	05520500	50	50	50	0	0
08-08-90	05550000	50	50	50	0	0
			Lead, total recoverable (µg/L as Pb) (01051)			
01-14-88	05543500	6.3	<5	--	--	--
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	18	19	18.5	1	6
07-07-88	05540500	<5	<5	--	--	--
07-07-88	05550000	5.2	<5	--	--	--
10-13-88	05526000	<5	<5	--	--	--
10-13-88	05540500	<5	<5	--	--	--
01-11-89	05532500	<5	5.4	--	--	--
01-11-89	05550000	<5	<5	--	--	--
04-03-89	05526000	<5	<5	--	--	--
04-06-89	05540500	<5	<5	--	--	--
07-10-89	05543500	<5	<5	--	--	--
07-12-89	05536995	<5	<5	--	--	--
10-03-89	05552500	<5	<5	--	--	--
10-05-89	05520500	<5	<5	--	--	--
08-08-90	05550000	<5	<5	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Lead, dissolved (µg/L as Pb) (01049)			
01-14-88	05543500	<5	<5	--	--	--
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	<5	<5	--	--	--
07-07-88	05540500	<5	<5	--	--	--
07-07-88	05550000	<5	<5	--	--	--
10-13-88	05526000	<5	<5	--	--	--
10-13-88	05540500	<5	<5	--	--	--
01-11-89	05532500	<5	<5	--	--	--
01-11-89	05550000	<5	<5	--	--	--
04-03-89	05526000	<5	<5	--	--	--
04-06-89	05540500	<5	<5	--	--	--
07-10-89	05543500	<5	<5	--	--	--
07-12-89	05536995	<5	<5	--	--	--
10-03-89	05552500	<5	<5	--	--	--
10-05-89	05520500	<5	<5	--	--	--
08-08-90	05550000	<5	<5	--	--	--
			Manganese, total recoverable (µg/L as Mn) (01055)			
01-14-88	05543500	54	54	54	0	0
01-14-88	05552500	12	12	12	0	0
04-06-88	05536995	79	83	81	4	5
07-07-88	05540500	42	43	42.5	1	2
07-07-88	05550000	120	120	120	0	0
10-13-88	05526000	30	27	28.5	3	10
10-13-88	05540500	23	25	24	2	9
01-11-89	05532500	65	65	65	0	0
01-11-89	05550000	22	23	22.5	1	5
04-03-89	05526000	68	7	37.5	60	90
04-06-89	05540500	28	30	29	2	7
07-10-89	05543500	56	60	58	4	7
07-12-89	05536995	27	27	27	0	0
10-03-89	05552500	38	38	38	0	0
10-05-89	05520500	96	94	95	2	2
08-08-90	05550000	79	77	78	2	3

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Manganese, dissolved (µg/L as Mn) (01056)			
01-14-88	05543500	45	45	45	0	0
01-14-88	05552500	8	8	8	0	0
04-06-88	05536995	57	63	60	6	11
07-07-88	05540500	19	23	21	4	21
07-07-88	05550000	6	5	5.5	1	17
10-13-88	05526000	7	6	6.5	1	14
10-13-88	05540500	9	20	14.5	11	122
01-11-89	05532500	48	49	48.5	1	2
01-11-89	05550000	<5	5	--	--	--
04-03-89	05526000	8	--	--	--	--
04-06-89	05540500	22	22	22	0	0
07-10-89	05543500	6	<5	--	--	--
07-12-89	05536995	22	22	22	0	0
10-03-89	05552500	<5	<5	--	--	--
10-05-89	05520500	46	46	46	0	0
08-08-90	05550000	<5	<5	--	--	--
			Mercury, total recoverable (µg/L as Hg) (71900)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	--	--	--	--	--
07-07-88	05540500	--	--	--	--	--
07-07-88	05550000	--	--	--	--	--
10-13-88	05526000	--	--	--	--	--
10-13-88	05540500	<0.05	<0.05	--	--	--
01-11-89	05532500	--	--	--	--	--
01-11-89	05550000	--	--	--	--	--
04-03-89	05526000	<.05	<.05	--	--	--
04-06-89	05540500	<.05	<.05	--	--	--
07-10-89	05543500	--	<.05	--	--	--
07-12-89	05536995	<.05	<.05	--	--	--
10-03-89	05552500	--	<.05	--	--	--
10-05-89	05520500	--	<.05	--	--	--
08-08-90	05550000	<.05	<.05	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Mercury, dissolved (µg/L as Hg) (71890)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	--	--	--	--	--
07-07-88	05540500	--	--	--	--	--
07-07-88	05550000	--	--	--	--	--
10-13-88	05526000	--	--	--	--	--
10-13-88	05540500	<0.05	<0.05	--	--	--
01-11-89	05532500	--	--	--	--	--
01-11-89	05550000	--	--	--	--	--
04-03-89	05526000	<.05	<.05	--	--	--
04-06-89	05540500	<.05	<.05	--	--	--
07-10-89	05543500	--	<.05	--	--	--
07-12-89	05536995	<.05	<.05	--	--	--
10-03-89	05552500	--	<.05	--	--	--
10-05-89	05520500	--	.07	--	--	--
08-08-90	05550000	<.05	<.05	--	--	--
			Nickel, total recoverable (µg/L as Ni) (01067)			
01-14-88	05543500	11	9	10	2	18
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	20	20	20	0	0
07-07-88	05540500	<5	<5	--	--	--
07-07-88	05550000	<5	<5	--	--	--
10-13-88	05526000	5	9	7	4	80
10-13-88	05540500	10	24	17	14	140
01-11-89	05532500	7	10	8.5	3	43
01-11-89	05550000	<5	<5	--	--	--
04-03-89	05526000	6	<5	--	--	--
04-06-89	05540500	7	6	6.5	1	14
07-10-89	05543500	15	33	24	18	120
07-12-89	05536995	10	12	11	2	20
10-03-89	05552500	<5	<5	--	--	--
10-05-89	05520500	<5	<5	--	--	--
08-08-90	05550000	<5	<5	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Nickel, dissolved (µg/L as Ni) (01065)			
01-14-88	05543500	7	11	9	4	57
01-14-88	05552500	<5	6	--	--	--
04-06-88	05536995	15	11	13	4	27
07-07-88	05540500	<5	<5	--	--	--
07-07-88	05550000	<5	<5	--	--	--
10-13-88	05526000	--	6	--	--	--
10-13-88	05540500	9	22	15.5	13	144
01-11-89	05532500	8	<5	--	--	--
01-11-89	05550000	<5	<5	--	--	--
04-03-89	05526000	5	--	--	--	--
04-06-89	05540500	<5	7	--	--	--
07-10-89	05543500	13	10	11.5	3	23
07-12-89	05536995	--	11	--	--	--
10-03-89	05552500	6	<5	--	--	--
10-05-89	05520500	<5	<5	--	--	--
08-08-90	05550000	<5	10	--	--	--
			Selenium, dissolved (µg/L as Se) (01145)			
01-14-88	05543500	<1	<1	--	--	--
01-14-88	05552500	<1	<1	--	--	--
04-06-88	05536995	<1	<1	--	--	--
07-07-88	05540500	<1	<1	--	--	--
07-07-88	05550000	<1	<1	--	--	--
10-13-88	05526000	<1	<1	--	--	--
10-13-88	05540500	<1	<1	--	--	--
01-11-89	05532500	<1	<1	--	--	--
01-11-89	05550000	<1	<1	--	--	--
04-03-89	05526000	2	2	2	0	0
04-06-89	05540500	<1	<1	--	--	--
07-10-89	05543500	<1	<1	--	--	--
07-12-89	05536995	<1	<1	--	--	--
10-03-89	05552500	<1	<1	--	--	--
10-05-89	05520500	<1	<1	--	--	--
08-08-90	05550000	<1	<1	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Silver, total recoverable (µg/L as Ag) (01077)			
01-14-88	05543500	<3	<3	--	--	--
01-14-88	05552500	<3	<3	--	--	--
04-06-88	05536995	<3	<3	--	--	--
07-07-88	05540500	<3	<3	--	--	--
07-07-88	05550000	<3	<3	--	--	--
10-13-88	05526000	<3	<3	--	--	--
10-13-88	05540500	<3	<3	--	--	--
01-11-89	05532500	<3	<3	--	--	--
01-11-89	05550000	<3	<3	--	--	--
04-03-89	05526000	<3	<3	--	--	--
04-06-89	05540500	<3	<3	--	--	--
07-10-89	05543500	<3	<3	--	--	--
07-12-89	05536995	<3	<3	--	--	--
10-03-89	05552500	<3	<3	--	--	--
10-05-89	05520500	<3	<3	--	--	--
08-08-90	05550000	<3	<3	--	--	--
			Silver, dissolved (µg/L as Ag) (01075)			
01-14-88	05543500	<3	<3	--	--	--
01-14-88	05552500	<3	<3	--	--	--
04-06-88	05536995	<3	<3	--	--	--
07-07-88	05540500	<3	<3	--	--	--
07-07-88	05550000	<3	<3	--	--	--
10-13-88	05526000	<3	<3	--	--	--
10-13-88	05540500	<3	<3	--	--	--
01-11-89	05532500	<3	<3	--	--	--
01-11-89	05550000	<3	<3	--	--	--
04-03-89	05526000	<3	--	--	--	--
04-06-89	05540500	<3	<3	--	--	--
07-10-89	05543500	<3	<3	--	--	--
07-12-89	05536995	<3	<3	--	--	--
10-03-89	05552500	<3	<3	--	--	--
10-05-89	05520500	<3	<3	--	--	--
08-08-90	05550000	<3	<3	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Strontium, total recoverable (µg/L as Sr) (01082)			
01-14-88	05543500	290	290	290	0	0
01-14-88	05552500	440	440	440	0	0
04-06-88	05536995	250	260	255	10	4
07-07-88	05540500	690	680	685	10	1
07-07-88	05550000	460	460	460	0	0
10-13-88	05526000	280	280	280	0	0
10-13-88	05540500	880	180	530	700	80
01-11-89	05532500	550	540	545	10	2
01-11-89	05550000	1,200	1,200	1,200	0	0
04-03-89	05526000	240	230	235	10	4
04-06-89	05540500	480	490	485	10	2
07-10-89	05543500	240	240	240	0	0
07-12-89	05536995	210	200	205	10	5
10-03-89	05552500	440	440	440	0	0
10-05-89	05520500	160	160	160	0	0
08-08-90	05550000	500	480	490	20	4
			Strontium, dissolved (µg/L as Sr) (01080)			
01-14-88	05543500	290	280	285	10	3
01-14-88	05552500	430	440	435	10	2
04-06-88	05536995	240	250	245	10	4
07-07-88	05540500	690	680	685	10	1
07-07-88	05550000	450	440	445	10	2
10-13-88	05526000	280	270	275	10	4
10-13-88	05540500	870	180	525	690	79
01-11-89	05532500	530	--	--	--	--
01-11-89	05550000	1,200	1,200	1,200	0	0
04-03-89	05526000	200	--	--	--	--
04-06-89	05540500	--	480	--	--	--
07-10-89	05543500	240	240	240	0	0
07-12-89	05536995	200	210	205	10	5
10-03-89	05552500	410	410	410	0	0
10-05-89	05520500	160	160	160	0	0
08-08-90	05550000	480	470	475	10	2

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Vanadium, total recoverable (µg/L as V) (01087)			
01-14-88	05543500	<5	<5	--	--	--
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	<5	<5	--	--	--
07-07-88	05540500	5	6	5.5	1	20
07-07-88	05550000	<5	<5	--	--	--
10-13-88	05526000	<5	<5	--	--	--
10-13-88	05540500	<5	<5	--	--	--
01-11-89	05532500	<5	<5	--	--	--
01-11-89	05550000	<5	<5	--	--	--
04-03-89	05526000	<5	<5	--	--	--
04-06-89	05540500	<5	<5	--	--	--
07-10-89	05543500	<5	<5	--	--	--
07-12-89	05536995	<5	<5	--	--	--
10-03-89	05552500	<5	<5	--	--	--
10-05-89	05520500	<5	<5	--	--	--
08-08-90	05550000	<5	<5	--	--	--
			Vanadium, dissolved (µg/L as V) (01085)			
01-14-88	05543500	<5	<5	--	--	--
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	<5	<5	--	--	--
07-07-88	05540500	5	6	5.5	1	20
07-07-88	05550000	<5	<5	--	--	--
10-13-88	05526000	<5	<5	--	--	--
10-13-88	05540500	<5	<5	--	--	--
01-11-89	05532500	<5	<5	--	--	--
01-11-89	05550000	<5	<5	--	--	--
04-03-89	05526000	5	--	--	--	--
04-06-89	05540500	<5	<5	--	--	--
07-10-89	05543500	<5	<5	--	--	--
07-12-89	05536995	<5	<5	--	--	--
10-03-89	05552500	<5	<5	--	--	--
10-05-89	05520500	<5	<5	--	--	--
08-08-90	05550000	<5	<5	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Zinc, total recoverable (µg/L as Zn) (01092)			
01-14-88	05543500	100	<100	--	--	--
01-14-88	05552500	<100	<50	--	--	--
04-06-88	05536995	190	160	180	30	16
07-07-88	05540500	<50	<100	--	--	--
07-07-88	05550000	<50	<50	--	--	--
10-13-88	05526000	<50	<50	--	--	--
10-13-88	05540500	760	<100	--	--	--
01-11-89	05532500	190	<100	--	--	--
01-11-89	05550000	<50	<50	--	--	--
04-03-89	05526000	<50	<50	--	--	--
04-06-89	05540500	<50	<50	--	--	--
07-10-89	05543500	<100	<50	--	--	--
07-12-89	05536995	<50	<100	--	--	--
10-03-89	05552500	<50	<50	--	--	--
10-05-89	05520500	<50	<50	--	--	--
08-08-90	05550000	110	110	110	0	0
			Zinc, dissolved (µg/L as Zn) (01090)			
01-14-88	05543500	<100	<100	--	--	--
01-14-88	05552500	<50	<50	--	--	--
04-06-88	05536995	<100	<50	--	--	--
07-07-88	05540500	<50	<50	--	--	--
07-07-88	05550000	<50	<50	--	--	--
10-13-88	05526000	<50	<50	--	--	--
10-13-88	05540500	<50	<100	--	--	--
01-11-89	05532500	<50	<100	--	--	--
01-11-89	05550000	<50	<50	--	--	--
04-03-89	05526000	<50	--	--	--	--
04-06-89	05540500	<50	<50	--	--	--
07-10-89	05543500	<100	<50	--	--	--
07-12-89	05536995	<50	<50	--	--	--
10-03-89	05552500	<50	<50	--	--	--
10-05-89	05520500	<50	<50	--	--	--
08-08-90	05550000	<100	180	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Carbon, organic, total (mg/L as C) (00680)			
01-14-88	05543500	3.7	3.9	3.8	0.2	5
01-14-88	05552500	4.5	4.6	4.55	.1	2
04-06-88	05536995	12	13	12.5	1	8
07-07-88	05540500	7.9	7.5	7.7	.4	5
07-07-88	05550000	13	15	14	2	15
10-13-88	05526000	7.2	7.4	7.3	.2	3
10-13-88	05540500	7.7	6.7	7.2	1.0	13
01-11-89	05532500	8.6	8.1	8.35	.5	6
01-11-89	05550000	--	8.9	--	--	--
04-03-89	05526000	6.3	6.4	6.35	.1	2
04-06-89	05540500	5.9	6.5	6.2	.6	10
07-10-89	05543500	7.5	7.0	7.25	.5	7
07-12-89	05536995	6.8	9.3	8.05	2.5	37
10-03-89	05552500	14	14	14	0	0
10-05-89	05520500	5.3	5.7	5.5	.4	8
08-08-90	05550000	22	14	18	8	36
			Turbidity (NTU) (00076)			
01-14-88	05543500	--	--	--	--	--
01-14-88	05552500	--	--	--	--	--
04-06-88	05536995	6.5	3.7	5.1	2.8	43
07-07-88	05540500	3.7	5.1	4.4	1.4	38
07-07-88	05550000	17	19	18	2	12
10-13-88	05526000	2.7	3.3	3.0	.6	22
10-13-88	05540500	2.9	2.7	2.8	.2	7
01-11-89	05532500	35	34	34.5	1	3
01-11-89	05550000	5.2	5.1	5.15	.1	2
04-03-89	05526000	28	31	29.5	3	11
04-06-89	05540500	2.4	2.9	2.65	.5	21
07-10-89	05543500	6.4	6.4	6.4	0	0
07-12-89	05536995	1.0	1.5	1.25	.5	50
10-03-89	05552500	16	17	16.5	1	6
10-05-89	05520500	7.6	5.4	6.5	2.2	29
08-08-90	05550000	23	28	25.5	5	22

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Chemical oxygen demand (COD) (mg/L) (00335)			
01-14-88	05543500	16	17	16.5	1	6
01-14-88	05552500	16	15	15.5	1	6
04-06-88	05536995	52	56	54	4	8
07-07-88	05540500	29	29	29	0	0
07-07-88	05550000	48	52	50	4	8
10-13-88	05526000	16	19	17.5	3	19
10-13-88	05540500	19	22	20.5	3	16
01-11-89	05532500	24	23	23.5	1	4
01-11-89	05550000	28	19	23.5	9	32
04-03-89	05526000	19	18	18.5	1	5
04-06-89	05540500	17	16	16.5	1	6
07-10-89	05543500	25	22	23.5	3	12
07-12-89	05536995	21	21	21	0	0
10-03-89	05552500	57	53	55	4	7
10-05-89	05520500	9	12	10.5	3	33
08-08-90	05550000	48	46	47	2	4
			Hardness (Ca, Mg) (mg/L as $CaCO_3$) (00900)			
01-14-88	05543500	391	391	391	0	0
01-14-88	05552500	434	443	438.5	9	2
04-06-88	05536995	272	277	274.5	5	2
07-07-88	05540500	421	417	419	4	1
07-07-88	05550000	289	289	289	0	0
10-13-88	05526000	304	302	303	2	1
10-13-88	05540500	449	193	321	256	57
01-11-89	05532500	312	313	312.5	1	<1
01-11-89	05550000	391	395	393	4	1
04-03-89	05526000	279	336	307.5	57	20
04-06-89	05540500	439	440	439.5	1	<1
07-10-89	05543500	255	259	257	4	2
07-12-89	05536995	189	191	190	2	1
10-03-89	05552500	275	275	275	0	0
10-05-89	05520500	369	362	365.5	7	2
08-08-90	05550000	259	259	259	0	0

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Cyanide, total (mg/L as CN) (00720)			
01-14-88	05543500	<0.005	<0.005	--	--	--
01-14-88	05552500	<.005	<.005	--	--	--
04-06-88	05536995	.010	.010	0.010	0	0
07-07-88	05540500	<.005	<.005	--	--	--
07-07-88	05550000	<.005	<.005	--	--	--
10-13-88	05526000	<.005	<.005	--	--	--
10-13-88	05540500	<.005	<.005	--	--	--
01-11-89	05532500	<.005	<.005	--	--	--
01-11-89	05550000	<.005	<.005	--	--	--
04-03-89	05526000	<.005	<.005	--	--	--
04-06-89	05540500	<.005	<.005	--	--	--
07-10-89	05543500	<.005	<.005	--	--	--
07-12-89	05536995	.005	.005	.005	0	0
10-03-89	05552500	<.005	<.005	--	--	--
10-05-89	05520500	<.005	<.005	--	--	--
08-08-90	05550000	<.005	<.005	--	--	--
			Cyanide, dissolved (mg/L as CN) (00723)			
01-14-88	05543500	<0.005	<0.005	--	--	--
01-14-88	05552500	<.005	<.005	--	--	--
04-06-88	05536995	14	13	13.5	1	7
07-07-88	05540500	<.005	<.005	--	--	--
07-07-88	05550000	<.005	<.005	--	--	--
10-13-88	05526000	<.005	<.005	--	--	--
10-13-88	05540500	<.005	<.005	--	--	--
01-11-89	05532500	2	2	2	0	0
01-11-89	05550000	3	4	3.5	1	33
04-03-89	05526000	--	--	--	--	--
04-06-89	05540500	<.005	<.005	--	--	--
07-10-89	05543500	<5	2	--	--	--
07-12-89	05536995	<.005	<.005	--	--	--
10-03-89	05552500	<5	<5	--	--	--
10-05-89	05520500	<.005	<.005	--	--	--
08-08-90	05550000	<5	<5	--	--	--

Table 6.--Results of quality-assurance and quality-control measures: process duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Phenolic material (C_6H_5OH), total (µg/L) (32730)			
01-14-88	05543500	<5	<5	--	--	--
01-14-88	05552500	<5	<5	--	--	--
04-06-88	05536995	5	6	5.5	1	20
07-07-88	05540500	10	5	7.5	5	50
07-07-88	05550000	<5	5	--	--	--
10-13-88	05526000	5	--	--	--	--
10-13-88	05540500	5	--	--	--	--
01-11-89	05532500	7	6	6.5	1	14
01-11-89	05550000	4	5	4.5	1	25
04-03-89	05526000	3	2	2.5	1	33
04-06-89	05540500	<5	<5	--	--	--
07-10-89	05543500	5	5	5	0	0
07-12-89	05536995	5	<5	--	--	--
10-03-89	05552500	3	3	3	0	0
10-05-89	05520500	<5	<5	--	--	--
08-08-90	05550000	<5	--	--	--	--
			Oil, total (mg/L) (00556)			
01-14-88	05543500	1	1	1	0	0
01-14-88	05552500	1	1	1	0	0
04-06-88	05536995	2	--	--	--	--
07-07-88	05540500	2	--	--	--	--
07-07-88	05550000	2	--	--	--	--
10-13-88	05526000	1	1	1	0	0
10-13-88	05540500	1	<1	--	--	--
01-11-89	05532500	<1	1	--	--	--
01-11-89	05550000	<1	1	--	--	--
04-03-89	05526000	3	<1	--	--	--
04-06-89	05540500	1	1	1	0	0
07-10-89	05543500	--	--	--	--	--
07-12-89	05536995	<1	<1	--	--	--
10-03-89	05552500	1	1	1	0	0
10-05-89	05520500	<1	<1	--	--	--
08-08-90	05550000	--	--	--	--	--

[1]Difference in given units is defined as the absolute value of the Analysis result duplicate 2 subtracted from the Analysis result duplicate 1.

[2]Percent difference is defined as the absolute value of the Analysis result duplicate 2 subtracted from the Analysis result duplicate 1, and the difference divided by the Analysis result duplicate 1.

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples

[USGS, U.S. Geological Survey; IEPA, Illinois Environmental Protection Agency; µS/cm, microsiemens per centimeter at 25 degrees Celsius; mg/L, milligrams per liter; col/100 mL, colonies per 100 milliliters; µg/g, micrograms per gram; µg/L, micrograms per liter; mm, millimeter; NTU, nephelometric-turbidity units; dashes (--) indicate missing data or not applicable. Footnotes at end of table]

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			Field Measurements			
			Specific conductance (µS/cm) (00095)			
09-10-87	05526000	617	612	614.5	5	1
09-11-88	05540500	1,870	1,890	1,880	20	1
03-10-89	05526000	659	647	653	12	2
08-31-89	05532500	1,000	997	998.5	3	<1
01-11-90	05540500	1,710	1,720	1,715	10	1
07-12-90	05550000	648	648	648	0	0
			pH (standard units) (00400)			
09-10-87	05526000	8.32	8.31	8.315	0.01	<1
09-11-88	05540500	8.88	8.80	8.84	.08	1
03-10-89	05526000	7.90	8.11	8.005	.21	3
08-31-89	05532500	7.94	7.72	7.83	.22	3
01-11-90	05540500	8.52	8.49	8.505	.03	<1
07-12-90	05550000	8.78	8.82	8.80	.04	<1
			Acidity (mg/L as H) (71825)			
09-10-87	05526000	--	--	--	--	--
09-11-88	05540500	0	0	0	0	0
03-10-89	05526000	7	2	4.5	5	71
08-31-89	05532500	4	7	5.5	3	75
01-11-90	05540500	0	0	0	0	0
07-12-90	05550000	0	0	0	0	0

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			Field Measurements--Continued			
			Alkalinity, water, whole, total (mg/L as $CaCO_3$) (00410)			
09-10-87	05526000	194	194	194	0	0
09-11-88	05540500	254	263	258.5	9	4
03-10-89	05526000	--	--	--	--	--
08-31-89	05532500	--	--	--	--	--
01-11-90	05540500	--	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Alkalinity, water, dissolved (mg/L as $CaCO_3$) (39036)			
09-10-87	05526000	--	--	--	--	--
09-11-88	05540500	--	--	--	--	--
03-10-89	05526000	166	166	166	0	0
08-31-89	05532500	166	158	162	8	5
01-11-90	05540500	252	252	252	0	0
07-12-90	05550000	180	204	192	24	13
			Carbonate alkalinity (mg/L as $CaCO_3$) (39086)			
09-10-87	05526000	--	--	--	--	--
09-11-88	05540500	254	265	259.5	11	4
03-10-89	05526000	166	166	166	0	0
08-31-89	05532500	164	158	161	6	4
01-11-90	05540500	253	252	252.5	1	<1
07-12-90	05550000	181	202	191.5	21	12
			Carbonate concentration (mg/L as CO_3) (00452)			
09-10-87	05526000	--	--	--	--	--
09-11-88	05540500	--	--	--	--	--
03-10-89	05526000	0	0	0	0	0
08-31-89	05532500	0	0	0	0	0
01-11-90	05540500	0	0	0	0	0
07-12-90	05550000	0	0	0	0	0

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analysis			
			Bicarbonate concentration (mg/L as HCO_3) (00453)			
09-10-87	05526000	--	--	--	--	--
09-11-88	05540500	--	--	--	--	--
03-10-89	05526000	203	203	203	0	0
08-31-89	05532500	200	193	196.5	7	4
01-11-90	05540500	309	308	308.5	1	<1
07-12-90	05550000	221	246	233.5	25	11
			Calcium, sediment, suspended (percent as Ca) (30240)			
09-10-87	05526000	2.94	3.04	2.99	0.10	3
09-11-88	05540500	6.91	--	--	--	--
03-10-89	05526000	2.79	--	--	--	--
08-31-89	05532500	3.95	--	--	--	--
01-11-90	05540500	4.23	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Magnesium, sediment, suspended (percent as Mg) (30277)			
09-10-87	05526000	1.92	1.95	1.935	0.03	2
09-11-88	05540500	2.58	--	--	--	--
03-10-89	05526000	1.82	--	--	--	--
08-31-89	05532500	2.49	--	--	--	--
01-11-90	05540500	2.05	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Sodium, sediment, suspended (percent as Na) (30304)			
09-10-87	05526000	0.46	0.47	0.465	0.01	2
09-11-88	05540500	5.1	--	--	--	--
03-10-89	05526000	.33	--	--	--	--
08-31-89	05532500	.74	--	--	--	--
01-11-90	05540500	1.31	--	--	--	--
07-12-90	05550000	--	--	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analysis--Continued			
			Potassium, sediment, suspended (percent as K) (30294)			
09-10-87	05526000	3.51	3.08	3.295	0.43	12
09-11-88	05540500	1.86	--	--	--	--
03-10-89	05526000	32.9	--	--	--	--
08-31-89	05532500	2.82	--	--	--	--
01-11-90	05540500	2.16	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Coliform, fecal, membrane filter (col/100 mL) (31616)			
09-10-87	05526000	--	--	--	--	--
09-11-88	05540500	--	--	--	--	--
03-10-89	05526000	--	--	--	--	--
08-31-89	05532500	--	--	--	--	--
01-11-90	05540500	1,400	1,100	1,250	300	21
07-12-90	05550000	53	K34	43.5	19	36
			E. coli, MTEC, membrane filter (col/100 mL) (31648)			
09-10-87	05526000	--	--	--	--	--
09-11-88	05540500	--	--	--	--	--
03-10-89	05526000	53	49	51	4	8
08-31-89	05532500	2,100	5,100	3,600	3,000	143
01-11-90	05540500	1,100	1,600	1,350	500	45
07-12-90	05550000	36	37	36.5	1	3
			Nitrogen, NO_2, dissolved (mg/L as N) (00613)			
09-10-87	05526000	0.020	0.020	0.020	0	0
09-11-88	05540500	--	.020	--	--	--
03-10-89	05526000	.040	.040	.040	0	0
08-31-89	05532500	.120	.110	.115	.010	8
01-11-90	05540500	.100	.110	.105	.010	10
07-12-90	05550000	--	--	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analysis--Continued			
			Nitrogen, $NO_2 + NO_3$, dissolved (mg/L as N) (00631)			
09-10-87	05526000	1.50	1.50	1.50	0	0
09-11-88	05540500	--	7.10	--	--	--
03-10-89	05526000	13.0	13.0	13.0	0	0
08-31-89	05532500	4.60	4.60	4.60	0	0
01-11-90	05540500	8.40	8.40	8.40	0	0
07-12-90	05550000	--	--	--	--	--
			Nitrogen, NH_4, dissolved (mg/L as N) (00608)			
09-10-87	05526000	0.040	0.040	0.040	0	0
09-11-88	05540500	--	.040	--	--	--
03-10-89	05526000	.120	.150	.135	.030	25
08-31-89	05532500	.140	.150	.145	.010	7
01-11-90	05540500	.750	.740	.745	.010	1
07-12-90	05550000	--	--	--	--	--
			Nitrogen, total kjeldahl (mg/L as N) (00625)			
09-10-87	05526000	1.0	1.1	1.05	0.1	10
09-11-88	05540500	--	1.3	--	--	--
03-10-89	05526000	.90	3.5	2.2	2.6	289
08-31-89	05532500	.90	1.1	1.0	.2	22
01-11-90	05540500	1.9	1.8	1.85	.1	5
07-12-90	05550000	--	--	--	--	--
			Nitrogen, dissolved kjeldahl (mg/L as N) (00623)			
09-10-87	05526000	0.40	0.20	0.30	0.20	50
09-11-88	05540500	--	1.3	--	--	--
03-10-89	05526000	.70	3.2	1.95	2.5	357
08-31-89	05532500	1.1	.80	.95	.3	27
01-11-90	05540500	1.5	1.7	1.6	.2	13
07-12-90	05550000	--	--	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analysis--Continued			
			Phosphorus, total (mg/L as P) (00665)			
09-10-87	05526000	0.080	0.080	0.080	0	0
09-11-88	05540500	--	1.20	--	--	--
03-10-89	05526000	.080	.080	.080	0	0
08-31-89	05532500	1.40	1.30	1.35	.10	7
01-11-90	05540500	1.70	1.70	1.70	0	0
07-12-90	05550000	--	--	--	--	--
			Phosphorus, dissolved (mg/L as P) (00666)			
09-10-87	05526000	0.080	0.070	0.075	0.010	12
09-11-88	05540500	--	1.20	--	--	--
03-10-89	05526000	.050	.050	.050	0	0
08-31-89	05532500	1.00	.990	.995	.01	1
01-11-90	05540500	1.60	1.50	1.55	.10	6
07-12-90	05550000	--	--	--	--	--
			Phosphorus, ortho, dissolved (mg/L as P) (00671)			
09-10-87	05526000	0.060	0.060	0.060	0	0
09-11-88	05540500	--	1.00	--	--	--
03-10-89	05526000	.050	.050	.050	0	0
08-31-89	05532500	.990	.990	.990	0	0
01-11-90	05540500	1.30	1.30	1.30	0	0
07-12-90	05550000	--	--	--	--	--
			Phosphorus, sediment, suspended (percent as P) (30292)			
09-10-87	05526000	0.12	0.12	0.12	0	0
09-11-88	05540500	.39	--	--	--	--
03-10-89	05526000	.12	--	--	--	--
08-31-89	05532500	.39	--	--	--	--
01-11-90	05540500	.33	--	--	--	--
07-12-90	05550000	--	--	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analysis--Continued			
			Aluminum, sediment, suspended (percent as Al) (30221)			
09-10-87	05526000	7.97	7.99	7.98	0.02	<1
09-11-88	05540500	4.11	--	--	--	--
03-10-89	05526000	7.77	--	--	--	--
08-31-89	05532500	6.74	--	--	--	--
01-11-90	05540500	5.57	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Antimony, sediment, suspended (µg/g as Sb) (29816)			
09-10-87	05526000	0.8	0.7	0.75	0.1	12
09-11-88	05540500	.5	--	--	--	--
03-10-89	05526000	.7	--	--	--	--
08-31-89	05532500	1.7	--	--	--	--
01-11-90	05540500	.7	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Arsenic, sediment, suspended (µg/g as As) (29818)			
09-10-87	05526000	8.7	10.3	9.5	1.6	18
09-11-88	05540500	5.4	--	--	--	--
03-10-89	05526000	10.9	--	--	--	--
08-31-89	05532500	14.1	--	--	--	--
01-11-90	05540500	9.1	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Beryllium, sediment, suspended (µg/g as Be) (29822)			
09-10-87	05526000	3	3	3	0	0
09-11-88	05540500	2	--	--	--	--
03-10-89	05526000	3	--	--	--	--
08-31-89	05532500	2	--	--	--	--
01-11-90	05540500	2	--	--	--	--
07-12-90	05550000	--	--	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analysis--Continued			
			Cadmium, sediment, suspended (µg/g as Cd) (29826)			
09-10-87	05526000	1	0.7	0.85	0.3	30
09-11-88	05540500	1.1	--	--	--	--
03-10-89	05526000	.6	--	--	--	--
08-31-89	05532500	2.9	--	--	--	--
01-11-90	05540500	.7	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Chromium, sediment, suspended (µg/g as Cr) (29829)			
09-10-87	05526000	91	91	91	0	0
09-11-88	05540500	53	--	--	--	--
03-10-89	05526000	96	--	--	--	--
08-31-89	05532500	140	--	--	--	--
01-11-90	05540500	76	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Cobalt, sediment, suspended (µg/g as Co) (35031)			
09-10-87	05526000	18	18	18	0	0
09-11-88	05540500	10	--	--	--	--
03-10-89	05526000	18	--	--	--	--
08-31-89	05532500	19	--	--	--	--
01-11-90	05540500	20	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Copper, sediment, suspended (µg/g as Cu) (29832)			
09-10-87	05526000	38	29	33.5	9	24
09-11-88	05540500	51	--	--	--	--
03-10-89	05526000	34	--	--	--	--
08-31-89	05532500	107	--	--	--	--
01-11-90	05540500	70	--	--	--	--
07-12-90	05550000	--	--	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analysis--Continued			
			Iron, sediment, suspended (percent as Fe) (30269)			
09-10-87	05526000	4.23	4.23	4.23	0	0
09-11-88	05540500	2.50	--	--	--	--
03-10-89	05526000	4.28	--	--	--	--
08-31-89	05532500	4.11	--	--	--	--
01-11-90	05540500	3.57	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Lead, sediment, suspended (µg/g as Pb) (29836)			
09-10-87	05526000	29.2	32.9	31.05	3.7	13
09-11-88	05540500	28.6	--	--	--	--
03-10-89	05526000	29.8	--	--	--	--
08-31-89	05532500	164	--	--	--	--
01-11-90	05540500	49.5	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Manganese, sediment, suspended (µg/g as Mn) (29839)			
09-10-87	05526000	1,270	1,260	1,265	10	1
09-11-88	05540500	1,060	--	--	--	--
03-10-89	05526000	1,450	--	--	--	--
08-31-89	05532500	1,780	--	--	--	--
01-11-90	05540500	1,870	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Molybdenum, sediment, suspended (µg/g as Mo) (29843)			
09-10-87	05526000	2	2	2	0	0
09-11-88	05540500	5	--	--	--	--
03-10-89	05526000	2.4	--	--	--	--
08-31-89	05532500	5.3	--	--	--	--
01-11-90	05540500	4.1	--	--	--	--
07-12-90	05550000	--	--	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analysis--Continued			
			Nickel, sediment, suspended (µg/g as Ni) (29845)			
09-10-87	05526000	42	40	41	2	5
09-11-88	05540500	28	--	--	--	--
03-10-89	05526000	43	--	--	--	--
08-31-89	05532500	52	--	--	--	--
01-11-90	05540500	32	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Silver, sediment, suspended (µg/g as Ag) (29850)			
09-10-87	05526000	0.1	0.2	0.15	0.1	100
09-11-88	05540500	.7	--	--	--	--
03-10-89	05526000	.4	--	--	--	--
08-31-89	05532500	4.1	--	--	--	--
01-11-90	05540500	2.0	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Thallium, sediment, suspended (µg/g) (29852)			
09-10-87	05526000	0.5	0.7	0.6	0.2	40
09-11-88	05540500	.6	--	--	--	--
03-10-89	05526000	1.1	--	--	--	--
08-31-89	05532500	1.1	--	--	--	--
01-11-90	05540500	.8	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Titanium, sediment, suspended (percent as Ti) (30317)			
09-10-87	05526000	0.42	0.39	0.45	0.03	7
09-11-88	05540500	.21	--	--	--	--
03-10-89	05526000	.38	--	--	--	--
08-31-89	05532500	.31	--	--	--	--
01-11-90	05540500	.26	--	--	--	--
07-12-90	05550000	--	--	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analysis--Continued			
			Vanadium, sediment, suspended (µg/g as V) (29853)			
09-10-87	05526000	130	127	128.5	3	2
09-11-88	05540500	59	--	--	--	--
03-10-89	05526000	123	--	--	--	--
08-31-89	05532500	103	--	--	--	--
01-11-90	05540500	88	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Zinc, sediment, suspended (µg/g as Zn) (29855)			
09-10-87	05526000	154	150	152	4	3
09-11-88	05540500	217	--	--	--	--
03-10-89	05526000	180	--	--	--	--
08-31-89	05532500	599	--	--	--	--
01-11-90	05540500	303	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Carbon, organic, dissolved (mg/L as C) (00681)			
09-10-87	05526000	6.3	6.2	6.25	0.1	2
09-11-88	05540500	--	5.5	--	--	--
03-10-89	05526000	4.1	4.1	4.1	0	0
08-31-89	05532500	6.6	6.5	6.55	.1	2
01-11-90	05540500	5.5	5.7	5.6	.2	4
07-12-90	05550000	8.8	8.7	8.75	.1	1
			Carbon, organic, suspended (mg/L as C) (00689)			
09-10-87	05526000	1.2	1.3	1.25	0.1	8
09-11-88	05540500	--	1.2	--	--	--
03-10-89	05526000	.40	.50	.45	.10	25
08-31-89	05532500	1.9	1.9	1.9	0	0
01-11-90	05540500	.40	.60	.50	.20	50
07-12-90	05550000	>5	4.5	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			USGS Laboratory Analysis--Continued			
			Chlorophyll-a (µg/L) (32209)			
09-10-87	05526000	--	--	--	--	--
09-11-88	05540500	--	--	--	--	--
03-10-89	05526000	--	0.40	--	--	--
08-31-89	05532500	8.40	8.75	8.575	0.35	4
01-11-90	05540500	2.30	2.05	2.175	.25	11
07-12-90	05550000	65.8	69.1	67.45	3.3	5
			Suspended sediment (mg/L) (80154)			
09-10-87	05526000	85.0	81.0	83.0	4.0	5
09-11-88	05540500	14.0	13.0	13.5	1.0	7
03-10-89	05526000	19.0	19.0	19.0	0	0
08-31-89	05532500	37.0	37.0	37.0	0	0
01-11-90	05540500	12.0	11.0	11.5	1.0	8
07-12-90	05550000	25.0	39.0	32.0	14.0	56
			Percent finer than 0.062 mm (70331)			
09-10-87	05526000	95	100	97.5	5	5
09-11-88	05540500	96	100	98	4	4
03-10-89	05526000	95	97	96	2	2
08-31-89	05532500	99	100	99.5	1	1
01-11-90	05540500	93	100	96.5	7	8
07-12-90	05550000	94	96	95	2	2
			IEPA Laboratory Analyses			
			Specific conductance (µS/cm) (00095)			
09-10-87	05526000	617	612	614.5	5	1
09-11-88	05540500	1,920	1,920	1,920	0	0
03-10-89	05526000	638	646	642	8	1
08-31-89	05532500	983	983	983	0	0
01-11-90	05540500	1,710	1,710	1,710	0	0
07-12-90	05550000	657	657	657	0	0

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			pH (standards units) (00400)			
09-10-87	05526000	8.32	8.31	8.315	0.01	<1
09-11-88	05540500	8.75	8.75	8.75	0	0
03-10-89	05526000	7.70	7.70	7.70	0	0
08-31-89	05532500	7.50	7.50	7.50	0	0
01-11-90	05540500	7.79	7.79	7.79	0	0
07-12-90	05550000	8.60	8.60	8.60	0	0
			Calcium, total (mg/L as Ca) (00916)			
09-10-87	05526000	72	73	72.5	1	1
09-11-88	05540500	99	99	99	0	0
03-10-89	05526000	89	86	87.5	3	3
08-31-89	05532500	66	64	65	2	3
01-11-90	05540500	93	93	93	0	0
07-12-90	05550000	57	60	58.5	3	5
			Calcium, dissolved (mg/L as Ca) (00915)			
09-10-87	05526000	70	69	69.5	1	1
09-11-88	05540500	98	99	98.5	1	1
03-10-89	05526000	86	87	86.5	1	1
08-31-89	05532500	64	63	63.5	1	2
01-11-90	05540500	92	92	92	0	0
07-12-90	05550000	52	52	52	0	0
			Magnesium, total (mg/L as Mg) (00927)			
09-10-87	05526000	24	24	24	0	0
09-11-88	05540500	47	47	47	0	0
03-10-89	05526000	30	28	29	2	7
08-31-89	05532500	27	26	26.5	1	4
01-11-90	05540500	42	42	42	0	0
07-12-90	05550000	38	39	38.5	1	3

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Magnesium, dissolved (mg/L as Mg) (00925)			
09-10-87	05526000	23	23	23	0	0
09-11-88	05540500	47	47	47	0	0
03-10-89	05526000	28	29	28.5	1	4
08-31-89	05532500	26	26	26	0	0
01-11-90	05540500	42	42	42	0	0
07-12-90	05550000	38	38	38	0	0
			Sodium, total (mg/L as Na) (00929)			
09-10-87	05526000	17	17	17	0	0
09-11-88	05540500	230	230	230	0	0
03-10-89	05526000	8.6	8.3	8.45	.3	3
08-31-89	05532500	99	95	97	4	4
01-11-90	05540500	210	210	210	0	0
07-12-90	05550000	31	32	31.5	1	3
			Sodium, dissolved (mg/L as Na) (00930)			
09-10-87	05526000	16	16	16	0	0
09-11-88	05540500	220	230	225	10	5
03-10-89	05526000	--	8.4	--	--	--
08-31-89	05532500	96	96	96	0	0
01-11-90	05540500	210	210	210	0	0
07-12-90	05550000	32	32	32	0	0
			Potassium, total (mg/L as K) (00937)			
09-10-87	05526000	4.0	3.9	3.95	0.1	2
09-11-88	05540500	14	14	14	0	0
03-10-89	05526000	1.6	1.5	1.55	.1	6
08-31-89	05532500	8.1	7.2	7.65	.9	11
01-11-90	05540500	8.8	9.6	9.2	.8	9
07-12-90	05550000	1.4	2.4	1.9	1.0	71

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Potassium, dissolved (mg/L as K) (00935)			
09-10-87	05526000	3.3	3.3	3.3	0	0
09-11-88	05540500	13	14	13.5	1	8
03-10-89	05526000	1.5	1.5	1.5	0	0
08-31-89	05532500	7.2	7.4	7.3	.2	3
01-11-90	05540500	10	8.4	9.2	1.6	16
07-12-90	05550000	.30	2.1	1.2	1.8	600
			Sulfate, total (mg/L as SO_4) (00946)			
09-10-87	05526000	72	72	72	0	0
09-11-88	05540500	190	190	190	0	0
03-10-89	05526000	--	--	--	--	--
08-31-89	05532500	93	92	92.5	1	1
01-11-90	05540500	140	140	140	0	0
07-12-90	05550000	52	52	52	0	0
			Sulfate, dissolved (mg/L as SO_4) (00945)			
09-10-87	05526000	72	74	73	2	3
09-11-88	05540500	200	190	195	10	5
03-10-89	05526000	90	85	87.5	5	6
08-31-89	05532500	96	95	95.5	1	1
01-11-90	05540500	140	140	140	0	0
07-12-90	05550000	51	52	51.5	1	2
			Chloride, dissolved (mg/L as Cl) (00940)			
09-10-87	05526000	32	31	31.5	1	3
09-11-88	05540500	360	370	365	10	3
03-10-89	05526000	31	30	30.5	1	3
08-31-89	05532500	140	140	140	0	0
01-11-90	05540500	340	350	345	10	3
07-12-90	05550000	58	58	58	0	0

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Fluoride, total (mg/L as F) (00951)			
09-10-87	05526000	0.2	0.2	0.2	0	0
09-11-88	05540500	.8	.8	.8	0	0
03-10-89	05526000	.2	.2	.2	0	0
08-31-89	05532500	.7	.8	.75	.1	14
01-11-90	05540500	.6	.6	.6	0	0
07-12-90	05550000	.2	.2	.2	0	0
			Fluoride, dissolved (mg/L as F) (00950)			
09-10-87	05526000	0.23	0.22	0.225	0.01	4
09-11-88	05540500	.83	.80	.815	.03	4
03-10-89	05526000	--	--	--	--	--
08-31-89	05532500	.74	.70	.72	.04	5
01-11-90	05540500	.60	.61	.605	.01	2
07-12-90	05550000	.21	.22	.215	.01	5
			Solids, residue on evaporation at 180°C (mg/L) (70300)			
09-10-87	05526000	368	362	365	6	2
09-11-88	05540500	1,170	1,190	1,180	20	2
03-10-89	05526000	438	444	441	6	1
08-31-89	05532500	586	580	583	6	1
01-11-90	05540500	1,030	1,020	1,025	10	1
07-12-90	05550000	403	405	404	2	<1
			Solids, total suspended (mg/L) (00530)			
09-10-87	05526000	2	3	2.5	1	50
09-11-88	05540500	10	15	12.5	5	50
03-10-89	05526000	14	13	13.5	1	7
08-31-89	05532500	39	39	39	0	0
01-11-90	05540500	11	10	10.5	1	9
07-12-90	05550000	58	53	55.5	5	9

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Solids, volatile (mg/L) (00535)			
09-10-87	05526000	2	3	2.5	1	50
09-11-88	05540500	3	4	3.5	1	33
03-10-89	05526000	2	3	2.5	1	50
08-31-89	05532500	10	11	10.5	1	10
01-11-90	05540500	3	3	3	0	0
07-12-90	05550000	21	21	21	0	0
			Coliform, fecal, membrane filter (col/100 mL) (31616)			
09-10-87	05526000	--	--	--	--	--
09-11-88	05540500	--	--	--	--	--
03-10-89	05526000	<10	<10	--	--	--
08-31-89	05532500	K1,900	K1,600	1,750	300	16
01-11-90	05540500	--	--	--	--	--
07-12-90	05550000	--	--	--	--	--
			Nitrogen, NO_2 + NO_3, total (mg/L as N) (00630)			
09-10-87	05526000	1.50	1.50	1.50	0	0
09-11-88	05540500	9.80	10.0	9.90	.2	2
03-10-89	05526000	14.0	14.0	14.0	0	0
08-31-89	05532500	4.90	4.90	4.90	0	0
01-11-90	05540500	8.20	8.10	8.15	.10	1
07-12-90	05550000	.050	.040	.045	.010	20
			Nitrogen, NH_2 + NO_3, dissolved (mg/L as N) (00631)			
09-10-87	05526000	1.50	1.50	1.50	0	0
09-11-88	05540500	9.20	9.90	9.55	.70	8
03-10-89	05526000	14.0	14.0	14.0	0	0
08-31-89	05532500	4.90	4.80	4.85	.10	2
01-11-90	05540500	8.20	8.10	8.15	.10	1
07-12-90	05550000	.150	<.010	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Nitrogen, NH_4, total (mg/L as N) (00610)			
09-10-87	05526000	<0.100	<0.100	--	--	--
09-11-88	05540500	<.100	<.100	--	--	--
03-10-89	05526000	<.100	.110	--	--	--
08-31-89	05532500	.170	.170	0.170	0	0
01-11-90	05540500	1.20	1.10	1.15	.10	8
07-12-90	05550000	.100	.080	.090	.020	20
			Nitrogen, NH_4, dissolved (mg/L as N) (00608)			
09-10-87	05526000	<0.100	<0.100	--	--	--
09-11-88	05540500	<.100	<.100	--	--	--
03-10-89	05526000	.150	<.100	--	--	--
08-31-89	05532500	.160	.160	0.160	0	0
01-11-90	05540500	.800	.880	.840	.080	10
07-12-90	05550000	.060	.070	.065	.010	17
			Nitrogen, total kjeldahl (mg/L as N) (00625)			
09-10-87	05526000	1.0	1.1	1.05	0.1	10
09-11-88	05540500	.80	.80	.80	0	0
03-10-89	05526000	1.1	1.2	1.15	.1	9
08-31-89	05532500	1.6	1.6	1.6	0	0
01-11-90	05540500	1.5	1.4	1.45	.1	7
07-12-90	05550000	2.3	.30	1.3	2.0	87
			Phosphorus, total (mg/L as P) (00665)			
09-10-87	05526000	0.160	0.190	0.175	0.030	19
09-11-88	05540500	1.30	1.33	1.315	.03	2
03-10-89	05526000	.080	.084	.082	.004	5
08-31-89	05532500	1.16	1.18	1.17	.02	2
01-11-90	05540500	1.40	1.40	1.40	0	0
07-12-90	05550000	.232	.180	.206	.052	22

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Phosphorus, dissolved (mg/L as P) (00666)			
09-10-87	05526000	0.080	0.070	0.075	0.010	12
09-11-88	05540500	1.10	1.30	1.20	.20	18
03-10-89	05526000	.050	.060	.055	.010	20
08-31-89	05532500	.970	.980	.975	.010	1
01-11-90	05540500	1.40	1.20	1.30	.20	14
07-12-90	05550000	.010	.020	.015	.010	100
			Aluminum, total recoverable (µg/L as Al) (01105)			
09-10-87	05526000	1,800	2,500	2,150	700	39
09-11-88	05540500	220	220	220	0	0
03-10-89	05526000	520	340	430	180	35
08-31-89	05532500	640	620	630	20	3
01-11-90	05540500	310	320	315	10	3
07-12-90	05550000	550	1,700	1,125	1,150	209
			Aluminum, dissolved (µg/L as Al) (01106)			
09-10-87	05526000	98	<50	--	--	--
09-11-88	05540500	<50	97	--	--	--
03-10-89	05526000	120	92	106	28	23
08-31-89	05532500	62	<50	--	--	--
01-11-90	05540500	120	100	110	20	17
07-12-90	05550000	76	280	178	204	268
			Arsenic, total recoverable (µg/L as As) (01002)			
09-10-87	05526000	2	2	2	0	0
09-11-88	05540500	2	2	2	0	0
03-10-89	05526000	<1	<1	--	--	--
08-31-89	05532500	3	3	3	0	0
01-11-90	05540500	1	1	1	0	0
07-12-90	05550000	2	2	2	0	0

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Arsenic, dissolved (µg/L as As) (01000)			
09-10-87	05526000	1	1	1	0	0
09-11-88	05540500	2	2	2	0	0
03-10-89	05526000	<1	<1	--	--	--
08-31-89	05532500	2	2	2	0	0
01-11-90	05540500	1	1	1	0	0
07-12-90	05550000	2	2	2	0	0
			Barium, total recoverable (µg/L as Ba) (01007)			
09-10-87	05526000	71	72	71.5	1	1
09-11-88	05540500	41	42	41.5	1	2
03-10-89	05526000	37	35	36	2	5
08-31-89	05532500	42	40	41	2	5
01-11-90	05540500	58	57	57.5	1	2
07-12-90	05550000	52	56	54	4	8
			Barium, dissolved (µg/L as Ba) (01005)			
09-10-87	05526000	55	54	54.5	1	2
09-11-88	05540500	40	39	39.5	1	2
03-10-89	05526000	33	33	33	0	0
08-31-89	05532500	33	33	33	0	0
01-11-90	05540500	54	55	54.5	1	2
07-12-90	05550000	43	44	43.5	1	2
			Beryllium, total recoverable (µg/L as Be) (01012)			
09-10-87	05526000	<0.5	<0.5	--	--	--
09-11-88	05540500	<.5	<.5	--	--	--
03-10-89	05526000	<.5	<.5	--	--	--
08-31-89	05532500	<.5	<.5	--	--	--
01-11-90	05540500	<.5	<.5	--	--	--
07-12-90	05550000	<.5	<.5	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Beryllium, dissolved (µg/L as Be) (01010)			
09-10-87	05526000	<0.5	<0.5	--	--	--
09-11-88	05540500	<.5	<.5	--	--	--
03-10-89	05526000	<.5	<.5	--	--	--
08-31-89	05532500	<.5	<.5	--	--	--
01-11-90	05540500	<.5	<.5	--	--	--
07-12-90	05550000	<.5	<.5	--	--	--
			Boron, total recoverable (µg/L as B) (01022)			
09-10-87	05526000	96	99	97.5	3	3
09-11-88	05540500	460	450	455	10	2
03-10-89	05526000	<50	<50	--	--	--
08-31-89	05532500	320	320	320	0	0
01-11-90	05540500	300	310	305	10	3
07-12-90	05550000	<50	<50	--	--	--
			Boron, dissolved (µg/L as B) (01020)			
09-10-87	05526000	94	90	92	4	4
09-11-88	05540500	450	--	--	--	--
03-10-89	05526000	<50	<50	--	--	--
08-31-89	05532500	320	320	320	0	0
01-11-90	05540500	300	300	300	0	0
07-12-90	05550000	<50	<50	--	--	--
			Cadmium, total recoverable (µg/L as Cd) (01027)			
09-10-87	05526000	0.3	0.2	0.25	0.1	33
09-11-88	05540500	.2	.2	.2	0	0
03-10-89	05526000	<.1	<.1	--	--	--
08-31-89	05532500	.2	.2	.2	0	0
01-11-90	05540500	.1	.1	.1	0	0
07-12-90	05550000	.2	<.1	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Cadmium, dissolved (µg/L as Cd) (01025)			
09-10-87	05526000	0.16	0.27	0.215	0.11	69
09-11-88	05540500	.10	.16	.13	.06	60
03-10-89	05526000	<.1	<.1	--	--	--
08-31-89	05532500	<.1	<.1	--	--	--
01-11-90	05540500	.10	.10	.10	0	0
07-12-90	05550000	<.1	<.1	--	--	--
			Chromium, total recoverable (µg/L as Cr) (01034)			
09-10-87	05526000	6.0	7.0	6.5	1.0	17
09-11-88	05540500	14	6.0	10	8	57
03-10-89	05526000	5.0	8.0	6.5	3.0	60
08-31-89	05532500	10	10	10	0	0
01-11-90	05540500	12	10	11	2	17
07-12-90	05550000	<5	<5	--	--	--
			Chromium, dissolved (µg/L as Cr) (01030)			
09-10-87	05526000	<5	<5	--	--	--
09-11-88	05540500	6.0	--	--	--	--
03-10-89	05526000	--	5.0	--	--	--
08-31-89	05532500	10	<5	--	--	--
01-11-90	05540500	9.0	10	9.5	1	11
07-12-90	05550000	<5	<5	--	--	--
			Cobalt, total recoverable (µg/L as Co) (01037)			
09-10-87	05526000	<5	<5	--	--	--
09-11-88	05540500	<5	<5	--	--	--
03-10-89	05526000	<5	<5	--	--	--
08-31-89	05532500	<5	81	--	--	--
01-11-90	05540500	<5	<5	--	--	--
07-12-90	05550000	<5	<5	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Cobalt, dissolved (µg/L as Co) (01035)			
09-10-87	05526000	<5	<5	--	--	--
09-11-88	05540500	<5	<5	--	--	--
03-10-89	05526000	<5	<5	--	--	--
08-31-89	05532500	<5	<5	--	--	--
01-11-90	05540500	<5	<5	--	--	--
07-12-90	05550000	<5	<5	--	--	--
			Copper, total recoverable (µg/L as Cu) (01042)			
09-10-87	05526000	6	8	7	2	33
09-11-88	05540500	<5	<5	--	--	--
03-10-89	05526000	<5	<5	--	--	--
08-31-89	05532500	5	<5	--	--	--
01-11-90	05540500	5	6	5.5	1	20
07-12-90	05550000	<5	8	--	--	--
			Copper, dissolved (µg/L as Cu) (01040)			
09-10-87	05526000	5	<5	--	--	--
09-11-88	05540500	<5	<5	--	--	--
03-10-89	05526000	<5	<5	--	--	--
08-31-89	05532500	<5	<5	--	--	--
01-11-90	05540500	<5	<5	--	--	--
07-12-90	05550000	<5	<5	--	--	--
			Iron, total recoverable (µg/L as Fe) (01045)			
09-10-87	05526000	2,300	2,400	2,350	100	4
09-11-88	05540500	330	330	330	0	0
03-10-89	05526000	610	340	475	270	44
08-31-89	05532500	1,100	1,000	1,050	100	9
01-11-90	05540500	290	290	290	0	0
07-12-90	05550000	760	850	805	90	12

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Iron, dissolved (µg/L as Fe) (01046)			
09-10-87	05526000	<50	<50	--	--	--
09-11-88	05540500	<50	<50	--	--	--
03-10-89	05526000	<50	<50	--	--	--
08-31-89	05532500	<50	<50	--	--	--
01-11-90	05540500	<50	<50	--	--	--
07-12-90	05550000	<50	<50	--	--	--
			Lead, total recoverable (µg/L as Pb) (01051)			
09-10-87	05526000	<5	<5	--	--	--
09-11-88	05540500	<5	<5	--	--	--
03-10-89	05526000	<5	<5	--	--	--
08-31-89	05532500	7.3	7.5	7.4	0.2	3
01-11-90	05540500	<5	<5	--	--	--
07-12-90	05550000	<5	7.4	--	--	--
			Lead, dissolved (µg/L as Pb) (01049)			
09-10-87	05526000	<5	<5	--	--	--
09-11-88	05540500	<5	<5	--	--	--
03-10-89	05526000	<5	<5	--	--	--
08-31-89	05532500	<5	--	--	--	--
01-11-90	05540500	<5	<5	--	--	--
07-12-90	05550000	<5	<5	--	--	--
			Manganese, total recoverable (µg/L as Mn) (01055)			
09-10-87	05526000	100	100	100	0	0
09-11-88	05540500	24	26	25	2	8
03-10-89	05526000	30	27	28.5	3	10
08-31-89	05532500	84	81	82.5	3	4
01-11-90	05540500	28	27	27.5	1	4
07-12-90	05550000	110	130	120	20	18

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Manganese, dissolved (µg/L as Mn) (01056)			
09-10-87	05526000	8.0	7.0	7.5	1.0	12
09-11-88	05540500	11	12	11.5	1	9
03-10-89	05526000	18	18	18	0	0
08-31-89	05532500	45	46	45.5	1	2
01-11-90	05540500	21	21	21	0	0
07-12-90	05550000	<5	<5	--	--	--
			Mercury, total recoverable (µg/L as Hg) (71900)			
09-10-87	05526000	<0.05	<0.05	--	--	--
09-11-88	05540500	<.05	--	--	--	--
03-10-89	05526000	--	--	--	--	--
08-31-89	05532500	--	<.05	--	--	--
01-11-90	05540500	--	<.05	--	--	--
07-12-90	05550000	<.05	<.05	--	--	--
			Mercury, dissolved (µg/L as Hg) (71890)			
09-10-87	05526000	<0.05	<0.05	--	--	--
09-11-88	05540500	--	--	--	--	--
03-10-89	05526000	--	--	--	--	--
08-31-89	05532500	--	<.05	--	--	--
01-11-90	05540500	--	<.05	--	--	--
07-12-90	05550000	<.05	<.05	--	--	--
			Nickel, total recoverable (µg/L as Ni) (01067)			
09-10-87	05526000	5	8	6.5	3	60
09-11-88	05540500	<5	<5	--	--	--
03-10-89	05526000	<5	<5	--	--	--
08-31-89	05532500	<50	<10	--	--	--
01-11-90	05540500	<5	5	--	--	--
07-12-90	05550000	<10	<5	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Nickel, dissolved (µg/L as Ni) (01065)			
09-10-87	05526000	6	6	6	0	0
09-11-88	05540500	<5	<5	--	--	--
03-10-89	05526000	8	<5	--	--	--
08-31-89	05532500	<50	<10	--	--	--
01-11-90	05540500	6	<5	--	--	--
07-12-90	05550000	<10	<5	--	--	--
			Selenium, dissolved (µg/L as Se) (01145)			
09-10-87	05526000	<1	<1	--	--	--
09-11-88	05540500	<1	<1	--	--	--
03-10-89	05526000	2	3	2.5	1	50
08-31-89	05532500	<1	<1	--	--	--
01-11-90	05540500	<1	<1	--	--	--
07-12-90	05550000	<1	<1	--	--	--
			Silver, total recoverable (µg/L as Ag) (01077)			
09-10-87	05526000	<3	<3	--	--	--
09-11-88	05540500	<3	<3	--	--	--
03-10-89	05526000	<3	<5	--	--	--
08-31-89	05532500	<3	<3	--	--	--
01-11-90	05540500	<3	<3	--	--	--
07-12-90	05550000	<3	<3	--	--	--
			Silver, dissolved (µg/L as Ag) (01075)			
09-10-87	05526000	<3.0	<3.0	--	--	--
09-11-88	05540500	<3.0	<3.0	--	--	--
03-10-89	05526000	<3.0	<3.0	--	--	--
08-31-89	05532500	<3.0	<3.0	--	--	--
01-11-90	05540500	<3.0	<3.0	--	--	--
07-12-90	05550000	<3.0	<3.0	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Strontium, total recoverable (µg/L as Sr) (01082)			
09-10-87	05526000	220	220	220	0	0
09-11-88	05540500	820	810	815	10	1
03-10-89	05526000	200	190	195	10	5
08-31-89	05532500	630	610	620	20	3
01-11-90	05540500	630	630	630	0	0
07-12-90	05550000	470	480	475	10	2
			Strontium, dissolved (µg/L as Sr) (01080)			
09-10-87	05526000	210	200	205	10	5
09-11-88	05540500	800	--	--	--	--
03-10-89	05526000	190	--	--	--	--
08-31-89	05532500	610	610	610	0	0
01-11-90	05540500	620	620	620	0	0
07-12-90	05550000	460	460	460	0	0
			Vanadium, total recoverable (µg/L as V) (01087)			
09-10-87	05526000	5	7	6	2	40
09-11-88	05540500	<5	<5	--	--	--
03-10-89	05526000	<5	<5	--	--	--
08-31-89	05532500	<5	<5	--	--	--
01-11-90	05540500	<5	<5	--	--	--
07-12-90	05550000	<5	<5	--	--	--
			Vanadium, dissolved (µg/L as V) (01085)			
09-10-87	05526000	<5	<5	--	--	--
09-11-88	05540500	<5	<5	--	--	--
03-10-89	05526000	<5	<5	--	--	--
08-31-89	05532500	<5	<5	--	--	--
01-11-90	05540500	<5	<5	--	--	--
07-12-90	05550000	<5	<5	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Zinc, total recoverable (µg/L as Zn) (01092)			
09-10-87	05526000	<50	<50	--	--	--
09-11-88	05540500	<50	<50	--	--	--
03-10-89	05526000	<50	<100	--	--	--
08-31-89	05532500	<100	<100	--	--	--
01-11-90	05540500	<50	<50	--	--	--
07-12-90	05550000	<100	<50	--	--	--
			Zinc, dissolved (µg/L as Zn) (01090)			
09-10-87	05526000	<50	<50	--	--	--
09-11-88	05540500	<50	<50	--	--	--
03-10-89	05526000	<50	<100	--	--	--
08-31-89	05532500	<100	<50	--	--	--
01-11-90	05540500	<50	<50	--	--	--
07-12-90	05550000	<100	<50	--	--	--
			Carbon, organic, total (mg/L as C) (00680)			
09-10-87	05526000	7.9	7.4	7.65	0.5	6
09-11-88	05540500	6.9	7.1	7.0	.2	3
03-10-89	05526000	5.1	5.2	5.15	.1	2
08-31-89	05532500	8.1	8.6	8.35	.5	6
01-11-90	05540500	6.1	6.9	6.5	.8	13
07-12-90	05550000	14	13	13.5	1	7
			Turbidity (NTU) (00076)			
09-10-87	05526000	1.0	1.2	1.1	0.2	20
09-11-88	05540500	.20	.20	.20	0	0
03-10-89	05526000	6.3	6.6	6.45	.3	5
08-31-89	05532500	12	19	15.5	7	58
01-11-90	05540500	6.3	6.6	6.4	.3	5
07-12-90	05550000	10	12	11	2	20

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Chemical oxygen demand (mg/L) (00335)			
09-10-87	05526000	20	20	20	0	0
09-11-88	05540500	18	1	9.5	17	94
03-10-89	05526000	13	14	13.5	1	8
08-31-89	05532500	40	40	40	0	0
01-11-90	05540500	18	16	17	2	11
07-12-90	05550000	50	51	50.5	1	2
			Hardness (Ca, Mg) (mg/L as $CaCO_3$) (00900)			
09-10-87	05526000	270	267	268.5	3	1
09-11-88	05540500	439	441	440	2	<1
03-10-89	05526000	330	337	333.5	7	2
08-31-89	05532500	268	265	266.5	3	1
01-11-90	05540500	403	404	403.5	1	<1
07-12-90	05550000	287	287	287	0	0
			Cyanide, total (mg/L as CN) (00720)			
09-10-87	05526000	<0.005	<0.005	--	--	--
09-11-88	05540500	<.005	<.005	--	--	--
03-10-89	05526000	<.005	<.005	--	--	--
08-31-89	05532500	<.005	<.005	--	--	--
01-11-90	05540500	<.005	<.005	--	--	--
07-12-90	05550000	<.005	<.005	--	--	--
			Cyanide, dissolved (mg/L as CN) (00723)			
09-10-87	05526000	<5	<5	--	--	--
09-11-88	05540500	<.005	<.005	--	--	--
03-10-89	05526000	<.005	<.005	--	--	--
08-31-89	05532500	<5	<5	--	--	--
01-11-90	05540500	<5	<5	--	--	--
07-12-90	05550000	<.005	<.005	--	--	--

Table 7.--Results of quality-assurance and quality-control measures: collection duplicate samples--Continued

Date	Station number	Analysis result duplicate 1	Analysis result duplicate 2	Average value	Difference in given units[1]	Percent difference[2]
			IEPA Laboratory Analyses--Continued			
			Phenolic material (C_6H_5OH), total (µg/L) (32730)			
09-10-87	05526000	<5	<5	--	--	--
09-11-88	05540500	<5	<5	--	--	--
03-10-89	05526000	<5	<5	--	--	--
08-31-89	05532500	4	3	3.5	1	25
01-11-90	05540500	5	5	5	0	0
07-12-90	05550000	<5	<5	--	--	--
			Oil, total (mg/L) (00556)			
09-10-87	05526000	4	<1	--	--	--
09-11-88	05540500	4	5	4.5	1	25
03-10-89	05526000	<1	1	--	--	--
08-31-89	05532500	1	1	1	0	0
01-11-90	05540500	--	--	--	--	--
07-12-90	05550000	--	--	--	--	--

[1]Difference in given units is defined as the absolute value of the Analysis result duplicate 2 subtracted from the Analysis result duplicate 1.

[2]Percent difference is defined as the absolute value of the Analysis result duplicate 2 subtracted from the analysis result duplicate 1, and the difference divided by the Analysis result duplicate 1.

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples

[USGS, U. S. Geological Survey; IEPA, Illinois Environmental Protection Agency; mg/L, milligrams per liter; µg/L, micrograms per liter; dashes (--) indicate missing data or not applicable. Footnotes at end of table]

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Calcium, dissolved (mg/L as Ca) (00915)				
12-08-87	05526000	81	81	81	0	0
12-08-87	05540500	67	69	68	-2	3
03-08-88	05520500	88	86	87	2	2
03-10-88	05532500	80	77	78.5	3	4
06-07-88	05536995	54	56	55	-2	4
06-09-88	05550000	54	49	51.5	5	9
09-10-88	05552500	28	31	29.5	-3	11
12-07-88	05536995	62	62	62	0	0
12-07-88	05550000	79	79	79	0	0
06-05-89	05552500	67	68	67.5	-1	1
06-08-89	05526000	83	83	83	0	0
08-30-89	05543500	54	54	54	0	0
09-01-89	05540500	51	50	50.5	1	2
12-06-89	05532500	83	81	82	2	2
12-07-89	05520500	91	91	91	0	0
03-09-90	05526000	77	74	75.5	3	4
03-09-90	05540500	59	59	59	0	0
		Magnesium, dissolved (mg/L as Mg) (00925)				
12-08-87	05526000	27	28	27.5	-1	4
12-08-87	05540500	29	31	30	-2	7
03-08-88	05520500	26	25	25.5	1	4
03-10-88	05532500	36	33	34.5	3	8
06-07-88	05536995	19	22	20.5	-3	16
06-09-88	05550000	41	39	40	2	5
09-10-88	05552500	42	42	42	0	0
12-07-88	05536995	23	22	22.5	1	4
12-07-88	05550000	45	44	44.5	1	2
06-05-89	05552500	33	34	33.5	-1	3
06-08-89	05526000	25	25	25	0	0
08-30-89	05543500	20	21	20.5	-1	5
09-01-89	05540500	23	23	23	0	0
12-06-89	05532500	35	34	34.5	1	3
12-07-89	05520500	27	27	27	0	0
03-09-90	05526000	26	26	26	0	0
03-09-90	05540500	26	27	26.5	-1	4

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Sodium, dissolved (mg/L as Na) (00930)				
12-08-87	05526000	10	9.9	9.95	0.1	1
12-08-87	05540500	62	65	63.5	-3	5
03-08-88	05520500	9.8	9.6	9.7	.2	2
03-10-88	05532500	110	120	115	-10	9
06-07-88	05536995	65	81	73	-16	25
06-09-88	05550000	34	31	32.5	3	9
09-10-88	05552500	64	69	66.5	-5	8
12-07-88	05536995	68	69	68.5	-1	1
12-07-88	05550000	38	36	37	2	5
06-05-89	05552500	28	27	27.5	1	4
06-08-89	05526000	7.4	7.7	7.55	-.3	4
08-30-89	05543500	53	54	53.5	-1	2
09-01-89	05540500	78	79	78.5	-1	1
12-06-89	05532500	120	120	120	0	0
12-07-89	05520500	11	11	11	0	0
03-09-90	05526000	8.0	7.9	7.95	.1	1
03-09-90	05540500	100	100	100	0	0
		Potassium, dissolved (mg/L as K) (00935)				
12-08-87	05526000	--	2.0	--	--	--
12-08-87	05540500	--	3.4	--	--	--
03-08-88	05520500	2.1	1.7	1.9	0.4	19
03-10-88	05532500	4.9	5.4	5.15	-.5	10
06-07-88	05536995	5.8	5.7	5.75	.1	2
06-09-88	05550000	3.0	2.4	2.7	.6	20
09-10-88	05552500	5.4	5.7	5.55	-.3	6
12-07-88	05536995	5.6	5.7	5.65	-.1	2
12-07-88	05550000	3.1	3.0	3.05	.1	3
06-05-89	05552500	2.3	2.9	2.6	-.6	26
06-08-89	05526000	2.9	2.3	2.6	.6	21
08-30-89	05543500	5.4	5.0	5.2	.4	7
09-01-89	05540500	6.1	4.6	5.35	1.5	25
12-06-89	05532500	9.5	8.6	9.05	.9	9
12-07-89	05520500	2.2	1.0	1.6	1.2	55
03-09-90	05526000	1.6	1.4	1.5	.2	12
03-09-90	05540500	3.5	3.8	3.65	-.3	9

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Sulfate, dissolved (mg/L as SO_4) (00945)			
12-08-87	05526000	--	77	--	--	--
12-08-87	05540500	--	73	--	--	--
03-08-88	05520500	--	110	--	--	--
03-10-88	05532500	--	96	--	--	--
06-07-88	05536995	--	79	--	--	--
06-09-88	05550000	--	53	--	--	--
09-10-88	05552500	--	71	--	--	--
12-07-88	05536995	--	97	--	--	--
12-07-88	05550000	--	100	--	--	--
06-05-89	05552500	57	59	58	-2	4
06-08-89	05526000	71	74	72.5	-3	4
08-30-89	05543500	82	79	80.5	3	4
09-01-89	05540500	76	77	76.5	-1	1
12-06-89	05532500	130	130	130	0	0
12-07-89	05520500	110	120	125	-10	9
03-09-90	05526000	59	66	62.5	-7	12
03-09-90	05540500	59	69	64	-10	17
			Chloride, dissolved (mg/L as Cl) (00940)			
12-08-87	05526000	--	30	--	--	--
12-08-87	05540500	--	100	--	--	--
03-08-88	05520500	--	22	--	--	--
03-10-88	05532500	--	190	--	--	--
06-07-88	05536995	--	86	--	--	--
06-09-88	05550000	--	60	--	--	--
09-10-88	05552500	--	100	--	--	--
12-07-88	05536995	--	90	--	--	--
12-07-88	05550000	--	68	--	--	--
06-05-89	05552500	53	56	54.5	-3	6
06-08-89	05526000	21	24	22.5	-3	14
08-30-89	05543500	65	71	68	-6	9
09-01-89	05540500	110	120	115	-10	9
12-06-89	05532500	190	200	195	-10	5
12-07-89	05520500	25	23	24	2	8
03-09-90	05526000	27	27	27	0	0
03-09-90	05540500	180	180	180	0	0

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Fluoride, dissolved (mg/L as F) (00950)			
12-08-87	05526000	--	0.20	--	--	--
12-08-87	05540500	--	.25	--	--	--
03-08-88	05520500	0.20	.10	0.15	0.10	50
03-10-88	05532500	--	.33	--	--	--
06-07-88	05536995	.90	.97	.935	-.07	8
06-09-88	05550000	.30	.20	.25	.10	33
09-10-88	05552500	.30	.32	.31	-.02	7
12-07-88	05536995	.30	--	--	--	--
12-07-88	05550000	.20	--	--	--	--
06-05-89	05552500	.30	.32	.31	-.02	7
06-08-89	05526000	.20	.22	.21	-.02	10
08-30-89	05543500	.50	.64	.57	-.14	28
09-01-89	05540500	.30	.34	.32	-.04	13
12-06-89	05532500	.70	.87	.785	-.17	24
12-07-89	05520500	.10	<.10	--	--	--
03-09-90	05526000	.20	.16	.18	.04	20
03-09-90	05540500	.20	.20	.20	0	0
			Solids, residue on evaporation at 180°C (mg/L) (70300)			
12-08-87	05526000	--	383	--	--	--
12-08-87	05540500	--	491	--	--	--
03-08-88	05520500	--	408	--	--	--
03-10-88	05532500	--	673	--	--	--
06-07-88	05536995	--	440	--	--	--
06-09-88	05550000	--	425	--	--	--
09-10-88	05552500	--	455	--	--	--
12-07-88	05536995	--	467	--	--	--
12-07-88	05550000	--	523	--	--	--
06-05-89	05552500	432	462	447	-30	7
06-08-89	05526000	474	403	438.5	71	15
08-30-89	05543500	402	402	402	0	0
09-01-89	05540500	466	499	482.5	-33	7
12-06-89	05532500	790	762	776	28	4
12-07-89	05520500	423	411	417	12	3
03-09-90	05526000	409	371	390	38	9
03-09-90	05540500	594	579	586.5	15	3

Table 8.--Results of quality-assurance and quality-control measures; laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, $NO_2 + NO_3$, dissolved (mg/L as N) (00631)				
12-08-87	05526000	7.70	8.00	7.85	-0.30	4
12-08-87	05540500	5.20	5.50	5.35	-.30	6
03-08-88	05520500	1.40	1.40	1.40	0	0
03-10-88	05532500	2.80	2.60	2.70	.20	7
06-07-88	05536995	4.60	4.40	4.50	.20	4
06-09-88	05550000	<.100	.150	--	--	--
09-10-88	05552500	--	.190	--	--	--
12-07-88	05536995	5.50	5.10	5.30	.40	7
12-07-88	05550000	2.30	2.30	2.30	0	0
06-05-89	05552500	7.80	7.90	7.85	-.10	1
06-08-89	05526000	14.0	14.0	14.0	0	0
08-30-89	05543500	2.80	2.80	2.80	0	0
09-01-89	05540500	3.80	3.80	3.80	0	0
12-06-89	05532500	7.90	7.40	7.65	.50	6
12-07-89	05520500	1.90	1.09	1.495	.81	43
03-09-90	05526000	9.90	10.0	9.95	-.1	1
03-09-90	05540500	4.90	5.00	4.95	-.10	2
		Nitrogen, NH_4, total (mg/L as N) (00610)				
12-08-87	05526000	--	0.200	--	--	--
12-08-87	05540500	--	.300	--	--	--
03-08-88	05520500	--	<.100	--	--	--
03-10-88	05532500	--	.820	--	--	--
06-07-88	05536995	--	1.24	--	--	--
06-09-88	05550000	--	<.100	--	--	--
09-10-88	05552500	--	<.100	--	--	--
12-07-88	05536995	--	1.20	--	--	--
12-07-88	05550000	--	.150	--	--	--
06-05-89	05552500	0.040	.050	0.045	-0.010	25
06-08-89	05526000	.080	<.100	--	--	--
08-30-89	05543500	.210	.230	.220	-.020	10
09-01-89	05540500	.250	.320	.285	-.070	28
12-06-89	05532500	.470	.500	.485	-.030	6
12-07-89	05520500	.080	.100	.090	-.020	25
03-09-90	05526000	.170	.310	.240	-.140	82
03-09-90	05540500	.430	.480	.455	-.050	12

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Nitrogen, NH_4, dissolved (mg/L as N) (00608)			
12-08-87	05526000	0.200	0.190	0.195	0.010	5
12-08-87	05540500	.280	.270	.275	.010	4
03-08-88	05520500	.060	<.100	--	--	--
03-10-88	05532500	.820	.790	.805	.030	4
06-07-88	05536995	1.30	1.22	1.26	.08	6
06-09-88	05550000	.010	<.100	--	--	--
09-10-88	05552500	--	<.100	--	--	--
12-07-88	05536995	.950	1.00	.975	-.05	5
12-07-88	05550000	.120	.120	.120	0	0
06-05-89	05552500	.040	.040	.040	0	0
06-08-89	05526000	.070	<.100	--	--	--
08-30-89	05543500	.210	.220	.215	-.010	5
09-01-89	05540500	.190	.230	.210	-.040	21
12-06-89	05532500	.470	.480	.475	-.010	2
12-07-89	05520500	.080	<.100	--	--	--
03-09-90	05526000	.100	.250	.175	-.150	150
03-09-90	05540500	.340	.410	.375	-.070	21
			Nitrogen, total kjeldahl (mg/L as N) (00625)			
12-08-87	05526000	--	1.4	--	--	--
12-08-87	05540500	--	1.9	--	--	--
03-08-88	05520500	0.60	.70	0.65	-0.10	17
03-10-88	05532500	1.8	2.0	1.9	-.2	11
06-07-88	05536995	1.5	2.7	2.1	-1.2	80
06-09-88	05550000	1.2	2.6	1.9	-1.4	117
09-10-88	05552500	--	2.6	--	--	--
12-07-88	05536995	2.5	2.0	2.25	.5	20
12-07-88	05550000	1.7	1.7	1.7	0	0
06-05-89	05552500	2.1	1.7	1.9	.4	19
06-08-89	05526000	1.2	1.5	1.35	-.3	25
08-30-89	05543500	1.3	1.2	1.25	.1	8
09-01-89	05540500	2.4	2.2	2.3	.2	8
12-06-89	05532500	1.7	1.9	1.8	-.2	12
12-07-89	05520500	.60	.20	.40	.40	67
03-09-90	05526000	1.3	1.9	1.6	-.6	46
03-09-90	05540500	1.3	3.0	2.15	-1.7	131

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Phosphorus, total (mg/L as P) (00665)			
12-08-87	05526000	--	0.160	--	--	--
12-08-87	05540500	--	.500	--	--	--
03-08-88	05520500	0.040	.060	0.050	-0.020	50
03-10-88	05532500	.570	.610	.590	-.040	7
06-07-88	05536995	.600	.590	.595	.010	2
06-09-88	05550000	.150	.290	.220	-.140	93
09-10-88	05552500	--	.300	--	--	--
12-07-88	05536995	.830	1.60	1.215	-.77	93
12-07-88	05550000	.100	.100	.100	0	0
06-05-89	05552500	.160	.280	.220	-.120	75
06-08-89	05526000	.100	.190	.145	-.090	90
08-30-89	05543500	.480	.460	.470	.020	4
09-01-89	05540500	1.10	1.10	1.10	0	0
12-06-89	05532500	1.60	1.60	1.60	0	0
12-07-89	05520500	.040	.040	.040	0	0
03-09-90	05526000	.140	.220	.180	-.080	57
03-09-90	05540500	.340	.620	.480	-.280	82
			Phosphorus, dissolved (mg/L as P) (00666)			
12-08-87	05526000	--	0.110	--	--	--
12-08-87	05540500	--	.320	--	--	--
03-08-88	05520500	0.020	.010	0.015	0.010	50
03-10-88	05532500	.520	.520	.520	0	0
06-07-88	05536995	.460	.450	.455	.010	2
06-09-88	05550000	.020	.100	.060	-.080	400
09-10-88	05552500	--	.030	--	--	--
12-07-88	05536995	.700	1.30	1.00	-.600	86
12-07-88	05550000	.010	<.010	--	--	--
06-05-89	05552500	.070	.070	.070	0	0
06-08-89	05526000	.070	.060	.065	.010	14
08-30-89	05543500	.360	.340	.350	.020	6
09-01-89	05540500	.600	.730	.665	-.130	22
12-06-89	05532500	1.40	1.47	1.435	-.07	5
12-07-89	05520500	<.010	.030	--	--	--
03-09-90	05526000	.070	.090	.080	-.020	29
03-09-90	05540500	.250	.310	.280	-.060	24

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Aluminum, total recoverable (µg/L as Al) (01105)				
12-08-87	05526000	--	1,800	--	--	--
12-08-87	05540500	--	1,900	--	--	--
03-08-88	05520500	220	170	195	50	23
03-10-88	05532500	250	200	225	50	20
06-07-88	05536995	170	330	250	-160	94
06-09-88	05550000	480	290	385	190	40
09-10-88	05552500	330	530	430	-200	61
12-07-88	05536995	250	280	265	-30	12
12-07-88	05550000	90	120	105	-30	33
06-05-89	05552500	1,600	2,700	2,150	-1,100	69
06-08-89	05526000	4,500	4,200	4,350	300	7
08-30-89	05543500	630	470	550	160	25
09-01-89	05540500	7,700	4,800	6,250	2,900	38
12-06-89	05532500	160	220	190	-60	38
12-07-89	05520500	30	110	70	-80	267
03-09-90	05526000	5,300	4,100	4,700	1,200	23
03-09-90	05540500	7,400	6,400	6,900	1,000	14
		Aluminum, dissolved (µg/L as Al) (01106)				
12-08-87	05526000	--	<50	--	--	--
12-08-87	05540500	--	<50	--	--	--
03-08-88	05520500	<10	<50	--	--	--
03-10-88	05532500	<10	<50	--	--	--
06-07-88	05536995	40	<50	--	--	--
06-09-88	05550000	20	<50	--	--	--
09-10-88	05552500	20	<50	--	--	--
12-07-88	05536995	200	<50	--	--	--
12-07-88	05550000	<10	<50	--	--	--
06-05-89	05552500	<10	300	--	--	--
06-08-89	05526000	10	1,500	755	-1,490	14,900
08-30-89	05543500	<10	100	--	--	--
09-01-89	05540500	20	110	60	-90	450
12-06-89	05532500	20	80	50	-60	300
12-07-89	05520500	<10	70	--	--	--
03-09-90	05526000	60	60	60	0	0
03-09-90	05540500	60	<50	--	--	--

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Barium, total recoverable (µg/L as Ba) (01007)				
12-08-87	05526000	--	60	--	--	--
12-08-87	05540500	--	70	--	--	--
03-08-88	05520500	<100	50	--	--	--
03-10-88	05532500	<100	30	--	--	--
06-07-88	05536995	<100	20	--	--	--
06-09-88	05550000	100	70	85	30	30
09-10-88	05552500	<100	50	--	--	--
12-07-88	05536995	100	20	60	80	80
12-07-88	05550000	100	50	75	50	50
06-05-89	05552500	100	110	105	-10	10
06-08-89	05526000	100	80	90	20	20
08-30-89	05543500	<100	40	--	--	--
09-01-89	05540500	200	90	145	110	55
12-06-89	05532500	<100	30	--	--	--
12-07-89	05520500	<100	50	--	--	--
03-09-90	05526000	<100	70	--	--	--
03-09-90	05540500	<100	100	--	--	--
		Barium, dissolved (µg/L as Ba) (01005)				
12-08-87	05526000	41	44	42.5	-3	7
12-08-87	05540500	39	44	41.5	-5	13
03-08-88	05520500	48	48	48	0	0
03-10-88	05532500	36	31	33.5	5	14
06-07-88	05536995	15	23	19	-8	53
06-09-88	05550000	53	56	54.5	-3	6
09-10-88	05552500	43	38	40.5	5	12
12-07-88	05536995	24	17	20.5	7	29
12-07-88	05550000	50	49	49.5	1	2
06-05-89	05552500	75	80	77.5	-5	7
06-08-89	05526000	54	61	57.5	-7	13
08-30-89	05543500	26	29	27.5	-3	12
09-01-89	05540500	38	36	37	2	5
12-06-89	05532500	26	27	26.5	-1	4
12-07-89	05520500	44	46	45	-2	5
03-09-90	05526000	2.0	39	20.5	-37	1,850
03-09-90	05540500	40	41	40.5	-1	2

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Beryllium, total recoverable (µg/L as Be) (01012)			
12-08-87	05526000	--	<0.5	--	--	--
12-08-87	05540500	--	<.5	--	--	--
03-08-88	05520500	<10	<.5	--	--	--
03-10-88	05532500	<10	<.5	--	--	--
06-07-88	05536995	<10	<.5	--	--	--
06-09-88	05550000	<10	<.5	--	--	--
09-10-88	05552500	<10	<.5	--	--	--
12-07-88	05536995	<10	<.5	--	--	--
12-07-88	05550000	<10	<.5	--	--	--
06-05-89	05552500	<10	<.5	--	--	--
06-08-89	05526000	<10	<.5	--	--	--
08-30-89	05543500	<10	<.5	--	--	--
09-01-89	05540500	<10	<.5	--	--	--
12-06-89	05532500	<10	<.5	--	--	--
12-07-89	05520500	<10	<.5	--	--	--
03-09-90	05526000	<10	<.5	--	--	--
03-09-90	05540500	<10	<.5	--	--	--
			Beryllium, dissolved (µg/L as Be) (01010)			
12-08-87	05526000	<0.5	<0.5	--	--	--
12-08-87	05540500	<.5	<.5	--	--	--
03-08-88	05520500	<.5	<.5	--	--	--
03-10-88	05532500	<.5	<.5	--	--	--
06-07-88	05536995	<.5	<.5	--	--	--
06-09-88	05550000	<.5	<.5	--	--	--
09-10-88	05552500	<.5	<.5	--	--	--
12-07-88	05536995	<.5	<.5	--	--	--
12-07-88	05550000	<.5	<.5	--	--	--
06-05-89	05552500	<.5	<.5	--	--	--
06-08-89	05526000	<.5	<.5	--	--	--
08-30-89	05543500	<.5	<.5	--	--	--
09-01-89	05540500	<.5	<.5	--	--	--
12-06-89	05532500	<.5	<.5	--	--	--
12-07-89	05520500	<.5	<.5	--	--	--
03-09-90	05526000	<.5	<.5	--	--	--
03-09-90	05540500	<.5	<.5	--	--	--

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Boron, total recoverable (µg/L as B) (01022)			
12-08-87	05526000	--	50	--	--	--
12-08-87	05540500	--	120	--	--	--
03-08-88	05520500	<10	<50	--	--	--
03-10-88	05532500	200	150	175	50	25
06-07-88	05536995	190	200	195	-10	5
06-09-88	05550000	70	70	70	0	0
09-10-88	05552500	170	200	185	-30	18
12-07-88	05536995	170	190	180	-20	12
12-07-88	05550000	80	60	70	20	25
06-05-89	05552500	80	80	80	0	0
06-08-89	05526000	100	50	75	50	50
08-30-89	05543500	140	160	150	-20	14
09-01-89	05540500	180	180	180	0	0
12-06-89	05532500	410	390	400	20	5
12-07-89	05520500	50	60	55	-10	20
03-09-90	05526000	70	<50	--	--	--
03-09-90	05540500	120	90	105	30	25
			Boron, dissolved (µg/L as B) (01020)			
12-08-87	05526000	--	50	--	--	--
12-08-87	05540500	--	120	--	--	--
03-08-88	05520500	40	<50	--	--	--
03-10-88	05532500	190	150	170	40	21
06-07-88	05536995	200	230	215	-30	15
06-09-88	05550000	60	70	65	-10	17
09-10-88	05552500	190	190	190	0	0
12-07-88	05536995	180	--	--	--	--
12-07-88	05550000	60	--	--	--	--
06-05-89	05552500	80	70	75	10	12
06-08-89	05526000	80	50	65	30	38
08-30-89	05543500	160	160	160	0	0
09-01-89	05540500	180	160	170	20	11
12-06-89	05532500	410	390	400	20	5
12-07-89	05520500	40	60	50	-20	50
03-09-90	05526000	40	<50	--	--	--
03-09-90	05540500	90	80	85	10	11

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Cadmium, total recoverable (µg/L as Cd) (01027)			
12-08-87	05526000	--	0.37	--	--	--
12-08-87	05540500	--	.25	--	--	--
03-08-88	05520500	<1	.38	--	--	--
03-10-88	05532500	<1	.28	--	--	--
06-07-88	05536995	1	.57	1.785	0.43	43
06-09-88	05550000	<1	.32	--	--	--
09-10-88	05552500	2	.11	1.055	1.89	94
12-07-88	05536995	<1	.60	--	--	--
12-07-88	05550000	<1	<.10	--	--	--
06-05-89	05552500	<1	.10	--	--	--
06-08-89	05526000	<1	<.10	--	--	--
08-30-89	05543500	<1	.50	--	--	--
09-01-89	05540500	<1	.40	--	--	--
12-06-89	05532500	<1	.20	--	--	--
12-07-89	05520500	<1	.10	--	--	--
03-09-90	05526000	<1	.12	--	--	--
03-09-90	05540500	<1	.21	--	--	--
			Cadmium, dissolved (µg/L as Cd) (01025)			
12-08-87	05526000	<1	0.12	--	--	--
12-08-87	05540500	<1	.26	--	--	--
03-08-88	05520500	<1	.22	--	--	--
03-10-88	05532500	<1	.17	--	--	--
06-07-88	05536995	<1	.19	--	--	--
06-09-88	05550000	<1	.16	--	--	--
09-10-88	05552500	<1	<.10	--	--	--
12-07-88	05536995	<1	.10	--	--	--
12-07-88	05550000	<1	.10	--	--	--
06-05-89	05552500	<1	.10	--	--	--
06-08-89	05526000	<1	<.10	--	--	--
08-30-89	05543500	<1	<.10	--	--	--
09-01-89	05540500	<1	.20	--	--	--
12-06-89	05532500	<1	.10	--	--	--
12-07-89	05520500	<1	<.10	--	--	--
03-09-90	05526000	<1	.15	--	--	--
03-09-90	05540500	<3	<.10	--	--	--

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Chromium, total recoverable (µg/L as Cr) (01034)				
12-08-87	05526000	--	<5	--	--	--
12-08-87	05540500	--	6	--	--	--
03-08-88	05520500	2	<5	--	--	--
03-10-88	05532500	6	<5	--	--	--
06-07-88	05536995	9	9	9	0	0
06-09-88	05550000	3	<5	--	--	--
09-10-88	05552500	3	9	6	-6	200
12-07-88	05536995	6	8	7	-2	33
12-07-88	05550000	2	5	3.5	-3	150
06-05-89	05552500	4	12	8	-8	200
06-08-89	05526000	7	14	10.5	-7	100
08-30-89	05543500	5	12	8.5	-7	140
09-01-89	05540500	11	<5	--	--	--
12-06-89	05532500	6	6	6	0	0
12-07-89	05520500	11	<5	--	--	--
03-09-90	05526000	7	8	7.5	-1	14
03-09-90	05540500	12	14	13	-2	17
		Chromium, dissolved (µg/L as Cr) (01030)				
12-08-87	05526000	<5	10	--	--	--
12-08-87	05540500	<5	<5	--	--	--
03-08-88	05520500	<5	<5	--	--	--
03-10-88	05532500	<5	<5	--	--	--
06-07-88	05536995	5	<5	--	--	--
06-09-88	05550000	<5	<5	--	--	--
09-10-88	05552500	<5	6	--	--	--
12-07-88	05536995	5	<5	--	--	--
12-07-88	05550000	<5	--	--	--	--
06-05-89	05552500	<5	6	--	--	--
06-08-89	05526000	<5	10	--	--	--
08-30-89	05543500	<5	<5	--	--	--
09-01-89	05540500	<5	<5	--	--	--
12-06-89	05532500	5	6	5.5	-1	20
12-07-89	05520500	<5	<5	--	--	--
03-09-90	05526000	<5	<5	--	--	--
03-09-90	05540500	<5	<5	--	--	--

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Cobalt, dissolved (µg/L as Co) (01035)			
12-08-87	05526000	<3	<5	--	--	--
12-08-87	05540500	<3	<5	--	--	--
03-08-88	05520500	<3	<5	--	--	--
03-10-88	05532500	<3	<5	--	--	--
06-07-88	05536995	<3	<5	--	--	--
06-09-88	05550000	<3	<5	--	--	--
09-10-88	05552500	<3	<5	--	--	--
12-07-88	05536995	<3	<5	--	--	--
12-07-88	05550000	<3	<5	--	--	--
06-05-89	05552500	<3	<5	--	--	--
06-08-89	05526000	<3	<5	--	--	--
08-30-89	05543500	<3	<5	--	--	--
09-01-89	05540500	<3	<5	--	--	--
12-06-89	05532500	<3	<5	--	--	--
12-07-89	05520500	<3	<5	--	--	--
03-09-90	05526000	<3	<5	--	--	--
03-09-90	05540500	<3	<5	--	--	--
			Copper, total recoverable (µg/L as Cu) (01042)			
12-08-87	05526000	--	<5	--	--	--
12-08-87	05540500	--	16	--	--	--
03-08-88	05520500	20	<5	--	--	--
03-10-88	05532500	20	<5	--	--	--
06-07-88	05536995	20	<5	--	--	--
06-09-88	05550000	<10	<5	--	--	--
09-10-88	05552500	<10	<5	--	--	--
12-07-88	05536995	10	6	8	4	40
12-07-88	05550000	10	<5	--	--	--
06-05-89	05552500	<10	5	--	--	--
06-08-89	05526000	<10	10	--	--	--
08-30-89	05543500	10	<5	--	--	--
09-01-89	05540500	30	13	21.5	17	57
12-06-89	05532500	<10	6	--	--	--
12-07-89	05520500	<10	<5	--	--	--
03-09-90	05526000	20	5	12.5	20	75
03-09-90	05540500	30	21	25.5	9	30

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Copper, dissolved (µg/L as Cu) (01040)			
12-08-87	05526000	<10	<5	--	--	--
12-08-87	05540500	<10	<5	--	--	--
03-08-88	05520500	<10	<5	--	--	--
03-10-88	05532500	<10	<5	--	--	--
06-07-88	05536995	<10	<5	--	--	--
06-09-88	05550000	<10	<5	--	--	--
09-10-88	05552500	<10	<5	--	--	--
12-07-88	05536995	<10	<5	--	--	--
12-07-88	05550000	<10	<5	--	--	--
06-05-89	05552500	<10	<5	--	--	--
06-08-89	05526000	<10	--	--	--	
08-30-89	05543500	<10	<5	--	--	--
09-01-89	05540500	<10	<5	--	--	--
12-06-89	05532500	<10	<5	--	--	--
12-07-89	05520500	<10	<5	--	--	--
03-09-90	05526000	<10	<5	--	--	--
03-09-90	05540500	<10	<5	--	--	--
			Iron, total recoverable (µg/L as Fe) (01045)			
12-08-87	05526000	--	2,300	--	--	--
12-08-87	05540500	--	3,400	--	--	--
03-08-88	05520500	1,100	1,100	1,100	0	0
03-10-88	05532500	480	430	455	50	10
06-07-88	05536995	410	1,100	755	-690	168
06-09-88	05550000	920	650	785	270	29
09-10-88	05552500	630	770	700	-140	22
12-07-88	05536995	560	530	545	30	5
12-07-88	05550000	240	160	200	80	33
06-05-89	05552500	2,300	2,700	2,500	-400	17
06-08-89	05526000	4,900	4,000	4,450	900	18
08-30-89	05543500	800	700	750	100	12
09-01-89	05540500	10,000	7,200	8,600	2,800	28
12-06-89	05532500	380	320	350	60	16
12-07-89	05520500	540	510	525	30	6
03-09-90	05526000	5,700	4,400	5,050	1,300	23
03-09-90	05540500	13,000	9,300	11,150	3,700	28

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Iron, dissolved (µg/L as Fe) (01046)			
12-08-87	05526000	26	<50	--	--	--
12-08-87	05540500	27	<50	--	--	--
03-08-88	05520500	11	<50	--	--	--
03-10-88	05532500	16	<50	--	--	--
06-07-88	05536995	61	<50	--	--	--
06-09-88	05550000	13	<50	--	--	--
09-10-88	05552500	9	<50	--	--	--
12-07-88	05536995	410	77	243.5	333	81
12-07-88	05550000	7	<50	--	--	--
06-05-89	05552500	8	<50	--	--	--
06-08-89	05526000	25	<50	--	--	--
08-30-89	05543500	6	<50	--	--	--
09-01-89	05540500	35	59	47	-24	69
12-06-89	05532500	34	<50	--	--	--
12-07-89	05520500	16	<50	--	--	--
03-09-90	05526000	<10	<50	--	--	--
03-09-90	05540500	<50	<50	--	--	--
			Lead, total recoverable (µg/L as Pb) (01051)			
12-08-87	05526000	--	<5	--	--	--
12-08-87	05540500	--	9	--	--	--
03-08-88	05520500	<5	<5	--	--	--
03-10-88	05532500	<5	<5	--	--	--
06-07-88	05536995	<5	10	--	--	--
06-09-88	05550000	<5	<5	--	--	--
09-10-88	05552500	<5	<5	--	--	--
12-07-88	05536995	<5	7	--	--	--
12-07-88	05550000	<5	<5	--	--	--
06-05-89	05552500	6	10	8	-4	67
06-08-89	05526000	6	<5	--	--	--
08-30-89	05543500	12	6	9	6	50
09-01-89	05540500	11	13	12	-2	18
12-06-89	05532500	3	<5	--	--	--
12-07-89	05520500	<1	<5	--	--	--
03-09-90	05526000	6	<5	--	--	--
03-09-90	05540500	19	12	15.5	7	37

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Lead, dissolved (µg/L as Pb) (01049)			
12-08-87	05526000	<10	<5	--	--	--
12-08-87	05540500	<10	<5	--	--	--
03-08-88	05520500	<10	<5	--	--	--
03-10-88	05532500	<10	<5	--	--	--
06-07-88	05536995	<10	<5	--	--	--
06-09-88	05550000	<10	<5	--	--	--
09-10-88	05552500	<10	<5	--	--	--
12-07-88	05536995	<10	<5	--	--	--
12-07-88	05550000	<10	<5	--	--	--
06-05-89	05552500	<10	<5	--	--	--
06-08-89	05526000	<10	<5	--	--	--
08-30-89	05543500	<10	<5	--	--	--
09-01-89	05540500	<10	<5	--	--	--
12-06-89	05532500	<10	<5	--	--	--
12-07-89	05520500	<10	<5	--	--	--
03-09-90	05526000	<10	<5	--	--	--
03-09-90	05540500	<10	<5	--	--	--
			Manganese, total recoverable (µg/L as Mn) (01055)			
12-08-87	05526000	--	68	--	--	--
12-08-87	05540500	--	120	--	--	--
03-08-88	05520500	140	120	130	20	14
03-10-88	05532500	100	83	91.5	17	17
06-07-88	05536995	40	42	41	-2	5
06-09-88	05550000	120	110	115	10	8
09-10-88	05552500	80	99	89.5	-19	24
12-07-88	05536995	40	41	40.5	-1	2
12-07-88	05550000	30	21	25.5	9	30
06-05-89	05552500	140	110	125	30	21
06-08-89	05526000	120	110	115	10	8
08-30-89	05543500	50	51	50.5	-1	2
09-01-89	05540500	280	290	285	-10	4
12-06-89	05532500	40	36	38	4	10
12-07-89	05520500	70	69	69.5	1	1
03-09-90	05526000	70	69	69.5	1	1
03-09-90	05540500	240	230	235	10	4

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Manganese, dissolved (µg/L as Mn) (01056)			
12-08-87	05526000	16	19	17.5	-3	19
12-08-87	05540500	21	22	21.5	-1	5
03-08-88	05520500	59	58	58.5	1	2
03-10-88	05532500	75	73	74	2	3
06-07-88	05536995	30	23	26.5	7	23
06-09-88	05550000	5	5	5	0	0
09-10-88	05552500	2	<5	--	--	--
12-07-88	05536995	40	35	37.5	5	12
12-07-88	05550000	2	<5	--	--	--
06-05-89	05552500	2	<5	--	--	--
06-08-89	05526000	6	<5	--	--	--
08-30-89	05543500	5	6	5.5	-1	20
09-01-89	05540500	19	19	19	0	0
12-06-89	05532500	33	31	32	2	6
12-07-89	05520500	46	45	45.5	1	2
03-09-90	05526000	<15	12	--	--	--
03-09-90	05540500	<30	32	--	--	--
			Mercury, total recoverable (µg/L as Hg) (71900)			
12-08-87	05526000	--	1.2	--	--	--
12-08-87	05540500	--	.23	--	--	--
03-08-88	05520500	<0.10	--	--	--	--
03-10-88	05532500	<.10	--	--	--	--
06-07-88	05536995	<.10	--	--	--	--
06-09-88	05550000	--	--	--	--	--
09-10-88	05552500	.50	--	--	--	--
12-07-88	05536995	<.10	--	--	--	--
12-07-88	05550000	<.10	--	--	--	--
06-05-89	05552500	<.10	--	--	--	--
06-08-89	05526000	<.10	<.05	--	--	--
08-30-89	05543500	<.10	--	--	--	--
09-01-89	05540500	.10	--	--	--	--
12-06-89	05532500	<.10	--	--	--	--
12-07-89	05520500	.20	--	--	--	--
03-09-90	05526000	<.10	<.05	--	--	--
03-09-90	05540500	<.10	<.05	--	--	--

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Mercury, dissolved (µg/L as Hg) (71890)				
12-08-87	05526000	--	<0.05	--	--	--
12-08-87	05540500	--	.10	--	--	--
03-08-88	05520500	<0.1	--	--	--	--
03-10-88	05532500	<.1	--	--	--	--
06-07-88	05536995	<.1	--	--	--	--
06-09-88	05550000	--	--	--	--	--
09-10-88	05552500	.3	--	--	--	--
12-07-88	05536995	<.1	--	--	--	--
12-07-88	05550000	<.1	--	--	--	--
06-05-89	05552500	<.1	--	--	--	--
06-08-89	05526000	<.1	<.05	--	--	--
08-30-89	05543500	.2	--	--	--	--
09-01-89	05540500	<.1	--	--	--	--
12-06-89	05532500	.3	--	--	--	--
12-07-89	05520500	.2	--	--	--	--
03-09-90	05526000	.1	<.05	--	--	--
03-09-90	05540500	.1	<.05	--	--	--
		Nickel, total recoverable (µg/L as Ni) (01067)				
12-08-87	05526000	--	<5	--	--	--
12-08-87	05540500	--	7	--	--	--
03-08-88	05520500	6	<5	--	--	--
03-10-88	05532500	7	6	6.5	1	14
06-07-88	05536995	25	18	21.5	7	28
06-09-88	05550000	5	<5	--	--	--
09-10-88	05552500	6	<5	--	--	--
12-07-88	05536995	46	36	41	10	22
12-07-88	05550000	4	<5	--	--	--
06-05-89	05552500	6	14	10	-8	133
06-08-89	05526000	11	<5	--	--	--
08-30-89	05543500	10	<5	--	--	--
09-01-89	05540500	12	<5	--	--	--
12-06-89	05532500	6	<5	--	--	--
12-07-89	05520500	2	<5	--	--	--
03-09-90	05526000	8	<5	--	--	--
03-09-90	05540500	13	5	9	8	62

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nickel, dissolved (µg/L as Ni) (01065)				
12-08-87	05526000	10	5	7.5	5	50
12-08-87	05540500	10	5	7.5	5	50
03-08-88	05520500	10	5	7.5	5	50
03-10-88	05532500	10	11	10.5	-1	10
06-07-88	05536995	20	14	17	6	30
06-09-88	05550000	10	5	7.5	5	50
09-10-88	05552500	10	5	7.5	5	50
12-07-88	05536995	40	33	36.5	7	18
12-07-88	05550000	<10	<5	--	--	--
06-05-89	05552500	<10	10	--	--	--
06-08-89	05526000	<10	<5	--	--	--
08-30-89	05543500	<10	<5	--	--	--
09-01-89	05540500	<10	<5	--	--	--
12-06-89	05532500	<10	<5	--	--	--
12-07-89	05520500	<10	<5	--	--	--
03-09-90	05526000	<10	<5	--	--	--
03-09-90	05540500	<10	<5	--	--	--
		Silver, total recoverable (µg/L as Ag) (01077)				
12-08-87	05526000	--	<3	--	--	--
12-08-87	05540500	--	<3	--	--	--
03-08-88	05520500	<1	<3	--	--	--
03-10-88	05532500	<1	<3	--	--	--
06-07-88	05536995	1	<3	--	--	--
06-09-88	05550000	<1	<3	--	--	--
09-10-88	05552500	<1	<3	--	--	--
12-07-88	05536995	<1	<3	--	--	--
12-07-88	05550000	<1	<3	--	--	--
06-05-89	05552500	<1	<3	--	--	--
06-08-89	05526000	<1	<3	--	--	--
08-30-89	05543500	<1	<3	--	--	--
09-01-89	05540500	<1	<3	--	--	--
12-06-89	05532500	<1	<3	--	--	--
12-07-89	05520500	<1	<3	--	--	--
03-09-90	05526000	<1	<3	--	--	--
03-09-90	05540500	<1	<3	--	--	--

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Silver, dissolved (µg/L as Ag) (01075)			
12-08-87	05526000	<1	<3	--	--	--
12-08-87	05540500	<1	<3	--	--	--
03-08-88	05520500	<1	<3	--	--	--
03-10-88	05532500	<1	<5	--	--	--
06-07-88	05536995	1	<3	--	--	--
06-09-88	05550000	<1	<3	--	--	--
09-10-88	05552500	<1	<3	--	--	--
12-07-88	05536995	<1	<3	--	--	--
12-07-88	05550000	<1	<3	--	--	--
06-05-89	05552500	<1	<3	--	--	--
06-08-89	05526000	<1	<3	--	--	--
08-30-89	05543500	<2	<3	--	--	--
09-01-89	05540500	<1	<3	--	--	--
12-06-89	05532500	<1	<3	--	--	--
12-07-89	05520500	<1	<3	--	--	--
03-09-90	05526000	<1	<3	--	--	--
03-09-90	05540500	<1	<3	--	--	--
			Strontium, dissolved (µg/L as Sr) (01080)			
12-08-87	05526000	200	200	200	0	0
12-08-87	05540500	210	220	215	-10	5
03-08-88	05520500	130	140	135	-10	8
03-10-88	05532500	450	430	440	20	4
06-07-88	05536995	220	290	255	-70	32
06-09-88	05550000	450	460	455	-10	2
09-10-88	05552500	310	320	315	-10	3
12-07-88	05536995	240	240	240	0	0
12-07-88	05550000	890	--	--	--	--
06-05-89	05552500	290	280	285	10	3
06-08-89	05526000	210	200	205	10	5
08-30-89	05543500	230	--	--	--	--
09-01-89	05540500	280	280	280	0	0
12-06-89	05532500	810	--	--	--	--
12-07-89	05520500	140	140	140	0	0
03-09-90	05526000	190	190	190	0	0
03-09-90	05540500	180	190	185	-10	6

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Vanadium, dissolved (µg/L as V) (01085)			
12-08-87	05526000	<6	<5	--	--	--
12-08-87	05540500	<6	<5	--	--	--
03-08-88	05520500	<6	<5	--	--	--
03-10-88	05532500	<6	<5	--	--	--
06-07-88	05536995	<6	<5	--	--	--
06-09-88	05550000	<6	<5	--	--	--
09-10-88	05552500	<6	<5	--	--	--
12-07-88	05536995	<6	<5	--	--	--
12-07-88	05550000	<6	<5	--	--	--
06-05-89	05552500	<6	<5	--	--	--
06-08-89	05526000	<6	<5	--	--	--
08-30-89	05543500	<6	<5	--	--	--
09-01-89	05540500	<6	<5	--	--	--
12-06-89	05532500	<6	<5	--	--	--
12-07-89	05520500	<6	<5	--	--	--
03-09-90	05526000	<6	<5	--	--	--
03-09-90	05540500	<6	<5	--	--	--
			Zinc, total recoverable (µg/L as Zn) (01092)			
12-08-87	05526000	--	<100	--	--	--
12-08-87	05540500	--	<100	--	--	--
03-08-88	05520500	10	<50	--	--	--
03-10-88	05532500	30	<50	--	--	--
06-07-88	05536995	60	<100	--	--	--
06-09-88	05550000	30	<100	--	--	--
09-10-88	05552500	20	<50	--	--	--
12-07-88	05536995	60	<100	--	--	--
12-07-88	05550000	<10	<50	--	--	--
06-05-89	05552500	30	<50	--	--	--
06-08-89	05526000	30	<50	--	--	--
08-30-89	05543500	40	<50	--	--	--
09-01-89	05540500	80	250	165	-170	212
12-06-89	05532500	50	<50	--	--	--
12-07-89	05520500	20	<50	--	--	--
03-09-90	05526000	30	<50	--	--	--
03-09-90	05540500	80	<100	--	--	--

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
			Zinc, dissolved (µg/L as Zn) (01090)			
12-08-87	05526000	3	<50	--	--	--
12-08-87	05540500	22	<50	--	--	--
03-08-88	05520500	8	<50	--	--	--
03-10-88	05532500	110	<50	--	--	--
06-07-88	05536995	34	<50	--	--	--
06-09-88	05550000	11	<50	--	--	--
09-10-88	05552500	22	<50	--	--	--
12-07-88	05536995	64	<100	--	--	--
12-07-88	05550000	32	<50	--	--	--
06-05-89	05552500	15	<50	--	--	--
06-08-89	05526000	8	<50	--	--	--
08-30-89	05543500	15	<50	--	--	--
09-01-89	05540500	14	130	72	-116	829
12-06-89	05532500	46	<50	--	--	--
12-07-89	05520500	25	<50	--	--	--
03-09-90	05526000	<3	<50	--	--	--
03-09-90	05540500	<8	<100	--	--	--
			Carbon, organic, total (mg/L as C) (00680)			
12-08-87	05526000	--	6.9	--	--	--
12-08-87	05540500	--	6.8	--	--	--
03-08-88	05520500	6.8	5.5	6.15	1.3	19
03-10-88	05532500	11	9.5	10.25	1.5	14
06-07-88	05536995	10	8.1	9.05	1.9	19
06-09-88	05550000	18	13	15.5	5	28
09-10-88	05552500	--	17	--	--	--
12-07-88	05536995	7.1	7.4	7.25	-.3	4
12-07-88	05550000	13	12	12.5	1	8
06-05-89	05552500	10	10	10	0	0
06-08-89	05526000	9.6	9.8	9.7	-.2	2
08-30-89	05543500	5.8	5.8	5.8	0	0
09-01-89	05540500	17	10	13.5	7	41
12-06-89	05532500	8.5	6.8	7.65	1.7	20
12-07-89	05520500	4.8	5.2	5.0	-.4	8
03-09-90	05526000	8.6	8.6	8.6	0	0
03-09-90	05540500	13	12	12.5	1	8

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Hardness (Ca, Mg) (mg/L as $CaCo_3$) (00900)				
12-08-87	05526000	310	320	315	-10	3
12-08-87	05540500	290	300	295	-10	3
03-08-88	05520500	330	320	325	10	3
03-10-88	05532500	350	330	340	20	6
06-07-88	05536995	210	230	220	-20	10
06-09-88	05550000	300	280	290	20	7
09-10-88	05552500	240	250	245	-10	4
12-07-88	05536995	250	250	250	0	0
12-07-88	05550000	380	380	380	0	0
06-05-89	05552500	300	310	305	-10	3
06-08-89	05526000	310	310	310	0	0
08-30-89	05543500	220	220	220	0	0
09-01-89	05540500	220	220	220	0	0
12-06-89	05532500	350	340	345	10	3
12-07-89	05520500	340	340	340	0	0
03-09-90	05526000	--	290	--	--	--
03-09-90	05540500	--	260	--	--	--
		Cyanide, total (mg/L as CN) (00720)				
12-08-87	05526000	--	<0.005	--	--	--
12-08-87	05540500	--	<.005	--	--	--
03-08-88	05520500	<0.010	<.005	--	--	--
03-10-88	05532500	<.010	<.005	--	--	--
06-07-88	05536995	<.010	.010	--	--	--
06-09-88	05550000	<.010	<.005	--	--	--
09-10-88	05552500	<.010	<.005	--	--	--
12-07-88	05536995	<.010	<.005	--	--	--
12-07-88	05550000	<.010	<.005	--	--	--
06-05-89	05552500	<.010	<.005	--	--	--
06-08-89	05526000	<.010	.005	--	--	--
08-30-89	05543500	.010	<.005	--	--	--
09-01-89	05540500	<.010	<.005	--	--	--
12-06-89	05532500	<.010	<.005	--	--	--
12-07-89	05520500	<.010	<.005	--	--	--
03-09-90	05526000	<.010	<.005	--	--	--
03-09-90	05540500	<.010	<.005	--	--	--

Table 8.--Results of quality-assurance and quality-control measures: laboratory-comparison samples--Continued

Date	Station number	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Cyanide, dissolved (mg/L as CN) (00723)				
12-08-87	05526000	--	<0.005	--	--	--
12-08-87	05540500	--	<.005	--	--	--
03-08-88	05520500	<0.010	<.005	--	--	--
03-10-88	05532500	<.010	<.005	--	--	--
06-07-88	05536995	<.010	9	--	--	--
06-09-88	05550000	<.010	<.005	--	--	--
09-10-88	05552500	--	<.005	--	--	--
12-07-88	05536995	<.010	<.005	--	--	--
12-07-88	05550000	<.010	<.005	--	--	--
06-05-89	05552500	<.010	1.00	--	--	--
06-08-89	05526000	<.010	<.005	--	--	--
08-30-89	05543500	<.010	<5	--	--	--
09-01-89	05540500	<.010	<.005	--	--	--
12-06-89	05532500	<.010	<5	--	--	--
12-07-89	05520500	<.010	<5	--	--	--
03-09-90	05526000	<.010	<5	--	--	--
03-09-90	05540500	<.010	<5	--	--	--

[1]Percent difference is defined as the absolute value of the IEPA laboratory result subtracted from the USGS laboratory result, and the difference divided by the USGS laboratory result.

Table 9.--Results of quality-assurance and quality-control measures: standard reference samples

[mg/L, milligrams per liter; µg/L, micrograms per liter; N, No; Y, Yes; IEPA, Illinois Environmental Protection Agency; USGS, U.S. Geological Survey; <, less than; >, greater than. Footnotes at end of table]

Sample date	Sample time	Constituent	WATSTORE code[1]	Laboratory result[2]	Standard reference sample		Difference from true value[4]	Percent difference from true value[5]	Within two standard deviations?	Analysis performed by
					True value[3]	Standard deviation				
				Major ions						
10-09-87	1100	Calcium, total (mg/L as Ca)	00916	11	82	4	71	87	N	IEPA
	1100	Calcium, dissolved (mg/L as Ca)	00915	13	82	4	69	84	N	IEPA
	1100	Magnesium, total (mg/L as Mg)	00927	1.9	58	2	56.1	97	N	IEPA
	1100	Magnesium, dissolved (mg/L as Mg)	00925	2.3	58	2	55.7	96	N	IEPA
	1100	Sodium, total (mg/L as Na)	00929	4.5	108	5	103.5	96	N	IEPA
	1100	Sodium, dissolved (mg/L as Na)	00930	5.1	108	5	102.9	95	N	IEPA
	1100	Potassium, total (mg/L as K)	00937	.93	6.9	.7	5.97	87	N	IEPA
	1100	Potassium, dissolved (mg/L as K)	00935	.75	6.9	.7	6.15	89	N	IEPA
	1100	Sulfate, total (mg/L as SO_4)	00946	217	420	16	203	48	N	IEPA
	1100	Sulfate, dissolved (mg/L as SO_4)	00945	217	420	16	203	48	N	IEPA
	1100	Chloride, dissolved (mg/L as Cl)	00940	32.0	44	2	12	27	N	IEPA
	1100	Fluoride, total (mg/L as F)	00951	.93	1.1	.1	.17	15	Y	IEPA
	1100	Fluoride, dissolved (mg/L as F)	00950	.92	1.1	.1	.18	16	Y	IEPA
11-03-88	1200	Calcium, dissolved (mg/L as Ca)	00915	190	202	15	12	6	Y	USGS
	1200	Magnesium, dissolved (mg/L as Mg)	00925	110	113	7	3	3	Y	USGS
	1200	Sodium, dissolved (mg/L as Na)	00930	310	323	17	13	4	Y	USGS
	1200	Potassium, dissolved (mg/L as K)	00935	4.6	5.2	.8	.6	12	Y	USGS
	1200	Fluoride, dissolved (mg/L as F)	00950	1.0	1.1	.1	.1	9	Y	USGS
	1200	Bromide, dissolved (mg/L as Br)	71870	.17	100	22	99.83	100	N	USGS
	1201	Sulfate, total (mg/L as SO_4)	00946	422	420	16	2	<1	Y	IEPA
	1201	Chloride, dissolved (mg/L as Cl)	00940	45	44	2	1	2	Y	IEPA
	1201	Fluoride, total (mg/L as F)	00951	1.02	1.10	.1	.08	7	Y	IEPA
03-24-89	1200	Calcium, total (mg/L as Ca)	00916	207	180	8	27	15	N	IEPA
	1200	Calcium, dissolved (mg/L as Ca)	00915	204	180	8	24	13	N	IEPA
	1200	Magnesium, total (mg/L as Mg)	00927	115	98	5	17	17	N	IEPA
	1200	Magnesium, dissolved (mg/L as Mg)	00925	113	98	5	15	15	N	IEPA
	1200	Sodium, total (mg/L as Na)	00929	337	281	12	56	20	N	IEPA
	1200	Sodium, dissolved (mg/L as Na)	00930	331	281	12	50	18	N	IEPA
	1200	Potassium, total (mg/L as K)	00937	2.9	4.5	.7	1.6	36	N	IEPA
	1200	Potassium, dissolved (mg/L as K)	00935	2.8	4.5	.7	1.7	38	N	IEPA
	1200	Sulfate, total (mg/L as SO_4)	00946	1,200	1,180	55	20	2	Y	IEPA
	1200	Chloride, dissolved (mg/L as Cl)	00940	79	79	2	0	0	Y	IEPA
	1200	Fluoride, total (mg/L as F)	00951	.86	.89	.07	.03	3	Y	IEPA

Table 9.--Results of quality-assurance and quality-control measures: standard reference samples--Continued

Sample date	Sample time	Constituent	WATSTORE code[1]	Laboratory result[2]	Standard reference sample		Difference from true value[4]	Percent difference from true value[5]	Within two standard deviations?	Analysis performed by
					True value[3]	Standard deviation				
				Major ions--Continued						
06-12-89	1355	Calcium, total (mg/L as Ca)	00916	211	43.3	2.1	167.7	387	N	IEPA
	1355	Calcium, dissolved (mg/L as Ca)	00915	72	43.3	2.1	28.7	66	N	IEPA
	1355	Magnesium, total (mg/L as Mg)	00927	117	28	1.1	89	318	N	IEPA
	1355	Magnesium, dissolved (mg/L as Mg)	00925	28	21.8	1.1	6.2	28	N	IEPA
	1355	Sodium, total (mg/L as Na)	00929	335	58.4	2.5	276.6	474	N	IEPA
	1355	Sodium, dissolved (mg/L as Na)	00930	79	58.4	2.5	20.6	35	N	IEPA
	1355	Potassium, total (mg/L as K)	00937	3.5	5.2	.8	1.7	33	N	IEPA
	1355	Potassium, dissolved (mg/L as K)	00935	3.3	5.2	.8	1.9	37	N	IEPA
	1355	Sulfate, total (mg/L as SO_4)	00946	72	1,180	55	1,108	94	N	IEPA
	1355	Sulfate, dissolved (mg/L as SO_4)	00945	1,140	1,180	55	40	3	Y	IEPA
	1355	Chloride, dissolved (mg/L as Cl)	00940	77	79	2	2	3	Y	IEPA
	1355	Fluoride, total (mg/L as F)	00951	.92	.89	.07	.03	3	Y	IEPA
	1355	Fluoride, dissolved (mg/L as F)	00950	.86	.89	.07	.03	3	Y	IEPA
	1400	Calcium, dissolved (mg/L as Ca)	00915	26	71.5	3.0	45.5	64	N	USGS
	1400	Magnesium, dissolved (mg/L as Mg)	00925	10	9.4	.5	.6	6	Y	USGS
	1400	Sodium, dissolved (mg/L as Na)	00930	5.9	24.5	1.3	18.6	76	N	USGS
	1400	Potassium, dissolved (mg/L as K)	00935	2.1	.53	.07	1.53	296	N	USGS
	1400	Sulfate, dissolved (mg/L as SO_4)	00945	40	41.5	3.8	1.5	4	Y	USGS
	1400	Chloride, dissolved (mg/L as Cl)	00940	34	32.5	2.9	1.5	5	Y	USGS
	1400	Fluoride, dissolved (mg/L as F)	00950	.20	.19	.03	.01	6	Y	USGS
10-16-89	1500	Calcium, total (mg/L as Ca)	00916	71	72.4	4.5	1.4	2	Y	IEPA
	1500	Calcium, dissolved (mg/L as Ca)	00915	71	72.4	4.5	1.4	2	Y	IEPA
	1500	Magnesium, total (mg/L as Mg)	00927	32	32.8	1.6	.8	2	Y	IEPA
	1500	Magnesium, dissolved (mg/L as Mg)	00925	32	32.8	1.6	.8	2	Y	IEPA
	1500	Sodium, total (mg/L as Na)	00929	194	190	7	4	2	Y	IEPA
	1500	Sodium, dissolved (mg/L as Na)	00930	193	190	7	3	2	Y	IEPA
	1500	Potassium, total (mg/L as K)	00937	3.9	4.7	.7	.8	17	Y	IEPA
	1500	Potassium, dissolved (mg/L as K)	00935	3.8	4.7	.7	.9	19	Y	IEPA
	1500	Sulfate, dissolved (mg/L as SO_4)	00945	44	41.5	3.8	2.5	6	Y	IEPA
	1500	Chloride, dissolved (mg/L as Cl)	00940	34	32.5	2.9	1.5	5	Y	IEPA
	1500	Fluoride, dissolved (mg/L as F)	00950	.14	.19	.03	.05	26	Y	IEPA
				Nutrients						
10-09-87	1100	Nitrogen, total kjeldahl (mg/L as N)	00625	.3	5.0	.35	4.7	94	N	IEPA
	1100	Phosphorus, total (mg/L as P)	00665	.03	1.5	.07	1.47	98	N	IEPA

Table 9.--Results of quality-assurance and quality-control measures: standard reference samples--Continued

Sample date	Sample time	Constituent	WATSTORE code[1]	Laboratory result[2]	Standard reference sample: True value[3]	Standard reference sample: Standard deviation	Difference from true value[4]	Percent difference from true value[5]	Within two standard deviations?	Analysis performed by
		Nutrients--Continued								
11-03-88	1200	Nitrogen, NO_2, dissolved (mg/L as N)	00613	0.041	0.12	0.04	0.079	66	N	USGS
	1200	Nitrogen, NO_2+NO_3, dissolved (mg/L as N)	00631	.1	.97	.12	.87	90	N	USGS
	1200	Nitrogen, NH_4, dissolved (mg/L as N)	00608	.73	.70	.08	.03	4	Y	USGS
	1200	Nitrogen, total kjeldahl (mg/L as N)	00625	1.7	1.38	.21	.32	23	Y	USGS
	1200	Phosphorus, total (mg/L as P)	00665	.69	.66	.04	.03	5	Y	USGS
	1200	Phosphorus, dissolved (mg/L as P)	00666	.68	.66	.04	.02	3	Y	USGS
	1200	Phosphorus, ortho, dissolved (mg/L as P)	00671	.450	.49	.03	.04	8	Y	USGS
12-13-88	1355	Nitrogen, NO_2, dissolved (mg/L as N)	00613	.01	.12	.04	.11	92	N	USGS
	1355	Nitrogen, NO_2+NO_3, dissolved (mg/L as N)	00631	2.0	.97	.12	1.03	106	N	USGS
	1355	Nitrogen, NH_4, dissolved (mg/L as N)	00608	2.2	.7	.08	1.5	214	N	USGS
	1355	Nitrogen, total kjeldahl, (mg/L as N)	00625	2.1	1.38	.21	.72	52	N	USGS
	1355	Phosphorus, total (mg/L as P)	00665	.5	.66	.04	.16	24	N	USGS
	1355	Phosphorus, total (mg/L as P)	00665	.52	1.5	.07	.98	65	N	IEPA
	1355	Phosphorus, dissolved (mg/L as P)	00666	.5	.49	.03	.01	2	Y	USGS
	1355	Phosphorus, ortho, dissolved (mg/L as P)	00671	.49	.49	.03	0	0	Y	USGS
	1356	Nitrogen, NO_2, dissolved (mg/L as N)	00613	.01	.12	.04	.11	92	N	USGS
	1356	Nitrogen, NO_2+NO_3, dissolved (mg/L as N)	00631	.1	.97	.12	.87	90	N	USGS
	1356	Nitrogen, NH_4, dissolved (mg/L as N)	00608	3.7	.7	.08	3.0	429	N	USGS
	1356	Nitrogen, total kjeldahl, (mg/L as N)	00625	4.9	1.38	.21	3.52	255	N	USGS
	1356	Phosphorus, total (mg/L as P)	00665	1.5	.66	.04	.84	127	N	USGS
	1356	Phosphorus, total (mg/L as P)	00665	1.6	1.5	.07	.1	7	Y	IEPA
	1356	Phosphorus, dissolved (mg/L as P)	00666	1.5	.49	.03	1.01	206	N	USGS
	1356	Phosphorus, ortho, dissolved (mg/L as P)	00671	.29	.49	.03	.2	41	N	USGS
03-24-89	1200	Nitrogen, NH_4, dissolved (mg/L as N)	00608	2.0	2.0	.1	0	0	Y	IEPA
	1200	Nitrogen, total kjeldahl, (mg/L as N)	00625	2.1	5.0	.35	2.9	58	N	IEPA
	1200	Phosphorus, total (mg/L as P)	00665	1.6	1.5	.07	.1	7	Y	IEPA
03-27-89	1200	Nitrogen, NO_2, dissolved (mg/L as N)	00613	.021	.12	.04	.099	82	N	USGS
	1200	Nitrogen, NO_2+NO_3, dissolved (mg/L as N)	00631	.110	.97	.12	.86	89	N	USGS
	1200	Nitrogen, NH_4, dissolved (mg/L as N)	00608	.73	.70	.8	.03	4	Y	USGS
	1200	Nitrogen, total kjeldahl, (mg/L as N)	00625	1.50	1.38	.21	.12	9	N	USGS
	1200	Phosphorus, total (mg/L as P)	00665	.69	.66	.04	.03	5	Y	USGS
	1200	Phosphorus, dissolved (mg/L as P)	00666	.67	.66	.04	.01	2	Y	USGS
	1200	Phosphorus, ortho, dissolved (mg/L as P)	00671	.49	.49	.03	0	0	Y	USGS

Table 9.--Results of quality-assurance and quality-control measures: standard reference samples--Continued

Sample date	Sample time	Constituent	WATSTORE code[1]	Laboratory result[2]	Standard reference sample: True value[3]	Standard reference sample: Standard deviation	Difference from true value[4]	Percent difference from true value[5]	Within two standard deviations?	Analysis performed by
			Nutrients--Continued							
06-12-89	1355	Phosphorus, total (mg/L as P)	00665	1.6	1.5	0.07	0.1	7	Y	IEPA
	1355	Nitrogen, NH_4, total (mg/L as N)	00610	<.01	2.0	.10	--	--	N	IEPA
10-16-89	1500	Nitrogen, NO_2, dissolved (mg/L as N)	00613	.01	.12	.04	.11	92	N	USGS
	1500	Nitrogen, NO_2+NO_3, dissolved (mg/L as N)	00631	.10	.97	.02	.87	90	N	USGS
	1500	Nitrogen, NH_4, dissolved (mg/L as N)	00608	.72	.70	.08	.02	3	Y	USGS
	1500	Nitrogen, dissolved kjeldahl (mg/L as N)	00623	1.20	1.38	.21	.18	13	Y	USGS
	1500	Phosphorus, total (mg/L as P)	00665	.65	.66	.04	.01	2	Y	USGS
	1500	Phosphorus, dissolved (mg/L as P)	00666	.62	.66	.04	.04	6	Y	USGS
	1500	Phosphorus, ortho, dissolved (mg/L as P)	00671	.47	.49	.03	.02	4	Y	USGS
	1500	Nitrogen, NH_4, dissolved (mg/L as N)	00608	2.1	2.0	.10	.1	5	Y	IEPA
	1500	Nitrogen, total kjeldahl, (mg/L as N)	00625	5.6	5.0	.35	.6	12	Y	IEPA
	1500	Phosphorus, total (mg/L as P)	00665	1.6	1.5	.07	.1	7	Y	IEPA
	1500	Phosphorus, dissolved (mg/L as P)	00666	.57	.50	.07	.07	14	Y	IEPA
			Major metals and trace elements							
10-09-87	1100	Aluminum, total recoverable (µg/L as Al)	01105	143	88	14	55	62	N	IEPA
	1100	Aluminum, dissolved (µg/L as Al)	01106	156	86	31.36	70	81	N	IEPA
	1100	Arsenic, dissolved (µg/L as As)	01000	5	5.8	1.9	.8	14	Y	IEPA
	1100	Barium, total recoverable (µg/L as Ba)	01007	70	59.7	16	10.3	17	Y	IEPA
	1100	Barium, dissolved (µg/L as Ba)	01005	75	19.6	10.2	55.4	283	N	IEPA
	1100	Beryllium, total recoverable (µg/L as Be)	01012	6	14.4	2.2	8.4	58	N	IEPA
	1100	Cadmium, total recoverable (µg/L as Cd)	01027	4.8	4.7	1.5	.1	2	Y	IEPA
	1100	Cadmium, dissolved (µg/L as Cd)	01025	5.2	4.7	1.5	.5	11	Y	IEPA
	1100	Chromium, total recoverable (µg/L as Cr)	01034	11	16.3	6.5	5.3	33	Y	IEPA
	1100	Cobalt, total recoverable (µg/L as Co)	01037	6	11.9	3.5	5.9	50	Y	IEPA
	1100	Copper, total recoverable (µg/L as Cu)	01042	29	50	6.6	21	42	N	IEPA
	1100	Copper, dissolved (µg/L as Cu)	01040	30	27.9	4.6	2.1	8	Y	IEPA
	1100	Iron, total recoverable (µg/L as Fe)	01045	117	191	18	74	39	N	IEPA
	1100	Iron, dissolved (µg/L as Fe)	01046	135	137	29	2	1	N	IEPA
	1100	Lead, total recoverable (µg/L as Pb)	01051	20	17.9	6.1	2.1	12	Y	IEPA
	1100	Lead, dissolved (µg/L as Pb)	01049	14	17.9	6.1	3.9	22	Y	IEPA
	1100	Manganese, total recoverable (µg/L as Mn)	01055	99	50.4	4.1	48.6	96	Y	IEPA
	1100	Manganese, dissolved (µg/L as Mn)	01056	112	113	7	1	1	Y	IEPA
	1100	Nickel, total recoverable (µg/L as Ni)	01067	11	32	5.8	21	66	Y	IEPA
	1100	Nickel, dissolved (µg/L as Ni)	01065	9	5	--	4	80	--	IEPA

Table 9.--Results of quality-assurance and quality-control measures: standard reference samples--Continued

Sample date	Sample time	Constituent	WATSTORE code[1]	Laboratory result[2]	Standard reference sample: True value[3]	Standard reference sample: Standard deviation	Difference from true value[4]	Percent difference from true value[5]	Within two standard deviations?	Analysis performed by
		Major metals and trace elements--Continued								
10-09-87	1100	Selenium, dissolved (µg/L as Se)	01145	4	7.5	2.0	3.5	47	Y	IEPA
(Cont.)	1100	Silver, total recoverable (µg/L as Ag)	01077	3	4.9	1.1	1.9	39	Y	IEPA
	1100	Silver, dissolved (µg/L as Ag)	01075	<3	3.0	3.0	--	--	Y	IEPA
	1100	Strontium, total recoverable (µg/L as Sr)	01082	62	1,200	88	1,138	95	N	IEPA
	1100	Strontium, dissolved (µg/L as Sr)	01080	74	3.9	.2	70.1	1,800	N	IEPA
11-03-88	1200	Aluminum, total recoverable (µg/L as Al)	01105	100	88	14	12	14	Y	USGS
	1200	Aluminum, dissolved (µg/L as Al)	01106	80	86	31.36	6	7	Y	USGS
	1200	Antimony, dissolved (µg/L as Sb)	01095	3	3.4	1.4	.4	12	Y	USGS
	1200	Barium, total recoverable (µg/L as Ba)	01007	100	59.7	16	40.3	68	N	USGS
	1200	Barium, dissolved (µg/L as Ba)	01005	21	19.6	10.2	1.4	7	Y	USGS
	1200	Beryllium, total recoverable (µg/L as Be)	01012	10	14.4	2.2	4.4	31	Y	USGS
	1200	Boron, total recoverable (µg/L as B)	01022	270	370	50	100	27	Y	USGS
	1200	Boron, dissolved (µg/L as B)	01020	310	495	20	185	37	N	USGS
	1200	Cadmium, total recoverable (µg/L as Cd)	01027	10	9.9	1.5	.1	1	Y	USGS
	1200	Cadmium, dissolved (µg/L as Cd)	01025	9	4.7	1.5	4.3	91	N	USGS
	1200	Chromium, total recoverable (µg/L as Cr)	01034	15	18	3.2	3	17	Y	USGS
	1200	Cobalt, dissolved (µg/L as Co)	01035	3	2.1	1.0	.9	43	Y	USGS
	1200	Copper, total recoverable (µg/L as Cu)	01042	50	50	6.6	0	0	Y	USGS
	1200	Copper, dissolved (µg/L as Cu)	01040	20	27.9	4.6	7.9	28	Y	USGS
	1200	Iron, total recoverable (µg/L as Fe)	01045	160	191	18	31	16	Y	USGS
	1200	Iron, dissolved (µg/L as Fe)	01046	140	137	29	3	2	Y	USGS
	1200	Lead, total recoverable (µg/L as Pb)	01051	23	17.9	6.1	5.1	28	Y	USGS
	1200	Lead, dissolved (µg/L as Pb)	01049	10	4.7	3.4	5.3	113	Y	USGS
	1200	Manganese, total recoverable (µg/L as Mn)	01055	50	50.4	4.1	.4	1	Y	USGS
	1200	Manganese, dissolved (µg/L as Mn)	01056	81	82	14	1	1	Y	USGS
	1200	Molybdenum, total recoverable (µg/L as Mo)	01062	47	50	3.3	3	6	Y	USGS
	1200	Molybdenum, dissolved (µg/L as Mo)	01060	10	13.1	2.4	3.1	24	Y	USGS
	1200	Nickel, total recoverable (µg/L as Ni)	01067	36	32	5.8	4	12	Y	USGS
	1200	Nickel, dissolved (µg/L as Ni)	01065	10	5	--	5	100	--	USGS
	1200	Silver, total recoverable (µg/L as Ag)	01077	5	4.9	1.1	.1	2	Y	USGS
	1200	Silver, dissolved (µg/L as Ag)	01075	2	3	3	1	33	Y	USGS
	1200	Strontium, dissolved (µg/L as Sr)	01080	3,700	1,340	93	2,360	176	N	USGS
	1200	Vanadium, dissolved (µg/L as V)	01085	11	11.8	6.1	.8	7	Y	USGS
	1200	Zinc, total recoverable (µg/L as Zn)	01092	90	66	7.6	24	36	N	USGS
	1200	Zinc, dissolved (µg/L as Zn)	01090	42	36	7.3	6	17	Y	USGS

Table 9.--Results of quality-assurance and quality-control measures: standard reference samples--Continued

Sample date	Sample time	Constituent	WATSTORE code[1]	Laboratory result[2]	Standard reference sample: True value[3]	Standard reference sample: Standard deviation	Difference from true value[4]	Percent difference from true value[5]	Within two standard deviations?	Analysis performed by
		Major metals and trace elements--Continued								
11-03-88	1201	Arsenic, total recoverable (µg/L as As)	01002	7	6.9	1.3	0.1	1	Y	IEPA
(Cont.)	1201	Arsenic, dissolved (µg/L as As)	01000	6	5.8	1.9	.2	3	Y	IEPA
	1201	Cadmium, total recoverable (µg/L as Cd)	01027	9.99	9.90	1.5	.09	1	Y	IEPA
	1201	Cadmium, dissolved (µg/L as Cd)	01025	4.35	4.70	1.5	.35	7	Y	IEPA
	1201	Lead, total recoverable (µg/L as Pb)	01051	21.0	17.9	6.1	3.1	17	Y	IEPA
	1201	Selenium, dissolved (µg/L as Se)	01145	12	9.8	3.4	2.2	22	Y	IEPA
03-24-89	1200	Aluminum, total recoverable (µg/L as Al)	01105	514	86	31.36	428	498	N	IEPA
	1200	Aluminum, dissolved (µg/L as Al)	01106	575	86	31.36	489	569	N	IEPA
	1200	Arsenic, total recoverable (µg/L as As)	01002	6	5.8	1.9	.2	3	Y	IEPA
	1200	Arsenic, dissolved (µg/L as As)	01000	6	5.8	1.9	.2	3	Y	IEPA
	1200	Barium, total recoverable (µg/L as Ba)	01007	28	19.6	10.2	8.4	43	Y	IEPA
	1200	Barium, dissolved (µg/L as Ba)	01005	28	19.6	10.2	8.4	43	Y	IEPA
	1200	Boron, total recoverable (µg/L as B)	01022	513	495	20	18	4	Y	IEPA
	1200	Boron, dissolved (µg/L as B)	01020	504	495	20	9	2	N	IEPA
	1200	Cadmium, total recoverable (µg/L as Cd)	01027	5.0	4.7	1.5	.3	6	Y	IEPA
	1200	Cadmium, dissolved (µg/L as Cd)	01025	4.7	4.7	1.5	0	0	Y	IEPA
	1200	Chromium, total recoverable (µg/L as Cr)	01034	19	16.3	6.5	2.7	17	Y	IEPA
	1200	Cobalt, total recoverable (µg/L as Co)	01037	<5	2.1	1.0	--	--	--	--
	1200	Cobalt, dissolved (µg/L as Co)	01035	<5	2.1	1.0	--	--	--	--
	1200	Copper, total recoverable (µg/L as Cu)	01042	23	27.9	4.6	4.9	18	Y	IEPA
	1200	Copper, dissolved (µg/L as Cu)	01040	23	27.9	4.6	4.9	18	Y	IEPA
	1200	Iron, total recoverable (µg/L as Fe)	01045	185	137	29	48	35	Y	IEPA
	1200	Iron, dissolved (µg/L as Fe)	01046	222	137	29	85	62	N	IEPA
	1200	Lead, total recoverable (µg/L as Pb)	01051	<5	4.7	3.4	--	--	Y	IEPA
	1200	Lead, dissolved (µg/L as Pb)	01049	<5	4.7	3.4	--	--	Y	IEPA
	1200	Manganese, total recoverable (µg/L as Mn)	01055	80	82	14	2	2	Y	IEPA
	1200	Manganese, dissolved (µg/L as Mn)	01056	79	82	14	3	4	Y	IEPA
	1200	Nickel, total recoverable (µg/L as Ni)	01067	<5	5	--	--	--	--	--
	1200	Nickel, dissolved (µg/L as Ni)	01065	<5	5	--	--	--	--	--
	1200	Selenium, dissolved (µg/L as Se)	01145	10	9.8	3.4	.2	2	Y	IEPA
	1200	Silver, total recoverable (µg/L as Ag)	01077	<3	3.0	3.0	--	--	Y	IEPA

Table 9.--Results of quality-assurance and quality-control measures: standard reference samples--Continued

Sample date	Sample time	Constituent	WATSTORE code[1]	Laboratory result[2]	Standard reference sample: True value[3]	Standard reference sample: Standard deviation	Difference from true value[4]	Percent difference from true value[5]	Within two standard deviations?	Analysis performed by
		Major metals and trace elements--Continued								
03-24-89	1200	Strontium, total recoverable (µg/L as Sr)	01082	7,650	3,450	170	4,200	122	N	IEPA
(Cont.)	1200	Strontium, dissolved (µg/L as Sr)	01080	7,319	3,450	170	3,869	112	N	IEPA
	1200	Vanadium, total recoverable (µg/L as V)	01087	9	11.8	6.1	2.8	24	Y	IEPA
	1200	Vanadium, dissolved (µg/L as V)	01085	9	11.6	7.6	2.6	22	Y	IEPA
	1200	Zinc, total recoverable (µg/L as Zn)	01092	<50	36	7.3	--	--	--	--
	1200	Zinc, dissolved (µg/L as Zn)	01090	<50	36	7.3	--	--	--	--
06-12-89	1355	Aluminum, total recoverable (µg/L as Al)	01105	4,333	86	31.36	4,247	4,940	N	IEPA
	1355	Aluminum, dissolved (µg/L as Al)	01106	1,284	9.0	7.4	1,275	14,200	N	IEPA
	1355	Arsenic, total recoverable (µg/L as As)	01002	7.0	5.8	1.9	1.2	21	Y	IEPA
	1355	Arsenic, dissolved (µg/L as As)	01000	3	2.4	1.1	.6	25	Y	IEPA
	1355	Barium, total recoverable (µg/L as Ba)	01007	110	19.6	10.2	90.4	461	N	IEPA
	1355	Barium, dissolved (µg/L as Ba)	01005	72	60.2	12	11.8	20	Y	IEPA
	1355	Boron, total recoverable (µg/L as B)	01022	488	495	20	7	1	Y	IEPA
	1355	Cadmium, total recoverable (µg/L as Cd)	01027	4.2	4.7	1.5	.5	11	Y	IEPA
	1355	Cadmium, dissolved (µg/L as Cd)	01025	.1	.7	.7	.6	86	Y	IEPA
	1355	Chromium, total recoverable (µg/L as Cr)	01034	25	16.3	6.5	8.7	53	Y	IEPA
	1355	Cobalt, total recoverable (µg/L as Co)	01037	6	2.1	1.0	3.9	186	N	IEPA
	1355	Copper, total recoverable (µg/L as Cu)	01042	58	27.9	4.6	30.1	108	N	IEPA
	1355	Copper, dissolved (µg/L as Cu)	01040	10	8.4	4.6	1.6	19	Y	IEPA
	1355	Iron, total recoverable (µg/L as Fe)	01045	88	137	29	49	36	Y	IEPA
	1355	Iron, dissolved (µg/L as Fe)	01046	<50	4.5	5.1	--	--	--	--
	1355	Lead, total recoverable (µg/L as Pb)	01051	>5	4.7	3.4	--	--	Y	IEPA
	1355	Lead, dissolved (µg/L as Pb)	01049	>5	4.3	3.9	--	--	Y	IEPA
	1355	Manganese, total recoverable (µg/L as Mn)	01055	79	82	14	3	4	Y	IEPA
	1355	Manganese, dissolved (µg/L as Mn)	01056	>5	2.0	3.6	--	--	Y	--
	1355	Nickel, total recoverable (µg/L as Ni)	01067	11	5	--	6	120	--	--
	1355	Nickel, dissolved (µg/L as Ni)	01065	>5	4.3	3.0	--	--	Y	--
	1355	Selenium, total recoverable (µg/L as Se)	01147	7	9.8	3.4	2.8	29	Y	IEPA
	1355	Selenium, dissolved (µg/L as Se)	01145	1	2.0	1.6	1.0	50	Y	IEPA
	1355	Silver, total recoverable (µg/L as Ag)	01077	>5	3.0	3.0	--	--	Y	--
	1355	Silver, dissolved (µg/L as Ag)	01075	>3	.8	.8	--	--	--	--
	1355	Strontium, total recoverable (µg/L as Sr)	01082	3,731	3.9	.2	3,727.1	95,600	N	IEPA
	1355	Strontium, dissolved (µg/L as Sr)	01080	761	784	21	23	3	Y	IEPA
	1355	Vanadium, total recoverable (µg/L as V)	01087	36	11.8	6.1	24.2	205	N	IEPA
	1355	Zinc, total recoverable (µg/L as Zn)	01092	177	36	7.3	141	392	N	IEPA
	1400	Aluminum, total recoverable (µg/L as Al)	01105	380	383	75	3	1	Y	USGS

Table 9.--Results of quality-assurance and quality-control measures: standard reference samples--Continued

Sample date	Sample time	Constituent	WATSTORE code[1]	Laboratory result[2]	Standard reference sample: True value[3]	Standard reference sample: Standard deviation	Difference from true value[4]	Percent difference from true value[5]	Within two standard deviations?	Analysis performed by
		Major metals and trace elements--Continued								
06-12-89	1400	Aluminum, dissolved (µg/L as Al)	01106	400	383	75	17	4	Y	USGS
(Cont.)	1400	Barium, dissolved (µg/L as Ba)	01005	45	36.7	11	8.3	23	Y	USGS
	1400	Beryllium, dissolved (µg/L as Be)	01010	.8	.9	.2	.1	11	Y	USGS
	1400	Boron, dissolved (µg/L as B)	01020	20	23.1	12.4	3.1	13	Y	USGS
	1400	Cadmium, dissolved (µg/L as Cd)	01025	33	35	3.7	2	6	Y	USGS
	1400	Chromium, total recoverable (µg/L as Cr)	01034	2	1.8	1.5	.2	11	Y	USGS
	1400	Cobalt, dissolved (µg/L as Co)	01035	10	12	2.1	2	17	Y	USGS
	1400	Copper, dissolved (µg/L as Cu)	01040	960	940	43	20	2	Y	USGS
	1400	Iron, total recoverable (µg/L as Fe)	01045	230	298	31	68	23	N	USGS
	1400	Iron, dissolved (µg/L as Fe)	01046	300	298	31	2	1	Y	USGS
	1400	Lead, total recoverable (µg/L as Pb)	01051	17	17	7.7	0	0	Y	USGS
	1400	Lead, dissolved (µg/L as Pb)	01049	20	17	7.7	3	18	Y	USGS
	1400	Manganese, dissolved (µg/L as Mn)	01056	2,400	2,360	84	40	2	Y	USGS
	1400	Mercury, total recoverable (µg/L as Hg)	71900	.1	.3	.1	.2	67	Y	USGS
	1400	Mercury, dissolved (µg/L as Hg)	71890	.1	.3	.1	.2	67	Y	USGS
	1400	Molybdenum, dissolved (µg/L as Mo)	01060	10	10	8.8	0	0	Y	USGS
	1400	Nickel, dissolved (µg/L as Ni)	01065	20	20	7.2	0	0	Y	USGS
	1400	Silver, total recoverable (µg/L as Ag)	01077	3.0	3.6	.8	.6	17	Y	USGS
	1400	Silver, dissolved (µg/L as Ag)	01075	4.0	3.6	.8	.4	11	Y	USGS
	1400	Strontium, dissolved (µg/L as Sr)	01080	120	119	7	1	1	Y	USGS
	1400	Vanadium, dissolved (µg/L as V)	01085	6	5	1.1	1	20	Y	USGS
	1400	Zinc, total recoverable (µg/L as Zn)	01092	4,500	5,600	250	1,100	20	N	USGS
	1400	Zinc, dissolved (µg/L as Zn)	01090	5,600	5,600	250	0	0	Y	USGS
10-16-89	1500	Aluminum, total recoverable (µg/L as Al)	01105	135	55	31	80	145	N	IEPA
	1500	Aluminum, dissolved (µg/L as Al)	01106	136	55	31	81	147	N	IEPA
	1500	Barium, total recoverable (µg/L as Ba)	01007	45	41.9	15.3	3.1	7	Y	IEPA
	1500	Barium, dissolved (µg/L as Ba)	01005	44	41.9	15.3	2.1	5	Y	IEPA
	1500	Boron, total recoverable (µg/L as B)	01022	1,229	1,140	82	89	8	Y	IEPA
	1500	Boron, dissolved (µg/L as B)	01020	1,215	1,140	82	75	7	Y	IEPA
	1500	Cadmium, total recoverable (µg/L as Cd)	01027	.3	.45	.26	.15	33	Y	IEPA
	1500	Cadmium, dissolved (µg/L as Cd)	01025	.30	.45	.26	.15	33	Y	IEPA
	1500	Chromium, total recoverable (µg/L as Cr)	01034	5	3.9	3.4	1.1	28	Y	IEPA
	1500	Cobalt, total recoverable (µg/L as Co)	01037	>5	14.6	7.5	--	--	Y	--

Table 9.--Results of quality-assurance and quality-control measures: standard reference samples--Continued

Sample date	Sample time	Constituent	WATSTORE code[1]	Laboratory result[2]	Standard reference sample: True value[3]	Standard reference sample: Standard deviation	Difference from true value[4]	Percent difference from true value[5]	Within two standard deviations?	Analysis performed by
		Major metals and trace elements--Continued								
10-16-89	1500	Cobalt, dissolved (µg/L as Co)	01035	>5	14.6	7.5	--	--	Y	--
(Cont.)	1500	Copper, total recoverable (µg/L as Cu)	01042	7	10.9	4.3	3.9	36	Y	IEPA
	1500	Copper, dissolved (µg/L as Cu)	01040	7.0	10.9	4.3	3.9	36	Y	IEPA
	1500	Iron, total recoverable (µg/L as Fe)	01045	>50	11	6.8	--	--	--	--
	1500	Iron, dissolved (µg/L as Fe)	01046	>50	11	6.8	--	--	--	--
	1500	Manganese, dissolved (µg/L as Mn)	01056	>5	4.0	2.8	--	--	Y	--
	1500	Mercury, total recoverable (µg/L as Hg)	71900	.44	.45	.07	.01	2	Y	IEPA
	1500	Mercury, dissolved (µg/L as Hg)	71890	.44	.45	.07	.01	2	Y	IEPA
	1500	Nickel, dissolved (µg/L as Ni)	01065	>5	8.8	6.9	--	--	Y	--
	1500	Selenium, dissolved (µg/L as Se)	01145	54	60.1	15.3	6.1	10	Y	IEPA
	1500	Silver, dissolved (µg/L as Ag)	01075	>3	1.7	.9	--	--	--	--
	1500	Strontium, total recoverable (µg/L as Sr)	01082	857	840	40	17	2	Y	IEPA
	1500	Strontium, dissolved (µg/L as Sr)	01080	853	840	40	13	2	Y	IEPA
	1500	Vanadium, dissolved (µg/L as V)	01085	>5	25	38	--	--	Y	--
	1500	Zinc, dissolved (µg/L as Zn)	01090	>50	17.6	4.4	--	--	--	--

[1]National WATer data STOrage and REtrieval system; number identifies parameter in computer data base.
[2]Laboratory result is the result of the laboratory analysis of the standard reference sample (indicated units).
[3]True value is the experimentally determined mean of the standard reference sample.
[4]Difference from true value defined as the absolute value of laboratory result subtracted from the true value.
[5]Percent difference from true value is defined as the absolute value of the true value subtracted from the laboratory result and the difference divided by the true value.

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples

[USGS, U.S. Geological Survey; IEPA, Illinois Environmental Protection Agency; mg/L, milligrams per liter; <, less than; dashes (--) indicate missing data or not applicable. Footnote at end of table]

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NO_2 + NO_3, dissolved (mg/L as N) (00631)			
		05520500 Kankakee River at Momence, Illinois			
07-09-87	0.730	0.830	0.780	-0.100	14
08-11-87	.560	.600	.580	-.040	7
09-10-87	.640	.650	.645	-.010	2
10-08-87	.900	.890	.895	.010	1
11-06-87	.580	.560	.570	.020	3
12-08-87	1.90	2.20	2.05	-.30	16
01-04-88	2.60	2.60	2.60	0	0
02-09-88	2.40	2.40	2.40	0	0
03-08-88	1.40	1.40	1.40	0	0
04-04-88	4.30	4.20	4.25	.10	2
04-04-88	4.20	4.10	4.15	.10	2
05-02-88	1.10	1.00	1.05	.10	9
06-09-88	.770	.760	.765	.010	1
07-08-88	.150	.150	.150	0	0
08-11-88	<.100	<.100	--	--	--
08-24-88	.460	.430	.445	.030	7
09-13-88	.460	.640	.550	-.180	39
10-13-88	.800	.740	.770	.060	8
11-09-88	1.00	1.10	1.05	-.10	10
12-08-88	1.90	1.80	1.85	.10	5
01-13-89	4.40	4.50	4.45	-.10	2
02-09-89	1.60	2.00	1.80	-.40	25
03-10-89	2.10	2.50	2.30	-.40	19
04-03-89	4.20	4.40	4.30	-.20	5
05-08-89	1.00	.890	.945	.11	11
05-30-89	4.70	4.80	4.75	-.10	2
06-08-89	4.30	4.10	4.20	.20	5
07-13-89	1.60	1.50	1.55	.10	6
08-10-89	.710	.690	.700	.020	3
09-01-89	.890	.890	.890	0	0
10-05-89	.750	.740	.745	.010	1
10-05-89	.820	.810	.815	.010	1
11-02-89	.710	.590	.650	.120	17
12-07-89	1.90	1.09	1.495	.81	43
01-11-90	2.50	2.30	2.40	.20	8
02-13-90	2.50	2.30	2.40	.20	8
03-09-90	3.90	4.00	3.95	-.10	3
04-04-90	1.80	1.80	1.80	0	0
05-03-90	1.30	1.20	1.25	.10	8
		05526000 Iroquois River near Chebanse, Illinois			
07-09-87	4.50	4.80	4.65	-.30	7
08-11-87	1.50	1.50	1.50	0	0
09-10-87	1.50	1.50	1.50	0	0
09-10-87	1.50	1.50	1.50	0	0
10-08-87	.510	.520	.515	-.010	2

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, $NO_2 + NO_3$, dissolved (mg/L as N) (00631)--Continued			
		05526000 Iroquois River near Chebanse, Illinois--Continued			
11-06-87	0.250	0.250	0.250	0	0
12-08-87	7.70	8.00	7.85	-.30	4
01-04-88	12.0	12.0	12.0	0	0
02-09-88	9.90	11.0	10.45	-1.1	11
03-08-88	7.20	7.80	7.50	-.60	8
04-04-88	12.0	12.0	12.0	0	0
05-02-88	7.00	7.20	7.10	-.20	3
06-10-88	3.10	3.10	3.10	0	0
07-08-88	<.100	<.100	--	--	--
08-12-88	.190	<.100	--	--	--
08-24-88	<.100	<.100	--	--	--
09-13-88	<.100	<.100	--	--	--
10-13-88	<.100	<.100	--	--	--
10-13-88	<.100	<.100	--	--	--
11-09-88	<.100	<.100	--	--	--
12-08-88	9.80	9.70	9.75	.10	1
01-13-89	15.0	16.0	15.5	-1.0	7
02-09-89	12.0	14.0	13.0	-2.0	17
03-10-89	13.0	14.0	13.5	-1.0	8
03-10-89	13.0	14.0	13.5	-1.0	8
04-03-89	10.0	10.7	10.35	-.7	7
04-03-89	10.0	10.6	10.3	-.6	6
04-04-89	5.50	14.0	9.75	-8.5	155
05-08-89	11.0	11.0	11.0	0	0
06-08-89	14.0	14.0	14.0	0	0
07-13-89	6.50	6.70	6.60	-.20	3
08-10-89	1.20	1.10	1.15	.10	8
09-01-89	2.10	2.00	2.05	.10	5
10-05-89	6.50	6.30	6.40	.20	3
11-03-89	4.80	4.50	4.65	.30	6
12-07-89	7.10	6.40	6.75	.70	10
01-11-90	7.90	7.80	7.85	.10	1
02-13-90	11.0	11.0	11.0	0	0
02-24-90	6.30	5.40	5.85	.90	14
02-26-90	8.10	7.70	7.90	.40	5
03-09-90	9.90	10.0	9.95	-.1	1
03-15-90	6.20	5.90	6.05	.30	5
04-04-90	8.80	9.20	9.00	-.40	5
05-03-90	9.30	9.20	9.25	.10	1
		05532500 Des Plaines River at Riverside, Illinois			
07-07-87	3.40	3.75	3.575	-.35	10
08-12-87	5.60	5.70	5.65	-.10	2
08-14-87	1.60	1.60	1.60	0	0
08-27-87	1.60	1.60	1.60	0	0
09-09-87	3.50	3.60	3.55	-.10	3
10-07-87	6.00	6.30	6.15	-.30	5
11-10-87	5.00	5.20	5.10	-.20	4
12-09-87	2.30	2.90	2.60	-.60	26
01-05-88	5.10	5.10	5.10	0	0
02-10-88	4.30	4.20	4.25	.10	2

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
	Nitrogen, NO_2 + NO_3, dissolved (mg/L as N) (00631)--Continued				
	05532500 Des Plaines River at Riverside, Illinois--Continued				
03-10-88	2.80	2.60	2.70	0.20	7
04-06-88	1.50	1.50	1.50	0	0
05-03-88	3.50	3.50	3.50	0	0
06-08-88	7.10	7.10	7.10	0	0
07-06-88	6.80	6.60	6.70	.20	3
08-10-88	4.20	3.70	3.95	.50	12
08-23-88	5.10	4.90	5.00	.20	4
09-12-88	3.70	4.10	3.90	-.40	11
10-12-88	11.0	11.0	11.0	0	0
11-08-88	4.10	3.50	3.80	.60	15
12-07-88	7.30	7.00	7.15	.30	4
01-11-89	4.10	4.30	4.20	-.20	5
01-11-89	4.10	4.20	4.15	-.10	2
02-07-89	5.60	6.30	5.95	-.70	12
03-08-89	4.60	4.70	4.65	-.10	2
04-05-89	5.60	5.70	5.65	-.10	2
05-11-89	6.30	6.70	6.50	-.40	6
06-06-89	2.90	3.00	2.95	-.10	3
07-11-89	6.90	7.20	7.05	-.30	4
08-09-89	2.30	2.30	2.30	0	0
08-31-89	4.60	4.90	4.75	-.30	7
08-31-89	4.60	4.80	4.70	-.20	4
10-04-89	9.00	9.00	9.00	0	0
11-01-89	7.60	7.20	7.40	.40	5
12-06-89	7.90	7.40	7.65	.50	6
01-10-90	5.10	5.10	5.10	0	0
02-10-90	5.40	5.00	5.20	.40	7
03-08-90	4.70	4.50	4.60	.20	4
04-03-90	3.90	4.00	3.95	-.10	3
05-02-90	4.00	4.40	4.20	-.40	10
	05536995 Chicago Sanitary and Ship Canal at Romeoville, Illinois				
07-08-87	1.40	1.40	1.40	0	0
08-12-87	2.70	2.60	2.65	.10	4
08-14-87	2.40	2.20	2.30	.20	8
08-27-87	2.30	2.10	2.20	.20	9
09-09-87	2.50	2.40	2.45	.10	4
10-07-87	3.20	3.10	3.15	.10	3
11-10-87	1.40	1.30	1.35	.10	7
12-09-87	2.70	2.70	2.70	0	0
01-05-88	3.90	4.00	3.95	-.10	3
02-10-88	2.90	2.80	2.85	.10	3
03-10-88	2.50	2.40	2.45	.10	4
04-06-88	2.90	2.70	2.80	.20	7
04-06-88	2.90	2.70	2.80	.20	7
05-05-88	4.60	4.60	4.60	0	0
06-07-88	4.60	4.40	4.50	.20	4
07-06-88	3.40	3.40	3.40	0	0
08-10-88	2.30	2.10	2.20	.20	9
08-23-88	2.70	2.70	2.70	0	0
09-12-88	2.90	3.40	3.15	-.50	17
10-12-88	6.00	6.20	6.10	-.20	3

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NO_2 + NO_3, dissolved (mg/L as N) (00631)--Continued			
	05536995 Chicago Sanitary and Ship Canal at Romeoville, Illinois--Continued				
11-08-88	4.00	4.20	4.10	-0.20	5
12-07-88	5.50	5.10	5.30	.40	7
01-12-89	3.80	3.60	3.70	.20	5
02-08-89	5.30	6.40	5.85	-1.10	21
03-09-89	3.20	3.30	3.25	-.10	3
04-06-89	4.90	5.00	4.95	-.10	2
05-12-89	6.00	--	--	--	--
06-07-89	2.70	2.50	2.60	.20	7
07-12-89	3.00	2.90	2.95	.10	3
07-12-89	3.00	2.90	2.95	.10	3
08-09-89	3.30	3.10	3.20	.20	6
08-31-89	2.90	2.90	2.90	0	0
10-04-89	5.30	5.10	5.20	.20	4
11-02-89	5.10	4.70	4.90	.40	8
12-06-89	6.80	6.30	6.55	.50	7
01-10-90	3.80	3.70	3.75	.10	3
02-10-90	5.80	5.50	5.65	.30	5
03-08-90	5.20	5.10	5.15	.10	2
04-03-90	4.50	4.70	4.60	-.20	4
05-02-90	3.20	3.20	3.20	0	0
		05540500 Du Page River at Shorewood, Illinois			
07-08-87	5.90	6.20	6.05	-.30	5
08-11-87	5.70	6.10	5.90	-.40	7
08-14-87	2.10	2.00	2.05	.10	5
08-14-87	2.20	2.10	2.15	.10	5
08-27-87	2.80	1.80	2.30	1.00	36
09-10-87	4.90	5.00	4.95	-.10	2
10-07-87	7.20	7.40	7.30	-.20	3
11-10-87	6.30	6.70	6.50	-.40	6
12-08-87	5.20	5.50	5.35	-.30	6
01-04-88	7.20	7.80	7.50	-.60	8
02-10-88	6.80	6.80	6.80	0	0
03-10-88	5.50	5.90	5.70	-.40	7
04-06-88	4.30	4.30	4.30	0	0
05-03-88	5.50	5.60	5.55	-.10	2
06-07-88	5.60	5.50	5.55	.10	2
07-07-88	4.70	4.50	4.60	.20	4
07-07-88	4.70	4.60	4.65	.10	2
08-10-88	5.70	5.60	5.65	.10	2
08-24-88	7.80	7.40	7.60	.40	5
09-11-88	7.10	9.90	8.50	-2.80	39
10-13-88	14.0	13.0	13.5	1.0	7
10-13-88	13.0	13.0	13.0	0	0
11-09-88	7.10	6.60	6.85	.50	7
12-08-88	8.90	8.80	8.85	.10	1
01-12-89	7.30	7.40	7.35	-.10	1
02-08-89	8.50	9.00	8.75	-.50	6
03-09-89	7.00	7.50	7.25	-.50	7
04-06-89	7.10	7.70	7.40	-.60	8
04-06-89	7.10	7.50	7.30	-.40	6
05-12-89	7.20	--	--	--	--

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NO_2 + NO_3, dissolved (mg/L as N) (00631)--Continued			
		05540500 Du Page River at Shorewood, Illinois--Continued			
06-07-89	9.00	9.40	9.20	-0.40	4
07-12-89	5.50	5.50	5.50	0	0
08-10-89	5.10	4.80	4.95	.30	6
09-01-89	3.80	3.80	3.80	0	0
10-05-89	9.60	9.00	9.30	.60	6
11-02-89	9.80	9.00	9.40	.80	8
12-07-89	12.0	11.0	11.5	1.0	8
01-11-90	8.40	8.20	8.30	.20	2
01-11-90	8.40	8.10	8.25	.30	4
02-10-90	8.20	7.60	7.90	.60	7
03-09-90	4.90	5.10	5.00	-.20	4
04-04-90	7.50	7.40	7.45	.10	1
05-03-90	6.70	7.20	6.95	-.50	7
		05543500 Illinois River at Marseilles, Illinois			
07-06-87	2.90	3.13	3.015	-.23	8
08-18-87	2.20	2.10	2.15	.10	5
09-08-87	2.90	3.00	2.95	-.10	3
10-06-87	2.70	3.00	2.85	-.30	11
11-05-87	2.30	2.30	2.30	0	0
11-19-87	--	2.80	--	--	--
12-17-87	5.30	5.40	5.35	-.10	2
01-14-88	6.50	6.50	6.50	0	0
01-14-88	6.50	6.50	6.50	0	0
02-12-88	5.30	5.20	5.25	.10	2
03-09-88	3.80	3.70	3.75	.10	3
04-05-88	7.90	7.80	7.85	.10	1
05-04-88	4.00	3.90	3.95	.10	2
06-06-88	3.60	3.60	3.60	0	0
07-05-88	3.10	3.00	3.05	.10	3
08-09-88	3.30	2.90	3.10	.40	12
08-22-88	3.20	3.10	3.15	.10	3
09-10-88	3.10	3.00	3.05	.10	3
10-11-88	3.70	3.60	3.65	.10	3
11-01-88	4.00	4.20	4.10	-.20	5
11-07-88	5.00	5.00	5.00	0	0
12-06-88	5.30	4.80	5.05	.50	9
01-10-89	7.30	7.90	7.60	-.60	8
02-06-89	5.60	7.20	6.40	-1.60	29
02-28-89	5.20	5.00	5.10	.20	4
03-07-89	7.20	6.30	6.75	.90	12
03-21-89	5.70	6.20	5.95	-.50	9
04-04-89	5.40	5.60	5.50	-.20	4
05-10-89	5.80	5.90	5.85	-.10	2
06-05-89	7.70	7.90	7.80	-.20	3
07-10-89	3.40	3.40	3.40	0	0
07-10-89	3.40	3.40	3.40	0	0
08-08-89	2.40	2.20	2.30	.20	8
08-29-89	2.50	2.50	2.50	0	0
08-30-89	2.80	2.80	2.80	0	0

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NO_2 + NO_3, dissolved (mg/L as N) (00631)--Continued			
		05543500 Illinois River at Marseilles, Illinois--Continued			
10-03-89	4.40	4.40	4.40	0	0
10-31-89	4.00	3.80	3.90	.20	5
12-05-89	5.60	5.30	5.45	.30	5
01-09-90	4.70	4.60	4.65	.10	2
02-09-90	8.80	8.10	8.45	.70	8
03-07-90	7.50	7.60	7.55	-.10	1
03-12-90	6.10	5.80	5.95	.30	5
04-02-90	5.90	5.90	5.90	0	0
05-01-90	4.60	4.90	4.75	-.30	7
		05550000 Fox River at Algonquin, Illinois			
07-07-87	.110	.060	.085	.050	45
07-07-87	<.100	.060	--	--	--
08-13-87	<.100	<.100	--	--	--
09-09-87	.480	.500	.490	-.020	4
10-06-87	.260	.270	.265	-.010	4
11-05-87	.650	.630	.640	.020	3
12-09-87	1.60	1.60	1.60	0	0
01-05-88	2.60	2.60	2.60	0	0
02-11-88	2.90	2.80	2.85	.10	3
03-11-88	1.40	1.40	1.40	0	0
04-07-88	1.50	1.70	1.60	-.20	13
05-03-88	.880	.830	.855	.050	6
06-09-88	<.100	.150	--	--	--
07-07-88	<.100	.150	--	--	--
07-07-88	<.100	<.100	--	--	--
08-11-88	<.100	<.100	--	--	--
08-23-88	.130	.100	.115	.030	23
09-11-88	.340	.450	.395	-.110	32
10-12-88	<.100	.400	--	--	--
11-08-88	.550	.500	.525	.050	9
12-07-88	2.30	2.30	2.30	0	0
01-11-89	2.30	2.40	2.35	-.10	4
01-11-89	2.20	2.40	2.30	-.20	9
02-07-89	1.80	2.00	1.90	-.20	11
03-08-89	2.10	2.20	2.15	-.10	5
04-05-89	2.60	2.80	2.70	-.20	8
05-11-89	.280	.300	.290	-.020	7
06-06-89	.360	.400	.380	-.040	11
07-11-89	<.100	<.100	--	--	--
08-09-89	<.100	<.100	--	--	--
08-31-89	<.100	<.100	--	--	--
10-04-89	<.100	<.100	--	--	--
11-01-89	.590	.600	.595	-.010	2
12-06-89	1.20	1.10	1.15	.10	8
01-10-90	2.00	2.00	2.00	0	0
02-09-90	2.10	1.90	2.00	.20	10
03-08-90	2.30	2.20	2.25	.10	4
04-03-90	2.20	2.20	2.20	0	0
05-02-90	.700	.830	.765	-.130	19

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NO_2 + NO_3, dissolved (mg/L as N) (00631)--Continued			
		05552500 Fox River at Dayton, Illinois			
07-06-87	<0.100	<0.05	--	--	--
08-13-87	<.100	<.100	--	--	--
08-27-87	2.40	2.80	2.60	-0.40	17
09-08-87	2.30	2.40	2.35	-.10	4
10-06-87	3.10	3.00	3.05	.10	3
11-05-87	4.10	4.20	4.15	-.10	2
12-10-87	6.40	6.80	6.60	-.40	6
01-14-88	5.10	5.20	5.15	-.10	2
01-14-88	5.00	5.30	5.15	-.30	6
02-11-88	5.10	4.80	4.95	.30	6
03-09-88	3.20	3.20	3.20	0	0
04-05-88	4.50	4.40	4.45	.10	2
05-04-88	2.80	2.80	2.80	0	0
06-06-88	<.100	<.100	--	--	--
07-05-88	<.100	<.100	--	--	--
08-09-88	.150	<.100	--	--	--
08-22-88	.100	<.100	--	--	--
09-10-88	--	.190	--	--	--
10-11-88	1.60	1.60	1.60	0	0
11-07-88	1.50	1.30	1.40	.20	13
12-06-88	2.70	2.50	2.60	.20	7
01-10-89	4.60	4.70	4.65	-.10	2
02-06-89	3.60	4.00	3.80	-.40	11
03-07-89	4.20	4.10	4.15	.10	2
04-04-89	2.70	2.80	2.75	-.10	3
05-10-89	.200	.200	.200	0	0
06-05-89	7.80	7.90	7.85	-.10	1
07-10-89	<.100	<.100	--	--	--
08-08-89	2.20	2.10	2.15	.10	5
08-30-89	<.100	<.100	--	--	--
10-03-89	.460	.500	.480	-.040	9
10-03-89	.550	.500	.525	.050	9
10-31-89	.870	.900	.885	-.030	3
12-05-89	2.90	2.70	2.80	.20	7
01-09-90	2.90	2.90	2.90	0	0
02-09-90	4.00	3.70	3.85	.30	8
03-07-90	4.70	4.90	4.80	-.20	4
04-02-90	5.10	5.10	5.10	0	0
05-01-90	2.20	2.30	2.25	-.10	5
		Nitrogen, NH_4, dissolved (mg/L as N) (00608)			
		05520500 Kankakee River at Momence, Illinois			
07-09-87	.050	<.100	--	--	--
08-11-87	.040	.160	.100	-.120	300
09-10-87	.050	<.100	--	--	--
10-08-87	.030	<.100	--	--	--
11-06-87	.010	<.100	--	--	--

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NH_4, dissolved (mg/L as N) (00608)--Continued			
		05520500 Kankakee River at Momence, Illinois--Continued			
12-08-87	0.100	0.130	0.115	-0.030	30
01-04-88	.170	<.100	--	--	--
02-09-88	.150	.110	.130	.040	27
03-08-88	.060	<.100	--	--	--
04-04-88	.130	.100	.115	.030	23
04-04-88	.120	.130	.125	-.010	8
05-02-88	.080	.014	.047	.066	82
06-09-88	.040	<.100	--	--	--
07-08-88	.030	<.100	--	--	--
08-11-88	.010	<.100	--	--	--
08-24-88	.040	<.100	--	--	--
09-13-88	<.010	<.100	--	--	--
10-13-88	.010	<.100	--	--	--
11-09-88	.041	<.100	--	--	--
12-08-88	.070	.100	.085	-.030	43
01-13-89	.090	.080	.085	.010	11
02-09-89	.110	<.100	--	--	--
03-10-89	.070	<.100	--	--	--
04-03-89	.080	.090	.085	-.010	12
05-08-89	.030	.110	.070	-.080	267
05-30-89	.140	.180	.160	-.040	29
06-08-89	.080	.120	.100	-.040	50
07-13-89	.040	<.100	--	--	--
08-10-89	.020	<.100	--	--	--
09-01-89	.080	<.100	--	--	--
10-05-89	.030	<.100	--	--	--
10-05-89	.030	<.100	--	--	--
11-02-89	.020	<.100	--	--	--
12-07-89	.080	<.100	--	--	--
01-11-90	.150	.210	.180	-.060	40
02-13-90	.050	<.100	--	--	--
03-09-90	.090	.160	.125	-.070	78
04-04-90	.030	<.100	--	--	--
05-03-90	.020	<.100	--	--	--
		05526000 Iroquois River near Chebanse, Illinois			
07-09-87	.070	<.100	--	--	--
08-11-87	.040	.220	.130	-.180	450
09-10-87	.040	<.100	--	--	--
09-10-87	.040	<.100	--	--	--
10-08-87	.040	<.100	--	--	--
11-06-87	.030	<.100	--	--	--
12-08-87	.200	.190	.195	.010	5
01-04-88	.090	<.100	--	--	--
02-09-88	.120	.130	.125	-.010	8
03-08-88	.060	<.100	--	--	--
04-04-88	.130	.120	.125	.010	8
05-02-88	.020	.024	.022	-.004	20
06-10-88	.020	<.100	--	--	--
07-08-88	.160	<.100	--	--	--
08-12-88	.070	<.100	--	--	--

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NH_4, dissolved (mg/L as N) (00608)--Continued			
		05526000 Iroquois River near Chebanse, Illinois--Continued			
08-24-88	0.050	<0.100	--	--	--
09-13-88	<.010	<.100	--	--	--
10-13-88	.020	<.100	--	--	--
10-13-88	.020	<.100	--	--	--
11-09-88	.030	<.100	--	--	--
12-08-88	.080	<.100	--	--	--
01-13-89	.100	.080	0.090	0.020	20
02-09-89	.080	<.100	--	--	--
03-10-89	.120	.150	.135	-.030	25
03-10-89	.150	<.100	--	--	--
04-03-89	.080	.090	.085	-.010	12
04-03-89	.080	.090	.085	-.010	12
04-04-89	.140	.210	.175	-.070	50
05-08-89	.030	.120	.075	-.090	300
06-08-89	.070	<.100	--	--	--
07-13-89	.110	.140	.125	-.030	27
08-10-89	.060	<.100	--	--	--
09-01-89	.070	<.100	--	--	--
10-05-89	.020	<.100	--	--	--
11-03-89	.030	<.100	--	--	--
12-07-89	.140	.150	.145	-.010	7
01-11-90	.150	.180	.165	-.030	20
02-13-90	.070	<.100	--	--	--
02-24-90	.110	<.100	--	--	--
02-26-90	.100	.120	.110	-.020	20
03-09-90	.100	.250	.175	-.150	150
03-15-90	.060	<.100	--	--	--
04-04-90	.050	<.100	--	--	--
05-03-90	.020	<.100	--	--	--
		05532500 Des Plaines River at Riverside, Illinois			
07-07-87	.210	.200	.205	.010	5
08-12-87	.180	.530	.355	-.350	194
08-14-87	.270	.480	.375	-.210	78
08-27-87	.120	.200	.160	-.080	67
09-09-87	.140	.190	.165	-.050	36
10-07-87	.260	.260	.260	0	0
11-10-87	.550	.580	.565	-.030	5
12-09-87	.230	.250	.240	-.020	9
01-05-88	.330	.290	.310	.040	12
02-10-88	.330	.330	.330	0	0
03-10-88	.820	.790	.805	.030	4
04-06-88	.390	.390	.390	0	0
05-03-88	.040	<.100	--	--	--
06-08-88	.510	.510	.510	0	0
07-06-88	.100	.060	.080	.040	40
08-10-88	.400	.430	.415	-.030	8
08-23-88	.790	.840	.815	-.050	6
09-12-88	.580	.500	.540	.080	14
10-12-88	.110	.120	.115	-.010	9
11-08-88	.250	.230	.240	.020	8

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NH_4, dissolved (mg/L as N) (00608)--Continued			
	05532500 Des Plaines River at Riverside, Illinois--Continued				
12-07-88	0.630	0.580	0.605	0.050	8
01-11-89	.510	.490	.500	.020	4
01-11-89	.500	.490	.495	.010	2
02-07-89	.420	.420	.420	0	0
03-08-89	.650	.620	.635	.030	5
04-05-89	.570	.770	.670	-.200	35
05-11-89	.360	.420	.390	-.060	17
06-06-89	.380	.460	.420	-.080	21
07-11-89	.580	.670	.625	-.090	16
08-09-89	.160	.230	.195	-.070	44
08-31-89	.140	.160	.150	-.020	14
08-31-89	.150	.160	.155	-.010	7
10-04-89	.320	.360	.340	-.040	12
11-01-89	.530	.530	.530	0	0
12-06-89	.470	.480	.475	-.010	2
01-10-90	1.00	1.00	1.00	0	0
02-10-90	.420	.560	.490	-.140	33
03-08-90	.310	.360	.335	-.050	16
04-03-90	.250	.410	.330	-.160	64
05-02-90	.021	.460	.2405	-.439	2,090
	05536995 Chicago Sanitary and Ship Canal at Romeoville, Illinois				
07-08-87	3.70	3.20	3.45	.50	14
08-12-87	1.40	1.70	1.55	-.30	21
08-14-87	1.80	1.90	1.85	-.10	6
08-27-87	.930	.980	.955	-.050	5
09-09-87	1.10	1.10	1.10	0	0
10-07-87	2.00	2.60	2.30	-.60	30
11-10-87	6.80	6.63	6.715	.17	2
12-09-87	3.70	3.30	3.50	.40	11
01-05-88	2.90	2.70	2.80	.20	7
02-10-88	1.70	4.40	3.05	-2.70	159
03-10-88	7.80	7.40	7.60	.40	5
04-06-88	3.20	3.10	3.15	.10	3
04-06-88	3.10	3.10	3.10	0	0
05-05-88	3.00	3.00	3.00	0	0
06-07-88	1.30	1.22	1.26	.08	6
07-06-88	1.10	1.17	1.135	-.07	6
08-10-88	.950	.940	.945	.010	1
08-23-88	.620	.560	.590	.060	10
09-12-88	.770	.740	.755	.030	4
10-12-88	.430	.440	.435	-.010	2
11-08-88	.570	.740	.655	-.170	30
12-07-88	.950	1.00	.975	-.050	5
01-12-89	1.00	1.00	1.00	0	0
02-08-89	1.20	1.20	1.20	0	0
03-09-89	4.90	4.50	4.70	.40	8
04-06-89	2.40	2.60	2.50	-.20	8
06-07-89	.850	.960	.905	-.110	13
07-12-89	1.70	2.00	1.85	-.30	18
07-12-89	1.70	1.80	1.75	-.10	6
08-09-89	.670	.960	.815	-.290	43

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NH_4, dissolved (mg/L as N) (00608)--Continued			
	05536995 Chicago Sanitary and Ship Canal at Romeoville, Illinois--Continued				
08-31-89	1.40	1.60	1.50	-0.20	14
10-04-89	.600	.680	.640	-.080	13
11-02-89	2.00	2.10	2.05	-.10	5
12-06-89	2.20	2.20	2.20	0	0
01-10-90	4.10	4.10	4.10	0	0
02-10-90	2.10	2.00	2.05	.10	5
03-08-90	1.80	2.00	1.90	-.20	11
04-03-90	.410	2.10	1.255	-1.69	412
05-02-90	2.20	1.90	2.05	.30	14
	05540500 Du Page River at Shorewood, Illinois				
07-08-87	.180	.027	.1035	.153	85
08-11-87	.140	.170	.155	-.030	21
08-14-87	.190	.360	.275	-.170	89
08-14-87	.260	.430	.345	-.170	65
08-27-87	.190	.140	.165	.050	26
09-10-87	.040	<.100	--	--	--
10-07-87	.050	<.100	--	--	--
11-10-87	.080	.065	.0725	.015	19
12-08-87	.280	.270	.275	.010	4
01-04-88	.480	.430	.455	.050	10
02-10-88	.600	.550	.575	.050	8
03-10-88	.500	.540	.520	-.040	8
04-06-88	.160	.180	.170	-.020	12
05-03-88	.050	<.100	--	--	--
06-07-88	.050	.020	.035	.030	60
07-07-88	.030	<.100	--	--	--
07-07-88	.030	<.100	--	--	--
08-10-88	.230	.130	.180	.100	43
08-24-88	.060	<.100	--	--	--
09-11-88	.040	<.100	--	--	--
10-13-88	.050	<.100	--	--	--
10-13-88	.050	<.100	--	--	--
11-09-88	.360	.300	.330	.060	17
12-08-88	.230	.260	.245	-.030	13
01-12-89	.350	.340	.345	.010	3
02-08-89	.670	.580	.625	.090	13
03-09-89	.390	.300	.345	.090	23
04-06-89	.060	.180	.120	-.120	200
04-06-89	.060	.140	.100	-.080	133
06-07-89	.280	.320	.300	-.040	14
07-12-89	.040	<.100	--	--	--
08-10-89	.090	.140	.115	-.050	56
09-01-89	.190	.230	.210	-.040	21
10-05-89	.030	<.100	--	--	--
11-02-89	.050	<.100	--	--	--
12-07-89	.270	.280	.275	-.010	4
01-11-90	.750	.800	.775	-.050	7
01-11-90	.740	.880	.810	-.140	19
02-10-90	.240	.320	.280	-.080	33
03-09-90	.340	.410	.375	-.070	21

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NH_4, dissolved (mg/L as N) (00608)--Continued			
		05540500 Du Page River at Shorewood, Illinois--Continued			
04-04-90	0.030	<0.100	--	--	--
05-03-90	.030	.130	0.080	-0.100	333
		05543500 Illinois River at Marseilles, Illinois			
04-14-87	3.50	3.50	3.50	0	0
07-06-87	.850	.820	.835	.030	4
08-18-87	.440	.580	.510	-.140	32
09-08-87	.260	.310	.285	-.050	19
10-06-87	.360	.470	.415	-.110	31
11-05-87	1.40	1.54	1.47	-.14	10
11-19-87	2.80	2.90	2.85	-.10	4
01-14-88	1.20	1.30	1.25	-.10	8
01-14-88	1.30	1.30	1.30	0	0
02-12-88	1.50	1.50	1.50	0	0
03-09-88	1.90	1.90	1.90	0	0
04-05-88	.420	.460	.440	-.040	10
05-04-88	.610	.700	.655	-.090	15
06-06-88	.340	.380	.360	-.040	12
07-05-88	.040	.040	.040	0	0
08-09-88	.080	.080	.080	0	0
08-22-88	.280	.200	.240	.080	29
09-10-88	.030	<.100	--	--	--
10-11-88	.280	.310	.295	-.030	11
11-01-88	.240	.300	.270	-.060	25
11-07-88	.290	.340	.315	-.050	17
12-06-88	.300	.270	.285	.030	10
01-10-89	.650	.650	.650	0	0
02-06-89	.720	.730	.725	-.010	1
02-28-89	.860	.860	.860	0	0
03-07-89	1.50	1.45	1.475	.05	3
03-21-89	1.40	1.70	1.55	-.30	21
04-04-89	.810	.830	.820	-.020	2
05-10-89	.340	.400	.370	-.060	18
06-05-89	.220	.230	.225	-.010	5
07-10-89	.110	.170	.140	-.060	55
07-10-89	.110	.160	.135	-.050	45
08-08-89	.260	.300	.280	-.040	15
08-29-89	.150	.220	.185	-.070	47
08-30-89	.210	.220	.215	-.010	5
10-03-89	.020	.040	.030	-.020	100
10-31-89	.380	.410	.395	-.030	8
12-05-89	.370	.390	.380	-.020	5
01-09-90	.970	.960	.965	.010	1
02-09-90	.500	.600	.550	-.100	20
03-07-90	.320	.360	.340	-.040	12
03-12-90	.260	.290	.275	-.030	12
04-02-90	.330	.360	.345	-.030	9
05-01-90	.150	.240	.195	-.090	60

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NH_4, dissolved (mg/L as N) (00608)--Continued			
		05550000 Fox River at Algonquin, Illinois			
07-07-87	0.130	0.740	0.435	-0.610	469
07-07-87	.090	.130	.110	-.040	44
08-13-87	.010	.170	.090	-.160	1,600
09-09-87	.050	.080	.065	-.030	60
10-06-87	.020	<.100	--	--	--
11-05-87	.020	<.100	--	--	--
12-09-87	.200	.240	.220	-.040	20
01-05-88	.210	.180	.195	.030	14
02-11-88	.250	.230	.240	.020	8
03-11-88	.360	.340	.350	.020	6
04-07-88	.020	<.100	--	--	--
05-03-88	.030	<.100	--	--	--
06-09-88	.010	<.100	--	--	--
07-07-88	.040	<.100	--	--	--
07-07-88	.040	<.100	--	--	--
08-11-88	.090	.110	.100	-.020	22
08-23-88	.510	.380	.445	.130	25
09-11-88	.040	.320	.180	-.280	700
10-12-88	.920	.960	.940	-.040	4
11-08-88	.680	.690	.685	-.010	1
12-07-88	.120	.120	.120	0	0
01-11-89	.190	.190	.190	0	0
01-11-89	.230	.190	.210	.040	17
02-07-89	.500	.480	.490	.020	4
03-08-89	.540	.500	.520	.040	7
04-05-89	.070	.080	.075	-.010	14
05-11-89	<.010	.020	--	--	--
06-06-89	.060	.070	.065	-.010	17
07-11-89	<.010	.040	--	--	--
08-09-89	.020	.040	.030	-.020	100
08-31-89	.020	.030	.025	-.010	50
10-04-89	.020	.050	.035	-.030	150
11-01-89	.080	.110	.095	-.030	38
12-06-89	.120	.140	.130	-.020	17
01-10-90	.730	.740	.735	-.010	1
02-09-90	.260	.330	.295	-.070	27
03-08-90	.060	<.100	--	--	--
04-03-90	.020	<.100	--	--	--
05-02-90	<.010	.160	--	--	--
		05552500 Fox River at Dayton, Illinois			
07-06-87	.060	.080	.070	-.020	33
08-13-87	<.010	.220	--	--	--
08-27-87	.100	.200	.150	-.100	100
09-08-87	.020	.030	.025	-.010	50
10-06-87	.020	<.100	--	--	--

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, NH_4, dissolved (mg/L as N) (00608)--Continued			
		05552500 Fox River at Dayton, Illinois--Continued			
11-05-87	0.020	0.011	0.0155	0.009	45
12-10-87	.110	.110	.110	0	0
01-14-88	.270	.220	.245	.050	19
01-14-88	.260	.280	.270	-.020	8
02-11-88	.220	.220	.220	0	0
03-09-88	.070	<.100	--	--	--
04-05-88	.030	.015	.0225	.015	50
05-04-88	<.010	<.100	--	--	--
06-06-88	.030	.020	.025	.010	33
07-05-88	.020	.020	.020	0	0
08-09-88	.020	.040	.030	-.020	100
08-22-88	.060	.030	.045	.030	50
10-11-88	.040	.030	.035	.010	25
11-07-88	.150	.210	.180	-.060	40
12-06-88	.020	<.100	--	--	--
01-10-89	.350	.370	.360	-.020	6
02-06-89	.040	.040	.040	0	0
03-07-89	.330	.320	.325	.010	3
04-04-89	.020	.010	.015	.010	50
05-10-89	<.010	.020	--	--	--
06-05-89	.040	.040	.040	0	0
07-10-89	.020	.050	.035	-.030	150
08-08-89	.020	.040	.030	-.020	100
08-30-89	.020	.020	.020	0	0
10-03-89	.020	.030	.025	-.010	50
10-03-89	.010	.040	.025	-.030	300
10-31-89	.020	.030	.025	-.010	50
12-05-89	.020	.020	.020	0	0
01-09-90	.500	.520	.510	-.020	4
02-09-90	.150	.230	.190	-.080	53
03-07-90	.020	<.100	--	--	--
04-02-90	.010	<.100	--	--	--
05-01-90	<.010	.120	--	--	--
		Nitrogen, total kjeldahl (mg/L as N) (00625)			
		05520500 Kankakee River at Momence, Illinois			
09-10-87	.60	.20	.40	.40	67
10-08-87	.60	.60	.60	0	0
11-06-87	.30	.40	.35	-.10	33
12-08-87	--	.70	--	--	--
01-04-88	--	.70	--	--	--
02-09-88	.90	.90	.90	0	0
03-08-88	.60	.70	.65	-.10	17
04-04-88	1.3	1.0	1.15	.3	23
04-04-88	1.2	1.1	1.15	.1	8
05-02-88	1.0	.70	.85	.3	30
06-09-88	.60	1.0	.80	-.4	67
07-08-88	1.0	.60	.80	.4	40
08-11-88	.80	1.1	.95	-.3	38
08-24-88	.70	.50	.60	.20	29
09-13-88	1.3	.50	.90	.8	62

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, total kjeldahl (mg/L as N) (00625)--Continued			
		05520500 Kankakee River at Momence, Illinois--Continued			
10-13-88	0.40	0.20	0.30	0.20	50
11-09-88	.70	.50	.60	.20	29
12-08-88	.70	.50	.60	.20	29
01-13-89	.80	1.0	.90	-.2	25
02-09-89	.50	.60	.55	-.10	20
03-10-89	1.2	.80	1.0	.4	33
04-03-89	1.4	1.4	1.4	0	0
05-08-89	.40	1.3	.85	-.90	225
05-30-89	1.0	3.0	2.0	-2.0	200
06-08-89	1.0	1.4	1.2	-.4	40
07-13-89	1.0	1.4	1.2	-.4	40
08-10-89	.80	.60	.70	.20	25
09-01-89	1.0	.60	.80	.4	40
10-05-89	.40	.20	.30	.20	50
10-05-89	.70	.20	.45	.50	71
11-02-89	.70	.40	.55	.30	43
12-07-89	.60	.20	.40	.40	67
01-11-90	.70	.40	.55	.30	43
02-13-90	.40	.60	.50	-.20	50
03-09-90	.80	1.7	1.25	-.90	112
04-04-90	.50	.60	.55	-.10	20
05-03-90	1.0	.80	.90	.2	20
		05526000 Iroquois River near Chebanse, Illinois			
09-10-87	1.0	1.0	1.0	0	0
09-10-87	1.1	1.1	1.1	0	0
10-08-87	1.2	.80	1.0	.4	33
11-06-87	.60	.80	.70	-.20	33
12-08-87	--	1.4	--	--	--
01-04-88	--	.90	--	--	--
02-09-88	1.0	1.0	1.0	0	0
03-08-88	.90	.90	.90	0	0
04-04-88	1.3	.90	1.1	.4	31
05-02-88	.90	1.0	.95	-.1	11
06-10-88	.80	1.0	.90	-.2	25
07-08-88	1.3	.70	1.0	.6	46
08-12-88	.70	.60	.65	.10	14
08-24-88	.70	.80	.75	-.10	14
09-13-88	.60	.40	.50	.20	33
10-13-88	.50	.70	.60	-.20	40
10-13-88	.70	.50	.60	.20	29
11-09-88	.80	.90	.85	-.10	12
12-08-88	1.5	.80	1.15	.7	47
01-13-89	1.9	.90	1.4	1.0	53
02-09-89	1.1	.60	.85	.5	45
03-10-89	.90	1.1	1.0	-.2	22
03-10-89	3.5	1.2	2.35	2.3	66
04-03-89	1.1	.70	.90	.4	36
04-03-89	1.3	1.0	1.15	.3	23

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, total kjeldahl (mg/L as N) (00625)--Continued			
		05526000 Iroquois River near Chebanse, Illinois--Continued			
04-04-89	1.3	1.3	1.3	0	0
05-08-89	1.0	1.2	1.1	-.2	20
06-08-89	1.2	1.5	1.35	-.3	25
07-13-89	1.1	5.0	3.05	-3.9	355
08-10-89	1.1	.90	1.0	.2	18
09-01-89	2.2	1.9	2.05	.3	14
10-05-89	.70	.70	.70	0	0
11-03-89	.60	.80	.70	-.20	33
12-07-89	1.0	.40	.70	.6	60
01-11-90	1.0	.70	.85	.3	30
02-13-90	.70	.40	.55	.30	43
02-24-90	1.6	3.0	2.3	-1.4	88
02-26-90	2.0	2.1	2.05	-.1	5
03-09-90	1.3	1.9	1.6	-.6	46
03-15-90	1.6	2.6	2.1	-1.0	62
04-04-90	.90	.56	.73	.34	38
05-03-90	.80	.80	.80	0	0
		05532500 Des Plaines River at Riverside, Illinois			
08-27-87	1.0	1.2	1.1	-.2	20
09-09-87	1.5	1.4	1.45	.1	7
10-07-87	2.2	1.3	1.75	.9	41
11-10-87	1.6	1.8	1.7	-.2	12
12-09-87	--	1.5	--	--	--
01-05-88	--	1.2	--	--	--
02-10-88	1.1	1.5	1.3	-.4	36
03-10-88	1.8	2.0	1.9	-.2	11
04-06-88	1.9	1.8	1.85	.1	5
05-03-88	1.2	1.3	1.25	-.1	8
06-08-88	2.1	3.3	2.7	-1.2	57
07-06-88	1.4	2.8	2.1	-1.4	100
08-10-88	3.0	2.0	2.5	1.0	33
08-23-88	1.7	2.7	2.2	-1.0	59
09-12-88	3.0	3.8	3.4	-.8	27
10-12-88	1.3	1.8	1.55	-.5	38
11-08-88	1.2	1.2	1.2	0	0
12-07-88	2.1	1.5	1.8	.6	29
01-11-89	1.5	1.8	1.65	-.3	20
01-11-89	1.5	1.7	1.6	-.2	13
02-07-89	1.8	1.6	1.7	.2	11
03-08-89	1.2	2.3	1.75	-1.1	92
04-05-89	2.0	1.8	1.9	.2	10
05-11-89	1.5	1.7	1.6	-.2	13
06-06-89	1.7	1.7	1.7	0	0
07-11-89	1.7	2.7	2.2	-1.0	59
08-09-89	1.4	1.9	1.65	-.5	36
08-31-89	.90	1.6	1.25	-.7	78
08-31-89	1.1	1.6	1.35	-.5	45
10-04-89	1.6	1.9	1.75	-.3	19

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
	Nitrogen, total kjeldahl (mg/L as N) (00625)--Continued				
	05532500 Des Plaines River at Riverside, Illinois--Continued				
11-01-89	1.9	1.9	1.9	0	0
12-06-89	1.7	1.9	1.8	-.2	12
01-10-90	2.1	2.6	2.35	-.5	24
02-10-90	1.6	1.3	1.45	.3	19
03-08-90	1.4	1.5	1.45	-.1	7
04-03-90	1.3	1.0	1.15	.3	23
05-02-90	1.9	2.3	2.1	-.4	21
	05536995 Chicago Sanitary and Ship Canal at Romeoville, Illinois				
08-27-87	2.6	2.9	2.75	-.3	12
09-09-87	1.7	2.1	1.9	-.4	24
10-07-87	4.0	3.3	3.65	.7	18
11-10-87	--	7.6	--	--	--
12-09-87	--	5.0	--	--	--
01-05-88	--	4.1	--	--	--
02-10-88	6.5	6.0	6.25	.5	8
03-10-88	11.0	8.6	9.8	2.4	22
04-06-88	5.8	6.3	6.05	-.5	9
04-06-88	6.1	6.4	6.25	-.3	5
05-05-88	4.3	4.4	4.35	-.1	2
06-07-88	1.5	2.7	2.1	-1.2	80
07-06-88	2.5	2.3	2.4	.2	8
08-10-88	3.0	2.1	2.55	.9	30
08-23-88	1.0	1.3	1.15	-.3	30
09-12-88	1.4	1.3	1.35	.10	7
10-12-88	1.2	1.4	1.3	-.20	17
11-08-88	1.8	1.9	1.85	-.10	6
12-07-88	2.5	2.0	2.25	.5	20
01-12-89	2.3	2.0	2.15	.3	13
02-08-89	2.4	2.4	2.4	0	0
03-09-89	6.2	5.9	6.05	.3	5
04-06-89	3.2	3.8	3.5	-.6	19
05-12-89	3.3	2.6	2.95	.7	21
06-07-89	1.7	1.9	1.8	-.2	12
07-12-89	2.6	2.6	2.6	0	0
07-12-89	2.6	2.3	2.45	.3	12
08-09-89	1.7	1.4	1.55	.3	18
08-31-89	2.6	2.1	2.35	.5	19
10-04-89	1.3	1.4	1.35	-.1	8
11-02-89	2.6	3.6	3.1	-1.0	38
12-06-89	3.1	3.9	3.5	-.8	26
01-10-90	5.3	4.7	5.0	.6	11
02-10-90	3.4	3.1	3.25	.3	9
03-08-90	3.0	3.5	3.25	-.5	17
04-03-90	2.9	3.3	3.1	-.4	14
05-02-90	3.3	3.8	3.55	-.5	15

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, total kjeldahl (mg/L as N) (00625)--Continued			
		05540500 Du Page River at Shorewood, Illinois			
08-27-87	1.1	1.4	1.25	-0.3	27
09-10-87	1.8	1.0	1.4	.8	44
10-07-87	1.5	.5	1.0	1.0	67
11-10-87	.90	1.0	.95	-.1	11
12-08-87	--	1.9	--	--	--
01-04-88	--	1.2	--	--	--
02-10-88	1.5	1.4	1.45	.1	7
03-10-88	1.5	1.6	1.55	-.1	7
04-06-88	1.7	4.4	3.05	-2.7	159
05-03-88	.80	1.0	.90	-.2	25
06-07-88	2.0	1.4	1.7	.6	30
07-07-88	1.7	1.5	1.6	.2	12
07-07-88	1.8	1.5	1.65	.3	17
08-10-88	2.3	1.5	1.9	.8	35
08-24-88	1.0	.80	.90	.2	20
09-11-88	1.3	.80	1.05	.5	38
10-13-88	1.0	.80	.90	.2	20
10-13-88	1.1	.90	1.0	.2	18
11-09-88	1.4	1.4	1.4	0	0
12-08-88	1.6	1.2	1.4	.4	25
01-12-89	1.4	1.3	1.35	.1	7
02-08-89	1.8	1.3	1.55	.5	28
03-09-89	.70	1.3	1.0	-.6	86
04-06-89	1.0	.70	.85	.3	30
04-06-89	.90	1.0	.95	-.1	11
05-12-89	1.4	.20	.80	1.2	86
06-07-89	1.1	1.6	1.35	-.5	45
07-12-89	1.1	3.8	2.45	-2.7	245
08-10-89	1.8	1.4	1.6	.4	22
09-01-89	2.4	2.2	2.3	.2	8
10-05-89	.80	.40	.60	.40	50
11-02-89	1.3	.80	1.05	.5	38
12-07-89	1.4	2.2	1.8	-.8	57
01-11-90	1.9	1.5	1.7	.4	21
01-11-90	1.8	1.4	1.6	.4	22
02-10-90	1.3	.70	1.0	.6	46
03-09-90	1.3	3.0	2.15	-1.7	131
04-04-90	.90	.80	.85	.10	11
05-03-90	1.4	1.1	1.25	.3	21
		05543500 Illinois River at Marseilles, Illinois			
04-14-87	4.1	4.7	4.4	-.6	15
09-08-87	1.3	1.3	1.3	0	0
10-06-87	1.8	1.0	1.4	.8	44
11-05-87	2.6	2.5	2.55	.1	4
11-19-87	4.1	3.4	3.75	.7	17
12-17-87	--	2.1	--	--	--
01-14-88	--	2.4	--	--	--
01-14-88	--	2.4	--	--	--
02-12-88	2.2	2.6	2.4	-.4	18
03-09-88	--	3.0	--	--	--

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, total kjeldahl (mg/L as N) (00625)--Continued			
		05543500 Illinois River at Marseilles, Illinois--Continued			
04-05-88	1.6	1.8	1.7	-0.2	12
05-04-88	1.7	1.7	1.7	0	0
06-06-88	1.5	1.8	1.65	-.3	20
07-05-88	.90	1.7	1.3	-.8	89
08-09-88	1.8	1.1	1.45	.7	39
08-22-88	1.6	1.2	1.4	.4	25
09-10-88	.60	1.0	.80	-.4	67
10-11-88	1.1	1.4	1.25	-.3	27
11-01-88	1.7	1.3	1.5	.4	24
11-07-88	1.2	1.3	1.25	-.1	8
12-06-88	1.4	1.1	1.25	.3	21
01-10-89	2.5	2.3	2.4	.2	8
02-06-89	1.6	1.6	1.6	0	0
02-28-89	2.1	3.4	2.75	-1.3	62
03-07-89	3.0	3.1	3.05	-.1	3
03-21-89	2.8	2.4	2.6	.4	14
04-04-89	1.9	1.7	1.8	.2	11
05-10-89	1.7	1.8	1.75	-.1	6
06-05-89	1.5	2.3	1.9	-.8	53
07-10-89	.80	1.1	.95	-.3	38
07-10-89	.80	1.1	.95	-.3	38
08-08-89	.70	1.2	.95	-.5	71
08-29-89	3.1	.40	1.75	2.7	87
08-30-89	1.3	1.2	1.25	.1	8
10-03-89	1.0	1.2	1.1	-.2	20
10-31-89	1.2	1.3	1.25	-.1	8
12-05-89	1.4	1.3	1.35	.1	7
01-09-90	1.9	2.0	1.95	-.1	5
02-09-90	1.5	1.2	1.35	.3	20
03-07-90	1.2	1.5	1.35	-.3	25
03-12-90	1.4	3.6	2.5	-2.2	157
04-02-90	1.1	1.4	1.25	-.3	27
05-01-90	2.2	1.4	1.8	.8	36
		05550000 Fox River at Algonquin, Illinois			
09-09-87	2.1	1.8	1.95	.3	14
10-06-87	2.3	1.8	2.05	.5	22
11-05-87	.40	2.3	1.35	-1.9	475
12-09-87	--	1.2	--	--	--
01-05-88	--	1.2	--	--	--
02-11-88	1.0	1.5	1.25	-.5	50
03-11-88	1.6	1.5	1.55	.1	6
04-07-88	1.5	1.4	1.45	.1	7
05-03-88	1.2	1.8	1.5	-.6	50
06-09-88	1.2	2.6	1.9	-1.4	117
07-07-88	2.3	2.0	2.15	.3	13
07-07-88	.80	2.3	1.55	-1.5	188
08-11-88	2.3	3.2	2.75	-.9	39
08-23-88	3.6	3.9	3.75	-.3	8
09-11-88	1.9	3.2	2.55	-1.3	68

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, total kjeldahl (mg/L as N) (00625)--Continued			
		05550000 Fox River at Algonquin, Illinois--Continued			
10-12-88	3.1	3.2	3.15	-0.1	3
11-08-88	2.5	2.5	2.5	0	0
12-07-88	1.7	1.7	1.7	0	0
01-11-89	1.3	1.5	1.4	-.2	15
01-11-89	1.3	1.4	1.35	-.1	8
02-07-89	1.5	1.9	1.7	-.4	27
03-08-89	1.7	1.4	1.55	.3	18
04-05-89	1.5	1.6	1.55	-.1	7
05-11-89	1.2	2.4	1.8	-1.2	100
06-06-89	1.9	1.9	1.9	0	0
07-11-89	1.0	1.8	1.4	-.8	80
08-09-89	2.2	1.6	1.9	.6	27
08-31-89	1.5	1.7	1.6	-.2	13
10-04-89	1.8	1.8	1.8	0	0
11-01-89	2.0	2.1	2.05	-.1	5
12-06-89	1.5	1.7	1.6	-.2	13
01-10-90	1.6	1.9	1.75	-.3	19
02-09-90	1.3	.80	1.05	.5	38
03-08-90	.70	1.2	.95	-.5	71
04-03-90	1.5	1.2	1.35	.3	20
05-02-90	2.0	2.3	2.15	-.3	15
		05552500 Fox River at Dayton, Illinois			
08-27-87	1.6	1.8	1.7	-.2	12
09-08-87	1.9	1.6	1.75	.3	16
10-06-87	1.3	1.0	1.15	.3	23
11-05-87	1.1	1.4	1.25	-.3	27
12-10-87	--	1.2	--	--	--
01-14-88	--	1.0	--	--	--
01-14-88	--	1.2	--	--	--
02-11-88	.90	1.1	1.0	-.2	22
03-09-88	.90	1.2	1.05	-.3	33
04-05-88	1.2	1.5	1.35	-.3	25
05-04-88	2.2	1.9	2.05	.3	14
06-06-88	1.8	3.3	2.55	-1.5	83
07-05-88	2.7	2.5	2.6	.2	7
08-09-88	4.3	3.1	3.7	1.2	28
08-22-88	2.2	2.7	2.45	-.5	23
09-10-88	--	2.6	--	--	--
10-11-88	1.2	1.4	1.3	-.2	17
11-07-88	1.7	1.9	1.8	-.2	12
12-06-88	1.8	1.8	1.8	0	0
01-10-89	1.8	1.5	1.65	.3	17
02-06-89	.80	1.0	.90	-.2	25
03-07-89	1.6	1.4	1.5	.2	12
04-04-89	1.7	1.8	1.75	.1	6
05-10-89	1.1	3.2	2.15	2.1	191
06-05-89	2.1	1.7	1.9	.4	19

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Nitrogen, total kjeldahl (mg/L as N) (00625)--Continued			
		05552500 Fox River at Dayton, Illinois--Continued			
07-10-89	1.6	2.2	1.9	-0.6	38
08-08-89	2.7	1.9	2.3	.8	30
08-30-89	2.2	2.7	2.45	.5	23
10-03-89	2.3	2.9	2.6	-.6	26
10-03-89	2.4	2.6	2.5	-.2	8
10-31-89	1.5	1.6	1.55	-.1	7
12-05-89	1.3	1.4	1.35	-.1	8
01-09-90	1.2	1.7	1.45	-.5	42
02-09-90	1.4	1.0	1.2	.4	29
03-07-90	1.1	1.0	1.05	.1	9
04-02-90	1.6	1.4	1.5	.2	12
05-01-90	1.9	2.2	2.05	-.3	16
		Phosphorus, total (mg/L as P) (00665)			
		05520500 Kankakee River at Momence, Illinois			
09-10-87	.030	.250	.140	-.220	733
10-08-87	.030	.070	.050	-.040	133
11-06-87	.050	.060	.055	-.010	20
12-08-87	--	.090	--	--	--
01-04-88	--	.040	--	--	--
02-09-88	.040	.030	.035	.010	25
03-08-88	.040	.060	.050	-.020	50
04-04-88	.150	.170	.160	-.020	13
04-04-88	.120	.170	.145	-.050	42
05-02-88	.040	.060	.050	-.020	50
06-09-88	.050	.100	.075	-.050	100
07-08-88	.700	.060	.380	.640	91
08-11-88	.060	.080	.070	-.020	33
08-24-88	.030	.050	.040	-.020	67
09-13-88	.070	.050	.060	.020	29
10-13-88	.040	.030	.035	.010	25
11-09-88	.041	.040	.0405	.001	2
12-08-88	.040	.040	.040	0	0
01-13-89	.050	.070	.060	-.020	40
02-09-89	.030	.030	.030	0	0
03-10-89	.040	.040	.040	0	0
04-03-89	.190	.200	.195	-.010	5
05-08-89	.040	.066	.053	-.026	65
05-30-89	.120	.390	.255	-.270	225
06-08-89	.050	.080	.065	-.030	60
07-13-89	.050	.114	.082	-.064	128
08-10-89	.070	.084	.077	-.014	20
09-01-89	.150	.140	.145	.010	7
10-05-89	.040	.080	.060	-.040	100
10-05-89	.050	.100	.075	-.050	100

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, total (mg/L as P) (00665)--Continued			
		05520500 Kankakee River at Momence, Illinois--Continued			
11-02-89	0.040	0.040	0.040	0	0
12-07-89	.040	.040	.040	0	0
01-11-90	.060	.040	.050	.020	33
02-13-90	.050	.060	.055	-.010	20
03-09-90	.040	.180	.110	-.140	350
04-04-90	.050	.170	.110	-.120	240
05-03-90	.050	.060	.055	-.010	20
		05526000 Iroquois River near Chebanse, Illinois			
09-10-87	.080	.160	.120	-.080	100
09-10-87	.080	.190	.135	-.110	138
10-08-87	.120	.110	.115	.010	8
11-06-87	.050	.080	.065	-.030	60
12-08-87	--	.160	--	--	--
01-04-88	--	.180	--	--	--
02-09-88	.060	.060	.060	0	0
03-08-88	.140	.110	.125	.030	21
04-04-88	.260	.270	.265	-.010	4
05-02-88	.060	.070	.065	-.010	17
06-10-88	.080	.160	.120	-.080	100
07-08-88	.400	.100	.250	.300	75
08-12-88	.110	.140	.125	-.030	27
08-24-88	.150	.180	.165	-.030	20
09-13-88	.070	.080	.075	-.010	14
10-13-88	.020	.028	.024	-.008	40
10-13-88	.020	.030	.025	-.010	50
11-09-88	.050	.050	.050	0	0
12-08-88	.060	.060	.060	0	0
01-13-89	.070	.100	.085	-.030	43
02-09-89	.050	.050	.050	0	0
03-10-89	.080	.080	.080	0	0
03-10-89	.080	.084	.082	-.004	5
04-03-89	.140	.130	.135	.010	7
04-03-89	.140	.130	.135	.010	7
04-04-89	.120	.224	.172	-.104	87
05-08-89	.050	.090	.070	-.040	80
06-08-89	.100	.190	.145	-.090	90
07-13-89	.210	.260	.235	-.050	24
08-10-89	.140	.212	.176	-.072	51
09-01-89	.410	.650	.530	-.240	59
10-05-89	.080	.110	.095	-.030	38
11-03-89	.080	.060	.070	.020	25
12-07-89	.070	.063	.0665	.007	10
01-11-90	.050	.060	.055	-.010	20
02-13-90	.070	.090	.080	-.020	29
02-24-90	.380	.510	.445	-.130	34
02-26-90	.360	.390	.375	-.030	8
03-09-90	.140	.220	.180	-.080	57
03-15-90	.220	.440	.330	-.220	100
04-04-90	.070	.083	.0765	-.013	19
05-03-90	.060	.060	.060	0	0

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, total (mg/L as P) (00665)--Continued			
	05532500	Des Plaines River at Riverside, Illinois			
08-27-87	0.190	0.300	0.245	-0.110	58
09-09-87	.610	.620	.615	-.010	2
10-07-87	1.30	1.30	1.30	0	0
11-10-87	.950	1.02	.985	-.070	7
12-09-87	--	.420	--	--	--
01-05-88	--	.500	--	--	--
02-10-88	.350	.330	.340	.020	6
03-10-88	.570	.610	.590	-.040	7
04-06-88	.630	.810	.720	-.180	29
05-03-88	.600	.620	.610	-.020	3
06-08-88	1.10	1.17	1.135	-.07	6
07-06-88	1.40	1.33	1.365	.07	5
08-10-88	1.10	.960	1.03	.14	13
08-23-88	.940	.950	.945	-.010	1
09-12-88	.660	1.50	1.08	-.840	127
10-12-88	1.90	1.91	1.905	-.01	1
11-08-88	.620	.600	.610	.020	3
12-07-88	1.20	1.20	1.20	0	0
01-11-89	.630	.610	.620	.020	3
01-11-89	.620	.630	.625	-.010	2
02-07-89	1.10	1.06	1.08	.04	4
03-08-89	.770	.720	.745	.050	6
04-05-89	.760	.686	.723	.074	10
05-11-89	1.10	1.09	1.095	.01	1
06-06-89	.630	.590	.610	.040	6
07-11-89	1.10	1.20	1.15	-.10	9
08-09-89	.560	.570	.565	-.010	2
08-31-89	1.40	1.16	1.28	.24	17
08-31-89	1.30	1.18	1.24	.12	9
10-04-89	1.90	1.43	1.665	.47	25
11-01-89	1.60	1.52	1.56	.08	5
12-06-89	1.60	1.60	1.60	0	0
01-10-90	.930	.860	.895	.070	8
02-10-90	.630	.620	.625	.010	2
03-08-90	.430	.440	.435	-.010	2
04-03-90	.400	.420	.410	-.020	5
05-02-90	.840	.840	.840	0	0
	05536995	Chicago Sanitary and Ship Canal at Romeoville, Illinois			
08-27-87	.720	.760	.740	-.040	6
09-09-87	.250	.620	.435	-.370	148
10-07-87	.920	.780	.850	.140	15
11-10-87	.810	.880	.845	-.070	9
12-09-87	--	.856	--	--	--
01-05-88	--	.570	--	--	--
02-10-88	.610	.580	.595	.030	5
03-10-88	.820	.930	.875	-.110	13
04-06-88	1.30	1.01	1.155	.29	22
04-06-88	1.00	.960	.980	.04	4

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, total (mg/L as P) (00665)--Continued			
	05536995 Chicago Sanitary and Ship Canal at Romeoville, Illinois--Continued				
05-05-88	0.820	0.830	0.825	-0.010	1
06-07-88	.600	.590	.595	.010	2
07-06-88	.480	.540	.510	-.060	12
08-10-88	.480	.650	.565	-.170	35
08-23-88	.520	.600	.560	-.080	15
09-12-88	.430	.570	.500	-.140	33
10-12-88	1.40	1.40	1.40	0	0
11-08-88	.730	.780	.755	-.050	7
12-07-88	.830	1.60	1.215	-.770	93
01-12-89	.390	.490	.440	-.100	26
02-08-89	1.00	1.05	1.025	-.05	5
03-09-89	.640	.600	.620	.040	6
04-06-89	.800	.740	.770	.060	8
05-12-89	1.10	1.10	1.10	0	0
06-07-89	.280	.314	.297	-.034	12
07-12-89	.430	.450	.440	-.020	5
07-12-89	.410	.440	.425	-.030	7
08-09-89	.440	.430	.435	.010	2
08-31-89	.570	.620	.595	-.050	9
10-04-89	.940	.920	.930	.020	2
11-02-89	.910	.880	.895	.030	3
12-06-89	1.10	1.40	1.25	-.30	27
01-10-90	1.10	1.10	1.10	0	0
02-10-90	.740	.680	.710	.060	8
03-08-90	.680	.810	.745	-.130	19
04-03-90	.790	.670	.730	.120	15
05-02-90	.770	.890	.830	-.120	16
		05540500 Du Page River at Shorewood, Illinois			
08-27-87	.250	.480	.365	-.230	92
09-10-87	.020	.700	.360	-.680	3,400
10-07-87	1.10	1.20	1.15	-.10	9
11-10-87	1.00	1.07	1.035	-.07	7
12-08-87	--	.500	--	--	--
01-04-88	--	.560	--	--	--
02-10-88	.620	.640	.630	-.020	3
03-10-88	.650	.720	.685	-.070	11
04-06-88	.800	.990	.895	-.190	24
05-03-88	.770	.720	.745	.050	6
06-07-88	1.00	1.02	1.01	-.02	2
07-07-88	.780	.720	.750	.060	8
07-07-88	1.70	.790	1.245	.91	54
08-10-88	1.00	1.02	1.01	-.02	2
08-24-88	1.20	1.40	1.30	-.20	17
09-11-88	1.20	1.33	1.265	-.13	11
10-13-88	2.30	2.30	2.30	0	0
10-13-88	2.20	2.20	2.20	0	0
11-09-88	1.10	1.20	1.15	-.10	9
12-08-88	1.20	1.30	1.25	-.10	8

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, total (mg/L as P) (00665)--Continued			
		05540500 Du Page River at Shorewood, Illinois--Continued			
01-12-89	0.570	0.560	0.565	0.010	2
02-08-89	1.20	1.23	1.215	-.03	2
03-09-89	.710	.700	.705	.010	1
04-06-89	.720	.670	.695	.050	7
04-06-89	.720	.670	.695	.050	7
05-12-89	1.00	1.20	1.10	-.20	20
06-07-89	.420	.610	.515	-.190	45
07-12-89	1.80	1.40	1.60	.40	22
08-10-89	.880	.960	.920	-.080	9
09-01-89	1.10	1.10	1.10	0	0
10-05-89	1.90	1.60	1.75	.30	16
11-02-89	2.20	2.00	2.10	.20	9
12-07-89	1.70	2.70	2.20	-1.00	59
01-11-90	1.70	1.40	1.55	.30	18
01-11-90	1.70	1.40	1.55	.30	18
02-10-90	.800	.640	.720	.160	20
03-09-90	.340	.620	.480	-.280	82
04-04-90	.670	.610	.640	.060	9
05-03-90	.920	.960	.940	-.040	4
		05543500 Illinois River at Marseilles, Illinois			
04-14-87	.560	.470	.515	.090	16
09-08-87	.140	.360	.250	-.220	157
10-06-87	.700	.654	.677	.046	7
11-05-87	.580	.470	.525	.110	19
11-19-87	.760	.720	.740	.040	5
12-17-87	--	.320	--	--	--
01-14-88	--	.300	--	--	--
01-14-88	--	.300	--	--	--
02-12-88	.280	.280	.280	0	0
03-09-88	.310	.346	.328	-.036	12
04-05-88	.260	.270	.265	-.010	4
05-04-88	.260	.360	.310	-.100	38
06-06-88	.370	.450	.410	-.080	22
07-05-88	.450	.490	.470	-.040	9
08-09-88	.390	.490	.440	-.100	26
08-22-88	.460	.440	.450	.020	4
09-10-88	.410	.480	.445	-.070	17
10-11-88	.500	.520	.510	-.020	4
11-01-88	.418	.450	.434	-.032	8
11-07-88	.590	.570	.580	.020	3
12-06-88	.300	.310	.305	-.010	3
01-10-89	.260	.440	.350	-.180	69
02-06-89	.390	.440	.415	-.050	13
02-28-89	.490	.500	.495	-.010	2
03-07-89	.550	.490	.520	.060	11
03-21-89	.380	.360	.370	.020	5
04-04-89	.450	.380	.415	.070	16
05-10-89	.430	.450	.440	-.020	5
06-05-89	.210	.550	.380	-.340	162
07-10-89	.290	.390	.340	-.100	34

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, total (mg/L as P) (00665)--Continued			
		05543500 Illinois River at Marseilles, Illinois--Continued			
07-10-89	0.300	0.360	0.330	-0.060	20
08-08-89	.430	.430	.430	0	0
08-29-89	.460	.380	.420	.080	17
08-30-89	.480	.460	.470	.020	4
10-03-89	.420	.390	.405	.030	7
10-31-89	.500	.460	.480	.040	8
12-05-89	.490	.470	.480	.020	4
01-09-90	.470	.440	.455	.030	6
02-09-90	.300	.330	.315	-.030	10
03-07-90	.150	.230	.190	-.080	53
03-12-90	.190	.837	.5135	-.647	341
04-02-90	.340	.330	.335	.010	3
05-01-90	.280	.300	.290	-.020	7
		05550000 Fox River at Algonquin, Illinois			
09-09-87	.070	.130	.100	-.060	86
10-06-87	.120	.140	.130	-.020	17
11-05-87	<.001	.130	--	--	--
12-09-87	--	.430	--	--	--
01-05-88	--	.070	--	--	--
02-11-88	.090	.090	.090	0	0
03-11-88	.060	.110	.085	-.050	83
04-07-88	.180	.160	.170	.020	11
05-03-88	.060	.140	.100	-.080	133
06-09-88	.150	.290	.220	-.140	93
07-07-88	.250	.260	.255	-.010	4
07-07-88	.250	.240	.245	.010	4
08-11-88	.230	.320	.275	-.090	39
08-23-88	.330	.350	.340	-.020	6
09-11-88	.370	.310	.340	.060	16
10-12-88	.150	.180	.165	-.030	20
11-08-88	.090	.120	.105	-.030	33
12-07-88	.100	.100	.100	0	0
01-11-89	.070	.110	.090	-.040	57
01-11-89	.080	.100	.090	-.020	25
02-07-89	.100	.130	.115	-.030	30
03-08-89	.130	.120	.125	.010	8
04-05-89	.140	.150	.145	-.010	7
05-11-89	.150	.190	.170	-.040	27
06-06-89	.140	.140	.140	0	0
07-11-89	.120	.220	.170	-.100	83
08-09-89	.240	.270	.255	-.030	12
08-31-89	.180	.190	.185	-.010	6
10-04-89	.140	.130	.135	.010	7
11-01-89	.120	.130	.125	-.010	8
12-06-89	.120	.120	.120	0	0
01-10-90	.160	.140	.150	.020	12
02-09-90	.070	.100	.085	-.030	43
03-08-90	.070	.045	.0575	.025	36
04-03-90	.110	.120	.115	-.010	9
05-02-90	.160	.140	.150	.020	12

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, total (mg/L as P) (00665)--Continued			
		05552500 Fox River at Dayton, Illinois			
08-27-87	0.230	0.540	0.385	-0.310	135
09-08-87	.090	.150	.120	-.060	67
10-06-87	.170	.179	.1745	-.009	5
11-05-87	.050	.180	.115	-.130	260
12-10-87	--	.190	--	--	--
01-14-88	--	.150	--	--	--
01-14-88	--	.120	--	--	--
02-11-88	.110	.122	.116	-.012	11
03-09-88	.130	.180	.155	-.050	38
04-05-88	.200	.190	.195	.010	5
05-04-88	.070	.150	.110	-.080	114
06-06-88	.060	.330	.195	-.270	450
07-05-88	.350	.350	.350	0	0
08-09-88	.180	.340	.260	-.160	89
08-22-88	.400	.410	.405	-.010	2
09-10-88	--	.300	--	--	--
10-11-88	.290	.260	.275	.030	10
11-07-88	.290	.270	.280	.020	7
12-06-88	.300	.210	.255	.090	30
01-10-89	.240	.250	.245	-.010	4
02-06-89	.160	.180	.170	-.020	12
03-07-89	.280	.260	.270	.020	7
04-04-89	.270	.260	.265	.010	4
05-10-89	.260	.320	.290	-.060	23
06-05-89	.160	.280	.220	-.120	75
07-10-89	.170	.420	.295	-.250	147
08-08-89	.410	.430	.420	-.020	5
08-30-89	.340	.310	.325	.030	9
10-03-89	.190	.220	.205	-.030	16
10-03-89	.190	.190	.190	0	0
10-31-89	.250	.270	.260	-.020	8
12-05-89	.360	.350	.355	.010	3
01-09-90	.330	.320	.325	.010	3
02-09-90	.190	.210	.200	-.020	11
03-07-90	.060	.090	.075	-.030	50
04-02-90	.170	.170	.170	0	0
05-01-90	.260	.240	.250	.020	8
		Phosphorus, dissolved (mg/L as P) (00666)			
		05520500 Kankakee River at Momence, Illinois			
09-10-87	.030	.030	.030	0	0
10-08-87	.060	.020	.040	.040	67
11-06-87	.020	.010	.015	.010	50
12-08-87	--	.010	--	--	--
01-04-88	--	.020	--	--	--
02-09-88	.020	.010	.015	.010	50
03-08-88	.020	.010	.015	.010	50
04-04-88	.030	.030	.030	0	0
04-04-88	.060	.060	.060	0	0
05-02-88	.020	.010	.015	.010	50

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, dissolved (mg/L as P) (00666)--Continued			
		05520500 Kankakee River at Momence, Illinois--Continued			
06-09-88	0.040	0.020	0.030	0.020	50
07-08-88	0	<.010	--	--	--
08-11-88	.010	.010	.010	0	0
08-24-88	.030	.013	.0215	.017	57
09-13-88	.020	.020	.020	0	0
10-13-88	.020	.010	.015	.010	50
11-09-88	.021	.020	.0205	.001	5
12-08-88	.020	.010	.015	.010	50
01-13-89	.020	.030	.025	-.010	50
02-09-89	.010	.020	.015	-.010	100
03-10-89	.010	<.010	--	--	--
04-03-89	.020	.020	.020	0	0
05-08-89	.010	.010	.010	0	0
05-30-89	.050	.050	.050	0	0
06-08-89	.030	.030	.030	0	0
07-13-89	.040	.020	.030	.020	50
08-10-89	.050	.020	.035	.030	60
09-01-89	.050	.030	.040	.020	40
10-05-89	<.010	.050	--	--	--
10-05-89	<.010	.060	--	--	-
11-02-89	.020	.010	.015	.010	50
12-07-89	<.010	.030	--	--	--
01-11-90	.030	.010	.020	.020	67
02-13-90	<.010	.020	--	--	--
03-09-90	.210	.020	.115	.190	90
04-04-90	.020	<.010	--	--	--
05-03-90	.030	.010	.020	.020	67
		05526000 Iroquois River near Chebanse, Illinois			
09-10-87	.080	.080	.080	0	0
09-10-87	.070	.070	.070	0	0
10-08-87	.050	.090	.070	-.040	80
11-06-87	.040	.030	.035	.010	25
12-08-87	--	.110	--	--	--
01-04-88	--	.060	--	--	--
02-09-88	.060	.040	.050	.020	33
03-08-88	.070	.080	.075	-.010	14
04-04-88	.150	.160	.155	-.010	7
05-02-88	.050	.020	.035	.030	60
06-10-88	.050	.050	.050	0	0
07-08-88	.090	.100	.095	-.010	11
08-12-88	.050	.080	.065	-.030	60
08-24-88	.080	.070	.075	.010	12
09-13-88	.060	.060	.060	0	0
10-13-88	.010	.020	.015	-.010	100
10-13-88	.010	.020	.015	-.010	100
11-09-88	.020	.050	.035	-.030	150
12-08-88	.040	.050	.045	-.010	25
01-13-89	.060	.060	.060	0	0

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, dissolved (mg/L as P) (00666)--Continued			
		05526000 Iroquois River near Chebanse, Illinois--Continued			
02-09-89	0.041	0.040	0.0405	0.001	2
03-10-89	.050	.050	.050	0	0
03-10-89	.050	.060	.055	-.010	20
04-03-89	.060	.060	.060	0	0
04-03-89	.060	.060	.060	0	0
04-04-89	.080	.080	.080	0	0
05-08-89	.040	.030	.035	.010	25
06-08-89	.070	.060	.065	.010	14
07-13-89	.160	.160	.160	0	0
08-10-89	.050	.068	.059	-.018	36
09-01-89	.180	.200	.190	-.020	11
10-05-89	.040	.070	.055	-.030	75
11-03-89	.060	.040	.050	.020	33
12-07-89	.050	.040	.045	.010	20
01-11-90	.030	.040	.035	-.010	33
02-13-90	.030	.060	.045	-.030	100
02-24-90	.140	.150	.145	-.010	7
02-26-90	.170	.200	.185	-.030	18
03-09-90	.070	.090	.080	-.020	29
03-15-90	.120	.150	.135	-.030	25
04-04-90	.040	.040	.040	0	0
05-03-90	.040	.020	.030	.020	50
		05532500 Des Plaines River at Riverside, Illinois			
08-27-87	.160	.160	.160	0	0
09-09-87	.570	.510	.540	.060	11
10-07-87	1.10	1.30	1.20	-.20	18
11-10-87	.880	.880	.880	0	0
12-09-87	--	.280	--	--	--
01-05-88	--	.430	--	--	--
02-10-88	.300	.290	.295	.010	3
03-10-88	.520	.520	.520	0	0
04-06-88	.210	.610	.410	-.400	190
05-03-88	.530	.500	.515	.030	6
06-08-88	1.00	.940	.970	.06	6
07-06-88	1.10	1.11	1.105	-.01	1
08-10-88	.760	.800	.780	-.040	5
08-23-88	.770	.720	.745	.050	6
09-12-88	.590	.570	.580	.020	3
10-12-88	1.70	1.64	1.67	.06	4
11-08-88	.560	.510	.535	.050	9
12-07-88	1.10	1.20	1.15	-.10	9
01-11-89	.580	.570	.575	.010	2
01-11-89	.570	.550	.560	.020	4
02-07-89	.990	.940	.965	.050	5
03-08-89	.660	.660	.660	0	0
04-05-89	.600	.560	.580	.040	7
05-11-89	.960	.890	.925	.070	7
06-06-89	.450	.220	.335	.230	51

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, dissolved (mg/L as P) (00666)--Continued			
	05532500 Des Plaines River at Riverside, Illinois--Continued				
07-11-89	1.00	1.03	1.015	-0.03	3
08-09-89	.330	.320	.325	.010	3
08-31-89	1.00	.970	.985	.03	3
08-31-89	.990	.980	.985	.010	1
10-04-89	1.50	1.28	1.39	.22	15
11-01-89	1.50	1.42	1.46	.08	5
12-06-89	1.40	1.47	1.435	-.07	5
01-10-90	.860	.720	.790	.140	16
02-10-90	.510	.550	.530	-.040	8
03-08-90	.330	.370	.350	-.040	12
04-03-90	.290	.320	.305	-.030	10
05-02-90	.580	.620	.600	-.040	7
	05536995 Chicago Sanitary and Ship Canal at Romeoville, Illinois				
08-27-87	.190	.180	.185	.010	5
09-09-87	.270	.500	.385	-.230	85
10-07-87	.610	.740	.675	-.130	21
11-10-87	.770	.850	.810	-.080	10
12-09-87	--	.670	--	--	--
01-05-88	--	.440	--	--	--
02-10-88	.450	.440	.445	.010	2
03-10-88	.750	.780	.765	-.030	4
04-06-88	.410	.380	.395	.030	7
04-06-88	.420	.380	.400	.040	10
05-05-88	.740	.700	.720	.040	5
06-07-88	.460	.450	.455	.010	2
07-06-88	.350	.380	.365	-.030	9
08-10-88	.390	.380	.385	.010	3
08-23-88	.340	.320	.330	.020	6
09-12-88	.420	.510	.465	-.090	21
10-12-88	1.30	1.30	1.30	0	0
11-08-88	.610	.630	.620	-.020	3
12-07-88	.700	1.30	1.00	-.600	86
01-12-89	.360	.360	.360	0	0
02-08-89	.920	.960	.940	-.040	4
03-09-89	.500	.500	.500	0	0
04-06-89	.660	.620	.640	.040	6
05-12-89	.930	1.00	.965	-.07	8
06-07-89	.230	.220	.225	.010	4
07-12-89	.380	.390	.385	-.010	3
07-12-89	.380	.390	.385	-.010	3
08-09-89	.420	.380	.400	.040	10
08-31-89	.380	.430	.405	-.050	13
10-04-89	.850	.880	.865	-.030	4
11-02-89	.860	.840	.850	.020	2
12-06-89	1.00	1.20	1.10	-.20	20
01-10-90	.860	.890	.875	-.030	3
02-10-90	.580	.600	.590	-.020	3
03-08-90	.600	.590	.595	.010	2
04-03-90	.630	.590	.610	.040	6
05-02-90	.730	.770	.750	-.040	5

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, dissolved (mg/L as P) (00666)--Continued			
		05540500 Du Page River at Shorewood, Illinois			
08-27-87	0.210	0.170	0.190	0.040	19
09-10-87	.580	.570	.575	.010	2
10-07-87	1.10	1.10	1.10	0	0
11-10-87	.990	1.03	1.01	-.040	4
12-08-87	--	.320	--	--	--
01-04-88	--	.520	--	--	--
02-10-88	.590	.560	.575	.030	5
03-10-88	.610	.640	.625	-.030	5
04-06-88	.210	.210	.210	0	0
05-03-88	.730	.680	.705	.050	7
06-07-88	1.00	.930	.965	.07	7
07-07-88	.620	.530	.575	.090	15
07-07-88	.630	.540	.585	.090	14
08-10-88	.970	.860	.915	.110	11
08-24-88	1.10	1.20	1.15	-.10	9
09-11-88	1.20	1.30	1.25	-.10	8
10-13-88	2.20	2.20	2.20	0	0
10-13-88	2.20	2.10	2.15	.10	5
11-09-88	1.10	1.10	1.10	0	0
12-08-88	1.10	1.20	1.15	-.10	9
01-12-89	.480	.440	.460	.040	8
02-08-89	1.10	1.19	1.145	-.09	8
03-09-89	.660	.660	.660	0	0
04-06-89	.650	.650	.650	0	0
04-06-89	.660	.660	.660	0	0
05-12-89	.940	.940	.940	0	0
06-07-89	.400	.380	.390	.020	5
07-12-89	1.00	1.00	1.00	0	0
08-10-89	.780	.710	.745	.070	9
09-01-89	.600	.730	.665	-.130	22
10-05-89	1.70	1.50	1.60	.20	12
11-02-89	1.70	2.00	1.85	-.30	18
12-07-89	1.70	1.90	1.80	-.20	12
01-11-90	1.60	1.40	1.50	.20	12
01-11-90	1.50	1.20	1.35	.30	20
02-10-90	.730	.550	.640	.180	25
03-09-90	.250	.310	.280	-.060	24
04-04-90	.600	.600	.600	0	0
05-03-90	.860	.920	.890	-.060	7
		05543500 Illinois River at Marseilles, Illinois			
04-14-87	.510	.530	.520	-.020	4
09-08-87	.190	.260	.225	-.070	37
10-06-87	.460	.530	.495	-.070	15
11-05-87	.470	.370	.420	.100	21
11-19-87	.640	.750	.695	-.110	17
12-17-87	--	.190	--	--	--
01-14-88	--	.240	--	--	--
01-14-88	--	.240	--	--	--
02-12-88	.220	.220	.220	0	0
03-09-88	.270	.260	.265	.010	4

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, dissolved (mg/L as P) (00666)--Continued			
		05543500 Illinois River at Marseilles, Illinois--Continued			
04-05-88	0.120	0.140	0.130	-0.020	17
05-04-88	.230	.220	.225	.010	4
06-06-88	.340	.340	.340	0	0
07-05-88	.320	.290	.305	.030	9
08-09-88	.360	.350	.355	.010	3
08-22-88	.360	.350	.355	.010	3
09-10-88	.380	.360	.370	.020	5
10-11-88	.450	.420	.435	.030	7
11-01-88	.380	.340	.360	.040	11
11-07-88	.550	.500	.525	.050	9
12-06-88	.240	.230	.235	.010	4
01-10-89	.230	.230	.230	0	0
02-06-89	.340	.380	.360	-.040	12
02-28-89	.390	.410	.400	-.020	5
03-07-89	.400	.320	.360	.080	20
03-21-89	.280	.280	.280	0	0
04-04-89	.270	.250	.260	.020	7
05-10-89	.310	.300	.305	.010	3
06-05-89	.140	.130	.135	.010	7
07-10-89	.230	.270	.250	-.040	17
07-10-89	.260	.260	.260	0	0
08-08-89	.280	.280	.280	0	0
08-29-89	.320	.310	.315	.010	3
08-30-89	.360	.340	.350	.020	6
10-03-89	.280	.270	.275	.010	4
10-31-89	.430	.400	.415	.030	7
12-05-89	.410	.380	.395	.030	7
01-09-90	.390	.370	.380	.020	5
02-09-90	.220	.270	.245	-.050	23
03-07-90	.100	.140	.120	-.040	40
03-12-90	.130	.160	.145	-.030	23
04-02-90	.200	.200	.200	0	0
05-01-90	.170	.210	.190	-.040	24
		05550000 Fox River at Algonquin, Illinois			
09-09-87	.020	.010	.015	.010	50
10-06-87	.020	.030	.025	-.010	50
11-05-87	.010	.010	.010	0	0
12-09-87	--	.180	--	--	--
01-05-88	--	.040	--	--	--
02-11-88	.070	.060	.065	.010	14
03-11-88	.030	.010	.020	.020	67
04-07-88	.140	.010	.075	.130	93
05-03-88	.020	.010	.015	.010	50
06-09-88	.020	.100	.060	-.080	400
07-07-88	.040	.030	.035	.010	25
07-07-88	.040	<.010	--	--	--
08-11-88	.030	<.010	--	--	--
08-23-88	.120	.040	.080	.080	67
09-11-88	.050	.120	.085	-.070	140

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, dissolved (mg/L as P) (00666)--Continued			
		05550000 Fox River at Algonquin, Illinois--Continued			
10-12-88	0.050	0.060	0.055	-0.010	20
11-08-88	.020	.010	.015	.010	50
12-07-88	.010	<.010	--	--	--
01-11-89	.010	.010	.010	0	0
01-11-89	.010	.010	.010	0	0
02-07-89	.020	.010	.015	.010	50
03-08-89	.060	.060	.060	0	0
04-05-89	<.010	.020	--	--	--
05-11-89	.020	.020	.020	0	0
06-06-89	<.010	.010	--	--	--
07-11-89	.030	.070	.050	-.040	133
08-09-89	.060	.060	.060	0	0
08-31-89	.030	.030	.030	0	0
10-04-89	.030	.020	.025	.010	33
11-01-89	.020	.030	.025	-.010	50
12-06-89	.030	.010	.020	.020	67
01-10-90	.080	.090	.085	-.010	12
02-09-90	.040	.060	.050	-.020	50
03-08-90	<.010	.020	--	--	--
04-03-90	<.010	.010	--	--	--
05-02-90	.020	.010	.015	.010	50
		05552500 Fox River at Dayton, Illinois			
08-27-87	.130	.180	.155	-.050	38
09-08-87	.060	.040	.050	.020	33
10-06-87	.080	.080	.080	0	0
11-05-87	.060	.060	.060	0	0
12-10-87	--	.070	--	--	--
01-14-88	--	.100	--	--	--
01-14-88	--	.100	--	--	--
02-11-88	.090	.090	.090	0	0
03-09-88	.120	.130	.125	-.010	8
04-05-88	.010	.030	.020	-.020	200
05-04-88	.020	.010	.015	.010	50
06-06-88	.020	.020	.020	0	0
07-05-88	.030	.040	.035	-.010	33
08-09-88	.030	<.010	--	--	--
08-22-88	.120	.120	.120	--	--
09-10-88	--	.030	--	--	--
10-11-88	.150	.170	.160	.020	13
11-07-88	.090	.090	.090	0	0
12-06-88	<.010	<.010	--	--	--
01-10-89	.160	.160	.160	0	0
02-06-89	.090	.120	.105	-.030	33
03-07-89	.200	.190	.195	.010	5
04-04-89	.050	.040	.045	.010	20
05-10-89	.030	.010	.020	.020	67
06-05-89	.070	.070	.070	0	0

Table 10.--Results of quality-assurance and quality-control measures: nutrient duplicate samples--Continued

Date	USGS laboratory result	IEPA laboratory result	Average value	Difference in given units (USGS-IEPA)	Percent difference[1]
		Phosphorus, dissolved (mg/L as P) (00666)--Continued			
		05552500 Fox River at Dayton, Illinois--Continued			
07-10-89	0.050	0.080	0.065	-0.030	60
08-08-89	.100	.120	.110	-.020	20
08-30-89	.100	.080	.090	.020	20
10-03-89	.020	.010	.015	.010	50
10-03-89	.010	.010	.010	0	0
10-31-89	.120	.120	.120	0	0
12-05-89	.210	.200	.205	.010	5
01-09-90	.310	.280	.295	.030	10
02-09-90	.100	.140	.120	-.040	40
03-07-90	.040	.040	.040	0	0
04-02-90	.030	.030	.030	0	0
05-01-90	.040	.020	.030	.020	50

[1]Percent difference is defined as the absolute value of the result of the IEPA laboratory result subtracted from the USGS laboratory result, and the difference divided by the USGS laboratory result.

Table 11.--Examples of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria

[ft, feet; ft/s, feet per second; ft^3/s, cubic feet per second; µS/cm, microsiemens per centimeter at 25 degrees Celsius; deg C or °C, degrees Celsius; NTU, nephelometric-turbidity units; mg/L, milligrams per liter; cols./100 mL, colonies per 100 milliliters; µg/L, micrograms per liter; pCi/L, picocuries per liter; T/day, tons per day; mm, millimeters]

Date	Time	Agency collecting sample (code number) (00027)	Agency analyzing sample (code number) (00028)	Number of sampling points (count) (00063)	Stream width (ft) (00004)	Stream velocity, mean (ft/s) (00055)	Gage height (ft) (00065)	Discharge, instantaneous (ft^3/s) (00061)	Specific conductance) (µS/cm) (00095)
			05520500	Kankakee River at Momence, Illinois					
04-08-87	1630	81700	80020	6	396	E1.00	1.92	1,470	615
05-06-87	0901	81700	80020	3	270	--	1.95	1,520	630
06-09-87	1345	81700	80020	7	--	E1.50	2.55	2,470	659
07-09-87	0845	81700	17002	10	--	E2.00	1.67	1,150	636
07-09-87	0846	81700	80020	10	--	E2.00	1.67	1,150	614
08-11-87	1030	81700	17002	10	300	E2.00	1.30	747	651
08-11-87	1031	81700	80020	10	300	E2.00	1.30	747	651
09-10-87	1100	81700	17002	10	300	E1.00	1.34	788	661
09-10-87	1101	81700	80020	10	300	E1.00	1.34	788	661
10-08-87	0915	81700	17002	10	300	E1.00	1.48	940	657
10-08-87	0916	81700	80020	10	300	E1.00	1.48	940	638
11-06-87	0845	81700	17002	10	300	--	1.56	1,030	673
11-06-87	0846	81700	80020	10	300	--	1.56	1,030	642
12-08-87	1200	81700	17002	9	515	--	2.44	2,500	682
12-08-87	1201	81700	80020	9	515	--	2.44	2,500	677
01-04-88	1230	81700	17002	10	515	E4.00	3.11	3,900	717
01-04-88	1231	81700	80020	10	515	E4.00	3.11	3,900	717
02-09-88	1515	81700	17002	10	515	E4.00	5.84	2,800	688
02-09-88	1516	81700	80020	10	515	E4.00	5.84	2,800	640
03-08-88	1945	81700	17002	20	515	E3.00	2.32	2,400	629
03-08-88	1946	81700	80020	20	515	E3.00	2.32	2,400	652
03-08-88	2050	81700	80020	1	515	--	--	--	--
03-08-88	2055	81700	80020	1	515	--	--	--	--
03-08-88	2100	81700	80020	1	515	--	--	--	--
03-08-88	2103	81700	80020	1	515	--	--	--	--
03-08-88	2107	81700	80020	1	515	--	--	--	--
03-08-88	2110	81700	80020	1	515	--	--	--	--
03-08-88	2118	81700	80020	1	515	--	--	--	--
03-08-88	2123	81700	80020	1	515	--	--	--	--
03-08-88	2128	81700	80020	1	515	--	--	--	--
03-08-88	2140	81700	80020	1	515	--	--	--	--
03-08-88	2145	81700	80020	1	515	--	--	--	--
03-08-88	2150	81700	80020	1	515	--	--	--	--
03-08-88	2155	81700	80020	1	515	--	--	--	--
03-08-88	2200	81700	80020	1	515	--	--	--	--
03-08-88	2203	81700	80020	1	515	--	--	--	--
03-08-88	2206	81700	80020	1	515	--	--	--	--
03-08-88	2210	81700	80020	1	515	--	--	--	--
03-08-88	2211	81700	80020	1	515	--	--	--	--
03-08-88	2216	81700	80020	1	515	--	--	--	--

Table 11.--Examples of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	pH (standard units) (00400)	Temperature, water (deg C) (00010)	Turbidity (NTU) (00076)	Oxygen, dissolved (mg/L) (00300)	Oxygen demand, chemical (low level) (mg/L) (00335)	Coliform, fecal (cols./ 100 mL) (31616)	E. Coli MTEC, MF water, whole, total (cols./ 100 mL) (31648)	Hardness, total (mg/L as $CaCO_3$) (00900)	Hardness, noncarbonate wh wat, tot fld (mg/L as $CaCO_3$) (00902)
05520500 Kankakee River at Momence, Illinois--Continued										
04-08-87	1630	7.6	--	--	--	--	--	--	330	--
05-06-87	0901	8.1	--	--	--	--	--	--	320	--
06-09-87	1345	8.2	--	--	--	--	--	--	320	--
07-09-87	0845	8.0	25.5	4.1	7.9	--	200	--	320	--
07-09-87	0846	8.2	--	--	--	--	--	--	--	--
08-11-87	1030	8.3	25.0	.75	7.9	17	310	--	340	--
08-11-87	1031	8.3	--	--	--	--	--	--	--	--
09-10-87	1100	8.3	21.5	2.0	8.1	15	--	--	320	--
09-10-87	1101	8.3	--	--	--	--	--	--	--	--
10-08-87	0915	8.6	9.5	.30	10.6	15	100	--	330	--
10-08-87	0916	8.5	--	--	--	--	--	--	--	--
11-06-87	0845	8.5	10.0	3.0	10.6	12	260	--	360	--
11-06-87	0846	8.6	--	--	--	--	--	--	--	--
12-08-87	1200	7.9	4.5	2.7	12.0	22	--	--	340	--
12-08-87	1201	8.3	--	--	--	--	K8,100	--	--	--
01-04-88	1230	8.4	0	--	9.2	15	--	--	370	--
01-04-88	1231	8.4	--	--	--	--	110	--	--	--
02-09-88	1515	7.7	.5	--	11.0	14	--	--	340	--
02-09-88	1516	--	--	--	--	--	36	--	--	--
03-08-88	1945	7.7	7.5	2.6	9.0	14	--	--	320	--
03-08-88	1946	8.1	--	--	--	--	K75	--	330	--
03-08-88	2050	--	--	--	--	--	--	--	--	--
03-08-88	2055	--	--	--	--	--	--	--	--	--
03-08-88	2100	--	--	--	--	--	--	--	--	--
03-08-88	2103	--	--	--	--	--	--	--	--	--
03-08-88	2107	--	--	--	--	--	--	--	--	--
03-08-88	2110	--	--	--	--	--	--	--	--	--
03-08-88	2118	--	--	--	--	--	--	--	--	--
03-08-88	2123	--	--	--	--	--	--	--	--	--
03-08-88	2128	--	--	--	--	--	--	--	--	--
03-08-88	2140	--	--	--	--	--	--	--	--	--
03-08-88	2145	--	--	--	--	--	--	--	--	--
03-08-88	2150	--	--	--	--	--	--	--	--	--
03-08-88	2155	--	--	--	--	--	--	--	--	--
03-08-88	2200	--	--	--	--	--	--	--	--	--
03-08-88	2203	--	--	--	--	--	--	--	--	--
03-08-88	2206	--	--	--	--	--	--	--	--	--
03-08-88	2210	--	--	--	--	--	--	--	--	--
03-08-88	2211	--	--	--	--	--	--	--	--	--
03-08-88	2216	--	--	--	--	--	--	--	--	--
03-08-88	2220	--	--	--	--	--	--	--	--	--
03-08-88	2225	--	--	--	--	--	--	--	--	--
03-08-88	2227	--	--	--	--	--	--	--	--	--
03-08-88	2231	--	--	--	--	--	--	--	--	--
03-08-88	2235	--	--	--	--	--	--	--	--	--

Table 11.--Example of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	Acidity (mg/L as H) (71825)	Calcium, total recov-erable (mg/L as Ca) (00916	Calcium, dissolved (mg/L as Ca) (00915)	Magnesium total recov-erable (mg/L as Mg) (00927)	Magnesium, dissolved (mg/L as Mg) (00925)	Sodium, total recov-erable (mg/L as Na) (00929)	Sodium, dissolved (mg/L as Na) (00930)	Potassium, total recov-erable (mg/L as K) (00937)	Potassium dissolved (mg/L as K) (00935)
05520500 Kankakee River at Momence, Illinois--Continued										
04-08-87	1630	--	--	87	--	27	--	9.9	--	1.8
05-06-87	0901	--	--	84	--	26	--	11	--	2.0
06-09-87	1345	--	--	86	--	25	--	13	--	2.4
07-09-87	0845	1.0	88	85	28	27	11	11	2.0	1.8
07-09-87	0846	1.0	--	--	--	--	--	--	--	--
08-11-87	1030	0	90	88	30	29	13	15	2.1	2.0
08-11-87	1031	0	--	--	--	--	--	--	--	--
09-10-87	1100	0	89	86	27	26	11	10	2.2	2.0
09-10-87	1101	0	--	--	--	--	--	--	--	--
10-08-87	0915	0	89	91	26	26	11	10	1.9	2.2
10-08-87	0916	0	--	--	--	--	--	--	--	--
11-06-87	0845	0	97	96	28	28	<.3	<.30	1.9	1.6
11-06-87	0846	0	--	--	--	--	--	--	--	--
12-08-87	1200	<1.0	94	91	28	27	12	11	2.5	2.3
12-08-87	1201	0	--	--	--	--	--	--	--	--
01-04-88	1230	<1.0	100	100	27	28	8.1	8.2	2.0	2.1
01-04-88	1231	0	--	--	--	--	--	--	--	--
02-09-88	1515	--	93	95	26	26	8.8	8.8	1.9	1.8
02-09-88	1516	0	--	--	--	--	--	--	--	--
03-08-88	1945	5.0	89	86	26	25	9.8	9.6	1.9	1.7
03-08-88	1946	5.0	--	88	--	26	--	9.8	--	2.1
03-08-88	2050	--	--	--	--	--	--	--	--	--
03-08-88	2055	--	--	--	--	--	--	--	--	--
03-08-88	2100	--	--	--	--	--	--	--	--	--
03-08-88	2103	--	--	--	--	--	--	--	--	--
03-08-88	2107	--	--	--	--	--	--	--	--	--
03-08-88	2110	--	--	--	--	--	--	--	--	--
03-08-88	2118	--	--	--	--	--	--	--	--	--
03-08-88	2123	--	--	--	--	--	--	--	--	--
03-08-88	2128	--	--	--	--	--	--	--	--	--
03-08-88	2140	--	--	--	--	--	--	--	--	--
03-08-88	2145	--	--	--	--	--	--	--	--	--
03-08-88	2150	--	--	--	--	--	--	--	--	--
03-08-88	2155	--	--	--	--	--	--	--	--	--
03-08-88	2200	--	--	--	--	--	--	--	--	--
03-08-88	2203	--	--	--	--	--	--	--	--	--
03-08-88	2206	--	--	--	--	--	--	--	--	--
03-08-88	2210	--	--	--	--	--	--	--	--	--
03-08-88	2211	--	--	--	--	--	--	--	--	--
03-08-88	2216	--	--	--	--	--	--	--	--	--
03-08-88	2220	--	--	--	--	--	--	--	--	--
03-08-88	2225	--	--	--	--	--	--	--	--	--
03-08-88	2227	--	--	--	--	--	--	--	--	--
03-08-88	2231	--	--	--	--	--	--	--	--	--
03-08-88	2235	--	--	--	--	--	--	--	--	--

Table 11.--Examples of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	Alkalinity, water, whole, total, fixed endpoint titration (mg/L as $CaCO_3$) (00410)	Sulfate (mg/L as SO_4) (00946)	Sulfate, dissolved (mg/L as SO_4) (00945)	Chloride, dissolved (mg/L as Cl) (00940)	Fluoride, total (mg/L as F) (00951)	Fluoride, dissolved (mg/L as F) (00950)	Silica, dissolved (mg/L as SiO_2) (00955)	Bromide, dissolved (mg/L as Br) (71870)
			05520500 Kankakee River at Momence, Illinois--Continued						
04-08-87	1630	183	--	100	23	--	0.20	5.7	<0.010
05-06-87	0901	210	--	100	23	--	.20	7.9	<.010
06-09-87	1345	197	--	120	25	--	.10	9.9	<.010
07-09-87	0845	--	--	95	25	0.1	.12	--	--
07-09-87	0846	197	--	--	--	--	--	--	<.010
08-11-87	1030	210	96	--	--	--	.16	--	--
08-11-87	1031	210	--	--	--	--	--	--	<.010
09-10-87	1100	217	110	110	22	.1	.11	--	--
09-10-87	1101	217	--	--	--	--	--	--	--
10-08-87	0915	--	110	110	24	.1	.15	--	--
10-08-87	0916	--	--	--	--	--	--	--	--
11-06-87	0845	--	110	110	23	<.1	.10	--	--
11-06-87	0846	--	--	--	--	--	--	--	.025
12-08-87	1200	--	110	110	25	.1	.12	--	--
12-08-87	1201	--	--	--	--	--	--	--	--
01-04-88	1230	--	120	120	24	.1	.12	--	--
01-04-88	1231	--	--	--	--	--	--	--	--
02-09-88	1515	--	110	110	24	<.1	<.10	--	--
02-09-88	1516	--	--	--	--	--	--	--	.011
03-08-88	1945	--	110	110	22	<.1	.10	--	--
03-08-88	1946	--	--	--	--	--	.20	8.6	--
03-08-88	2050	--	--	--	--	--	--	--	--
03-08-88	2055	--	--	--	--	--	--	--	--
03-08-88	2100	--	--	--	--	--	--	--	--
03-08-88	2103	--	--	--	--	--	--	--	--
03-08-88	2107	--	--	--	--	--	--	--	--
03-08-88	2110	--	--	--	--	--	--	--	--
03-08-88	2118	--	--	--	--	--	--	--	--
03-08-88	2123	--	--	--	--	--	--	--	--
03-08-88	2128	--	--	--	--	--	--	--	--
03-08-88	2140	--	--	--	--	--	--	--	--
03-08-88	2145	--	--	--	--	--	--	--	--
03-08-88	2150	--	--	--	--	--	--	--	--
03-08-88	2155	--	--	--	--	--	--	--	--
03-08-88	2200	--	--	--	--	--	--	--	--
03-08-88	2203	--	--	--	--	--	--	--	--
03-08-88	2206	--	--	--	--	--	--	--	--
03-08-88	2210	--	--	--	--	--	--	--	--
03-08-88	2211	--	--	--	--	--	--	--	--
03-08-88	2216	--	--	--	--	--	--	--	--

Table 11.--Examples of tabulated data physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	Solids, residue at 180 °C dissolved (mg/L) (70300)	Solids, sum of constituents, dissolved (mg/L) (70301)	Residue, total at 105°C suspended (mg/L) (00530)	Residue, volatile, suspended (mg/L) (00535)	Nitrogen, nitrite, dissolved (mg/L as N) (00613)	Nitrogen, $NO_2 + NO_3$ total (mg/L as N) (00630)	Nitrogen, $NO_2 + NO_3$ dissolved (mg/L as N) (00631)	Nitrogen, ammonia, total (mg/L as N) (00610)
			05520500 Kankakee River at Momence, Illinois--Continued						
04-08-87	1630	398	369	--	--	0.010	--	0.900	--
05-06-87	0901	404	385	--	--	.020	--	1.10	--
06-09-87	1345	422	407	--	--	.040	--	1.60	--
07-09-87	0845	414	--	40	10	--	0.740	.830	.130
07-09-87	0846	--	--	--	--	.010	--	.730	--
08-11-87	1030	486	--	<1	<1	--	.600	.600	.160
08-11-87	1031	--	--	--	--	<.010	--	.560	--
09-10-87	1100	401	391	2	2	--	.640	.650	<.100
09-10-87	1101	--	--	--	--	<1.010	--	.640	--
10-08-87	0915	399	387	<1	<1	--	.900	.890	<.100
10-08-87	0916	--	--	--	--	.010	--	.900	--
11-06-87	0845	385	--	1	1	--	.560	.560	<.100
11-06-87	0846	--	--	--	--	<.010	--	.580	--
12-08-87	1200	395	386	1	<1	--	2.30	2.20	.150
12-08-87	1201	--	--	--	--	.010	--	1.90	--
01-04-88	1230	452	429	<1	<1	--	2.60	2.60	<.100
01-04-88	1231	--	--	--	--	.020	--	2.60	--
02-09-88	1515	425	409	1	<1	--	2.40	2.40	.270
02-09-88	1516	--	--	--	--	.030	--	2.40	--
03-08-88	1945	408	378	15	3	--	1.40	1.40	<.100
03-08-88	1946	--	--	--	--	<.010	--	1.40	--
03-08-88	2050	--	--	--	--	--	--	--	--
03-08-88	2055	--	--	--	--	--	--	--	--
03-08-88	2100	--	--	--	--	--	--	--	--
03-08-88	2103	--	--	--	--	--	--	--	--
03-08-88	2107	--	--	--	--	--	--	--	--
03-08-88	2110	--	--	--	--	--	--	--	--
03-08-88	2118	--	--	--	--	--	--	--	--
03-08-88	2123	--	--	--	--	--	--	--	--
03-08-88	2128	--	--	--	--	--	--	--	--
03-08-88	2140	--	--	--	--	--	--	--	--
03-08-88	2145	--	--	--	--	--	--	--	--
03-08-88	2150	--	--	--	--	--	--	--	--
03-08-88	2155	--	--	--	--	--	--	--	--
03-08-88	2200	--	--	--	--	--	--	--	--
03-08-88	2203	--	--	--	--	--	--	--	--
03-08-88	2206	--	--	--	--	--	--	--	--
03-08-88	2210	--	--	--	--	--	--	--	--
03-08-88	2211	--	--	--	--	--	--	--	--
03-08-88	2216	--	--	--	--	--	--	--	--
03-08-88	2220	--	--	--	--	--	--	--	--
03-08-88	2225	--	--	--	--	--	--	--	--
03-08-88	2227	--	--	--	--	--	--	--	--
03-08-88	2231	--	--	--	--	--	--	--	--
03-08-88	2235	--	--	--	--	--	--	--	--

Table 11.--Examples of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	Nitrogen, ammonia, dissolved (mg/L as N) (00608)	Nitrogen, ammonia, un-ionized (mg/L as N) (00619)	Nitrogen, organic, dissolved (mg/L as N) (00607)	Nitrogen, ammonia + organic, total (mg/L as N) (00625)	Nitrogen, ammonia + organic, dissolved (mg/L as N) (00623)	Phos-phorus, total (mg/L as P) (00665)	Phos-phorus, dissolved (mg/L as P) (00666)	Phos-phorus, ortho, dissolved (mg/L as P) (00671)
				05520500 Kankakee River at Momence, Illinois--Continued					
04-08-87	1630	0.020	--	--	2.3	--	0.080	0.010	<0.010
05-06-87	0901	.080	--	--	1.1	--	.090	.020	<.010
06-09-87	1345	.080	--	--	.80	--	.170	.030	.020
07-09-87	0845	<.100	0.012	--	.90	--	.100	.020	--
07-09-87	0846	.050	--	--	--	--	--	--	.030
08-11-87	1030	.160	.018	--	.70	--	.100	.040	--
08-11-87	1031	.040	--	--	--	--	--	--	.030
09-10-87	1100	<.100	<.009	--	.20	--	.250	.030	--
09-10-87	1101	.050	--	--	.60	<0.20	.030	.030	.030
10-08-87	0915	<.100	<.007	--	.60	--	.070	.020	--
10-08-87	0916	.030	--	0.37	.60	.40	.030	.060	.050
11-06-87	0845	<.100	.006	--	.40	--	.060	.010	--
11-06-87	0846	.010	--	.19	.30	.20	.050	.020	.020
12-08-87	1200	.130	.001	--	.70	--	.090	.010	--
12-08-87	1201	.100	--	--	--	--	--	--	.020
01-04-88	1230	<.100	<.002	--	.70	--	.040	.020	--
01-04-88	1231	.170	--	--	--	--	--	--	.010
02-09-88	1515	.110	.001	--	.90	--	.030	.010	--
02-09-88	1516	.150	--	.65	.90	.80	.040	.020	.010
03-08-88	1945	<.100	<.001	--	.70	--	.060	.010	--
03-08-88	1946	.060	--	.34	.60	.40	.040	.020	.010
03-08-88	2050	--	--	--	--	--	--	--	--
03-08-88	2055	--	--	--	--	--	--	--	--
03-08-88	2100	--	--	--	--	--	--	--	--
03-08-88	2103	--	--	--	--	--	--	--	--
03-08-88	2107	--	--	--	--	--	--	--	--
03-08-88	2110	--	--	--	--	--	--	--	--
03-08-88	2118	--	--	--	--	--	--	--	--
03-08-88	2123	--	--	--	--	--	--	--	--
03-08-88	2128	--	--	--	--	--	--	--	--
03-08-88	2140	--	--	--	--	--	--	--	--
03-08-88	2145	--	--	--	--	--	--	--	--
03-08-88	2150	--	--	--	--	--	--	--	--
03-08-88	2155	--	--	--	--	--	--	--	--
03-08-88	2200	--	--	--	--	--	--	--	--
03-08-88	2203	--	--	--	--	--	--	--	--
03-08-88	2206	--	--	--	--	--	--	--	--
03-08-88	2210	--	--	--	--	--	--	--	--
03-08-88	2211	--	--	--	--	--	--	--	--
03-08-88	2216	--	--	--	--	--	--	--	--
03-08-88	2220	--	--	--	--	--	--	--	--
03-08-88	2225	--	--	--	--	--	--	--	--
03-08-88	2227	--	--	--	--	--	--	--	--
03-08-88	2231	--	--	--	--	--	--	--	--
03-08-88	2235	--	--	--	--	--	--	--	--

Table 11.--Examples of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	Aluminum, total recoverable (µg/L as Al) (01105)	Aluminum, dissolved (µg/L as Al) (01106)	Antimony, dissolved (µg/L as Sb) (01095)	Arsenic, total (µg/L as As) (01002)	Arsenic, dissolved (µg/L as As) (01000)	Barium, total recoverable (µg/L as Ba) (01007)	Barium, dissolved (µg/L as Ba) (01005)	Beryllium, total recoverable (µg/L as Be) (01012)
		05520500 Kankakee River at Momence, Illinois--Continued							
04-08-87	1630	170	20	--	--	1	100	59	<10
05-06-87	0901	490	30	<1	--	1	<100	67	<10
06-09-87	1345	1,100	--	<1	--	2	100	60	<10
07-09-87	0845	560	<50	--	3	<1	60	45	<.5
07-09-87	0846	--	--	<1	--	--	--	--	--
08-11-87	1030	570	<50	--	--	1	60	47	<.5
08-11-87	1031	--	--	<1	--	--	--	--	--
09-10-87	1100	780	<50	--	3	1	60	45	<.5
09-10-87	1101	--	--	--	--	--	--	--	--
10-08-87	0915	130	<50	--	2	1	50	43	<.5
10-08-87	0916	--	--	--	--	--	--	--	--
11-06-87	0845	130	<50	--	2	1	60	50	<.5
11-06-87	0846	--	--	<1	--	--	--	--	--
12-08-87	1200	580	<50	--	2	1	60	49	<.5
12-08-87	1201	--	--	--	--	--	--	--	--
01-04-88	1230	90	<50	--	1	<1	50	51	<.5
01-04-88	1231	--	--	--	--	--	--	--	--
02-09-88	1515	150	<50	--	1	<1	60	54	<.5
02-09-88	1516	--	--	<1	--	--	--	--	--
03-08-88	1945	170	<50	--	2	<1	50	48	<.5
03-08-88	1946	220	<10	--	--	--	<100	48	<10
03-08-88	2050	--	--	--	--	--	--	--	--
03-08-88	2055	--	--	--	--	--	--	--	--
03-08-88	2100	--	--	--	--	--	--	--	--
03-08-88	2103	--	--	--	--	--	--	--	--
03-08-88	2107	--	--	--	--	--	--	--	--
03-08-88	2110	--	--	--	--	--	--	--	--
03-08-88	2118	--	--	--	--	--	--	--	--
03-08-88	2123	--	--	--	--	--	--	--	--
03-08-88	2128	--	--	--	--	--	--	--	--
03-08-88	2140	--	--	--	--	--	--	--	--
03-08-88	2145	--	--	--	--	--	--	--	--
03-08-88	2150	--	--	--	--	--	--	--	--
03-08-88	2155	--	--	--	--	--	--	--	--
03-08-88	2200	--	--	--	--	--	--	--	--
03-08-88	2203	--	--	--	--	--	--	--	--
03-08-88	2206	--	--	--	--	--	--	--	--
03-08-88	2210	--	--	--	--	--	--	--	--
03-08-88	2211	--	--	--	--	--	--	--	--
03-08-88	2216	--	--	--	--	--	--	--	--
03-08-88	2220	--	--	--	--	--	--	--	--
03-08-88	2225	--	--	--	--	--	--	--	--
03-08-88	2227	--	--	--	--	--	--	--	--
03-08-88	2231	--	--	--	--	--	--	--	--
03-08-88	2235	--	--	--	--	--	--	--	--

Table 11.--Examples of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	Beryllium, dissolved (µg/L as Be) (01010)	Boron, total recoverable (µg/L as B) (01022)	Boron, dissolved (µg/L as B) (01020)	Cadmium, total recoverable (µg/L as Cd) (01027)	Cadmium, dissolved (µg/L as Cd) (01025)	Chromium, total recoverable (µg/L as Cr) (01034)	Chromium, dissolved (µg/L as Cr) (01030)	Cobalt, total recoverable (µg/L as Co) (01037)
			05520500 Kankakee River at Momence, Illinois--Continued						
04-08-87	1630	1	50	60	<1	<1.0	3	<5	--
05-06-87	0901	<.5	70	80	<1	<1.0	3	<5	--
06-09-87	1345	<.5	80	--	<1	<1.0	<1	--	--
07-09-87	0845	<.5	<50	<50	0	<.1	<5	<5	<5
07-09-87	0846	--	--	--	--	--	--	--	--
08-11-87	1030	<.5	<50	<50	0	.1	<5	<10	<5
08-11-87	1031	--	--	--	--	--	--	--	--
09-10-87	1100	<.5	<50	<50	0	.3	<5	<5	<5
09-10-87	1101	--	--	--	--	--	--	--	--
10-08-87	0915	<.5	50	<50	0	<.1	<5	<5	<5
10-08-87	0916	--	--	--	--	--	--	--	--
11-06-87	0845	<.5	<50	<50	0	<.1	<5	<5	<5
11-06-87	0846	--	--	--	--	--	--	--	--
12-08-87	1200	<.5	<50	<50	0	.1	<5	<5	<5
12-08-87	1201	--	--	--	--	--	--	--	--
01-04-88	1230	<.5	<50	<50	0	.1	<5	<5	<5
01-04-88	1231	--	--	--	--	--	--	--	--
02-09-88	1515	<.5	<50	<50	0	<.0	<5	<5	<5
02-09-88	1516	--	--	--	--	--	--	--	--
03-08-88	1945	<.5	<50	<50	0	.2	<5	<5	<5
03-08-88	1946	<.5	<10	40	<1	<1.0	2	<5	--
03-08-88	2050	--	--	--	--	--	--	--	--
03-08-88	2055	--	--	--	--	--	--	--	--
03-08-88	2100	--	--	--	--	--	--	--	--
03-08-88	2103	--	--	--	--	--	--	--	--
03-08-88	2107	--	--	--	--	--	--	--	--
03-08-88	2110	--	--	--	--	--	--	--	--
03-08-88	2118	--	--	--	--	--	--	--	--
03-08-88	2123	--	--	--	--	--	--	--	--
03-08-88	2128	--	--	--	--	--	--	--	--
03-08-88	2140	--	--	--	--	--	--	--	--
03-08-88	2145	--	--	--	--	--	--	--	--
03-08-88	2150	--	--	--	--	--	--	--	--
03-08-88	2155	--	--	--	--	--	--	--	--
03-08-88	2200	--	--	--	--	--	--	--	--
03-08-88	2203	--	--	--	--	--	--	--	--
03-08-88	2206	--	--	--	--	--	--	--	--
03-08-88	2210	--	--	--	--	--	--	--	--
03-08-88	2211	--	--	--	--	--	--	--	--
03-08-88	2216	--	--	--	--	--	--	--	--
03-08-88	2220	--	--	--	--	--	--	--	--
03-08-88	2225	--	--	--	--	--	--	--	--
03-08-88	2227	--	--	--	--	--	--	--	--
03-08-88	2231	--	--	--	--	--	--	--	--
03-08-88	2235	--	--	--	--	--	--	--	--

Table 11.--Examples of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	Cobalt, dissolved (µg/L as Co) (01035)	Copper, total recoverable (µg/L as Cu) (01042)	Copper, dissolved (µg/L as Cu) (01040)	Iron, total recoverable (µg/L as Fe) (01045)	Iron, dissolved (µg/L as Fe) (01046)	Lead, total recoverable (µg/L as Pb) (01051)	Lead, dissolved (µg/L as Pb) (01049)	Manganese, total recoverable (µg/L as Mn) (01055)
		05520500 Kankakee River at Momence, Illinois--Continued							
04-08-87	1630	<3	<10	<10	1,200	<3	<5	<10	130
05-06-87	0901	<3	10	<10	2,000	9	<5	<10	180
06-09-87	1345	<3	10	<10	3,700	7	7	<10	270
07-09-87	0845	<5	<5	<5	1,800	<50	<5	<5	150
07-09-87	0846	--	--	--	--	--	--	--	--
08-11-87	1030	<5	<5	<5	1,900	<50	<5	<5	190
08-11-87	1031	--	--	--	--	--	--	--	--
09-10-87	1100	<5	<5	<5	1,600	<50	<5	<5	140
09-10-87	1101	--	--	--	--	--	--	--	--
10-08-87	0915	<5	<5	<5	780	<50	<5	<5	77
10-08-87	0916	--	--	--	--	--	--	--	--
11-06-87	0845	<5	<5	<5	870	<50	<5	<5	96
11-06-87	0846	--	--	--	--	--	--	--	--
12-08-87	1200	<5	64	15	1,900	<50	6	<5	160
12-08-87	1201	--	--	--	--	--	--	--	--
01-04-88	1230	<5	<5	<5	580	<50	<5	<5	<50
01-04-88	1231	--	--	--	--	--	--	--	--
02-09-88	1515	<5	<5	<5	790	<50	<5	<5	120
02-09-88	1516	--	--	--	--	--	--	--	--
03-08-88	1945	<5	<5	<5	1,100	<50	<5	<5	120
03-08-88	1946	<3	20	<10	1,100	11	<5	<10	140
03-08-88	2050	--	--	--	--	--	--	--	--
03-08-88	2055	--	--	--	--	--	--	--	--
03-08-88	2100	--	--	--	--	--	--	--	--
03-08-88	2103	--	--	--	--	--	--	--	--
03-08-88	2107	--	--	--	--	--	--	--	--
03-08-88	2110	--	--	--	--	--	--	--	--
03-08-88	2118	--	--	--	--	--	--	--	--
03-08-88	2123	--	--	--	--	--	--	--	--
03-08-88	2128	--	--	--	--	--	--	--	--
03-08-88	2140	--	--	--	--	--	--	--	--
03-08-88	2145	--	--	--	--	--	--	--	--
03-08-88	2150	--	--	--	--	--	--	--	--
03-08-88	2155	--	--	--	--	--	--	--	--
03-08-88	2200	--	--	--	--	--	--	--	--
03-08-88	2203	--	--	--	--	--	--	--	--
03-08-88	2206	--	--	--	--	--	--	--	--
03-08-88	2210	--	--	--	--	--	--	--	--
03-08-88	2211	--	--	--	--	--	--	--	--
03-08-88	2216	--	--	--	--	--	--	--	--
03-08-88	2220	--	--	--	--	--	--	--	--
03-08-88	2225	--	--	--	--	--	--	--	--
03-08-88	2227	--	--	--	--	--	--	--	--
03-08-88	2231	--	--	--	--	--	--	--	--
03-08-88	2235	--	--	--	--	--	--	--	--

Table 11.--Examples of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	Manganese, dissolved (µg/L as Mn) (01056)	Mercury, total recoverable (µg/L as Hg) (71900)	Mercury, dissolved (µg/L as Hg) (71890)	Molybdenum, dissolved (µg/L as Mo) (01060)	Nickel, total recoverable (µg/L as Ni) (01067)	Nickel, dissolved (µg/L as Ni) (01065)	Selenium, dissolved (µg/L as Se) (01145)	Silver, total recoverable (µg/L as Ag) (01077)
			05520500 Kankakee River at Momence, Illinois--Continued						
04-08-87	1630	57	<0.10	<0.1	<10	2	<10	<1	<1
05-06-87	0901	33	<.10	<.1	<10	1	<10	<1	<1
06-09-87	1345	51	<.10	.2	<10	5	--	<1	<1
07-09-87	0845	12	<.05	0	--	<5	<5	<1	<3
07-09-87	0846	--	--	--	3	--	--	--	--
08-11-87	1030	29	<.05	0	--	<5	<5	<1	<3
08-11-87	1031	--	--	--	8	--	--	--	--
09-10-87	1100	27	<.05	0	--	<5	<5	<1	<3
09-10-87	1101	--	--	--	--	--	--	--	--
10-08-87	0915	20	--	--	--	<5	<5	<1	<3
10-08-87	0916	--	--	--	--	--	--	--	--
11-06-87	0845	40	--	--	--	<5	<5	<1	<3
11-06-87	0846	--	--	--	4	--	--	--	--
12-08-87	1200	48	.44	0	--	<5	<5	<1	<3
12-08-87	1201	--	--	--	--	--	--	--	--
01-04-88	1230	65	--	--	--	<5	<5	<1	<3
01-04-88	1231	--	--	--	--	--	--	--	--
02-09-88	1515	67	--	--	--	<5	<5	<1	<3
02-09-88	1516	--	--	--	5	--	--	--	--
03-08-88	1945	58	--	--	--	<5	<5	<1	<3
03-08-88	1946	59	<.10	<.1	<10	6	<10	--	<1
03-08-88	2050	--	--	--	--	--	--	--	--
03-08-88	2055	--	--	--	--	--	--	--	--
03-08-88	2100	--	--	--	--	--	--	--	--
03-08-88	2103	--	--	--	--	--	--	--	--
03-08-88	2107	--	--	--	--	--	--	--	--
03-08-88	2110	--	--	--	--	--	--	--	--
03-08-88	2118	--	--	--	--	--	--	--	--
03-08-88	2123	--	--	--	--	--	--	--	--
03-08-88	2128	--	--	--	--	--	--	--	--
03-08-88	2140	--	--	--	--	--	--	--	--
03-08-88	2145	--	--	--	--	--	--	--	--
03-08-88	2150	--	--	--	--	--	--	--	--
03-08-88	2155	--	--	--	--	--	--	--	--
03-08-88	2200	--	--	--	--	--	--	--	--
03-08-88	2203	--	--	--	--	--	--	--	--
03-08-88	2206	--	--	--	--	--	--	--	--
03-08-88	2210	--	--	--	--	--	--	--	--
03-08-88	2211	--	--	--	--	--	--	--	--
03-08-88	2216	--	--	--	--	--	--	--	--
03-08-88	2220	--	--	--	--	--	--	--	--
03-08-88	2225	--	--	--	--	--	--	--	--
03-08-88	2227	--	--	--	--	--	--	--	--
03-08-88	2231	--	--	--	--	--	--	--	--
03-08-88	2235	--	--	--	--	--	--	--	--

Table 11.--Examples of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	Silver, dissolved (µg/L as Ag) (01075)	Strontium, total recoverable (µg/L as Sr) (01082)	Strontium, dissolved (µg/L as Sr) (01080)	Vanadium, total recoverable (µg/L as V) (01087)	Vanadium, dissolved (µg/L as V) (01085)	Zinc, total recoverable (µg/L as Zn) (01092)	Zinc, dissolved (µg/L as Zn) (01090)	Gross alpha, dissolved (µg/L as U-Nat) (80030)
				05520500 Kankakee River at Momence, Illinois--Continued					
04-08-87	1630	1.0	--	140	--	<6	120	4	3.3
05-06-87	0901	<1.0	--	130	--	<6	250	5	--
06-09-87	1345	--	--	130	--	<6	30	7	1.4
07-09-87	0845	<3.0	140	140	<5	<5	<50	<50	--
07-09-87	0846	--	--	--	--	--	--	--	--
08-11-87	1030	<3.0	130	130	<5	<5	<50	<50	--
08-11-87	1031	--	--	--	--	--	--	--	1.3
09-10-87	1100	<3.0	130	120	<5	<5	<50	<50	--
09-10-87	1101	--	--	--	--	--	--	--	--
10-08-87	0915	<3.0	120	130	<5	<5	<50	<50	--
10-08-87	0916	--	--	--	--	--	--	--	--
11-06-87	0845	<3.0	130	130	<5	<5	<50	<50	--
11-06-87	0846	--	--	--	--	--	--	--	<.4
12-08-87	1200	<3.0	140	130	<5	<5	<50	<50	--
12-08-87	1201	--	--	--	--	--	--	--	--
01-04-88	1230	<3.0	140	140	<5	<5	<50	<50	--
01-04-88	1231	--	--	--	--	--	--	--	--
02-09-88	1515	<3.0	150	150	<5	<5	<50	<50	--
02-09-88	1516	--	--	--	--	--	--	--	4.2
03-08-88	1945	<3.0	140	130	<5	<5	<50	<50	--
03-08-88	1946	<1.0	--	130	--	<6	10	8	--
03-08-88	2050	--	--	--	--	--	--	--	--
03-08-88	2055	--	--	--	--	--	--	--	--
03-08-88	2100	--	--	--	--	--	--	--	--
03-08-88	2103	--	--	--	--	--	--	--	--
03-08-88	2107	--	--	--	--	--	--	--	--
03-08-88	2110	--	--	--	--	--	--	--	--
03-08-88	2118	--	--	--	--	--	--	--	--
03-08-88	2123	--	--	--	--	--	--	--	--
03-08-88	2128	--	--	--	--	--	--	--	--
03-08-88	2140	--	--	--	--	--	--	--	--
03-08-88	2145	--	--	--	--	--	--	--	--
03-08-88	2150	--	--	--	--	--	--	--	--
03-08-88	2155	--	--	--	--	--	--	--	--
03-08-88	2200	--	--	--	--	--	--	--	--
03-08-88	2203	--	--	--	--	--	--	--	--
03-08-88	2206	--	--	--	--	--	--	--	--
03-08-88	2210	--	--	--	--	--	--	--	--
03-08-88	2211	--	--	--	--	--	--	--	--
03-08-88	2216	--	--	--	--	--	--	--	--
03-08-88	2220	--	--	--	--	--	--	--	--
03-08-88	2225	--	--	--	--	--	--	--	--
03-08-88	2227	--	--	--	--	--	--	--	--
03-08-88	2231	--	--	--	--	--	--	--	--
03-08-88	2235	--	--	--	--	--	--	--	--

Table 11.--Examples of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	Gross alpha, suspended total (µg/L as U-Nat) (80040)	Gross beta, dissolved (pCi/L as CS-137) (03515)	Gross beta, suspended total (pCi/L as CS-137) (03516)	Gross beta, dissolved (pCi/L as Yt-90) (80050)	Gross beta, suspended total (pCi/L as Yt-90) (80060)	Carbon, organic, total (mg/L as C) (00680)	Carbon, organic, dissolved (mg/L as C) (00681)	Carbon, organic, suspended total (mg/L as C) (00689)
				05520500 Kankakee River at Momence, Illinois--Continued					
04-08-87	1630	<0.4	3.2	1.0	2.4	1.0	--	7.3	0.5
05-06-87	0901	--	--	--	--	--	--	4.5	1.8
06-09-87	1345	2.4	3.0	1.7	2.3	1.6	--	6.5	1.2
07-09-87	0845	--	--	--	--	--	5.2	--	--
07-09-87	0846	--	--	--	--	--	--	4.5	--
08-11-87	1030	--	--	--	--	--	5.7	--	--
08-11-87	1031	.6	3.7	.6	2.7	.6	--	5.3	2.0
09-10-87	1100	--	--	--	--	--	5.0	--	--
09-10-87	1101	--	--	--	--	--	--	4.6	1.0
10-08-87	0915	--	--	--	--	--	5.3	--	--
10-08-87	0916	--	--	--	--	--	--	5.2	.4
11-06-87	0845	--	--	--	--	--	5.9	--	--
11-06-87	0846	<.4	3.2	<.4	2.3	<.4	--	5.2	.8
12-08-87	1200	--	--	--	--	--	7.1	--	--
12-08-87	1201	--	--	--	--	--	--	7.8	1.6
01-04-88	1230	--	--	--	--	--	6.8	--	--
01-04-88	1231	--	--	--	--	--	--	5.5	.9
02-09-88	1515	--	--	--	--	--	6.5	--	--
02-09-88	1516	0	3.2	.7	2.4	.7	--	5.0	.3
03-08-88	1945	--	--	--	--	--	5.5	--	--
03-08-88	1946	--	--	--	--	--	6.8	4.7	.7
03-08-88	2050	--	--	--	--	--	--	--	--
03-08-88	2055	--	--	--	--	--	--	--	--
03-08-88	2100	--	--	--	--	--	--	--	--
03-08-88	2103	--	--	--	--	--	--	--	--
03-08-88	2107	--	--	--	--	--	--	--	--
03-08-88	2110	--	--	--	--	--	--	--	--
03-08-88	2118	--	--	--	--	--	--	--	--
03-08-88	2123	--	--	--	--	--	--	--	--
03-08-88	2128	--	--	--	--	--	--	--	--
03-08-88	2140	--	--	--	--	--	--	--	--
03-08-88	2145	--	--	--	--	--	--	--	--
03-08-88	2150	--	--	--	--	--	--	--	--
03-08-88	2155	--	--	--	--	--	--	--	--
03-08-88	2200	--	--	--	--	--	--	--	--
03-08-88	2203	--	--	--	--	--	--	--	--
03-08-88	2206	--	--	--	--	--	--	--	--
03-08-88	2210	--	--	--	--	--	--	--	--
03-08-88	2211	--	--	--	--	--	--	--	--
03-08-88	2216	--	--	--	--	--	--	--	--
03-08-88	2220	--	--	--	--	--	--	--	--
03-08-88	2225	--	--	--	--	--	--	--	--
03-08-88	2227	--	--	--	--	--	--	--	--
03-08-88	2231	--	--	--	--	--	--	--	--
03-08-88	2235	--	--	--	--	--	--	--	--

Table 11.--Examples of tabulated data for physical properties; concentrations of major ions, nutrients, major metals and trace elements, chlorophyll-a, and suspended sediment; and counts of indicator bacteria--Continued

Date	Time	Cyanide, dissolved (mg/L as CN) (00723)	Cyanide, total (mg/L as CN) (00720)	Phenols, total (µg/L) (32730)	Oil and grease, total recoverable, gravimetric (mg/L) (00556)	Chlorophyll-a phytoplankton chromofluorom (µg/L) (70953)	Chlorophyll-a fluorometric method corr. (µg/L) (32209)	Sediment, suspended (mg/L) (80154)	Sediment, discharge, suspended (T/day) (80155)	Sediment, suspended, sieve diameter % finer than .062 mm (70331)
		05520500 Kankakee River at Momence, Illinois--Continued								
04-08-87	1630	<0.01	--	--	--	--	4.20	55	218	96
05-06-87	0901	--	--	--	--	--	--	49	201	92
06-09-87	1345	<.01	--	--	--	--	--	75	500	93
07-09-87	0845	<5.0	<.005	<5	1	--	--	--	--	--
07-09-87	0846	--	--	--	--	--	--	47	146	84
08-11-87	1030	0	<.005	<5	1	--	--	--	--	--
08-11-87	1031	--	--	--	--	--	11.6	47	95	83
09-10-87	1100	<5.0	<.005	<5	<1	--	--	--	--	--
09-10-87	1101	--	--	--	--	--	--	56	119	95
10-08-87	0915	0	<.005	5	1	--	--	--	--	--
10-08-87	0916	--	--	--	--	--	1.30	35	89	64
11-06-87	0845	0	<.005	<5	<1	--	--	--	--	--
11-06-87	0846	--	--	--	--	--	--	29	81	71
12-08-87	1200	0	<.005	10	<1	--	--	--	--	--
12-08-87	1201	--	--	--	--	--	5.80	47	317	81
01-04-88	1230	0	<.005	<5	<1	--	--	--	--	--
01-04-88	1231	--	--	--	--	--	--	12	126	94
02-09-88	1515	0	<.005	<5	1	--	--	--	--	--
02-09-88	1516	--	--	--	--	--	.930	9	68	86
03-08-88	1945	0	<.005	<5	3	--	--	--	--	--
03-08-88	1946	<.01	<.010	--	--	--	--	--	--	--
03-08-88	2050	--	--	--	--	--	--	27	--	97
03-08-88	2055	--	--	--	--	--	3.90	36	--	87
03-08-88	2100	--	--	--	--	--	3.70	31	--	88
03-08-88	2103	--	--	--	--	--	--	31	--	73
03-08-88	2107	--	--	--	--	--	3.50	30	--	97
03-08-88	2110	--	--	--	--	--	4.00	28	--	95
03-08-88	2118	--	--	--	--	--	3.60	47	--	91
03-08-88	2123	--	--	--	--	--	3.90	27	--	93
03-08-88	2128	--	--	--	--	--	4.20	29	--	86
03-08-88	2140	--	--	--	--	--	3.90	41	--	84
03-08-88	2145	--	--	--	--	--	4.20	44	--	64
03-08-88	2150	--	--	--	--	--	3.70	37	--	87
03-08-88	2155	--	--	--	--	--	4.40	37	--	82
03-08-88	2200	--	--	--	--	--	4.20	37	--	83
03-08-88	2203	--	--	--	--	--	--	40	--	79
03-08-88	2206	--	--	--	--	--	1.20	43	--	70
03-08-88	2210	--	--	--	--	--	3.70	28	--	87
03-08-88	2211	--	--	--	--	--	4.20	46	--	79
03-08-88	2216	--	--	--	--	--	5.00	28	--	77

Table 12.--Examples of tabulated data for in-situ measurements

[ft, feet; µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter]

Date	Time	Agency collecting sample (code number) (00027)	Agency analyzing sample (code number) (00028)	Sampling depth (ft) (00003)	Number of sampling points (count) (00063)	Stream width (ft) (00004)	Sample location cross section (ft from left bank) (00009)	Specific conductance (µS/cm) (00095)	pH (standard units) (00400)	Temperature water (°C) (00010)	Oxygen, dissolved (mg/L) (00300)
			05520500 Kankakee River at Momence, Illinois								
04-08-87	1559	81700	81700	1.50	1	396	20.0	616	8.5	13.0	12.9
04-08-87	1600	81700	81700	1.50	1	396	40.0	618	8.5	13.0	12.9
04-08-87	1601	81700	81700	1.50	1	396	60.0	619	8.5	13.0	13.0
04-08-87	1602	81700	81700	1.50	1	396	80.0	621	8.5	13.0	12.8
04-08-87	1603	81700	81700	1.50	1	396	100	623	8.5	13.0	12.3
04-08-87	1604	81700	81700	1.50	1	396	120	625	8.4	13.0	12.0
04-08-87	1605	81700	81700	1.50	1	396	140	627	8.4	13.0	11.7
04-08-87	1606	81700	81700	1.50	1	396	160	628	8.4	13.0	11.6
04-08-87	1607	81700	81700	1.50	1	396	180	632	8.4	13.0	11.6
04-08-87	1608	81700	81700	1.50	1	396	200	635	8.4	13.0	11.7
04-08-87	1609	81700	81700	1.50	1	396	220	639	8.4	13.0	11.9
04-08-87	1610	81700	81700	1.50	1	396	240	643	8.4	13.0	12.0
04-08-87	1611	81700	81700	1.50	1	396	260	649	8.4	13.0	12.1
04-08-87	1612	81700	81700	1.50	1	396	280	656	8.5	13.0	12.3
04-08-87	1613	81700	81700	1.50	1	396	300	678	8.4	13.0	12.1
04-08-87	1614	81700	81700	1.50	1	396	320	684	8.4	13.0	11.6
04-08-87	1615	81700	81700	1.50	1	396	340	694	8.4	13.0	11.9
04-08-87	1616	81700	81700	1.50	1	396	360	700	8.4	13.0	12.3
04-08-87	1617	81700	81700	1.50	1	396	380	702	8.4	13.0	12.4
05-06-87	0902	81700	81700	1.50	1	270	140	609	7.9	15.0	9.9
06-09-87	1510	81700	81700	1.50	1	290	--	662	7.6	23.0	6.6
07-09-87	0955	81700	81700	1.50	1	300	200	697	7.8	25.5	7.5
07-09-87	0959	81700	81700	1.50	1	300	150	636	8.0	25.5	7.9
07-21-87	1451	81700	81700	1.50	1	410	390	648	8.4	29.5	9.2
07-21-87	1452	81700	81700	1.50	1	410	370	653	8.4	29.5	9.4
07-21-87	1454	81700	81700	1.50	1	410	330	659	8.4	29.5	9.3
07-21-87	1455	81700	81700	1.50	1	410	310	662	8.4	29.5	9.2
07-21-87	1456	81700	81700	1.50	1	410	290	664	8.4	29.0	9.0
07-21-87	1457	81700	81700	1.50	1	410	270	666	8.4	29.0	9.1
07-21-87	1458	81700	81700	1.50	1	410	250	669	8.4	29.0	9.1
07-21-87	1459	81700	81700	1.50	1	410	230	674	8.4	29.0	9.0
07-21-87	1500	81700	81700	1.50	1	410	210	678	8.4	29.0	8.9
07-21-87	1501	81700	81700	1.50	1	410	190	682	8.4	29.0	8.9
07-21-87	1502	81700	81700	1.50	1	410	170	687	8.5	29.0	8.9
07-21-87	1503	81700	81700	1.50	1	410	150	690	8.5	29.0	9.0
07-21-87	1504	81700	81700	1.50	1	410	130	697	8.5	29.5	8.9
07-21-87	1505	81700	81700	1.50	1	410	110	703	8.5	29.0	8.7
07-21-87	1506	81700	81700	1.50	1	410	90.0	713	8.5	29.0	8.7
07-21-87	1507	81700	81700	1.50	1	410	70.0	717	8.5	29.0	9.0
07-21-87	1508	81700	81700	1.50	1	410	50.0	722	8.5	29.0	9.3
07-21-87	1509	81700	81700	1.50	1	410	30.0	723	8.5	29.0	9.2
07-21-87	1510	81700	81700	1.50	1	410	10.0	723	8.5	29.0	8.9
08-11-87	1032	81700	81700	1.50	1	300	150	675	8.0	25.0	7.9
09-10-87	1107	81700	81700	1.50	1	300	30.0	628	8.1	21.0	8.3
09-10-87	1108	81700	81700	1.50	1	300	90.0	635	8.1	21.5	8.3

Table 13.--Examples of tabulated data for major ions, phosphorus, and trace elements in suspended sediment

[µg/g, micrograms per gram; m^2/g, square meters per gram]

Date	Time	Agency collecting sample (code number) (00027)	Agency analyzing sample (code number) (00028)	Calcium, sediment, suspended (percent) (30240)	Magnesium, sediment, suspended (percent) (30277)	Sodium, sediment, suspended (percent) (30304)	Potassium, sediment, suspended (percent) (30294)	Phosphorus, sediment, suspended (percent) (30292)
			05520500 Kankakee River at Momence, Illinois					
05-06-87	0901	81700	80020	8.8	2.4	1.2	2.6	0.09
06-09-87	1345	81700	80020	3.0	1.0	.60	2.6	.15
07-09-87	0846	81700	80020	--	--	--	--	--
08-11-87	1031	81700	80020	5.5	1.9	.74	1.6	.14
09-10-87	1101	81700	80020	11	2.0	.68	1.3	.13
10-08-87	0916	81700	80020	7.3	2.4	.90	1.4	.20
11-06-87	0846	81700	80020	7.4	2.4	.82	1.3	.18
12-08-87	1201	81700	80020	5.3	2.0	.66	2.0	.18
03-08-88	1946	81700	80020	3.7	1.3	.43	1.5	.20
05-02-88	1431	81700	80020	4.1	1.4	.42	1.6	.22
06-09-88	1501	81700	80020	4.2	1.4	.45	1.7	.20
07-08-88	0911	81700	80020	12	1.3	.41	1.3	.21
08-11-88	1531	81700	80020	22	.89	.21	.64	.11
08-24-88	1201	81700	80020	16	1.7	.68	1.1	.13
09-13-88	0901	81700	80020	13	1.4	.41	1.2	.14
10-13-88	1116	81700	80020	--	--	--	--	--
11-09-88	1131	81700	80020	--	--	--	--	--
12-08-88	1201	81700	80020	--	--	--	--	--
01-13-89	0846	81700	80020	2.8	1.1	.36	1.8	.18
02-09-89	0831	81700	80020	--	--	--	--	--
03-10-89	0846	81700	80020	4.9	1.4	1.4	1.6	.23
04-03-89	1516	81700	80020	1.3	1.2	.24	2.6	.15
05-08-89	1001	81700	80020	4.6	1.3	.44	1.6	.21
05-30-89	1231	81700	80020	1.0	1.1	.27	2.6	.13
06-08-89	0931	81700	80020	1.9	1.1	.28	2.2	.19
07-13-89	0816	81700	80020	4.1	1.3	.45	1.7	.18
08-10-89	1131	81700	80020	4.1	1.3	.39	1.6	.22
09-01-89	1101	81700	80020	4.0	1.3	.42	1.7	.20
10-05-89	0946	81700	80020	4.3	1.3	.40	1.5	.22
12-07-89	1146	81700	80020	--	--	--	--	--
01-11-90	1201	81700	80020	4.4	1.2	.38	1.3	.28
02-13-90	1216	81700	80020	4.8	1.5	.45	1.5	.27
03-09-90	1301	81700	80020	1.2	1.4	.26	2.8	.15
04-04-90	1131	81700	80020	4.3	1.4	.40	1.4	.26
05-03-90	1031	81700	80020	3.6	1.2	.35	1.5	.24
06-07-90	1301	81700	80020	3.8	1.3	.44	1.6	.22
07-11-90	1301	81700	80020	3.4	1.2	.37	1.7	.22
08-09-90	1131	81700	80020	3.4	1.2	.38	1.7	.21

Table 13.--Examples of tabulated data for major ions, phosphorus, and trace elements in suspended sediment--Continued

Date	Time	Aluminum, sediment, suspended (percent) (30221)	Beryllium, sediment, suspended (µg/g) (29822)	Chromium, sediment, suspended (µg/g) (29829)	Cobalt, sediment, suspended (µg/g) (35031)	Copper, sediment, suspended (µg/g) (29832)	Iron, sediment, suspended (percent) (30269)
		05520500 Kankakee River at Momence, Illinois--Continued					
05-06-87	0901	3.6	<2	48	14	84	4.4
06-09-87	1345	6.0	<2	74	14	56	5.8
07-09-87	0846	--	--	--	--	--	--
08-11-87	1031	4.5	<2	60	14	37	5.0
09-10-87	1101	3.5	<2	41	14	42	4.3
10-08-87	0916	3.5	<2	42	14	43	5.8
11-06-87	0846	3.4	<2	43	14	73	5.5
12-08-87	1201	4.9	<2	75	14	75	4.8
03-08-88	1946	4.4	<2	220	20	88	6.6
05-02-88	1431	4.9	<2	62	20	56	7.0
06-09-88	1501	4.8	<2	100	17	54	6.1
07-08-88	0911	3.3	<2	66	14	35	3.8
08-11-88	1531	1.6	<2	39	8	20	1.7
08-24-88	1201	2.8	<2	56	12	26	3.1
09-13-88	0901	3.7	<2	47	16	48	4.5
10-13-88	1116	--	--	--	--	--	--
11-09-88	1131	--	--	--	--	--	--
12-08-88	1201	--	--	--	--	--	--
01-13-89	0846	5.9	<2	67	31	33	5.2
02-09-89	0831	--	--	--	--	--	--
03-10-89	0846	4.6	<2	65	33	48	7.1
04-03-89	1516	8.6	3	97	17	47	5.2
05-08-89	1001	4.6	<2	60	18	49	6.4
05-30-89	1231	8.1	3	140	15	39	4.6
06-08-89	0931	7.3	2	130	20	46	5.6
07-13-89	0816	5.0	<2	58	16	43	6.0
08-10-89	1131	4.9	<2	59	17	43	6.4
09-01-89	1101	5.2	<2	61	16	44	5.8
10-05-89	0946	4.4	<2	55	19	40	7.0
12-07-89	1146	--	--	--	--	--	--
01-11-90	1201	4.1	<2	26	26	58	8.0
02-13-90	1216	4.8	<2	60	28	120	8.1
03-09-90	1301	9.7	3	100	17	45	5.3
04-04-90	1131	4.6	<2	71	26	77	8.5
05-03-90	1031	5.0	<2	68	21	38	7.3
06-07-90	1301	5.3	<2	71	18	47	6.6
07-11-90	1301	5.4	<2	64	17	48	6.5
08-09-90	1131	5.5	<2	63	19	45	7.0

Table 13.--Examples of tabulated data for major ions, phosphorus, and trace elements, in suspended sediment--Continued

Date	Time	Manganese, sediment, suspended (µg/g) (29839)	Nickel, sediment, suspended (µg/g) (29845)	Titanium, sediment, suspended (percent) (30317)	Vanadium, sediment, suspended (µg/g) (29853)	Zinc, sediment, suspended (µg/g) (29855)	Surface area, sediment, suspended (m^2/g) (30334)
		05520500 Kankakee River at Momence, Illinois--Continued					
05-06-87	0901	2,200	24	0.14	52	>50	11.1
06-09-87	1345	2,400	38	.28	76	>50	16.8
07-09-87	0846	--	--	--	--	--	13.8
08-11-87	1031	3,100	30	.24	70	220	12.4
09-10-87	1101	2,900	23	.18	55	470	9.53
10-08-87	0916	4,600	23	.18	59	200	13.4
11-06-87	0846	5,100	28	.18	57	240	10.7
12-08-87	1201	2,700	31	.28	81	210	16.4
03-08-88	1946	5,600	66	.22	66	270	21.9
05-02-88	1431	5,900	34	.24	80	250	25.7
06-09-88	1501	4,500	35	.25	79	250	20.6
07-08-88	0911	5,700	25	.16	54	240	10.1
08-11-88	1531	2,100	13	.08	27	93	3.92
08-24-88	1201	4,000	21	.13	43	140	9.98
09-13-88	0901	4,600	28	.18	57	190	13.0
10-13-88	1116	--	--	--	--	--	E12.6
11-09-88	1131	--	--	--	--	--	E6.53
12-08-88	1201	--	--	--	--	--	E9.40
01-13-89	0846	5,900	41	.25	93	260	26.2
02-09-89	0831	--	--	--	--	--	E18.8
03-10-89	0846	7,700	40	.26	74	300	E10.8
04-03-89	1516	1,200	46	.38	140	200	35.3
05-08-89	1001	4,800	32	.22	72	240	18.3
05-30-89	1231	1,000	45	.40	130	160	29.4
06-08-89	0931	3,500	40	.36	120	250	26.6
07-13-89	0816	4,500	33	.28	78	310	22.7
08-10-89	1131	5,300	33	.24	78	350	16.8
09-01-89	1101	4,000	36	.25	83	320	23.1
10-05-89	0946	6,000	34	.21	73	380	14.6
12-07-89	1146	--	--	--	--	--	11.4
01-11-90	1201	10,000	31	.20	70	270	27.8
02-13-90	1216	8,500	41	.21	75	310	20.1
03-09-90	1301	980	45	.40	150	260	31.8
04-04-90	1131	8,600	40	.24	81	340	20.2
05-03-90	1031	7,200	36	.23	83	240	24.5
06-07-90	1301	5,200	35	.25	85	230	18.3
07-11-90	1301	5,100	31	.26	85	230	21.3
08-09-90	1131	5,300	35	.25	87	230	22.6

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