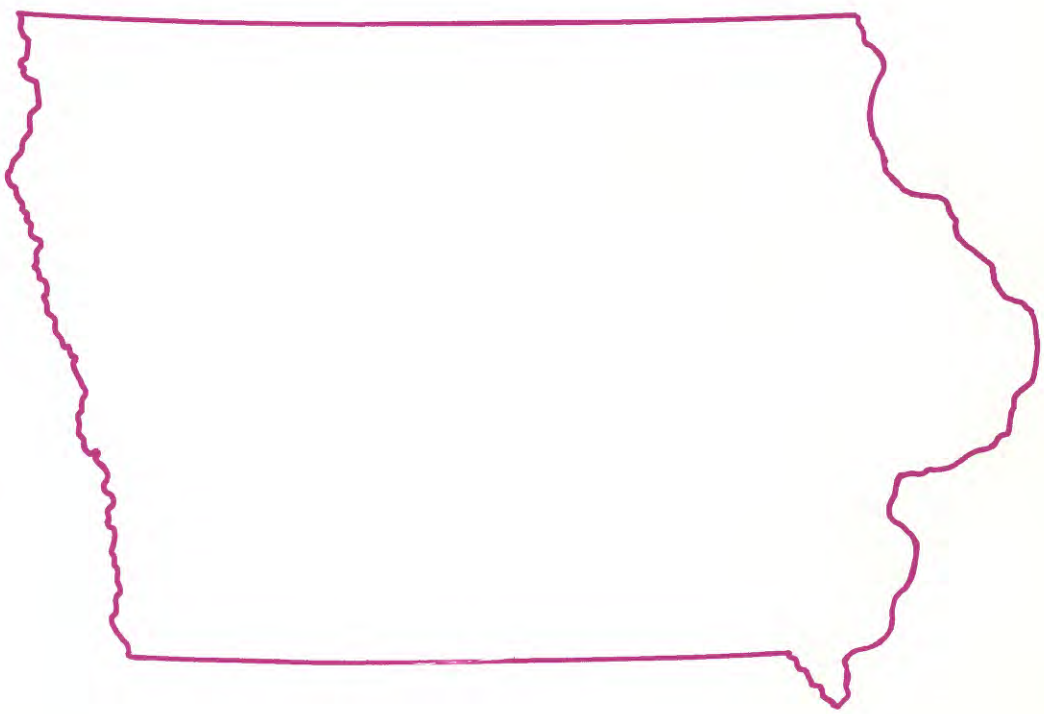
Water Resources Data
Iowa
Water Year 1984



U.S. GEOLOGICAL SURVEY WATER DATA REPORT IA-84-1
Prepared in cooperation with the Iowa Geological Survey and with other State and Federal agencies

CALENDAR FOR WATER YEAR 1984

1983

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1984

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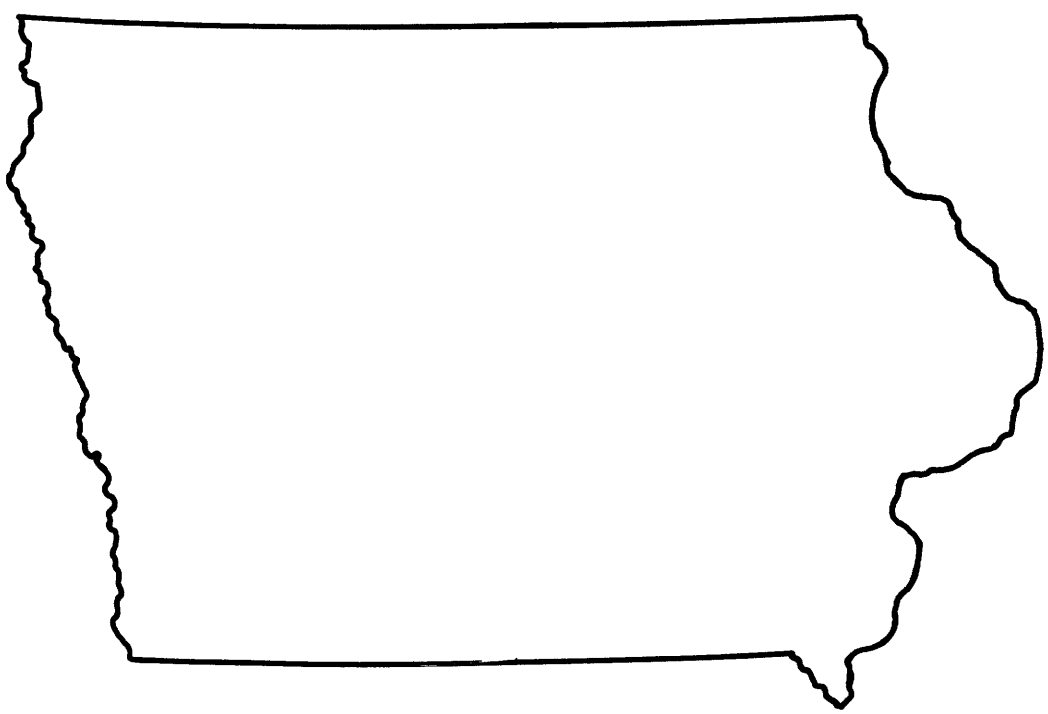
Water Resources Data
Iowa
Water Year 1984

by V.E. Miller, W.J. Matthes, M.G. Detroy, and R.E. Hansen



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT IA-84-1
Prepared in cooperation with the Iowa Geological Survey and with other State and Federal agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in Iowa write to
District Chief, Water Resources Division
U.S. Geological Survey
P.O. Box 1230
Iowa City, Iowa 52244

1985

PREFACE

This report of Iowa is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface-water and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsiblity for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, and processing of the data, and to the publication of the report.

C.J. Anderson	A.R. Conkling	N.F. Fish
R.D. Goodrich	J.G. Gorman	L.E. Hotka
R.A. Karsten	R.C. Klosterman	R.L. Kopish
G.D. Lyke	C.L. Schnell	

This report was prepared in cooperation with the State of Iowa and with other agencies under the general supervision of J.M. Klein, District Chief, Iowa.

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15. Supplementary Notes

Prepared in cooperation with the State of Iowa and other agencies.

16. Abstract (Limit: 200 words)

Water resources data for the 1984 water year for Iowa consists of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; ground-water levels and ground-water quality. This report contains discharge records for 115 gaging stations; stage and contents for 7 lakes and reservoirs; water quality for 17 gaging stations; and water levels for 90 observation wells. Also included are 120 crest-stage partial-record stations. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements and analyses. The data represent that part of the National Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Iowa.

17. Document Analysis a. Descriptors

*Iowa, *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rates, Streamflow, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperature, Sampling sites, Water levels, Water analyses, Data collections, Ground water levels.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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(Formerly NTIS 35)
Department of Commerce

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ILLUSTRATIONS

TABLES

[Letter after station name designates type of data: (d) discharge, (c) chemical, (m) microbiological, (t) water temperature (s) sediment]

WATER RESOURCES DATA FOR IOWA, 1984

INTRODUCTION

Water resources data for the 1984 water year for Iowa consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels of ground-water wells. This report contains records for water discharge at 115 gaging stations; stage or contents at 7 lakes and reservoirs; water quality at 17 gaging stations, and water levels at 90 observation wells. Also included are data for 120 crest-stage partial-record stations. Additional water data were collected at various sites not involved in the systematic data-collection program and are published as miscellaneous measurements and analyses. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State, local, and Federal agencies in Iowa.

Records of discharge and stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled, "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled, "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 604 South Pickett Street, Alexandria, Virginia, 22304.

For water years 1961 through 1970, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1970 were similarly released either in separate reports of in conjunction with streamflow records.

Beginning with the 1971 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report IA-83-1." These water-data reports are for sale, in paper copy or in microfiche, by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone, (319) 337-4191.

COOPERATION

The U.S. Geological Survey and organizations in the State of Iowa have had cooperative agreements for the systematic collection of streamflow records since 1914, for ground water levels since 1935, and for water-quality records since 1943. Organizations that assisted in collecting data through cooperative agreement with the Survey in 1981 are:

Iowa Geological Survey, Donald L. Koch, Director and State Geologist

University of Iowa, Institute of Hydraulic Research, Robert G. Hering, Dean of College of Engineering and John F. Kennedy, Director

University of Iowa, Hygienic Laboratory, W.J. Hausler, Jr., Director

Iowa Department of Transportation, Highway Division, Robert H. Given, Director, and Vernon J. Marks, Research Engineer

Iowa State University, Richard E. Hasbrook, Contracts and Grants Officer, and E. Robert Bauman, Professor-in-charge; and Engineering Research Institute, T. Al. Austin, Director.

City of Cedar Rapids, Donald Canney, Mayor

City of Des Moines, Pete Creivaro, Mayor

City of Fort Dodge, Michael Wallnem, General Manager, Department of Municipal Utilities

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting flow records for 77 gaging stations. Assistance was also furnished by NOAA-National Weather Service, U.S. Department of Commerce.

The following organizations aided in collecting records:

Union Electric Co.; Des Moines Water Works; Waterloo Sewage Treatment Plant; University of Iowa; West Central Iowa Rural Water Association; and cities of, Charles City, Clear Lake, Denison, Iowa city, Marshalltown, Sioux City, and Waterloo.

Organizations that supplied data are acknowledged in station descriptions.

Table 1.—Runoff at streamflow stations representing all major river basins in Iowa. [Average runoff for station based on period of record. Data for the 1984 water year listed for all stations for comparative purpose even if not the previous maximum. Previous maximum runoff value, the year of occurence, and the record high runoff year of 1973 are shown.]

Station number and name	Drainage area (square miles)	Runoff (inches)		Previous maximum	
		1984 water year	Average for period or record	Inches	Water year
05388250 Upper Iowa R nr Dorchester	770	15.4	10.9+	22.6	1983
05412500 Turkey R at Garber	1,545	12.3	8.4	19.6	1983
				18.4	(1973)
05418500 Maquoketa R at Maquoketa	1,553	9.9	9.0	20.3	1973
05422000 Wapsipinicon R nr Dewitt	2,330	12.6	9.0	20.3	1973
05451500 Iowa R at Marshalltown	1,564*	17.9	7.1	19.8	1983
				18.5	(1973)
05455700 Iowa R nr Lone Tree	4,293*	16.1	9.0	19.0	1973
05464000 Cedar R at Waterloo	5,460*	16.2	8.1	20.2	1983
				16.9	(1973)
05465000 Cedar R nr Conesville	7,785*	16.2	8.3	18.0	1983
				17.8	(1973)
05465500 Iowa R at Wapello	12,499	14.5	7.6	18.6	1973
05474000 Skunk R at Augusta	4,303	15.4	7.7	20.6	1973
05480500 Des Moines R at Ft. Dodge	4,190*	15.5	4.9	18.0	1983
				8.8	(1973)
05484500 Raccoon R at Van Meter	4,303*	15.8	5.1	19.2	1973
05485500 Des Moines R at SE14th	9,879*	16.9	6.1	18.1	1983
				15.1	(1973)
05490500 Des Moines R Keosaqua	14,038	14.7	5.6	18.1	1983
				16.2	(1973)
06483500 Rock R at Rock Valley	1,592	13.5	3.3	14.0	1983
				3.3	(1973)
06600500 Floyd R at James	882	13.1	3.2	14.7	1983
				4.3	(1973)
06607500 Little Sioux R nr Turin	3,526	14.7	5.2	18.4	1983
				6.2	(1973)
06609500 Boyer R at Logan	871	12.9	5.0	13.9	1983
				11.6	(1973)
06810000 Nishnabotna R above Hamburg	2,806	12.5	5.2	17.4	1973
06811840 Tarkio R at Stanton	49	13.9	8.0	19.5	1973
06817000 Nodaway R at Clarinda	762	12.5	6.2	20.4	1973
06817500 Platte R nr Diagonal	217	14.6	8.6	18.2	1973
06898000 Thompson R at Davis City	701	12.0	7.3	20.8	1973
06898400 Weldon R nr Leon	104	9.1	9.4	23.3	1959
				21.1	(1973)
06903400 Chariton R nr Chariton	182	11.3	8.6	19.3	1973
06903700 SF Chariton R nr Promise City	168	9.4	9.6	18.7	1973
Total drainage area included in study	48,898	—	—	—	—
Areal weighted average	—	14.1	6.6	16.3	(1973)

* Not included in areal averaging of river basin runoff.
\+ Not included in 1973 computation of average values.

SUMMARY OF HYDROLOGIC CONDITIONS

Runoff for the 1984 water year in Iowa was in excess at 25 of the 26 stream-gaging stations that represent the major river basins in the State (table 1). The table shows the 1984 water year compared to the previous maximum runoff value, the year of occurence, and the record high runoff water year of 1973. Extensive flooding occurred long the tributaries of the Missouri River and also along the Missouri River downstream from Omaha, Nebraska. Runoff was very high in the Floyd, Nishnabotna, Rock, Des Moines, Skunk, Iowa, and Cedar River basins . Average monthly and yearly discharge for the 1984 water year and mean monthly and yearly dishcarge for water years 1951-80 for three index stations are shown in figure 1. The effect of the stormy period from March to June as contrasted to the severe drought conditions in August and September is clearly illustrated. The Des Moines River at the Saylorville Reservoir flowed over the spillway on June 20, a first time occurrence in the 8-year history of the reservoir and the first time water has ever flowed over the spillway of any U.S. Army Corps of Engineers dam in the State. Flood levels were the highest since 1952 in the Missouri River at the Nebraska City, and Rulo, Nebraska, stream-gaging stations.

Precipitation was extremely variable during the 1984 water year (fig. 2) in comparison to long-term normal precipitation (fig. 3). During October and November, precipitation was twice the statewide average alleviating drought conditions caused by a near record hot, dry summer. By March, soil moisture was in the adequate to surplus range statewide. April precipitation set a record high. May and June were wet, stormy months and flooding occurred in the western two-thirds of the State. The remainder of the year was extremely dry with July to September being the second driest on record.

The air temperature for the 1984 water year was seasonally variable. The fall was colder than normal with measurable snow in October. Temperatures during December 4° Fahrenheit less than normal temperature which set a new record, the previous record having been set in 1876. Late January and February were more moderate, especially in the southern part of the State, while March to May was cold and wet with major snow storms occurring during March and April. June was a wet, stormy month and a record setting 26 tornadoes were sighted on June 7. The devastating storms during June caused extensive and excessive soil erosion as well as crop and property damage. July was cool with record low temperatures set for the month in some localities. August and the first one-half of September were hot and dry. The last one-half of September was cool with frost being reported statewide on September 26.

A comparison between selected water-quality data for the 1984 water year and historical data for the period of record is shown in figures 4-6. Monthly means of stream discharge for the 1984 water year also are shown to generally relate flow conditions to water-quality measurements obtained during the 1984 water year. Dissolved-solids and nitrate data collected at selected National Stream-Quality Accounting Network (NASQAN) stations were used to demonstrate temporal variability of water quality for the Mississippi, the Iowa, and the Missouri Rivers. Concentrations of dissolved-solids for the Mississippi River station located at Keokuk (fig.4) and the Iowa River station located at Wapello (fig.5) were relatively normal for the 1984 water year when compared to historical monthly means for the period of record. For the same period, all concentration measurements of dissolved-solids for the Missouri River station at Sioux City (fig.6) exceeded the historical monthly mean and the May and July concentration measurements exceeded the mean by more than 100 mg/L (milligrams per liter). Nitrate concentrations reported as nitrogen (nitrate plus nitrite as nitrogen analysis, but nitrite concentration assumed to be negligible) for the Mississippi River station (fig. 4) were slightly greater than the historical monthly mean for three of four measurements. Three measurements were about 3 mg/L, the other was less than 1 mg/L. Two of six nitrate measurements at the Iowa River station (fig. 5) exceed monthly means by more than 2.5 mg/L. The maximum concentration was 9 mg/L and 4 concentration measurements exceeded 6 mg/L. Nitrate data for the Missouri River station (fig. 6) exceeded historical monthly means 4 times, however all concentration measurements were equal to or less than 1 mg/L.

Water levels in three shallow, water-table wells completed in Pleistocene glacial drift in east-central, central, and south-central Iowa were all above the average monthly levels for the water year (fig. 7). The well in the east-central part of the State, in Linn County, had a new high level for February and the well in Webster County, completed in the same aquifer, had water levels above the average monthly levels for 11 months and a new high level for November. Water levels in another shallow, water-table well completed in Pleistocene glacial drift in east-central Iowa, were above the average monthly levels for 6 months and below for 6 months. In contrast, water levels in a similar well in the southwestern part of the State were below the average monthly levels for 10 of the 12 months during the water year. Water levels in a shallow, water-table well completed in Holocene alluvium, in Pottawattamie County, were above the average monthly levels for 11 months and new high levels were established for May and June. The variable measured responses are because surficial aquifers are recharged by and reflect local precipitation. In general, water levels in the surficial aquifers are higher in the spring, although more precipation may occur later in the spring and early summer. This precipitation is lost to evapotranspiration as the growing season begins and is not available to infiltrate the soil and recharge the aquifers to the extent that the earlier precipitation did.

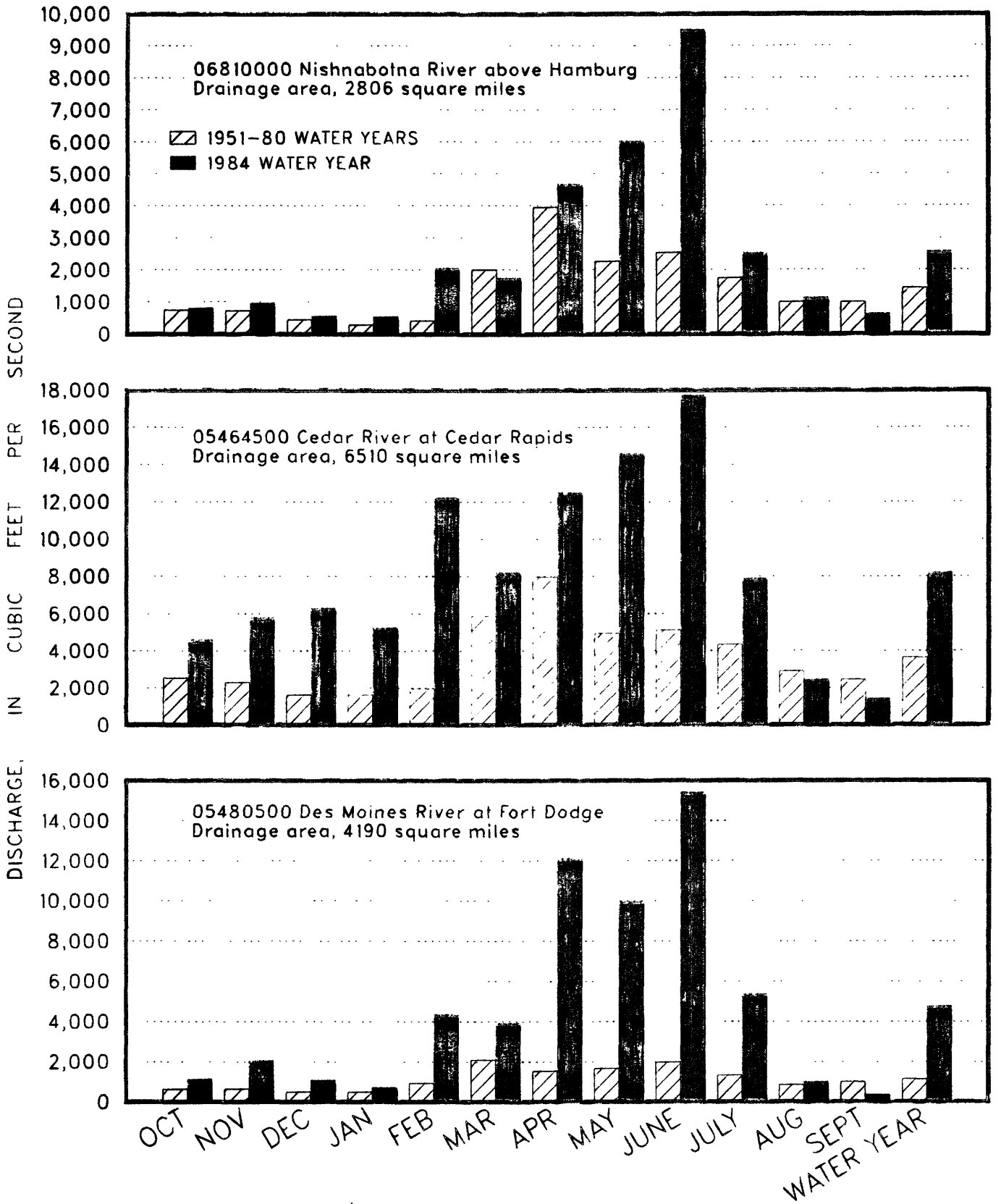


Figure 1.--Mean of monthly and yearly discharges for the water years 1951–80 compared with the monthly and yearly mean discharge during the 1984 water year at three represenative gaging stations.

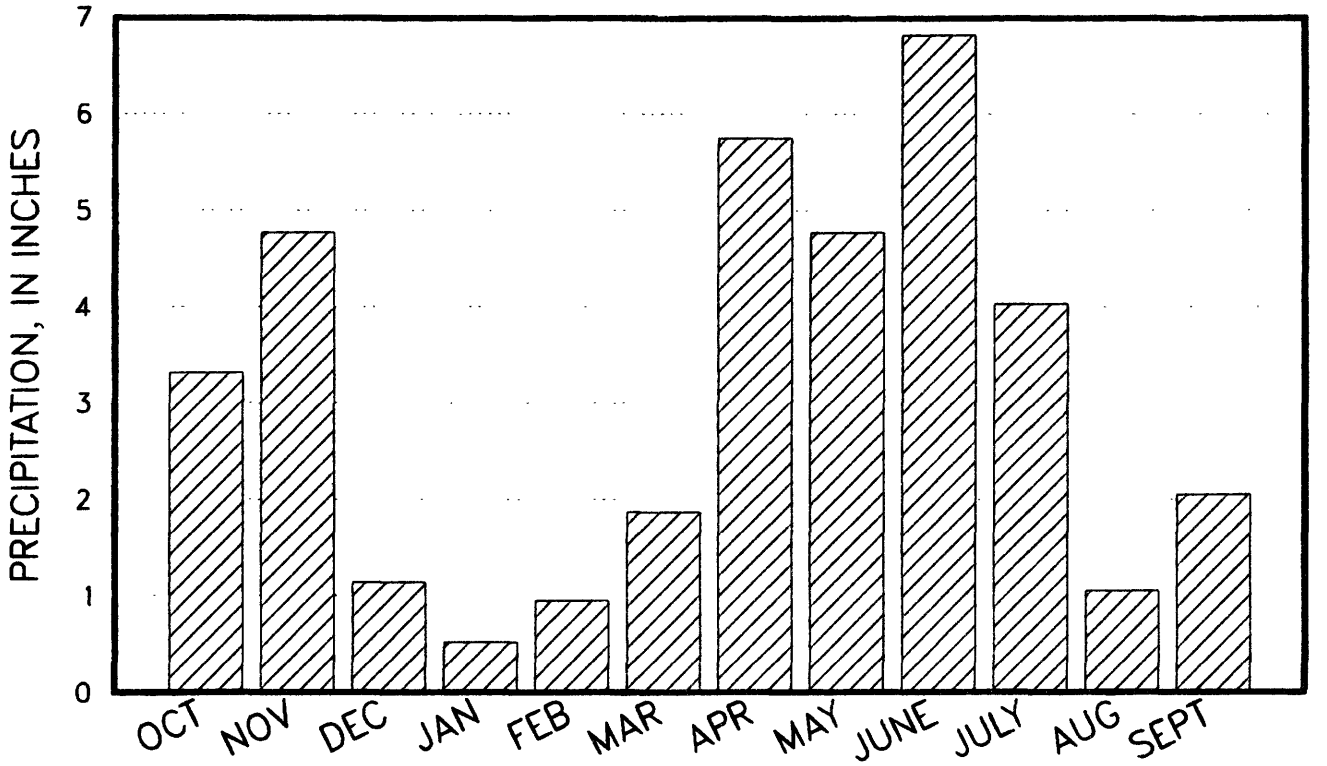


Figure 2.--State average precipitation, during the 1984 water year. [Source: P.J. Waite, State Climatologist, oral commun., 1985].

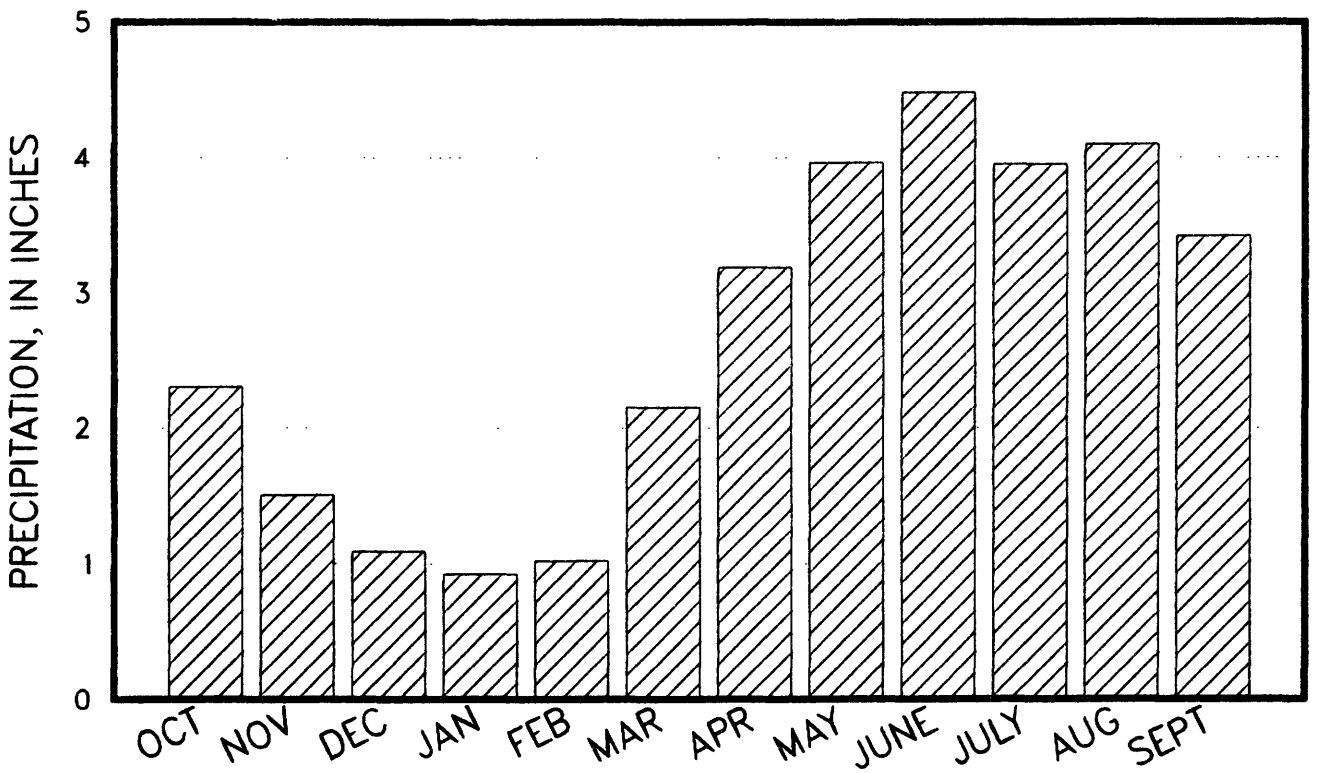


Figure 3.--Normal annual precipitation, 1951–80 [Source: P. J. Waite, State Climatologist, oral commun., 1985].

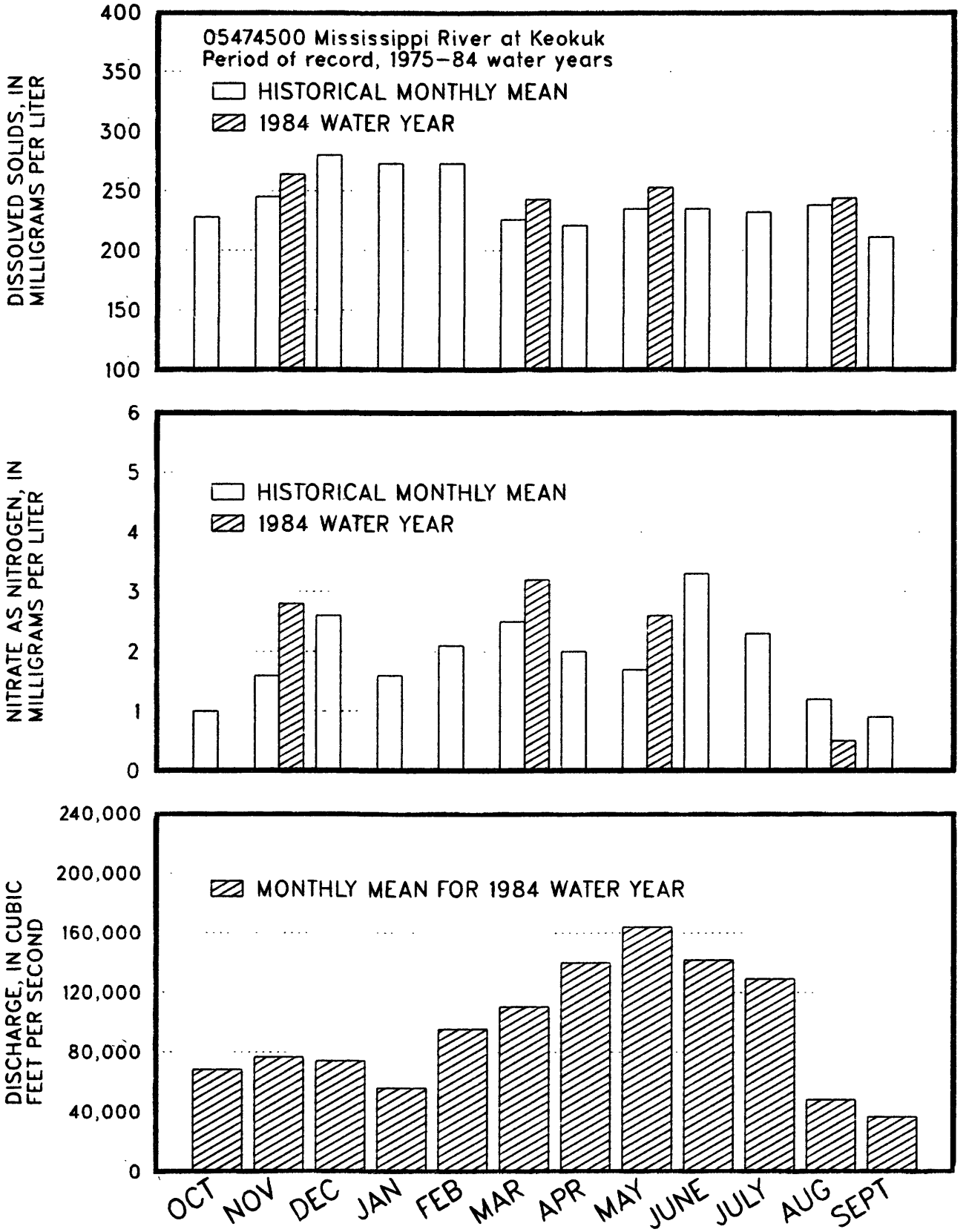


Figure 4.--Comparison of dissolved solids and nitrate concentrations for the 1984 water year with mean monthly values at the NASQAN station, the Mississippi River at Keokuk.

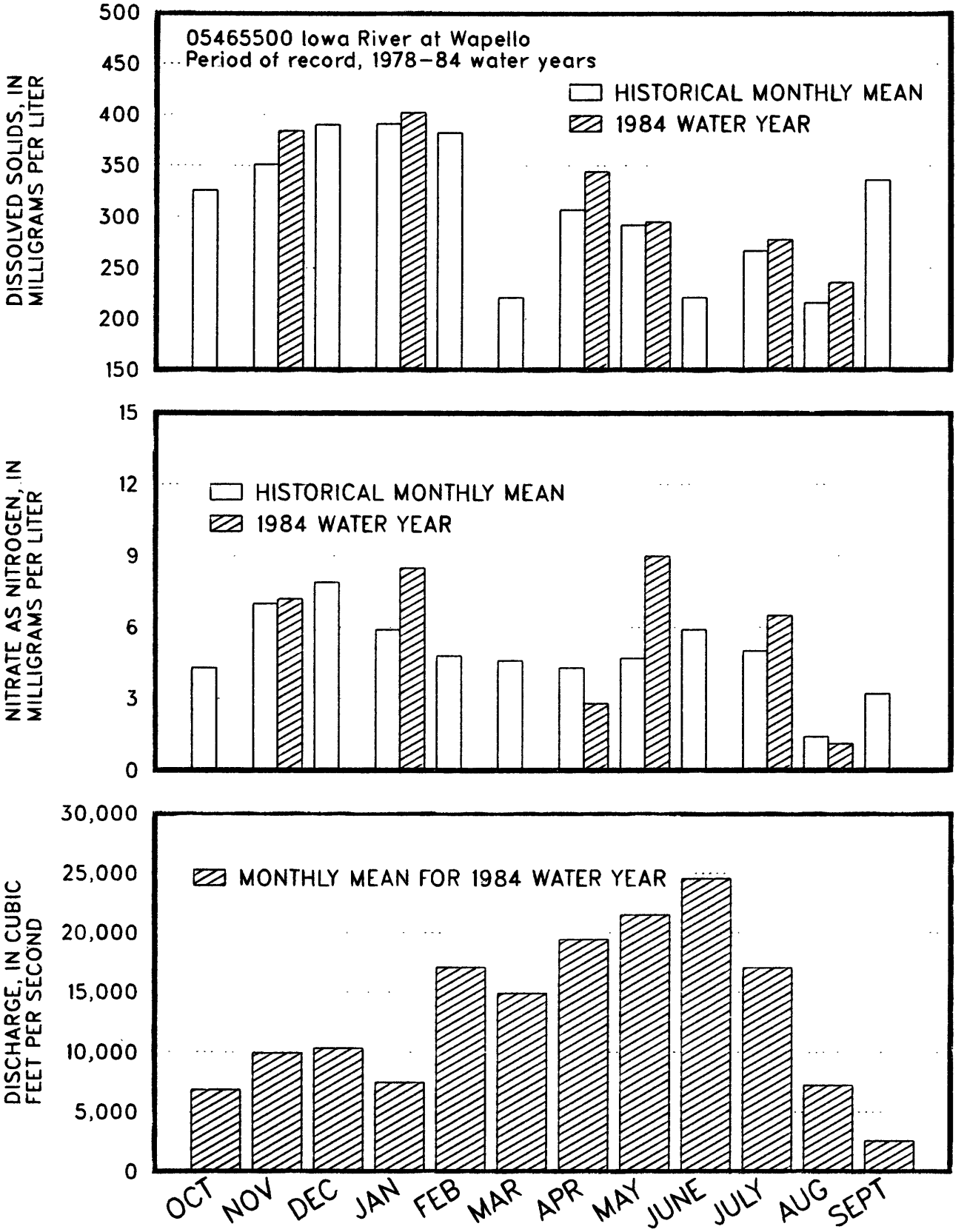


Figure 5. Comparison of dissolved solids and nitrate concentrations for the 1984 water year with mean monthlyvalues at the NASQAN station, the Iowa River at Wapello.

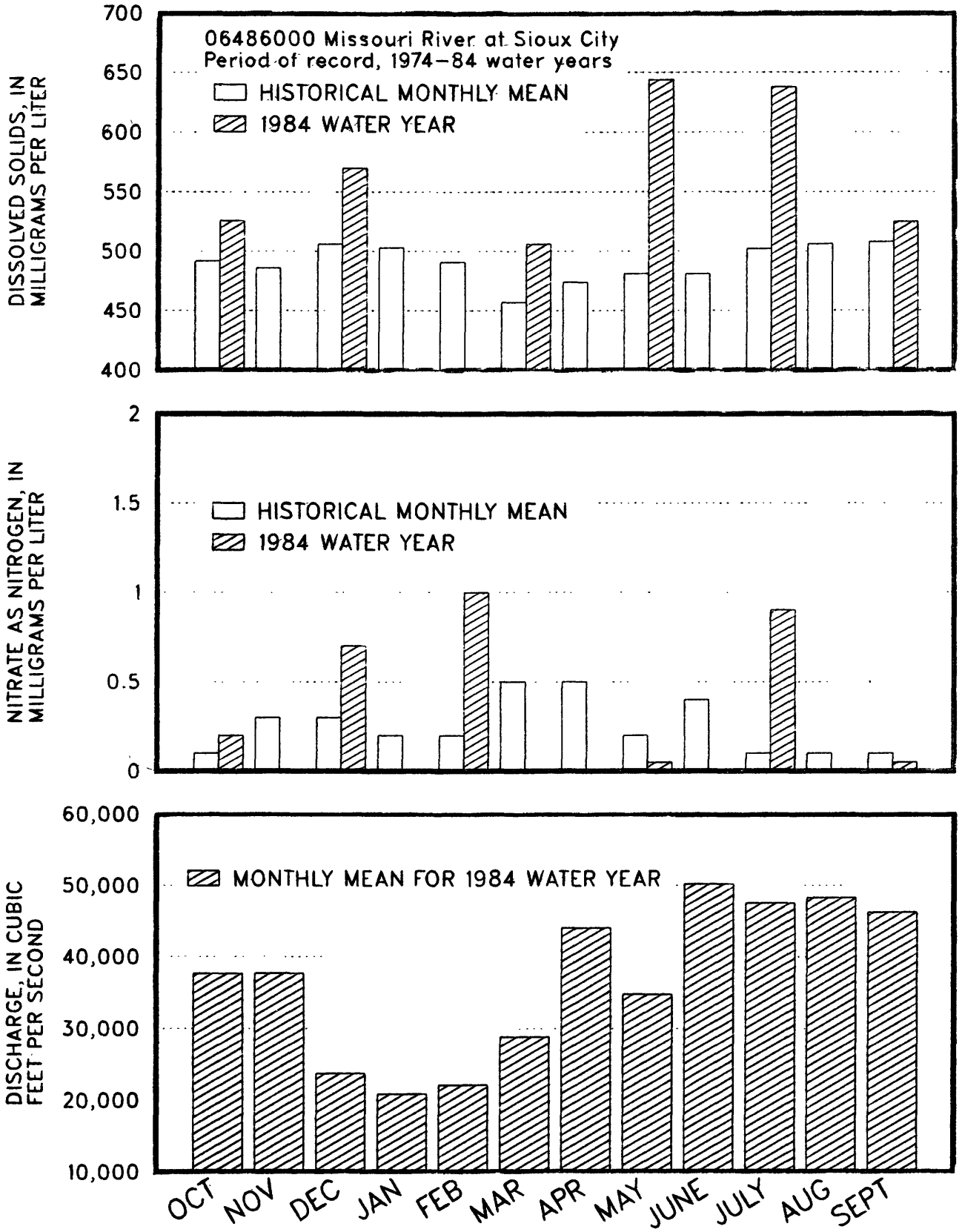


Figure 6.--Comparison of dissolved solids and nitrate concentrations for the 1984 water year with mean monthlyvalues at the NASQAN station, the Missouri River at Sioux City.

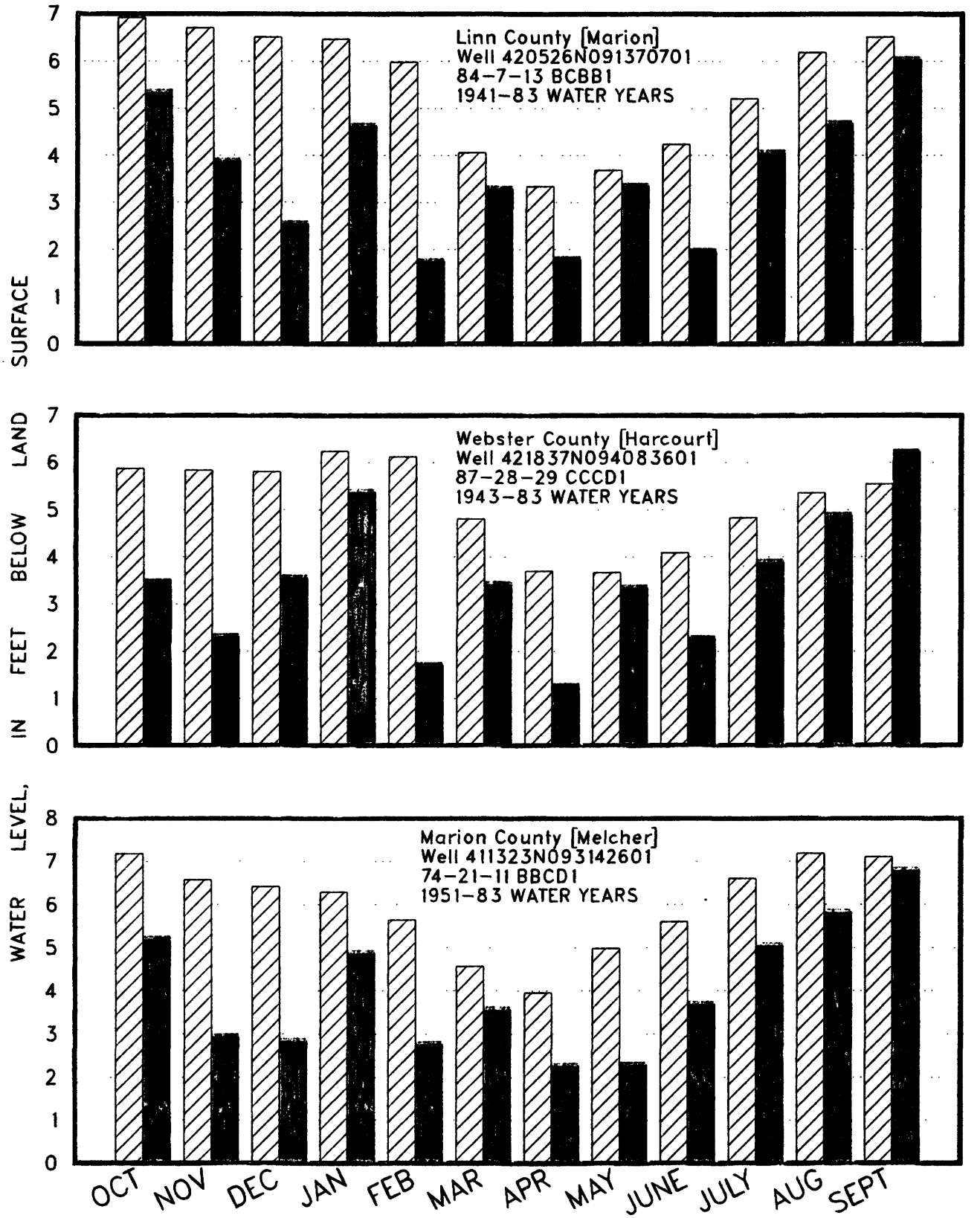


Figure 7.--Monthly water levels during the 1984 water year compared to the average monthly level for the period of record.

DEFINITION OF TERMS

Terms related to streamflow, water-quality and other hydrologic data, as used in this report, are defined below. See also table for converting English Units to International System (SI) Units on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rod-like, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warmblooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5 $\pm$ 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C $\pm$ 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Bottom material: See Bed material.

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-ft, about 646,000 gallons or 2,445 cubic meters.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/S, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, total fluid), plus suspended sediment that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to the amount of a substance present in true chemical solution. In practice, however, the term includes all forms of the substance that will pass through a 0.45-micrometer membrane filter, and thus may include some very small (colloidal) suspended particles. Analyses are performed on filtered samples.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless other-wise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used inter-changeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical element as mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, ug/l) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/l) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/l, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Sub-committee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation.
Silt.....	.004 - .062	Sedimentation.
Sand.....	.062 - 2.0	Sedimentation or sieve.
Gravel.....	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/l).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight, or by volume, that passes a section in a given time. It is computed by multiplying discharge times mg/l times 0.0027.

Suspended-sediment load is quantity of suspended sedi-ment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "oischarge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45 micrometer filter.

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the presence of a thermograph or a digital mechanism that automatically records water temperatures on paper tape.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of indi-vidual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the water year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day.

Total (as used in tables of chemical analyses) refers to the amount of a substance that is present both in solution and in suspension. Analyses are performed on representative samples of water-suspended sediment mixtures.

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

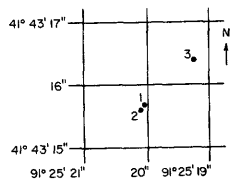
Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all main-stream stations are listed before the first main-stream station. Stations on tributaries to tributaries are listed in a similar manner. In the lists of gaging stations and water-quality stations in the front of this report the rank of tributaries is indicated by indention, each indention representing one rank.

As an added means of identification and each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 05367500, which appears just to the left of the station name, includes the 2-digit part number "05" plus the 6-digit downstream order number "367500."

Downstream order station numbers are not assigned to miscellaneous sites where only random water-quality samples or discharge measurements are taken.

NUMBERING SYSTEM FOR WELLS

Each well is identified by means of (1) a 15-digit number that is based on the grid system of latitude and longitude, and (2) a local number that is provided for continuity with older reports and for other use as dictated by local needs. The former number serves not only to identify the well but also to locate it as a point on a map (fig. 8). For maximum utility, latitude and longitude code numbers are determined to seconds in order that each well may have a unique number. The first six digits represent degrees, minutes, and seconds of latitude; "N" refers to north latitude and is used to break the string of numbers; the next seven digits are degrees, minutes, and seconds of west longitude; and the number after the decimal point is a sequential number assigned in the order in which the wells are located in a 1-second quadrangle.



Latitude and longitude coordinates for wells:
1 414315N 0912520.1
2 414315N 0912520.2
3 414316N 0912519.1

Figure 8. Latitude-longitude well number.

The local well numbers are in accordance with the Bureau of Land Management's system of land subdivision. Each well number is made up of three segments. The first segment indicates the township, the second the range, and the third the section in which the well is situated (fig. 9). The letters after the section number which are assigned in a counter-clockwise direction (beginning with "a" in the northeast quarter), represent subdivisions of the section. The first letter denotes the 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. Numbers are added as suffixes to distinguish wells in the same tract. Thus, the number 96-20-3cdbdl designates the well in the SE1/4 NW1/4 SE1/4 SW1/4 sec.3, T.96 N., R.20 W.

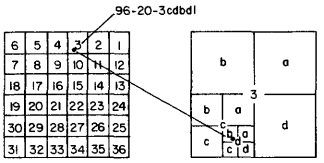


Figure 9. Local well numbering system for well 96-20-3cdbdl.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark network (HGMN) is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated in the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nations's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs (fig. 10). In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text-books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

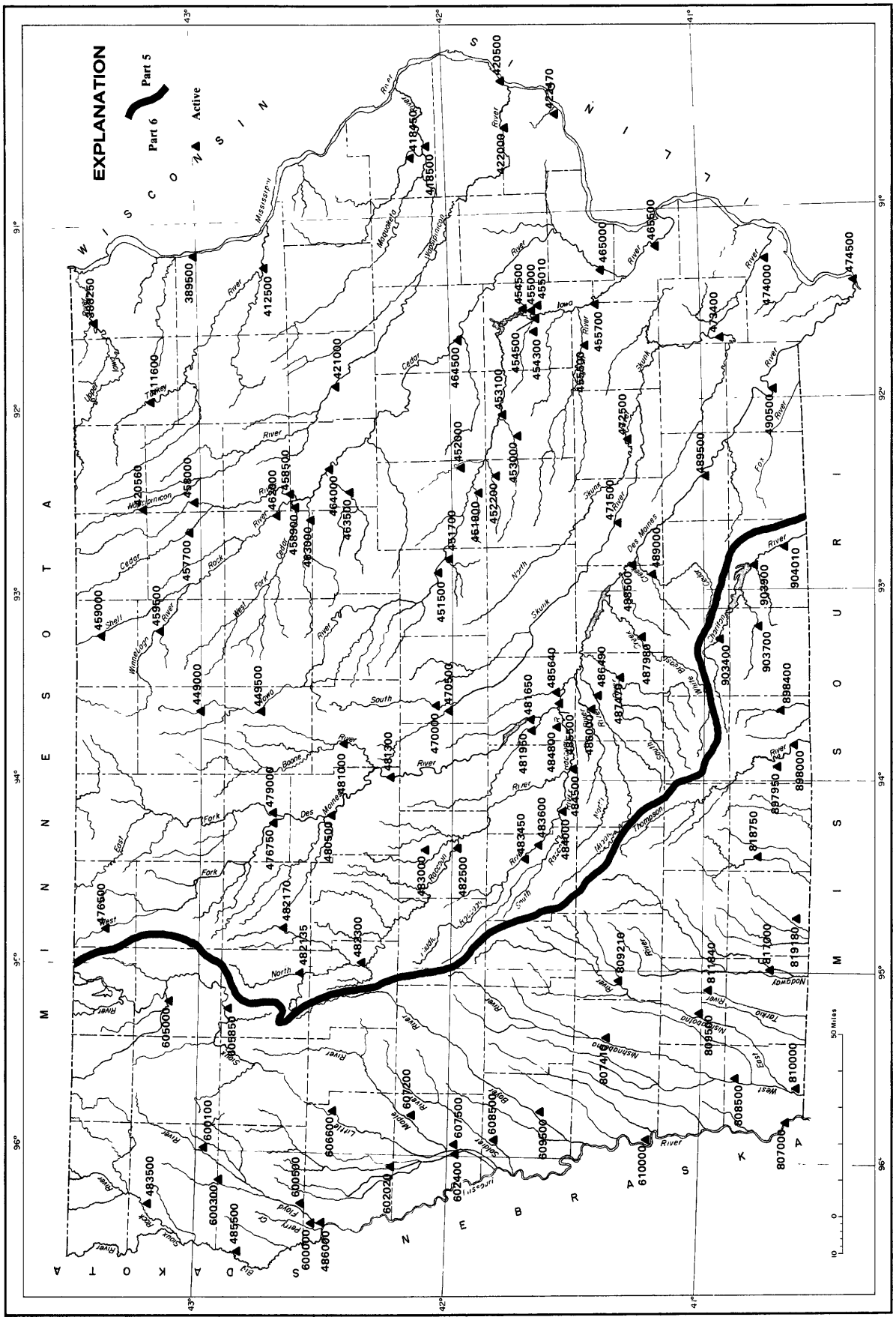


Figure 10 --Location of continuous-record gaging stations in Iowa.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise, daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of dialy and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging stations gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision , the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use; the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum (NGVD) is explained in "DEFINITION OF TERMS" on page 11.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and Ning gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharges are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage or contents. For some reservoirs a table showing daily contents is given. A skeleton table of capacity at given stages is published for most reservoirs.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented as a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial- record stations.

Accuracy of data

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good" within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other data available

Information of a more detailed nature than that published for most of the gaging stations, such as observations of water temperatures, discharge measurements, gage-height records, and rating tables, is on file in the district office. Also, most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

Records of discharge collected by agencies other than the Geological Survey

Records of discharge not published by the Geological Survey were collected during water year 1984 at several sites in Iowa by the Corps of Engineers, U.S. Army. The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, Va. 22092, maintains an index of such sites. Information on records available at specific sites can be obtained upon request.

EXPLANATION OF WATER QUALITY RECORDS

Collection and examination of data

Water samples for chemical, physical, and microbiological analyses are usually collected at or near gaging stations. These water-quality records are presented immediately following the discharge records at their respective stations except for miscellaneous water-quality records which appear near the end of this report. Water samples for chemical analysis are also collected at municipal water wells throughout the State (see section "Groundwater Quality").

The descriptive heading for water-quality records gives the period of record for all water-quality data: the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, and others); the extremes for the period of daily record; the extremes for the current year; and general remarks.

Water-quality data in this report are of four general forms. These records include 1) sediment records which include suspended-sediment concentrations, and loads and/or particle size distribution of suspended-sediment and/or bed material 2) comprehensive physical, chemical, and microbiological water-quality records from Water Resources Division (WRD), NASQAN, and HBMN; 3) miscellaneous water-quality field measurements of specific conductance and temperature; and 4) chemical analyses of ground water from municipal wells.

Sampling and water analysis

All methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on the last page of this section. Water-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling, and as much as possible, consistent with available sampling techniques and methods of chemical, physical, and microbiological analysis.

One water-quality sample can adequately define the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross-section may vary widely with different rates of water discharge depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample that is needed for an accurate mean concentration and for use in calculating load.

Sediment

Daily suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross-section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, it can be assumed that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples are collected periodically at several verticals in the stream cross-section. Although data collected periodically may represent conditions only at the time of observation, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream. In addition to the records of the quantities of suspended-sediment, records of periodic measurements of the particle-size distribution of the suspended-sediment and bed material are included. Miscellaneous suspended-sediment samples were collected during flood events have been included with the station's water quality data or in the section "Analysis of samples at miscellaneous sites".

National water-quality networks

Water-quality data are collected bimonthly or quarterly at seven NASQAN stations and one HBMN station in Iowa (fig. 11). These networks utilize a fixed-station and fixed-sampling interval procedure. Data collected includes measurements of pH, specific conductance, water temperature, dissolved oxygen, and fecal bacteria. Water samples were collected and analyzed for common constituents including cations, anions, and dissolved solids; nutrient constituents including nitrate, ammonia, phosphate and other nitrogen and phosphorus species; and for numerous trace metals and suspended-sediment. These samples were depth integrated from several verticals in the stream cross section or from a single vertical during ice conditions. All water-quality samples are preserved at the sampling sites prior to analysis by the U.S. Geological Survey Central Laboratory in Denver, Colorado.

Water temperature and specific conductance

The measurement of temperature and specific conductance is performed during each regular site visit (usually at a six week interval) to stream-gaging stations. Records of stream temperature indicate significant thermal characteristics of the stream when analysed over a long period of record. A summary on monthly maximum, minimum, and mean temperatures were published in the 1974 water data report for gaging stations with 10 or more years of record. Large streams have small daily temperature variations while shallow streams may have a daily range of several degrees and may closely follow the changes in air temperature. Furthermore, some streams may be affected by waste-heat discharge.

Specific conductance can be used as a general indicator of stream quality. The determination is easily made. The results are very useful as general indicators of dissolved-solids concentration or as a base for extrapolating other analytical data. Records for temperature and specific conductance appear in the section "Analyses of samples collected at miscellaneous sites".

A continuous recording thermograph is located on the Mississippi River at Lock and Dam 13 at Clinton. Daily maximum and minimum temperatures are published for this station.

Ground-water quality records

Water samples are collected at approximately 200 municipal wells each year as part of a cooperative program with the University Hygienic Laboratory (UHL) and the Iowa Geological Survey (IGS). These samples are collected by District personnel at municipalities throughout the State. Samples are collected after pumping the well for at least 15 minutes to ensure that the water obtained is representative of the aquifer. All samples are field-preserved and sent to UHL for analysis. Chemical analyses include common constituents (major ions), nutrients, trace metals, and radionuclides. Approximately 10 percent of the samples receive additional analyses for synthetic organic chemicals including pesticides and priority pollutants. These organic analyses are not presented in this report but are on file in the District office.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Ground-water level data from a network of observation wells are published in this report (fig. 12). These water-level measurements provide a long-term record of water-level changes in the State's most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude (fig. 8), and (2) a local number based on township, range and section (fig. 9). Measurements are made in many types of wells under varying conditions. At each observation well the equipment and techniques used are listed and are those that will insure that measurements at each well are consistent and accurate.

Water-level measurements in this report are given in feet below land-surface datum. National Geodetic Vertical Datum, 1929 is the datum plane on which the national network of water levels is based. Land-surface datum is a datum plane that is approximately at land surface at each well. The altitude of the land-surface datum above National Geodetic Vertical Datum, 1929 is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water-level measurements are reported to the nearest hundredth of a foot. Estimates, indicated by e may be reported in tenths of a foot. The error of water-level measurements may be at most a few hundredths of a foot.

ACCESS TO WATSTORE DATA

The National WATer Data STOrage and REtrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's district offices (see address given on the back of the title page).

General inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, Virginia 22092

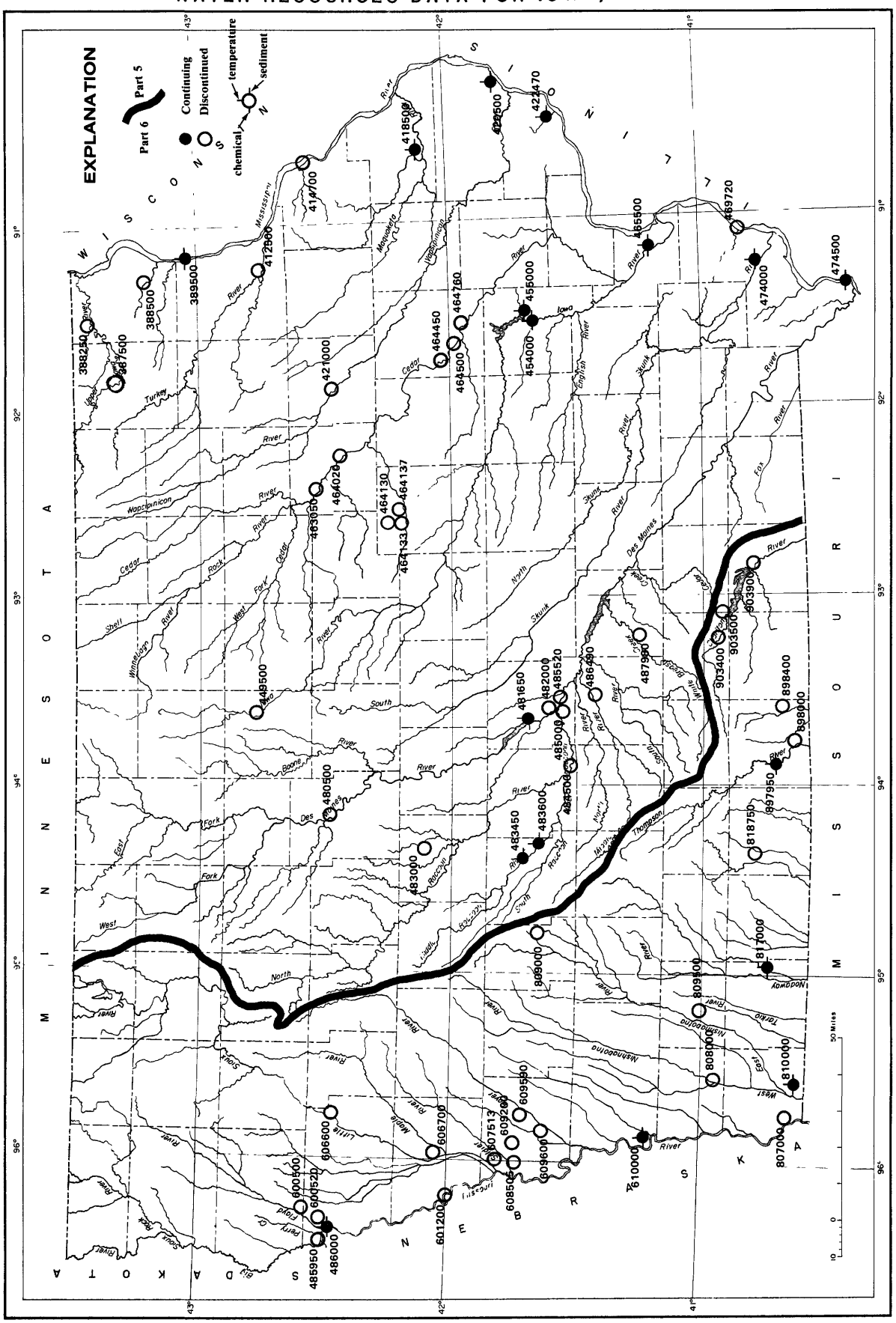


Figure 11.--Location of water-quality stations in Iowa

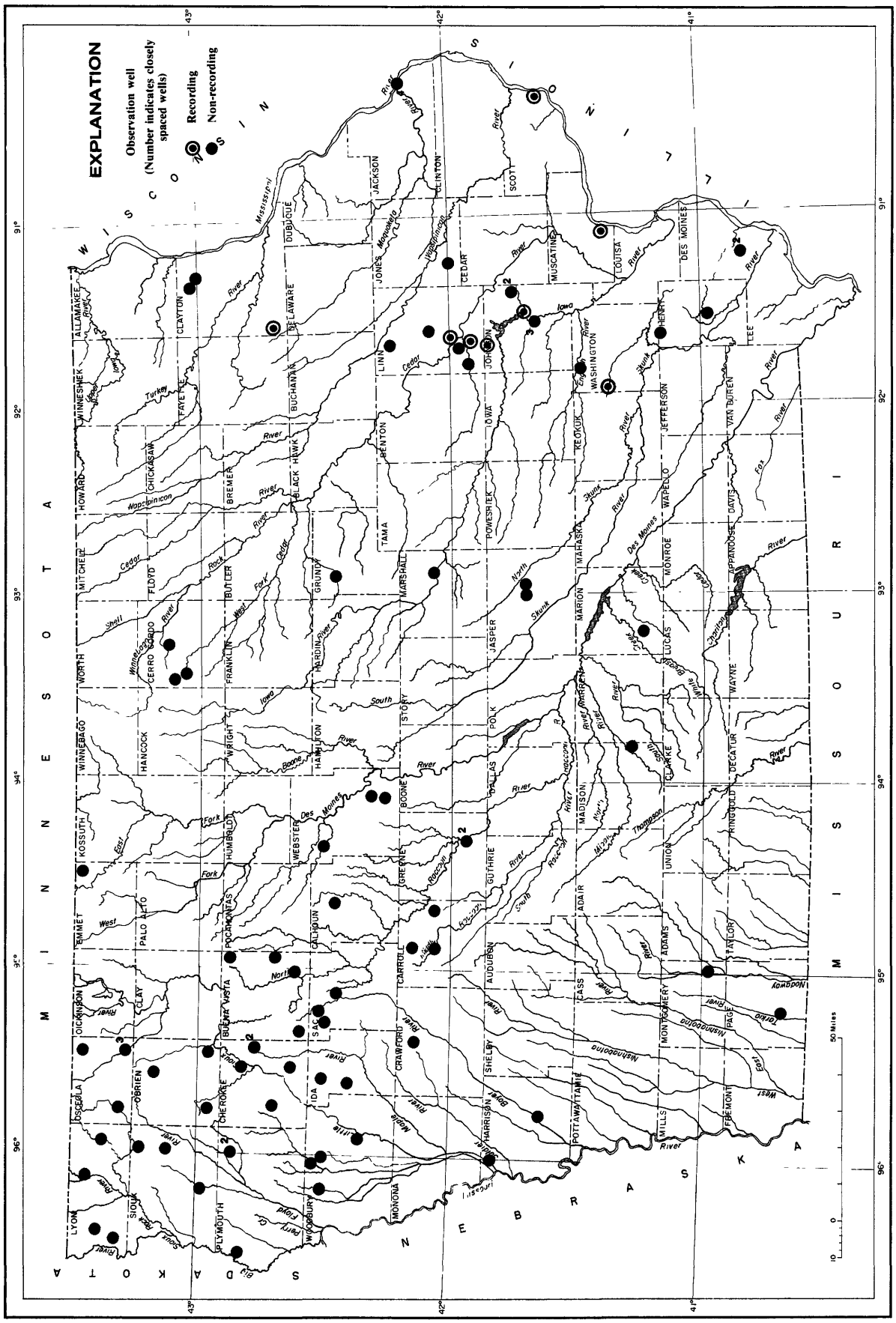


Figure 12.--Location of observation wells in Iowa.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Forty-one manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water, The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Pickett Street, Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, chapter number and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. Water temperature--influential factors, field measurements, and data presentation, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
1-D2. Guidelines for collection and field analysis of ground-water samples for selected unstable constituents, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
2-D1. Application of surface geophysics to ground-water resources investigations, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
2-E1. Application of borehole geophysics to water-resources investigations, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
3-A1. General field and office procedures for indirect discharge measurements, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
3-A2. Measurement of peak discharge by the slope-area method, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
3-A3. Measurement of peak discharge at culverts by indirect methods, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
3-A4. Measurement of peak discharge at width contractions by indirect methods, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
3-A5. Measurement of peak discharge at dams by indirect methods, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
3-A6. General procedure for gaging streams, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.3-A
3-A7. State measurements at gaging stations, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 29 pages.
3-A8. Discharge measurements at gaging stations, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
3-A9. Measurement of time of travel and dispersion in streams by dye tracing, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.
3-A11. Measurements of discharge by moving-boat method, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
3-A13. Computation of continuous records of streamflow, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
3-A14. Use of flumes in measuring discharge, by F.A. Kilpatrick and V.R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.
3-B1. Aquifer-test design, observation, and data analysis, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
3-B2. Introduction to ground-water hydraulics, a programed text for self-instruction, by G. D. Bennet: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
3-B3. Type curves for selected problems of flow to wells in confined aquifers, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
3-C1. Fluvial sediment concepts, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
3-C2. Field methods for measurement of fluvial sediment, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
3-C3. Computation of fluvial-sediment discharge, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
4-A1. Some statistical tools in hydrology, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
4-A2. Frequency curves, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
4-B1. Low-flow investigations, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
4-B2. Storage analyses for water supply, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 44, Chapter B2. 1973. 20 pages.
4-B3. Regional analyses of streamflow characteristics, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3, 1973. 15 pages.
4-D1. Computation of rate and volume of stream depletion by wells, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1, 1970. 17 pages.
5-A1. Methods for determination of inorganic substances in water and fluvial sediments, by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979, 626 pages.
5-A2. Determination of minor elements in water by emission spectroscopy, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
5-A3. Methods for analysis or organic substances in water, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.
5-A4. Methods for collection and analysis of aquatic biological and microbiological samples, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4, 1977. 332 pages.
5-A5. Methods for determination of radioactive substances in water and fluvial sediments, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
5-A6. Quality assurance practices for the chemical and biological analyses of water and fluvial sediments, by L.C. Friedman and D.E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.
5-C1. Laboratory theory and methods for sediment analysis, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
7-C1. Finite difference model for aquifer simulation in two dimensions with results of numerical experiments, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
7-C2. Computer model of two-dimensional solute transport and dispersion in ground water, by L. F. Konikow and J. D. Bredenhoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
7-C3. A model for simulation of flow in singular and interconnected channels, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
8-A1. Methods of measuring water levels in deep wells, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
8-A2. Installation and service manual for U.S. Geological Survey manometers, by J.D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.
8-B2. Calibration and maintenance of vertical-axis type current meters, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

DISCONTINUED GAGING STATIONS

The following stream-gaging stations have been discontinued in Iowa. Continuous daily streamflow records were collected and published for the period of record shown for each station.

Discontinued gaging stations

Station name	Station number	Drainage area (sq mi)	Period of record
Upper Iowa River at Decorah, Iowa	05387500	511	1952-83
Upper Iowa River near Decorah, Iowa.	05388000	568	1913-14; 1919-27;
Paint Creek at Waterville, Iowa.	05388500	42.8	1952-73.
Yellow River at Ion, Iowa.	05389000	221	1934-51.
Mississippi River at Clayton, Iowa.	05411500	9,200	1930-36.
Turkey River at Elkader, Iowa.	05412000	891	1932-42.
Little Maquoketa River near Durango, Iowa.	05414500	130	1934-82.
Maquoketa River near Manchester, Iowa.	05417000	305	1933-73.
Maquoketa River near Delhi, Iowa.	05417500	347	1933-40.
Bear Creek near Monmouth, Iowa.	05417700	61.3	1957-76.
Maquoketa River above North Fork Maquoketa River near Maquoketa, Iowa.	05418000	938	1913-14.
Wapsipinicon River at Stone City, Iowa.	05421500	1,324	1903-14.
Crow Creek at Eldridge, Iowa.	05422420	2..20	1977-82.
Crow Creek at Mt. Joy, Iowa.	05422450	6.90	1977-82.
Pine Creek at Muscatine, Iowa.	05448150	38.9	1975-82.
Eagle Lake inlet near Britt, Iowa.	05448285	3.83	1975-80.
Eagle Lake outlet near Britt, Iowa.	05448290	11.3	1975-80.
West Branch (West Fork) Iowa River near Klemme, Iowa.	05448500	112	1948-58.
Iowa River near Iowa Falls, Iowa.	05450000	665	1911-14.
Upper Pine Lake at Eldora, Iowa.	05450500	14.9	1936-70.
Lower Pine Lake at Eldora, Iowa.	05451000	15.9	1936-70.
Iowa River near Belle Plaine, Iowa.	05452500	2,455	1939-59.
Lake Macbride near Solon, Iowa.	05453500	27.0	1936-71.
Old Mans Creek near Iowa City, Iowa.	05455100	201	1950-64.
Cedar River at Mitchell, Iowa.	05457500	826	1933-42.
Shell Rock River at Marble Rock (Greene), Iowa.	05460500	1,318	1933-53.
Shell Rock River at Greene, Iowa.	05461000	1,357	1933-42.
Shell Rock River near Clarksville, Iowa.	05461500	1,626	1915-27; 1932-34.
Fourmile Creek near Lincoln, Iowa.	05464130	13.78	1962-67; 1969-74;
Half Mile Creek near Gladbrook, Iowa.	05464133	1.33	1962-67; 1969-74;
Fourmile Creek near Traer, Iowa.	05464137	19.51	1962-74; 1975-80.
Prairie Creek at Fairfax, Iowa.	05464640	178	1966-82.
South Skunk River below Squaw Creek near Ames, Iowa.	05471000	556	1952-79.
Indian Creek near Mingo, Iowa.	05471200	276	1958-75.
Lake Keomah near Oskaloosa, Iowa.	05472000	3.06	1936-71.
Skunk River at Coppock, Iowa.	05473000	2,916	1913-44.
Big Creek near Mount Pleasant, Iowa.	05473500	106	1955-79.
East Fork Des Moines River near Burt, Iowa.	05478000	462	1971-74.
East Fork Des Moines River near Hardy, Iowa.	05478500	1,268	1940-54.
Des Moines River near Fort Dodge, Iowa.	05479500	3,753	1911-13.
Lizard Creek near Clare, Iowa.	05480000	257	1940-82.
Des Moines River near Boone, Iowa.	05481500	5,511	1920-68.
Des Moines River at Des Moines, Iowa.	05482000	6,245	1905-06; 1915-61.
Storm Lake at Storm Lake, Iowa.	05482140	28.3	1970-75.
Springbrook Lake near Guthrie Center, Iowa.	05483500	5.18	1936-71.
Raccoon River at Des Moines, Iowa.	05485000	3,590	1902-03.
Lake Ahquabi near Indianola, Iowa.	05487000	4.93	1936-71.
White Breast Creek near Knoxville, Iowa.	05488000	380	1945-62.
Lake Wapello near Drakesville, Iowa.	05490000	7.75	1936-71.
Sugar Creek near Keokuk, Iowa.	05491000	105	1922-31; 1958-73.
Muchakinock Creek near Eddyville, Iowa.	05489190	70.2	1975-79.
Fox River at Bloomfield, Iowa.	05494300	87.7	1957-73.
Fox River at Cantril, Iowa.	05494500	161	1940-51.
Rock River at Rock Rapids, Iowa.	06483270	788	1959-74.
Dry Creek at Hawarden, Iowa.	06484000	48.4	1948-69.
West Fork ditch at Holly Springs, Iowa.	06602000	399	1939-69.
Loon Creek near Orleans, Iowa.	06603920	31	1971-74.
Spirit Lake outlet at Orleans, Iowa.	06604100	75.6	1971-74.
Milford Creek at Milford, Iowa.	06604400	146	1971-74.
Little Sioux River at Spencer, Iowa.	06605100	990	1936-42.
Little Sioux River at Gillett Grove, Iowa.	06605600	1,334	1958-73.
Little Sioux River near Kennebeck, Iowa.	06606700	2,738	1939-69.
Odebolt Creek near Arthur, Iowa.	06607000	39.3	1957-75.
Maple River at Turin, Iowa.	06607300	725	1939-41.
Little Sioux River near Blencoe (Turin), Iowa.	06607510	4,470	1939-42.
Steer Creek near Magnolia, Iowa.	06609200	9.26	1963-69.
Thompson Creek near Woodbine, Iowa.	06609590	6.97	1963-69.
Willow Creek near Logan, Iowa.	06609600	129	1972-75.
Indian Creek at Council Bluffs, Iowa.	06610500	7.99	1954-76.
Mosquito Creek near Earling, Iowa.	06610520	33.0 (revised)	1965-79.
Waubonsie Creek near Bartlett, Iowa.	06806000	30.4	1946-69.
West Nishnabotna River at Harlan, Iowa.	06807320	316	1977-82.
West Nishnabotna River at (near) White Cloud, Iowa.	06807500	967	1918-24.
Mule Creek near Malvern, Iowa.	06808000	10.6	1954-69.
Spring Valley Creek near Tabor, Iowa.	06808200	7.6	1955-64.
Davids Creek near Hamlin, Iowa.	06809000	26.0	1952-73.
Milford Creek at Milford, Iowa.	06604400	146	1971-74.
West Nodaway River at Villisca, Iowa	06816500	342	1918-25.
Honey Creek near Russell, Iowa.	06903500	13.2	1952-62.
Chariton River near Centerville, Iowa.	06904000	708	1938-59.

DISCONTINUED WATER-QUALITY STATIONS

The following water-quality stations have been discontinued in Iowa. Continuous daily records of water temperature or sediment and monthly or periodic samples of chemical quality were collected and published for the period of record shown for each station. An asterisk (*) in the type of record column indicates that periodic data is available for that parameter subsequent to the period of daily record.

Discontinued water-quality stations

Station name	Station number	Drainage area (sq mi)	Type of Record	Period of record
Upper Iowa River at Decorah, Iowa.	05387500	511	Sed., Temp.	1963-1983
Upper Iowa River near Dorchester, Iowa.	05388250	770	Sed., Temp.	1975-81
Paint Creek at Waterville, Iowa.	05388500	42.8	Temp.	1952-56
			Sed.	1952-57
Turkey River at Garber, Iowa.	05412500	1,545	Temp., Sed.*	1957-62
Mississippi River at Dubuque, Iowa.	05414700	1,600	Chem.	1969-73
Maquoketa River near Maquoketa, Iowa.	05418500	1,553	Chem., Temp., Sed.	1978-82
Wapsipinicon River at Independence, Iowa.	05421000	1,048	Chem.*	1968-70
			Temp.*, Sed.*	1967-70
Crow Creek at Bettendorf, Iowa.	05422470	17.8	Chem., Temp., Sed.	1978-82
Iowa River near Rowan, Iowa.	05449500	429	Temp.*, Sed.*	1957-62
Cedar River at Cedar Falls, Iowa.	05463050	4,734	Chem.	1975-79
Cedar River near Gilbertville, Iowa.	05464020	5,234	Chem.	1971; 1975-81
Fourmile Creek near Lincoln, Iowa.	05464130	13.78	Chem., Temp., Sed.	1969-74
Half Mile Creek near Gladbrook, Iowa.	05464133	1.33	Chem., Temp., Sed.	1969-74
Fourmile Creek near Traer, Iowa.	05464137	19.51	Chem., Temp., Sed.	1969-74
Cedar River near Palo, Iowa.	05464450	6,380	Chem.	1975-79
Cedar River at Cedar Rapids, Iowa.	05464500	6,640	Chem.*	1906-07; 1944-54
			Temp.*	1944-54
			Sed.	1943-54
Cedar River near Bertram, Iowa.	05464760	6,955	Chem.	1975-81
Mississippi River at Burlington, Iowa.	05469720	4,000	Chem.	1969-73
Des Moines River at Fort Dodge, Iowa.	05480500	4,190	Chem.	1972-73
Des Moines River at Des Moines, Iowa.	05482000	6,245	Chem.	1954-55
			Temp., Sed.	1954-61
E. Fork Hardin Creek near Churdan, Iowa.	05483000	24.0	Temp.*,Sed.*	1952-57
Raccoon River at Van Meter, Iowa.	05484500	3,441	Chem.	1969-73; 1974-79
Raccoon River at Des Moines, Iowa.	05485000	3,590	Chem., Temp.	1945-47
Des Moines River below Raccoon River at Des Moines, Iowa.	05485500	9,770	Chem.*	1944-45
			Temp.*, Sed.	1944-47
Des Moines River below Des Moines, Iowa.	05485520	9,901	Chem.	1971; 1975-81
Middle River near Indianola, Iowa.	05486490	503	Temp.*, Sed.	1962-67
White Breast Creek near Dallas, Iowa.	05487980	342	Chem.	1968-73
			Temp., Sed.	1967-73
Big Sioux River at Sioux City, Iowa.	06485950	9,410	Chem.	1969-73
Floyd River at James, Iowa.	06600500	882	Temp., Sed.	1968-73
Floyd River at Sioux City, Iowa.	06600520	921	Chem.	1969-73
Missouri River at Decatur, Nebr.	06601200	316,160	Chem.	1974-81
Little Sioux River at Correctionville, Iowa.	06606600	2,500	Chem.*	1954-55
			Temp.*	1951-62
			Sed.	1950-62
Little Sioux River near Kennebec, Iowa.	06606700	2,738	Temp.	1950-55
			Sed.	1950-57
Little Sioux River at River Sioux, Iowa.	06607513	3,600	Chem.	1969-73
Soldier River near Mondamin, Iowa.	06608505	440	Chem.	1970-73
Steer Creek near Magnolia, Iowa.	06609200	9.26	Temp., Sed.	1963-69
Thompson Creek near Woodbine, Iowa.	06609590	6.97	Temp., Sed.	1963-69
Willow Creek near Logan, Iowa.	06609600	129	Chem., Temp.	1972-75
			Sed.	1971-75
Missouri River at Nebraska City, Nebraska.	06807000	410,000	Chem., Temp.	1951-77
			Sed.	1971-76
Mule Creek near Malvern, Iowa.	06808000	10.6	Temp.	1958-69
			Sed.	1954-69
Davids Creek near Hamlin, Iowa.	06809000	26.0	Temp.*	1952-53; 1965-68
East Nishnabotna River at Red Oak, Iowa.	06809500	894	Temp., Sed.	1962-73
Platte River near Diagonal, Iowa.	06818750	217	Chem.	1969-73
Thompson River at Davis City, Iowa.	06898000	701	Chem.	1967-73
			Temp., Sed.	1968-73
Weldon River near Leon, Iowa.	06898400	104	Chem.	1968-73
Chariton River near Chariton, Iowa.	06903400	182	Temp., Sed.	1969-73
Honey Creek near Russell, Iowa.	06903500	13.2	Sed.	1952-62
Chariton River near Rathbun, Iowa.	06903900	551	Temp.*, Sed.*	1962-69

Type of record: Chem. (chemical quality); Temp. (water temperature); Sed. (sediment).

05388250 UPPER IOWA RIVER NEAR DORCHESTER, IA

LOCATION.--Lat 43°25'16", long 91°30'31", in SW1/4 NW1/4 sec.1, T.99 N., R.6 W., Allamakee County, Hydrologic Unit 07060002, on right bank at upstream side of bridge on State Highway 76, 650 ft upstream from Mineral Creek, 0.5 mi upstream from Bear Creek, 3.5 mi south of Dorchester, and 18.1 mi upstream from mouth.

DRAINAGE AREA.--770 mi².

PERIOD OF RECORD.--September 1936 to June 1975 (gage heights and discharge measurements only), July 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 660.00 ft NGVD. Prior to Jan. 6, 1938, nonrecording gage on old bridge at site 0.2 mi upstream at datum 5.91 ft higher. Jan. 6, 1938, to Apr. 26, 1948, nonrecording gage at datum 60.00 ft lower, Apr. 27, 1948 to August 1963, nonrecording gage on old bridge and August 1963 to June 1975 nonrecording gage on new bridge at same datum.

REMARKS.--Records good except those for winter period, which are fair. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--9 years, 616 ft³/s, 10.86 in/yr, 446,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s Mar. 12, 1976, gage height, 17.67 ft; minimum daily, 79 ft³/s Dec. 31, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1941, reached a stage of 21.8 ft, from flood profile, file, discharge, 30,400 ft³/s on basis of slope-area determination of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 15	1815	a	*14.00	June 18	2145	*5,520	13.09
June 9	2300	5,110	12.81				

a Backwater from ice.
Minimum daily discharge, 242 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	737	688	1200	415	400	1120	1190	2320	787	900	400	264
2	700	679	1130	410	430	1030	1140	2490	767	861	396	283
3	678	653	1130	420	455	935	1120	2120	738	838	420	295
4	668	629	1040	450	450	866	1090	1880	718	836	384	276
5	638	613	1020	475	415	829	1060	1670	721	783	376	273
6	617	599	981	485	400	750	980	1510	685	738	372	270
7	597	587	910	465	405	683	943	1480	666	702	380	269
8	578	575	865	437	410	660	892	1400	753	679	795	265
9	551	580	825	417	435	620	842	1380	3800	676	617	265
10	535	628	815	405	480	580	786	1280	2920	709	440	267
11	585	641	906	395	560	560	745	1190	1650	1160	410	274
12	934	658	849	390	700	540	752	1120	1420	933	392	281
13	911	639	804	385	1200	520	849	1110	1650	810	364	290
14	865	627	808	380	1610	510	1240	1080	1530	713	348	287
15	796	623	804	375	1390	713	1390	1010	1440	682	336	271
16	793	624	724	372	3040	2180	1360	944	1200	671	332	262
17	752	628	560	368	2810	1730	1230	920	1960	665	332	257
18	724	616	540	365	2980	1450	1080	927	4800	635	332	256
19	693	652	515	360	2860	1240	968	948	4300	611	324	254
20	769	740	500	352	2450	1060	898	934	2540	588	312	250
21	1040	862	485	352	2050	921	828	902	1860	556	312	248
22	1440	939	477	363	1920	800	797	873	1660	535	338	246
23	1290	1140	470	388	2270	759	805	849	1720	520	325	246
24	1140	2270	460	406	2190	1290	782	821	1530	500	312	252
25	1020	2010	450	420	2100	1870	747	920	1350	485	307	268
26	948	1720	446	437	1860	2330	718	973	1260	470	301	254
27	880	1560	440	445	1650	2350	799	888	1180	460	299	246
28	836	1510	433	435	1440	1980	784	916	1090	440	292	246
29	771	1430	429	410	1230	1650	780	895	1020	430	284	245
30	734	1280	425	395	---	1510	1890	834	949	415	277	242
31	701	---	420	390	---	1330	---	806	---	405	266	---
TOTAL	24921	27400	21861	12562	40590	35366	29485	37390	48664	20406	11375	7902
MEAN	804	913	705	405	1400	1141	983	1206	1622	658	367	263
MAX	1440	2270	1200	485	3040	2350	1890	2490	4800	1160	795	295
MIN	535	575	420	352	400	510	718	806	666	405	266	242
CFSM	1.04	1.19	.92	.53	1.82	1.48	1.28	1.57	2.11	.86	.48	.34
IN.	1.20	1.32	1.06	.61	1.96	1.71	1.42	1.81	2.35	.99	.55	.38
AC-FT	49430	54350	43360	24920	80510	70150	58480	74160	96530	40480	22560	15670

CAL YR 1983 TOTAL 426803 MEAN 1169 MAX 4850 MIN 230 CFSM 1.52 IN 20.62 AC-FT 846600
WTR YR 1984 TOTAL 317922 MEAN 869 MAX 4800 MIN 242 CFSM 1.13 IN 15.36 AC-FT 630600

MISSISSIPPI RIVER MAIN STEM

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA

LOCATION.--Lat 43°01'29", long 91°10'21", in SE1/4 SE1/4 sec.22, T.95 N., R.3 W., Clayton County, Hydrologic Unit 07060001, on right bank in city park at east end of Main Street in McGregor, 2.6 mi upstream from Wisconsin River, 4.3 mi downstream from Yellow River, and at mile 633.4 upstream from Ohio River.

DRAINAGE AREA.--67,500 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1936 to current year.

REVISED RECORDS.--WDR IA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 604.84 ft NGVD. Prior to June 1, 1937, and since June 2, 1939, auxiliary water-stage recorder; June 1, 1937 to June 1, 1939, auxiliary nonrecording gage 14.1 mi upstream in tailwater of dam 9, at datum 5.30 ft lower.

REMARKS.--Records good except those for winter period, which are fair. Stage-discharge relation affected by backwater from Wisconsin River and Lock and Dam No. 10. Minor flow regulation caused by navigation dams.

COOPERATION.--Auxillary gage-height and discharge data at Lock and Dam No. 9 furnished by Corps of Engineers.

AVERAGE DISCHARGE.--48 years, 34,810 ft³/s, 7.00 in/yr, 25,220,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 276,000 ft³/s Apr. 24, 1965; maximum gage height, 25.38 ft Apr. 24, 1965; minimum daily discharge, 6,200 ft³/s Dec. 9, 1936; minimum gage height, -0.86 ft Aug. 18, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1828, that of Apr. 24, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 117,000 ft³/s June 25; maximum gage height, 15.59 ft May 8; minimum daily discharge, 15,100 ft³/s Aug. 24; minimum gage height, 6.12 ft Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36400	39300	74700	30900	25700	88000	67500	88600	64800	108000	32700	23100
2	33500	38200	71200	30900	25700	84300	72100	90200	62000	106000	28900	21500
3	31600	36700	62300	30900	25200	80200	74200	92200	56100	104000	25800	20700
4	30600	35600	51500	32000	24900	76600	76400	93900	49600	104000	27600	19800
5	29500	34500	45600	31500	24800	73200	78600	97700	47000	103000	29800	19000
6	29200	33800	42500	31800	24500	67000	81800	99200	45200	102000	32400	19300
7	28900	33400	38000	32400	24400	63000	80600	104000	43400	98000	33000	20400
8	29000	33200	34400	32800	23500	58500	85200	107000	43300	94500	35200	19600
9	31500	33200	32200	33000	23800	54000	88600	107000	46900	90000	35200	21600
10	32400	32600	28000	33200	23900	51400	92100	106000	52500	86000	35100	24100
11	33500	33300	27800	33500	23900	46100	95200	104000	54000	83500	35800	26600
12	36600	33600	29900	32600	24000	45400	97300	102000	53500	81300	36300	27500
13	38500	33800	31900	32300	25200	42100	100000	101000	59000	79700	34700	30400
14	41200	36100	31700	30600	27900	41300	103000	101000	64000	78800	31400	32400
15	42900	39400	35500	29700	29600	43800	104000	100000	69500	78400	28500	32200
16	45700	41300	38600	29700	34000	50800	106000	99200	75000	78500	27200	31000
17	50500	41400	36500	27600	41400	55400	104000	99400	82000	78400	27800	28800
18	54600	40600	36300	27700	49000	55500	103000	99300	90000	76300	26400	26600
19	55400	40200	35600	27500	75200	51700	101000	98700	99500	72500	27100	24200
20	55800	40900	29800	27500	77600	49200	100000	97200	104000	67900	27100	24600
21	55200	41100	27500	25800	81200	45800	98400	95000	109000	64400	22800	25100
22	54000	41500	27500	26100	79900	42400	96900	93300	111000	59300	20000	24000
23	51700	43200	29900	26100	80000	41300	94400	91000	114000	53200	16800	23200
24	51400	45900	31500	25000	81500	41900	93000	84500	116000	49200	15100	20900
25	50700	50300	33300	25200	85100	43000	91800	84200	117000	44800	16400	19200
26	48700	58200	34500	25200	83600	44100	90100	84700	116000	42200	21400	18100
27	46100	64300	34400	25200	85400	45800	88700	78300	115000	40900	24600	20000
28	44400	70100	33900	25500	87900	49300	87900	78400	114000	38300	27100	26000
29	42900	74700	33000	25600	88800	52500	85400	74200	113000	37200	25700	30500
30	40700	74700	32400	25700	---	56100	88400	71600	111000	35200	25000	32100
31	39500	---	30500	25700	---	61100	---	68600	---	34500	24000	---
TOTAL	1292600	1295100	1162400	899200	1407600	1700800	2725600	2891400	2397300	2270000	856900	732500
MEAN	41700	43170	37500	29010	48540	54860	90850	93270	79910	73230	27640	24420
MAX	55800	74700	74700	33500	88800	88000	106000	107000	117000	108000	36300	32400
MIN	28900	32600	27500	25000	23500	41300	67500	68600	43300	34500	15100	18100
CFSM	.62	.64	.56	.43	.72	.81	1.35	1.38	1.18	1.09	.41	.36
IN.	.71	.71	.64	.50	.78	.94	1.50	1.59	1.32	1.25	.47	.40
AC-FT	2564000	2569000	2306000	1784000	2792000	3374000	5406000	5735000	4755000	4503000	1700000	1453000

CAL YR 1983	TOTAL	19651400	MEAN	53840	MAX	145000	MIN	21000	CFSM .80	IN 10.83	AC-FT	38980000
WTR YR 1984	TOTAL	19631400	MEAN	53640	MAX	117000	MIN	15100	CFSM .80	IN 10.82	AC-FT	38940000

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected by boat 1.5 mi downstream from discharge station. Prior to April 1981, at bridge on U.S. Highway 18, 1.2 mi upstream from gage.

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1975 to current year.
WATER TEMPERATURES: July 1975 to current year.
SUSPENDED-SEDIMENT DISCHARGE: July 1975 to current year.

REMARKS.--Records of specific conductance are obtained from suspended-sediment samples at time of analysis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 882 mg/L Mar. 21, 1982; minimum daily mean, 1 mg/L Dec. 23-25, 1976, Dec. 20, 28, 1977.
SEDIMENT LOADS: Maximum daily, 166,000 tons Mar. 31, 1979; minimum daily, 31 tons Dec. 25, 1976.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 215 mg/L June 10; minimum daily mean, 2 mg/L Dec. 16-18, Jan 28, 29.
SEDIMENT LOADS: Maximum daily, 43,600 tons Apr. 29; minimum daily, 138 tons Jan. 28, 29.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	440	---	---	---	480	405	---	---
2	---	---	390	---	---	---	---	---	---	---	---	---
3	---	380	---	460	---	---	---	---	---	---	480	---
4	350	---	---	---	---	420	480	---	---	---	---	---
5	---	---	---	---	440	---	---	---	---	---	---	---
6	---	380	400	---	---	---	---	---	---	440	---	---
7	---	---	---	440	---	---	500	---	---	---	---	450
8	340	---	---	---	---	420	---	---	---	---	---	---
9	---	370	400	---	440	---	---	---	470	480	---	460
10	---	---	---	---	---	---	---	430	---	---	---	---
11	---	---	---	450	---	440	480	---	---	---	---	---
12	340	---	410	---	420	---	---	---	---	---	---	---
13	---	370	---	---	---	---	---	---	450	460	---	445
14	---	---	---	---	---	---	---	425	---	---	450	---
15	---	---	410	---	---	400	460	---	---	---	---	---
16	355	380	---	---	460	---	---	---	---	---	---	440
17	---	---	---	---	---	---	420	420	440	---	440	---
18	310	---	---	---	---	410	---	---	---	---	---	---
19	---	390	470	---	470	---	440	---	440	480	---	---
20	---	---	---	440	---	---	---	---	---	---	440	425
21	330	360	---	---	---	420	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	460	435
23	---	---	470	---	430	---	440	---	390	---	---	---
24	---	365	---	460	---	---	---	---	---	---	480	---
25	---	---	---	---	---	410	---	---	---	---	---	---
26	---	---	---	---	380	---	---	---	---	480	---	---
27	325	---	---	---	---	---	---	---	---	---	---	420
28	---	380	---	460	---	440	---	---	350	---	---	---
29	---	---	---	---	380	---	---	---	---	---	485	---
30	---	---	---	---	---	---	420	---	360	---	---	---
31	380	---	440	---	---	510	---	455	---	---	480	---

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---					---	---	18.0	---	27.0	---
2	---	---					---	---	---	24.0	---	---
3	---	8.0					---	10.0	---	---	26.0	---
4	14.0	---					---	---	22.0	---	---	---
5	---	---					---	---	---	---	---	---
6	---	6.0					---	---	---	26.0	---	---
7	---	---					---	12.0	---	---	---	22.0
8	14.0	---					---	---	---	---	29.0	---
9	---	6.0					---	---	24.0	24.0	---	24.0
10	---	---					---	12.0	---	---	---	---
11	---	---					---	---	---	---	26.0	---
12	10.0	---					---	---	---	---	---	---
13	---	4.0					---	---	24.0	26.5	---	24.0
14	---	---					---	14.0	---	---	27.0	---
15	---	---					---	---	---	---	---	---
16	11.0	4.0					---	---	---	---	---	18.0
17	---	---					8.0	23.0	22.0	---	28.0	---
18	10.0	---					---	---	---	---	---	---
19	---	4.0					8.0	---	25.0	27.0	---	---
20	---	---					---	---	---	---	26.0	24.0
21	9.0	4.0					---	---	---	26.5	---	---
22	---	---					---	17.0	---	---	27.0	22.0
23	---	---					8.0	---	24.0	---	---	---
24	---	2.0					---	---	---	---	26.0	---
25	---	---					---	18.0	---	---	---	---
26	---	---					10.0	---	---	27.0	---	---
27	9.0	---					---	---	---	---	---	10.0
28	---	2.0					---	14.5	26.0	---	---	---
29	---	---					---	---	---	27.0	26.5	---
30	---	---					10.0	---	24.0	---	---	---
31	6.0	---					---	---	---	---	24.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	24	2360	45	4770	15	3030	3	250	5	347	10	2380
2	21	1900	33	3400	16	3080	3	250	5	347	12	2730
3	22	1880	27	2680	15	2520	3	250	5	340	25	5410
4	29	2400	25	2400	13	1810	3	259	5	336	43	8890
5	26	2070	27	2520	11	1350	4	340	3	201	48	9490
6	21	1660	55	5020	9	1030	3	258	3	198	39	7060
7	18	1400	60	5410	8	821	4	350	3	198	23	3910
8	22	1720	39	3500	7	650	4	354	3	190	10	1580
9	44	3740	20	1790	5	435	4	356	4	257	9	1310
10	75	6560	18	1580	5	378	4	359	4	258	7	971
11	51	4610	20	1800	5	375	4	362	4	258	6	747
12	23	2270	34	3080	5	404	4	352	14	907	50	6130
13	20	2080	56	5110	4	345	3	262	29	1970	120	13600
14	19	2110	36	3510	4	342	3	248	44	3310	134	14900
15	20	2320	22	2340	3	288	4	321	57	4560	185	21900
16	22	2710	32	3570	2	208	5	401	70	6430	190	26100
17	29	3950	53	5920	2	197	6	447	69	7710	89	13300
18	37	5450	50	5480	2	196	7	524	67	8860	26	3900
19	56	8380	39	4230	4	384	8	594	65	13200	18	2510
20	59	8890	34	3750	4	322	9	668	65	13600	13	1730
21	46	6860	27	3000	4	297	8	557	63	13800	9	1110
22	37	5390	24	2690	3	223	5	352	63	13600	8	916
23	27	3770	22	2570	3	242	5	352	88	19000	7	781
24	19	2640	20	2480	4	340	4	270	83	18300	12	1360
25	20	2740	20	2720	5	450	3	204	46	10600	22	2550
26	28	3680	20	3140	5	466	3	204	12	2710	25	2980
27	47	5850	20	3470	5	464	3	204	10	2310	22	2720
28	58	6950	15	2840	5	458	2	138	10	2370	16	2130
29	62	7180	15	3030	4	356	2	138	10	2400	16	2270
30	60	6590	15	3030	3	262	3	208	---	---	20	3030
31	50	5330	---	---	3	247	5	347	---	---	29	4780
TOTAL	---	125440	---	100830	---	21970	---	10179	---	148567	---	173175

MISSISSIPPI RIVER MAIN STEM

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	31	5650	125	29900	74	12900	45	13100	28	2470	18	1120
2	28	5450	102	24800	78	13100	44	12600	26	2030	17	987
3	23	4610	80	19900	73	11100	44	12400	25	1740	18	1010
4	18	3710	70	17700	67	8970	44	12400	24	1790	22	1180
5	15	3180	52	13700	64	8120	44	12200	22	1770	23	1180
6	14	3090	29	7770	62	7570	43	11800	20	1750	19	990
7	15	3260	28	7860	59	6910	41	10800	18	1600	16	881
8	17	3910	28	8090	62	7250	40	10200	16	1520	16	847
9	18	4310	28	8090	187	23700	38	9230	16	1520	18	1050
10	19	4720	28	8010	215	30500	38	8820	15	1420	18	1170
11	19	4880	31	8700	148	21600	37	8340	30	2900	18	1290
12	19	4990	34	9360	81	11700	36	7900	71	6960	20	1490
13	18	4860	38	10400	63	10000	36	7750	69	6460	22	1810
14	19	5280	39	10600	63	10900	35	7450	42	3560	25	2190
15	21	5900	37	9990	63	11800	34	7200	34	2620	26	2260
16	24	6870	35	9370	63	12800	33	6990	31	2280	25	2090
17	27	7580	34	9120	62	13700	32	6770	28	2100	24	1870
18	35	9730	34	9120	62	15100	30	6180	25	1780	23	1650
19	30	8180	34	9060	85	22800	28	5480	21	1540	20	1310
20	29	7830	34	8920	101	28400	28	5130	17	1240	19	1260
21	30	7970	34	8720	76	22400	28	4870	18	1110	19	1290
22	34	8900	34	8560	59	17700	28	4480	24	1300	25	1620
23	37	9430	35	8600	57	17500	28	4020	26	1180	28	1750
24	36	9040	36	8210	58	18200	29	3850	27	1100	28	1580
25	29	7190	37	8410	58	18300	30	3630	41	1820	25	1300
26	25	6080	38	8690	58	18200	30	3420	80	4620	22	1080
27	60	14400	38	8030	58	18000	31	3420	75	4980	20	1080
28	130	30900	38	8040	57	17500	31	3210	38	2780	39	2740
29	189	43600	40	8010	53	16200	31	3110	18	1250	100	8230
30	158	37700	45	8700	48	14400	31	2950	19	1280	108	9360
31	---	---	57	10600	---	---	29	2700	20	1300	---	---
TOTAL	---	283200	---	335030	---	467320	---	222400	---	71770	---	57665

TOTAL LOAD FOR YEAR: 2017546 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. THAN .062 MM (70331)
MAY 31...	1230	57600	57	8860	96

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. THAN 16.0 MM (80172)
APR 17...	1615	108000	6	2	3	13	66	90	97	99	99	100

TURKEY RIVER BASIN

05411600 TURKEY RIVER AT SPILLVILLE, IA

LOCATION.--Lat 43°12'28", long 91°56'56", in SW1/4 NE1/4 sec.19, T.97 N., R.9 W., Winneshiek County, on right bank 60 ft downstream from bridge on county highway W14 at north edge of Spillville, 150 ft downstream from old mill dam, 0.6 mi upstream from Wonder Creek and at mile 98.5.

DRAINAGE AREA.--177 mi².

PERIOD OF RECORD.--June 1956 to September 1973, October 1977 to current year. Monthly discharge only for some periods, published in WSP 1728.

REVISED RECORDS.--WDR IA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 1,034.92 ft NGVD.

REMARKS.--Records good except those for winter period, which are fair.

AVERAGE DISCHARGE.--24 years, 126 ft³/s, 9.67 in/yr, 91,290 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,600 ft³/s July 12, 1972, gage height, 16.73 ft; minimum daily, 4.4 ft³/s Feb. 1-3, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of 18.4 ft, from floodmark, discharge, about 10,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 16	0030	a	*9.77	June 18	0500	*1,160	9.02

a Backwater from ice.
Minimum daily discharge, 30 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	90	192	59	55	210	207	781	170	140	62	37
2	77	89	193	62	56	192	202	499	161	131	62	40
3	79	89	166	64	59	180	202	416	154	126	59	39
4	80	85	177	66	61	165	215	372	152	123	57	38
5	79	85	157	69	56	152	205	327	146	120	56	37
6	75	82	145	69	52	140	191	292	141	109	55	37
7	73	80	131	66	47	130	177	308	134	103	55	36
8	72	78	123	63	47	122	166	280	143	106	70	37
9	72	87	120	61	54	118	161	252	340	109	61	37
10	69	105	126	58	82	112	162	235	224	141	54	37
11	89	118	156	56	130	108	155	223	192	239	51	36
12	146	109	143	55	235	107	163	206	184	175	50	37
13	151	105	129	54	540	105	306	220	176	132	50	37
14	123	104	118	52	410	104	383	214	163	116	49	38
15	115	104	108	52	360	199	412	197	152	115	48	37
16	112	100	100	51	700	680	354	186	148	105	48	36
17	108	98	94	50	1220	594	261	182	433	106	48	35
18	101	95	85	50	777	295	220	188	1460	106	49	34
19	97	109	80	49	608	221	200	189	847	99	48	32
20	127	178	78	48	536	186	182	181	445	93	45	32
21	212	208	75	48	511	158	165	172	338	89	45	31
22	189	169	72	49	540	137	160	168	311	85	47	30
23	153	360	69	50	972	176	164	165	441	82	45	31
24	135	930	67	52	704	449	165	155	313	78	43	31
25	124	522	65	55	480	773	153	195	242	76	41	34
26	116	358	64	59	404	567	144	218	236	75	40	35
27	111	289	62	62	311	416	157	196	204	72	38	34
28	105	266	61	64	243	357	149	227	167	69	38	34
29	99	234	60	60	214	321	177	216	154	67	37	34
30	94	187	60	56	---	252	834	192	146	65	37	34
31	92	---	59	54	---	215	---	182	---	63	37	---
TOTAL	3355	5513	3335	1763	10464	7941	6792	7834	8517	3315	1525	1057
MEAN	108	184	108	56.9	361	256	226	253	284	107	49.2	35.2
MAX	212	930	193	69	1220	773	834	781	1460	239	70	40
MIN	69	78	59	48	47	104	144	155	134	63	37	30
CFSM	.61	1.04	.61	.32	2.04	1.45	1.28	1.43	1.61	.61	.28	.20
IN.	.71	1.16	.70	.37	2.20	1.67	1.43	1.65	1.79	.70	.32	.22
AC-FT	6650	10940	6610	3500	20760	15750	13470	15540	16890	6580	3020	2100

CAL YR 1983 TOTAL 91060 MEAN 249 MAX 1790 MIN 52 CFSM 1.41 IN 19.14 AC-FT 180600
WTR YR 1984 TOTAL 61411 MEAN 168 MAX 1460 MIN 30 CFSM .95 IN 12.91 AC-FT 121800

05412500 TURKEY RIVER AT GARBER, IA

LOCATION.--Lat 42°44'24", long 91°15'42", in SE1/4 NW1/4 sec.36, T.92 N., R.4 W., Clayton County, Hydrologic Unit 07060004, on left bank 10 ft downstream from bridge on county highway C43, 800 ft upstream from Wayman Creek, 1,000 ft southeast of Garber, 2,000 ft downstream from Elk Creek, 1 mi downstream from Volga River, and 19.8 mi upstream from mouth.

DRAINAGE AREA.--1,545 mi².

PERIOD OF RECORD.--August 1913 to November 1916, May 1919 to September 1927, April 1929 to September 1930, October 1932 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1922-25 (M), 1927 (M). WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 634.46 ft NGVD. Prior to Feb. 7, 1935, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are fair. National Weather Service gage-height telemeter at station.

COOPERATION.--Four discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--64 years (1913-16, 1919-27, 1929-30, 1932-84), 956 ft³/s, 8.40 in/yr, 692,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,300 ft³/s Feb. 23, 1922, gage height, 28.06 ft, from flood-mark; minimum daily, 49 ft³/s Jan. 28, 29, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, that of Feb. 23, 1922.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 19	1515	10,100	17.62	Apr. 30	1145	*11,400	*18.50

Minimum daily discharge, 302 ft³/s Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	570	815	1730	540	520	1680	1750	7500	2530	1260	569	378
2	549	803	1600	545	545	1580	1660	5480	2330	1190	559	379
3	572	787	1490	555	560	1480	1640	4610	2150	1140	554	389
4	593	746	1490	570	555	1390	1710	4190	2000	1120	544	384
5	559	708	1440	580	530	1240	1750	3700	1960	1050	541	383
6	533	693	1360	595	455	1130	1690	3270	1840	1000	536	380
7	520	690	1190	600	450	1060	1590	3100	1760	938	531	376
8	502	680	1100	600	465	990	1510	2890	2200	901	676	371
9	481	709	1070	585	500	930	1460	2680	1980	901	656	367
10	475	867	1130	560	610	885	1410	2500	2790	1090	569	363
11	538	786	1590	540	840	855	1380	2370	2210	929	526	371
12	1090	793	1230	520	1330	830	1430	2220	1840	907	505	366
13	1210	796	1100	500	3150	815	1690	2150	2590	956	494	363
14	1120	790	1100	490	4950	800	2260	2070	2480	878	485	352
15	1030	798	1100	480	4300	1100	2950	1940	2090	1060	482	343
16	1140	775	940	470	6110	2330	2770	1850	1960	922	482	335
17	1040	744	860	460	5430	2120	2480	1790	2390	1120	476	335
18	969	735	800	455	4680	2040	2120	1760	2760	988	494	331
19	917	947	750	450	8320	1670	1900	1790	4010	975	497	329
20	1000	1130	720	445	6370	1480	1770	1780	3870	917	482	325
21	1200	1180	690	440	4140	1340	1660	1690	2790	834	464	314
22	1310	1300	660	445	3450	1220	1620	1650	2330	788	466	308
23	1400	1350	635	450	3300	1410	1650	1610	2260	744	453	302
24	1270	2080	615	470	3420	2180	1660	1540	2490	705	445	303
25	1150	3280	595	485	3130	3050	1650	2200	2040	680	437	341
26	1060	2560	580	510	2630	3630	1600	3240	1820	678	434	330
27	991	2090	570	530	2360	3110	1610	2580	1680	660	431	326
28	947	2280	560	540	2090	2670	1690	3630	1550	629	417	317
29	895	2300	555	545	1820	2430	1870	4360	1440	603	404	311
30	853	1980	550	515	---	2170	10000	3320	1350	585	388	310
31	819	---	540	500	---	1950	---	2810	---	576	375	---
TOTAL	27303	36192	30340	15970	77010	51565	61930	88270	67490	27724	15372	10382
MEAN	881	1206	979	515	2656	1663	2064	2847	2250	894	496	346
MAX	1400	3280	1730	600	8320	3630	10000	7500	4010	1260	676	389
MIN	475	680	540	440	450	800	1380	1540	1350	576	375	302
CFSM	.57	.78	.63	.33	1.72	1.08	1.34	1.84	1.46	.58	.32	.22
IN.	.66	.87	.73	.38	1.85	1.24	1.49	2.13	1.63	.67	.37	.25
AC-FT	54160	71790	60180	31680	152700	102300	122800	175100	133900	54990	30490	20590

CAL YR 1983 TOTAL 705972 MEAN 1934 MAX 9270 MIN 437 CFSM 1.25 IN 17.00 AC-FT 1400000
WTR YR 1984 TOTAL 509548 MEAN 1392 MAX 10000 MIN 302 CFSM .90 IN 12.27 AC-FT 1011000

05418450 NORTH FORK MAQUOKETA RIVER AT FULTON, IA

LOCATION.--Lat 42°08'48", long 90°40'33" in N1/4 sec.25, T.85 N., R.2 E, Jackson County, Hydrologic Unit 07060006, on right downstream bank at bridge on State Highway 61, 7.8 mi upstream from mouth, and 5.5 mi north of junction of State Highway 64 and 61 and 0.5 mi south of Fulton.

DRAINAGE AREA.--516 mi².

PERIOD OF RECORD.--July 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 666.19 ft NGVD. Nonrecording gage July 7 to September 22, 1977.

REMARKS.--Records fair except those for winter period, which are poor.

AVERAGE DISCHARGE.--7 years, 371 ft³/s, 9.76 in/yr, 268,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft³/s Aug. 31, 1981, gage height, 17.26 ft; minimum daily, 70 ft³/s July 11, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 18, 1974 reached a stage of 16.0 ft., from floodmark, discharge 10,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 13	1330	3,330	10.09	July 17	0330	5,750	11.73
June 18	1730	*7,590	*13.77				

Minimum daily discharge, 148 ft³/s Jan 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	199	198	350	149	172	293	283	700	450	448	230	173
2	198	201	304	148	172	291	280	574	417	438	223	171
3	199	197	284	150	185	278	277	581	392	426	222	173
4	198	189	255	157	198	269	292	828	370	416	219	173
5	201	190	253	168	195	265	298	762	361	407	216	171
6	199	193	248	179	174	260	292	634	351	394	215	169
7	193	200	237	183	163	252	280	563	345	379	213	171
8	192	201	228	176	159	244	272	507	428	364	230	171
9	189	202	223	170	170	236	269	465	976	346	241	171
10	188	215	221	166	200	232	266	441	1180	802	230	173
11	193	218	245	163	250	229	250	426	1310	468	223	178
12	207	214	278	160	390	225	274	407	760	372	224	175
13	208	208	271	157	2500	223	298	388	779	338	222	175
14	206	209	270	155	1340	227	319	373	952	352	219	169
15	205	212	274	153	984	234	346	358	737	560	219	169
16	225	210	230	152	968	263	361	344	647	3600	217	166
17	229	203	180	150	860	263	337	340	639	3200	214	162
18	220	207	177	149	657	255	319	341	5220	960	210	164
19	208	236	174	149	1040	242	303	354	2060	450	207	164
20	205	292	170	150	1050	242	294	402	1090	350	205	166
21	218	281	166	152	620	247	286	378	933	320	202	166
22	221	249	163	159	502	253	306	368	1190	310	198	164
23	215	259	160	165	449	476	326	350	861	300	191	162
24	207	257	158	170	421	760	324	329	797	290	184	166
25	200	240	157	178	388	668	326	370	625	280	184	277
26	195	233	155	184	360	533	311	405	561	360	184	289
27	192	239	153	197	339	404	303	411	705	280	182	200
28	195	317	151	202	320	361	289	402	623	245	180	171
29	193	361	151	198	299	334	305	571	506	240	180	169
30	191	390	150	185	---	316	571	623	468	235	182	169
31	192	---	149	177	---	295	---	504	---	230	180	---
TOTAL	6281	7021	6585	5151	15525	9670	9257	14499	26733	18160	6446	5337
MEAN	203	234	212	166	535	312	309	468	891	586	208	178
MAX	229	390	350	202	2500	760	571	828	5220	3600	241	289
MIN	188	189	149	148	159	223	250	329	345	230	180	162
CFSM	.39	.45	.41	.32	1.04	.61	.60	.91	1.73	1.14	.40	.35
IN.	.45	.51	.47	.37	1.12	.70	.67	1.05	1.93	1.31	.46	.38
AC-FT	12460	13930	13060	10220	30790	19180	18360	28760	53020	36020	12790	10590

CAL YR 1983 TOTAL 150905 MEAN 413 MAX 4040 MIN 149 CFSM .80 IN 10.88 AC-FT 299300
WTR YR 1984 TOTAL 130665 MEAN 357 MAX 5220 MIN 148 CFSM .69 IN 9.42 AC-FT 259200

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA

LOCATION.--Lat 42°05'05", long 90°38'04", in SW1/4 NE1/4 sec.17, T.84 N., R.3 E., Jackson County, Hydrologic Unit 07060006, on right bank 500 upstream from bridge on State Highway 62, 1,200 ft upstream from Prairie Creek, 2.0 mi northeast of Maquoketa, 2.2 mi downstream from North Fork, and 26.7 mi upstream from mouth.

DRAINAGE AREA.--1,553 mi².

PERIOD OF RECORD.--September 1913 to current year. Prior to October 1939, published as "below North Fork near Maquoketa". Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 405: 1914. WSP 1438: Drainage area. WSP 1508: 1914-17, 1919-25, 1926 (M), 1929, 1933-34 (M), 1943.

GAGE.--Water-stage recorder. Datum of gage is 625.96 ft NGVD. Prior to July 14, 1924, nonrecording gage, and July 15, 1924 to Sept. 30, 1972, recording gage at same site at datum 10.00 ft higher.

REMARKS.--Records good except those for winter period, which are fair. Diurnal fluctuation caused by powerplant 4 mi above station. National Weather Service gage-height telemeter at station.

COOPERATION.--Four discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--71 years, 1,028 ft³/s, 8.99 in/yr, 744,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft³/s June 27, 1944, gage height, 24.70 ft, at datum then in use; minimum daily, 105 ft³/s Feb. 11-20, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--A flood, probably in 1903, reached a stage of 23.5 ft, discharge, 43,000 ft³/s, at datum in use prior to Oct. 1, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,100 ft³/s June 18, gage height, 23.36 ft at 2145 hours, no other peak above base of 7,500 ft³/s; minimum daily, 380 ft³/s Jan. 20-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	540	558	1160	449	435	1110	1140	2750	1850	1600	886	435
2	530	542	1060	456	460	1060	1150	3740	1580	1500	860	486
3	551	532	942	475	460	1030	1140	2630	1420	1430	846	435
4	543	523	920	495	470	968	1150	2860	1250	1380	810	484
5	530	512	978	500	455	952	1190	3130	1230	1340	710	445
6	505	547	921	500	440	904	1310	2590	1230	1270	753	465
7	507	518	806	495	430	864	1230	2250	1120	1230	938	464
8	512	551	672	480	425	852	1140	1990	1260	1160	628	469
9	488	546	672	465	460	839	1100	1780	3210	1140	759	496
10	474	554	709	445	560	742	1070	1670	3680	1750	825	438
11	520	631	770	430	920	745	1010	1480	5280	3600	709	502
12	537	635	893	420	2300	801	989	1380	3730	2960	668	447
13	564	617	933	415	4690	787	1010	1330	2840	1990	728	509
14	567	639	889	405	3640	891	1100	1250	3220	1690	651	454
15	584	618	937	400	3140	796	1180	1180	3070	1540	655	455
16	609	618	850	400	3390	834	1360	1130	2530	1590	681	451
17	665	540	577	395	3860	862	1540	1100	2240	1700	651	435
18	674	604	528	390	3520	890	1280	1010	6730	1940	702	451
19	651	639	520	385	3530	881	1190	1000	7660	1830	655	456
20	606	751	510	380	3990	880	1080	1110	4290	1350	650	430
21	638	788	500	380	3160	846	1040	1100	3070	1350	645	424
22	605	806	495	380	2440	874	1060	1100	2700	1210	610	421
23	620	838	490	390	1950	1170	1070	1030	2550	1140	516	424
24	635	809	490	400	1650	1760	1080	1000	3260	1090	506	429
25	574	763	490	415	1580	1810	1110	1100	2970	1050	503	594
26	552	768	482	430	1410	1750	1120	1130	2450	1050	499	684
27	558	825	473	450	1350	1890	1110	1200	2110	1060	468	578
28	564	1010	468	455	1220	1770	1060	1310	2290	1020	513	566
29	544	1120	460	450	1160	1560	1060	1520	1820	940	502	469
30	532	1470	450	440	---	1420	1610	2580	1640	930	481	474
31	503	---	449	430	---	1320	---	2290	---	896	470	---
TOTAL	17482	20872	21494	13400	53495	33858	34679	52720	84280	45726	20478	14270
MEAN	564	696	693	432	1845	1092	1156	1701	2809	1475	661	476
MAX	674	1470	1160	500	4690	1890	1610	3740	7660	3600	938	684
MIN	474	512	449	380	425	742	989	1000	1120	896	468	421
CFSM	.36	.45	.45	.28	1.19	.70	.74	1.10	1.81	.95	.43	.31
IN.	.42	.50	.51	.32	1.28	.81	.83	1.26	2.02	1.10	.49	.34
AC-FT	34680	41400	42630	26580	106100	67160	68790	104600	167200	90700	40620	28300

CAL YR 1983 TOTAL 455485 MEAN 1248 MAX 6800 MIN 394 CFSM .80 IN 10.91 AC-FT 903500
WTR YR 1984 TOTAL 412754 MEAN 1128 MAX 7660 MIN 380 CFSM .73 IN 9.89 AC-FT 818700

05420500 MISSISSIPPI RIVER AT CLINTON, IA
(National stream-quality accounting network station)

LOCATION.--Lat 41°46'53", long 90°15'04", in NW1/4 sec.34, T.81 N., R.6 E., Clinton County, Hydrologic Unit 07080101, on right bank at foot of Seventh Avenue in Camanche, 5.0 mi upstream from Wapsipinicon River, 6.4 mi downstream from Clinton, 10.6 mi downstream from dam 13, and at mile 511.8 upstream from Ohio River. Prior to June 6, 1969, at site 400 ft downstream.

DRAINAGE AREA.--85,600 mi², approximately, at Fulton-Lyons Bridge at Clinton.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June to August 1873 (fragmentary), October 1873 to current year (October 1932 to September 1939, published as "at Le Claire").

REVISED RECORDS.--WDR IA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 562.68 ft NGVD. Oct. 1, 1955, to June 5, 1969, water-stage recorder at site 400 ft downstream at same datum. Auxiliary water-stage recorder at dam 13 since Oct. 1, 1958. See WSP 1728 for history of changes prior to Oct. 1, 1955.

REMARKS.--Records good except those for winter period, which are poor. Minor flow regulation caused by navigation dams.

COOPERATION.--Discharge data at Lock and Dam No.13 furnished by Corps of Engineers.

AVERAGE DISCHARGE.--111 years, 47,530 ft³/s, 7.54 in/yr, 34,440,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 307,000 ft³/s Apr. 28, 1965; maximum gage height, 24.65 ft Apr. 28, 1965; minimum daily discharge, 6,500 ft³/s Dec. 25-27, 1933.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1828, that of Apr. 28, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 134,000 ft³/s May 11; maximum gage height, 16.21 ft May 11, minimum daily discharge, 20,700 ft³/s Aug. 25, minimum gage height, 8.36 ft. Aug. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60800	48900	86000	40000	30000	98500	66000	104000	83000	128000	41500	27300
2	52400	49100	85700	40000	30800	102000	69000	105000	79600	124000	40300	25600
3	46600	48700	85300	40000	30800	103000	73100	106000	75200	122000	37400	27100
4	43700	47700	85900	41000	30800	100000	77200	106000	69700	119000	33900	28700
5	41900	45700	83900	42000	30800	92300	80100	108000	64000	113000	34000	28900
6	40200	44700	67800	42000	30500	82600	82300	112000	60300	110000	34100	29300
7	36900	44600	56600	42000	30500	77300	83300	118000	56400	107000	36200	28700
8	36100	43700	53000	42000	30200	72700	82700	124000	57100	103000	39200	27900
9	38800	43100	46500	42000	30000	70600	83200	129000	61400	101000	45000	27900
10	38900	43700	41000	41800	29500	69000	87600	133000	65800	99600	44300	28200
11	40000	44600	38000	41000	29000	64400	90600	134000	68800	99500	42100	31200
12	42500	42100	41000	41000	29500	55200	92100	133000	69100	97500	41200	33800
13	46800	41400	44000	40500	35000	49800	97000	129000	73500	93300	40300	33500
14	49600	44100	47500	40000	41500	50100	102000	124000	77700	88200	39500	38500
15	50200	49800	49500	39000	46000	53000	105000	117000	76500	87600	38200	40100
16	52000	52800	47000	38500	49000	58700	106000	114000	73100	90600	36600	39400
17	56000	51000	40000	37000	51500	61300	110000	111000	72100	90800	34100	38000
18	59500	49700	31000	35500	52500	62500	113000	111000	80000	88900	31700	37100
19	64000	52200	27000	34000	59000	67700	114000	111000	97800	87100	31400	35100
20	66400	54700	31500	32500	65500	70400	114000	110000	103000	84900	32200	30800
21	68200	57300	36000	31500	72100	68100	113000	109000	104000	83400	32600	32200
22	69100	56600	37500	31000	79000	64200	109000	109000	109000	79900	31700	34000
23	69100	55000	36500	30500	85600	59400	110000	107000	119000	75000	29300	31900
24	66000	57000	35000	30500	91800	54700	110000	104000	124000	67300	25500	30800
25	65300	58500	34000	30500	89800	57800	104000	104000	127000	60300	20700	30100
26	61800	59900	34500	30500	87500	59000	100000	100000	130000	57000	23700	32400
27	61300	66300	36500	30500	93000	58000	98900	95400	133000	55400	28000	29600
28	59500	73300	39000	30500	97800	59300	98400	93400	133000	52000	32700	27500
29	57300	82000	41000	30800	97700	61600	95300	92700	132000	47700	33300	30800
30	53400	85100	40500	31000	---	62200	99700	92100	131000	44400	34400	36000
31	50600	---	40400	31000	---	64100	---	89600	---	42200	30900	---
TOTAL	1644900	1593300	1499100	1130100	1556700	2129500	2866500	3435200	2706100	2699600	1076000	952400
MEAN	53060	53110	48360	36450	53680	68690	95550	110800	90200	87080	34710	31750
MAX	69100	85100	86000	42000	97800	103000	114000	134000	133000	128000	45000	40100
MIN	36100	41400	27000	30500	29000	49800	66000	89600	56400	42200	20700	25600
CFSM	.62	.62	.57	.43	.63	.80	1.12	1.29	1.05	1.02	.41	.37
IN.	.71	.69	.65	.49	.68	.93	1.25	1.49	1.18	1.17	.47	.41
AC-FT	3263000	3160000	2973000	2242000	3088000	4224000	5686000	6814000	5368000	5355000	2134000	1889000

CAL YR 1983 TOTAL 24205100 MEAN 66320 MAX 179000 MIN 27000 CFSM .78 IN 10.52 AC-FT 48010000
WTR YR 1984 TOTAL 23289400 MEAN 63630 MAX 134000 MIN 20700 CFSM .74 IN 10.12 AC-FT 46190000

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Samples collected near bridge on State Highway 136 in Clinton, 6.4 mi upstream from discharge station.

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1976; October 1978 to September 1981.
WATER TEMPERATURES: October 1974 to current year.

REMARKS.--Temperature data were collected at Dam 13 (Sta. 05420400). Temperature recorder clock stopped June 19-June 26, July 4 to Sept. 6.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 560 micromhos Nov. 24 to Dec. 3, 1979; minimum daily, 220 micromhos Apr. 19,20, 1976; Nov. 8-18, 1980.
WATER TEMPERATURES: Maximum, 31.5°C July 21-23, 1983; minumum, 0.0°C on many days during winter periods each year.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, unknown; minimum, 0.0°C on many days during winter period each year.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	19.5	18.0	10.5	10.0	.5	---	.0	.0	.0	.0	.0	.0
2	20.0	18.5	11.0	10.5	.5	.0	.0	.0	.0	.0	.0	.0
3	20.0	19.5	11.0	10.0	.0	.0	.0	.0	.0	.0	.0	.0
4	20.0	19.5	10.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0
5	19.0	18.0	9.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0
6	19.0	18.0	9.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0
7	18.5	18.0	9.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0
8	18.5	17.0	10.0	9.5	.0	.0	.0	.0	.0	.0	.0	.0
9	17.0	16.0	10.0	9.5	.0	.0	.0	.0	.0	.0	.0	.0
10	16.5	15.5	10.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0
11	16.0	15.5	6.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0
12	16.5	14.0	5.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0
13	13.5	11.5	5.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0
14	12.5	11.5	4.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0
15	13.5	12.0	4.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0
16	13.0	12.0	4.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0
17	13.0	12.0	3.5	3.5	.0	.0	.0	.0	.0	.0	.0	.0
18	12.5	11.5	4.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0
19	11.5	10.0	5.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0
20	11.0	10.5	6.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0
21	11.0	11.0	4.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0
22	11.0	10.5	5.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0
23	10.5	10.5	4.0	2.5	.0	.0	.0	.0	.0	.0	.5	.0
24	10.5	10.5	2.5	2.5	.0	.0	.0	.0	.0	.0	2.0	.5
25	11.0	10.5	2.5	2.5	.0	.0	.0	.0	.0	.0	2.5	2.0
26	10.5	9.5	2.5	2.5	.0	.0	.0	.0	.0	.0	3.0	2.5
27	11.0	10.0	2.5	1.5	.0	.0	.0	.0	.0	.0	4.0	3.0
28	12.0	11.0	---	---	.0	.0	.0	.0	.0	.0	5.0	3.5
29	12.0	10.0	---	---	.0	.0	.0	.0	.0	.0	4.5	4.0
30	11.0	10.0	1.5	1.0	.0	.0	.0	.0	---	---	6.0	4.0
31	10.0	9.5	---	---	.0	.0	.0	.0	---	---	7.0	5.5
MONTH	20.0	9.5	11.0	1.0	.5	.0	.0	.0	.0	.0	7.0	.0

MISSISSIPPI RIVER MAIN STEM

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	6.5	5.5	13.0	11.0	---	---	25.5	24.0			---	---
2	6.0	5.0	11.5	10.5	20.5	19.5	25.5	24.5			---	---
3	5.5	5.0	11.0	10.0	21.5	19.5	24.5	24.0			---	---
4	---	---	12.0	11.0	22.0	20.5	---	---			---	---
5	7.0	6.5	13.5	11.5	23.0	21.0	---	---			---	---
6	8.0	6.5	14.0	12.5	23.0	22.0	---	---			---	---
7	8.5	7.0	14.5	13.5	22.5	22.0	---	---			21.5	20.5
8	8.0	7.0	12.5	11.5	24.0	22.5	---	---			21.5	21.0
9	7.5	7.0	12.5	11.0	23.0	22.5	---	---			21.0	21.0
10	9.5	7.5	12.5	12.0	24.0	22.5	---	---			21.0	21.0
11	9.5	8.5	13.5	13.0	24.0	22.5	---	---			21.5	20.5
12	9.5	---	15.5	13.5	24.0	23.0	---	---			22.5	21.0
13	9.5	8.5	17.0	15.0	24.0	23.0	---	---			22.5	22.0
14	9.0	9.0	17.5	15.5	---	22.0	---	---			22.0	20.5
15	9.0	9.0	17.5	16.0	---	20.5	---	---			---	---
16	9.0	8.5	17.5	16.0	22.5	20.5	---	---			---	---
17	9.0	8.0	18.0	16.5	23.5	22.0	---	---			---	---
18	9.0	8.5	19.5	18.0	24.0	22.5	---	---			19.5	19.0
19	11.0	9.5	19.5	19.0	---	---	---	---			20.5	19.5
20	13.0	10.5	20.0	18.5	---	---	---	---			21.0	20.0
21	11.0	9.0	20.0	19.0	---	---	---	---			21.0	20.0
22	9.0	8.5	19.0	17.5	---	---	---	---			21.0	20.5
23	9.0	8.5	20.0	18.5	---	---	---	---			21.0	20.0
24	11.5	8.5	20.0	19.5	---	---	---	---			22.0	21.0
25	12.0	10.5	19.5	18.0	---	---	---	---			22.0	28.0
26	14.0	11.5	19.5	18.5	---	---	---	---			18.0	17.0
27	16.5	14.0	18.5	16.0	24.5	24.5	---	---			18.0	17.0
28	16.0	13.5	16.0	14.5	24.5	23.5	---	---			17.0	16.0
29	14.5	13.5	17.0	14.5	24.0	23.5	---	---			16.0	---
30	13.5	11.5	---	---	25.0	23.5	---	---			---	---
31	---	---	---	---	---	---	---	---			---	---
MONTH	16.5	5.0	20.0	10.0	25.0	19.5	25.5	24.0			22.5	16.0
YEAR	25.5	.0										

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV 29...	1100	82000	320	8.0	1.0	38	15.4	111	720	K14000	160	27
MAR 15...	1215	53000	388	8.0	.0	5.5	15.2	107	K30	270	190	23
JUN 13...	1245	74300	422	8.2	23.0	65	6.1	73	K740	620	200	51
SEP 06...	1330	29300	424	8.2	20.0	15	7.6	--	K28	K28	220	41

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
NOV 29...	39	15	7.7	9	.3	2.4	132	21	11	.10	9.4	199
MAR 15...	46	17	7.7	8	.3	2.2	162	24	13	.20	13	227
JUN 13...	46	20	7.5	8	.2	2.8	147	43	11	.20	3.5	245
SEP 06...	50	22	9.2	8	.3	3.0	175	35	10	.20	8.6	245

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
NOV												
29...	190	.27	44100	1.5	.120	.15	3.2	.060	.86	.050	.280	267
MAR												
15...	220	.31	32500	2.4	.210	.27	1.0	.030	.25	.040	.080	61
JUN												
13...	220	.33	49100	1.9	.130	.17	.30	.060	--	.080	.180	132
SEP												
06...	240	.33	19400	.31	.120	.15	.90	.070	--	.090	.170	33

DATE	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. THAN .062 MM (70331)	ARSENIC DIS-(UG/L AS AS) (01000)	ALUM-INUM, DIS-(UG/L AS AL) (01106)	BARIUM, DIS-(UG/L AS BA) (01005)	BERYL-LIUM, DIS-(UG/L AS BE) (01010)	CADMIUM DIS-(UG/L AS CD) (01025)	CHRO-MIUM, DIS-(UG/L AS CR) (01030)	COBALT, DIS-(UG/L AS CO) (01035)	COPPER, DIS-(UG/L AS CU) (01040)	IRON, DIS-(UG/L AS FE) (01046)
NOV											
29...	59100	93	<1	<10	37	<.5	<1	<1	<3	1	75
MAR											
15...	8730	96	<1	<10	42	<.5	<1	<1	<3	3	75
JUN											
13...	26500	98	<1	50	56	3	2	1	<3	3	8
SEP											
06...	2610	98	2	<10	57	<1	<1	2	<3	3	7

DATE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV											
29...	2	5	5	<.1	<10	2	1	<1	72	<6	4
MAR											
15...	<1	9	22	<.1	<10	1	<1	<1	87	<6	<3
JUN											
13...	1	18	5	<.1	10	3	<1	<1	110	<6	11
SEP											
06...	2	10	11	<.1	<10	2	<1	<1	110	<6	<3

05420560 WAPSIPINICON RIVER NEAR ELMA, IA

LOCATION.--Lat 43°14'34", long 92°31'48", in NW1/4 NW1/4 sec.8, T.97 N., R.14 W., Howard County, Hydrologic Unit 07080102, on right bank 10 ft downstream from bridge on county highway B17, 0.2 mi downstream from small left-bank tributary, 4.8 mi west of Elma, and at mile 217.9.

DRAINAGE AREA.--95.2 mi².

PERIOD OF RECORD.--October 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,130.05 ft NGVD.

REMARKS.--Records fair except those for periods of no gage-height record and winter period, which are poor.

AVERAGE DISCHARGE.--26 years, 69.2 ft³/s, 9.87 in/yr, 50,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft³/s June 4, 1974, gage height, 14.94 ft, from high-water mark in well; maximum gage height, 15.38 ft, from high-water mark in well, probably occurred Aug. 22, 1979 (backwater from vegetation); minimum daily discharge, 1.9 ft³/s Feb. 4-8, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 18	unknown	860	ice jam	June 12	1400	653	10.65
Mar. 25	1900	725	11.01	June 17	2215	*6,580	*14.81
June 8	1430	5,990	14.66				

Minimum daily discharge, 12 ft³/s Sept. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	52	79	35	20	100	124	487	58	61	32	15
2	47	49	90	35	19	84	122	300	53	55	32	15
3	50	47	86	34	19	74	134	224	48	53	31	15
4	54	44	73	35	18	78	159	177	45	53	30	15
5	50	42	69	35	17	70	131	146	45	49	29	16
6	46	41	62	34	17	57	120	124	43	44	27	16
7	43	40	58	33	17	60	105	158	41	40	26	16
8	41	39	54	33	17	61	94	178	2810	40	25	16
9	39	45	50	32	17	64	94	136	2340	41	24	15
10	37	75	48	31	18	58	90	114	410	57	23	15
11	45	67	46	31	18	55	82	101	304	110	23	15
12	80	58	44	30	33	54	134	89	529	70	22	14
13	72	55	44	29	82	51	357	96	346	58	22	14
14	63	57	43	28	180	46	346	94	361	53	23	14
15	59	65	42	27	310	119	288	80	200	86	25	14
16	60	63	43	26	570	294	223	74	161	150	23	14
17	58	58	44	25	820	304	158	72	2290	245	21	13
18	53	56	45	23	860	212	122	84	3340	120	23	13
19	51	67	45	22	650	128	100	96	1380	80	22	12
20	172	130	46	21	470	93	90	92	324	66	22	13
21	311	137	48	21	390	66	80	81	251	60	21	14
22	197	111	46	20	380	65	75	78	207	53	21	15
23	140	144	43	19	470	98	79	79	190	45	17	15
24	112	206	41	19	540	341	77	70	173	43	16	14
25	95	172	40	19	310	628	67	86	130	40	15	14
26	84	135	39	19	200	476	61	93	107	39	15	14
27	78	113	38	19	150	314	64	80	95	38	15	14
28	71	104	37	19	120	242	77	80	83	36	16	14
29	63	101	36	19	110	217	95	71	74	35	15	14
30	57	79	36	19	---	150	446	64	67	34	15	14
31	54	---	35	19	---	124	---	61	---	32	15	---
TOTAL	2432	2452	1550	811	6842	4783	4194	3765	16505	1986	686	432
MEAN	78.5	81.7	50.0	26.2	236	154	140	121	550	64.1	22.1	14.4
MAX	311	206	90	35	860	628	446	487	3340	245	32	16
MIN	37	39	35	19	17	46	61	61	41	32	15	12
CFSM	.83	.86	.53	.28	2.48	1.62	1.47	1.27	5.78	.67	.23	.15
IN.	.95	.96	.61	.32	2.67	1.87	1.64	1.47	6.45	.78	.27	.17
AC-FT	4820	4860	3070	1610	13570	9490	8320	7470	32740	3940	1360	857

CAL YR 1983 TOTAL 51336 MEAN 141 MAX 2520 MIN 12 CFSM 1.48 IN 20.06 AC-FT 101800
WTR YR 1984 TOTAL 46438 MEAN 127 MAX 3340 MIN 12 CFSM 1.33 IN 18.15 AC-FT 92110

05421000 WAPSIPINICON RIVER AT INDEPENDENCE, IA

LOCATION.--Lat 42°27'49", long 91°53'42", in SE1/4 sec.4, T.88 N., R.9 W., Buchanan County, Hydrologic Unit 07080102, on right bank at Sixth Street in Independence, 1,800 ft downstream from dam at abandoned hydroelectric plant, 4.9 mi downstream from Otter Creek, 9.7 mi upstream from Pine Creek, and at mile 142.5.

DRAINAGE AREA.--1,048 mi².

PERIOD OF RECORD.--July 1933 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1938-39, 1940 (M), 1947.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 882.85 ft NGVD. Prior to May 24, 1941 nonrecording gage in tailrace of powerplant 1,800 ft upstream at datum 80.00 ft lower.

REMARKS.--Records excellent. Naitonal Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--51 years, 626 ft³/s, 8.11 in/yr, 453,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,800 ft³/s July 18, 1968, gage height, 21.11 ft; minimum daily, 7.0 ft³/s for several days in 1934 and 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1901, that of July 18, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 21	2015	5,330	9.33	June 24	0630	*5,490	*9.45
May 29	1015	4,290	8.49				

Minimum daily discharge, 59 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	403	562	2040	205	162	1540	2070	3660	2420	730	226	77
2	356	554	1840	205	170	1280	1760	3540	1840	636	215	79
3	352	519	1490	207	177	1040	1570	3760	1490	565	203	72
4	318	497	1450	210	179	909	1650	3940	1260	516	191	73
5	303	479	1340	220	174	790	1700	3690	1100	468	179	74
6	281	453	1240	222	170	670	1650	3090	952	442	174	69
7	269	435	838	223	164	590	1560	2600	828	398	167	80
8	259	430	680	215	160	520	1480	2130	1310	378	180	81
9	247	448	680	205	160	480	1390	1770	1160	374	167	77
10	237	483	727	197	163	445	1320	1590	1190	1460	149	78
11	305	510	793	191	175	425	1250	1470	1010	1280	142	79
12	505	564	831	187	283	410	1250	1340	1060	700	139	76
13	741	607	802	183	914	410	1430	1220	2230	532	133	82
14	828	622	802	178	1240	465	1810	1070	2710	491	127	76
15	899	608	774	175	1470	533	2100	939	2480	936	123	71
16	893	570	539	172	2000	546	2240	858	2450	970	111	67
17	836	543	430	170	2300	528	2250	810	2910	1060	115	67
18	771	534	380	168	2420	752	2150	793	3200	1020	134	67
19	710	636	350	166	3300	945	1990	793	2370	746	120	67
20	683	841	320	165	4140	1030	1750	783	1880	680	115	66
21	700	999	300	165	4820	1000	1450	750	1730	670	114	59
22	802	1110	280	165	4750	886	1300	748	1900	579	119	59
23	893	1290	265	166	4180	733	1230	717	2810	475	102	60
24	950	1730	250	166	3640	693	1280	661	4900	409	100	63
25	937	1920	240	168	3090	864	1270	888	3600	360	99	94
26	893	2030	230	169	2660	1470	1210	1870	2690	347	96	65
27	789	2110	225	174	2360	2080	1180	2300	1690	333	96	67
28	713	2530	220	182	2060	2460	1260	3020	1300	304	93	72
29	639	2950	215	186	1750	2620	1400	4130	1020	276	90	65
30	591	2610	210	178	---	2540	3350	3420	837	257	83	67
31	558	---	207	166	---	2330	---	2980	---	240	70	---
TOTAL	18661	30174	20988	5749	49231	31984	49300	61330	58327	18632	4172	2149
MEAN	602	1006	677	185	1698	1032	1643	1978	1944	601	135	71.6
MAX	950	2950	2040	223	4820	2620	3350	4130	4900	1460	226	94
MIN	237	430	207	165	160	410	1180	661	828	240	70	59
CFSM	.57	.96	.65	.18	1.62	.99	1.57	1.89	1.86	.57	.13	.07
IN.	.66	1.07	.74	.20	1.75	1.14	1.75	2.18	2.07	.66	.15	.08
AC-FT	37010	59850	41630	11400	97650	63440	97790	121600	115700	36960	8280	4260

CAL YR 1983 TOTAL 491416 MEAN 1346 MAX 7210 MIN 91 CFSM 1.28 IN 17.44 AC-FT 974700
WTR YR 1984 TOTAL 350697 MEAN 958 MAX 4900 MIN 59 CFSM .91 IN 12.45 AC-FT 695600

05422000 WAPSIPINICON RIVER NEAR DE WITT, IA

LOCATION.--Lat 41°46'01", long 90°32'05", in SW1/4 NE1/4 sec.6, T.80 N., R.4 E., Clinton County, Hydrologic Unit 07080103, on left bank 5 ft upstream from bridge on U.S. Highway 61, 0.9 mi downstream from Silver Creek, 4.0 mi south of water tower in De Witt, 6.2 mi upstream from Brophy Creek, and 18.2 mi upstream from mouth.

DRAINAGE AREA.--2,330 mi².

PERIOD OF RECORD.--June 1934 to current year.

REVISED RECORDS.--WSP 1308: 1937 (M). WSP 1438: Drainage area. WSP 1708: 1951.

GAGE.--Water-stage recorder. Datum of gage is 598.81 ft NGVD.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers gage-height telemeter at station.

COOPERATION.--Four discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--50 years, 1,547 ft³/s, 9.02 in/yr, 1,121,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,900 ft³/s May 17, 1974, gage height, 13.07 ft; minimum daily, 46 ft³/s Jan. 22, 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 23	2245	*9,550	11.44	June 23	0130	8,600	*11.51
May 7	0745	7,710	11.31	July 14	1530	6,000	10.68

Minimum daily discharge, 280 ft³/s Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	1010	3070	510	560	4330	3700	3410	5150	3200	921	375
2	910	992	3440	520	575	3660	3730	3960	5670	2570	866	366
3	815	928	3500	535	595	3190	3680	5420	5740	2230	821	357
4	765	884	3260	550	600	2830	3640	6740	4880	2000	780	347
5	710	854	2960	565	590	2490	3550	7370	3700	1800	746	347
6	682	827	2640	580	580	2200	3340	7640	3070	1660	721	343
7	677	800	2350	580	570	1990	3190	7710	2810	1520	687	340
8	672	789	2100	580	570	1830	3070	7580	2490	1410	663	334
9	648	784	1850	570	585	1670	2940	7340	2950	1330	638	336
10	619	779	1530	550	720	1540	2790	6490	4190	1270	618	330
11	600	774	1400	535	920	1450	2640	4760	5470	1740	597	334
12	596	769	1460	525	1810	1320	2530	3700	5270	3890	579	334
13	589	769	1560	515	3770	1250	2470	3150	5570	4980	554	342
14	585	769	1600	510	4710	1230	2410	2760	4090	5780	541	350
15	585	769	1620	505	4400	1320	2410	2490	3720	3480	524	333
16	682	789	1610	500	2960	1520	2610	2270	4420	2360	508	317
17	854	811	1320	500	3200	1490	2930	2070	5030	2040	497	310
18	968	811	692	500	3390	1450	3160	1940	5680	2080	510	304
19	1040	832	665	505	4560	1400	3250	1850	6010	2260	495	297
20	1040	849	635	510	4060	1360	3220	1800	6480	2270	481	291
21	1040	904	610	515	5820	1480	3140	1790	7240	2060	465	288
22	1040	927	590	520	7680	1670	3160	1800	8280	1790	460	283
23	1020	1090	575	530	9180	2230	3150	1730	8020	1600	453	282
24	986	1230	560	545	9240	2560	2920	1650	5630	1490	443	280
25	986	1290	555	565	8600	2600	2680	2260	4860	1390	436	322
26	986	1360	550	585	8530	2410	2530	2840	4770	1340	423	354
27	1010	1660	540	595	8360	2390	2450	2270	5040	1320	418	340
28	1040	2190	530	590	7380	2620	2320	2730	5580	1210	416	333
29	1040	2500	525	580	5620	2930	2240	3950	6000	1120	400	322
30	1030	2710	520	570	---	3250	3430	4040	5210	1050	386	317
31	1030	---	510	560	---	3530	---	4510	---	991	380	---
TOTAL	26255	32450	45327	16800	110135	67190	89280	120020	153020	65231	17427	9808
MEAN	847	1082	1462	542	3798	2167	2976	3872	5101	2104	562	327
MAX	1040	2710	3500	595	9240	4330	3730	7710	8280	5780	921	375
MIN	585	769	510	500	560	1230	2240	1650	2490	991	380	280
CFSM	.36	.46	.63	.23	1.63	.93	1.28	1.66	2.19	.90	.24	.14
IN.	.42	.52	.72	.27	1.76	1.07	1.43	1.92	2.44	1.04	.28	.16
AC-FT	52080	64360	89910	33320	218500	133300	177100	238100	303500	129400	34570	19450

CAL YR 1983 TOTAL 926371 MEAN 2538 MAX 8650 MIN 387 CFSM 1.09 IN 14.79 AC-FT 1837000
WTR YR 1984 TOTAL 752943 MEAN 2057 MAX 9240 MIN 280 CFSM .88 IN 12.02 AC-FT 1493000

05422470 CROW CREEK AT BETTENDORF, IA

LOCATION.--Lat 41°33'03", long 90°27'15", in NW1/4 NW1/4 sec.24, T.78 N., R.4 E., Scott County, Hydrologic Unit 07080101, on left bank 200 ft upstream from bridge on Valley Road (old U.S. Highway 67), 3.5 mi east of U.S. Highway 6, and 0.7 mi upstream from mouth.

DRAINAGE AREA.--17.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 576.23 ft NGVD.

REMARKS.--Records fair except those for winter period, which are poor.

AVERAGE DISCHARGE.--7 years, 16.3 ft³/s, 12.44 in/yr, 11,810 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,490 ft³/s June 15, 1982, gage height, 10.24 ft; minimum daily, 0.23 ft³/s (corrected) Sept. 10, 11, 26-28, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 233 ft³/s May 25, gage height 5.10 ft, time unknown, no peak above base of 250 ft³/s. Minimum daily discharge, 0.88 ft³/s Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	26	6.2	2.4	2.2	8.8	13	21	16	6.5	2.8	.88
2	1.8	4.8	4.8	2.4	2.5	7.8	12	20	13	6.5	2.6	1.0
3	1.7	2.6	4.6	3.4	3.7	7.4	30	47	12	6.3	2.5	1.0
4	1.9	2.2	4.3	4.6	5.3	7.4	50	43	12	6.0	2.3	1.2
5	1.8	1.9	4.3	5.3	3.7	6.9	30	36	11	5.6	2.2	1.4
6	1.8	1.8	4.2	4.7	2.4	7.4	20	30	14	6.9	2.1	1.1
7	1.7	2.0	4.0	3.8	2.3	8.1	17	26	14	5.0	2.0	1.2
8	1.6	2.3	3.8	3.3	2.2	7.2	16	22	42	5.4	2.8	1.5
9	1.5	3.9	3.7	2.9	3.5	6.9	15	18	57	5.3	1.8	1.9
10	1.6	38	3.6	2.7	7.0	6.5	13	15	40	7.8	1.7	1.3
11	2.3	5.1	4.2	2.5	13	6.3	12	13	23	7.0	1.6	2.2
12	5.9	3.6	4.7	2.4	39	6.1	22	12	19	12	1.5	1.4
13	2.3	3.2	5.4	2.3	60	6.0	16	10	16	9.9	1.4	1.7
14	1.8	3.1	5.9	2.2	51	8.4	15	9.1	13	5.9	1.4	2.5
15	1.6	3.1	5.6	2.1	45	11	14	8.4	12	9.9	1.3	1.4
16	1.7	3.3	5.0	2.0	39	15	13	8.0	17	5.3	1.4	1.2
17	1.6	3.4	4.4	2.0	34	9.6	13	7.5	12	6.9	3.0	1.1
18	1.5	3.4	4.0	1.9	33	8.2	12	16	14	4.8	1.9	1.0
19	1.5	8.6	3.6	1.9	43	9.3	12	13	9.8	4.5	1.5	1.0
20	3.0	7.9	3.4	1.8	30	10	12	10	9.2	8.3	1.3	1.3
21	3.2	6.0	3.2	1.8	22	9.5	18	12	9.3	4.8	1.5	1.1
22	3.7	5.3	3.1	2.1	19	14	50	10	26	4.3	1.3	1.2
23	2.4	24	3.0	4.4	17	23	27	9.0	12	3.8	1.1	1.3
24	1.9	7.3	2.9	6.4	14	37	22	8.4	7.9	3.8	1.0	1.4
25	1.7	4.8	2.7	5.4	12	26	19	80	7.7	4.3	1.0	25
26	1.7	4.0	2.6	5.3	11	43	17	66	7.6	9.3	1.0	3.4
27	1.7	24	2.6	6.0	10	34	15	42	13	6.2	2.5	2.0
28	2.1	51	2.5	4.7	8.8	28	12	34	6.3	4.3	1.9	1.8
29	2.1	11	2.5	3.0	10	23	35	28	5.9	4.0	1.3	1.9
30	1.9	7.4	2.5	2.5	---	19	45	21	6.5	3.6	1.1	1.9
31	1.9	---	2.4	2.3	---	15	---	18	---	3.1	.89	---
TOTAL	64.7	275.0	119.7	100.5	545.6	435.8	617	713.4	478.2	187.3	53.69	68.28
MEAN	2.09	9.17	3.86	3.24	18.8	14.1	20.6	23.0	15.9	6.04	1.73	2.28
MAX	5.9	51	6.2	6.4	60	43	50	80	57	12	3.0	25
MIN	1.5	1.8	2.4	1.8	2.2	6.0	12	7.5	5.9	3.1	.89	.88
CFSM	.12	.52	.22	.18	1.06	.79	1.16	1.29	.89	.34	.10	.13
IN.	.14	.57	.25	.21	1.14	.91	1.29	1.49	1.00	.39	.11	.14
AC-FT	128	545	237	199	1080	864	1220	1420	949	372	106	135

CAL YR 1983	TOTAL	6829.10	MEAN 18.7	MAX 329	MIN 1.4	CFSM 1.05	IN 14.27	AC-FT	13550
WTR YR 1984	TOTAL	3659.17	MEAN 10.0	MAX 80	MIN .88	CFSM .56	IN 7.65	AC-FT	7260

IOWA RIVER BASIN

05449000 EAST BRANCH IOWA RIVER NEAR KLEMME, IA

LOCATION.--Lat 43°00'31", long 93°37'42", in NE1/4 NW1/4 sec.36, T.95 N., R.24 W., Hancock County, Hydrologic Unit 07080207, on left bank 15 ft upstream from bridge on county highway B55, 1.2 mi west of Chicago, Rock Island and Pacific Railroad crossing in Klemme, 1.5 mi upstream from Drainage ditch 9, 18.2 mi upstream from confluence with West Branch Iowa River, and at mile 341.0.

DRAINAGE AREA.--133 mi².

PERIOD OF RECORD.--April 1948 to September 1976, June 1977 to current year. Prior to October 1958, published as East Fork Iowa River near Klemme.

REVISED RECORDS.--WSP 1438: Drainage area. WDR IA-80-1: 1978.

GAGE.--Water-stage recorder. Datum of gage is 1,179.33 ft NGVD. Apr. 1, 1948, to Sept. 30, 1955, nonrecording age at site 0.6 mi upstream at datum 0.80 ft higher. Oct. 1, 1955, to Sept. 30, 1969, at present site at datum 0.31 ft lower.

REMARKS.--Records good except those for winter period, which are poor.

AVERAGE DISCHARGE.--35 years (water years 1948-76, 1978-84), 67.5 ft³/s, 6.89 in/yr, 48,900 acre-ft/yr; median of yearly mean discharges, 55 ft³/s, 5.6 in/yr, 39,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,960 ft³/s June 19, 1954, gage height, 11.2 ft, from flood-mark, site and datum then in use; maximum gage height, 10.67 ft Apr. 6, 1965 (corrected), backwater from ice; minimum daily discharge, 0.2 ft³/s Feb. 22-26, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1944 reached a stage of about 10 ft, from information by local residents, former site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 20	0830	850	ice jam	June 13	0615	1,330	9.13
Feb. 23	2100	845	8.04	June 18	1230	1,170	8.91
May 1	0030	1,060	8.46	June 23	1000	1,390	9.22
June 8	1700	*2,610	*10.23				

Minimum daily discharge, 7.7 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	82	150	43	32	293	155	958	191	269	49	14
2	91	77	130	43	36	261	154	751	166	243	47	14
3	93	73	115	42	39	163	178	619	151	222	43	14
4	88	71	99	41	41	161	276	505	149	199	40	14
5	85	70	70	42	39	136	256	413	161	176	35	13
6	77	68	67	41	39	145	216	352	156	158	34	13
7	77	64	65	40	40	150	189	373	188	142	37	13
8	69	62	62	39	49	135	188	345	2090	138	36	14
9	62	81	57	37	57	122	216	286	1680	127	34	12
10	63	144	51	36	63	115	205	251	991	122	31	12
11	127	129	48	34	69	110	192	225	798	115	30	12
12	172	117	46	33	99	105	283	202	991	107	29	11
13	141	112	44	32	160	98	599	189	1280	101	28	14
14	120	114	43	31	185	94	617	170	1030	101	27	10
15	112	112	45	30	250	105	514	163	863	120	28	9.9
16	98	105	48	30	510	120	404	157	834	105	26	10
17	86	104	50	29	660	125	318	152	954	144	27	9.7
18	81	99	52	29	760	101	252	149	1140	120	27	9.9
19	88	102	49	29	780	96	210	154	964	104	23	9.3
20	209	113	51	28	850	88	185	153	746	95	22	8.8
21	251	107	52	28	707	67	165	143	619	85	24	8.7
22	199	102	52	28	680	92	166	160	727	78	22	9.4
23	166	136	53	28	762	194	200	167	1320	70	20	9.1
24	143	139	52	28	715	367	243	161	1010	64	20	9.2
25	124	131	52	28	528	377	211	160	749	61	19	8.6
26	117	115	52	28	466	320	186	149	617	60	19	8.4
27	107	108	51	28	363	262	408	153	512	61	18	8.7
28	100	98	50	29	298	235	521	297	416	71	17	8.3
29	86	146	49	29	295	218	416	300	348	58	16	7.8
30	85	177	47	28	---	170	872	241	306	55	15	7.7
31	84	---	46	27	---	157	---	212	---	51	14	---
TOTAL	3493	3158	1898	1018	9572	5182	8995	8710	22147	3622	857	323.5
MEAN	113	105	61.2	32.8	330	167	300	281	738	117	27.6	10.8
MAX	251	177	150	43	850	377	872	958	2090	269	49	14
MIN	62	62	43	27	32	67	154	143	149	51	14	7.7
CFSM	.85	.79	.46	.25	2.48	1.26	2.26	2.11	5.55	.88	.21	.08
IN.	.98	.88	.53	.28	2.68	1.45	2.52	2.44	6.19	1.01	.24	.09
AC-FT	6930	6260	3760	2020	18990	10280	17840	17280	43930	7180	1700	642

CAL YR 1983 TOTAL 68526.0 MEAN 188 MAX 1800 MIN 14 CFSM 1.41 IN 19.17 AC-FT 135900
WTR YR 1984 TOTAL 68975.5 MEAN 188 MAX 2090 MIN 7.7 CFSM 1.41 IN 19.29 AC-FT 136800

05449500 IOWA RIVER NEAR ROWAN, IA

LOCATION.--Lat 42°45'36", long 93°37'23", in NW1/4 NE1/4 sec.25, T.92 N., R.24 W., Wright County, Hydrologic Unit 07080207, on left bank 10 ft downstream from bridge on county highway C38, 0.9 mi downstream from Drainage ditch 123, 3.8 mi northwest of Rowan, 10.7 mi downstream from confluence of East and West Branches, and at mile 316.4.

DRAINAGE AREA.--429 mi².

PERIOD OF RECORD.--October 1940 to September 1976, June 1977 to current year.

REVISED RECORDS.--WSP 1308: 1942-43 (M). WSP 1438: Drainage area. WDR IA-80-1: 1978.

GAGE.--Water-stage recorder. Datum of gage is 1,143.35 ft NGVD. Prior to Oct. 14, 1948, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor.

AVERAGE DISCHARGE.--43 years (water years 1941-76, 1978-84), 218 ft³/s, 6.90 in/yr, 157,900 acre-ft/yr; median of yearly mean discharges, 200 ft³/s, 6.3 in/yr, 145,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,460 ft³/s June 21, 1954, gage height, 14.88 ft; minimum daily 2.9 ft³/s Jan. 21-23, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 18	1145	2,200	ice jam	June 14	0815	3,760	12.63
Apr. 15	1815	1,580	9.91	June 17	1430	*8,450	*15.00
May 2	0445	3,220	11.64	June 24	2300	2,800	11.82
June 10	0615	4,840	12.68				

Minimum daily discharge, 74 ft³/s Jan. 28-29, Jan. 31, Feb. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	293	281	368	135	74	990	578	2890	617	978	183	77
2	278	272	390	133	77	880	562	3150	560	854	175	79
3	283	260	380	130	81	790	573	2800	520	757	167	78
4	282	243	330	128	83	680	670	2440	471	680	159	77
5	268	238	310	128	78	607	806	2170	469	605	151	77
6	254	236	290	129	76	518	813	1890	463	548	142	77
7	240	231	280	122	86	522	719	1640	449	494	137	77
8	232	224	260	119	100	500	642	1470	987	525	140	82
9	216	253	245	116	113	470	639	1340	3550	499	132	81
10	208	404	230	110	128	460	679	1150	4520	455	123	80
11	255	465	220	105	170	420	666	976	3340	424	118	80
12	406	430	210	110	230	380	679	845	2670	397	114	80
13	441	389	210	110	310	360	952	746	3260	373	109	79
14	389	376	210	100	430	335	1320	676	3680	355	104	80
15	346	372	210	100	580	355	1550	619	3190	366	101	79
16	320	362	207	98	900	400	1500	581	2970	372	99	78
17	296	348	202	95	1400	540	1270	550	6990	467	97	78
18	274	336	198	92	2200	630	1030	551	6470	461	98	79
19	277	343	190	88	2190	396	823	553	4580	401	94	79
20	412	377	185	85	2150	374	674	543	3230	354	88	79
21	597	391	175	84	2090	340	591	516	2570	326	88	78
22	649	372	165	82	2000	311	561	509	2190	299	90	78
23	588	392	155	82	2030	414	596	531	2140	277	87	79
24	501	426	148	81	1980	729	762	537	2580	255	85	81
25	442	437	138	79	1840	988	826	563	2680	236	84	82
26	399	427	130	80	1660	1130	740	585	2290	229	83	84
27	373	395	135	77	1490	1110	926	553	1930	226	82	84
28	352	373	139	74	1360	979	1350	581	1660	234	82	84
29	324	309	138	74	1100	862	1710	756	1380	226	80	86
30	295	333	137	75	---	753	2270	821	1140	207	79	85
31	288	---	134	74	---	631	---	726	---	194	78	---
TOTAL	10778	10295	6719	3095	27006	18854	27477	34258	73546	13074	3449	2397
MEAN	348	343	217	99.8	931	608	916	1105	2452	422	111	79.9
MAX	649	465	390	135	2200	1130	2270	3150	6990	978	183	86
MIN	208	224	130	74	74	311	561	509	449	194	78	77
CFSM	.81	.80	.51	.23	2.17	1.42	2.14	2.58	5.72	.98	.26	.19
IN.	.93	.89	.58	.27	2.34	1.63	2.38	2.97	6.38	1.13	.30	.21
AC-FT	21380	20420	13330	6140	53570	37400	54500	67950	145900	25930	6840	4750

CAL YR 1983 TOTAL 224995 MEAN 616 MAX 4270 MIN 69 CFSM 1.44 IN 19.51 AC-FT 446300
WTR YR 1984 TOTAL 230948 MEAN 631 MAX 6990 MIN 74 CFSM 1.47 IN 20.03 AC-FT 458100

05451500 IOWA RIVER AT MARSHALLTOWN, IA

LOCATION.--Lat 42°03'57", long 92°54'27", in SE1/4 SE1/4 sec.23, T.84 N., R.18 W., Marshall County, Hydrologic Unit 07080208, on right bank 10 ft downstream from bridge on State Highway 14, 1,500 ft upstream from Burnett Creek, 2.2 mi upstream from Linn Creek and at mile 222.8.

DRAINAGE AREA.--1,564 mi², including that of Burnett Creek.

PERIOD OF RECORD.--October 1902 to September 1903, October 1914 to September 1927, October 1932 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1915-18, 1919 (M), 1920, 1921-23 (M), 1924-27, 1933, 1934 (M), 1936, 1938, 1947 (M).

GAGE.--Water-stage recorder. Datum of gage is 853.10 ft NGVD. See WSP 1728 for history of changes prior to Sept. 21, 1934.

REMARKS.--Records fair except those for winter period and mid-March, which are poor. Corps of Engineers data collection platform at station.

AVERAGE DISCHARGE.--66 years (water years 1903, 1915-27, 1933-84), 820 ft³/s 7.12 in/yr, 594,100 acre-ft/yr; median of yearly mean discharges, 710 ft³/s, 6.2 in/yr, 514,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,000 ft³/s June 4, 1918, gage height, 17.74 ft, from floodmark, from rating curve extended above 19,000 ft³/s on basis of velocity-area study; maximum gage height, 19.77 ft March 19, 1979; minimum daily discharge, 4.7 ft³/s Jan. 25, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 20	unknown	7,330	16.85	June 14	1200	*11,100	*18.29
May 1	0800	7,680	17.11	June 21	2030	8,260	17.46
May 29	0600	6,300	16.22				

Minimum daily discharge, 150 ft³/s Sept 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	935	1370	2220	900	550	2830	2500	4770	3160	3080	838	249
2	832	1310	2040	880	550	2590	2350	6300	2940	2740	792	241
3	841	1240	1950	850	550	2400	2390	6920	2670	2460	753	240
4	823	1180	1910	820	550	2230	3160	6640	2470	2230	717	245
5	791	1130	1880	790	555	2060	3470	6280	2360	2030	687	233
6	751	1090	1740	780	560	1830	3250	5780	2230	1870	657	224
7	738	1070	1570	775	565	1750	2970	5230	2110	1710	624	220
8	760	1050	1480	740	600	1670	2860	4640	2920	1550	599	210
9	734	1160	1390	665	620	1500	2970	4080	2350	1570	567	211
10	729	1810	1400	630	650	1510	2990	3600	2630	2020	539	215
11	897	1730	1490	580	700	1480	2840	3280	2590	1840	519	216
12	1370	1670	1480	575	830	2230	2810	3000	3470	1620	493	204
13	1190	1630	1380	560	1700	3230	3520	2780	7390	1440	471	199
14	1140	1590	1390	545	2200	1790	4260	2540	10400	1360	452	190
15	1180	1510	1380	550	3680	1540	4470	2330	9130	2770	432	187
16	1310	1420	1200	545	5410	1530	4390	2180	7580	1910	417	180
17	1260	1330	1140	540	5900	1500	4100	1990	7600	1650	406	174
18	1180	1330	1100	535	5490	1530	3830	1950	7680	1480	401	167
19	1130	2710	1070	530	6660	1590	3470	2010	7350	1400	386	164
20	1240	3860	1080	525	6820	1630	3140	2250	7420	3340	371	160
21	1320	2950	1090	520	5950	1650	2820	1950	8100	3080	355	155
22	1520	2430	1100	520	5770	1570	2720	1870	7790	1930	352	150
23	2170	2840	1100	535	5510	1380	2850	1820	6800	1500	346	152
24	2210	3040	1050	545	5100	2010	3100	1720	5870	1260	335	152
25	1740	2600	1020	550	4690	3090	3140	2950	5020	1130	326	209
26	1960	2370	990	555	4320	3470	2950	3330	4610	1160	314	185
27	1690	2310	970	550	3940	3260	2930	3100	4630	1150	302	170
28	1530	3250	960	540	3450	3270	3140	4550	4520	1120	295	168
29	1380	3270	955	540	3080	3230	3520	5800	4100	1020	283	166
30	1290	2700	950	545	---	2960	6230	4490	3520	942	270	164
31	1250	---	920	550	---	2680	---	3590	---	891	257	---
TOTAL	37891	58950	41395	19265	86950	66990	99140	113720	151410	55253	14556	5800
MEAN	1222	1965	1335	621	2998	2161	3305	3668	5047	1782	470	193
MAX	2210	3860	2220	900	6820	3470	6230	6920	10400	3340	838	249
MIN	729	1050	920	520	550	1380	2350	1720	2110	891	257	150
CFSM	.78	1.26	.85	.40	1.92	1.38	2.11	2.35	3.23	1.14	.30	.12
IN.	.90	1.40	.98	.46	2.07	1.59	2.36	2.70	3.60	1.31	.35	.14
AC-FT	75160	116900	82110	38210	172500	132900	196600	225600	300300	109600	28870	11500

CAL YR 1983 TOTAL 834983 MEAN 2288 MAX 10800 MIN 308 CFSM 1.46 IN 19.86 AC-FT 1656000
WTR YR 1984 TOTAL 751320 MEAN 2053 MAX 10400 MIN 150 CFSM 1.31 IN 17.87 AC-FT 1490000

05451700 TIMBER CREEK NEAR MARSHALLTOWN, IA

LOCATION.--Lat 42°00'25", long 92°51'15", in SE1/4 SW1/4 sec.8, T.83 N., R.17 W., Marshall County, Hydrologic Unit 07080208, on left bank 20 ft downstream from bridge on U.S. Highway 30, 3.5 mi upstream from mouth, and 4.1 mi southeast of court house in Marshalltown.

DRAINAGE AREA.--118 mi².

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 1708: 1950-55, 1957-59.

GAGE.--Water-stage recorder. Datum of gage is 849.44 ft NGVD.

REMARKS.--Records are poor throughout the year. Corps of Engineers data collection platform at station.

COOPERATION.--Four discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--35 years, 73.9 ft³/s, 8.50 in/yr, 53,540 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s Aug. 16, 1977, gage height, 17.69 ft; no flow for a few days in 1956 and 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of 16.8 ft, discharge, 5,700 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 19	unknown	1,640	11.84	June 10	0700	*3,580	14.80
Nov. 28	0800	1,570	11.65	June 13	1600	1,290	10.92
Feb. 12	unknown	2,060	12.83	June 15	0500	3,290	14.70
Apr. 30	1000	1,520	11.36	June 27	0600	1,840	12.95
May 3	1700	1,570	11.48	July 15	0830	3,440	*15.12
June 8	0730	1,980	12.65				

Minimum daily discharge, 8.9 ft³/s Sept. 20,21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	200	440	96	74	93	139	459	266	158	87	22
2	40	196	416	95	76	91	138	407	238	145	79	20
3	50	169	390	93	78	88	180	672	217	133	75	20
4	47	152	250	91	79	99	360	521	206	128	72	20
5	41	140	229	90	78	107	241	409	201	123	70	20
6	39	132	240	89	76	104	204	373	188	118	69	20
7	38	125	184	90	76	94	181	329	232	106	59	19
8	38	117	174	91	78	98	180	283	978	101	53	19
9	36	160	179	89	93	98	194	254	650	97	57	19
10	37	294	176	84	140	61	185	233	1740	94	54	19
11	91	206	176	79	368	44	185	218	476	90	52	19
12	227	182	177	76	1960	56	245	206	374	83	50	18
13	123	172	170	75	724	92	260	197	740	81	48	15
14	100	163	168	74	228	75	246	186	757	106	44	14
15	107	150	164	74	213	87	229	181	1580	1200	41	14
16	143	126	179	73	320	93	209	175	582	271	41	16
17	108	115	190	72	413	75	188	167	726	197	44	13
18	95	121	182	71	213	72	173	159	704	170	42	14
19	97	737	176	71	594	71	160	151	428	150	39	13
20	115	460	162	70	288	55	158	152	371	168	36	8.9
21	124	315	146	70	215	56	150	149	349	161	36	8.9
22	225	265	130	72	182	75	181	141	364	131	34	9.0
23	189	378	120	74	157	103	174	136	320	113	34	9.0
24	155	352	110	75	131	202	168	132	263	109	34	9.2
25	133	290	100	77	126	257	152	328	234	109	31	51
26	121	284	100	78	115	342	150	261	242	135	26	21
27	120	320	110	77	106	309	203	216	748	132	25	14
28	110	975	116	74	94	242	173	549	242	126	24	12
29	104	344	112	72	91	213	279	263	195	102	24	12
30	100	314	105	71	---	166	913	377	172	93	23	11
31	100	---	100	73	---	147	---	307	---	89	22	---
TOTAL	3094	7954	5671	2456	7386	3765	6598	8591	14783	5019	1425	500.0
MEAN	99.8	265	183	79.2	255	121	220	277	493	162	46.0	16.7
MAX	227	975	440	96	1960	342	913	672	1740	1200	87	51
MIN	36	115	100	70	74	44	138	132	172	81	22	8.9
CFSM	.85	2.25	1.55	.67	2.16	1.03	1.86	2.35	4.18	1.37	.39	.14
IN.	.98	2.51	1.79	.77	2.33	1.19	2.08	2.71	4.66	1.58	.45	.16
AC-FT	6140	15780	11250	4870	14650	7470	13090	17040	29320	9960	2830	992

CAL YR 1983 TOTAL 61360.0 MEAN 168 MAX 1520 MIN 18 CFSM 1.42 IN 19.34 AC-FT 121700
WTR YR 1984 TOTAL 67242.0 MEAN 184 MAX 1960 MIN 8.9 CFSM 1.56 IN 21.20 AC-FT 133400

05451900 RICHLAND CREEK NEAR HAVEN, IA

LOCATION.--Lat 41°53'58", long 92°28'27", in SE1/4 NE1/4 sec.21, T.82 N., R.14 W., Tama County, Hydrologic Unit 07080208, on right bank 5 ft upstream from bridge on county highway, 0.6 mi northeast of Haven, and 2.8 mi upstream from mouth.

DRAINAGE AREA.--56.1 mi².

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 1708: 1950-55, 1956 (M), 1957, 1958 (M), 1959.

GAGE.--Water-stage recorder. Datum of gage is 788.69 ft NGVD. Prior to Oct. 1, 1971, at datum 10.00 ft higher.

REMARKS.--Records good except those for Nov. 15-30, and winter period, which are fair. Corps of Engineers data collection platform at station.

COOPERATION.--Four discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--35 years, 36.5 ft³/s, 8.84 in/yr, 26,440 acre-ft/yr; median of yearly mean discharges, 31 ft³/s, 7.5 in/yr, 22,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft³/s May 28, 1974, gage height, 24.00 ft; no flow Jan. 22 to Feb. 2, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1918 reached a stage of 24.3 ft, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 19	unknown	1,220	17.32	June 10	0215	1,020	16.66
Feb. 18	2400	*1,500	*18.06	June 18	0030	1,130	17.04
Apr. 29	2345	1,030	16.88				

Minimum daily discharge, 3.0 ft³/s Sept. 4-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	52	126	28	19	45	66	147	105	54	22	3.5
2	13	58	111	28	19	43	64	127	94	51	21	3.1
3	13	46	100	27	20	41	143	350	85	49	20	3.2
4	13	42	96	26	21	42	154	210	80	48	20	3.0
5	13	40	90	25	21	40	108	159	75	45	19	3.0
6	12	39	85	24	21	39	88	133	70	43	18	3.0
7	12	37	79	23	21	41	77	120	68	40	17	3.0
8	12	35	74	22	22	38	80	105	84	39	17	3.1
9	11	52	71	21	30	38	96	97	158	38	15	3.5
10	11	117	69	21	60	40	90	92	361	38	14	4.2
11	24	72	73	21	140	40	82	87	125	36	13	4.7
12	53	61	72	21	600	39	162	80	106	34	12	3.5
13	30	57	64	21	351	42	146	75	96	32	12	3.2
14	26	54	57	20	141	37	124	70	86	37	11	3.7
15	27	48	56	20	136	45	113	68	157	132	10	3.9
16	37	46	57	19	132	43	100	64	143	41	9.7	3.9
17	30	42	58	19	130	37	88	61	316	38	10	3.7
18	27	86	56	20	387	36	79	60	350	33	11	3.8
19	31	596	52	20	428	35	72	67	133	32	10	4.3
20	39	190	48	20	95	29	68	65	110	55	8.7	4.0
21	40	115	43	20	78	31	67	61	98	33	8.3	4.1
22	49	110	38	21	71	41	71	60	92	31	8.5	4.8
23	46	175	34	21	65	48	69	56	87	30	7.5	4.8
24	40	144	32	21	59	88	66	55	75	28	7.4	6.5
25	37	123	30	21	55	219	62	116	71	27	6.6	9.1
26	35	123	28	20	52	181	61	91	69	49	5.9	3.2
27	33	251	26	20	50	231	130	78	67	40	5.2	4.5
28	31	470	27	19	47	147	85	348	62	30	4.4	5.4
29	29	222	28	18	46	108	237	205	60	27	4.2	5.7
30	29	165	28	18	---	78	329	143	56	25	3.7	5.6
31	30	---	28	19	---	70	---	119	---	24	3.5	---
TOTAL	846	3668	1836	664	3317	2032	3177	3569	3539	1259	355.6	125.0
MEAN	27.3	122	59.2	21.4	114	65.5	106	115	118	40.6	11.5	4.17
MAX	53	596	126	28	600	231	329	350	361	132	22	9.1
MIN	11	35	26	18	19	29	61	55	56	24	3.5	3.0
CFSM	.49	2.18	1.06	.38	2.03	1.17	1.89	2.05	2.10	.72	.21	.07
IN.	.56	2.43	1.22	.44	2.20	1.35	2.11	2.37	2.35	.83	.24	.08
AC-FT	1680	7280	3640	1320	6580	4030	6300	7080	7020	2500	705	248

CAL YR 1983 TOTAL 28247.5 MEAN 77.4 MAX 2420 MIN 8.6 CFSM 1.38 IN 18.73 AC-FT 56030
WTR YR 1984 TOTAL 24387.6 MEAN 66.6 MAX 600 MIN 3.0 CFSM 1.19 IN 16.17 AC-FT 48370

05452000 SALT CREEK NEAR ELBERON, IA

LOCATION.--Lat 41°57'51", long 92°18'47", in NW1/4 NW1/4 sec.36, T.83 N., R.13 W., Tama County, Hydrologic Unit 07080208, near center of span on downstream side of bridge on U.S. Highway 30, 2.0 mi upstream from Hog Run, 3.0 mi south of Elberon, and 9.0 mi upstream from mouth.

DRAINAGE AREA.--201 mi².

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1946.

GAGE.--Water-stage recorder. Datum of gage is 781.58 ft NGVD (Iowa Highway Commission bench mark). Prior to Oct. 15, 1945, and June 14, 1947, to Feb. 10, 1949, nonrecording gage on upstream side of bridge at present datum.

REMARKS.--Records good except those for winter period, and April, which are fair, and for August and September 1-13, which are poor. Corps of Engineers rain-gage, gage-height telemeter, and data collection platform at station.

COOPERATION.--Three discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--39 years, 134 ft³/s, 9.05 in/yr, 97,080 acre-ft/yr; median of yearly mean discharges, 120 ft³/s, 8.1 in/yr, 86,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Flood of June 16, 1944, reached a stage of 19.9 ft, from floodmark at downstream side of bridge, discharge, about 30,000 ft³/s.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 16, 1944, reached a stage of 19.9 ft, from floodmark at downstream side of bridge, discharge, about 30,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 28	0845	1,830	14.25	June 18	0300	3,030	14.80
May 29	0045	2,580	14.42	July 15	0815	1,520	13.19
June 8	1845	2,690	14.52	July 20	1300	1,890	13.86
June 10	1045	*9,030	*17.05				

Minimum dialy discharge, 18 ft³/s Sept. 4-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	70	311	129	78	147	223	477	388	251	98	19
2	35	67	280	130	79	136	209	477	340	237	93	19
3	37	65	248	129	80	131	315	476	305	226	90	19
4	40	65	235	130	80	131	413	1280	287	217	88	18
5	36	64	217	126	79	128	319	820	271	202	85	18
6	35	63	203	124	78	114	270	600	250	192	81	18
7	35	63	191	116	78	127	240	514	238	177	77	18
8	34	63	187	104	80	122	239	430	1800	176	76	18
9	33	90	179	100	88	124	273	384	844	169	72	19
10	35	210	163	91	106	131	268	358	5300	191	66	21
11	51	147	172	88	232	124	251	335	1660	178	59	26
12	134	116	180	87	397	111	335	306	670	155	55	21
13	73	107	174	85	414	124	409	291	917	153	54	21
14	60	104	173	83	419	114	399	265	594	140	50	22
15	63	95	159	82	420	151	368	254	756	699	46	22
16	107	88	150	81	423	193	327	242	1140	203	45	21
17	78	86	156	81	396	121	288	234	1880	261	44	22
18	66	87	150	80	336	126	260	227	1900	162	42	22
19	66	458	146	80	426	115	241	248	649	143	39	22
20	69	331	139	79	395	106	228	237	523	988	37	21
21	68	213	134	79	307	97	220	219	459	241	29	21
22	101	174	127	78	269	118	294	214	799	168	34	20
23	98	278	130	81	253	143	401	200	610	144	33	21
24	82	337	120	80	224	271	354	191	415	128	32	22
25	75	241	108	81	191	426	306	385	369	120	31	54
26	72	215	112	81	178	463	279	355	346	156	30	44
27	69	580	120	80	165	466	303	282	453	153	28	28
28	66	1540	126	79	152	465	286	1250	311	150	25	26
29	61	635	132	78	143	393	314	1330	285	119	22	25
30	67	384	127	78	---	283	477	573	267	109	21	25
31	77	---	128	78	---	242	---	455	---	104	20	---
TOTAL	1958	7036	5177	2878	6566	5943	9109	13909	25026	6712	1602	693
MEAN	63.2	235	167	92.8	226	192	304	449	834	217	51.7	23.1
MAX	134	1540	311	130	426	466	477	1330	5300	988	98	54
MIN	33	63	108	78	78	97	209	191	238	104	20	18
CFSM	.31	1.17	.83	.46	1.12	.96	1.51	2.23	4.15	1.08	.26	.12
IN.	.36	1.30	.96	.53	1.22	1.10	1.69	2.57	4.63	1.24	.30	.13
AC-FT	3880	13960	10270	5710	13020	11790	18070	27590	49640	13310	3180	1370

CAL YR 1983	TOTAL	89357	MEAN 245	MAX 3380	MIN 14	CFSM 1.22	IN 16.54	AC-FT	177200	
WTR YR 1984	TOTAL	86609	MEAN 237	MAX 5300	MIN 18	CFSM 1.18	IN 16.03	AC-FT	171800	

05452200 WALNUT CREEK NEAR HARTWICK, IA

LOCATION.--Lat 41°50'06", long 92°23'10", in SE1/4 SW1/4 sec.8, T.81 N, R.13 W., Poweshiek County, Hydrologic Unit 07080208, on right bank 5 ft downstream from bridge on county highway V21, 1.2 mi downstream from North Walnut Creek, 4.0 mi northwest of Hartwick, and 6.5 mi upstream from mouth.

DRAINAGE AREA.--70.9 mi².

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 1558: 1950 (P), 1951-57.

GAGE.--Water-stage recorder. Datum of gage is 786.59 ft NGVD.

REMARKS.--Records are fair. Corps of Engineers data collection platform at station.

COOPERATION.--Three discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--35 years, 45.4 ft³/s, 8.70 in/yr, 32,890 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,100 ft³/s July 2, 1983, gage height, 16.65 ft, from rating curve extended above 2,600 ft³/s on basis of contracted-opening and flow-over-embankment measurement of peak flow; no flow at times for most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of 17.7 ft, from information by local residents, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 20	unknown	1,620	12.41	May 27	unknown	*3,950	*15.30
Apr. 30	unknown	3,300	14.90	June 17	unknown	2,150	13.55

Minimum daily discharge, 2.2 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	80	118	47	46	42	105	1650	142	54	22	3.3
2	7.1	80	88	47	47	42	123	606	118	53	19	3.3
3	7.1	78	74	46	47	40	247	260	111	49	18	3.4
4	7.1	72	76	45	45	40	202	203	107	40	18	3.2
5	7.1	70	74	43	45	54	154	198	94	40	17	3.2
6	6.7	58	72	42	47	47	114	171	87	38	16	3.2
7	6.2	47	72	41	49	48	112	146	79	37	15	3.1
8	5.9	39	68	42	52	49	113	134	86	36	13	3.9
9	5.1	54	67	42	78	48	112	125	228	35	13	4.4
10	5.0	169	68	40	150	45	97	117	171	33	12	5.1
11	17	165	66	40	210	48	84	108	134	31	11	5.1
12	56	164	64	39	194	51	86	97	112	28	10	3.8
13	23	159	63	38	187	42	169	93	89	27	9.8	13
14	19	159	62	36	198	34	126	89	90	29	9.5	5.8
15	19	155	61	35	254	34	124	81	92	206	9.4	4.2
16	21	161	66	34	258	32	117	84	90	43	8.5	3.6
17	26	342	80	33	220	30	107	83	895	23	8.6	3.1
18	26	738	91	32	212	31	94	79	907	29	9.5	2.8
19	25	544	84	31	452	32	86	74	186	30	8.2	2.6
20	31	139	74	32	639	31	81	73	154	146	7.7	2.4
21	32	85	62	32	108	31	84	84	127	51	7.3	2.3
22	32	74	51	32	84	32	81	71	109	28	7.5	2.2
23	31	71	48	33	75	46	75	69	101	26	6.7	2.3
24	29	68	46	34	65	73	70	66	89	24	6.3	2.4
25	28	68	44	36	59	114	70	132	98	24	5.7	6.7
26	29	89	42	39	53	157	65	115	77	25	5.2	3.5
27	28	530	44	40	50	132	67	1390	72	28	4.7	2.7
28	28	310	46	41	48	86	66	1080	66	27	4.5	2.8
29	27	205	48	42	47	83	64	207	62	26	4.3	2.7
30	30	154	49	44	---	81	1940	199	57	28	3.9	2.6
31	60	---	48	45	---	81	---	169	---	25	3.7	---
TOTAL	681.7	5127	2016	1203	4019	1736	5035	8053	4830	1319	315.0	112.7
MEAN	22.0	171	65.0	38.8	139	56.0	168	260	161	42.5	10.2	3.76
MAX	60	738	118	47	639	157	1940	1650	907	206	22	13
MIN	5.0	39	42	31	45	30	64	66	57	23	3.7	2.2
CFSM	.31	2.41	.92	.55	1.96	.79	2.37	3.67	2.27	.60	.14	.05
IN.	.36	2.69	1.06	.63	2.11	.91	2.64	4.23	2.53	.69	.17	.06
AC-FT	1350	10170	4000	2390	7970	3440	9990	15970	9580	2620	625	224

CAL YR 1983	TOTAL	38960.4	MEAN	107	MAX	4840	MIN	5.0	CFSM	1.51	IN	20.44	AC-FT	77280
WTR YR 1984	TOTAL	34447.4	MEAN	94.1	MAX	1940	MIN	2.2	CFSM	1.33	IN	18.07	AC-FT	68330

05453000 BIG BEAR CREEK AT LADORA, IA

LOCATION.--Lat 41°44'58", long 92°10'55", in SW1/4 SW1/4 sec.7, T.80 N., R.11 W., Iowa County, Hydrologic Unit 07080208, on left bank 10 ft downstream from bridge on county highway V52, 0.4 mi south of Ladora, 1.2 mi downstream from Coats Creek, 2.8 mi upstream from Little Bear Creek, and 8.1 mi upstream from mouth.

DRAINAGE AREA.--189 mi².

PERIOD OF RECORD.--October 1945 to current year. Prior to October 1966, published as Bear Creek at Ladora.

REVISED RECORDS.--WSP 1308: 1947 (M). WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 744.94 ft NGVD; Oct. 1945 to June 26, 1946, non-recording gage and June 27, 1946 to Sept. 30, 1980, water stage recorder at datum 10.00 ft higher.

REMARKS.--Records good except those for winter period, which are fair. Corps of Engineers data collection platform at station.

COOPERATION.--Four discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--39 years, 123 ft³/s, 8.84 in/yr, 89,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,500 ft³/s Mar. 30, 1960, gage height, 14.60 ft, datum then in use; maximum gage height, 15.32 ft, datum then in use, Sept. 18, 1977; no flow for several day in 1956 and 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 28	0315	2,140	19.15	Apr. 30	0230	3,390	21.40
Feb. 12	unknown	*4,780	*23.24	June 18	unknown	3,010	20.94
Feb. 19	0230	2,440	19.82				

Minimum daily discharge, 9.9 ft³/s Sept. 22-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	194	411	113	89	140	301	615	318	168	70	16
2	30	316	373	104	88	130	288	495	286	159	65	16
3	29	201	336	99	89	123	474	707	263	154	61	16
4	31	169	318	95	90	121	640	705	249	155	58	16
5	29	147	299	92	94	116	462	515	238	143	56	16
6	27	134	282	90	100	102	377	437	223	150	52	16
7	26	125	264	89	110	110	323	399	212	132	49	16
8	26	117	255	89	130	108	305	383	231	122	46	15
9	25	141	241	88	194	100	336	351	247	117	44	16
10	26	511	230	87	266	99	313	322	362	116	39	16
11	42	300	265	87	846	94	284	300	270	132	37	17
12	195	238	305	91	3190	81	381	273	244	114	35	18
13	96	213	270	90	1720	117	424	247	321	104	34	28
14	70	197	260	89	707	103	365	229	256	101	32	60
15	68	174	243	88	620	113	346	213	334	970	30	21
16	103	157	216	87	597	158	319	201	368	226	29	17
17	85	149	268	86	581	101	290	193	607	172	28	15
18	73	145	290	86	562	104	267	188	1610	142	32	14
19	72	599	293	85	1320	98	248	209	542	128	31	13
20	90	420	270	84	457	86	236	220	407	138	29	11
21	101	298	250	84	311	86	227	196	339	116	26	10
22	143	252	210	84	278	104	245	208	314	101	26	9.9
23	134	348	182	83	248	131	236	211	287	91	24	9.9
24	111	451	167	86	211	238	225	191	253	84	22	9.9
25	96	328	145	89	193	403	215	327	232	87	22	14
26	88	302	141	92	180	651	209	319	219	115	20	18
27	83	688	144	93	166	763	231	265	237	142	19	14
28	78	1560	148	95	151	624	264	624	203	117	18	13
29	70	687	140	96	139	495	546	582	189	88	18	12
30	68	487	125	93	---	377	1610	421	176	79	17	12
31	74	---	118	91	---	319	---	359	---	75	17	---
TOTAL	2221	10048	7459	2805	13727	6395	10987	10905	10037	4738	1086	495.7
MEAN	71.6	335	241	90.5	473	206	366	352	335	153	35.0	16.5
MAX	195	1560	411	113	3190	763	1610	707	1610	970	70	60
MIN	25	117	118	83	88	81	209	188	176	75	17	9.9
CFSM	.38	1.77	1.28	.48	2.50	1.09	1.94	1.86	1.77	.81	.19	.09
IN.	.44	1.98	1.47	.55	2.70	1.26	2.16	2.15	1.98	.93	.21	.10
AC-FT	4410	19930	14790	5560	27230	12680	21790	21630	19910	9400	2150	983

CAL YR 1983 TOTAL 83974.0 MEAN 230 MAX 3180 MIN 14 CFSM 1.22 IN 16.53 AC-FT 166600
WTR YR 1984 TOTAL 80903.7 MEAN 221 MAX 3190 MIN 9.9 CFSM 1.17 IN 15.92 AC-FT 160500

05453100 IOWA RIVER AT MARENGO, IA

LOCATION.-- Lat 41°48'48" long 92°03'51", in SE1/4 NE1/4 sec.24, T.81 N., R.11 W., Iowa County, Hydrologic Unit e07080208, on left bank 5 ft upstream from bridge on State Highway 411, 1.0 mi downstream from Big Bear Creek, 0.8 mi north of Marengo, 4.6 mi upstream from Hilton Creek, and at mile 139.1.

DRAINAGE AREA.--2,794 mi².

PERIOD OF RECORD.--October 1956 to current year. Monthly discharge only for some periods, published in WSP 1728.

REVISED RECORDS.--WSP 1558: 1957.

GAGE.--Water-stage recorder. Datum of gage is 720.52 ft. NGVD.

REMARKS.--Records good except those for winter period, which are fair. Corps of Engineers data collection platform at station.

COOPERATION.--Six discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--28 years, 1,854 ft³/s, 9.01 in/yr , 1,343,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,800 ft³/s Mar. 31, 1960, gage height, 19.21 ft; maximum gage height, 19.79 ft July 12, 1969; minimum daily discharge, 24 ft³/s Jan. 29 to Feb. 1, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 28	1315	7,880	15.41	May 5	1230	14,000	17.21
Feb. 16	0400	12,900	17.38	June 2	1830	7,700	15.26
Feb. 19	0530	11,400	16.76	June 12	1215	8,780	15.89
Mar. 28	1415	6,690	14.35	June 18	1430	*17,200	*18.17

Minimum daily discharge, 323 ft³/s Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1690	1970	6730	1700	1090	4960	4500	8270	6700	6180	1760	477
2	1440	2370	6250	1600	1080	4260	3960	8040	7470	5910	1660	458
3	1240	2380	5230	1580	1100	3730	3990	8290	7300	5250	1540	438
4	1140	2150	4180	1550	1100	3320	4950	12100	6170	4370	1450	427
5	1090	1990	3730	1510	1100	3010	4990	13800	4880	3730	1380	425
6	1000	1890	3490	1500	1090	2700	4990	13100	4130	3310	1310	427
7	919	1800	3250	1510	1080	2490	4870	12100	3690	2990	1250	420
8	873	1720	2960	1490	1070	2350	4630	10900	3640	2730	1200	416
9	837	1700	2850	1460	1070	2130	4520	9890	4580	2540	1170	416
10	797	2510	2640	1430	1080	2050	4490	9000	5500	2410	1120	415
11	817	2880	2750	1390	1170	2020	4420	8270	6200	2510	1050	423
12	1300	2970	3000	1300	1800	1970	4420	7520	8390	2720	992	435
13	1900	2770	2770	1260	3390	1840	4820	6630	7930	2490	949	474
14	1960	2660	2630	1240	7090	1750	4940	5660	6680	2300	913	513
15	1730	2550	2530	1210	9570	1950	5080	4840	5950	3760	873	415
16	1790	2410	2310	1200	9800	2370	5260	4290	6100	4080	837	392
17	1950	2270	2060	1180	10000	2140	5370	3860	10400	4200	812	379
18	1870	2170	1950	1130	10100	2010	5400	3530	16000	3400	812	374
19	1750	3300	2050	1100	10500	1990	5340	3450	14700	2700	780	370
20	1740	4730	2080	1050	10300	2000	5100	3510	12800	3170	751	358
21	1760	4810	2130	1010	10600	1950	4710	3520	11600	3990	728	347
22	1960	4910	2160	970	9440	1920	4400	3410	10700	4260	710	339
23	2560	5120	2150	980	9450	1960	4200	3240	10300	3960	678	329
24	3450	5370	2100	1000	8920	2360	4130	3020	10300	2910	653	323
25	3250	5190	2040	1020	8070	3270	4060	3190	10600	2390	629	366
26	2900	5130	2000	1030	7380	5170	4090	3990	9990	2240	604	401
27	2700	5230	1950	1050	6850	6010	4020	4480	8890	2460	583	562
28	2420	7510	1900	1070	6310	6580	4140	5310	7950	2500	567	438
29	2220	7500	1900	1090	5700	6390	4470	6370	6990	2320	543	365
30	2060	7350	1850	1090	---	5660	8570	6820	6360	2040	522	333
31	1940	---	1790	1100	---	4950	---	6650	---	1860	497	---
TOTAL	55053	107310	87410	38800	157300	97260	142830	207050	242890	101680	29323	12255
MEAN	1776	3577	2820	1252	5424	3137	4761	6679	8096	3280	946	409
MAX	3450	7510	6730	1700	10600	6580	8570	13800	16000	6180	1760	562
MIN	797	1700	1790	970	1070	1750	3960	3020	3640	1860	497	323
CFSM	.64	1.28	1.01	.45	1.94	1.12	1.70	2.39	2.90	1.17	.34	.15
IN.	.73	1.43	1.16	.52	2.09	1.29	1.90	2.76	3.23	1.35	.39	.16
AC-FT	109200	212800	173400	76960	312000	192900	283300	410700	481800	201700	58160	24310

CAL YR 1983 TOTAL 1499606 MEAN 4109 MAX 20900 MIN 475 CFSM 1.47 IN 19.97 AC-FT 2974000
WTR YR 1984 TOTAL 1279161 MEAN 3495 MAX 16000 MIN 323 CFSM 1.25 IN 17.03 AC-FT 2537000

05453510 CORALVILLE LAKE NEAR CORALVILLE, IA

LOCATION.--Lat 41°43'29", long 91°31'40", in SW1/4 NE1/4 sec.22, T.80 N., R.6 W., Johnson County, Hydrologic Unit 07080208, at outlet works at left end of Coralville Dam on Iowa River, 2.3 mi upstream from Rapid Creek, 4.3 mi northeast of Coralville Post Office and at mile 83.3.

DRAINAGE AREA.--3,115 mi².

PERIOD OF RECORD.--October 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is at NGVD (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam completed in 1957. Storage began in September 1958. Releases controlled by three gates, 8.33 ft wide and 20 ft high, into forechamber of 23-ft diameter concrete conduit through dam. Inlet invert elevation at 646.0 ft. No dead storage. Maximum design discharge through gates is 20,000 ft³/s. Ungated spillway is concrete overflow section 500 ft in length at elevation 712 ft NGVD, contents, 469,000 acre-ft, surface area, 24,800 acres. Reservoir is used for flood control, low-flow augumentation, conservation and recreation. Normal operation will maintain an elevation of 670 ft Feb. 15 to June 15, surface area, 1,820 acres, 680 ft June 15 to Sept. 25, surface area, 4,900 acres, 683 ft Sep. 25 to Dec. 15, and 680 ft December 15 to Feb. 1 with a minimum release of 150 ft/s and maximum release of 10,000 ft/s Dec. 15 to May 1 and 6,000 ft³/s May 1 to Dec. 15.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 472,000 acre-ft July 21, 1969, elevation, 711.85 ft; minimum daily contents, 456 acre-ft Jan. 15, 1975; minimum elevation, 658.77 ft Mar. 10, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 464,000 acre-ft June 29,30; maximum elevation, 711.53 ft June 29,30; minimum daily contents, 27,500 acre-ft Apr. 17; minimum elevation, 674.90 ft Apr. 17.

Capacity table (elevation, in feet, and contents, in acre-ft)

655	5,000	683	55,000	700	232,000
670	10,600	685	69,000	705	327,000
675	21,000	690	108,000	710	427,000
680	40,300	695	162,000	712	469,000

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56900	57000	71400	44400	42100	142000	31700	40400	253000	463000	238000	60100
2	56100	57200	75600	44500	42200	132000	29100	48900	259000	462000	228000	60000
3	56500	58400	78000	44000	42200	120000	30100	61000	266000	461000	217000	59900
4	56500	59700	79300	42600	42500	108000	29700	74700	273000	458000	207000	59700
5	56400	59700	77800	42600	42700	96600	29900	92100	278000	453000	197000	59500
6	56400	59000	73800	42700	43200	83800	30100	124000	280000	447000	187000	59400
7	57300	58600	70000	42500	43400	70500	29300	152000	285000	439000	177000	59500
8	58300	58700	67900	42300	43400	60200	28900	177000	287000	432000	167000	59600
9	59000	59800	63000	42500	43300	51200	28400	193000	293000	424000	157000	59700
10	59800	60300	58600	42800	43200	44100	28000	208000	297000	416000	146000	59800
11	61000	60600	59800	43200	43500	38800	28000	215000	301000	408000	136000	59800
12	60500	61300	60900	43300	48800	32400	28200	222000	305000	400000	126000	59900
13	59100	60200	60300	43100	53300	28600	28500	228000	314000	392000	116000	59900
14	58700	59600	56100	42700	53200	27900	29200	232000	322000	384000	106000	59800
15	58500	59000	53400	42700	52300	27600	29500	235000	328000	377000	96500	59200
16	57800	59000	49800	42000	52100	29400	27800	236000	334000	372000	87900	58900
17	57100	59500	46500	41600	50800	29500	27500	236000	341000	369000	81500	58500
18	57300	60300	44500	41900	56600	28900	28200	236000	357000	364000	76000	58300
19	58600	61500	43400	42500	71700	28200	29700	235000	383000	358000	72200	58200
20	59400	61900	42600	42600	81100	28600	30300	234000	401000	353000	68300	57700
21	59400	61600	42800	42700	84800	28200	31000	233000	416000	346000	65300	57500
22	59400	62400	43800	42600	94500	28300	33200	233000	425000	340000	63700	57500
23	59700	62000	44300	42400	106000	29400	32800	230000	434000	334000	62600	57400
24	61000	60700	44300	42100	120000	30300	30500	228000	441000	325000	62000	57900
25	61600	61000	44200	41800	135000	30400	29200	228000	447000	315000	61700	58800
26	60700	61300	44200	42000	147000	30800	28600	227000	455000	305000	61300	59000
27	59900	62000	44300	42300	154000	30800	29200	227000	460000	294000	61000	59100
28	59200	64300	44100	42500	154000	29400	29000	230000	463000	287000	60700	59100
29	58100	66200	43900	43200	149000	29900	30000	236000	464000	274000	60400	59000
30	57900	68600	44000	42700	---	31700	34600	242000	464000	262000	60100	59100
31	57300	---	44300	42200	---	32800	---	248000	---	250000	60200	---
MAX	61600	68600	79300	44500	154000	142000	34600	248000	464000	463000	238000	60100
MIN	56100	57000	42600	41600	42100	27600	27500	40400	253000	250000	60100	57400

WTR YR 1984 MAX 464000 MIN 27500

05454000 RAPID CREEK NEAR IOWA CITY, IA

LOCATION.--Lat 41°41'19", long 91°29'15", in NE1/4 NE1/4 sec.36. T.80 N., R.6 W., Johnson County, Hydrologic Unit 07080209, on left bank 80 ft upstream from bridge on State Highway 1, 3.5 mi northeast of Iowa City, and 4.7 mi upstream from mouth.

DRAINAGE AREA.--25.3 mi².

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1558: 1941 (M), 1943 (P), 1944 (M), 1946. WSP 1708: 1951 (P), 1952. WDR IOWA 1967: Drainage area.

GAGE.--Water-stage recorder and concrete control with sharp-crested weir. Datum of gage is 673.72 ft NGVD.

REMARKS.--Records good except those for winter period, which are fair.

AVERAGE DISCHARGE.--47 years, 15.8 ft³/s, 8.48 in/yr, 11,450 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,100 ft³/s May 23, 1965, gage height, 14.10 ft, from contracted-opening measurement of peak flow; maximum gage height, 14.93 ft July 17, 1972; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 419 ft³/s June 22, gage height, 7.37 ft. no peak above base of 600 ft³/s; Minimum dialy discharge, 0.08 ft³/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.46	11	17	6.4	4.6	13	21	29	23	13	4.0	.20
2	.16	7.3	15	6.4	4.7	12	20	26	20	12	3.8	.16
3	.11	2.6	14	6.4	4.7	11	32	77	18	11	3.4	.16
4	.14	1.9	12	6.4	4.5	11	34	56	16	11	3.2	.18
5	.13	1.8	11	6.3	4.3	10	29	44	15	9.9	2.9	.78
6	.12	1.4	10	6.2	4.5	9.8	26	37	13	9.5	2.7	.68
7	.12	1.5	9.1	6.1	4.8	9.2	23	32	14	8.0	2.4	.30
8	.11	1.5	8.4	6.0	5.4	8.7	23	28	21	11	2.5	.23
9	.08	4.4	8.2	5.8	7.2	8.2	22	25	42	8.8	2.1	.28
10	.14	18	7.3	5.6	14	7.8	20	23	52	7.7	1.7	.58
11	.23	12	13	5.5	33	7.6	18	22	32	11	1.5	1.3
12	.51	6.6	17	5.4	234	7.4	21	19	27	6.9	1.4	.68
13	.58	5.5	14	5.3	131	7.8	21	17	40	6.1	1.2	3.5
14	.44	4.9	12	5.2	89	8.1	19	16	31	6.8	1.1	1.9
15	.71	4.0	10	5.1	83	12	19	15	25	17	.98	.75
16	1.8	3.2	8.8	4.9	83	21	18	14	24	7.0	.93	.44
17	.89	3.1	8.0	4.8	75	14	17	13	22	16	.99	.34
18	.41	3.2	7.4	4.7	90	13	15	12	49	6.9	2.0	.29
19	.46	7.2	6.9	4.7	104	12	15	15	24	5.8	1.4	.24
20	.57	6.5	6.6	4.6	45	13	14	14	20	18	.95	.21
21	.67	5.0	6.4	4.6	36	13	14	12	18	7.1	.87	.17
22	.76	4.6	6.2	4.6	30	23	36	13	131	5.7	.91	.12
23	.67	18	6.1	4.7	27	52	32	12	102	4.8	.79	.12
24	.56	15	6.0	4.8	23	49	27	11	34	4.2	.64	.30
25	.46	11	6.0	4.9	20	43	24	24	26	11	.56	19
26	.44	9.3	6.0	4.8	18	39	22	19	22	25	.53	3.3
27	.34	29	6.1	4.7	17	37	20	16	19	11	.53	1.2
28	.31	45	6.2	4.6	16	33	17	38	16	7.9	.57	.92
29	.28	26	6.4	4.4	15	28	29	38	15	6.2	.49	.68
30	.26	20	6.5	4.4	---	25	39	30	13	5.2	.34	.54
31	.24	---	6.4	4.5	---	22	---	26	---	4.7	.27	---
TOTAL	13.16	290.5	284.0	162.8	1227.7	580.6	687	773	924	296.2	47.65	39.55
MEAN	.42	9.68	9.16	5.25	42.3	18.7	22.9	24.9	30.8	9.55	1.54	1.32
MAX	1.8	45	17	6.4	234	52	39	77	131	25	4.0	19
MIN	.08	1.4	6.0	4.4	4.3	7.4	14	11	13	4.2	.27	.12
CFSM	.02	.38	.36	.21	1.67	.74	.91	.98	1.22	.38	.06	.05
IN.	.02	.43	.42	.24	1.81	.85	1.01	1.14	1.36	.44	.07	.06
AC-FT	26	576	563	323	2440	1150	1360	1530	1830	588	95	78

CAL YR 1983	TOTAL 6622.23	MEAN 18.1	MAX 564	MIN .07	CFSM .72	IN 9.74	AC-FT 13140
WTR YR 1984	TOTAL 5326.16	MEAN 14.6	MAX 234	MIN .08	CFSM .58	IN 7.83	AC-FT 10560

05454300 CLEAR CREEK NEAR CORALVILLE, IA

LOCATION.--Lat 41°40'36", long 91°35'55", in NE1/4 SE1/4 sec.1, T.79 N., R.7 W., Johnson County, Hydrologic Unit 07080209, on left bank about 50 ft upstream from bridge on county highway, 1.1 mi west of post office in Coralville, 1.5 mi downstream from Deer Creek and 2.7 mi upstream from mouth.

DRAINAGE AREA.--98.1 mi².

PERIOD OF RECORD.--October 1952 to current year. Monthly discharge only for some periods, published in WSP 1728.

GAGE.--Water-stage recorder. Datum of gage is 647.48 ft NGVD (levels by Corps of Engineers). Prior to Jan. 7, 1957, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers gage-height telemeter at station.

COOPERATION.--Three discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--32 years, 66.4 ft³/s, 9.19 in/yr, 48,110 acre-ft/yr; median of yearly mean discharges, 51 ft³/s 7.1 in/yr, 36,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft³/s June 15, 1982, gage height, 14.61 ft; no flow Jan. 18 to Feb. 4, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,010 ft³/s Feb. 12, gage height, 8.80 ft at 1930 hours, no other peak above base of 1,000 ft³/s.

Minimum daily discharge, 3.3 ft³/s Sept. 22-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	48	95	25	21	70	102	211	124	55	24	4.8
2	4.3	43	84	25	22	66	96	180	107	50	22	4.6
3	4.0	22	75	26	22	61	159	395	94	49	19	4.4
4	4.0	15	72	26	22	59	213	357	86	48	19	4.3
5	4.6	12	67	26	21	56	161	251	84	46	17	8.9
6	4.9	11	61	25	20	53	135	207	76	44	15	10
7	4.5	11	58	24	19	50	117	180	72	39	14	5.0
8	4.7	11	54	24	28	48	114	156	762	37	15	4.5
9	4.7	35	52	23	42	46	121	143	418	39	13	5.4
10	4.7	140	50	23	84	45	112	131	633	40	11	6.8
11	7.8	72	51	22	197	45	105	122	258	59	9.6	10
12	13	49	53	22	740	47	115	110	202	36	9.1	8.2
13	10	41	54	21	816	49	117	102	203	33	8.7	21
14	6.8	37	54	21	501	51	109	91	195	33	8.5	75
15	9.4	33	53	20	370	56	108	85	173	83	8.4	11
16	15	30	50	20	285	76	104	80	158	39	9.0	5.0
17	12	28	43	20	245	60	97	76	161	59	13	4.5
18	7.7	28	37	19	225	54	89	73	400	35	25	4.0
19	7.4	52	33	19	437	56	85	84	195	30	14	3.8
20	11	54	31	19	219	59	81	82	143	107	10	3.5
21	11	41	29	19	169	57	79	73	122	53	9.0	3.4
22	11	38	28	19	143	71	229	73	250	38	11	3.3
23	9.7	59	28	19	128	117	205	77	123	34	9.2	3.3
24	9.1	74	28	20	111	188	161	66	98	31	8.4	6.5
25	7.6	55	27	20	99	184	138	162	89	31	7.6	94
26	6.9	48	27	21	90	209	126	128	84	59	6.9	28
27	7.0	92	27	21	84	201	116	96	73	58	6.3	6.2
28	6.3	272	26	21	77	186	99	297	66	45	6.0	5.3
29	6.2	156	26	21	71	153	120	305	62	32	6.6	5.3
30	6.4	107	25	21	---	128	348	185	59	27	6.0	5.3
31	6.6	---	25	20	---	112	---	148	---	25	5.4	---
TOTAL	232.8	1714	1423	672	5308	2713	3961	4726	5570	1394	366.7	365.3
MEAN	7.51	57.1	45.9	21.7	183	87.5	132	152	186	45.0	11.8	12.2
MAX	15	272	95	26	816	209	348	395	762	107	25	94
MIN	4.0	11	25	19	19	45	79	66	59	25	5.4	3.3
CFSM	.08	.58	.47	.22	1.87	.89	1.35	1.55	1.90	.46	.12	.12
IN.	.09	.65	.54	.25	2.01	1.03	1.50	1.79	2.11	.53	.14	.14
AC-FT	462	3400	2820	1330	10530	5380	7860	9370	11050	2760	727	725

CAL YR 1983	TOTAL	28647.5	MEAN	78.5	MAX	1260	MIN	4.0	CFSM	.80	IN	10.86	AC-FT	56820
WTR YR 1984	TOTAL	28445.8	MEAN	77.7	MAX	816	MIN	3.3	CFSM	.79	IN	10.79	AC-FT	56420

05454500 IOWA RIVER AT IOWA CITY, IA

LOCATION.--Lat 41°39'24", long 91°32'27", in SE1/4 SE1/4 sec.9, T.79 N., R.6 W., Johnson County, Hydrologic Unit 07080209, on right bank 25 ft downstream from Hydraulics Laboratory of University of Iowa in Iowa City, 175 ft downstream from University Dam, 0.8 mi upstream from Ralston Creek, 3.6 mi downstream from Clear Creek, and at mile 74.2.

DRAINAGE AREA.--3,271 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1903 to current year. Monthly discharge only for some periods, published in WSP 1308.

GAGE.--Water-stage recorder. Datum of gage is 29.00 ft above Iowa City datum, and 617.27 ft NGVD. Oct. 1, 1934 to Sept. 30, 1972, at datum 10.00 ft higher. See WSP 1708 for history of changes prior to Oct. 1, 1984.

REMARKS.--Records excellent. Slight fluctuation at low stages caused by powerplant above station. Flow regulated by Coralville Lake (station 05453510) 9.1 mi upstream, since Sept. 17, 1958. Corps of Engineers gage-height telemeter at station.

COOPERATION.--Two discharge measurement furnished by Corps of Engineers.

AVERAGE DISCHARGE.--81 years, 1,718 ft³/s, 7.13 in/yr, 1,245,000 acre-ft/yr; median of yearly mean discharges, 1,470 ft³/s, 6.1 in/yr, 1,065,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,500 ft³/s June 8, 1918, gage height, 19.6 ft from graph based on gage readings, site and datum then in use; minimum daily, 29 ft³/s Oct. 21, 22, 1916, regulated.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 17, 1881, reached a stage of 21.1 ft, from floodmarks at site and datum in use 1913-21, from information by local resident, discharge, 51,000 ft³/s. Maximum stage known since at least 1850, about 3 ft higher than that of July 17, 1881, occurred in June 1851, discharge, 70,000 ft³/s, estimated.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,430 ft³/s March 1, gage height, 20.68 ft; minimum daily discharge, 377 ft³/s Sept. 7 and 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1900	2280	5900	1770	1010	9230	5930	4740	4540	7390	7080	564
2	1730	2190	5890	1800	1010	9390	5750	4690	4520	7400	6780	558
3	1350	1980	5820	2050	1020	9250	5020	5110	4520	7410	6340	558
4	1160	1980	5840	2160	1010	9110	4860	4720	4530	7390	6290	528
5	1160	2250	5840	1750	1000	8950	5220	2590	4550	7370	6240	486
6	977	2250	5810	1700	1010	8730	5260	1500	4560	7350	6190	440
7	739	2100	5640	1780	1010	8260	5330	1370	4580	7310	6140	377
8	573	1830	4980	1760	1020	6980	5320	1280	5300	7310	6110	381
9	570	1820	4900	1630	1010	6370	5320	1970	5140	7280	6030	377
10	569	2270	4440	1510	1030	5310	5140	3970	5420	7270	5970	387
11	855	2860	3460	1520	1080	4160	4910	4410	4910	7300	5890	405
12	1320	2890	3060	1510	1880	4040	4960	4440	4850	7330	5810	429
13	1780	3190	3930	1500	2790	3390	4970	4450	4880	7470	5730	501
14	1940	3390	4910	1490	4390	2520	4940	4460	4910	7450	5640	517
15	2140	2950	4600	1500	5710	2570	5110	4470	4880	7550	5560	628
16	2100	2740	3960	1500	6420	3110	5600	4470	4900	6970	5140	619
17	2090	2340	3330	1400	7180	2770	5600	4470	4960	6570	4060	615
18	1760	2170	2390	1240	8040	2750	5250	4480	5300	6480	3330	547
19	1320	2470	1960	1120	8680	2620	5270	4540	5110	6440	3270	480
20	1510	3280	1580	1100	8550	2380	5290	4500	5080	6840	2790	477
21	1780	4390	1330	1100	8590	2480	5310	4470	5420	7130	2170	428
22	1850	4790	1370	1120	7740	2420	5640	4490	6950	7450	1620	388
23	1850	5240	1660	1130	5720	2320	5740	4470	7170	7430	1190	388
24	2180	5610	1980	1140	4000	2640	5800	4450	6990	7400	980	397
25	2920	5330	2050	1120	3380	3010	5340	4670	6990	7380	780	499
26	3330	5220	2060	1040	3400	3940	4850	4550	7000	7500	774	434
27	3120	5600	2040	960	4500	5080	4680	4480	7130	7370	774	417
28	2900	5850	2000	962	6680	6080	4480	4840	7350	7290	768	414
29	2650	5820	1950	964	8070	6200	4590	4080	7360	7230	756	413
30	2320	5920	1900	1170	---	5880	4920	3760	7380	7180	750	413
31	2230	---	1800	1260	---	5920	---	4550	---	7130	660	---
TOTAL	54673	103000	108380	43756	116930	157860	156400	125440	167180	224370	121612	14065
MEAN	1764	3433	3496	1411	4032	5092	5213	4046	5573	7238	3923	469
MAX	3330	5920	5900	2160	8680	9390	5930	5110	7380	7550	7080	628
MIN	569	1820	1330	960	1000	2320	4480	1280	4520	6440	660	377
AC-FT	108400	204300	215000	86790	231900	313100	310200	248800	331600	445000	241200	27900

CAL YR 1983 TOTAL 1521822 MEAN 4169 MAX 9450 MIN 401 AC-FT 3019000
WTR YR 1984 TOTAL 1393666 MEAN 3808 MAX 9390 MIN 377 AC-FT 2764000

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at Benton Street bridge at Iowa City, 0.5 mi downstream from gaging station.

PERIOD OF RECORD.--September 1906 to September 1907, water years 1944 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: January 1944 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1943 to current year.

REMARKS.--Records of specific conductance are obtained from suspended-sediment samples at times of analysis. During periods of partial ice cover, sediment samples are collected in open water channel.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 760 micromhos Jan. 4, 1984; minimum daily, 150 micromhos May 17, 1974.
WATER TEMPERATURES: Maximum daily, 32.0°C July 19, 1957, Aug. 24, 25, 1959, June 27, 1971; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 7,800 mg/L June 13, 1953; minimum daily mean, 1 mg/L Feb. 4, 1979, Jan. 14, 15, 29, 1984.
SEDIMENT LOADS: Maximum daily, 177,000 tons May 23, 1944; minimum daily, 0.82 ton Jan. 21, 22, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 760 micromhos Jan. 4; minimum daily, 280 micromhos Feb. 20.
WATER TEMPERATURES: Maximum daily, 28.0°C Aug. 8, 15; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,240 mg/L June 8; minimum daily mean, 1 mg/L Jan. 14, 15, 29.
SEDIMENT LOADS: Maximum daily, 17,700 tons June 8; minimum daily, 2.6 tons Jan 29.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	460	580	540	---	620	350	---	540	510	---	470	540
2	---	610	560	---	570	370	520	480	540	450	480	---
3	---	620	---	720	530	410	540	400	---	435	460	---
4	470	620	---	760	---	---	500	400	540	---	---	580
5	---	---	560	640	---	---	500	---	520	420	---	530
6	---	---	560	700	630	---	500	---	540	420	460	560
7	---	640	560	700	640	470	---	430	540	420	460	580
8	---	560	560	---	620	480	---	430	540	---	460	---
9	---	---	600	700	560	540	510	420	---	420	460	---
10	---	560	---	700	620	560	530	420	---	420	450	580
11	480	640	---	720	---	---	530	410	540	420	450	560
12	480	620	600	700	---	580	530	---	540	410	---	---
13	490	---	620	---	460	610	510	---	---	410	---	580
14	500	600	620	---	570	620	---	420	---	420	460	550
15	---	600	620	620	560	640	---	420	540	---	460	---
16	---	600	550	610	410	640	500	430	540	420	470	---
17	560	---	---	540	300	---	510	430	---	430	470	570
18	580	640	---	600	---	---	520	---	540	440	---	570
19	600	620	---	610	---	610	530	440	540	---	---	560
20	580	640	---	---	280	540	530	---	540	440	500	535
21	600	640	---	---	290	600	---	460	540	---	500	560
22	---	---	---	---	300	610	---	460	500	---	---	580
23	---	600	---	530	300	580	530	460	---	---	540	---
24	580	---	---	620	310	---	520	500	500	---	560	490
25	580	540	---	510	---	---	530	500	---	460	---	480
26	620	---	---	510	---	580	540	---	480	460	---	480
27	---	---	---	640	310	560	---	---	480	440	570	480
28	600	540	---	---	320	520	540	---	480	440	580	480
29	610	---	---	---	340	---	---	570	470	---	580	---
30	580	540	---	540	---	440	540	510	---	470	600	---
31	560	---	---	640	---	---	---	510	---	440	---	---

IOWA RIVER BASIN

054545000 IOWA RIVER AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	11.0	2.0	---	3.0	2.0	---	10.0	18.0	---	24.0	23.0
2	---	12.0	2.0	---	3.0	3.0	8.0	14.0	18.0	23.0	24.0	---
3	20.0	11.0	---	3.0	4.0	3.0	8.0	12.0	---	25.0	24.0	---
4	20.0	11.0	---	2.0	---	---	8.0	11.5	20.0	---	---	---
5	20.0	---	1.0	2.0	---	---	8.0	---	19.0	22.0	---	---
6	20.0	---	1.0	1.0	.0	---	6.0	---	19.0	22.0	25.0	19.0
7	---	11.0	1.0	.0	.0	3.0	---	12.0	22.0	22.0	25.0	21.0
8	---	11.0	.0	---	.0	---	---	11.0	20.0	---	28.0	---
9	18.0	---	1.0	.0	2.0	.0	8.0	10.0	---	25.0	26.0	---
10	18.0	8.0	---	.0	2.0	.0	8.0	14.0	---	23.0	25.0	20.0
11	18.0	8.0	---	.0	---	---	8.0	14.0	20.0	23.0	25.0	18.0
12	16.0	8.0	1.0	.0	---	.0	12.0	---	22.0	24.0	---	---
13	17.0	---	2.0	---	2.0	.5	10.0	---	---	23.0	---	23.0
14	17.0	8.0	2.0	---	2.0	2.0	---	15.0	---	23.0	26.0	20.0
15	---	8.0	1.0	2.0	2.0	4.0	---	14.0	22.0	---	28.0	---
16	---	6.0	.0	1.0	2.0	2.0	11.0	14.0	23.0	25.0	26.0	---
17	15.0	---	---	.0	3.0	---	10.0	15.0	---	24.0	27.0	20.0
18	15.0	5.0	---	.0	---	---	9.0	---	23.0	23.0	---	16.0
19	13.0	7.0	.0	1.0	---	2.0	9.0	17.0	23.0	---	---	18.0
20	12.0	7.0	.0	---	2.0	3.0	11.0	---	24.0	27.0	24.0	22.0
21	14.0	7.0	1.0	---	2.0	2.0	---	17.0	24.0	---	23.0	18.0
22	---	---	1.0	---	3.0	2.0	---	17.0	23.0	---	25.0	20.0
23	---	7.0	.0	2.0	2.0	2.0	8.0	17.0	---	---	22.0	---
24	11.0	---	---	4.0	2.0	---	8.0	18.0	23.0	---	22.0	24.0
25	11.0	6.0	---	2.0	---	---	8.0	18.0	---	25.0	---	18.0
26	---	---	---	2.0	---	5.0	8.0	---	23.0	25.5	---	16.0
27	---	---	3.0	.0	2.0	8.0	---	---	22.0	23.0	26.0	15.0
28	11.0	4.0	.0	---	2.0	5.0	15.0	---	23.0	24.0	27.0	15.0
29	11.0	---	1.0	---	1.0	---	---	16.0	23.0	---	24.0	---
30	11.0	4.0	.0	2.0	---	6.0	11.0	16.0	---	23.0	22.0	---
31	11.0	---	---	1.0	---	---	---	17.0	---	23.0	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	41	210	66	406	35	558	4	19	12	33	97	2420
2	36	168	42	248	40	636	4	19	30	82	96	2430
3	32	117	33	176	38	597	4	22	50	138	97	2420
4	31	97	30	160	34	536	11	64	53	145	90	2210
5	31	97	29	176	30	473	45	213	39	105	82	1980
6	31	82	28	170	22	345	23	106	7	19	74	1740
7	30	60	25	142	17	259	34	163	2	5.5	66	1470
8	31	48	59	292	12	161	14	67	2	5.5	63	1190
9	31	48	77	378	12	159	5	22	2	5.5	62	1070
10	31	48	85	521	11	132	12	49	2	5.6	60	860
11	48	111	45	347	10	93	7	29	13	38	41	461
12	49	175	35	273	24	198	3	12	142	721	25	273
13	52	250	35	301	23	244	2	8.1	205	1540	20	183
14	56	293	40	366	21	278	1	4.0	106	1260	15	102
15	58	335	25	199	24	298	1	4.1	163	2510	15	104
16	57	323	26	192	29	310	5	20	226	3920	22	185
17	58	327	28	177	20	180	9	34	144	2790	24	179
18	40	190	15	88	16	103	4	13	142	3080	21	156
19	37	132	14	93	30	159	8	24	219	5130	29	205
20	34	139	34	301	32	137	14	42	155	3580	39	251
21	35	168	61	723	35	126	16	48	117	2710	30	201
22	34	170	84	1090	46	170	23	70	106	2220	54	353
23	33	165	65	920	49	220	17	52	102	1580	78	489
24	35	206	84	1270	119	636	5	15	97	1050	94	670
25	56	442	58	835	124	686	32	97	88	803	101	821
26	50	450	45	634	99	551	35	98	64	588	115	1220
27	46	388	51	771	64	353	5	13	71	863	117	1600
28	42	329	79	1250	59	319	2	5.2	91	1640	149	2450
29	36	258	59	927	76	400	1	2.6	66	1440	157	2630
30	39	244	41	655	71	364	10	32	---	---	132	2100
31	61	367	---	---	13	63	5	17	---	---	113	1810
TOTAL	---	6437	---	14081	---	9744	---	1384.0	---	38007.1	---	34233

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	99	1590	127	1630	30	368	30	599	36	688	40	61
2	92	1430	213	2700	16	195	30	599	59	1080	35	53
3	130	1760	80	1100	15	183	32	640	97	1660	28	42
4	123	1610	180	2290	18	220	30	599	82	1390	25	36
5	88	1240	142	993	21	258	26	517	68	1150	27	35
6	84	1190	68	275	30	369	28	556	54	903	29	34
7	87	1250	95	351	30	371	44	868	40	663	26	26
8	91	1310	126	435	1240	17700	42	829	36	594	28	29
9	91	1310	119	633	730	10100	35	688	32	521	29	30
10	76	1050	274	2940	655	9590	28	550	28	451	31	32
11	80	1060	280	3330	92	1220	34	670	28	445	35	38
12	80	1070	190	2280	68	890	31	614	26	408	31	36
13	96	1290	86	1030	62	817	30	605	26	402	45	61
14	107	1430	42	506	58	769	26	523	28	426	37	52
15	106	1460	43	519	52	685	21	428	37	555	36	61
16	93	1410	27	326	34	450	26	489	27	375	36	60
17	92	1390	24	290	50	670	27	479	35	384	35	58
18	98	1390	23	278	690	9870	26	455	67	602	32	47
19	125	1780	21	257	180	2480	25	435	41	362	35	45
20	99	1410	19	231	40	549	43	794	35	264	41	53
21	93	1330	17	205	79	1160	55	1060	35	205	29	34
22	86	1310	20	242	541	10200	65	1310	31	136	29	30
23	77	1190	24	290	380	7360	57	1140	29	93	29	30
24	66	1030	25	300	50	944	47	939	30	79	32	34
25	74	1070	43	542	36	679	38	757	28	59	41	55
26	80	1050	43	528	31	586	41	830	27	56	53	62
27	85	1070	40	484	29	558	26	517	46	96	44	50
28	87	1050	135	1760	35	695	28	551	45	93	44	49
29	169	2090	164	1810	29	576	30	586	38	78	42	47
30	410	5450	50	508	30	598	36	698	37	75	39	43
31	---	---	29	356	---	---	45	866	37	66	---	---
TOTAL	---	44070	---	29419	---	81110	---	21191	---	14359	---	1323

TOTAL LOAD FOR YEAR: 295358.1 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. THAN .062 MM (70331)
OCT 26...	1130	11.5	3340	54	487	97
MAY 04...	1010	12.0	5200	157	2200	98
JUN 05...	1025	19.0	4590	17	211	94
JUL 03...	1030	23.5	7400	33	659	91
AUG 02...	1100	25.5	7030	34	645	91
SEP 05...	1110	22.0	490	25	33	99

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. THAN .250 MM (80166)	BED MAT. SIEVE DIAM. THAN .500 MM (80167)
OCT							
26...	1200	3340	6	0	1	13	52
MAY							
04...	0908	5200	9	0	1	5	49
JUN							
05...	1125	4590	7	--	0	7	74
JUL							
03...	1100	7400	6	0	1	7	40
AUG							
02...	1100	7030	7	7	11	16	47
SEP							
05...	1110	490	8	--	0	4	49

DATE	BED MAT. SIEVE DIAM. FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. THAN 32.0 MM (80173)
OCT						
26...	77	84	90	94	96	100
MAY						
04...	85	92	95	98	100	--
JUN						
05...	96	98	98	99	100	--
JUL						
03...	63	74	81	88	98	100
AUG						
02...	73	87	95	100	--	--
SEP						
05...	72	81	88	94	96	100

05455000 RALSTON CREEK AT IOWA CITY, IA

LOCATION.--Lat 41°39'50", long 91°30'48", in SE1/4 NW1/4 sec. 11, T.79 N., R.6 W., Johnson County, Hydrologic Unit 07080209, on left bank 10 ft upstream from bridge on Rochester Avenue, 1.0 mi northeast of post office in Iowa City and 2.2 mi upstream from mouth.

DRAINAGE AREA.--3.01 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1924 to current year.

REVISED RECORDS.--WSP 1508: 1933, 1935-37, 1940-41 (M), 1942, 1943 (M), 1948-51, 1952 (P), 1953, 1954 (M), 1955, WDR IOWA 1967: 1965-66; WDR IA-80-1: 1965(M).

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 663.27 ft NGVD (University of Iowa bench mark).

REMARKS.--Records good except those for winter period, which are poor.

AVERAGE DISCHARGE.--60 years, 1.71 ft³/s, 7.71 in/yr, 1,240 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,760 ft³/s July 17, 1972, gage height, 9.01 ft; maximum gage height, 9.06 ft July 18, 1956; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 79.1 ft³/s, June 22, gage height, 3.54 ft at 0215 hours, no peak above base of 200 ft³/s; no flow Oct. 1-10, 13, 18, 28-30, Aug. 30, Sept. 6-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	4.3	.89	.27	.27	1.2	1.5	2.6	1.5	.50	.32	.03
2	.00	.67	.85	.28	.29	1.1	1.5	2.5	1.3	.48	.29	.03
3	.00	.27	.65	.31	.32	1.0	6.8	15	1.1	.54	.24	.05
4	.00	.27	.68	.33	.31	1.1	4.0	6.0	1.1	.85	.23	.04
5	.00	.29	.59	.35	.27	.91	2.8	3.9	.94	.93	.21	.01
6	.00	.36	.51	.36	.24	.80	2.1	3.0	.98	.64	.18	.00
7	.00	.36	.46	.38	.21	.72	1.9	2.5	1.2	.36	.18	.00
8	.00	.32	.44	.36	.22	.67	2.5	2.0	3.5	.93	.44	.07
9	.00	3.4	.41	.33	.31	.63	2.2	1.9	7.1	.50	.29	.01
10	.00	5.3	.40	.30	1.2	.60	1.8	1.8	3.2	.96	.34	.13
11	.04	1.6	2.7	.27	3.2	.57	1.7	1.6	1.5	1.7	.20	.06
12	.02	1.1	2.2	.26	27	.59	3.3	1.4	1.3	.43	.14	.13
13	.00	1.1	1.3	.24	8.2	.63	2.9	1.3	1.2	.27	.10	6.3
14	.02	1.2	1.4	.23	5.6	.69	2.3	1.0	1.0	1.1	.06	.47
15	.49	1.0	1.1	.22	7.0	2.9	2.1	1.1	.87	3.4	.08	.17
16	.19	.92	.64	.21	12	4.0	1.9	1.0	1.2	.49	.10	.15
17	.01	.94	.52	.20	9.6	2.0	1.6	.96	2.0	1.2	.46	.11
18	.00	.83	.45	.19	13	1.7	1.4	1.0	5.1	.50	1.0	.12
19	.01	2.1	.41	.19	14	1.7	1.3	2.6	1.0	.28	.46	.14
20	.20	1.1	.38	.19	4.5	1.9	1.2	1.5	.76	4.2	.26	.06
21	.10	.26	.35	.19	3.5	1.9	1.3	1.0	.86	.86	.07	.04
22	.13	.68	.32	.20	2.9	4.3	9.7	1.6	16	.49	.08	.04
23	.05	3.1	.30	.22	2.4	8.5	4.2	1.1	6.7	.17	.07	.05
24	.04	1.2	.28	.24	2.1	6.1	3.2	.95	1.7	.22	.08	.26
25	.01	.70	.27	.29	1.8	5.3	2.2	6.9	1.3	.81	.07	3.2
26	.03	.56	.26	.30	1.6	4.2	1.9	1.9	1.2	6.4	.08	.22
27	.02	5.8	.26	.31	1.4	4.0	1.7	1.5	.84	1.3	.04	.47
28	.00	4.9	.25	.38	1.1	3.0	1.3	10	.71	.81	.12	.16
29	.00	1.8	.25	.30	1.1	2.3	7.5	3.8	.62	.54	.02	.08
30	.00	1.3	.26	.25	---	1.9	4.9	2.4	.53	.41	.00	.05
31	.01	---	.27	.26	---	1.7	---	1.8	---	.38	.03	---
TOTAL	1.37	47.73	20.05	8.41	125.64	68.61	84.7	87.61	68.31	32.65	6.24	12.65
MEAN	.044	1.59	.65	.27	4.33	2.21	2.82	2.83	2.28	1.05	.20	.42
MAX	.49	5.8	2.7	.38	27	8.5	9.7	15	16	6.4	1.0	6.3
MIN	.00	.26	.25	.19	.21	.57	1.2	.95	.53	.17	.00	.00
CFSM	.02	.53	.22	.09	1.44	.73	.94	.94	.76	.35	.07	.14
IN.	.02	.59	.25	.10	1.55	.85	1.05	1.08	.84	.40	.08	.16
AC-FT	2.7	95	40	17	249	136	168	174	135	65	12	25

CAL YR 1983	TOTAL 590.78	MEAN 1.62	MAX 47	MIN .00	CFSM .54	IN 7.30	AC-FT 1170
WTR YR 1984	TOTAL 563.97	MEAN 1.54	MAX 27	MIN .00	CFSM .51	IN 6.97	AC-FT 1120

05455000 RALSTON CREEK AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to current year.
WATER TEMPERATURES: October 1960 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1952 to current year.

REMARKS.--Records of specific conductance are obtained from suspended-sediment samples at time of analysis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 8,000 micromhos Dec. mean, 0 mg/L on many days in 1953-59, 1963-68, 1971, 1975-77, 1980-81, 1983, 1984.
SEDIMENT LOADS: Maximum daily, 4,300 tons May 23, 1966; minimum daily, 0 ton on many days most years.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1700 micromhos Mar. 7; minimum daily, 260 micromhos Oct. 14.
WATER TEMPERATURES: Maximum daily, 27.0°C Aug. 6; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,030 mg/L Feb. 18; minimum daily mean, 0 mg/L on several days during October.
SEDIMENT LOADS: Maximum daily, 163 tons Feb. 18; minimum daily, 0 ton on many days during October, December January, August, and September.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	460	550	530	540	630	510	---	680	680	500	530
2	---	430	550	500	680	610	540	530	680	640	500	530
3	---	440	610	640	640	---	---	310	680	680	560	---
4	---	480	---	600	660	650	550	540	645	680	---	530
5	---	500	500	---	---	680	560	---	680	440	---	640
6	---	540	490	1100	690	670	---	---	680	600	640	---
7	---	580	520	730	690	1700	540	530	680	600	630	---
8	---	640	500	710	1100	1600	510	560	680	600	540	305
9	---	670	520	680	680	710	560	550	680	600	510	440
10	---	430	890	630	950	710	480	610	680	560	620	540
11	---	520	680	530	520	710	---	580	680	420	560	480
12	340	580	630	550	240	670	---	510	700	405	520	420
13	---	650	640	580	450	780	---	480	520	560	---	460
14	260	680	940	---	500	740	---	520	680	485	---	340
15	470	700	600	---	510	780	510	520	680	400	620	400
16	530	710	600	590	410	540	530	520	680	540	520	420
17	520	640	660	500	560	580	530	520	680	630	500	520
18	---	680	560	520	300	---	---	520	360	560	480	540
19	500	690	520	---	550	685	---	520	360	605	420	560
20	440	630	580	590	590	---	510	520	650	540	590	490
21	480	530	---	---	610	630	510	520	650	500	540	560
22	500	580	---	---	590	700	---	520	350	680	650	540
23	620	360	---	600	620	560	570	520	350	600	---	520
24	620	540	---	510	570	530	530	500	350	660	---	480
25	650	580	---	720	600	---	---	360	650	500	---	450
26	600	---	---	640	630	560	---	360	650	380	580	310
27	660	---	---	620	550	580	---	540	650	570	580	380
28	---	620	500	---	610	580	---	540	650	520	580	380
29	---	620	480	580	650	590	---	540	650	520	660	500
30	---	650	470	630	---	550	670	540	680	540	---	500
31	660	---	640	680	---	610	---	540	---	---	---	---

05455000 RALSTON CREEK AT IOWA CIY, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	10.0	.0	1.0	2.0	4.5	5.0	7.0	15.0	16.0	22.0	21.0
2	---	12.0	.0	2.0	2.0	4.5	2.0	11.0	17.0	20.0	19.0	22.0
3	---	12.0	8.0	2.5	2.0	---	2.0	7.0	14.0	18.0	20.5	19.0
4	---	12.0	1.0	3.0	1.0	4.0	2.0	6.0	18.5	21.0	22.0	14.5
5	---	5.0	3.0	---	---	3.0	9.0	8.0	16.0	21.0	22.0	17.0
6	---	5.0	.0	2.0	.0	1.5	8.0	10.0	19.0	18.0	27.0	20.0
7	---	6.0	.0	2.0	1.0	1.5	8.0	11.0	18.0	15.0	26.0	21.0
8	---	6.0	.0	2.0	2.0	1.5	5.0	7.0	19.0	18.0	25.0	19.0
9	---	8.0	2.0	1.0	3.0	1.0	6.0	7.0	20.0	19.0	26.0	20.0
10	---	5.0	1.0	.0	2.0	.0	8.0	10.0	20.0	21.0	22.0	17.0
11	---	3.0	.0	1.0	2.0	1.0	8.0	11.0	17.0	20.0	19.0	20.0
12	12.0	3.0	.0	1.0	3.5	.0	10.0	16.0	18.0	20.0	25.0	20.0
13	---	3.0	1.0	.5	3.0	2.0	7.0	18.0	19.0	20.0	24.0	20.0
14	14.0	3.0	1.0	---	3.0	2.0	8.0	17.0	17.0	20.0	23.0	18.0
15	12.0	3.0	.0	---	2.5	2.0	8.0	16.0	16.0	20.0	22.0	18.0
16	10.0	3.0	.0	2.0	4.0	2.0	8.0	15.0	16.0	19.0	20.0	12.0
17	7.0	1.0	.0	1.0	4.0	2.0	6.0	15.0	23.0	23.0	22.0	12.0
18	---	1.0	.0	.5	4.0	---	8.0	17.0	20.0	21.0	20.0	14.0
19	8.0	5.0	1.0	---	4.0	1.0	8.0	16.0	18.0	17.0	18.0	18.0
20	13.0	4.0	1.0	.5	5.0	1.0	10.0	17.0	17.0	21.0	21.0	10.0
21	8.0	4.0	---	---	5.0	2.0	9.0	15.0	18.0	22.0	---	17.0
22	9.0	3.0	---	---	7.0	3.0	5.0	15.0	19.0	21.0	---	19.0
23	9.0	5.0	---	1.0	6.0	3.0	5.0	13.0	19.0	22.0	20.0	18.0
24	9.0	.0	---	3.0	5.5	2.5	4.0	14.0	18.0	22.0	16.0	24.0
25	8.0	.0	---	2.0	---	3.5	8.0	15.0	17.0	20.0	17.0	16.0
26	7.0	1.0	---	2.5	5.5	7.0	11.0	14.0	22.0	19.0	16.0	12.0
27	5.0	1.0	---	2.0	4.0	5.0	15.0	15.0	17.0	20.0	25.0	10.0
28	---	1.0	2.0	---	3.5	5.0	10.0	10.0	17.0	16.0	19.0	12.0
29	---	1.0	2.0	1.0	2.0	4.5	9.0	9.0	18.0	20.0	22.0	7.0
30	---	.0	3.0	1.0	---	6.0	9.0	10.0	17.0	20.0	22.0	5.0
31	7.0	---	2.0	2.0	---	4.0	---	11.0	---	20.0	22.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	174	2.0	85	.20	8	.00	100	.07	15	.05
2	---	---	211	.38	109	.25	9	.00	100	.08	26	.08
3	---	---	120	.09	90	.16	20	.02	85	.07	44	.12
4	---	---	58	.04	91	.17	56	.05	94	.08	50	.15
5	---	---	62	.05	108	.17	77	.07	98	.07	40	.10
6	---	---	70	.07	101	.14	164	.16	90	.06	58	.13
7	---	---	39	.04	117	.15	123	.13	130	.07	113	.22
8	---	---	30	.03	111	.13	32	.03	117	.07	50	.09
9	---	---	114	1.0	116	.13	10	.00	55	.05	27	.05
10	---	---	203	2.9	115	.12	7	.00	146	.47	29	.05
11	40	.00	77	.33	160	1.2	8	.00	125	1.1	31	.05
12	60	.00	49	.15	150	.89	7	.00	450	33	24	.04
13	---	---	39	.12	104	.37	7	.00	135	3.0	16	.03
14	39	.00	35	.11	94	.36	6	.00	85	1.3	50	.09
15	74	.10	26	.07	112	.33	7	.00	132	2.5	155	1.2
16	67	.03	25	.06	114	.20	8	.00	363	12	118	1.3
17	35	.00	39	.10	53	.07	6	.00	163	4.2	70	.38
18	---	---	43	.10	38	.05	6	.00	2030	163	41	.19
19	31	.00	65	.37	24	.03	5	.00	1050	72	26	.12
20	59	.03	40	.12	16	.02	6	.00	72	.87	38	.19
21	63	.02	63	.04	10	.00	6	.00	87	.82	65	.33
22	62	.02	79	.15	9	.00	21	.01	47	.37	85	.99
23	39	.00	190	1.6	9	.00	146	.09	94	.61	119	2.7
24	27	.00	153	.50	9	.00	144	.09	100	.57	100	1.6
25	15	.00	80	.15	9	.00	56	.04	78	.38	80	1.1
26	20	.00	98	.15	8	.00	70	.06	41	.18	100	1.1
27	19	.00	154	2.4	9	.00	71	.06	45	.17	94	1.0
28	---	---	97	1.3	9	.00	76	.08	59	.18	89	.72
29	---	---	86	.42	9	.00	99	.08	30	.09	66	.41
30	---	---	66	.23	9	.00	121	.08	---	---	57	.29
31	18	.00	---	---	7	.00	104	.07	---	---	44	.20
TOTAL	---	0.20	---	15.07	---	5.14	---	1.12	---	297.43	---	15.07

05455000 RALSTON CREEK AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	46	.19	29	.20	133	.54	108	.15	129	.11	69	.00
2	51	.21	19	.13	66	.23	74	.10	150	.12	54	.00
3	560	10	1670	94	53	.16	58	.08	133	.09	90	.01
4	85	.92	125	2.0	68	.20	98	.22	118	.07	65	.00
5	38	.29	76	.80	127	.32	490	1.2	34	.02	35	.00
6	35	.20	58	.47	228	.60	128	.22	27	.01	117	.00
7	33	.17	59	.40	467	1.5	118	.11	41	.02	77	.00
8	54	.36	72	.39	352	3.3	123	.31	94	.11	123	.02
9	53	.31	72	.37	188	3.6	108	.15	121	.09	72	.00
10	64	.31	48	.23	150	1.3	192	.50	38	.03	126	.04
11	94	.43	58	.25	150	.61	602	2.8	180	.10	74	.01
12	113	1.0	89	.34	150	.53	436	.51	90	.03	95	.03
13	67	.52	85	.30	172	.56	240	.17	40	.01	522	8.9
14	50	.31	71	.19	130	.35	250	.74	50	.00	380	.48
15	67	.38	90	.27	177	.42	753	6.9	41	.00	392	.18
16	82	.42	94	.25	199	.64	252	.33	57	.02	163	.07
17	119	.51	89	.23	325	1.8	139	.45	91	.11	150	.04
18	75	.28	84	.23	1210	17	161	.22	119	.32	82	.03
19	50	.18	99	.69	200	.54	150	.11	97	.12	63	.02
20	44	.14	93	.38	180	.37	208	2.4	35	.02	94	.02
21	52	.18	80	.22	210	.49	248	.58	65	.01	66	.00
22	53	1.4	88	.38	1020	44	213	.28	33	.00	34	.00
23	28	.32	38	.11	780	14	187	.09	43	.00	35	.00
24	55	.48	29	.07	212	.97	139	.08	68	.01	65	.05
25	66	.39	433	8.1	131	.46	222	.49	85	.02	296	2.6
26	97	.50	211	1.1	148	.48	492	8.5	58	.01	286	.17
27	68	.31	165	.67	176	.40	233	.82	58	.00	238	.30
28	62	.22	321	8.7	148	.28	202	.44	68	.02	125	.05
29	117	2.4	144	1.5	129	.22	121	.18	60	.00	112	.02
30	57	.75	145	.94	113	.16	104	.12	90	.00	95	.01
31	---	---	185	.90	---	---	147	.15	---	---	---	---
TOTAL	---	24.08	---	124.81	---	96.03	---	29.40	---	1.47	---	13.05

TOTAL LOAD FOR YEAR: 622.87 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAY										
03...	0805	7.0	38	3460	355	39	44	49	62	99

05455010 SOUTH BRANCH RALSTON CREEK AT IOWA CITY, IA

LOCATION.--Lat 41°39'05", long 91°30'27", in SW1/4 NE1/4 sec.14, T.79 N., R.6 W., Johnson County, Hydrologic Unit 07080209, on right bank 60 ft downstream from bridge on Muscatine Avenue in Iowa City, and 1.2 mi upstream from mouth.

DRAINAGE AREA.--2.94 mi².

PERIOD OF RECORD.--October 1963 to current year.

REVISED RECORDS.--WDR IOWA 1966: Drainage area.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 678.03 ft NGVD.

REMARKS.--Records good except those for winter period, which are poor.

AVERAGE DISCHARGE.--21 years, 2.46 ft³/s, 11.36 in/yr, 1,780 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,070 ft³/s July 17, 1972, gage height, 9.47 ft; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 14, 1962, reached a stage of 10.5 ft, from flood profile, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 142 ft³/s, June 22, gage height, 4.06 ft at 2200 hours, no other peak above base of 200 ft³/s; no flow Oct. 3-10, Sept. 2,3,5,6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	13	.85	.31	.24	1.6	1.5	3.5	3.4	.62	.44	.01
2	.01	.30	.79	.32	.25	1.2	1.4	3.4	2.8	.58	.41	.00
3	.00	.14	.66	.33	.26	1.1	9.0	23	2.7	1.9	.39	.00
4	.00	.12	.66	.34	.25	1.2	3.6	5.0	2.5	1.6	.37	.02
5	.00	.11	.60	.35	.24	1.0	2.7	3.7	2.2	1.2	.32	.00
6	.00	.13	.56	.35	.22	.95	2.2	3.0	1.8	1.1	.28	.00
7	.00	.12	.52	.36	.21	.89	2.0	2.7	3.3	.67	.30	.01
8	.00	.11	.48	.34	.24	.83	3.1	2.4	7.0	3.0	1.0	.91
9	.00	13	.43	.31	7.0	.78	2.3	2.3	17	.69	.26	.03
10	.00	4.5	.45	.27	36	.73	2.1	2.3	7.0	4.0	.23	1.2
11	1.4	.58	8.5	.25	33	.69	1.9	2.1	3.6	2.5	.21	.12
12	.31	.38	1.7	.23	60	.66	4.2	1.9	3.3	.71	.19	.06
13	.11	.45	1.1	.22	23	.73	2.8	1.8	4.2	.57	.18	9.0
14	.08	.34	1.4	.21	11	.80	2.2	1.7	2.5	.86	.17	.20
15	2.7	.25	.94	.20	6.7	5.7	2.1	1.6	2.2	2.5	.13	.14
16	.11	.22	.61	.19	16	2.8	1.8	1.5	2.3	2.1	.10	.13
17	.04	.20	.48	.19	9.6	1.9	1.7	1.4	5.9	3.0	1.9	.09
18	.04	.22	.44	.18	21	1.7	1.6	2.5	3.5	.67	.23	.09
19	.36	2.6	.41	.18	11	2.0	1.4	3.7	1.5	.63	.09	.07
20	.72	.53	.38	.18	4.3	2.3	1.3	2.2	1.2	7.9	.10	.06
21	.31	.33	.35	.19	3.2	3.2	2.0	1.8	1.3	.86	.11	.04
22	.12	3.4	.32	.19	2.8	5.7	10	2.8	18	.72	.11	.02
23	.06	3.8	.30	.20	2.4	9.5	3.8	1.8	7.2	.62	.09	.01
24	.05	.74	.29	.21	2.1	6.6	3.0	1.6	2.0	.56	.11	2.6
25	.04	.62	.28	.22	1.8	5.1	2.5	11	1.5	1.4	.18	2.0
26	.06	.55	.28	.23	1.6	3.9	2.3	3.5	1.2	12	.17	.11
27	.03	15	.27	.24	1.5	4.6	1.9	3.3	.95	.95	.19	.11
28	.04	6.1	.27	.24	1.4	3.0	1.7	12	.86	.62	.15	.12
29	.03	1.6	.28	.24	1.3	2.3	10	6.1	.76	.49	.17	.11
30	.12	1.0	.28	.23	---	1.9	4.2	4.6	.70	.49	.07	.13
31	.11	---	.30	.24	---	1.7	---	4.0	---	.44	.01	---
TOTAL	6.89	70.44	25.18	7.74	258.61	77.06	92.3	124.2	114.37	55.95	8.66	17.39
MEAN	.22	2.35	.81	.25	8.92	2.49	3.08	4.01	3.81	1.80	.28	.58
MAX	2.7	15	8.5	.36	60	9.5	10	23	18	12	1.9	9.0
MIN	.00	.11	.27	.18	.21	.66	1.3	1.4	.70	.44	.01	.00
CFSM	.08	.80	.28	.09	3.03	.85	1.05	1.36	1.30	.61	.10	.20
IN.	.09	.89	.32	.10	3.27	.97	1.17	1.57	1.45	.71	.11	.22
AC-FT	14	140	50	15	513	153	183	246	227	111	17	34

CAL YR 1983 TOTAL 707.24 MEAN 1.94 MAX 58 MIN .00 CFSM .66 IN 8.95 AC-FT 1400
WTR YR 1984 TOTAL 858.79 MEAN 2.35 MAX 60 MIN .00 CFSM .80 IN 10.86 AC-FT 1700

05455500 ENGLISH RIVER AT KALONA, IA

LOCATION.--Lat 41°27'59", long 91°42'56", in SE1/4 SE1/4 sec.13, T.77 N., R.8 W., Washington County, Hydrologic Unit 07080209, on right bank 30 ft upstream from bridge on State Highway 1, 0.8 mi south of Kalona, 1.1 mi upstream from Camp Creek, 4.5 mi downstream from Smith Creek, and 14.5 mi upstream from mouth.

DRAINAGE AREA.--573 mi².

PERIOD OF RECORD.--September 1939 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1940 (M), 1941. WSP 1708: 1956, 1957 (P), 1958 (P).

GAGE.--Water-stage recorder. Datum of gage is 633.45 ft NGVD (levels by Corps of Engineers). Prior to Dec. 27, 1939, nonrecording gage 30 ft downstream at same datum.

REMARKS.--Records good except those for winter period, which are fair. Corps of Engineers gage-height telemeter and data collection platform at station.

COOPERATION.--Five discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--45 years, 373 ft³/s, 8.84 in/yr, 270,200 acre-ft/yr; median of yearly mean discharges, 330 ft³/s, 7.8 in/yr, 239,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s Sept. 21, 1965, gage height, 21.45 ft; minimum daily, 0.66 ft³/s Feb. 5-7, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1930 reached a stage of 19.9 ft, from floodmark, from information by local residents, discharge, 18,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 28	1515	4,080	12.83	May 28	1900	*4,450	13.95
Feb. 14	1945	a	*14.28				

a Backwater from ice.
Minimum daily discharge, 14 ft³/s Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	188	762	170	145	297	597	2630	954	297	185	21
2	22	1220	635	170	150	292	549	1240	815	275	163	20
3	19	631	557	170	165	263	724	1940	711	257	145	19
4	15	330	499	175	200	251	1840	2520	648	248	132	20
5	14	251	462	175	195	235	1300	1520	647	244	123	22
6	16	208	400	180	185	205	900	1140	560	231	114	19
7	20	185	340	180	180	175	726	946	533	225	107	17
8	20	167	290	180	200	170	649	812	2590	193	104	18
9	19	185	370	180	220	160	885	710	2250	181	109	18
10	18	1750	425	170	280	155	940	643	3320	171	90	22
11	21	1480	455	160	570	155	788	604	1760	185	80	35
12	27	684	720	155	2100	150	744	558	1040	205	73	43
13	75	497	560	160	3350	160	956	512	844	157	67	37
14	87	428	380	155	3600	170	869	477	882	137	62	34
15	61	374	320	150	3100	202	778	438	737	734	58	95
16	52	310	280	150	2250	277	742	417	1020	1100	55	56
17	63	274	250	150	1750	280	643	395	882	400	52	34
18	70	260	240	145	1350	209	557	377	1530	272	58	26
19	56	312	225	140	3280	225	492	410	2050	215	64	22
20	50	758	220	130	2380	218	448	747	780	201	53	21
21	56	527	205	130	1080	203	424	888	632	211	47	19
22	75	388	200	125	828	218	774	652	579	197	42	18
23	89	491	200	130	715	379	612	804	635	153	40	17
24	103	1100	195	140	608	743	525	773	534	135	38	16
25	82	751	195	145	511	1030	468	1140	445	778	35	19
26	67	560	190	150	451	1980	426	1540	413	1180	33	23
27	58	668	190	155	405	1970	399	910	385	967	32	25
28	52	3590	200	160	358	1860	352	3270	488	545	29	20
29	49	2750	200	160	309	1260	347	3710	363	225	27	18
30	46	1200	185	160	---	891	2600	1900	323	257	26	17
31	45	---	175	150	---	686	---	1180	---	212	23	---
TOTAL	1471	22517	10525	4850	30915	15469	23054	35803	29350	10788	2266	791
MEAN	47.5	751	340	156	1066	499	768	1155	978	348	73.1	26.4
MAX	103	3590	762	180	3600	1980	2600	3710	3320	1180	185	95
MIN	14	167	175	125	145	150	347	377	323	135	23	16
CFSM	.08	1.31	.59	.27	1.86	.87	1.34	2.02	1.71	.61	.13	.05
IN.	.10	1.46	.68	.31	2.01	1.00	1.50	2.32	1.91	.70	.15	.05
AC-FT	2920	44660	20880	9620	61320	30680	45730	71020	58220	21400	4490	1570

CAL YR 1983 TOTAL 170371.0 MEAN 467 MAX 6560 MIN 6.1 CFSM .82 IN 11.06 AC-FT 337900
WTR YR 1984 TOTAL 187799.0 MEAN 513 MAX 3710 MIN 14 CFSM .90 IN 12.19 AC-FT 372500

05455700 IOWA RIVER NEAR LONE TREE, IA

LOCATION.--Lat 41°25'15", long 91°28'25", in NW1/4 NE1/4 sec.6, T.76 N., R.5 W., Louisa County, Hydrologic Unit 07080209, on left bank 2,000 ft ,downstream from new tri-county bridge on county highway W66, 5 mi southwest of Lone Tree, 6.2 mi downstream from English River, and at mile 47.2.

DRAINAGE AREA.--4,293 mi².

PERIOD OF RECORD.--October 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 588.16 ft NGVD. Prior to Dec. 28, 1956, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are fair. Flow regulated by Coralville Lake (station 05453510) 36.1 mi upstream since Sept. 17, 1958. Corps of Engineers gage-height telemeter and data collection platform at station.

COOPERATION.--Three discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--28 years, 2,893 ft³/s, 9.15 in/yr, 2,096,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,700 ft³/s May 19, 1974, gage height, 18.97 ft; maximum gage height, 20.27 ft Sept. 22, 1965; minimum daily discharge, 69 ft³/s; Aug. 4, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 25, 1944, reached a stage of 19.94 ft, discharge not determined, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,700 ft³/s Feb. 15, gage height, 16.61 ft; minimum daily discharge, 463 ft³/s Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1930	2390	7190	2150	1550	9360	7210	9040	6520	7690	7330	747
2	1870	3150	6960	2100	1300	10100	7100	7380	6180	7660	7230	663
3	1580	3110	6730	2150	1250	10300	6870	8100	5950	7640	6640	642
4	1230	2250	6640	2400	1250	10200	7170	10000	5810	7630	6460	631
5	1160	2470	6600	2450	1250	10100	7700	7180	5770	7610	6390	596
6	1140	2450	6530	2200	1300	9870	7090	4170	5670	7580	6320	536
7	889	2400	6100	2000	1350	9600	6870	3490	5580	7530	6250	476
8	725	2100	5300	2100	1300	8750	6710	3000	6820	7500	6210	465
9	635	1950	5100	2100	1300	7360	6790	2780	9530	7460	6140	467
10	621	3310	4800	2000	1350	6800	7000	4430	10100	7420	6050	472
11	640	4980	4500	1850	1700	4980	6550	5550	9470	7480	5950	508
12	1010	3900	3800	1850	3500	4680	6380	5550	7290	7430	5870	506
13	1550	3680	4050	1850	5400	4460	6490	5500	6530	7580	5780	540
14	1780	4250	4700	1800	7300	3440	6580	5440	6380	7570	5690	662
15	2050	3520	5400	1800	8900	3050	6420	5380	6260	7800	5600	648
16	2100	3320	4600	1800	9600	3930	6680	5340	6200	8770	5480	701
17	2070	2840	4100	1750	10300	3780	7070	5300	6310	7330	4560	667
18	2070	2480	3100	1750	10300	3510	6530	5270	6450	6830	3670	650
19	1490	2530	2600	1550	11300	3470	6380	5370	7780	6660	3370	572
20	1390	3510	2200	1450	13100	3200	6340	5650	6370	6790	3220	549
21	1680	4830	1800	1650	11700	3100	6300	5950	6050	7200	2420	540
22	1840	5200	1650	1600	10600	3380	7330	5710	7220	7560	2040	486
23	1870	5560	1700	1500	8750	3490	7620	5740	8100	7620	1530	471
24	1940	6690	2000	1450	6230	4210	7300	5810	7810	7560	1320	463
25	2550	6710	2400	1450	4850	4590	7010	6860	7580	7570	1070	553
26	3300	5910	2500	1400	4610	6000	6160	7420	7520	8870	925	596
27	3290	6320	2500	1300	4670	7370	5920	6430	7490	8600	897	528
28	2940	8750	2450	1200	6860	8600	5520	7830	7760	8150	882	509
29	2860	9650	2300	1200	8240	8560	5450	10400	7820	7760	862	502
30	2380	8100	2200	1200	---	7690	7140	8470	7720	7540	845	497
31	2310	---	2150	1400	---	7340	---	7120	---	7420	824	---
TOTAL	54890	128310	124650	54450	161110	195270	201680	191660	212040	235810	127825	16843
MEAN	1771	4277	4021	1756	5556	6299	6723	6183	7068	7607	4123	561
MAX	3300	9650	7190	2450	13100	10300	7700	10400	10100	8870	7330	747
MIN	621	1950	1650	1200	1250	3050	5450	2780	5580	6660	824	463
AC-FT	108900	254500	247200	108000	319600	387300	400000	380200	420600	467700	253500	33410

CAL YR 1983 TOTAL 1854763 MEAN 5082 MAX 16700 MIN 543 AC-FT 3679000
WTR YR 1984 TOTAL 1704538 MEAN 4657 MAX 13100 MIN 463 AC-FT 3381000

05457700 CEDAR RIVER AT CHARLES CITY, IA

LOCATION.--Lat 43°03'45", long 92°40'23", in SE1/4 NE1/4, sec.12, T.95 N., R.16 W., Floyd County, Hydrologic Unit 07080201, on right bank 800 ft downstream from bridge on U.S. Highway 18 (Brantingham Street) in Charles City, 10.6 mi upstream from Gizzard Creek, and at mile 252.9 upstream from mouth of Iowa River.

DRAINAGE AREA.--1,054 mi².

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 973.02 ft NGVD.

REMARKS.--Records good except those for winter periods, which are poor. Occasional minor regulation by dam 0.2 mi above gage. Daily wire-weight gage readings available in district office for period Sept. 13, 1945, to June 30, 1954, at same site and datum. Discharge not published for this period because of extreme regulation of streamflow by power dam 0.2 mi upstream. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--20 years, 747 ft³/s, 9.62 in/yr, 541,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,000 ft³/s Apr. 7, 1965, gage height, 19.14 ft; maximum gage height, 21.64 ft Mar. 2, 1965, backwater from ice; minimum daily discharge, 60 ft³/s Nov. 23, 1977, Jan. 7, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 27, 1961, reached a stage of 21.6 ft, from floodmarks, discharge, 29,200 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 19	0045	4,500	ice jam	May 2	0300	6,220	9.35
Mar. 28	0815	5,500	8.67	June 8	unknown	*8,600	*11.42
Apr. 15	0015	4,230	7.40	June 17	unknown	8,400	11.25

Minimum daily discharge, 183 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	610	691	570	470	350	1420	2760	5550	928	985	406	222
2	574	675	670	445	340	1300	2820	5990	876	927	391	219
3	586	653	680	430	340	1180	2800	5180	880	868	377	209
4	574	623	730	410	340	1100	2870	4230	738	831	358	211
5	549	599	790	395	325	1080	2630	3130	761	794	349	212
6	517	586	710	380	320	921	2290	2460	748	744	340	206
7	491	569	530	365	310	630	2090	2190	736	695	337	206
8	472	562	470	355	315	660	1900	2140	5030	675	333	218
9	450	597	460	340	325	530	1770	1980	3850	663	364	217
10	435	698	470	330	340	510	1720	1750	1860	660	358	220
11	476	863	470	320	350	580	1620	1570	1440	847	325	215
12	561	884	460	315	380	570	1610	1420	1810	1300	311	211
13	697	824	440	310	520	590	2680	1330	1910	1090	301	222
14	744	791	430	315	640	720	4040	1280	1990	891	293	251
15	702	816	410	318	1000	880	3990	1210	1570	849	288	236
16	662	908	390	325	1700	927	3190	1130	1450	1440	290	218
17	626	925	380	330	3300	988	2430	1100	5140	1330	293	207
18	594	881	420	335	3900	935	1950	1170	7420	1310	304	201
19	579	889	490	345	4500	843	1650	1230	5020	1020	285	198
20	768	970	660	350	4000	814	1450	1210	3480	846	273	192
21	1400	1090	660	355	3600	760	1320	1120	2460	745	271	187
22	1970	1210	640	360	3390	696	1240	1080	2060	676	276	183
23	1800	1290	610	360	3940	709	1200	1240	1950	623	280	187
24	1440	1310	600	360	3460	1490	1160	1240	2680	573	264	197
25	1190	1190	590	360	2830	3530	1090	1230	2320	543	252	203
26	1050	1110	580	355	2680	4350	1020	1330	1770	523	244	196
27	952	1040	560	355	2460	4860	1070	1350	1510	507	242	195
28	889	1030	540	355	1950	5420	2260	1240	1330	491	236	195
29	821	900	510	355	1610	4730	3550	1150	1200	461	234	191
30	759	567	495	350	---	4390	4180	1060	1050	432	227	189
31	715	---	480	350	---	3390	---	984	---	410	216	---
TOTAL	24653	25741	16895	11098	49515	51503	66350	60274	65967	24749	9318	6214
MEAN	795	858	545	358	1707	1661	2212	1944	2199	798	301	207
MAX	1970	1310	790	470	4500	5420	4180	5990	7420	1440	406	251
MIN	435	562	380	310	310	510	1020	984	736	410	216	183
CFSM	.75	.81	.52	.34	1.62	1.58	2.10	1.84	2.09	.76	.29	.20
IN.	.87	.91	.60	.39	1.75	1.82	2.34	2.13	2.33	.87	.33	.22
AC-FT	48900	51060	33510	22010	98210	102200	131600	119600	130800	49090	18480	12330

CAL YR 1983 TOTAL 495635 MEAN 1358 MAX 9190 MIN 256 CFSM 1.29 IN 17.49 AC-FT 983100
WTR YR 1984 TOTAL 412277 MEAN 1126 MAX 7420 MIN 183 CFSM 1.07 IN 14.55 AC-FT 817800

05458000 LITTLE CEDAR RIVER NEAR IONIA, IA

LOCATION.--Lat 43°02'05", long 92°30'05", in SW1/4 NE1/4 sec.21, T.95 N., R.14 W., Chickasaw County, Hydrologic Unit 07080201, on left bank 12 ft downstream from bridge on county highway B57, 2.4 mi west of Ionia, 6.4 mi upstream from mouth, and 7.6 mi downstream from Beaver Creek.

DRAINAGE AREA.--306 mi².

PERIOD OF RECORD.--October 1954 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1708: 1959.

GAGE.--Water-stage recorder. Datum of gage is 973.35 ft NGVD.

REMARKS.--Records good. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--30 years, 180 ft³/s, 7.99 in/yr, 130,400 acre-ft/yr; median of yearly mean discharges, 150 ft³/s, 6.7 in/yr, 109,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s Mar. 27, 1961, gage height, 15.58 ft; minimum daily, 3.0 ft³/s Feb. 4-9, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1954, reached a stage of 11.37 ft, discharge, 4,600 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 19	1030	2,250	8.47	June 9	1645	4,650	11.36
Mar. 25	2215	1,990	8.06	June 18	1845	*7,880	*13.94
May 1	1115	1,450	7.19				

Minimum daily discharge, 34 ft³/s Sept. 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	181	227	109	81	362	636	1420	230	259	94	43
2	161	178	258	109	74	325	460	1200	217	237	93	47
3	160	172	253	105	76	298	412	860	202	221	86	43
4	169	163	259	104	77	290	478	659	194	213	81	44
5	168	157	266	103	75	278	446	532	189	200	80	44
6	154	155	226	102	75	223	396	450	182	187	78	42
7	145	151	191	100	69	195	359	463	172	174	76	41
8	138	147	151	100	69	217	336	523	629	169	77	44
9	132	165	166	103	72	184	335	447	3340	169	74	44
10	126	195	160	110	72	193	328	379	1650	163	74	44
11	145	216	213	95	72	189	313	342	707	225	69	44
12	189	210	201	94	78	180	365	310	916	243	65	43
13	209	200	186	95	132	177	771	293	873	205	63	42
14	201	198	199	92	189	178	949	291	898	183	61	41
15	188	203	171	89	250	290	911	270	610	179	60	40
16	183	202	104	88	615	447	760	253	475	172	59	39
17	175	196	110	87	1250	524	578	244	1000	287	59	39
18	165	191	153	82	1860	485	454	256	4920	380	65	39
19	158	237	161	78	2180	473	384	313	4880	259	60	38
20	234	308	151	75	1840	390	340	317	1890	213	56	37
21	598	393	146	69	1470	330	309	291	891	188	57	36
22	626	391	147	67	1360	275	295	274	707	168	59	34
23	456	704	135	68	1200	491	295	270	748	149	56	34
24	364	636	129	71	1340	1210	290	263	765	135	53	36
25	311	510	113	74	1260	1810	269	290	567	126	52	38
26	279	424	105	77	970	1750	253	300	461	122	50	39
27	257	372	105	78	820	1490	256	314	408	116	49	39
28	237	368	107	78	665	1400	285	347	347	110	48	38
29	217	340	111	76	384	1320	418	294	314	103	47	38
30	200	277	112	75	---	1110	1160	267	285	98	45	38
31	191	---	110	75	---	864	---	245	---	94	43	---
TOTAL	7108	8240	5126	2728	18675	17948	13841	12977	29667	5747	1989	1208
MEAN	229	275	165	88.0	644	579	461	419	989	185	64.2	40.3
MAX	626	704	266	110	2180	1810	1160	1420	4920	380	94	47
MIN	126	147	104	67	69	177	253	244	172	94	43	34
CFSM	.75	.90	.54	.29	2.11	1.89	1.51	1.37	3.23	.61	.21	.13
IN.	.86	1.00	.62	.33	2.27	2.18	1.68	1.58	3.61	.70	.24	.15
AC-FT	14100	16340	10170	5410	37040	35600	27450	25740	58840	11400	3950	2400

CAL YR 1983 TOTAL 145275 MEAN 398 MAX 3400 MIN 56 CFSM 1.30 IN 17.66 AC-FT 288200
WTR YR 1984 TOTAL 125254 MEAN 342 MAX 4920 MIN 34 CFSM 1.12 IN 15.23 AC-FT 248400

05458500 CEDAR RIVER AT JANESVILLE, IA

LOCATION.--Lat 42°38'54", long 92°27'54", in NE1/4 SW1/4 sec.35, T.91 N., R.14 W., Bremer County, Hydrologic Unit 07080201, on left bank 300 ft downstream from bridge on county highway at Janesville, 3.6 mi upstream from West Fork Cedar River, and at mile 207.7 upstream from mouth of Iowa River.

DRAINAGE AREA.--1,661 mi².

PERIOD OF RECORD.--October 1904 to Sept. 1906, October 1914 to September 1927, October 1932 to September 1942, October 1945 to current year. Monthly discharge only for some periods, published in WSP 1308. Published as Red Cedar River at Janesville, 1905-6.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1906 (M), 1915-16 (M), 1917, 1918-19 (M), 1920-27, 1933-37 (M), 1940-42 (M).

GAGE.--Water-stage recorder. Datum of gage is 868.26 ft NGVD. Prior to July 26, 1919, nonrecording gage at site 1,000 ft downstream at datum 4.0 ft lower. July 26, 1919, to Sept. 30, 1927, Nov. 14, 1932, to Sept 30, 1942, and Apr. 26, 1946, to Nov. 10, 1949, nonrecording gage at county bridge 300 ft upstream at same datum.

REMARKS.--Records good except those for winter period, which are poor. Diurnal fluctuation during low water caused by powerplant at Waverly, 10 mi upstream. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--64 years (water years 1905-06, 1915-27, 1933-42, 1946-84), 862 ft³/s, 7.05 in/yr, 624,500 acre-ft/yr; median of yearly mean discharges, 740 ft³/s, 6.1 in/yr, 536,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,000 ft³/s Mar. 28, 1961, gage height, 16.33 ft; minimum daily, 28 ft³/s Oct. 21, 1922.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 17, 1945, reached a stage of 16.2 ft, from floodmark at site 300 ft upstream, discharge, 34,300 ft³/s. Flood of Mar. 16, 1929, reached a stage of about 16 ft, from information by City of Waterloo, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 20	1230	10,200	9.00	May 3	1230	7,770	7.61
Mar. 29	1500	6,420	6.64	June 10	1645	6,950	7.02
Apr. 16	0615	5,500	5.89	June 20	0545	*12,100	*9.96

Minimum daily discharge, 345 ft³/s Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	1290	1770	840	860	3060	4770	6120	1860	1820	739	414
2	1150	1240	1700	840	820	2620	3870	6960	1750	1650	708	441
3	1120	1200	1550	830	830	2320	3740	7670	1540	1550	720	460
4	1080	1160	1520	820	820	2070	3880	7030	1630	1460	699	404
5	1050	1120	1480	800	770	1930	3910	6090	1440	1380	671	409
6	1020	1080	1390	740	700	1810	3730	4920	1380	1320	611	406
7	966	1050	1280	690	770	1710	3320	4040	1350	1220	629	401
8	923	1030	1190	660	820	1550	3060	3550	1440	1160	606	408
9	880	1070	1100	620	830	1490	2840	3380	2850	1130	607	410
10	850	1170	1050	600	840	1480	2680	3180	6540	1260	584	412
11	922	1220	1020	600	860	1470	2570	2870	5380	1080	634	421
12	1120	1360	1000	590	880	1470	2510	2630	3000	1150	603	413
13	1150	1440	1000	590	1200	1400	2680	2390	3890	1620	566	388
14	1200	1420	900	580	1700	1320	3540	2220	3630	1610	565	416
15	1280	1370	850	570	2300	1280	4990	2110	3500	1660	533	400
16	1270	1340	770	570	3500	1710	5420	2000	3000	1370	541	401
17	1210	1400	1900	570	5000	1760	4770	1870	2810	2030	478	419
18	1140	1450	2600	570	6800	1760	3830	1840	3990	1980	527	407
19	1100	1520	2750	580	7800	1680	3130	1890	8940	2010	553	374
20	1100	1720	2700	580	9870	1580	2670	1980	11300	1670	522	395
21	1280	1810	2580	590	8250	1430	2350	1960	7440	1420	508	345
22	1980	1890	2400	590	6950	1280	2230	1870	4800	1260	518	356
23	2610	2200	2200	600	6290	1180	2120	1770	5010	1150	510	354
24	2750	2970	1850	600	5630	1290	2040	1840	4010	1070	500	362
25	2450	2810	2550	620	5720	2450	1910	2470	4040	991	496	376
26	1960	2480	1300	630	5440	4540	1800	2410	4040	951	484	380
27	1780	2250	1150	640	4480	5800	1760	2270	3140	906	467	357
28	1640	2270	1050	660	4030	6040	1730	2760	2610	867	463	356
29	1520	2280	960	680	3650	6350	2490	2850	2250	834	458	357
30	1410	1950	860	700	---	6020	5110	2210	2030	797	436	354
31	1330	---	820	840	---	5450	---	2040	---	761	415	---
TOTAL	42451	48560	47240	20390	98410	77300	95450	99190	110590	41137	17351	11796
MEAN	1369	1619	1524	658	3393	2494	3182	3200	3686	1327	560	393
MAX	2750	2970	2750	840	9870	6350	5420	7670	11300	2030	739	460
MIN	850	1030	770	570	700	1180	1730	1770	1350	761	415	345
CFSM	.82	.98	.92	.40	2.04	1.50	1.92	1.93	2.22	.80	.34	.24
IN.	.95	1.09	1.06	.46	2.20	1.73	2.14	2.22	2.48	.92	.39	.26
AC-FT	84200	96320	93700	40440	195200	153300	189300	196700	219400	81600	34420	23400

CAL YR 1983 TOTAL 859807 MEAN 2356 MAX 12100 MIN 444 CFSM 1.42 IN 19.26 AC-FT 1705000
WTR YR 1984 TOTAL 709865 MEAN 1940 MAX 11300 MIN 345 CFSM 1.17 IN 15.90 AC-FT 1408000

05458900 WEST FORK CEDAR RIVER AT FINCHFORD, IA

LOCATION.--Lat 42°37'50", long 92°32'24", in SW1/4 SE1/4 sec.6, T.90 N., R.14 W., Black Hawk County, Hydrologic Unit 07080204, on left bank 100 ft downstream from bridge on county highway C55 at Finchford, 3.2 mi upstream upstream from Shell Rock River, and 5.0 mi upstream from mouth.

DRAINAGE AREA.--846 mi².

PERIOD OF RECORD.--October 1945 to current year. Prior to October 1955, published as West Fork Shell Rock River at Finchford.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1946 (M), 1947.

GAGE.--Water-stage recorder. Datum of gage is 867.54 ft NGVD. Prior to June 10, 1955, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. An authorized diversion is made into Big Marsh, 16 mi upstream from gage, of 2,100 acre-ft each year between September 1 and November 15. Net effect on daily flows at gage is unknown. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--39 years, 518 ft³/s, 8.31 in/yr, 375,300 acre-ft/yr; median of yearly mean discharges, 480 ft³/s, 7.7 in/yr, 348,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 ft³/s June 27, 1951, gage height, 17.28 ft, from floodmarks; minimum daily, 5.9 ft³/s Feb. 26, 27, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1929 reached a stage of about 14 ft, from information by local resident, discharge, about 12,800 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 19	1945	6,900	ice jam	May 30	0430	2,570	10.21
Mar. 28	0815	3,020	10.68	June 16	0115	4,000	11.45
Apr. 16	1700	3,160	10.76	June 21	0700	6,930	12.97
May 3	0230	6,990	12.97	June 25	2015	*9,300	*13.77

Minimum daily discharge, 66 ft³/s Sept 21, 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1100	739	1390	390	285	1690	1690	3970	1830	2510	459	91
2	995	712	1300	380	300	1520	1540	6250	1620	2140	436	92
3	943	685	1200	370	315	1370	1530	6690	1470	1890	411	99
4	920	658	1100	360	330	1280	1740	5570	1360	1710	385	103
5	877	630	1030	350	345	1220	1880	4650	1320	1590	364	96
6	825	614	950	340	360	1080	2060	3970	1260	1470	342	88
7	776	605	860	330	375	900	2060	3330	1170	1350	320	83
8	715	593	800	330	400	900	1860	2810	1100	1250	300	83
9	681	620	760	320	410	860	1720	2500	1100	1230	286	82
10	654	765	720	310	440	860	1710	2230	1400	1780	271	83
11	682	947	700	300	460	860	1720	1990	1610	1580	253	83
12	806	1080	660	290	540	860	1690	1820	1770	1330	240	82
13	875	1020	620	280	900	820	1790	1670	2590	1180	227	80
14	883	976	600	270	1180	738	2180	1550	3270	1160	216	77
15	845	937	580	270	1480	813	2730	1440	3800	1540	204	76
16	819	896	480	260	2200	946	3090	1350	3910	1440	194	74
17	786	852	540	250	3300	1130	3040	1290	3660	1430	192	73
18	744	828	700	240	5000	1200	2600	1250	3330	1260	192	72
19	711	898	840	240	6600	1070	2100	1250	3360	1160	192	69
20	721	1120	960	230	7030	953	1760	1240	5090	1030	185	67
21	848	1270	1080	230	5740	857	1560	1200	6730	937	172	66
22	1180	1270	1100	220	5420	739	1510	1160	5740	850	168	67
23	1270	1330	1100	220	4630	733	1570	1120	4870	771	163	66
24	1210	1600	960	220	4140	955	1670	1080	4610	706	159	66
25	1120	1570	840	220	3820	1480	1860	1400	7770	656	152	69
26	1040	1450	700	225	3440	2130	2040	1770	7960	632	145	70
27	971	1350	560	235	2950	2730	1930	1940	5860	611	139	73
28	914	1430	430	240	2430	2980	1800	2010	4510	596	119	75
29	857	1630	420	255	1970	2730	2150	2410	3660	564	102	74
30	801	1660	400	265	---	2280	3080	2500	3020	526	96	76
31	756	---	390	275	---	1990	---	2160	---	489	94	---
TOTAL	27325	30735	24770	8715	66790	40674	59660	75570	100750	37368	7178	2355
MEAN	881	1025	799	281	2303	1312	1989	2438	3358	1205	232	78.5
MAX	1270	1660	1390	390	7030	2980	3090	6690	7960	2510	459	103
MIN	654	593	390	220	285	733	1510	1080	1100	489	94	66
CFSM	1.04	1.21	.94	.33	2.72	1.55	2.35	2.88	3.97	1.42	.27	.09
IN.	1.20	1.35	1.09	.38	2.94	1.79	2.62	3.32	4.43	1.64	.32	.10
AC-FT	54200	60960	49130	17290	132500	80680	118300	149900	199800	74120	14240	4670

CAL YR 1983 TOTAL 545037 MEAN 1493 MAX 7940 MIN 123 CFSM 1.77 IN 23.97 AC-FT 1081000
WTR YR 1984 TOTAL 481890 MEAN 1317 MAX 7960 MIN 66 CFSM 1.56 IN 21.19 AC-FT 955800

05459000 SHELL ROCK RIVER NEAR NORTHWOOD, IA

LOCATION.--Lat 43°24'51", long 93°13'14", in NW1/4 NW1/4 sec.9, T.99 N., R.20 W., Worth County, Hydrologic Unit 07080202, on right bank 50 ft downstream from bridge on county highway A27, 1.3 mi downstream from drainage ditch 2, 2.0 mi south of Northwood, 3.7 mi upstream from Elk Creek, and 84.5 mi upstream from mouth.

DRAINAGE AREA.--300 mi².

PERIOD OF RECORD.--October 1945 to current year. Prior to April 1948 monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1948 (M). WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,176.48 ft NGVD. Prior to May 17, 1956, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor.

AVERAGE DISCHARGE.--39 years, 160 ft³/s, 7.24 in/yr, 115,900 acre-ft/yr; median of yearly mean discharges, 140 ft³/s, 6.3 in/yr, 101,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,400 ft³/s Apr. 8, 1965, gage height, 12.07 ft, backwater from ice; no flow Jan. 14-19, 26-30, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 21	0015	1,680	ice jam	May 1	1430	*1,800	*8.77
Feb. 25	1930	1,630	ice jam	June 18	1645	914	6.97
Mar. 29	0630	1,170	7.53	June 23	1245	845	6.80
Apr. 14	0330	1,170	7.46				

Minimum daily discharge, 16 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	142	345	120	80	686	1050	1760	352	308	127	31
2	77	138	340	116	81	599	1030	1760	345	283	115	29
3	78	136	293	115	82	531	1030	1700	329	270	109	29
4	81	128	262	114	83	490	1060	1630	306	267	105	26
5	75	120	250	110	85	458	1050	1530	310	252	97	27
6	70	116	265	109	86	406	1000	1430	303	229	90	27
7	63	114	243	107	90	360	927	1390	294	207	89	25
8	57	107	237	105	94	330	866	1310	310	190	110	27
9	55	127	158	104	98	300	844	1210	284	183	102	26
10	49	185	145	102	105	270	805	1100	274	203	94	24
11	85	188	138	100	112	239	750	1000	275	307	86	24
12	132	161	130	98	128	265	804	910	333	316	79	27
13	121	145	125	96	162	290	1090	856	396	320	72	27
14	116	160	120	94	197	347	1170	794	371	322	70	26
15	115	207	115	93	240	289	1120	719	351	493	67	26
16	110	210	140	93	341	266	1050	647	384	491	64	24
17	112	197	165	92	479	266	968	599	635	439	64	21
18	106	185	178	90	595	254	883	583	800	408	66	20
19	109	190	175	89	750	248	804	567	804	374	61	21
20	206	228	163	88	980	243	724	529	663	342	56	20
21	265	245	155	88	1680	226	652	482	596	311	55	20
22	237	230	150	88	1600	235	592	527	708	278	54	18
23	228	242	142	86	1580	287	566	535	829	252	53	20
24	214	160	138	84	1600	463	535	486	742	235	48	18
25	208	263	135	84	1610	711	492	500	606	218	43	18
26	200	279	130	84	1250	910	452	519	514	201	40	21
27	191	256	128	82	1010	1010	815	478	454	191	37	19
28	175	129	127	82	918	1070	1130	465	411	175	38	17
29	175	181	125	81	821	1150	1140	438	373	159	38	17
30	156	305	123	80	---	1090	1370	412	337	145	35	16
31	145	---	120	80	---	1050	---	384	---	137	32	---
TOTAL	4095	5474	5460	2954	16937	15339	26769	27250	13689	8506	2196	691
MEAN	132	182	176	95.3	584	495	892	879	456	274	70.8	23.0
MAX	265	305	345	120	1680	1150	1370	1760	829	493	127	31
MIN	49	107	115	80	80	226	452	384	274	137	32	16
CFSM	.44	.61	.59	.32	1.95	1.65	2.97	2.93	1.52	.91	.24	.08
IN.	.51	.68	.68	.37	2.10	1.90	3.32	3.38	1.70	1.05	.27	.09
AC-FT	8120	10860	10830	5860	33590	30420	53100	54050	27150	16870	4360	1370

CAL YR 1983 TOTAL 132253 MEAN 362 MAX 1870 MIN 27 CFSM 1.21 IN 16.40 AC-FT 262300
WTR YR 1984 TOTAL 129360 MEAN 353 MAX 1760 MIN 16 CFSM 1.18 IN 16.04 AC-FT 256600

05459500 WINNEBAGO RIVER AT MASON CITY, IA

LOCATION.--Lat 43°09'54", long 93°11'33", in NE1/4 NW1/4 sec.3, T.96 N., R.20 W., Cerro Gordo County, Hydrologic Unit 07080203, on right bank 650 ft upstream from Thirteenth Street Bridge in Mason City, 0.1 mi downstream from Calmus Creek, and 1.0 mi upstream from Willow Creek, and at mile 275.8 above mouth of Iowa River.

DRAINAGE AREA.--526 mi².

PERIOD OF RECORD.--October 1932 to current year. Prior to December 1932, monthly discharge only, published in WSP 1308. Prior to October 1959, published as Lime Creek at Mason City.

REVISED RECORDS.--WSP 825: 1935-36. WSP 1438: Drainage area. WSP 1558: 1933-37, 1943 (M), 1945, 1948.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,069.59 ft NGVD. Prior to Oct. 15, 1934, nonrecording gage at datum 6.47 ft lower. Oct. 15 to Nov. 6, 1934, nonrecording gage at different datum, and Nov. 7, 1934, to Mar. 22, 1935, nonrecording gage at present datum.

REMARKS.--Records good. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--52 years, 266 ft³/s, 6.87 in/yr, 192,700 acre-ft/yr; median of yearly mean discharges, 220 ft³/s, 5.7 in/yr, 159,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s Mar. 30, 1933, gage height, 15.7 ft, present datum; minimum daily, 2.5 ft³/s Dec. 29-31, 1933, Aug. 5, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 18	1000	2,550	ice jam	June 13	1445	2,030	6.82
Feb. 23	1715	3,230	8.33	June 17	1130	4,580	9.87
May 1	0145	3,190	8.28	June 23	1130	3,290	8.41
June 8	0700	*6,540	*11.94				

Minimum daily discharge, 73 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	254	283	350	240	130	1180	1050	3000	699	1010	214	90
2	250	274	410	235	125	1040	1000	2660	642	904	202	92
3	268	261	430	210	120	942	1010	2550	595	804	191	89
4	257	251	440	200	115	884	1120	2370	561	710	176	91
5	246	247	350	185	102	791	1060	2070	567	624	174	93
6	228	241	310	180	88	629	989	1800	558	561	171	87
7	221	235	285	170	94	589	905	1730	759	508	164	88
8	211	231	285	160	100	547	854	1590	4610	479	159	98
9	200	285	285	155	109	565	889	1400	1770	459	150	94
10	197	431	280	146	114	500	863	1240	1290	451	155	93
11	254	408	270	145	118	450	821	1130	1180	451	147	97
12	380	372	270	144	148	400	1030	1040	1790	431	140	95
13	358	355	270	143	220	420	1690	978	1970	428	133	90
14	338	368	275	141	350	435	1720	905	1700	450	127	86
15	322	404	210	140	540	451	1550	828	1600	587	121	86
16	314	404	150	141	1100	470	1380	768	1610	580	122	84
17	295	399	170	141	2100	472	1220	729	3390	614	122	80
18	276	388	195	142	2550	480	1080	708	3060	595	133	80
19	280	395	230	142	2000	461	975	792	2140	541	123	76
20	526	459	275	142	1900	439	885	731	1710	490	116	92
21	633	450	290	140	1820	383	806	654	1530	441	115	75
22	559	446	280	138	2000	388	769	707	2420	392	119	73
23	502	508	270	138	2540	560	767	757	3020	350	112	79
24	455	478	230	136	2340	1150	743	703	2590	315	92	82
25	410	458	205	132	2100	1680	678	700	2230	295	104	83
26	384	443	200	130	1940	1680	629	680	1930	282	100	84
27	359	448	195	128	1670	1590	1110	659	1650	277	97	85
28	338	362	205	133	1360	1450	1520	887	1460	274	94	82
29	310	294	220	132	1160	1390	1540	907	1280	264	95	83
30	299	314	235	131	---	1170	2890	833	1140	237	93	82
31	291	---	250	130	---	1080	---	769	---	221	89	---
TOTAL	10215	10892	8320	4770	29053	24666	33543	37275	51451	15025	4150	2589
MEAN	330	363	268	154	1002	796	1118	1202	1715	485	134	86.3
MAX	633	508	440	240	2550	1680	2890	3000	4610	1010	214	98
MIN	197	231	150	128	88	383	629	654	558	221	89	73
CFSM	.63	.69	.51	.29	1.91	1.51	2.13	2.29	3.26	.92	.26	.16
IN.	.72	.77	.59	.34	2.05	1.74	2.37	2.64	3.64	1.06	.29	.18
AC-FT	20260	21600	16500	9460	57630	48920	66530	73930	102100	29800	8230	5140

CAL YR 1983	TOTAL 258571	MEAN 708	MAX 3410	MIN 99	CFSM 1.35	IN 18.29	AC-FT 512900		
WTR YR 1984	TOTAL 231949	MEAN 634	MAX 4610	MIN 73	CFSM 1.21	IN 16.40	AC-FT 460100		

05460000 CLEAR LAKE AT CLEAR LAKE, IA

LOCATION.--Lat 43°08'01", long 93°22'57", in SE1/4 NE1/4 sec.13, T.96 N., R.22 W., Cerro Gordo County, Hydrologic Unit 07080203, at the public bathing beach in the town of Clear Lake near dam across Clear Creek.

DRAINAGE AREA.--22.6 mi².

PERIOD OF RECORD.--May 1933 to current year. No winter records 1933-52. Record fragmentary November 1952 to June 1959.

GAGE.--Water-stage recorder. Datum of gage is 1,222.24 ft NGVD, and 4.60 ft below crest of spillway of dam at outlet. See WSP 1708 for history of changes prior to June 25, 1959.

REMARKS.--Lake is formed by concrete dam on Clear Creek with ungated overflow spillway 50 ft long at elevation 1,226.84 ft NGVD. Dam constructed in 1903. A previous outlet works had been constructed in 1887. Lake is used for conservation and recreation. Area of lake is approximately 3,600 acres.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 5.94 ft July 3, 1951; minimum observed, 1.16 ft Dec. 20, 22-24, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.70 ft June 17; minimum, 3.94 ft Sept. 30.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.63	4.71	4.97	4.89	4.80	5.06	5.05	5.28	4.94	5.32	4.73	4.30
2	4.62	4.69	4.96	4.85	4.80	5.06	5.04	5.25	4.98	5.29	4.70	4.30
3	4.65	4.67	4.96	4.84	4.80	5.05	5.07	5.26	4.95	5.24	4.69	4.26
4	4.65	4.67	4.95	4.84	4.79	5.06	5.08	5.27	4.95	5.20	4.68	4.26
5	4.66	4.69	4.94	4.84	4.79	5.08	5.08	5.25	4.95	5.16	4.68	4.25
6	4.63	4.68	4.93	4.83	4.79	5.07	5.07	5.25	4.95	5.11	4.66	4.21
7	4.64	4.69	4.93	4.83	4.78	5.06	5.06	5.30	5.01	5.07	4.66	4.24
8	4.59	4.66	4.92	4.82	4.78	5.07	5.08	5.29	5.37	5.05	4.68	4.25
9	4.58	4.71	4.92	4.82	4.78	5.06	5.10	5.22	5.33	5.05	4.67	4.22
10	4.58	4.72	4.90	4.81	4.77	5.05	5.10	5.20	5.35	5.04	4.64	4.21
11	4.63	4.74	4.90	4.81	4.77	5.04	5.10	5.20	5.35	5.02	4.61	4.20
12	4.65	4.73	4.90	4.80	4.83	5.04	5.17	5.17	5.44	5.00	4.60	4.21
13	4.65	4.75	4.90	4.80	4.82	5.03	5.24	5.15	5.46	5.00	4.58	4.20
14	4.63	4.78	4.91	4.79	4.82	5.02	5.24	5.13	5.46	5.01	4.56	4.17
15	4.63	4.77	4.91	4.79	4.84	5.05	5.23	5.10	5.45	5.04	4.55	4.15
16	4.64	4.78	4.91	4.79	4.85	5.05	5.20	5.08	5.50	5.02	4.54	4.14
17	4.63	4.76	4.91	4.79	4.88	5.05	5.18	5.08	5.60	5.01	4.53	4.13
18	4.62	4.77	4.91	4.78	4.92	5.05	5.16	5.09	5.63	4.97	4.53	4.12
19	4.63	4.79	4.91	4.78	4.98	5.05	5.15	5.08	5.60	4.95	4.52	4.11
20	4.69	4.87	4.91	4.77	4.99	5.05	5.13	5.08	5.56	4.93	4.50	4.08
21	4.69	4.80	4.92	4.77	5.01	5.05	5.07	5.07	5.53	4.90	4.50	4.07
22	4.72	4.81	4.92	4.76	5.03	5.04	5.10	5.10	5.65	4.90	4.48	4.06
23	4.73	4.91	4.92	4.73	5.05	5.04	5.15	5.08	5.71	4.87	4.45	4.05
24	4.73	4.91	4.92	4.75	5.06	5.04	5.14	5.07	5.65	4.84	4.44	4.06
25	4.74	4.88	4.92	4.75	5.07	5.05	5.10	5.05	5.60	4.81	4.43	4.05
26	4.73	4.86	4.92	4.76	5.08	5.05	5.10	5.02	5.56	4.80	4.41	4.01
27	4.74	4.83	4.92	4.76	5.08	5.06	5.26	5.02	5.50	4.80	4.40	4.00
28	4.72	4.97	4.92	4.76	5.08	5.06	5.23	5.05	5.45	4.80	4.40	3.98
29	4.70	5.01	4.92	4.77	5.07	5.06	5.13	5.04	5.40	4.77	4.37	3.96
30	4.70	4.99	4.92	4.78	---	5.06	5.38	5.03	5.36	4.75	4.36	3.95
31	4.69	---	4.92	4.79	---	5.05	---	5.02	---	4.74	4.31	---
MEAN	4.66	4.79	4.92	4.80	4.90	5.05	5.14	5.14	5.37	4.98	4.54	4.14
MAX	4.74	5.01	4.97	4.89	5.08	5.08	5.38	5.30	5.71	5.32	4.73	4.30
MIN	4.58	4.66	4.90	4.73	4.77	5.02	5.04	5.02	4.94	4.74	4.31	3.95

WTR YR 1984 MEAN 4.87 MAX 5.71 MIN 3.95

05462000 SHELL ROCK RIVER AT SHELL ROCK, IA

Location.--Lat 42°39'10", long 92°35'45", in NE1/4 NW1/4 sec.11, T.91 N., R.15 W., Butler County, Hydrologic Unit 07080202, on right bank 400 ft upstream from bridge on county highway C45 in Shell Rock, 2.2 mi downstream from Curry Creek, and 10.4 mi upstream from mouth.

DRAINAGE AREA.--1,746 mi².

PERIOD OF RECORD.--June 1953 to current year. Prior to July 1953, monthly discharge only, published in WSP 1728.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Rockfill dam since Oct. 19, 1957. Datum of gage is 885.34 ft NGVD.

REMARKS.--Records good. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--31 years, 1,006 ft³/s, 7.82 in/yr, 728,800 acre-ft/yr; median of yearly mean discharges, 860 ft³/s, 6.7 in/yr, 623,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,500 ft³/s Mar. 28, 1961, gage height, 16.26 ft; minimum daily, 38 ft³/s Feb. 9, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1856 reached a stage of 17.7 ft at bridge 400 ft downstream, from information furnished by Corps of Engineers, discharge, about 45,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 19	1330	6,480	10.96	June 9	1930	9,680	12.05
Feb. 24	1045	6,530	10.98	June 14	0630	5,390	10.39
Mar. 26	1900	5,390	10.48	June 19	1545	10,800	12.41
Apr. 15	0230	5,340	10.37	June 24	0145	*10,900	*12.43
May 2	0015	8,410	11.60				

Minimum daily discharge, 277 ft³/s Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1140	1150	1250	631	471	3170	3480	7960	2290	2860	777	343
2	1080	1120	1400	644	471	2960	3370	8140	2110	2600	759	371
3	1060	1080	1530	644	479	2630	3340	7240	1950	2370	717	345
4	1090	1050	1410	664	494	2420	3640	6650	1860	2180	680	339
5	1050	1020	1630	671	388	2290	3820	6130	1760	2000	654	334
6	1000	998	1420	685	418	1970	3600	5530	1710	1840	623	328
7	950	969	1250	707	461	1630	3350	5040	1660	1680	584	327
8	913	950	1120	700	446	1690	3120	4810	2560	1580	570	334
9	874	999	1050	692	441	1510	3040	4470	8060	1530	575	341
10	841	1200	1100	852	449	1370	3050	4070	6530	1480	550	351
11	891	1540	1160	651	457	1390	2940	3710	3810	1430	535	337
12	1040	1480	1210	715	496	1310	2890	3410	3770	1450	520	329
13	1270	1380	1100	618	721	1160	3690	3170	5180	1450	502	331
14	1250	1320	1140	594	852	1240	5080	2990	5270	1460	486	323
15	1200	1330	1170	577	1510	1480	5280	2800	4430	1530	470	318
16	1180	1390	802	560	3570	1810	4830	2590	3960	1750	458	311
17	1130	1390	539	540	4950	1800	4230	2430	4580	2020	462	303
18	1090	1370	580	520	5570	1680	3730	2370	8220	1890	474	299
19	1050	1440	815	488	6220	1590	3340	2360	10500	1720	470	295
20	1110	1590	887	458	5990	1500	3040	2480	8510	1600	452	289
21	1850	1680	921	440	5500	1390	2780	2300	5640	1470	441	278
22	2130	1640	878	440	5410	1240	2660	2160	5120	1360	444	286
23	1950	1980	887	430	5880	1340	2580	2210	8700	1250	429	277
24	1780	2110	730	425	6480	2030	2540	2270	10100	1140	414	278
25	1640	1850	761	455	5930	3950	2410	2360	7270	1070	403	295
26	1530	1810	722	491	5350	5240	2230	2330	5690	1020	385	286
27	1450	1780	664	488	4980	5100	2170	2290	5260	984	383	283
28	1380	1890	651	487	4260	4680	3110	2690	4140	959	371	286
29	1290	1690	644	473	3520	4460	3890	2930	3570	922	364	287
30	1220	1350	631	471	---	4200	5510	2730	3160	881	350	282
31	1180	---	631	475	---	3710	---	2480	---	820	340	---
TOTAL	38609	42546	30683	17686	82164	73940	102740	115100	147370	48296	15642	9386
MEAN	1245	1418	990	571	2833	2385	3425	3713	4912	1558	505	313
MAX	2130	2110	1630	852	6480	5240	5510	8140	10500	2860	777	371
MIN	841	950	539	425	388	1160	2170	2160	1660	820	340	277
CFSM	.71	.81	.57	.33	1.62	1.37	1.96	2.13	2.81	.89	.29	.18
IN.	.82	.91	.65	.38	1.75	1.58	2.19	2.45	3.14	1.03	.33	.20
AC-FT	76580	84390	60860	35080	163000	146700	203800	228300	292300	95800	31030	18620

CAL YR 1983 TOTAL 874516 MEAN 2396 MAX 9710 MIN 438 CFSM 1.37 IN 18.63 AC-FT 1735000
WTR YR 1984 TOTAL 724162 MEAN 1979 MAX 10500 MIN 277 CFSM 1.13 IN 15.43 AC-FT 1436000

05463000 BEAVER CREEK AT NEW HARTFORD, IA

LOCATION.--Lat 42°30'50", long 92°37'55", in SE1/4 SE1/4 sec.28, T.90 N., R.15 W., Butler County, Hydrologic Unit 07080205, on downstream side of center bridge pier of bridge on county highway T55, 0.2 mi north of New Hartford, and 8 mi upstream from mouth.

DRAINAGE AREA.--347 mi².

PERIOD OF RECORD.--October 1945 to current year. Prior to April 1948, monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1948-49. WSP 1708: 1947 (M).

GAGE.--Water-stage recorder. Datum of gage is 882.44 ft NGVD. Prior to July 14, 1959, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for winter period and periods of no gage-height record, Jan. 24 to May 29, Aug. 11 to Sept. 1, Sept 16-30, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--39 years, 202 ft³/s, 7.90 in/yr, 146,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft³/s June 13, 1947, gage height, 13.5 ft, from graph based on gage readings, from rating curve extended above 14,000 ft³/s; minimum daily, 2.3 ft³/s Jan. 20-24, 1956, Jan. 24, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 16	unknown	*2,400	ice jam	May 28	unknown	2,150	----
Apr. 30	unknown	1,700	----	June 14	1545	1,920	8.56

Minimum daily discharge, 26 ft³/s Sept. 19-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	154	540	125	110	350	340	1500	542	303	155	31
2	92	153	470	130	115	336	381	1250	479	277	140	31
3	96	144	430	130	120	310	440	1050	419	254	130	31
4	99	137	390	135	120	295	633	940	394	233	120	31
5	92	134	350	140	125	288	670	840	387	217	110	30
6	88	132	320	140	98	240	728	770	352	206	105	30
7	86	129	300	135	105	170	660	756	327	191	98	29
8	84	128	280	130	115	180	590	680	309	249	92	29
9	81	142	260	130	130	190	541	640	284	377	87	28
10	80	264	250	130	155	195	540	590	297	542	82	29
11	97	274	230	125	200	190	540	540	288	555	76	29
12	160	234	220	120	280	185	640	500	280	362	72	30
13	171	216	210	115	450	180	840	470	896	288	69	29
14	147	208	195	110	800	170	940	420	1760	264	66	28
15	138	199	185	110	1700	160	850	400	1130	911	63	28
16	141	186	130	105	2400	130	750	390	746	700	61	28
17	135	178	150	100	1900	160	620	374	789	574	59	27
18	128	175	180	100	1300	140	540	430	785	443	57	27
19	125	256	210	95	850	180	485	480	653	359	54	26
20	139	622	250	92	640	170	440	500	538	327	54	26
21	187	519	220	90	1250	160	400	450	475	300	53	26
22	231	396	190	90	880	140	480	420	634	271	52	27
23	290	515	170	90	740	120	540	370	965	256	50	27
24	245	743	150	90	670	105	600	500	1070	243	48	28
25	214	569	135	92	600	90	570	530	626	235	46	31
26	196	482	130	94	540	170	540	890	593	233	44	34
27	185	434	130	96	481	400	500	740	578	233	41	35
28	175	611	130	98	400	800	490	2150	425	280	38	35
29	161	729	125	100	370	600	900	1500	372	222	35	34
30	150	589	125	105	---	400	1700	1000	332	190	34	32
31	148	---	120	105	---	360	---	488	---	175	32	---
TOTAL	4457	9652	7175	3447	17644	7564	18888	22558	17725	10270	2223	886
MEAN	144	322	231	111	608	244	630	728	591	331	71.7	29.5
MAX	290	743	540	140	2400	800	1700	2150	1760	911	155	35
MIN	80	128	120	90	98	90	340	370	280	175	32	26
CFSM	.42	.93	.67	.32	1.75	.70	1.82	2.10	1.70	.95	.21	.09
IN.	.48	1.03	.77	.37	1.89	.81	2.02	2.42	1.90	1.10	.24	.09
AC-FT	8840	19140	14230	6840	35000	15000	37460	44740	35160	20370	4410	1760

CAL YR 1983 TOTAL 187499 MEAN 514 MAX 5900 MIN 52 CFSM 1.48 IN 20.10 AC-FT 371900
WTR YR 1984 TOTAL 122489 MEAN 335 MAX 2400 MIN 26 CFSM .97 IN 13.13 AC-FT 243000

05463500 BLACK HAWK CREEK AT HUDSON, IA

LOCATION.--Lat 42°24'28", long 92°27'47", in SW1/4 NE1/4 sec.27, T.88 N., R.14 W., Black Hawk County, Hydrologic Unit 07080205, on left bank 35 ft downstream from bridge on State Highway 58, 0.2 mi northwest of Chicago and Great Western Railway tracks at the west edge of Hudson, 4.5 mi upstream from Prescotts Creek, and 9.6 mi upstream from mouth.

DRAINAGE AREA.--303 mi².

PERIOD OF RECORD.--April 1952 to current year.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 865.03 ft NGVD.

REMARKS.--Records good except those for winter period, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--32 years, 173 ft³/s, 7.75 in/yr, 125,300 acre-ft/yr; median of yearly mean discharges, 160 ft³/s, 7.2 in/yr, 116,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,300 ft³/s July 9, 1969, gage height, 18.23 ft; minimum daily, 0.12 ft³/s Jan. 26, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 14	1815	1,700	ice jam	June 18	1915	1,590	12.66
Feb. 20	0215	*2,640	*14.55	June 24	0130	1,500	12.45
May 1	0430	1,770	13.10	July 11	0545	1,820	13.27
May 29	1015	1,920	13.19	July 16	1100	1,800	13.24
June 13	2300	1,580	12.62				

Minimum daily discharge, 26 ft³/s Sept. 21-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	171	507	135	105	272	373	1590	629	327	165	32
2	51	184	430	135	115	242	350	927	565	301	153	32
3	56	175	390	130	120	225	389	813	512	277	141	32
4	61	165	360	130	125	220	601	821	475	257	129	32
5	58	156	330	130	115	213	604	707	450	237	118	31
6	54	151	300	130	90	169	513	622	416	225	110	30
7	52	143	280	125	98	180	438	586	391	205	104	30
8	52	137	260	120	110	180	399	534	614	207	100	30
9	51	141	240	118	125	180	437	489	442	371	93	30
10	51	300	220	110	145	180	440	458	492	1270	85	30
11	72	309	205	105	175	170	403	434	426	1660	79	32
12	305	248	195	100	440	160	434	401	398	691	74	32
13	246	225	185	96	780	165	660	381	1280	483	71	30
14	170	213	180	94	1700	165	784	354	1310	434	68	29
15	148	195	170	90	1400	160	722	340	759	1460	66	29
16	172	178	115	88	1150	150	626	326	753	1590	63	29
17	177	173	230	84	950	139	529	313	898	860	62	28
18	158	171	260	80	800	155	452	304	1510	570	62	28
19	145	279	275	78	1840	152	392	366	1120	446	62	28
20	145	623	280	76	2040	139	350	413	669	458	60	27
21	182	485	245	74	705	93	322	340	579	450	57	26
22	555	389	210	76	579	99	348	318	748	320	57	26
23	542	436	170	78	536	149	441	292	1340	270	58	26
24	385	627	140	78	460	209	471	275	1120	236	58	26
25	313	517	100	80	401	340	417	562	621	211	54	29
26	268	448	99	84	360	665	380	702	545	215	50	33
27	236	417	105	86	327	1020	393	556	507	223	48	33
28	219	667	115	90	291	1020	409	1090	432	321	42	32
29	194	779	120	94	264	787	422	1760	390	236	39	31
30	176	606	125	92	---	503	1320	972	355	194	34	31
31	171	---	130	94	---	408	---	721	---	175	33	---
TOTAL	5516	9708	6971	3080	16346	8909	14819	18767	20746	15180	2395	894
MEAN	178	324	225	99.4	564	287	494	605	692	490	77.3	29.8
MAX	555	779	507	135	2040	1020	1320	1760	1510	1660	165	33
MIN	51	137	99	74	90	93	322	275	355	175	33	26
CFSM	.59	1.07	.74	.33	1.86	.95	1.63	2.00	2.28	1.62	.26	.10
IN.	.68	1.19	.86	.38	2.01	1.09	1.82	2.30	2.55	1.86	.29	.11
AC-FT	10940	19260	13830	6110	32420	17670	29390	37220	41150	30110	4750	1770

CAL YR 1983 TOTAL 137361 MEAN 376 MAX 3830 MIN 37 CFSM 1.24 IN 16.86 AC-FT 272500
WTR YR 1984 TOTAL 123331 MEAN 337 MAX 2040 MIN 26 CFSM 1.11 IN 15.14 AC-FT 244600

IOWA RIVER BASIN

05464000 CEDAR RIVER AT WATERLOO, IA

LOCATION.--Lat 42°29'44", long 92°20'03", in NW1/4 NW1/4 sec.25, T.89 N., R.13 W., Black Hawk County, Hydrologic Unit 07080205, on left bank at foot of East Seventh Street, 0.3 mi upstream from Eleventh Avenue bridge in Waterloo, 1.1 mi downstream from Black Hawk Creek, and at mile 187.9 above mouth of Iowa River.

DRAINAGE AREA.--5,146 mi².

PERIOD OF RECORD.--October 1940 to current year. Prior to April 1941, monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1950.

GAGE.--Water-stage recorder. Datum of gage is 824.14 ft NGVD.

REMARKS.--Records good except those for winter periods which are poor. Slight diurnal fluctuation during low flow caused by powerplant above station. National Weather Service gage-height telemeter and Corps of Engineers Data Collection Platform at station.

AVERAGE DISCHARGE.--44 years, 3,055 ft³/s, 8.06 in/yr, 2,213,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,700 ft³/s Mar. 29, 1961, gage height, 21.86 ft; minimum daily, 152 ft³/s Jan. 28, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 16, 1929, reached a stage of about 20 ft , determined by Corps of Engineers, from information by City of Waterloo, discharge, 65,000 ft³/s. Flood of Apr. 2, 1933, reached a stage of about 19.5 ft from information by City of Waterloo, discharge, 61,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 13,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 20	2300	*26,300	*13.11	June 11	0230	15,600	9.98
Mar. 28	1545	15,500	9.88	June 15	0215	14,600	9.69
Apr. 16	1430	14,600	9.63	June 20	2400	25,000	12.72
May 3	1745	22,800	12.07	June 24	2115	19,800	11.20

Minimum daily discharge, 871 ft³/s Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4470	3900	5700	2550	2150	9620	12000	16700	7720	8540	3010	1230
2	4140	3750	5400	2400	2190	8720	10700	20700	7050	7600	2800	1250
3	4050	3580	5000	2300	2200	7950	10100	22500	6440	6860	2810	1280
4	3930	3450	4900	2300	2200	7390	10500	21800	6030	6390	2710	1230
5	3850	3330	4600	2200	2090	7040	11200	19300	5730	5990	2630	1190
6	3660	3230	4200	2200	1950	7170	11200	16800	5530	5580	2460	1140
7	3340	3150	3700	2190	2200	5900	10700	14400	5350	5280	2430	1130
8	3260	3080	3500	2180	2300	5500	9990	12700	5400	5120	2340	1120
9	3120	3160	3350	2180	2350	5290	9420	11700	7670	5190	2280	1120
10	2980	3520	3200	2190	2500	4810	9140	11000	13100	7320	2220	1150
11	3490	4190	3150	2190	2550	4600	8900	10100	14500	7420	2160	1170
12	3700	4540	3100	2180	3100	4570	8770	9270	10300	6250	2080	1110
13	4120	4570	3100	2170	4000	4300	9150	8520	11700	5630	2050	1070
14	4180	4440	3050	2110	5810	4540	10900	7880	14100	5660	1980	1080
15	4180	4280	3000	2100	9090	4820	13100	7340	14300	7180	1920	1010
16	4130	4320	2700	2100	10500	5330	14400	6980	13200	7700	1830	1030
17	4030	4180	1550	2100	13000	5900	14000	6590	12300	7910	1830	984
18	3810	4160	1900	2100	14800	5930	12400	6270	13400	7160	1780	1020
19	3620	4460	2600	2090	18600	5780	10700	6320	17600	6420	1810	966
20	3640	5260	3850	2090	23600	5510	9360	6480	23300	5940	1770	974
21	4050	5790	3550	2090	23400	5160	8350	6420	23800	5480	1700	916
22	5590	5760	4000	2080	19100	4740	8010	6120	18800	4980	1650	898
23	6620	6130	4500	2050	17600	4560	7860	5840	16700	4610	1640	899
24	6700	7450	4400	2050	16800	4970	7820	5860	18900	4130	1590	901
25	6200	7790	4500	2050	16800	7130	7730	7070	19100	3940	1550	1010
26	5660	7030	4200	2020	15500	10900	7550	8150	18700	3810	1510	921
27	5040	6620	3450	2010	13800	14100	7400	8060	16300	3690	1430	914
28	4800	6860	3300	2010	12600	15400	7260	8980	13400	3630	1460	885
29	4510	7440	3100	2090	11200	15200	8870	10500	11100	3520	1410	871
30	4200	6740	2950	2100	---	14500	12500	10500	9560	3340	1340	871
31	4000	---	2800	2100	---	13200	---	8810	---	3170	1230	---
TOTAL	133070	146160	112300	66570	273980	230530	299980	329660	381080	175440	61410	31340
MEAN	4293	4872	3623	2147	9448	7436	9999	10630	12700	5659	1981	1045
MAX	6700	7790	5700	2550	23600	15400	14400	22500	23800	8540	3010	1280
MIN	2980	3080	1550	2010	1950	4300	7260	5840	5350	3170	1230	871
CFSM	.83	.95	.70	.42	1.84	1.45	1.94	2.07	2.47	1.10	.39	.20
IN.	.96	1.06	.81	.48	1.98	1.67	2.17	2.38	2.75	1.27	.44	.23
AC-FT	263900	289900	222700	132000	543400	457300	595000	653900	755900	348000	121800	62160

CAL YR 1983	TOTAL	2633800	MEAN	7216	MAX	27000	MIN	1220	CFSM 1.40	IN 19.04	AC-FT	5224000
WTR YR 1984	TOTAL	2241520	MEAN	6124	MAX	23800	MIN	871	CFSM 1.19	IN 16.20	AC-FT	4446000

05464500 CEDAR RIVER AT CEDAR RAPIDS, IA

LOCATION.--Lat 41°58'14", long 91°40'01", in SE1/4 NW1/4 sec.28, T.83 N., R.7 W., Linn County, Hydrologic Unit 07080205, on right bank 400 ft upstream from bridge on Eighth Avenue in Cedar Rapids, 2.7 mi upstream from Prairie Creek, and at mile 112.7 upstream from mouth of Iowa River.

DRAINAGE AREA.--6,510 mi².

PERIOD OF RECORD.--October 1902 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 955: 1924. WSP 1308: 1904, 1906-13, 1915, 1917, 1919-24, 1928, 1930,. WSP 1438: Drainage area. WSP 1558: 1915-18 (M), 1920 (M), 1922 (M), 1929, 1933, 1943.

GAGE.--Water-stage recorder. Datum of gage is 700.47 ft NGVD. Prior to Aug. 20, 1920, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are fair. U.S.G.S. gage-height telemeter and Corps of Engineers data collection platform at station.

AVERAGE DISCHARGE.--82 years, 3,473 ft³/s, 7.24 in/yr, 2,516,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,000 ft³/s Mar. 31, 1961, gage height, 19.66 ft; maximum gage height, 20.0 ft Mar. 18, 1929; minimum discharge 53 ft³/s Jan. 6, 1950, caused by construction operations upstream; minimum daily, 212 ft³/s Dec. 10, 1949.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1851 reached a stage of about 20 ft, discharge, 65,000b ft³/s, estimated.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 12,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 16	1945	15,700	7.33	May 31	1245	16,000	7.45
Feb. 21	1600	*35,000	*11.84	June 18	1845	27,000	10.17
Mar. 31	1230	19,300	8.19	June 23	1415	31,800	11.31
Apr. 18	1315	16,900	7.61	July 12	0815	14,400	7.13
May 5	1945	30,000	10.70	July 21	1045	12,900	6.69

Minimum daily discharge, 1,140 ft³/s Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4960	4540	9830	8380	3400	14600	17400	17600	14700	13700	3760	1600
2	4660	4450	8110	7770	3300	12600	15900	19300	12200	11300	3640	1550
3	4360	4360	7340	7380	3320	10700	14500	22200	10200	9820	3460	1530
4	4210	4280	7000	6570	3300	9520	13200	27400	9220	8730	3300	1550
5	3930	3990	6800	5790	3360	8660	12800	29500	8240	7810	3230	1580
6	3890	3970	6400	5250	3400	7800	12900	29100	7780	7330	3120	1510
7	3770	3860	5950	4800	3000	7300	13300	25800	7220	6570	3010	1490
8	3610	3760	5150	4710	2910	6640	13200	22400	7610	6180	2780	1480
9	3360	3840	4480	4590	2900	5840	12600	19500	10900	6040	2810	1480
10	3290	3980	4050	4880	2950	5520	11600	17000	12100	7910	2710	1490
11	3340	4150	4700	5670	2950	4870	11100	15300	16200	12400	2630	1480
12	3680	4500	5100	6600	3440	4640	10800	14100	17800	13700	2560	1470
13	4140	5050	5130	6000	6600	4470	10600	12800	19400	9950	2510	1460
14	4370	5030	5410	5490	9450	4520	10700	11600	18200	7780	2430	1440
15	4530	4950	5150	5820	11200	5080	11600	10600	19600	7460	2360	1380
16	4600	4780	4350	5780	14200	5160	13000	9680	20400	8800	2300	1370
17	4600	4690	3160	5570	12900	5470	14700	9140	20700	10500	2270	1330
18	4490	4540	2520	5600	13300	5890	16100	8640	25000	10700	2250	1330
19	4290	5000	2650	5560	17100	6070	16200	8410	22200	9790	2210	1310
20	4130	5610	2980	5250	24600	6090	14600	8340	19500	8470	2150	1310
21	4030	6070	3470	5050	29300	5810	12600	8410	20100	7830	2140	1260
22	4070	6850	4560	4800	30800	5360	11200	8550	24500	7340	2110	1260
23	4950	6930	7040	4550	28700	5020	10800	8050	29700	6470	2030	1140
24	6870	7200	7790	4400	24000	4990	10700	7610	28400	5540	1990	1180
25	7140	8410	8800	4300	21200	5580	10500	7740	23400	5130	1960	1450
26	6820	9230	9480	4100	19700	8140	10200	8790	22400	4900	1910	1750
27	6330	9290	9700	3900	19100	11000	9690	10700	23300	4740	1870	1360
28	5650	9910	9760	3700	18000	13800	9520	11600	22800	4720	1720	1300
29	5120	10500	9700	3650	16200	16700	9640	12700	20700	4480	1780	1270
30	4950	10600	9490	3600	---	18400	13300	15100	17200	4320	1720	1200
31	4700	---	9260	3570	---	18400	---	15900	---	4060	1650	---
TOTAL	142840	174320	195310	163080	354580	254640	374950	453560	531670	244470	76370	42310
MEAN	4608	5811	6300	5261	12230	8214	12500	14630	17720	7886	2464	1410
MAX	7140	10600	9830	8380	30800	18400	17400	29500	29700	13700	3760	1750
MIN	3290	3760	2520	3570	2900	4470	9520	7610	7220	4060	1650	1140
CFSM	.71	.89	.97	.81	1.88	1.26	1.92	2.25	2.72	1.21	.38	.22
IN.	.82	1.00	1.12	.93	2.03	1.46	2.14	2.59	3.04	1.40	.44	.24
AC-FT	283300	345800	387400	323500	703300	505100	743700	899600	1055000	484900	151500	83920

CAL YR 1983 TOTAL 3278640 MEAN 8983 MAX 30300 MIN 1780 CFSM 1.38 IN 18.74 AC-FT 6503000
WTR YR 1984 TOTAL 3008100 MEAN 8219 MAX 30800 MIN 1140 CFSM 1.26 IN 17.19 AC-FT 5967000

05465000 CEDAR RIVER NEAR CONESVILLE, IA

LOCATION.--Lat 41°24'36", long 91°17'06", in SW1/4 SW1/4 sec.2, T.76 N., R.4 W., Muscatine County, Hydrologic Unit 07080206, on right bank 10 ft downstream from bridge on county highway G28, 3.4 mi northeast of Conesville, 5.2 mi downstream from Wapsinonoc Creek, 10.7 mi upstream from mouth, and at mile 39.8 upstream from mouth of Iowa River.

DRAINAGE AREA.--7,785 mi².

PERIOD OF RECORD.--September 1939 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1708: 1956.

GAGE.--Water-stage recorder. Datum of gage is 581.95 ft NGVD. Prior to Feb. 2, 1940, and Apr. 11, 1952, to July 1, 1954, nonrecording gage, Feb. 2, 1940, to Apr. 10, 1952, and July 2, 1954, to Sept. 16, 1963, water-stage recorder, at site 150 ft downstream on left bank at same datum.

REMARKS.--Records good except those for winter period, which are fair. Corps of Engineers data collection platform at gage.

COOPERATION.--Four discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--45 years, 4,762 ft³/s, 8.31 in/yr, 3,450,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,800 ft³/s Apr. 2, 1961, gage height, 16.62 ft; maximum gage height, 16.85 ft Apr. 12, 1965; minimum daily discharge, 250 ft³/s Nov. 28, 1955, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1929 reached a stage of 15.8 ft, from information by local residents to Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 12,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 18	0900	a	*15.33	June 1	2400	16,600	12.30
Apr. 2	0330	19,000	12.63	June 26	0430	28,300	14.03
May 8	0145	*29,500	13.95	July 13	1300	14,200	11.46

a Backwater from ice.

Minimum daily discharge, 1,510 ft³/s Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6140	5130	11400	8600	3800	18400	18600	14500	16400	20900	4650	1910
2	5340	4970	10700	8000	3700	16600	18700	17900	16300	17400	4370	1820
3	4680	4710	9360	7700	3600	14600	18000	20100	14300	13900	4120	1740
4	4320	4530	8350	6900	3550	12400	17000	21600	12000	12000	3960	1800
5	4040	4450	7850	6300	3500	10900	15700	23800	10700	10700	3750	1810
6	3930	4260	7300	6000	3650	9840	14700	27600	9760	9730	3640	1820
7	3730	4100	7000	5500	3700	9040	14300	29000	9180	9030	3530	1850
8	3630	4020	6200	5100	3400	8370	14500	28900	8950	8610	3430	1850
9	3490	3950	5900	5000	3200	7710	14600	26900	10100	8210	3290	1870
10	3290	4150	5600	4800	3050	6970	14000	23900	12700	7780	3100	1880
11	3190	4410	4800	5000	3050	6430	13200	21300	13900	9630	3070	1880
12	3200	4370	4920	6400	3100	6000	12500	18700	15500	12800	2980	1870
13	3370	4520	5570	6200	3900	5660	12400	16800	17200	13900	2890	1880
14	3780	4970	5930	5700	7400	5540	12100	15200	18200	11800	2820	1930
15	4020	5200	6100	6000	11000	5270	12000	13700	19200	9420	2760	1830
16	4290	5140	5790	5800	14500	5960	12500	12500	19000	8790	2690	1730
17	4440	4950	5170	5800	14000	6100	13500	11500	19600	9310	2640	1660
18	4440	4800	3100	5600	15000	6260	14800	10800	20500	11000	2620	1640
19	4390	4840	2120	5700	16100	6470	16100	10400	21400	11200	2540	1620
20	4310	5210	2260	5500	17100	6860	16900	10100	24000	10800	2490	1600
21	4170	6000	2360	5300	19700	6980	16500	9840	23600	9560	2400	1580
22	4040	6290	2380	5000	23100	6830	15200	9850	21000	9110	2370	1560
23	4000	7190	3800	4800	25600	7190	13900	9920	21500	8170	2330	1540
24	4390	7530	6400	4800	27300	7140	13100	9450	23600	7510	2280	1510
25	6000	7510	8400	4700	26400	6930	12800	10300	26800	6620	2220	1570
26	6900	8310	8900	4350	24100	7350	12200	10800	27400	6240	2180	1750
27	6890	9340	9400	4200	21800	9230	11700	10400	24500	6060	2150	1750
28	6470	10300	9600	4100	20300	11600	11200	12400	22700	5680	2120	1830
29	5990	11100	9700	4200	19500	13900	11000	14600	22600	5440	2060	1580
30	5440	11800	9600	4100	---	16000	12100	14700	22300	5160	1970	1530
31	5160	---	9500	4000	---	17600	---	15500	---	4910	1950	---
TOTAL	141470	178050	205460	171150	348100	286130	425800	502960	544890	301370	89370	52190
MEAN	4564	5935	6628	5521	12000	9230	14190	16220	18160	9722	2883	1740
MAX	6900	11800	11400	8600	27300	18400	18700	29000	27400	20900	4650	1930
MIN	3190	3950	2120	4000	3050	5270	11000	9450	8950	4910	1950	1510
CFSM	.59	.76	.85	.71	1.54	1.19	1.82	2.08	2.33	1.25	.37	.22
IN.	.68	.85	.98	.82	1.66	1.37	2.03	2.40	2.60	1.44	.43	.25
AC-FT	280600	353200	407500	339500	690500	567500	844600	997600	1081000	597800	177300	103500

CAL YR 1983 TOTAL 3484330 MEAN 9546 MAX 28200 MIN 1930 CFSM 1.23 IN 16.65 AC-FT 6911000
WTR YR 1984 TOTAL 3246940 MEAN 8871 MAX 29000 MIN 1510 CFSM 1.14 IN 15.52 AC-FT 6440000

05465500 IOWA RIVER AT WAPELLO, IA
(National stream-quality accounting network station)

LOCATION.--Lat 41°10'48", long 91°10'57", in NW1/4 SE1/4 sec.27, T.74 N., R.3 W., Louisa County, Hydrologic Unit 07080209, on right bank 30 ft downstream from bridge on State Highway 99 at east edge of Wapello, 13.0 mi downstream from Cedar River, and at mile 16.0.

DRAINAGE AREA.--12,499 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1914 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1917, 1923-30, 1932. WSP 1438: Drainage area. WSP 1558: 1918, 1923-25 (M), 1929. WSP 1708: 1955(P), 1956.

GAGE.--Water-stage recorder. Datum of gage is 538.17 ft NGVD; Oct. 1, 1914 to Apr. 15, 1934, nonrecording gage and Apr. 16, 1934 to Sept. 30, 1972, water-stage recorder at datum 10.00 ft higher.

REMARKS.--Records good except those for winter period, which are fair. Flow regulated by Coralville Lake (station 05453510) 67.3 mi upstream, since Sept. 17, 1958. Corps of Engineers data collection platform at gage.

COOPERATION.--Eight discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--70 years, 7,020 ft³/s, 7.63 in/yr, 5,086,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 94,000 ft³/s June 18, 1947, gage height, 16.14 ft, datum then in use; maximum gage height, 28.63 ft Apr. 22, 1973; minimum daily discharge, 300 ft³/s Nov. 28, 1955, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,300 ft³/s Feb. 24, gage height, 21.78 ft; maximum gage height, 22.18 ft Feb. 15, backwater from ice; minimum daily discharge, 2,140 ft³/s Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9690	8080	17500	10500	5800	26700	23400	19900	21700	29700	11600	3160
2	8710	8360	16400	9900	5700	26300	24200	21900	21900	27700	11300	3010
3	7700	8920	15400	9300	5600	24800	24400	25000	21100	23200	10800	2930
4	6810	8210	14000	8600	5600	22800	23700	29600	18800	20200	10300	2870
5	6100	7290	13300	8200	5600	20600	22900	30300	16500	18600	10000	2830
6	5780	7370	12800	7800	5500	19100	21200	29600	15500	17200	9810	2840
7	5430	7080	12400	7400	5400	17800	20000	31000	14700	16200	9660	2840
8	4980	6820	12000	7100	5300	16800	19600	31700	14100	15500	9520	2720
9	4660	6400	11300	7000	5200	14900	19800	30600	17900	15100	9350	2670
10	4430	6640	10800	7000	5300	12600	19700	28500	21200	14600	9090	2660
11	4270	8960	10300	7500	5500	11000	18900	27200	23100	14900	8940	2660
12	4290	9680	9720	8800	5900	10600	17700	24700	21800	16900	8770	2640
13	4670	9020	9720	8600	6800	10200	17200	21800	21900	19000	8620	2610
14	5500	9140	10400	8100	9000	9540	17100	20500	22900	19600	8470	2690
15	6210	9620	10900	7900	14000	8840	16800	19500	24000	18100	8340	2710
16	6780	9280	10400	7700	20000	9400	16900	18200	24700	16900	8200	2650
17	7070	8980	9000	7600	21500	10300	17800	17100	24700	16600	7800	2590
18	7130	8250	8010	7400	24000	9920	18700	16300	25200	16200	7050	2520
19	7030	7880	5910	7300	29300	9870	19400	15700	27000	16500	6290	2460
20	6400	8100	4260	7200	27300	10200	20400	15000	28400	16600	6070	2370
21	6180	9690	4450	7000	29100	10200	20900	14600	29900	16500	5620	2330
22	6300	10700	4600	6900	30800	10200	22400	14300	29500	16100	4990	2290
23	6280	11300	4900	6800	33100	10900	21500	14300	28500	15700	4540	2220
24	6310	12200	6000	6600	34800	11500	19400	14300	29200	15200	4050	2180
25	7290	12700	9400	6500	34900	11700	18400	15900	31200	14600	3860	2140
26	9530	12700	10500	6400	32400	12000	17400	18300	34100	14100	3610	2350
27	10200	13000	11200	6200	28800	14400	16300	16500	34500	14100	3550	2410
28	10000	15300	11400	6100	26400	17200	15400	17200	32000	14100	3510	2410
29	9610	17800	11200	6000	26600	19600	14900	22700	30500	13700	3450	2310
30	9150	18500	11100	5900	---	21200	17200	23600	30200	13000	3310	2150
31	8240	---	10800	5800	---	22100	---	21700	---	12200	3250	---
TOTAL	212730	297970	320070	231100	495200	463270	583600	667500	736700	528600	223720	77220
MEAN	6862	9932	10320	7455	17080	14940	19450	21530	24560	17050	7217	2574
MAX	10200	18500	17500	10500	34900	26700	24400	31700	34500	29700	11600	3160
MIN	4270	6400	4260	5800	5200	8840	14900	14300	14100	12200	3250	2140
AC-FT	421900	591000	634900	458400	982200	918900	1158000	1324000	1461000	1048000	443700	153200

CAL YR 1983	TOTAL	5334050	MEAN	14610	MAX	38400	MIN	3100	AC-FT	10580000
WTR YR 1984	TOTAL	4837680	MEAN	13220	MAX	34900	MIN	2140	AC-FT	9596000

05465500 IOWA RIVER AT WAPELLO, IA--Continued
(National stream-accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1978 to current year.
WATER TEMPERATURES: January 1978 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1978 to current year.

REMARKS.--During periods of ice effect samples are collected in open water channel or through ice cover. Records of specific conductance are obtained from suspended-sediment samples at time of analysis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 810 micromhos Jan. 23, 1978-Jan. 20, 1981; minimum daily, 250 micromhos Sept. 18, 1978, July 20, 1982.
WATER TEMPERATURES: Maximum daily, 32.0°C July 15, 1980; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,970 mg/L June 25, 1981; minimum daily mean, 1 mg/L Jan. 21,22, 1981.
SEDIMENT LOADS: Maximum daily, 413,000 tons July 19, 1982; minimum daily, 5.4 tons Jan. 21, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 640 micromhos Oct. 15, Jan. 23,30, Feb. 1; minimum daily, 300 micromhos Feb. 22.
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 7,29; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,390 mg/L May 1; minimum daily mean, 4 mg/L Dec. 29.
SEDIMENT LOADS: Maximum daily, 128,000 tons May 1; minimum daily, 72 tons Feb. 8.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	580	---	---	640	---	---	460	---	---	510	---
2	---	520	560	620	---	---	410	430	---	480	---	---
3	445	520	560	---	630	420	---	410	---	490	---	---
4	480	---	560	570	620	430	440	---	540	---	---	440
5	---	---	560	---	---	460	---	390	---	500	---	440
6	420	---	---	620	620	---	460	370	---	500	460	440
7	---	580	550	---	---	500	---	440	---	---	460	---
8	---	---	---	600	620	500	---	420	---	---	460	---
9	---	580	560	600	620	---	470	420	---	490	450	---
10	---	---	---	---	---	---	490	420	---	505	450	---
11	540	460	570	600	---	530	500	480	460	480	---	---
12	---	---	550	---	540	---	500	---	---	470	---	---
13	550	---	---	600	---	520	---	490	440	---	---	---
14	---	540	550	590	---	565	510	510	420	---	460	440
15	640	---	560	590	400	530	---	520	---	---	460	---
16	590	540	---	590	390	520	---	---	---	480	---	---
17	540	540	---	---	350	530	500	520	---	---	460	440
18	---	---	---	620	---	---	500	---	440	---	---	460
19	540	---	---	---	310	520	500	---	440	460	---	440
20	---	600	590	630	300	---	510	520	440	---	480	---
21	---	600	---	---	---	520	---	---	440	---	480	---
22	560	---	---	---	300	500	---	520	440	---	480	---
23	---	600	600	640	310	---	480	---	---	---	485	---
24	580	---	---	---	310	470	510	520	---	500	460	---
25	---	---	---	---	320	---	520	460	430	490	---	440
26	560	---	---	---	340	480	530	---	440	500	---	440
27	560	---	---	---	370	---	520	---	460	---	410	440
28	---	---	---	---	---	460	---	---	450	---	450	---
29	560	520	560	---	---	420	---	460	---	---	---	---
30	---	---	---	640	---	---	---	---	---	---	---	---
31	580	---	610	---	---	---	---	500	---	---	---	---

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	12.0	---	---	.0	---	---	13.0	---	---	25.0	---
2	---	13.0	1.0	1.0	---	---	8.0	14.0	---	25.0	---	---
3	22.0	11.0	1.0	---	1.0	3.0	---	11.0	---	24.0	---	---
4	21.0	---	1.0	.0	.0	3.5	6.0	---	21.0	---	---	9.0
5	---	---	2.0	---	---	2.0	---	13.0	---	23.0	---	20.0
6	19.0	---	---	2.0	.0	---	9.0	3.0	---	25.0	26.0	22.0
7	---	11.0	.0	---	---	1.0	---	8.0	---	---	30.0	---
8	---	---	---	1.0	1.0	1.0	---	12.0	---	---	28.0	---
9	---	12.0	.0	.0	1.0	---	8.0	13.0	---	27.0	26.0	---
10	16.0	---	---	---	---	---	10.0	14.0	---	25.0	27.0	---
11	12.0	13.0	1.0	.0	---	1.0	10.0	14.5	23.0	24.0	---	---
12	---	---	1.0	---	2.0	---	11.0	---	---	26.0	---	---
13	13.0	---	---	.0	---	1.0	---	16.0	24.0	---	---	---
14	---	7.0	.0	1.0	---	1.5	10.0	17.0	23.0	---	29.0	---
15	14.0	---	.0	.0	4.0	3.5	---	17.0	---	---	29.0	---
16	15.0	7.0	---	.0	2.0	3.0	---	---	---	25.0	---	---
17	14.0	7.0	---	---	2.0	2.0	11.0	19.0	---	---	27.0	17.0
18	---	6.0	---	.0	---	---	11.0	---	24.0	---	---	16.0
19	14.0	---	---	---	2.5	2.0	11.0	---	23.0	26.0	---	21.0
20	---	8.0	.0	.0	4.0	---	12.0	12.0	24.0	---	25.0	---
21	---	7.0	---	---	---	2.5	---	---	23.0	---	25.0	---
22	11.0	---	---	---	3.5	4.0	---	19.0	23.0	---	25.0	---
23	---	6.0	.0	1.0	4.0	---	8.0	---	---	---	22.0	---
24	11.0	---	---	---	3.5	5.0	8.0	20.0	---	26.0	21.0	---
25	---	---	---	---	4.0	---	12.0	18.0	24.0	25.0	---	20.0
26	12.0	---	---	---	4.0	7.0	14.0	---	24.0	24.0	---	18.0
27	13.0	---	---	---	4.0	---	---	---	23.5	---	26.0	14.0
28	---	---	---	---	---	6.5	---	---	23.0	---	25.0	---
29	12.0	3.0	.0	---	---	6.0	---	15.0	---	---	30.0	---
30	---	---	---	.0	---	---	---	---	---	---	---	---
31	11.0	---	1.0	---	---	---	---	18.0	---	---	28.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	152	3980	67	1460	433	20500	14	397	7	110	170	12300
2	142	3340	151	3410	202	8940	8	214	6	92	169	12000
3	133	2770	307	7390	152	6320	10	251	6	91	160	10700
4	130	2390	264	5850	128	4840	10	232	10	151	104	6400
5	136	2240	142	2790	125	4490	6	133	9	136	148	8230
6	142	2220	95	1890	126	4350	7	147	7	104	143	7370
7	136	1990	65	1240	67	2240	8	160	5	73	135	6490
8	126	1690	52	958	55	1780	9	173	5	72	117	5310
9	111	1400	50	864	51	1560	12	227	9	126	99	3980
10	93	1110	120	2150	59	1720	12	227	18	258	90	3060
11	71	819	484	11700	61	1700	12	243	51	757	85	2520
12	52	602	421	11000	145	3810	13	309	99	1580	71	2030
13	58	731	228	5550	176	4620	12	279	140	2570	57	1570
14	66	980	177	4370	143	4020	12	262	191	4640	45	1160
15	72	1210	142	3690	91	2680	24	512	340	12900	170	4060
16	80	1460	122	3060	55	1540	16	333	895	48300	173	4390
17	80	1530	115	2790	45	1090	9	185	1070	62100	110	3060
18	74	1420	101	2250	38	822	9	180	755	48900	88	2360
19	68	1290	65	1380	30	479	8	158	642	50800	82	2190
20	62	1070	50	1090	26	299	7	136	500	36900	80	2200
21	56	934	136	3560	22	264	8	151	470	36900	76	2090
22	50	850	240	6930	18	224	8	149	440	36600	238	6550
23	47	797	340	10400	13	172	8	147	377	33700	379	11200
24	47	801	395	13000	14	227	7	125	315	29600	303	9410
25	86	1690	387	13300	12	305	8	140	287	27000	261	8240
26	149	3830	332	11400	10	283	8	138	169	14800	266	8620
27	172	4740	298	10500	7	212	10	167	128	9950	365	14200
28	155	4180	433	17900	6	185	11	181	117	8340	495	23000
29	120	3110	632	30400	4	121	13	211	157	11300	440	23300
30	102	2520	697	34800	7	210	14	223	---	---	280	16000
31	93	2070	---	---	15	437	11	172	---	---	202	12100
TOTAL	---	59764	---	227072	---	80440	---	6562	---	478850	---	236090

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	178	11200	2390	128000	330	19300	187	15000	139	4350	107	913
2	168	11000	1390	82200	280	16600	179	13400	135	4120	103	837
3	186	12300	850	57400	235	13400	182	11400	136	3970	92	728
4	192	12300	650	51900	160	8120	167	9110	140	3890	88	682
5	187	11600	470	38500	155	6910	160	8040	144	3890	94	718
6	182	10400	274	21900	140	5860	162	7520	156	4130	98	751
7	173	9340	299	25000	125	4960	168	7350	166	4330	107	820
8	157	8310	245	21000	115	4380	174	7280	163	4190	106	778
9	144	7700	186	15400	900	43500	181	7380	157	3960	92	663
10	139	7390	150	11500	1000	57200	188	7410	146	3580	96	689
11	138	7040	174	12800	590	36800	196	7890	142	3430	97	697
12	135	6450	192	12800	460	27100	287	13100	138	3270	90	642
13	133	6180	190	11200	1100	65000	398	20400	134	3120	84	592
14	140	6460	202	11200	310	19200	365	19300	129	2950	83	603
15	125	5670	182	9580	285	18500	303	14800	131	2950	82	600
16	124	5660	150	7370	283	18900	256	11700	133	2940	79	565
17	140	6730	164	7570	282	18800	249	11200	136	2860	66	462
18	151	7620	170	7480	290	19700	261	11400	135	2570	69	469
19	149	7800	164	6950	495	36100	337	15000	135	2290	76	505
20	135	7440	151	6120	820	62900	394	17700	134	2200	75	480
21	119	6720	165	6500	262	21200	331	14700	124	1880	71	447
22	559	33800	199	7680	220	17500	251	10900	124	1670	67	414
23	441	25600	210	8110	203	15600	195	8270	127	1560	62	372
24	159	8330	213	8220	192	15100	188	7720	130	1420	60	353
25	115	5710	1370	63000	172	14500	229	9030	124	1290	85	491
26	134	6300	1400	69200	139	12800	267	10200	119	1160	95	603
27	141	6210	810	36100	157	14600	281	10700	116	1110	92	599
28	127	5280	450	20900	180	15600	266	10100	110	1040	87	566
29	220	8850	820	50300	180	14800	235	8690	107	997	82	511
30	1480	68700	1100	70100	187	15200	198	6950	110	983	76	441
31	---	---	455	26700	---	---	162	5340	110	965	---	---
TOTAL	---	344090	---	912680	---	660130	---	338980	---	83065	---	17991

TOTAL LOAD FOR YEAR: 3445714 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	% FINER THAN .002 MM (70337)	% FINER THAN .004 MM (70338)	% FINER THAN .008 MM (70339)
NOV 01...	1000	12.0	7540	60	1220	--	--	--
JAN 04...	1500	.0	8600	7	163	--	--	--
MAR 14...	1215	1.0	9970	40	1080	--	--	--
MAY 02...	1625	14.0	22200	1280	76700	48	60	--
11...	1330	14.0	27200	174	12800	36	39	42
25...	1600	18.0	18000	2190	106000	49	55	--
JUN 21...	0620	23.0	29600	274	21900	--	--	--
JUL 03...	1130	24.0	23400	196	12400	50	55	64
AUG 28...	0900	25.0	3510	102	967	--	--	--

DATE	% FINER THAN .016 MM (70340)	% FINER THAN .062 MM (70342)	% FINER THAN .125 MM (70343)	% FINER THAN .250 MM (70344)	% FINER THAN .500 MM (70345)	% FINER THAN 1.00 MM (70346)	% FINER THAN .062 MM (70331)
NOV 01...	--	--	--	--	--	--	86
JAN 04...	--	--	--	--	--	--	89
MAR 14...	--	--	--	--	--	--	91
MAY 02...	77	91	92	93	97	100	--
11...	48	67	69	79	93	100	--
25...	77	--	--	--	--	--	99
JUN 21...	--	--	--	--	--	--	95
JUL 03...	72	90	91	96	99	--	--
AUG 28...	--	--	--	--	--	--	99

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
NOV												
01...	1000	7540	9	9	23	48	78	95	100	--	--	--
MAY												
11...	1400	27200	6	--	0	3	45	84	96	99	99	100
JUL												
03...	1130	23400	6	--	0	7	54	77	89	97	99	100
AUG												
28...	0900	3520	8	1	3	11	39	75	90	96	99	100

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV												
01...	1000	7540	630	7.4	12.0	22	--	--	440	1100	310	77
JAN												
04...	1500	8600	649	7.6	.0	2.1	13.1	91	K210	520	310	60
MAR												
14...	1215	9970	573	8.0	1.0	9.9	13.2	94	K31	120	280	59
MAY												
11...	1330	27200	520	7.9	14.0	34	9.0	90	--	--	230	56
JUL												
03...	1130	23400	513	8.3	24.0	60	7.1	86	700	280	240	59
AUG												
28...	0900	3510	417	8.8	25.0	15	10.2	--	K52	K48	190	51

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
NOV												
01...	81	25	11	7	.3	3.0	229	39	26	.30	15	384
JAN												
04...	81	26	12	8	.3	1.6	250	45	25	.20	18	402
MAR												
14...	76	23	9.6	7	.3	2.3	226	42	21	.30	15	344
MAY												
11...	61	19	7.3	6	.2	2.2	175	30	19	.30	11	295
JUL												
03...	64	19	7.0	6	.2	2.7	179	26	16	.30	14	278
AUG												
28...	39	22	16	15	.5	2.9	137	46	27	.20	2.1	236

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
NOV												
01...	340	.52	7820	7.2	.030	.04	2.2	.130	.74	.160	.240	60
JAN												
04...	360	.55	9330	8.5	.280	.36	2.0	.110	.46	.120	.150	7
MAR												
14...	330	.47	9260	2.8	.170	.22	1.3	.080	.49	.100	.160	40
MAY												
11...	260	.40	21700	9.0	.030	.04	1.7	.100	.37	.120	.120	174
JUL												
03...	260	.38	17600	6.5	<.010	--	1.7	.090	--	.160	.320	196
AUG												
28...	240	.32	2240	1.1	<.010	--	2.8	<.010	--	.010	.230	102

K Results based on colony count outside the acceptable range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)
NOV												
01...	1220	86	--	2	<10	110	<.5	<1	<1	<3	3	8
JAN												
04...	163	89	--	--	--	--	--	--	--	--	--	--
MAR												
14...	1080	91	--	3	<10	100	<.5	<1	<1	<3	4	6
MAY												
11...	12800	--	67	1	30	93	<.5	<1	1	<3	3	8
JUL												
03...	12400	--	90	--	--	--	--	--	--	--	--	--
AUG												
28...	967	99	--	1	<10	76	1	<1	2	<3	3	<3

DATE	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV											
01...	<1	17	4	<.1	<10	3	1	<1	170	<6	5
JAN											
04...	--	--	--	--	--	--	--	--	--	--	--
MAR											
14...	<1	11	10	<.1	<10	1	1	<1	160	<6	11
MAY											
11...	<1	11	2	--	<10	6	1	<1	130	<6	<3
JUL											
03...	--	--	--	--	--	--	--	--	--	--	--
AUG											
28...	6	15	2	<.1	10	1	<1	<1	140	<6	3

05470000 SOUTH SKUNK RIVER NEAR AMES, IA

LOCATION.--Lat 42°04'05", long 93°37'02", in NW1/4 SW1/4 sec.23, T.84 N., R.24 W., Story County, Hydrologic Unit 07080105, on left bank 2.5 mi north of Ames, 3.5 mi downstream from Keigley Branch, 5.2 mi upstream from Squaw Creek, and at mile 228.1 upstream from mouth of Skunk River.

DRAINAGE AREA.--315 mi².

PERIOD OF RECORD.--July 1920 to September 1927, October 1932 to current year. Monthly discharge only for some periods, published in WSP 1308. Prior to October 1966, published as Skunk River near Ames.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1308: 1921, 1925-26, 1934-35 (M), 1937 (M), 1939 (M), 1947-50 (M). WDR Iowa 1967: 1965. WDR IA-74-1: 1973 (P).

GAGE.--Water-stage recorder. Concrete control since July 21, 1934. Datum of gage is 893.61 ft NGVD (Iowa Highway Commission benchmark). Prior to Aug. 25, 1921, nonrecording gage at same site and datum.

REMARKS.--Records good. Several diversions for irrigation above station. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--59 years (water years 1921-27, 1933-84), 161 ft³/s, 6.94 in/yr, 116,600 acre-ft/yr; median of yearly mean discharges, 130 ft³/s, 5.6 in/yr, 94,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,630 ft³/s June 10, 1954, gage height, 13.66 ft; maximum gage height, 13.90 ft May 20, 1944; no flow at times in 1934, 1937, 1953-57, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 17	unknown	2,600	unknown	June 13	1330	*5,020	*9.19
May 1	unknown	1,790	5.52	June 17	1645	3,680	7.71
May 28	1900	2,590	6.44	June 22	2245	1,680	5.42

Minimum daily discharge, 6.1 ft³/s Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	258	563	94	55	330	359	1780	791	346	135	18
2	97	252	508	91	56	302	344	1600	659	318	123	16
3	110	230	448	92	56	280	451	1260	572	303	113	15
4	116	229	421	93	60	276	998	1000	548	275	103	14
5	99	223	391	95	56	260	924	825	533	250	95	13
6	86	216	361	99	55	188	721	704	477	237	91	12
7	81	204	335	97	56	210	603	633	440	210	88	9.8
8	79	195	326	96	58	230	562	551	427	194	85	11
9	72	286	312	94	64	210	626	508	404	186	81	12
10	81	640	298	85	74	200	615	471	458	260	78	14
11	151	520	290	82	120	180	561	451	448	208	75	15
12	296	422	276	85	240	127	606	413	440	176	72	13
13	258	385	264	84	350	154	972	391	4240	160	70	11
14	213	391	267	80	700	193	1170	361	3580	259	69	11
15	195	367	239	77	1050	199	1040	349	2310	1040	65	9.7
16	196	326	185	75	1800	202	851	336	2530	615	62	9.3
17	187	314	246	72	2450	193	688	324	3530	424	58	9.3
18	174	299	261	75	1750	180	577	316	2550	325	55	8.7
19	196	897	264	75	1960	183	501	327	1560	268	51	7.8
20	330	1170	278	72	1370	180	448	311	1190	707	47	6.7
21	487	772	270	69	1010	168	426	295	986	881	44	6.1
22	1030	618	220	67	873	198	544	293	965	485	41	6.7
23	717	862	205	65	825	418	697	278	1270	337	39	10
24	529	779	180	63	692	706	674	272	920	259	35	14
25	422	651	132	62	577	695	579	773	735	214	33	24
26	368	579	115	61	513	648	517	1070	648	281	31	25
27	327	530	98	60	462	592	556	747	569	298	29	18
28	299	726	85	58	404	596	665	1940	494	235	26	18
29	260	783	80	59	338	557	830	2110	439	195	24	17
30	245	653	84	59	---	451	1680	1360	383	169	21	17
31	238	---	90	56	---	395	---	1000	---	151	19	---
TOTAL	8040	14777	8092	2392	18074	9701	20785	23049	35096	10266	1958	392.1
MEAN	259	493	261	77.2	623	313	693	744	1170	331	63.2	13.1
MAX	1030	1170	563	99	2450	706	1680	2110	4240	1040	135	25
MIN	72	195	80	56	55	127	344	272	383	151	19	6.1
CFSM	.82	1.57	.83	.25	1.98	.99	2.20	2.36	3.71	1.05	.20	.04
IN.	.95	1.75	.96	.28	2.13	1.15	2.45	2.72	4.14	1.21	.23	.05
AC-FT	15950	29310	16050	4740	35850	19240	41230	45720	69610	20360	3880	778

CAL YR 1983 TOTAL 173705.0 MEAN 476 MAX 3860 MIN 33 CFSM 1.51 IN 20.51 AC-FT 344500
WTR YR 1984 TOTAL 152622.1 MEAN 417 MAX 4240 MIN 6.1 CFSM 1.32 IN 18.02 AC-FT 302700

05470500 SQUAW CREEK AT AMES, IA

LOCATION.--Lat 42°01'21", long 93°37'45", in NE1/4 NW1/4 sec.10, T.83 N., R.24 W., Story County, Hydrological Unit 07080105, on left bank 65 ft downstream from Lincoln Way Bridge in Ames, 0.2 mi, downstream from College Creek, and 2.4 mi, upstream from mouth.

DRAINAGE AREA.--204 mi².

PERIOD OF RECORD.--May 1919 to September 1927, May 1965 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: Drainage area, 1920-22 (M), 1923, 1924-25 (M), 1926, 1927 (M), WDR Iowa. 1966: 1965, WDR IA-71-1: 1970 (M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 881.00 ft NGVD (levels by Iowa State University). Prior to Mar. 11, 1925, nonrecording gage at site 0.6 mi upstream at different datum. Mar. 11, 1925 to Apr. 30, 1927, nonrecording gage at site 65 ft upstream at datum about 4 ft higher.

REMARKS.--Records good except those for winter periods, which are poor.

AVERAGE DISCHARGE.--27 years (water years 1920-27,1966-84), 131 ft³/s, 8.72 in/yr, 94,910 acre-ft/yr; median of yearly mean discharges, 100 ft³/s, 6.7 in/yr, 72,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft³/s June 27, 1975, gage height, 14.00 ft, on basis of contracted-opening measurement; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 4, 1918, reached a stage of 14.5 ft, from floodmarks, site and datum used 1919-25, discharge, 6,900 ft³/s. Flood of Mar. 1, 1965, reached a stage of 10.7 ft, from graph based on gage readings, at present site and datum, discharge, 4,200 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 30	1545	2,590	3.40	June 13	1700	*7,180	*12.97
May 29	0315	2,500	8.21	June 17	0115	6,820	12.77

Minimum daily discharge, 1.2 ft³/s Sept. 21, 22, 30..

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	115	450	60	27	133	214	1750	584	220	54	2.1
2	13	104	370	62	30	118	203	1150	491	195	50	4.2
3	42	97	335	62	36	110	327	861	414	183	45	3.0
4	28	94	295	62	39	110	739	672	433	175	41	3.7
5	22	89	250	61	42	104	642	548	403	156	37	2.2
6	18	82	220	57	42	84	477	467	339	152	34	2.6
7	18	75	220	55	41	96	376	413	315	128	30	2.2
8	17	68	188	53	41	99	370	357	335	116	29	9.8
9	15	112	175	61	44	88	481	319	308	113	26	9.1
10	29	325	160	49	60	75	450	294	347	158	23	12
11	93	306	145	44	140	54	389	276	326	132	21	4.8
12	123	296	132	46	291	43	463	247	328	105	19	3.5
13	92	199	120	45	238	50	735	232	4740	92	17	2.5
14	74	171	108	40	257	74	756	208	3400	122	16	1.5
15	70	164	92	36	238	133	664	203	2400	496	15	1.5
16	64	166	83	38	536	136	543	200	2990	243	13	2.1
17	57	164	76	37	1040	110	443	189	3320	167	12	2.1
18	52	167	81	35	972	102	353	182	1620	121	13	1.7
19	72	773	85	38	836	96	297	248	1210	100	11	2.1
20	121	751	94	37	679	89	263	185	935	186	10	1.5
21	213	494	105	45	560	96	272	170	804	287	9.0	1.2
22	458	423	78	40	490	124	563	178	858	141	7.9	1.2
23	340	633	73	33	454	365	777	158	730	101	8.3	1.4
24	198	523	66	29	338	599	599	158	564	88	8.7	1.5
25	164	440	52	28	272	563	466	752	494	76	7.0	45
26	149	371	60	27	238	537	389	798	442	110	5.9	2.9
27	133	382	65	26	203	486	586	555	360	112	5.0	2.6
28	124	756	68	28	164	459	631	1720	306	90	3.7	1.7
29	112	695	63	28	143	399	821	1950	272	73	3.0	1.3
30	108	536	60	27	---	288	2450	1070	243	66	2.2	1.2
31	109	---	59	27	---	243	---	763	---	61	2.5	---
TOTAL	3142	9571	4428	1316	8491	6063	16739	17273	30311	4565	579.2	134.2
MEAN	101	319	143	42.5	293	196	558	557	1010	147	18.7	4.47
MAX	458	773	450	62	1040	599	2450	1950	4740	496	54	45
MIN	13	68	52	26	27	43	203	158	243	61	2.2	1.2
CFSM	.50	1.56	.70	.21	1.44	.96	2.74	2.73	4.95	.72	.09	.02
IN.	.57	1.75	.81	.24	1.55	1.11	3.05	3.15	5.53	.83	.11	.02
AC-FT	6230	18980	8780	2610	16840	12030	33200	34260	60120	9050	1150	266

CAL YR 1983 TOTAL 110362.4 MEAN 302 MAX 2080 MIN 3.3 CFSM 1.48 IN 20.12 AC-FT 218900
WTR YR 1984 TOTAL 102612.4 MEAN 280 MAX 4740 MIN 1.2 CFSM 1.37 IN 18.71 AC-FT 203500

05471500 SOUTH SKUNK RIVER NEAR OSKALOOSA, IA

LOCATION.--Lat 41°21'19", long 92°39'31", in NW1/4 SW1/4 sec.25, T.76 N., R.16 W., Mahaska County, Hydrologic Unit 07080105, on right bank 400 ft upstream from bridge on U.S. Highway 63, 0.3 mi downstream from Painter Creek, 4.0 mi north of Oskaloosa, 52.0 mi. upstream from confluence with North Skunk River, and at mile 147.3 upstream from mouth of Skunk River.

DRAINAGE AREA.--1,635 mi².

PERIOD OF RECORD.--October 1945 to current year. Prior to October 1966, published as Skunk River near Oskaloosa. Prior to October 1948, monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 685.50 ft NGVD. Prior to Nov. 21, 1947, nonrecording gage at site 400 ft downstream at same datum.

REMARKS.--Records good except those for winter period, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--39 years, 954 ft³/s, 7.92 in/yr, 691,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s June 15, 1947, gage height, 21.26 ft, from floodmarks; maximum gage height, 22.52 ft Feb. 3, 1973, backwater from ice; minimum daily discharge, 1.8 ft³/s Oct. 11-13, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 25.8 ft, from floodmarks, discharge, 37,000 ft³/s, from rating curve extended above 18,000 ft³/s on basis of velocity-area study.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 2	0330	5,000	15.51	May 31	1015	9,080	19.46
Nov. 21	0015	6,290	16.99	June 11	1015	7,570	18.36
Nov. 29	0830	6,990	17.75	June 19	0700	*12,300	*21.76
Feb. 20	unknown	7,940	18.60	July 16	0800	6,150	17.46
May 3	0530	9,460	19.44				

Minimum daily discharge, 150 ft³/s Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	514	2510	4570	1150	580	1680	1980	8140	7060	2390	1050	216
2	487	4500	3710	1150	590	1580	1820	9080	4950	2080	964	205
3	467	2740	3130	1100	660	1470	1950	9430	3830	1880	901	196
4	493	2630	2790	1100	780	1400	2950	8790	3150	1780	850	192
5	517	2360	2570	1050	900	1360	3600	7040	2940	1610	807	191
6	486	2020	2420	1050	800	1250	3830	5580	2720	1520	739	192
7	456	1870	2240	1000	760	1160	3100	4620	2510	1400	681	189
8	436	1710	2060	1000	800	1130	2720	3920	3670	1240	637	186
9	420	1790	1950	970	890	1100	2730	3280	5250	1140	620	188
10	403	4020	1880	940	1000	1070	2760	2950	6270	1080	577	435
11	450	3780	1840	920	1300	1060	2760	2730	7260	1060	534	350
12	1310	3230	1800	900	1700	1020	3040	2540	5190	1120	504	238
13	1950	2740	1750	880	2300	965	3050	2340	4990	1060	477	188
14	1510	2540	1700	860	3100	970	3290	2130	6900	975	451	480
15	1220	2350	1650	840	4200	1070	3970	1990	9830	5540	427	248
16	1170	2170	1610	820	5690	1130	3880	1900	10900	5840	405	215
17	1140	1990	1600	790	6810	1100	3350	1810	11600	3600	391	201
18	1040	1880	1550	760	7070	1060	2880	1720	11900	2290	378	182
19	1000	3120	1500	730	7640	1020	2520	2320	12200	1770	366	170
20	1130	6100	1500	700	7850	1010	2260	2470	12000	1540	356	159
21	1180	5930	1450	660	6610	996	2070	2580	11600	1400	338	152
22	1930	4460	1400	640	5000	984	2430	2840	11200	1980	326	153
23	4200	4250	1350	620	4070	1050	2790	2440	10000	1720	316	152
24	3630	4860	1300	600	3340	1680	3130	2060	8420	1390	305	151
25	2640	4370	1300	600	2830	3010	3090	3520	6860	1920	292	150
26	2160	3820	1300	590	2460	3700	2750	5530	5420	2710	278	163
27	1880	4080	1250	590	2210	3420	3400	5410	6180	2790	263	208
28	1660	6590	1250	580	1990	3160	3110	6040	4790	1940	248	193
29	1460	6910	1200	580	1820	2790	3630	7310	3380	1510	239	167
30	1320	5970	1200	580	---	2540	7130	8410	2790	1270	231	156
31	1260	---	1200	580	---	2240	---	8900	---	1150	223	---
TOTAL	39919	107290	58020	25330	85750	49175	91970	139820	205760	60695	15174	6266
MEAN	1288	3576	1872	817	2957	1586	3066	4510	6859	1958	489	209
MAX	4200	6910	4570	1150	7850	3700	7130	9430	12200	5840	1050	480
MIN	403	1710	1200	580	580	965	1820	1720	2510	975	223	150
CFSM	.79	2.19	1.15	.50	1.81	.97	1.88	2.76	4.20	1.20	.30	.13
IN.	.91	2.44	1.32	.58	1.95	1.12	2.09	3.18	4.68	1.38	.35	.14
AC-FT	79180	212800	115100	50240	170100	97540	182400	277300	408100	120400	30100	12430

CAL YR 1983 TOTAL 862644 MEAN 2363 MAX 10900 MIN 249 CFSM 1.45 IN 19.63 AC-FT 1711000
WTR YR 1984 TOTAL 885169 MEAN 2418 MAX 12200 MIN 150 CFSM 1.48 IN 20.14 AC-FT 1756000

05472500 NORTH SKUNK RIVER NEAR SIGOURNEY, IA

LOCATION.--Lat 41°18'03", long 92°12'16", in NE1/4 SE1/4 sec.14, T.75 N., R.12 W., Keokuk County, Hydrologic Unit 07080106, on right bank 20 ft downstream from bridge on State Highway 149, 1.2 mi downstream from Cedar Creek, 2.2 mi south of Sigourney, 4.0 mi upstream from Bridge Creek, and 16.2 mi upstream from confluence with South upstream from confluence with South Skunk River.

DRAINAGE AREA.--730 mi².

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1946-47 (M).

GAGE.--Water-stage recorder. Datum of gage is 651.53 ft NGVD. Prior to June 10, 1953, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are fair. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--39 years, 446 ft³/s, 8.30 in/yr, 323,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft³/s Mar. 31, 1960, gage height, 25.33 ft; minimum daily, 0.1 ft³/s Oct. 7 to Nov. 15, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 22.8 ft, from floodmark, discharge, 14,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,470 ft³/s May 3, gage height, 17.42 ft at 1430 hours, no other peak above base of 3,800 ft³/s; minimum daily, 36 ft³/s Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	816	2920	360	220	570	815	2820	1410	918	444	60
2	89	2410	1660	360	220	542	749	3600	1180	791	386	56
3	84	1650	1160	350	270	516	918	4170	1030	711	343	54
4	81	946	1020	345	410	487	1560	3410	944	659	311	52
5	79	762	938	340	520	472	1760	2810	883	638	285	48
6	85	653	880	340	490	442	1330	2020	803	642	265	48
7	83	584	780	340	380	391	1070	1500	747	607	247	48
8	75	546	680	340	305	361	974	1290	1960	528	228	50
9	73	604	660	335	310	340	1260	1140	2390	474	212	49
10	71	2250	620	320	370	320	1280	1010	3090	443	196	59
11	68	2230	640	300	660	305	1120	934	2300	412	182	74
12	99	1350	850	270	810	300	1070	866	2320	415	163	66
13	374	982	760	260	1000	290	1590	801	1500	386	148	77
14	406	867	700	255	1250	320	1520	737	1570	347	139	66
15	271	783	670	245	1500	371	1340	680	1950	1320	131	108
16	233	683	620	240	1800	428	1260	640	2060	2070	126	114
17	270	607	570	240	2200	475	1090	608	2280	2370	121	72
18	291	575	530	235	2400	393	942	574	2560	2020	129	58
19	237	623	520	215	2600	378	837	630	2520	789	128	51
20	242	1570	510	200	2700	380	757	1300	2500	622	122	48
21	361	1850	500	195	2940	362	707	1190	1650	656	111	45
22	398	1220	500	190	1800	355	759	957	2660	601	102	42
23	456	1170	490	190	1170	436	883	1460	2090	456	96	39
24	504	1750	490	195	997	914	853	1120	1310	414	96	37
25	415	1770	490	200	865	1400	771	1680	1010	407	91	36
26	343	1300	490	210	770	1920	705	2120	886	1390	85	37
27	302	1610	480	240	702	2120	660	1710	1300	1730	81	37
28	272	3040	470	250	645	1900	1010	2480	2010	1100	78	38
29	250	2640	455	255	614	1530	1020	2720	2280	871	74	46
30	232	2820	425	250	---	1200	2370	2630	1550	627	69	44
31	216	---	385	240	---	944	---	2210	---	526	64	---
TOTAL	7056	40661	22863	8305	30918	21162	32980	51817	52743	25940	5253	1659
MEAN	228	1355	738	268	1066	683	1099	1672	1758	837	169	55.3
MAX	504	3040	2920	360	2940	2120	2370	4170	3090	2370	444	114
MIN	68	546	385	190	220	290	660	574	747	347	64	36
CFSM	.31	1.86	1.01	.37	1.46	.94	1.51	2.29	2.41	1.15	.23	.08
IN.	.36	2.07	1.17	.42	1.58	1.08	1.68	2.64	2.69	1.32	.27	.08
AC-FT	14000	80650	45350	16470	61330	41970	65420	102800	104600	51450	10420	3290

CAL YR 1983 TOTAL 261908 MEAN 718 MAX 4180 MIN 44 CFSM .98 IN 13.35 AC-FT 519500
WTR YR 1984 TOTAL 301357 MEAN 823 MAX 4170 MIN 36 CFSM 1.13 IN 15.36 AC-FT 597700

05473400 CEDAR CREEK NEAR OAKLAND MILLS, IA

LOCATION.--Lat. 40°55'20", long 91°40'10", in SE1/4 NW1/4 sec.28, T.71 N., R.7 W., Henry County, Hydrologic Unit 07080107, on left bank 30 ft upstream from bridge on county highway H46, 3.0 mi west of Oakland Mills, 2.9 mi upstream from Wolf Creek, and 4.3 mi upstream from mouth.

DRAINAGE AREA.--530 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1957 to 1977. July 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 565.07 NGVD.

REMARKS.--Records good except those for winter period, which are fair. Occasional high-water measurements were made by Corps of Engineers in 1965, 1966, 1970 and 1974 and by U.S. Geological Survey in 1966 and 1967.

AVERAGE DISCHARGE.--7 years, 411 ft³/s, 10.5 in/yr, 297,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,560 ft³/s Apr. 3, 1983, gage height, 19.68 ft; minimum daily, 1.0 ft³/s July 9, 1977 and Sept. 14, 1983.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of April 22, 1973 reached a stage of 24.09 ft, discharge not determined. Flood of June 1905 reached a stage approximately 2 feet higher from information by local resident.

EXTREMES FOR CURRENT PERIOD.--Peak discharges above base of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 11	1415	3,410	13.12	June 10	1330	5,100	15.88
May 4	0515	*5,660	16.68				

Minimum daily discharge, 3.0 ft³/s Oct. 8-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	9.2	410	92	180	130	256	1290	421	134	72	7.2
2	5.1	898	350	92	200	125	235	579	331	86	62	6.1
3	4.8	1610	310	91	400	119	285	3690	264	72	56	5.7
4	4.5	409	260	92	730	110	868	5470	221	67	50	5.4
5	4.2	219	220	92	590	150	748	5360	199	63	45	5.5
6	3.9	152	200	91	400	99	471	3570	187	59	41	6.0
7	3.2	107	190	89	250	92	331	1650	182	54	38	5.8
8	3.0	86	180	88	200	87	291	1080	512	51	43	6.1
9	3.0	84	170	88	220	82	1130	676	2080	48	32	9.7
10	3.0	1330	160	87	290	77	1240	479	4910	69	27	8.8
11	3.2	3290	160	85	550	75	665	385	4520	636	27	13
12	4.7	1460	165	83	1450	72	514	338	1340	154	26	22
13	5.5	547	170	81	2200	71	606	272	580	52	23	22
14	14	380	160	79	2300	82	459	250	365	42	22	16
15	13	292	155	77	1650	198	561	206	318	1710	20	14
16	8.8	212	150	75	1500	971	436	167	1490	2360	17	11
17	6.2	157	140	72	2010	616	319	153	691	458	17	8.8
18	8.8	134	135	70	1260	362	261	139	430	174	23	8.7
19	9.2	132	130	68	2080	303	213	134	354	104	21	6.6
20	15	132	125	65	1970	370	174	164	410	73	28	5.5
21	42	135	125	62	1060	417	170	542	583	60	16	4.9
22	68	120	120	60	840	685	575	413	772	52	16	4.9
23	66	250	120	60	711	1570	499	323	897	43	14	6.2
24	60	290	110	63	605	1790	315	271	1010	57	12	12
25	55	310	110	70	374	1520	242	338	1080	102	12	770
26	38	260	105	94	251	1280	197	855	952	320	11	584
27	27	290	105	110	216	1010	177	560	724	519	11	100
28	21	500	100	150	184	937	148	476	890	454	9.1	47
29	15	430	110	170	151	658	163	1320	331	321	9.0	28
30	12	470	110	185	---	445	1340	937	185	137	9.0	19
31	11	---	100	160	---	317	---	568	---	91	8.6	---
TOTAL	543.8	14695.2	5155	2841	24822	14820	13889	32655	27229	8622	817.7	1769.9
MEAN	17.5	490	166	91.6	856	478	463	1053	908	278	26.4	59.0
MAX	68	3290	410	185	2300	1790	1340	5470	4910	2360	72	770
MIN	3.0	9.2	100	60	151	71	148	134	182	42	8.6	4.9
CFSM	.03	.93	.31	.17	1.62	.90	.87	1.99	1.71	.53	.05	.11
IN.	.04	1.03	.36	.20	1.74	1.04	.97	2.29	1.91	.61	.06	.12
AC-FT	1080	29150	10220	5640	49230	29400	27550	64770	54010	17100	1620	3510

CAL YR 1983 TOTAL 119246.4 MEAN 327 MAX 7840 MIN 1.0 CFSM .62 IN 8.37 AC-FT 236500
WTR YR 1984 TOTAL 147859.6 MEAN 404 MAX 5470 MIN 3.0 CFSM .76 IN 10.38 AC-FT 293300

05474000 SKUNK RIVER AT AUGUSTA, IA
(National stream-quality accounting network station)

LOCATION.--Lat 40°45'13", long 91°16'40", in NE1/4 NE1/4 sec.26, T.69 N., R.4 W., Des Moines County, Hydrologic Unit 07080107, on left bank 300 ft upstream from bridge on State Highway 394 at Augusta, 2.0 mi upstream from upstream from Long Creek, and at mile 12.5.

DRAINAGE AREA.--4,303 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September to November 1913, October 1914 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS,--WSP 1308: 1915 (M), 1919-27 (M), 1932-34 (M), 1936, 1937-38 (M), 1942 (M). WSP 1438: Drainage area. WDR IA-71-1: 1966 (M).

GAGE.--Water-stage recorder. Datum of gage is 521.24 ft NGVD. Prior to Nov. 15, 1913, nonrecording gage at site 400 ft upstream at datum about 0.7 ft higher. May 27, 1915, to Jan. 14, 1935, nonrecording gage at site 400 ft upstream at present datum.

REMARKS.--Records good except those for winter period, which are fair. National Weather Service gage-height telemeter at station.

COOPERATION.--Seven discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--70 years (water years 1915-84), 2,442 ft³/s, 7.71 in/yr, 1,769,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,800 ft³/s Apr. 23, 1973, gage height, 27.05 ft; minimum daily, 7 ft³/s Aug. 27 to Sept. 1, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD,--Flood of June 1, 1903, reached a stage of about 21 ft, discharge, about 45,000 ft³/s. Stage and discharge for flood of April 1973 are believed to be the greatest since 1851.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 15,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 29	0145	15,300	12.89	May 6	1900	*23,100	16.49
Feb. 14	1845	a	*18.27	June 10	1415	18,300	14.42
Feb. 20	1615	16,000	13.30	June 26	0030	15,100	12.80

a Backwater from ice.
Minimum daily discharge, 263 ft³/s Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	2010	10400	2100	1300	4260	5200	9960	9390	9440	2530	391
2	972	2910	9510	2050	1200	3910	4600	8950	9350	8430	2180	368
3	897	7550	9340	1900	1400	3640	4350	18900	9250	6610	1950	341
4	828	6660	9270	1850	2050	3530	5110	22800	9210	5550	1760	320
5	773	5250	7840	1800	2500	3380	6440	21700	9100	4780	1610	305
6	728	4320	6540	1800	2400	3200	6510	22300	8240	4280	1500	288
7	716	3830	5430	1750	2100	2990	6240	20500	6900	3970	1410	277
8	759	3350	4550	1800	1900	2750	5940	15900	6410	3650	1350	288
9	747	3040	4110	1850	1650	2580	6720	13000	9790	3350	1270	337
10	691	4330	3820	1800	1600	2420	8010	10000	18000	3040	1180	356
11	672	10000	4190	1700	2250	2270	6900	8140	16600	4230	1100	426
12	683	10100	7620	1550	4000	2130	6090	7010	13700	3470	1040	361
13	656	7250	7890	1400	6200	2010	5950	6040	10300	2670	976	434
14	667	6000	6170	1350	11000	2120	6000	5420	9050	2550	906	618
15	1980	5160	5000	1250	13000	2660	6580	4960	8620	4780	853	528
16	2360	4480	4000	1200	14000	4240	6230	4550	9100	6780	797	430
17	1990	4030	3700	1200	12000	4260	6010	4240	9670	6750	760	473
18	1760	3670	3500	1150	12700	3510	5850	3980	8930	6270	776	566
19	1810	3440	3300	1100	14000	3190	5610	3780	9240	6500	796	438
20	1830	3340	3150	1050	15800	3240	5170	3770	10200	6460	749	353
21	1880	3760	3000	1000	14400	3340	4690	4370	11600	5300	708	305
22	1930	5470	2900	960	13200	3830	5300	5270	12800	3680	659	279
23	2110	7850	2800	930	12400	6230	5900	4990	13800	3110	623	278
24	2400	10100	2650	900	12100	6370	5550	5030	14300	3470	584	263
25	3490	8920	2550	890	10700	7170	5360	5550	15000	3810	547	3640
26	3920	7750	2500	900	8510	7180	5200	7810	14800	3510	532	3020
27	3560	7760	2400	1000	6940	8590	5020	8020	13800	3910	523	1110
28	3040	13600	2350	1200	5790	8640	4640	7710	12500	5920	498	568
29	2640	15100	2300	1550	4790	8160	4540	9570	10900	5460	473	425
30	2370	13700	2300	1500	---	7150	8680	10400	9810	4100	447	345
31	2180	---	2200	1400	---	6020	---	9650	---	3140	412	---
TOTAL	52119	194750	147280	43880	211880	134970	174390	294270	330360	148970	31499	18131
MEAN	1681	6492	4751	1415	7306	4354	5813	9493	11010	4805	1016	604
MAX	3920	15100	10400	2100	15800	8640	8680	22800	18000	9440	2530	3640
MIN	656	2010	2200	890	1200	2010	4350	3770	6410	2550	412	263
CFSM	.39	1.51	1.10	.33	1.70	1.01	1.35	2.21	2.56	1.12	.24	.14
IN.	.45	1.68	1.27	.38	1.83	1.17	1.51	2.54	2.86	1.29	.27	.16
AC-FT	103400	386300	292100	87040	420300	267700	345900	583700	655300	295500	62480	35960

CAL YR 1983 TOTAL 1617241 MEAN 4431 MAX 28500 MIN 320 CFSM 1.03 IN 13.98 AC-FT 3208000
WTR YR 1984 TOTAL 1782499 MEAN 4870 MAX 22800 MIN 263 CFSM 1.13 IN 15.41 AC-FT 3536000

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Samples collected at bridge on State Highway 394, 300 ft downstream from gage.

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to current year.
WATER TEMPERATURES: October 1975 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1975 to current year.

REMARKS.--During periods of ice effect, sediment samples are collected in open water channel. Records of specific conductance are obtained from suspended sediment samples at time of analysis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 950 micromhos Dec. 20, 1979, Feb. 12, 1980; minimum daily, 190 micromhos Aug. 10, 1977.
WATER TEMPERATURES: Maximum daily, 34.0°C July 20, 1980; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,550 mg/L June 25, 1981; minimum daily mean, 1 mg/L Mar. 8, 9, 12, 1978, Jan. 5, 6, 1984.
SEDIMENT LOADS: Maximum daily, 499,000 tons Mar. 21, 1978; minimum daily, 1.5 tons Feb. 8, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 700 micromhos Oct. 29-31; minimum daily, 230 micromhos Jul. 18.
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 7-10, 28, 29; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,570 mg/L May 3; minimum daily mean, 1 mg/L Dec. 28, 31, Jan. 5, 6.
SEDIMENT LOADS: Maximum daily, 218,000 tons May 3; minimum daily, 4.8 tons Jan. 25.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	620	680	420	620	400	520	480	400	420	380	470	440
2	620	660	460	620	500	530	500	360	420	430	540	440
3	610	455	550	600	500	540	510	260	450	480	570	440
4	580	460	560	620	440	540	490	240	480	500	600	470
5	580	460	600	620	360	550	460	280	500	500	620	470
6	580	540	640	600	380	550	460	320	530	500	620	480
7	540	540	640	600	410	560	450	410	530	520	620	520
8	520	610	640	600	420	590	500	460	500	510	610	540
9	520	630	640	600	430	---	500	490	430	535	610	540
10	520	630	660	610	430	---	460	420	300	520	600	560
11	510	440	620	530	430	580	470	530	310	330	560	550
12	530	390	620	580	380	---	490	560	350	420	535	570
13	520	440	620	600	300	590	500	550	360	500	430	540
14	560	540	540	600	260	570	510	520	390	530	405	540
15	620	600	540	590	245	560	460	540	440	360	420	540
16	500	630	560	590	260	520	480	560	440	320	430	550
17	500	640	600	590	270	450	510	550	360	340	440	560
18	560	640	640	610	280	490	520	580	320	230	440	560
19	600	640	660	620	310	510	530	560	310	260	390	560
20	600	640	660	620	310	510	500	560	320	330	410	560
21	580	640	640	610	285	510	470	560	320	410	420	560
22	610	640	510	610	350	480	510	510	330	440	430	480
23	650	480	580	620	360	380	470	510	340	480	430	440
24	660	480	490	620	400	400	500	530	340	380	430	430
25	680	480	490	620	430	380	510	460	380	500	430	240
26	610	530	480	630	450	410	520	460	400	505	430	260
27	640	550	590	610	470	400	540	430	420	500	430	240
28	680	440	610	580	500	390	540	420	440	440	430	310
29	700	440	610	530	500	400	550	430	430	360	430	310
30	700	420	610	460	---	430	400	410	380	380	440	490
31	700	---	610	370	---	450	---	410	---	425	440	---

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	12.0	2.0	.0	2.0	5.0	9.0	13.0	17.0	23.0	25.5	28.0
2	21.0	14.0	2.0	.0	1.0	4.0	8.0	13.0	19.0	25.0	26.0	24.0
3	22.0	13.0	2.0	.0	1.0	4.0	7.0	11.0	20.0	25.0	26.0	24.0
4	22.0	14.0	1.0	.0	1.0	4.0	7.0	11.0	21.0	24.0	28.0	24.0
5	22.0	14.0	1.0	.0	.0	3.0	9.0	11.0	22.0	25.0	28.0	22.0
6	22.0	14.0	1.0	.0	.0	3.0	10.0	11.0	22.0	25.0	29.0	20.0
7	20.0	14.0	1.0	.0	.0	3.0	10.0	14.0	22.5	25.0	30.0	25.0
8	20.0	14.0	1.0	.0	1.0	2.0	8.0	13.0	24.0	26.0	30.0	21.0
9	17.0	14.0	1.0	.0	1.0	2.0	8.0	14.0	22.0	26.0	30.0	23.0
10	19.0	9.0	1.0	.0	1.0	2.0	12.0	15.0	21.0	28.0	30.0	22.0
11	17.0	9.0	1.0	.0	1.0	2.0	12.0	15.0	22.5	26.0	28.0	24.0
12	14.0	7.0	1.0	.0	2.0	1.0	12.0	17.0	23.0	27.0	28.0	25.0
13	11.0	7.0	1.0	.0	2.0	1.0	10.0	19.0	23.0	27.0	28.0	24.0
14	11.0	7.0	.0	.0	3.0	2.0	10.0	19.0	24.0	28.0	28.0	20.0
15	15.0	6.0	.0	.0	2.0	5.0	10.0	19.0	22.0	26.0	29.0	19.0
16	14.0	6.0	.0	.0	2.0	5.0	10.0	19.0	25.0	25.0	29.0	19.0
17	14.0	6.0	.0	.0	3.0	2.0	10.0	20.0	25.0	25.0	29.0	19.0
18	14.0	6.0	.0	.0	3.0	2.0	10.0	22.0	25.0	25.0	27.0	20.0
19	11.0	6.0	.0	.0	3.0	2.0	12.0	20.0	25.0	26.0	27.0	22.0
20	11.0	9.0	.0	.0	3.0	2.0	12.0	22.0	25.0	26.0	26.0	24.0
21	11.0	9.0	.0	.0	4.0	2.0	9.0	21.0	25.0	27.0	25.0	24.0
22	11.0	10.0	.0	.0	6.0	2.0	11.0	20.0	26.0	28.0	25.0	20.0
23	11.0	7.0	.0	.0	6.0	6.0	8.0	20.0	26.0	29.0	25.0	21.0
24	11.0	7.0	.0	.0	6.0	6.0	13.0	21.0	26.0	26.0	25.0	26.0
25	12.0	6.0	.0	.0	7.0	6.0	14.0	19.0	26.0	26.0	25.0	17.0
26	12.0	6.0	.0	.0	7.0	6.0	16.0	19.0	25.0	24.0	26.0	16.0
27	13.0	6.0	.0	.0	7.0	8.0	18.0	17.0	25.0	24.0	26.5	14.0
28	13.0	5.0	.0	.0	4.0	8.0	18.0	15.0	24.0	24.0	30.0	14.0
29	13.0	5.0	.0	.0	4.0	8.0	15.0	15.0	24.0	24.0	30.0	14.0
30	10.0	2.0	.0	.0	---	7.0	14.0	16.0	23.0	24.0	27.0	14.0
31	10.0	---	.0	.0	---	8.0	---	17.0	---	25.0	26.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	88	252	222	1200	530	14900	4	23	47	165	275	3160
2	82	215	313	2790	450	11600	3	17	50	162	232	2450
3	69	167	1740	37000	340	8570	2	10	58	219	189	1860
4	54	121	1630	29300	298	7460	5	25	97	537	162	1540
5	58	121	1090	15500	288	6100	1	4.9	77	520	159	1450
6	64	126	618	7210	278	4910	1	4.9	106	687	139	1200
7	62	120	440	4550	257	3770	11	52	85	482	119	961
8	64	131	336	3040	220	2700	12	58	68	349	104	772
9	57	115	273	2240	211	2340	6	30	57	254	87	606
10	45	84	409	5510	206	2120	7	34	70	302	60	392
11	52	94	1200	33400	231	2610	9	41	80	486	31	190
12	68	125	1260	35000	450	9260	10	42	180	1940	14	81
13	57	101	820	16100	418	8900	9	34	366	6130	17	92
14	45	81	520	8420	255	4250	13	47	444	13200	51	292
15	256	1370	420	5850	217	2930	21	71	698	24500	121	869
16	273	1740	320	3870	190	2050	23	75	1120	42300	990	11300
17	204	1100	260	2830	156	1560	22	71	1460	47300	995	11400
18	139	668	235	2330	70	661	19	59	1040	35700	510	4830
19	132	645	225	2090	58	517	15	45	1000	37800	195	1680
20	112	553	221	1990	57	485	13	37	1230	52500	157	1370
21	153	777	2080	22300	56	454	9	24	735	28600	148	1330
22	136	709	2630	38800	49	384	6	16	540	19200	285	2950
23	139	792	1770	37500	41	310	4	10	505	16900	1150	19300
24	227	1470	1020	27800	33	236	4	9.7	460	15000	1280	22000
25	480	4520	718	17300	24	165	2	4.8	405	11700	1360	26300
26	819	8670	620	13000	17	115	4	9.7	394	9050	840	16300
27	680	6540	495	10400	8	52	45	121	408	7650	1200	27800
28	498	4090	1090	40000	1	6.3	36	117	392	6130	1250	29200
29	342	2440	1160	47300	2	12	27	113	345	4460	1230	27100
30	280	1790	710	26300	3	19	42	170	---	---	850	16400
31	242	1420	---	---	1	5.9	45	170	---	---	703	11400
TOTAL	---	41147	---	500920	---	99452.2	---	1546.0	---	384223	---	246575

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	510	7160	2390	64300	506	12800	673	17200	562	3840	37	39
2	384	4770	2670	64500	402	10100	440	10000	378	2220	41	41
3	310	3640	4570	218000	364	9090	393	7010	225	1180	54	50
4	372	5130	1560	96000	318	7910	384	5750	271	1290	46	40
5	533	9270	1140	66800	276	6780	390	5030	238	1030	45	37
6	638	11200	785	47300	276	6140	377	4360	214	867	54	42
7	647	10900	390	21600	358	6670	350	3750	197	750	56	42
8	631	10100	358	15400	780	13500	381	3750	173	631	58	45
9	569	10300	364	12800	1570	53000	387	3500	160	549	60	55
10	588	12700	374	10100	3460	168000	329	2700	154	491	65	62
11	483	9000	360	7910	2030	91000	2410	29400	137	407	66	76
12	381	6260	336	6360	1100	40700	1600	15000	114	320	55	54
13	348	5590	331	5400	880	24500	462	3330	48	126	69	81
14	380	6160	309	4520	718	17500	291	2000	16	39	82	137
15	740	13100	278	3720	466	10800	1870	27100	32	74	68	97
16	595	10000	244	3000	755	18600	3780	69200	65	140	59	68
17	438	7110	217	2480	1180	30800	3190	58100	53	109	70	89
18	420	6630	202	2170	1090	26300	2870	48600	54	113	73	112
19	391	5920	189	1930	905	22600	1770	31100	55	118	60	71
20	370	5160	190	1930	570	15700	850	14800	47	95	64	61
21	351	4440	258	3040	478	15000	783	11200	40	76	62	51
22	397	5680	721	10300	362	12500	604	6000	38	68	63	47
23	382	6090	600	8080	320	11900	470	3950	37	62	62	47
24	362	5420	412	5600	417	16100	2300	27800	36	57	55	39
25	340	4920	780	11700	460	18600	2580	29200	38	56	1770	28300
26	298	4180	2320	48900	346	13800	830	7870	35	50	1350	12200
27	272	3690	2080	45000	280	10400	970	10200	39	55	550	1650
28	303	3800	2190	45600	554	18700	2490	39800	48	65	274	420
29	350	4290	1280	33100	673	19800	2090	30800	44	56	134	154
30	2740	65000	980	27500	762	20200	1700	18800	46	56	51	48
31	---	---	702	18300	---	---	1100	9330	47	52	---	---
TOTAL	---	267610	---	913340	---	749490	---	556630	---	15042	---	44255

TOTAL LOAD FOR YEAR: 3820230.2 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)
NOV								
03...	1100	12.0	8320	2000	44900	49	56	60
JAN								
04...	1200	.0	1840	10	50	--	--	--
MAR								
12...	1200	.0	2200	15	89	--	--	--
MAY								
02...	1800	13.0	8720	3790	89200	57	62	66
03...	1730	11.0	22400	2800	169000	46	50	53
07...	1300	15.0	19700	337	17900	39	43	47
JUN								
09...	1930	22.0	15500	2860	120000	42	47	52
10...	2000	21.0	18200	3000	147000	56	60	66
JUL								
09...	1130	25.0	2930	366	2900	48	56	66
AUG								
27...	1700	27.0	517	47	66	--	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV							
03...	69	97	99	100	--	--	--
JAN							
04...	--	--	--	--	--	--	98
MAR							
12...	--	--	--	--	--	--	85
MAY							
02...	79	--	--	--	--	--	98
03...	64	90	93	98	100	--	--
07...	53	70	75	88	99	100	--
JUN							
09...	67	94	97	99	100	--	--
10...	73	91	94	98	100	--	--
JUL							
09...	82	--	--	--	--	--	99
AUG							
27...	--	--	--	--	--	--	98

SKUNK RIVER BASIN

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
NOV												
03...	1000	8320	3	0	1	8	56	88	92	95	97	100
MAY												
07...	1300	19700	4	--	0	8	58	83	93	98	99	100
JUL												
09...	1130	2930	3	--	0	2	49	84	96	99	100	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV												
03...	1100	8320	445	7.7	12.0	550	--	--	11000	K32000	200	54
JAN												
04...	1200	1840	628	7.5	.0	2.4	11.0	77	420	1200	320	83
MAR												
12...	1200	2200	606	8.1	.0	24	13.9	96	K20	300	310	68
MAY												
07...	1300	19700	406	7.6	15.0	95	--	--	--	2400	200	65
JUL												
09...	1130	2930	580	8.1	25.0	150	7.5	93	K520	3900	280	69
AUG												
27...	1700	517	413	9.0	27.0	12	10.4	--	K56	K68	190	50

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
NOV												
03...	52	17	9.8	9	.3	5.7	146	38	17	.30	13	270
JAN												
04...	85	26	13	8	.3	2.0	237	55	18	.30	16	389
MAR												
12...	81	25	11	7	.3	2.2	238	49	18	.30	16	382
MAY												
07...	52	17	6.1	6	.2	3.2	135	29	13	.30	13	264
JUL												
09...	75	22	8.3	6	.2	2.3	209	40	16	.30	16	330
AUG												
27...	38	24	13	13	.4	2.3	144	57	15	.30	2.8	231

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
NOV												
03...	240	.37	6070	6.0	.310	.40	6.0	.100	.52	.130	.170	2000
JAN												
04...	360	.53	1930	7.0	.240	.31	1.6	.070	.28	.070	.090	10
MAR												
12...	350	.52	2270	<.10	.150	.19	1.1	.120	.71	.120	.230	15
MAY												
07...	220	.36	14000	9.2	.070	.09	1.1	.100	1.0	.130	.340	337
JUL												
09...	310	.45	2610	5.5	.010	.01	1.5	.060	--	.160	.470	366
AUG												
27...	240	.31	322	<.10	<.010	--	.90	.020	--	.040	.170	47

K Results based on colony counts outside the acceptable range (non-ideal colony count).

SKUNK RIVER BASIN

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)
NOV												
03...	44900	--	97	1	80	110	<.5	<1	<1	<3	5	85
JAN												
04...	50	98	--	--	--	--	--	--	--	--	--	--
MAR												
12...	89	85	--	1	<10	110	<.5	<1	<1	<3	<1	15
MAY												
07...	17900	--	70	1	50	120	<.5	<1	1	<3	3	43
JUL												
09...	2900	99	--	--	--	--	--	--	--	--	--	--
AUG												
27...	66	98	--	2	10	81	2	<1	<1	<3	1	54

DATE	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV											
03...	<1	14	7	<.1	<10	6	1	<1	140	<6	10
JAN											
04...	--	--	--	--	--	--	--	--	--	--	--
MAR											
12...	<1	12	12	.2	<10	<1	1	<1	180	<6	34
MAY											
07...	<1	7	4	.3	<10	2	<1	<1	140	<6	6
JUL											
09...	--	--	--	--	--	--	--	--	--	--	--
AUG											
27...	1	17	37	.2	<10	<1	<1	<1	140	<6	10

05474500 MISSISSIPPI RIVER AT KEOKUK, IA
(National stream-quality accounting network station)

LOCATION.--Lat 40°23'37", long 91°22'27", in SE1/4 SW1/4 sec.30, T.65 N., R.4 W., Lee County, Hydrologic Unit 07080104, near right bank in tailwater of dam and powerplant of Union Electric Co. at Keokuk, 0.2 mi upstream from bridge on U.S. Highway 136, 2.7 mi upstream from Des Moines River, and at mile 364.2 upstream from Ohio River.

DRAINAGE AREA.--119,000 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1878 to current year.

GAGE.--Water-stage recorder. Datum of gage is 477.41 ft NGVD (levels by Corps of Engineers); Jan. 1, 1978, to May 1913, nonrecording gage at Galland (formerly Nashville), 8 mi upstream; zero of gage was set to low-water mark of 1864, or 496.52 ft NGVD.

REMARKS.--Discharge computed from records of operation of turbines in powerplant and spillway gates in dam. Minor flow regulation caused by powerplant since 1913 and navigation dams. Records for May 1913 to September 1937 adjusted for change in contents in Keokuk Reservoir, those after September 1937 unadjusted.

COOPERATION.--Records furnished by Union Electric Co.

AVERAGE DISCHARGE.--106 years, 63,620 ft³/s, 7.26 in/yr, 46,090,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 344,000 ft³/s Apr. 24, 1973; maximum gage height, 23.35 ft Apr. 24, 1973; minimum daily discharge, 5,000 ft³/s Dec. 27, 1933.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 6, 1851, reached a stage of 21.0 ft, present site and datum, estimated as 13.5 ft at Galland, discharge, 360,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 192,000 ft³/s June 29; minimum daily, 22,700 ft³/s Aug. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84400	66400	131000	59400	46800	153000	110000	153000	149000	189000	64800	40500
2	76600	66700	132000	61200	46600	153000	115000	153000	146000	186000	61200	35600
3	65300	72100	133000	62200	47900	152000	118000	175000	141000	181000	63600	32300
4	63700	72800	129000	62700	49300	153000	123000	182000	132000	174000	58600	27100
5	56200	67600	126000	62800	48800	150000	129000	184000	124000	165000	54600	26500
6	52600	63700	124000	62800	48900	147000	131000	184000	113000	158000	52100	29500
7	48300	60700	106000	64100	49600	135000	130000	185000	103000	151000	49700	30900
8	47000	59200	81600	64800	47300	124000	131000	183000	103000	143000	54800	31400
9	45500	58900	72800	64900	45900	114000	132000	185000	102000	137000	58800	30400
10	46600	62000	68500	64800	46800	104000	132000	187000	124000	132000	59000	31900
11	46600	66400	73500	64700	46600	99200	130000	188000	128000	133000	61900	36300
12	49800	73900	69300	63700	50800	90100	130000	187000	126000	132000	58700	37200
13	50100	69700	72700	61700	60200	78100	132000	187000	122000	131000	56500	36500
14	57200	60800	78300	61000	72800	77700	135000	183000	120000	131000	56600	37100
15	61400	58100	75400	60300	85900	74100	138000	177000	125000	137000	55700	42600
16	66200	72700	78100	59500	96900	90400	143000	170000	129000	131000	51600	48800
17	66300	72400	70400	57400	116000	94300	145000	161000	129000	129000	50300	49900
18	67600	72300	46200	56900	134000	96500	149000	153000	126000	129000	49200	47100
19	75800	67400	40200	52400	132000	96000	150000	149000	126000	127000	49100	46200
20	82800	67400	31700	53000	140000	98200	153000	148000	136000	127000	41800	41200
21	86200	73400	41700	51000	140000	102000	158000	144000	149000	125000	42100	38300
22	85100	82400	42600	49300	140000	105000	161000	145000	157000	121000	39900	37700
23	85900	88300	46500	48700	145000	107000	165000	143000	163000	115000	39300	33900
24	86000	90100	48600	47100	152000	105000	164000	141000	168000	112000	36900	32400
25	86800	90100	48000	44500	158000	101000	159000	144000	176000	111000	32400	36300
26	85300	94200	52800	45800	161000	95300	155000	145000	183000	96800	24400	38900
27	85000	98700	53400	44400	161000	108000	150000	150000	189000	90600	22700	38300
28	83600	108000	54300	46800	154000	107000	146000	150000	190000	90400	25600	37000
29	79300	120000	56300	48100	150000	105000	141000	148000	192000	82200	38600	36100
30	76800	126000	58700	46300	---	109000	145000	151000	190000	74000	45400	36700
31	72500	---	60500	46700	---	112000	---	152000	---	67800	43700	---
TOTAL	2122500	2302400	2303100	1739000	2774100	3435900	4200000	5087000	4261000	4008800	1499600	1104600
MEAN	68470	76750	74290	56100	95660	110800	140000	164100	142000	129300	48370	36820
MAX	86800	126000	133000	64900	161000	153000	165000	188000	192000	189000	64800	49900
MIN	45500	58100	31700	44400	45900	74100	110000	141000	102000	67800	22700	26500
CFSM	.58	.65	.62	.47	.80	.93	1.18	1.38	1.19	1.09	.41	.31
IN.	.66	.72	.72	.54	.87	1.07	1.31	1.59	1.33	1.25	.47	.35
AC-FT	4210000	4567000	4568000	3449000	5502000	6815000	8331000	10090000	8452000	7951000	2974000	2191000

CAL YR 1983 TOTAL 36828000 MEAN 100900 MAX 224000 MIN 31200 CFSM .85 IN 11.51 AC-FT 73050000
WTR YR 1984 TOTAL 34838000 MEAN 95190 MAX 192000 MIN 22700 CFSM .80 IN 10.89 AC-FT 69100000

05474500 MISSISSIPPI RIVER AT KEOKUK, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Samples collected at public access 0.5 mi downstream from discharge station.

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1977 to September 1981.
WATER TEMPERATURES: December 1977 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 612 micromhos Jan. 21, 1980; minimum daily, 310 micromhos Apr. 7, 1981.
WATER TEMPERATURES: Maximum daily, 28.0°C July 13-23, 1980; minimum daily, 0.0° C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV												
17...	1100	74300	430	8.2	6.0	23	11.4	93	520	1600	210	34
MAR												
02...	1100	153000	353	7.6	1.0	40	14.0	100	1300	660	170	59
MAY												
24...	1215	135000	433	8.3	19.0	31	7.2	--	140	190	200	55
AUG												
27...	1300	22700	438	8.5	25.0	10	8.4	104	K14	<10	220	47

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
NOV												
17...	51	19	9.5	9	.3	2.6	172	27	15	.20	11	264
MAR												
02...	43	16	7.3	8	.2	2.9	119	24	30	.10	12	243
MAY												
24...	50	19	8.2	8	.3	2.3	148	44	17	.20	3.0	253
AUG												
27...	50	23	11	10	.3	2.7	173	47	14	.20	1.6	244

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
NOV												
17...	240	.36	53000	2.8	.120	.15	1.3	.080	.71	.110	.230	--
MAR												
02...	210	.33	100000	3.2	.240	.31	1.6	.100	.77	.100	.250	153
MAY												
24...	230	.34	92200	2.6	.070	.09	8.0	.040	--	.060	.150	103
AUG												
27...	250	.33	15000	.51	.090	.12	1.0	.080	--	.100	.170	29

K Results based on colony count outside the acceptable range (non-ideal colony count).

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)
NOV											
17...	--	--	1	<10	62	<.5	<1	<1	<3	1	<5
MAR											
02...	63200	97	<1	30	52	<.5	<1	<1	<3	5	110
MAY											
24...	37500	98	<1	<10	56	<1	<1	1	<3	3	5
AUG											
27...	1780	96	2	20	69	<1	<1	2	<3	4	<3

DATE	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV											
17...	<2	15	<3	.1	<10	<1	<1	<1	100	<6	<6
MAR											
02...	3	8	19	.1	<10	3	<1	<1	81	<6	140
MAY											
24...	2	16	2	<.1	<10	4	<1	<1	110	<6	3
AUG											
27...	<1	10	1	<.1	<10	1	<1	<1	120	<6	12

05476500 DES MOINES RIVER AT ESTHERVILLE, IA

LOCATION.--Lat 43°23'51", long 94°50'38", in SW1/4 SE1/4 sec.10, T.99 N., R.34 W., Emmet County, Hydrologic Unit 07100002, on right bank in city park, 1,200 ft downstream from bridge on State Highway 9 at Estherville, 0.1 mi upstream from School Creek, 2.3 mi upstream from Brown Creek, and at mile 404.2.

DRAINAGE AREA.--1,372 mi².

PERIOD OF RECORD.--October 1951 to current year. Prior to November 1951, monthly discharge only, published in WSP 1728.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,247.55 ft NGVD.

REMARKS.--Records good except those for winter period, which are fair.

AVERAGE DISCHARGE.--33 years, 366 ft³/s, 3.62 in/yr, 265,200 acre-ft/yr; median of yearly mean discharges, 250 ft³/s, 2.5 in/yr, 181,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s Apr. 12, 1969, gage height, 17.68 ft, from flood-mark; no flow Jan. 16-18, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 14	0915	*8,570	*14.30	June 23	0530	8,450	14.23
May 7	0315	4,120	10.61	July 15	0015	1,690	6.18
May 28	0530	1,780	6.40				

Minimum daily discharge, 64 ft³/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	85	289	125	87	370	3020	3420	1350	4480	415	136
2	104	86	308	124	85	376	3280	3680	1270	4100	390	127
3	106	93	315	123	84	374	4080	3940	1180	3770	440	112
4	97	101	325	121	84	358	5100	3910	1130	3480	600	108
5	86	101	344	122	81	341	5620	3880	1080	3220	780	111
6	80	99	345	121	80	330	5870	3950	1080	2960	770	112
7	75	100	325	122	78	320	6200	4090	1120	2730	730	108
8	72	104	310	122	74	310	6570	3960	1300	2540	762	108
9	69	107	290	124	71	300	6840	3790	1220	2390	709	104
10	64	114	280	124	70	290	6950	3610	1220	2270	643	102
11	95	113	260	117	71	280	6870	3670	1380	2100	570	104
12	94	108	240	115	80	290	7200	3830	2180	1910	514	96
13	89	118	225	108	101	295	7920	3810	2690	1770	471	132
14	89	136	210	97	111	305	8480	3640	2910	1690	428	139
15	86	159	195	103	169	314	8170	3420	3180	1680	401	135
16	83	180	180	106	297	319	7870	3170	3310	1620	381	118
17	90	190	170	109	379	319	7510	3000	4290	1580	364	106
18	83	189	164	110	464	315	6910	2910	4840	1430	357	100
19	91	233	160	104	399	307	6210	2780	5020	1330	340	93
20	101	299	160	98	351	314	5600	2620	5060	1260	316	92
21	110	333	155	106	322	320	5060	2460	4740	1210	299	85
22	113	366	150	106	326	370	4640	2290	5350	1100	292	82
23	116	349	145	100	327	613	4180	2100	7950	980	279	81
24	117	263	140	94	337	1100	3840	1950	6570	870	247	80
25	114	222	135	91	365	1430	3550	1840	5930	764	226	80
26	107	260	130	90	405	1830	3330	1680	5670	704	216	73
27	98	275	130	90	402	1950	3180	1580	5450	649	188	72
28	99	114	130	90	378	2010	3160	1750	5270	600	180	75
29	96	181	130	89	367	2170	3310	1670	5010	548	172	76
30	90	240	130	90	---	2300	3390	1530	4760	477	152	69
31	87	---	125	90	---	2510	---	1430	---	443	145	---
TOTAL	2906	5318	6595	3331	6445	23030	163910	91360	103510	56655	12777	3016
MEAN	93.7	177	213	107	222	743	5464	2947	3450	1828	412	101
MAX	117	366	345	125	464	2510	8480	4090	7950	4480	780	139
MIN	64	85	125	89	70	280	3020	1430	1080	443	145	69
CFSM	.07	.13	.16	.08	.16	.54	3.98	2.15	2.52	1.33	.30	.07
IN.	.08	.14	.18	.09	.17	.62	4.44	2.48	2.81	1.54	.35	.08
AC-FT	5760	10550	13080	6610	12780	45680	325100	181200	205300	112400	25340	5980

CAL YR 1983 TOTAL 465220 MEAN 1275 MAX 5860 MIN 62 CFSM .93 IN 12.61 AC-FT 922800
WTR YR 1984 TOTAL 478853 MEAN 1308 MAX 8480 MIN 64 CFSM .95 IN 12.98 AC-FT 949800

DES MOINES RIVER BASIN

05476750 DES MOINES RIVER AT HUMBOLDT, IA

LOCATION.--Lat 42°43'12", long 94°13'06", in SE1/4 SW1/4 sec.1, T.91 N., R.29 W., Humboldt County, Hydrologic Unit 07100002, on left bank 5 ft downstream from First Avenue in city of Humboldt, about 700 ft below dam, 3.2 mi below dam, 3.2 mi upstream from Indian Creek, 3.9 mi upstream from East Fork Des Moines River, and at mile 334.3.

DRAINAGE AREA.--2,256 mi².

PERIOD OF RECORD.--October 1964 to current year. Prior to October 1970, published as West Fork Des Moines River at Humboldt.

GAGE.--Water-stage recorder. Datum of gage is 1,053.54 ft NGVD. Prior to Oct. 3, 1966, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Daily nonrecording gage readings available in district office for period Mar. 7, 1940, to Sept. 30, 1964. Discharge not published for this period because of extreme regulation at dam 700 ft upstream from gage. Power generation and streamflow regulation discontinued August 1964. Low-flow discharges occasionally affected by minor regulation.

AVERAGE DISCHARGE.--20 years, 928 ft³/s, 5.59 in/yr, 672,300 acre-ft/yr; median of yearly mean discharges, 720 ft³/s, 4.3 in/yr, 522,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft³/s Apr. 14, 1969, gage height, 15.40 ft; minimum daily, 13 ft³/s Nov. 12, 1976, Jan. 12 to Feb. 2, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23, 1947, reached a stage of 12.2 ft, discharge, 11,000 ft³/s at present site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 29	1015	3,390	7.35	June 14	2200	7,630	10.45
Apr. 17	1100	10,400	11.84	June 18	2330	*11,400	*12.50
May 4	0330	7,070	10.12	June 27	1215	9,280	11.34
June 8	0300	6,200	9.60				

Minimum daily discharge, 155 ft³/s Jan. 26-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	492	450	785	350	165	1770	3280	6190	3010	6830	887	346
2	488	441	830	290	170	1640	3260	6760	2750	6470	853	347
3	497	429	830	250	170	1470	3390	7090	2550	6150	866	335
4	469	504	840	220	170	1470	3730	6960	2370	5800	892	336
5	447	890	850	210	175	1390	4110	6720	2330	5440	953	315
6	424	800	860	205	180	1150	4350	6550	2560	5030	1080	296
7	404	720	820	210	180	1020	4650	6260	2860	4630	1080	299
8	389	671	783	210	185	900	5180	6070	4830	4350	1030	291
9	372	659	753	215	190	900	6240	5720	3920	4280	1060	281
10	360	745	759	215	195	840	7440	5450	3890	4190	1000	283
11	430	888	761	215	200	760	7790	5250	3680	3870	926	283
12	651	843	819	210	210	700	8100	5000	3690	3560	859	281
13	716	799	736	200	230	660	8670	4750	5770	3270	796	273
14	651	816	600	195	260	860	9210	4540	7330	3020	742	267
15	602	1080	500	195	300	940	9490	4430	7630	2890	695	267
16	567	1180	460	195	380	841	9780	4380	7770	2600	664	279
17	529	1100	500	200	600	848	10100	4280	8680	2480	636	281
18	501	1050	600	200	1200	855	9770	4180	10600	2370	631	276
19	514	1030	860	210	750	835	9090	4070	10800	2290	605	260
20	546	1260	840	220	1850	801	8550	3860	9050	2090	585	253
21	679	1470	840	230	1850	788	8010	3640	8770	1970	561	247
22	741	1420	860	200	1900	930	7710	3530	8550	1820	499	242
23	720	1350	920	180	2000	1450	7650	3450	8740	1690	509	238
24	676	1280	800	165	2200	2030	7520	3360	8620	1540	494	236
25	610	1120	700	160	2250	2550	6930	3250	8170	1420	476	226
26	579	1030	620	155	2490	2970	6260	3160	8580	1340	453	212
27	548	970	560	155	2520	3200	6430	3080	9170	1270	433	216
28	529	766	600	155	2270	3270	6540	3030	8610	1270	414	218
29	493	647	620	160	1910	3320	5730	3280	7870	1190	394	214
30	468	729	660	160	---	3310	5870	3410	7290	1070	366	210
31	460	---	470	160	---	3280	---	3310	---	973	355	---
TOTAL	16552	27137	22436	6295	27150	47748	204830	145010	190440	97163	21794	8108
MEAN	534	905	724	203	936	1540	6828	4678	6348	3134	703	270
MAX	741	1470	920	350	2520	3320	10100	7090	10800	6830	1080	347
MIN	360	429	460	155	165	660	3260	3030	2330	973	355	210
CFSM	.24	.40	.32	.09	.42	.68	3.03	2.07	2.81	1.39	.31	.12
IN.	.27	.45	.37	.10	.45	.79	3.38	2.39	3.14	1.60	.36	.13
AC-FT	32830	53830	44500	12490	53850	94710	406300	287600	377700	192700	43230	16080

CAL YR 1983 TOTAL 874526 MEAN 2396 MAX 9600 MIN 294 CFSM 1.06 IN 14.42 AC-FT 1735000
WTR YR 1984 TOTAL 814663 MEAN 2226 MAX 10800 MIN 155 CFSM .99 IN 13.43 AC-FT 1616000

05479000 EAST FORK DES MOINES RIVER AT DAKOTA CITY, IA

LOCATION.--Lat 42°43'26", long 94°11'30", in NW1/4 SE1/4 sec.6, T.91 N., R.28 W., Humboldt County, Hydrologic Unit 07100003, on right bank 50 ft upstream from old mill dam, in city park at east edge of Dakota City, 500 ft upstream from bridge on county highway P56, 0.6 mi downstream from bridge on State Highway 3, 3.4 mi upstream from confluence with Des Moines River, and at mile 333.8 upstream from mouth of Des Moines River.

DRAINAGE AREA.--1,308 mi².

PERIOD OF RECORD.--March 1940 to current year. Prior to October 1954, published as "near Hardy".

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1944, 1945-47 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,038.71 ft NGVD. Prior to Oct. 1, 1954, nonrecording gage at site 8 mi upstream at different datum.

REMARKS.--Records good except those for winter period, which are poor. Naitonal Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--44 years, 551 ft³/s, 5.72 in/yr, 399,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,800 ft³/s June 21, 1954, gage height, 16.95 ft, from flood-mark, site and datum then in use; minimum daily, 4.8 ft³/s Jan. 11-14, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1954, reached a stage of 24.02 ft, discharge, 17,400 ft³/s at present site. Flood of September 1938 reached a stage of 17.4 ft, discharge, about 22,000 ft³/s, site and datum in use during the period 1940-54.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 22	1200	4,600	ice jam	June 2	0815	2,130	11.52
Mar. 30	0800	2,990	12.60	June 8	1615	6,730	16.58
Apr. 17	1245	3,430	13.17	June 18	2245	*9,740	*19.19
May 4	0145	6,800	16.64				

Minimum daily discharge, 35 ft³/s Sept. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	251	400	235	160	2900	2740	5810	2080	3730	419	71
2	183	243	540	230	160	2550	2490	6530	2110	3320	381	69
3	186	234	640	225	165	2310	2370	6710	2060	2980	347	66
4	171	225	610	220	165	2050	2460	6760	1970	2690	319	65
5	163	218	580	220	165	1820	2530	6400	1890	2440	288	63
6	153	214	550	220	165	1510	2530	5680	1750	2240	267	62
7	146	206	520	225	160	1200	2540	5020	1880	2050	247	59
8	142	203	480	225	160	1000	2620	4500	5470	1970	229	60
9	133	216	450	225	160	740	2720	4060	4810	2150	206	56
10	130	233	400	225	160	920	2890	3660	3530	2060	200	56
11	156	254	400	225	165	880	2930	3330	2980	1820	183	54
12	199	269	420	220	170	840	2990	3030	3150	1630	165	53
13	256	280	400	215	190	800	3110	2790	5830	1530	154	53
14	292	296	310	205	210	790	3190	2550	7750	1500	152	51
15	280	335	300	195	230	810	3250	2340	7430	1520	148	49
16	266	386	290	185	300	820	3350	2180	7300	1520	143	47
17	249	426	280	175	450	843	3420	2030	7460	1450	139	46
18	235	443	275	170	950	772	3350	1920	8990	1320	138	43
19	238	463	270	165	2500	742	3090	1860	9180	1210	134	42
20	254	532	350	165	3500	703	2790	1760	7850	1120	128	42
21	292	635	470	170	3900	686	2530	1640	7090	1020	125	38
22	328	699	440	170	4400	837	2420	1610	6210	950	122	36
23	344	790	370	170	4400	1200	2420	1650	6150	880	113	37
24	357	831	340	170	4200	1510	2490	1610	6190	800	108	39
25	349	759	320	170	4200	1790	2430	1610	5950	740	102	39
26	332	652	300	165	4200	2020	2300	1620	6280	680	97	35
27	317	675	285	160	4160	2260	2550	1620	5980	630	93	36
28	303	470	275	155	3540	2600	3180	1650	5340	570	88	37
29	280	400	260	155	3180	2860	3740	1840	4750	540	85	36
30	264	350	250	160	---	2980	4880	1950	4220	490	80	37
31	259	---	245	160	---	2920	---	2000	---	457	75	---
TOTAL	7450	12188	12020	5975	46465	46663	86300	97720	153630	48007	5475	1477
MEAN	240	406	388	193	1602	1505	2877	3152	5121	1549	177	49.2
MAX	357	831	640	235	4400	2980	4880	6760	9180	3730	419	71
MIN	130	203	245	155	160	686	2300	1610	1750	457	75	35
CFSM	.18	.31	.30	.15	1.23	1.15	2.20	2.41	3.92	1.18	.14	.04
IN.	.21	.35	.34	.17	1.32	1.33	2.45	2.78	4.37	1.37	.16	.04
AC-FT	14780	24170	23840	11850	92160	92560	171200	193800	304700	95220	10860	2930

CAL YR 1983	TOTAL	552000	MEAN	1512	MAX	7190	MIN 57	CFSM 1.16	IN 15.70	AC-FT	1095000
WTR YR 1984	TOTAL	523370	MEAN	1430	MAX	9180	MIN 35	CFSM 1.09	IN 14.88	AC-FT	1038000

05480500 DES MOINES RIVER AT FORT DODGE, IA

LOCATION.--Lat 42°30'22", long 94°12'04", in NW1/4 SW1/4 sec.19, T.89 N., R.28 W., Webster County, Hydrologic Unit 07100004, on right bank 400 ft upstream from Soldier Creek, 1,800 ft downstream from Illinois Central Railroad bridge in Fort Dodge, 2,000 ft downstream from Lizard Creek, and at mile 314.6.

DRAINAGE AREA.--4,190 mi².

PERIOD OF RECORD.--April 1905 to July 1906 (no winter records), October 1913 to September 1927 (published as "at Kalo"), October 1946 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1308: 1924, 1925 (M).

GAGE.--Water-stage recorder. Datum of gage is 969.38 ft NGVD. See WSP 1728 for history of changes prior to Dec. 8, 1949.

REMARKS.--Records good except those for winter period, which are poor. Occasional minor regulation caused by dam 0.8 mi upstream from gage. Corps of Engineers rain-gage and gage-height telemeters and City of Fort Dodge gage-height telemeter at station.

COOPERATION.--One discharge measurement furnished by Corps of Engineers.

AVERAGE DISCHARGE.--52 years (water years 1914-27, 1947-84), 1,538 ft³/s, 4.98 in/yr, 1,114,000 acre-ft/yr; median of yearly mean discharges, 1,200 ft³/s, 3.9 in/yr, 869,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,600 ft³/s Apr. 8, 1965, gage height, 17.79 ft; maximum gage height, 19.62 ft, from floodmark, June 23, 1947, present site and datum; minimum daily discharge, 14 ft³/s Nov. 3, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 18	0100	ice jam	12.79	May 2	1200	19,400	11.32
Feb. 23	0045	11,300	8.42	May 4	0815	19,300	11.36
Mar. 28	0900	8,110	7.18	May 23	0930	6,330	6.65
Apr. 5	0915	8,870	7.49	May 30	0400	6,910	6.89
Apr. 10	0815	13,400	9.20	June 8	0730	20,600	12.13
Apr. 17	1315	15,300	9.89	June 14	2045	22,600	12.83
Apr. 24	1345	14,000	9.41	June 19	unknown	*27,700	*14.94
Apr. 28	0800	13,600	9.25	June 27	0315	17,900	11.16

Minimum daily discharge, 266 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	824	1030	1900	910	440	5690	7190	18500	6170	12300	1710	451
2	806	998	1950	920	430	5120	6900	19300	5790	11200	1580	455
3	848	967	1950	930	420	4610	7090	18900	5410	10300	1450	430
4	783	988	1900	940	410	4330	8220	18100	5130	9550	1390	425
5	749	1500	1800	950	400	4020	8840	16900	5350	8840	1380	402
6	706	1600	1650	940	410	3380	8790	15500	5170	8140	1500	381
7	668	1440	1450	940	380	2820	8870	14300	5230	7480	1560	376
8	641	1340	1300	900	370	2600	9620	13300	18100	6960	1500	386
9	612	1380	1100	840	380	2650	11400	12200	16600	6980	1450	367
10	603	1620	900	780	410	2300	12900	11200	12000	6850	1410	366
11	893	1920	850	750	430	2000	13100	10500	9850	6200	1280	361
12	1210	1890	800	730	520	1900	13300	9780	10400	5590	1180	352
13	1420	1790	770	710	720	2100	13900	9070	18100	5050	1080	348
14	1360	1840	740	700	920	2250	14500	8440	21900	4780	1010	339
15	1260	2330	730	690	2200	2400	14800	8070	21200	4630	946	328
16	1150	2600	720	680	5400	2600	14900	7770	21900	4380	901	343
17	1060	2480	730	670	13000	2400	15200	7470	24100	4150	868	342
18	990	2390	750	660	10000	2200	15000	7320	25900	3970	856	332
19	1220	2420	770	660	7400	2100	14100	7240	26500	3820	817	320
20	1600	2870	800	650	6840	2080	13200	6860	22700	4670	778	308
21	1750	3270	830	630	6880	2000	12400	6340	20400	4460	762	295
22	1790	3180	860	600	8240	2260	12500	6200	19000	3840	731	290
23	1720	3190	880	560	10100	3780	13400	6290	19600	3410	646	286
24	1630	3110	890	530	9670	4930	13700	6120	19200	3040	651	292
25	1510	2830	890	510	8990	5710	12500	6090	17600	2720	626	301
26	1410	2550	890	490	8750	6520	11100	6000	17400	2570	598	275
27	1340	2490	890	480	8540	6920	12200	5810	17700	2400	573	273
28	1260	2220	890	470	7360	7350	13400	5930	16500	2450	547	272
29	1150	1640	890	460	6190	7690	13400	6610	14900	2260	521	268
30	1080	1800	890	450	---	7710	17900	6840	13500	2040	487	266
31	1050	---	900	450	---	7490	---	6580	---	1860	460	---
TOTAL	35093	61673	33260	21580	126200	121910	364320	309530	463300	166890	31248	10230
MEAN	1132	2056	1073	696	4352	3933	12140	9985	15440	5384	1008	341
MAX	1790	3270	1950	950	13000	7710	17900	19300	26500	12300	1710	455
MIN	603	967	720	450	370	1900	6900	5810	5130	1860	460	266
CFSM	.27	.49	.26	.17	1.04	.94	2.90	2.38	3.69	1.29	.24	.08
IN.	.31	.55	.30	.19	1.12	1.08	3.23	2.75	4.11	1.48	.28	.09
AC-FT	69610	122300	65970	42800	250300	241800	722600	614000	919000	331000	61980	20290

CAL YR 1983 TOTAL 1772046 MEAN 4855 MAX 19300 MIN 398 CFSM 1.16 IN 15.73 AC-FT 3515000
WTR YR 1984 TOTAL 1745234 MEAN 4768 MAX 26500 MIN 266 CFSM 1.14 IN 15.49 AC-FT 3462000

05481000 BOONE RIVER NEAR WEBSTER CITY, IA

LOCATION.--Lat 42°26'01", long 93°48'12", in NW1/4 SE1/4 sec. 18, T.88 N., R.25 W., Hamilton County, Hydrologic Unit 07100005, on right bank 100 ft upstream from bridge on State Highway 17, 2.5 mi south of Webster City, and 3.2 mi downstream from Brewers Creek.

DRAINAGE AREA.--844 mi.²

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1308: 1940 (M), WSP 1708: 1956.

GAGE.--Water-stage recorder. Datum of gage is 989.57 ft NGVD. Prior to June 26, 1940, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height telemeters at station.

COOPERATION.--Five discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--44 years, 415 ft³/s, 6.68 in/yr, 300,700 acre-ft/yr; median of yearly mean discharges, 360 ft³/s, 5.8 in/yr, 261,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,300 ft³/s June 22, 1954, gage height, 18.55 ft; no flow Feb. 7, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1896, 19.1 ft about June 109, 1918, from floodmarks from information by local resident, discharge, 21,500 ft³/s. Flood of June 18, 1932, reached a stage of 16.0 ft, discharge, 15,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 18	1830	6,160	9.91	June 10	1145	8,850	12.17
Feb. 23	1715	4,260	7.93	June 15	0830	8,910	12.21
Apr. 14	1745	2,530	6.09	June 18	1215	*11,300	*13.95
May 1	0100	8,200	11.07				

Minimum daily discharge, 21 ft³/s Sept. 29-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	286	400	560	180	92	1490	1080	7960	1290	1230	155	30
2	267	385	520	180	90	1300	1050	7390	1160	1110	140	29
3	290	362	470	185	89	1140	1170	6860	1030	998	144	29
4	272	349	430	185	88	1070	1670	5300	999	888	132	28
5	258	328	390	180	87	995	1830	3930	1050	789	128	28
6	237	314	360	180	87	826	1700	3070	1060	759	120	29
7	221	295	320	175	88	727	1500	2620	1020	716	111	29
8	209	295	300	165	90	700	1370	2320	1650	631	107	35
9	193	400	270	160	92	600	1390	2060	5090	634	100	31
10	181	601	250	155	98	520	1450	1830	8430	652	94	31
11	229	639	230	150	170	470	1470	1640	6420	696	88	31
12	570	628	210	145	320	410	1580	1460	4470	576	84	31
13	700	591	190	140	600	420	2050	1330	5890	518	79	30
14	585	570	175	135	500	470	2460	1200	7530	627	74	28
15	509	539	160	130	760	540	2440	1110	8690	780	69	26
16	457	495	150	130	1400	700	2190	1040	7680	667	65	26
17	425	484	140	125	2600	920	1910	975	7650	564	62	26
18	415	489	135	120	5000	760	1620	962	10800	538	57	25
19	405	601	135	120	5960	640	1390	966	8850	492	54	24
20	591	729	140	120	5350	600	1230	979	6160	1130	51	23
21	960	712	140	115	4360	563	1140	963	4950	661	46	22
22	1050	683	145	110	4000	594	1170	957	4070	483	45	21
23	908	759	150	110	4220	749	1500	937	3930	410	42	21
24	777	832	155	110	4050	1400	1850	994	3520	350	40	21
25	667	795	160	105	3630	1770	1800	1480	3330	315	38	37
26	606	759	165	105	3150	1850	1640	1550	3100	285	36	26
27	549	712	165	100	2660	1730	2720	1350	2450	255	34	24
28	559	690	170	100	2190	1610	3370	1590	1910	229	33	22
29	452	680	170	98	1730	1510	3540	1540	1600	210	34	21
30	429	600	175	96	---	1320	6960	1550	1380	190	31	21
31	415	---	180	94	---	1170	---	1450	---	170	30	---
TOTAL	14672	16716	7310	4203	53551	29564	58240	69363	127159	18553	2323	805
MEAN	473	557	236	136	1847	954	1941	2238	4239	598	74.9	26.8
MAX	1050	832	560	185	5960	1850	6960	7960	10800	1230	155	37
MIN	181	295	135	94	87	410	1050	937	999	170	30	21
CFSM	.56	.66	.28	.16	2.19	1.13	2.30	2.65	5.02	.71	.09	.03
IN.	.65	.74	.32	.19	2.36	1.30	2.57	3.06	5.60	.82	.10	.04
AC-FT	29100	33160	14500	8340	106200	58640	115500	137600	252200	36800	4610	1600

CAL YR 1983 TOTAL 392674 MEAN 1076 MAX 9300 MIN 46 CFSM 1.28 IN 17.31 AC-FT 778900
WTR YR 1984 TOTAL 402459 MEAN 1100 MAX 10800 MIN 21 CFSM 1.30 IN 17.74 AC-FT 798300

05481300 DES MOINES RIVER NEAR STRATFORD, IA

LOCATION.--Lat 42°15'04", long 93°59'52", in NW1/4 NE1/4 sec.21, T.86 N., R.27 W., Webster County, Hydrologic Unit 07100004, on right bank 6 ft downstream from bridge on State Highway 175, 0.1 mi downstream from Skillet Creek, 4.0 mi southwest of Stratford, 7.3 mi downstream from Boone River and at mile 276.7.

DRAINAGE AREA.--5,452 mi².

PERIOD OF RECORD.--April 1920 to current year in reports of Geological Survey. Published as "near Boone" 1920-67. Monthly discharge only for some periods, published in WSP 1308. December 1904 to April 1920 (fragmentary gage heights during high-water periods only) in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1925-27, 1934. WSP 1708: 1955.

GAGE.--Water-stage recorder. Datum of gage is 894.00 ft NGVD. Prior to May 1, 1920, nonrecording gage 16.6 mi downstream at datum 23.49 ft lower. Oct. 9, 1924, to Jan. 10, 1933, nonrecordinga gage 17.6 mi downstream at datum 28.53 ft lower. Jan. 11, 1933, to Sept. 30, 1934, nonrecording gage 17.9 mi downstream at datum 22.25 ft lower. Oct. 1, 1934 to Feb. 6, 1935, nonrecording gage and Feb. 7, 1935 to Sept. 30, 1967, water-stage recorder 17.9 mi downstream at datum 21.84 ft lower.

REMARKS.--Records good except those for winter period, which are poor. Occasional minor regulation caused by dam at Fort Dodge. Corps of Engineers rain-gage and gage-height telemeters at station.

COOPERATION.--Seven discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--64 years, 1,949 ft³/s, 4.85 in/yr, 1,412,000 acre-ft/yr; median of yearly mean discharges, 1,620 ft³/s, 4.0 in/yr, 1,174,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,400 ft³/s June 22, 1954, gage height, 25.35 ft, from graph based on hourly gage readings, site and datum then in use; no flow for a short time on Jan. 9, 25, 1938, caused by manipulation of gates in control dam, site then in use; minimum unregulated daily discharge, 13 ft³/s Jan. 23, 24, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1903, reached a stage of 25.4 ft, from high-water mark, site and datum then in use, discharge, 43,600 ft³/s. Flood of June 22, 1954, reached a stage of 29.7 ft, from floodmark, present site and datum, discharge, 54,200 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 17	----	18,000	ice jam	May 28	1045	10,300	13.36
Feb. 24	0200	15,200	16.21	June 9	2015	21,900	19.18
Mar. 29	1730	9,700	13.07	June 15	1400	30,800	22.33
Apr. 5	unknown	11,800	unknown	June 19	1430	*36,300	*24.08
Apr. 15	1215	18,100	17.65	July 10	0215	7,760	11.87
May 1	0830	27,200	21.10	July 20	1800	7,540	11.54

Minimum daily discharge, 288 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	1670	2700	940	540	7920	8850	27000	8930	14000	2180	490
2	1200	1630	2750	960	540	7240	8490	26400	8350	12800	2020	515
3	1190	1590	2800	900	540	6530	8710	25700	7780	11900	1860	510
4	1210	1540	2700	940	540	6090	10400	24000	7370	11000	1740	475
5	1140	1500	2600	920	540	5750	11500	21900	7490	10300	1680	450
6	1060	1510	2400	900	540	4960	11600	19900	7410	9580	1610	435
7	999	1970	2100	880	550	3800	11000	18200	7270	8830	1690	430
8	950	1930	1800	860	560	3500	11200	16700	10200	8160	1710	430
9	905	1800	1600	830	570	3200	12300	15400	20400	7920	1660	425
10	875	1910	1350	800	620	2900	14000	14200	21100	8020	1530	410
11	986	2490	1150	780	860	2650	15000	13200	19400	7700	1490	405
12	1420	2720	1000	760	1350	2450	15200	12300	15700	7050	1340	387
13	2130	2840	940	740	2320	2280	16100	11400	24000	6530	1260	376
14	2160	2750	880	720	2850	2700	17400	10600	27600	6120	1190	378
15	1980	2660	820	700	4500	3400	18100	10000	30400	6590	1140	367
16	1780	2770	800	680	8800	3800	17900	9600	29600	6050	1040	354
17	1610	360	780	670	18000	3550	17500	9250	30600	5650	1000	358
18	1490	3220	780	660	17000	3400	17100	9010	33000	5240	951	357
19	1540	3110	780	650	15600	3200	16200	9010	35900	5010	864	349
20	2100	3430	780	640	14200	3110	15000	8830	32100	6310	816	333
21	2850	3920	790	620	13600	2940	14000	8400	26400	6650	840	324
22	3200	4330	800	610	13200	2840	13900	8100	23600	5480	828	315
23	3110	4360	810	600	14400	3810	14700	8060	22700	4700	762	314
24	2860	4460	820	590	14900	6340	15600	8100	22400	4070	720	308
25	2600	4520	840	580	13700	7820	15400	8820	21200	3570	702	321
26	2370	4290	860	570	12400	8760	14000	9380	20000	3420	674	338
27	2220	3930	870	560	12000	9250	14800	8720	19800	3200	619	308
28	2080	3980	880	560	10700	9480	17500	9880	18900	3170	536	294
29	1940	3570	890	550	8850	9670	17900	9850	17100	2980	586	293
30	1770	2850	900	550	---	9580	24600	9830	15300	2680	525	288
31	1670	---	910	540	---	9250	---	9490	---	2430	485	---
TOTAL	54605	83610	40880	22260	204770	162170	435950	411230	592000	207110	36048	11337
MEAN	1761	2787	1319	718	7061	5231	14530	13270	19730	6681	1163	378
MAX	3200	4520	2800	960	18000	9670	24600	27000	35900	14000	2180	515
MIN	875	360	780	540	540	2280	8490	8060	7270	2430	485	288
CFSM	.32	.51	.24	.13	1.30	.96	2.67	2.43	3.62	1.23	.21	.07
IN.	.37	.57	.28	.15	1.40	1.11	2.97	2.81	4.04	1.41	.25	.08
AC-FT	108300	165800	81090	44150	406200	321700	864700	815700	1174000	410800	71500	22490

CAL YR 1983	TOTAL	2281680	MEAN	6251	MAX	28600	MIN 360	CFSM 1.15	IN 15.57	AC-FT 4526000
WTR YR 1984	TOTAL	2261970	MEAN	6180	MAX	35900	MIN 288	CFSM 1.13	IN 15.43	AC-FT 4487000

05481630 SAYLORVILLE LAKE NEAR SAYLORVILLE, IA

LOCATION.--Lat 41°42'13", long 93°41'21", in SE 1/4, SW 1/4 sec.30, T.80 N., R.24 W., Polk County, Hydrologic Unit 07100004, in control tower of Saylorville Dam, 3.2 mi northwest of Saylorville, 4.2 mi upstream from Beaver Creek, and at mile 213.7.

DRAINAGE AREA.--5,823 mi².

PERIOD OF RECORD.--April 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is at NGVD (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam completed in 1976. Storage began in April 1977. Release controlled at intake structure to forechamber of 22 ft diameter concrete conduit through dam. Ungated chute spillway 430 ft in length at right end of dam at elevation 884 ft, contents, 570,000 acre-ft. Conservation pool at elevation 833 ft, contents, 74,000 acre-ft, surface area, 5,400 acres. Flood pool elevation at 890 ft, contents, 676,000 acre-ft, surface aread, 16,700 acres. Reservoir is used for flood control, low-flow augmentation, conservation and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 655,000 acre-ft June 22, 1984; maximum elevation, 889.25 ft June 22, 1984; minimum daily contents, 66,900 acre-ft Oct. 13,19-21, 1979; minimum elevation, 832.61 ft Jan. 19, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 655,000 acre-ft June 22; maximum elevation, 889.25 ft June 22; minimum daily contents, 92,900 acre-ft Oct. 1; minimum elevation, 838.30 ft Aug. 30.

Capacity table (elevation, in feet, and contents, in acre-feet)

805	360	833	74,000	884	570,000
810	2,300	840	116,000	890	676,000
815	7,700	850	190,000	900	938,000
820	19,000	860	278,000	910	1,320,000
830	58,600	880	511,000	915	1,530,000

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92900	109000	106000	105000	105000	143000	95600	311000	371000	592000	234000	111000
2	93000	108000	106000	106000	105000	122000	95600	362000	365000	574000	233000	110000
3	93100	107000	107000	106000	104000	112000	97300	409000	358000	556000	232000	110000
4	93200	107000	108000	105000	104000	104000	97900	448000	332000	534000	230000	110000
5	93200	107000	110000	104000	104000	102000	99100	477000	342000	512000	229000	110000
6	97200	108000	110000	104000	104000	99700	100000	493000	333000	489000	228000	110000
7	93700	108000	111000	104000	104000	99600	99100	504000	326000	464000	227000	110000
8	94700	108000	110000	105000	104000	98800	98800	509000	320000	439000	226000	111000
9	96000	108000	108000	105000	104000	98200	99000	508000	330000	418000	225000	111000
10	97500	108000	106000	105000	104000	99200	101000	506000	351000	403000	223000	110000
11	99600	107000	106000	105000	105000	100000	105000	502000	370000	391000	222000	110000
12	102000	107000	106000	104000	108000	100000	109000	495000	383000	380000	220000	109000
13	105000	107000	107000	104000	107000	99800	115000	486000	409000	370000	218000	109000
14	108000	107000	107000	104000	107000	99700	128000	476000	444000	359000	216000	108000
15	109000	106000	107000	104000	108000	99100	134000	465000	485000	348000	212000	107000
16	107000	106000	106000	104000	107000	99600	134000	453000	529000	337000	207000	107000
17	107000	106000	105000	105000	112000	98500	151000	441000	559000	325000	201000	107000
18	108000	107000	105000	106000	131000	98200	156000	432000	584000	313000	195000	108000
19	109000	109000	106000	106000	149000	98200	161000	426000	614000	300000	190000	108000
20	109000	110000	106000	106000	160000	98500	165000	419000	647000	288000	184000	108000
21	108000	110000	107000	106000	163000	98400	169000	413000	646000	280000	179000	108000
22	109000	109000	108000	105000	163000	97800	174000	406000	655000	271000	178000	108000
23	109000	108000	109000	105000	161000	97200	181000	397000	649000	263000	170000	108000
24	108000	107000	109000	105000	162000	98700	190000	390000	646000	256000	159000	108000
25	107000	107000	108000	105000	162000	101000	199000	387000	643000	252000	148000	107000
26	108000	107000	107000	105000	160000	100000	207000	383000	638000	247000	139000	107000
27	109000	107000	107000	105000	156000	100000	213000	379000	633000	245000	130000	106000
28	109000	108000	106000	105000	151000	98800	223000	381000	630000	242000	124000	106000
29	109000	109000	105000	106000	143000	98100	244000	381000	623000	239000	119000	106000
30	109000	107000	105000	105000	---	97300	266000	379000	609000	237000	114000	106000
31	110000	---	105000	105000	---	96600	---	376000	---	235000	111000	---
MAX	110000	110000	111000	106000	163000	143000	266000	509000	655000	592000	234000	111000
MIN	92900	106000	105000	104000	104000	96600	95600	311000	320000	235000	111000	106000

WTR YR 1984 MAX 655000 MIN 92900

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA

LOCATION.--Lat 41°40'50", long 93°40'05", near center of sec.5, T.79 N., R.24 W., Polk County, Hydrologic Unit 07100004, on left bank 5 ft upstream of Fisher bridge on county highway R6F, 2.0 mi west of Saylorville, 2.1 mi downstream from Rock Creek, 2.3 mi downstream from Saylorville Dam, 2.3 mi upstream from Beaver Creek, and mile 211.4.

DRAINAGE AREA.--5,841 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 787.42 ft NGVD (levels by Corps of Engineers). Prior to Aug. 6, 1970, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated by Saylorville Lake (Station 05481630) 2.3 mi upstream since Apr. 12, 1977. Corps of Engineers gage-height telemeter at station.

COOPERATION.--Ten discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--23 years, 2,900 ft³/s, 6.74 in/yr, 2,101,000 acre-ft/yr; median of yearly mean discharges, 2,410 ft³/s, 5.6 in/yr, 1,750,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft³/s Apr. 10, 1965, gage height, 24.02 ft; minimum daily, 13 ft³/s Jan. 25, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1893, 24.5 ft June 24, 1954, from floodmarks, discharge, 60,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,100 ft³/s June 22, gage height, 20.72 ft; minimum daily discharge, 191 ft³/s Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1290	2670	3830	1070	999	13400	9440	8360	11900	23200	3250	912
2	1290	2600	2890	1070	999	12200	8610	6040	11600	22300	2850	784
3	1280	2130	2250	1260	1000	11700	8140	4720	11500	22200	2530	690
4	1270	1850	2250	1400	1010	10200	8820	7270	11600	22400	2500	592
5	1270	1740	2690	1400	995	7230	10400	10200	11600	22400	2480	539
6	1280	1730	3000	1280	1000	5250	11200	13300	11700	22300	2460	476
7	904	1920	2990	1050	888	4850	11900	15100	11700	22000	2450	415
8	329	2070	2980	1060	809	4390	11900	15700	12200	21500	2440	414
9	329	2310	2970	1060	813	3190	11800	16400	12100	20300	2410	412
10	326	2920	2550	1220	822	2470	12200	16400	12600	17400	2400	594
11	345	3300	2250	1320	834	2470	12900	16300	12300	14500	2390	766
12	341	3290	2230	1330	1390	2470	13100	16200	12400	13300	2360	809
13	339	3260	2230	1330	2290	2470	13400	16100	11500	12400	2340	806
14	806	3260	2490	1100	2870	2800	13600	16000	11800	12500	2340	801
15	2020	3250	2680	823	3490	3490	14100	15900	13400	12700	2790	810
16	3120	3250	2440	769	4570	4290	14500	15800	15100	12200	3470	575
17	2480	3250	1920	764	5740	4690	14800	15700	19500	12000	3670	285
18	1230	3240	1080	961	6940	4390	15100	14300	23300	12000	3640	191
19	1240	3630	719	1090	8370	4000	15200	12600	25500	12100	3620	213
20	2130	4290	924	1090	10800	3720	15100	12100	25000	11900	3910	296
21	3400	5060	1190	1100	13600	3710	13900	12000	26400	11300	3370	294
22	3950	5270	1680	1090	15100	3610	13500	11900	29600	10200	1210	293
23	3940	5280	1990	1020	15300	3510	12400	11700	28400	9040	4510	291
24	3930	5290	2080	880	15200	4220	11900	11700	27100	8000	6220	290
25	3580	4970	1800	886	15300	5980	11800	12000	26100	7080	6380	574
26	2790	4590	1690	886	15300	8280	12000	12100	25000	6340	5810	538
27	2320	4490	1660	880	15100	9070	12100	12100	23800	5410	4780	304
28	2300	4600	1620	891	14900	9800	12200	12200	22800	4860	3720	273
29	2280	4590	1620	893	14700	9770	12500	12200	22200	4660	3180	276
30	2280	4400	1310	958	---	9830	11300	12300	22800	4140	3130	274
31	2270	---	1060	1000	---	9780	---	12300	---	3540	1820	---
TOTAL	56659	104500	65063	32931	191129	187230	369810	396990	542500	416170	100430	14787
MEAN	1828	3483	2099	1062	6591	6040	12330	12810	18080	13420	3240	493
MAX	3950	5290	3830	1400	15300	13400	15200	16400	29600	23200	6380	912
MIN	326	1730	719	764	809	2470	8140	4720	11500	3540	1210	191
AC-FT	112400	207300	129100	65320	379100	371400	733500	787400	1076000	825500	199200	29330

CAL YR 1983 TOTAL 2503859 MEAN 6860 MAX 16800 MIN 326 CFSM 1.17 IN 15.95 AC-FT 4966000
WTR YR 1984 TOTAL 2478199 MEAN 6771 MAX 29600 MIN 191 CFSM 1.16 IN 15.78 AC-FT 4916000

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD: Water years 1962 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1967 to September 1971, October 1971 to September 1980 (partial record station), October 1980 to current year.
WATER TEMPERATURES: October 1961 to September 1971, October 1971 to September 1980 (partial record station), October 1980 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1961 to current year.

REMARKS.--Records of specific conductance are obtained from suspended-sediment samples at time of analysis. During periods of partial ice cover, sediment samples are collected in open water channel.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,400 micromhos Feb. 18, 1977; minimum daily, 90 micromhos Feb. 19, 1971.
WATER TEMPERATURES: Maximum daily, 36.0°C June 29, 1971; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 5,400 mg/L May 14, 1970; minimum daily mean, 1 mg/L Jan. 8, 1965.
SEDIMENT LOADS: Maximum daily, 148,000 tons June 12, 1966; minimum daily, 1 ton Jan. 8, 1965, Feb. 8-12, 23, 1967.

EXTREMES FOR CURRENT YEAR:
SPECIFIC CONDUCTANCE: Maximum daily, 940 micromhos Jan. 25; minimum daily, 430 micromhos June 20.
WATER TEMPERATURES: Maximum daily, 28.0°C July 11,12,14,17,20,23,25,27,29 and Sept. 4; minimum daily, 0.0°C several days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 790 mg/L June 20; minimum daily mean, 4 mg/L Jan 8, 11.
SEDIMENT LOADS: Maximum daily, 53,300 tons June 20; minimum daily, 11 tons Jan. 8.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	660	---	---	---	---	---	---	620	500	620	700
2	---	---	---	---	---	470	640	---	---	500	---	---
3	---	680	---	---	---	---	---	---	620	510	545	700
4	610	---	---	920	---	470	---	---	---	525	640	680
5	660	---	---	---	---	---	600	600	640	550	660	630
6	680	660	---	680	730	470	---	---	---	540	---	660
7	680	---	600	---	670	---	---	---	640	---	---	660
8	---	700	---	---	470	---	---	---	640	540	640	660
9	670	---	---	---	---	---	610	570	540	---	630	660
10	660	---	---	---	---	---	610	570	540	650	620	---
11	690	660	660	---	---	---	650	---	540	620	620	700
12	680	---	---	---	---	---	---	---	540	---	620	700
13	660	720	720	---	470	---	---	---	---	---	---	660
14	---	720	---	---	---	---	640	480	---	---	---	680
15	---	720	---	---	720	470	---	580	600	---	---	---
16	680	740	---	920	490	---	---	580	600	650	---	670
17	680	---	810	---	---	---	630	580	540	---	630	665
18	660	---	---	920	470	630	630	580	560	640	---	605
19	---	---	660	---	---	---	---	---	500	---	---	680
20	680	740	760	920	470	630	---	620	430	---	640	---
21	680	740	---	---	---	710	---	---	445	---	650	---
22	---	---	---	920	---	---	---	620	460	---	640	---
23	680	---	780	---	---	640	640	---	460	---	520	---
24	680	---	---	---	---	---	---	---	460	---	---	580
25	700	---	---	940	450	---	---	620	---	---	620	---
26	700	---	---	---	470	---	---	620	460	---	---	---
27	700	720	---	---	---	---	---	---	480	640	630	600
28	680	730	800	---	470	---	---	---	480	---	---	---
29	680	710	---	---	---	---	640	---	480	---	680	600
30	---	740	---	920	---	---	---	---	500	665	---	600
31	---	---	760	---	---	---	---	620	---	---	720	---

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER-QUALTIY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	12.0	---	---	---	---	---	13.0	18.0	25.0	27.0	25.0
2	18.0	---	---	---	---	4.0	5.0	13.0	---	---	---	---
3	---	12.0	---	---	---	---	---	---	18.0	25.0	26.0	26.0
4	17.0	---	---	5.0	---	4.0	---	---	---	26.0	26.0	---
5	17.0	---	---	---	---	---	5.0	13.0	19.0	26.0	22.0	23.0
6	16.0	12.0	---	5.0	3.0	5.0	---	13.0	---	24.0	---	25.0
7	16.0	---	5.0	---	.0	---	---	---	17.0	---	22.0	27.0
8	---	12.0	---	6.0	2.0	---	---	---	20.0	24.0	24.0	26.0
9	16.0	---	---	---	---	---	7.0	13.0	19.0	26.0	22.0	25.0
10	16.0	---	---	---	---	---	7.0	13.0	20.0	---	23.0	---
11	15.0	10.0	5.0	6.0	---	---	5.0	---	19.0	28.0	23.0	20.0
12	15.0	---	---	---	---	---	---	---	21.0	28.0	24.0	20.0
13	14.0	10.0	5.0	6.0	3.0	---	---	---	---	---	---	19.0
14	---	10.0	---	---	---	---	7.0	15.0	---	28.0	---	19.0
15	---	10.0	---	---	5.0	5.0	---	15.0	21.0	---	---	23.0
16	14.0	10.0	---	5.0	3.0	---	---	18.0	22.0	26.0	---	18.0
17	15.0	---	4.0	---	---	---	9.0	19.0	21.0	28.0	24.0	16.0
18	14.0	---	---	5.0	3.0	5.0	10.0	19.0	23.0	26.0	---	19.0
19	---	---	.0	---	---	---	---	---	23.0	27.0	---	7.0
20	14.0	10.0	.0	3.0	3.0	5.0	---	17.0	22.0	28.0	25.0	---
21	14.0	10.0	---	---	---	2.0	---	---	21.0	---	25.0	---
22	14.0	---	---	4.0	---	---	---	18.0	23.0	---	25.0	---
23	---	---	.0	---	---	5.0	11.0	---	22.0	28.0	25.0	---
24	14.0	---	---	---	---	---	10.0	---	23.0	27.0	---	15.0
25	14.0	---	---	5.0	2.0	---	---	15.0	---	28.0	25.0	---
26	14.0	5.0	---	---	3.0	---	---	15.0	23.0	27.0	---	---
27	15.0	---	---	---	---	---	16.5	---	24.0	28.0	27.0	17.0
28	15.0	5.0	4.0	---	3.0	---	---	---	22.0	27.0	---	17.0
29	14.0	5.0	---	---	---	---	10.0	---	23.0	28.0	27.0	17.0
30	---	5.0	---	3.0	---	---	---	---	23.0	25.0	---	17.0
31	---	---	5.0	3.0	---	---	---	18.0	---	---	25.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	33	115	13	94	25	259	85	246	30	81	92	3330
2	15	52	19	133	25	195	79	228	29	78	65	2140
3	14	48	35	201	25	152	68	231	29	78	63	1990
4	16	55	29	145	28	170	25	94	32	87	78	2150
5	18	62	18	85	35	254	14	53	39	105	101	1970
6	26	90	14	65	40	324	11	38	51	138	55	780
7	29	71	25	130	42	339	7	20	16	38	48	629
8	22	20	43	240	44	354	4	11	83	181	47	557
9	24	21	42	262	47	377	7	20	100	220	49	422
10	30	26	40	315	54	372	6	20	102	226	53	353
11	26	24	35	312	64	389	4	14	98	221	51	340
12	28	26	27	240	68	409	12	43	112	420	51	340
13	28	26	22	194	70	421	23	83	170	1050	53	353
14	30	65	21	185	57	383	25	74	144	1120	54	408
15	24	131	23	202	43	311	28	62	110	1040	52	490
16	25	211	33	290	25	165	27	56	87	1070	47	544
17	23	154	31	272	17	88	23	47	53	821	42	532
18	32	106	26	227	22	64	24	62	26	487	37	439
19	31	104	21	206	34	66	19	56	23	520	34	367
20	25	144	21	243	45	112	17	50	25	729	30	301
21	27	248	20	273	45	145	15	45	64	2350	27	270
22	25	267	18	256	44	200	14	41	164	6690	25	244
23	23	245	20	285	43	231	15	41	161	6650	21	199
24	20	212	20	286	43	241	23	55	137	5620	18	205
25	23	222	19	255	41	199	27	65	118	4870	18	291
26	23	173	18	223	41	187	26	62	96	3970	19	425
27	22	138	19	230	54	242	25	59	96	3910	18	441
28	23	143	23	286	83	363	24	58	100	4020	20	529
29	23	142	45	558	87	381	25	60	102	4050	18	475
30	19	117	37	440	85	301	23	59	---	---	20	531
31	17	104	---	---	85	243	30	81	---	---	22	581
TOTAL	---	3562	---	7133	---	7937	---	2134	---	50840	---	22626

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	20	510	26	587	16	514	37	2320	25	219	24	59
2	43	1000	23	375	28	877	50	3010	17	131	24	51
3	74	1630	23	293	31	963	65	3900	17	116	25	47
4	67	1600	25	491	25	783	55	3330	23	155	27	43
5	62	1740	29	799	17	532	30	1810	25	167	20	29
6	61	1840	20	718	14	442	30	1810	24	159	32	41
7	52	1670	18	734	29	916	36	2140	18	119	33	37
8	35	1120	20	848	53	1750	31	1800	16	105	25	28
9	29	924	25	1110	21	686	23	1260	15	98	26	29
10	57	1880	30	1330	21	714	24	1130	15	97	28	45
11	52	1810	32	1410	20	664	29	1140	16	103	29	60
12	40	1410	24	1050	21	703	30	1080	16	102	21	46
13	22	796	14	609	19	590	24	804	16	101	21	46
14	13	477	6	259	17	542	22	742	16	101	24	52
15	15	571	13	558	17	615	22	754	16	121	25	55
16	18	705	15	640	12	489	22	725	17	159	30	47
17	50	2000	34	1440	13	684	45	1460	15	149	34	26
18	63	2570	24	927	53	3330	43	1390	17	167	29	15
19	62	2540	9	306	400	27500	25	817	18	176	27	16
20	62	2530	13	425	790	53300	42	1350	19	201	28	22
21	34	1280	10	324	740	52700	60	1830	17	155	28	22
22	25	911	8	257	240	19200	34	936	17	56	29	23
23	22	737	10	316	360	27600	25	610	45	548	30	24
24	26	835	13	411	483	35300	30	648	45	756	30	23
25	26	828	16	518	285	20100	24	459	18	310	28	43
26	27	875	18	588	169	11400	21	359	17	267	25	36
27	30	980	18	588	229	14700	32	467	20	258	24	20
28	27	889	18	593	225	13900	43	564	24	241	23	17
29	28	945	18	593	122	7310	35	440	23	197	19	14
30	27	824	18	598	35	2150	40	447	24	203	18	13
31	---	---	15	498	---	---	43	411	26	128	---	---
TOTAL	---	38427	---	20193	---	300954	---	39943	---	5865	---	1029

TOTAL LOAD FOR YEAR: 500643 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)
OCT 04...	1310	18.0	1300	23	81	--	--	--
MAY 09...	1455	13.0	16100	37	1610	--	--	--
JUN 20...	1515	23.0	23800	748	48100	38	39	45
JUL 27...	1228	25.0	5130	55	762	--	--	--
SEP 05...	1145	23.0	531	21	30	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 04...	--	--	--	--	--	--	84
MAY 09...	--	--	--	--	--	--	38
JUN 20...	57	90	95	97	99	100	--
JUL 27...	--	--	--	--	--	--	89
SEP 05...	--	--	--	--	--	--	95

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)
OCT							
04...	1355	1300	5	1	2	28	67
MAY							
09...	1515	16100	5	0	1	27	50
JUL							
27...	1300	5130	5	3	7	17	49
SEP							
05...	1200	531	5	0	1	4	20

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT						
04...	77	81	85	91	98	100
MAY						
09...	67	80	90	94	100	--
JUL						
27...	76	88	95	98	99	100
SEP						
05...	37	53	70	85	94	100

05481950 BEAVER CREEK NEAR GRIMES, IA

LOCATION.--Lat 41°41'18", long 93°44'08", in SW1/4 SW1/4 sec.35, T.80 N., R.25 W., Polk County, Hydrologic Unit 07100004, on right bank 6 ft upstream from bridge on Northwest 70th Avenue, 0.5 mi downstream from Little Beaver Creek, 2.5 mi east of Grimes and 6 mi upstream from mouth.

DRAINAGE AREA.--358 mi².

PERIOD OF RECORD.--April 1960 to current year.

REVISED RECORDS.--WDR IA-77-1: 1974 (P).

GAGE.--Water-stage recorder and concrete and steel sheeting broad-crested control. Datum of gage is 806.98 ft NGVD. Prior to Aug. 31, 1966, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period which are poor. Corps of Engineers gage-height telemeter at station.

COOPERATION.--Four discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--24 years, 214 ft³/s, 8.12 in/yr, 155,000 acre-ft/yr; median of yearly mean discharges, 200 ft³/s, 7.6 in/yr, 145,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,340 ft³/s May 19, 1974, gage height, 14.69 ft; no flow for several days in 1970 and 1971 and many days in 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 2	0430	*3,220	*11.76	June 15	0015	3,040	11.76
May 30	1330	2,290	10.24	June 17	2400	2,630	11.05
June 9	2145	2,040	9.95				

Minimum daily discharge, 5.3 ft³/s Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	196	706	160	92	373	357	3080	1130	364	151	8.5
2	37	189	618	180	100	345	340	3140	851	335	130	8.9
3	35	181	547	180	115	327	420	2450	720	316	116	9.8
4	35	227	506	140	170	297	765	1630	670	309	103	8.9
5	38	215	467	145	210	254	875	1170	630	319	92	6.3
6	34	206	420	155	140	233	689	950	573	341	82	6.5
7	32	194	385	170	115	231	560	833	592	286	81	6.1
8	31	187	373	170	110	271	565	790	1100	252	83	7.1
9	30	199	359	160	125	213	755	707	1070	235	63	7.3
10	29	388	340	150	170	196	833	647	1060	258	54	32
11	59	630	300	140	240	233	717	596	774	467	46	31
12	156	510	280	125	310	153	664	541	678	285	43	24
13	390	429	260	120	400	170	622	506	1260	216	39	18
14	276	431	240	115	700	233	618	471	1480	325	35	15
15	213	475	225	105	860	274	665	441	2120	556	32	13
16	181	438	210	110	840	241	655	421	1850	347	31	10
17	151	398	200	105	820	211	586	403	2320	257	30	9.5
18	136	369	185	100	800	206	518	385	2470	226	30	8.5
19	134	668	180	96	830	192	465	430	1760	192	30	8.3
20	143	896	170	92	1000	194	413	541	1140	174	29	7.1
21	196	785	160	94	1300	192	440	502	953	157	27	6.3
22	343	619	150	94	1300	187	995	465	926	137	27	5.7
23	353	697	140	96	1030	260	1490	424	935	119	25	5.7
24	357	731	135	98	870	523	1430	396	710	108	25	5.3
25	342	654	130	100	700	571	1050	949	617	97	22	8.5
26	281	590	130	100	580	524	830	1520	561	464	19	35
27	240	584	120	98	470	526	852	1560	522	756	17	32
28	211	953	120	99	360	520	985	1630	457	368	14	23
29	189	1070	125	100	375	495	1230	2080	417	300	12	19
30	183	866	125	100	---	435	2420	2240	390	231	10	16
31	176	---	140	98	---	379	---	1760	---	174	8.9	---
TOTAL	5051	14975	8446	3795	15132	9459	23804	33658	30736	8971	1506.9	402.3
MEAN	163	499	272	122	522	305	793	1086	1025	289	48.6	13.4
MAX	390	1070	706	180	1300	571	2420	3140	2470	756	151	35
MIN	29	181	120	92	92	153	340	385	390	97	8.9	5.3
CFSM	.46	1.39	.76	.34	1.46	.85	2.22	3.03	2.86	.81	.14	.04
IN.	.52	1.56	.88	.39	1.57	.98	2.47	3.50	3.19	.93	.16	.04
AC-FT	10020	29700	16750	7530	30010	18760	47220	66760	60960	17790	2990	798

CAL YR 1983 TOTAL 177535.0 MEAN 486 MAX 2540 MIN 13 CFSM 1.36 IN 18.45 AC-FT 352100
WTR YR 1984 TOTAL 155936.2 MEAN 426 MAX 3140 MIN 5.3 CFSM 1.19 IN 16.20 AC-FT 309300

05482135 NORTH RACCOON RIVER NEAR NEWELL, IA

LOCATION.--Lat 42°36'16", long 95°02'42", in NE1/4 NW1/4 sec.24, T.90 N., R.36 W., Buena Vista County, Hydrologic Unit 07100005, on left bank 40 ft downstream from bridge on State Highway 7, 0.8 mi upstream from Outlet Creek, 2.2 mi west of Newell, and at mile 398.6 upstream from mouth of Des Moines River.

DRAINAGE AREA.--233 mi².

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1235.495 ft NGVD.

REMARKS.--Records good except those for October, November, January, and February, which are poor. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,850 ft³/s, June 18, 1984, gage height, 16.73 ft; minimum daily discharge, 3.9 ft³/s Sept. 25-30, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 750 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 17	1515	1,020	ice	May 28	2345	906	13.36
Apr. 9	1115	1,170	14.20	June 6	unknown	1,800	unknown
Apr. 13	0215	1,290	14.49	June 12	unknown	2,400	unknown
Apr. 23	1715	1,070	13.91	June 18	unknown	*2,850	*16.73
June 2	0330	1,440	14.83				

Minimum daily discharge, 3.9 ft³/s Sept. 25-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	98	100	39	32	207	208	1370	433	340	48	7.6
2	81	94	95	41	34	197	210	1420	386	305	45	7.6
3	85	141	90	43	34	178	387	1290	350	272	42	7.2
4	83	489	90	45	34	189	707	1020	334	246	40	7.1
5	83	402	80	45	30	169	617	796	436	227	34	7.1
6	78	310	80	43	33	150	464	660	454	210	33	6.3
7	78	262	80	45	35	145	397	684	408	190	32	7.0
8	76	228	70	47	40	140	806	591	1700	176	32	6.8
9	70	243	70	50	45	130	1140	490	1450	165	28	6.1
10	72	375	60	50	60	170	943	437	1000	157	26	6.7
11	131	328	50	45	100	165	735	400	1100	150	23	6.7
12	187	284	48	44	150	160	1050	363	2300	136	23	8.3
13	146	265	46	42	250	150	1260	338	2040	124	21	6.4
14	125	355	45	40	150	145	1150	308	1920	115	20	5.9
15	116	382	45	38	400	140	961	294	1880	112	19	6.1
16	107	322	47	35	800	155	745	284	2400	102	19	5.7
17	99	290	45	35	1000	145	579	274	2800	99	19	5.9
18	96	265	43	33	700	135	479	292	2500	87	20	6.0
19	103	313	42	33	450	125	411	380	2490	81	18	5.3
20	158	444	41	30	400	120	366	348	2290	78	17	4.2
21	183	346	40	30	350	161	333	314	1990	74	17	4.0
22	165	288	39	28	370	407	686	374	1730	68	16	4.4
23	150	269	38	28	400	444	1040	402	1460	59	14	5.1
24	137	240	37	28	450	371	972	358	1110	54	14	4.4
25	126	222	36	30	540	336	709	395	821	52	13	3.9
26	121	209	37	30	630	317	554	440	682	71	12	3.9
27	117	194	36	30	416	292	552	383	563	68	11	3.9
28	111	200	36	30	283	325	480	684	481	58	10	3.9
29	102	190	36	32	224	298	407	823	426	53	9.7	3.9
30	100	80	36	32	---	244	651	609	380	49	7.9	3.9
31	99	---	37	32	---	220	---	499	---	47	7.3	---
TOTAL	3466	8128	1675	1153	8440	6530	19999	17320	38314	4025	690.9	171.3
MEAN	112	271	54.0	37.2	291	211	667	559	1277	130	22.3	5.71
MAX	187	489	100	50	1000	444	1260	1420	2800	340	48	8.3
MIN	70	80	36	28	30	120	208	274	334	47	7.3	3.9
CFSM	.48	1.16	.23	.16	1.25	.90	2.86	2.40	5.47	.56	.10	.02
IN.	.55	1.30	.27	.18	1.35	1.04	3.19	2.76	6.11	.64	.11	.03
AC-FT	6870	16120	3320	2290	16740	12950	39670	34350	76000	7980	1370	340

CAL YR 1983 TOTAL 134480.0 MEAN 368 MAX 3670 MIN 19 CFSM 1.58 IN 21.43 AC-FT 266700
WTR YR 1984 TOTAL 109912.2 MEAN 300 MAX 2800 MIN 3.9 CFSM 1.29 IN 17.52 AC-FT 218000

05482170 BIG CEDAR CREEK NEAR VARINA, IA

LOCATION.--Lat 42°41'16", long 94°47'52", in NE1/4 NE1/4 sec.24, T.91 N., R.34 W., Pocahontas County, Hydrologic Unit 07100006, on left bank 2 ft downstream from bridge on county highway N33, 2.0 mi downstream from Drainage ditch 21, 3.5 mi upstream from Drainage ditch 74, and 5.5 mi northeast of Varina.

DRAINAGE AREA.--80.0 mi².

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,225.12 ft NGVD.

REMARKS.--Records good except those for winter period, which are poor.

AVERAGE DISCHARGE.--25 years, 42.8 ft³/s, 7.27 in/yr, 30,010 acre-ft/yr; median of yearly mean discharges, 35 ft³/s, 5.9 in/yr, 25,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,080 ft³/s Aug. 31, 1962, gage height, 13.68 ft; maximum gage height, 16.29 ft Mar. 24, 1979, backwater from ice; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 16	1900	750	ice jam	June 7	2245	841	9.32
Feb. 23	0015	860	ice jam	June 13	0715	910	9.62
Apr. 9	0145	457	7.27	June 16	1515	*1,710	*12.77
Apr. 23	2115	472	7.37	June 23	0545	610	8.15
May 1	0015	834	9.29				

Minimum daily discharge, .48 ft³/s Sept. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	23	52	16	5.8	90	79	679	126	144	12	.82
2	19	21	42	17	6.0	83	83	521	114	125	11	.82
3	18	22	39	17	6.1	80	146	426	104	109	9.9	.79
4	17	57	29	17	6.3	77	249	331	100	91	9.2	1.1
5	15	55	24	16	6.4	66	207	291	122	76	8.7	.72
6	13	45	20	15	6.7	54	156	248	114	64	7.8	.64
7	13	40	19	15	7.4	51	134	275	217	55	7.3	.60
8	12	37	16	15	8.3	45	351	229	646	55	8.1	.62
9	11	45	15	15	9.3	43	405	187	374	52	6.5	.55
10	12	91	14	15	11	40	301	160	260	50	5.7	.60
11	39	72	13	15	13	38	249	137	200	48	5.1	.64
12	44	60	12	15	15	36	350	121	529	46	4.9	.57
13	34	56	11	14	22	35	336	112	819	42	4.4	.63
14	29	117	9.2	13	34	34	327	98	541	39	4.0	.56
15	27	140	6.8	12	73	33	273	93	524	37	3.7	.53
16	24	105	7.2	10	750	33	216	86	1180	33	3.6	.48
17	22	87	8.4	9.1	720	32	174	82	1260	32	4.0	.57
18	22	76	9.8	8.4	700	33	145	89	1170	28	4.3	.58
19	24	110	9.6	7.4	640	32	125	111	753	26	3.3	.73
20	43	159	9.2	6.7	580	34	112	102	528	32	3.0	.51
21	49	113	8.8	6.2	620	53	104	93	423	34	3.1	.78
22	43	93	8.4	6.2	720	136	296	115	396	27	2.7	2.1
23	39	84	8.3	5.9	860	175	415	122	528	22	2.0	2.6
24	35	69	8.2	5.8	820	157	376	110	371	19	1.9	1.8
25	31	63	8.2	5.6	700	140	264	129	309	18	1.9	1.2
26	31	59	10	5.6	390	132	217	136	270	21	1.6	1.6
27	29	57	12	5.2	160	116	348	117	232	18	1.5	2.0
28	27	35	13	5.2	105	130	247	248	208	16	1.3	1.5
29	24	57	14	5.3	98	119	200	230	186	15	1.3	.88
30	24	53	15	5.4	---	92	425	172	164	14	.85	.54
31	23	---	16	5.6	---	83	---	145	---	13	.80	---
TOTAL	815	2101	488.1	330.6	8093.3	2302	7310	5995	12768	1401	145.45	28.06
MEAN	26.3	70.0	15.7	10.7	279	74.3	244	193	426	45.2	4.69	.94
MAX	49	159	52	17	860	175	425	679	1260	144	12	2.6
MIN	11	21	6.8	5.2	5.8	32	79	82	100	13	.80	.48
CFSM	.33	.88	.20	.13	3.49	.93	3.05	2.41	5.33	.57	.06	.01
IN.	.38	.98	.23	.15	3.76	1.07	3.40	2.79	5.94	.65	.07	.01
AC-FT	1620	4170	968	656	16050	4570	14500	11890	25330	2780	289	56

CAL YR 1983 TOTAL 40623.20 MEAN 111 MAX 827 MIN 1.9 CFSM 1.39 IN 18.89 AC-FT 80580
WTR YR 1984 TOTAL 41777.51 MEAN 114 MAX 1260 MIN .48 CFSM 1.43 IN 19.43 AC-FT 82870

05482300 NORTH RACCOON RIVER NEAR SAC CITY, IA

LOCATION.--Lat 42°20'28", long 94°59'05", in NE1/4 NW1/4 sec.24, T.87 N., R.36 W., Sac County, Hydrologic Unit 07100006, on right bank 15 ft downstream from bridge on county highway, 0.2 mi upstream from Indian Creek, 0.9 mi downstream from Drainage ditch 73, 5.6 mi south of Sac City, and at mile 365.9 upstream from mouth of Des Moines River.

DRAINAGE AREA.--713 mi².

PERIOD OF RECORD.--June 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,144.60 ft NGVD (levels by Iowa Natural Resources Council).

REMARKS.--Records good except those for winter period, which are poor.

AVERAGE DISCHARGE.--26 years, 357 ft³/s, 6.80 in/yr, 258,600 acre-ft/yr; median of yearly mean discharges, 280 ft³/s, 5.3 in/yr, 203,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft³/s Mar. 23, 1979, gage height, 18.02 ft; maximum gage height, 18.12 ft Sept. 1, 1962; no flow Jan. 30 to Feb. 4, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1954, reached a stage of 15.61 ft, from floodmark, discharge, 7,000 ft³/s .

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 17	1030	2,580	10.64	Apr. 27	1500	2,890	11.27
Feb. 23	0900	2,210	9.82	May 1	1400	4,540	13.78
Apr. 4	2400	2,410	10.25	May 28	unknown	3,250	11.94
Apr. 9	1300	3,460	12.27	June 8	1600	*7,790	*16.47
Apr. 14	1200	3,410	12.20	June 13	1100	5,270	14.62
Apr. 23	2300	3,210	11.87	June 18	0245	6,460	15,70

Minimum daily discharge, 30 ft³/s Sept. 20-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	314	321	540	190	210	701	708	4350	1640	1220	167	43
2	266	309	600	200	220	651	693	4350	1420	1100	155	43
3	294	306	540	210	220	588	1010	4040	1250	1000	145	41
4	273	1610	480	220	230	598	2130	3470	1150	910	138	42
5	234	2000	450	200	220	566	2270	2860	1210	830	133	40
6	208	1600	420	190	210	476	1760	2420	1360	745	128	39
7	193	1300	400	210	220	422	1430	2260	1280	680	122	37
8	186	1100	380	230	250	300	2250	2140	5660	630	129	37
9	175	950	360	250	300	340	3360	1700	5480	590	117	36
10	189	1200	340	250	400	380	3100	1530	3950	550	106	37
11	453	1400	500	240	500	450	2630	1370	2860	520	99	39
12	714	1200	280	225	700	1000	2810	1270	3050	494	95	35
13	584	960	270	210	1000	1100	3300	1140	5150	450	91	34
14	469	982	250	200	1200	800	3380	1010	4680	424	84	34
15	408	1250	240	190	1500	626	3070	935	4590	415	81	33
16	363	1100	230	190	2400	563	2590	900	4510	383	78	32
17	329	945	220	190	2300	460	2080	857	6360	374	77	32
18	308	862	210	180	1850	426	1690	967	6270	340	78	31
19	458	733	200	180	1440	382	1410	1360	5670	312	75	31
20	738	1570	200	180	1160	370	1250	1300	4980	319	69	30
21	796	1290	200	170	1050	394	1140	1130	5060	304	66	30
22	696	1110	190	170	1200	1000	1930	1330	4240	280	65	30
23	610	1040	190	170	2030	1490	3110	1570	3700	247	61	30
24	553	960	180	170	1960	1310	3100	1340	3200	221	59	31
25	497	860	180	180	1920	1110	2620	1410	2700	204	57	32
26	462	807	170	180	1900	1060	2190	1560	2300	244	55	32
27	431	746	170	190	1610	945	2780	1510	1990	257	53	31
28	408	632	160	190	1080	997	2380	2580	1730	226	51	31
29	365	553	160	200	827	1040	2150	3100	1530	204	48	31
30	337	450	170	200	---	872	3230	2600	1350	186	46	31
31	331	---	180	210	---	758	---	2000	---	158	44	---
TOTAL	12642	30146	9060	6165	30107	22175	67551	60359	100320	14817	2772	1035
MEAN	408	1005	292	199	1038	715	2252	1947	3344	478	89.4	34.5
MAX	796	2000	600	250	2400	1490	3380	4350	6360	1220	167	43
MIN	175	306	160	170	210	300	693	857	1150	158	44	30
CFSM	.57	1.41	.41	.28	1.46	1.00	3.16	2.73	4.69	.67	.13	.05
IN.	.66	1.57	.47	.32	1.57	1.16	3.52	3.15	5.23	.77	.14	.05
AC-FT	25080	59790	17970	12230	59720	43980	134000	119700	199000	29390	5500	2050

CAL YR 1983 TOTAL 439369 MEAN 1204 MAX 8720 MIN 61 CFSM 1.69 IN 22.92 AC-FT 871500
WTR YR 1984 TOTAL 357149 MEAN 976 MAX 6360 MIN 30 CFSM 1.37 IN 18.63 AC-FT 708400

05482315 BLACKHAWK LAKE AT LAKE VIEW, IA

LOCATION.--Lat 42°18'15", long 95°02'30", in NW1/4 SE1/4 sec.33, T.87 N., R.36 W., Sac County, Hydrologic Unit 07100006, on south shore across from swimming beach at Lake View and 2 mi upstream from lake outlet.

DRAINAGE AREA.--23.3 mi².

PERIOD OF RECORD.--April 1970 to September 1975, April 1978 to current year.

GAGE.--Water-stage reacorder. Datum of gage is 1,218.50 ft NGVD and 2.00 ft below crest or spillway of dam at outlet. Prior to June 25, 1970, nonrecording gage at lake outlet.

REMARKS.--Lake is formed by concrete dam with ungated overflow spillway at elevation 1,220.50 ft NGVD. Lake is used for conservation and recreation. Area of lake is approximately 957 acres.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 4.08 ft Mar. 20, 1979; minimum, 0.02 ft Sept. 26, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 3.33 ft May 2; minimum, 1.50 ft Sept. 29, 30.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.02	2.27	2.42	2.25	2.20	2.54	2.54	3.30	2.78	2.50	2.28	1.83
2	2.01	2.27	2.40	2.24	2.20	2.51	2.54	3.31	2.75	2.48	2.27	1.83
3	2.04	2.31	2.39	2.24	2.20	2.50	2.64	3.20	2.72	2.46	2.25	1.82
4	2.03	2.33	2.38	2.24	2.20	2.50	2.67	3.09	2.69	2.44	2.25	1.80
5	2.02	2.30	2.38	2.25	2.20	2.48	2.68	2.99	2.69	2.42	2.23	1.79
6	2.03	2.30	2.37	2.25	2.20	2.46	2.69	2.93	2.64	2.42	2.21	1.78
7	2.00	2.31	2.36	2.25	2.20	2.45	2.72	2.84	2.67	2.41	2.20	1.74
8	2.00	2.31	2.35	2.26	2.20	2.44	2.80	2.76	2.76	2.39	2.18	1.72
9	2.01	2.33	2.34	2.25	2.20	2.43	2.85	2.74	2.80	2.37	2.16	1.72
10	2.04	2.34	2.34	2.24	2.20	2.42	2.85	2.72	2.76	2.37	2.14	1.72
11	2.11	2.34	2.34	2.24	2.24	2.40	2.85	2.70	2.74	2.36	2.13	1.74
12	2.10	2.35	2.33	2.24	2.29	2.41	2.84	2.69	2.77	2.35	2.12	1.71
13	2.10	2.35	2.33	2.24	2.37	2.40	2.85	2.64	2.95	2.34	2.10	1.70
14	2.12	2.34	2.34	2.24	2.41	2.41	2.86	2.63	3.01	2.33	2.07	1.70
15	2.13	2.34	2.34	2.24	2.48	2.45	2.85	2.63	3.10	2.34	2.05	1.69
16	2.12	2.34	2.33	2.24	2.63	2.46	2.81	2.60	3.13	2.32	2.05	1.68
17	2.13	2.34	2.32	2.23	2.71	2.49	2.78	2.56	3.11	2.30	2.05	1.66
18	2.13	2.35	2.32	2.23	2.73	2.48	2.73	2.65	3.07	2.31	2.05	1.64
19	2.24	2.40	2.30	2.22	2.70	2.48	2.69	2.70	3.04	2.30	2.04	1.64
20	2.27	2.39	2.29	2.21	2.66	2.46	2.68	2.73	2.94	2.31	2.02	1.63
21	2.28	2.42	2.31	2.21	2.63	2.44	2.71	2.70	2.87	2.30	2.01	1.61
22	2.29	2.43	2.29	2.21	2.62	2.44	2.80	2.74	2.83	2.27	2.00	1.59
23	2.30	2.41	2.29	2.20	2.67	2.48	2.87	2.73	2.76	2.24	1.98	1.59
24	2.31	2.44	2.28	2.19	2.70	2.54	2.89	2.71	2.70	2.22	1.97	1.56
25	2.30	2.43	2.26	2.19	2.69	2.57	2.90	2.74	2.68	2.20	1.95	1.55
26	2.30	2.42	2.26	2.18	2.66	2.57	2.87	2.76	2.64	2.28	1.94	1.55
27	2.29	2.45	2.26	2.18	2.63	2.58	2.84	2.78	2.58	2.31	1.93	1.54
28	2.28	2.49	2.25	2.19	2.58	2.59	2.78	2.84	2.56	2.32	1.91	1.52
29	2.28	2.46	2.25	2.19	2.56	2.58	2.85	2.88	2.56	2.30	1.90	1.50
30	2.28	2.43	2.25	2.20	---	2.57	3.09	2.87	2.54	2.28	1.87	1.50
31	2.27	---	2.24	2.20	---	2.55	---	2.84	---	2.27	1.86	---
MEAN	2.16	2.37	2.32	2.22	2.45	2.49	2.78	2.81	2.79	2.34	2.07	1.67
MAX	2.31	2.49	2.42	2.26	2.73	2.59	3.09	3.31	3.13	2.50	2.28	1.83
MIN	2.00	2.27	2.24	2.18	2.20	2.40	2.54	2.56	2.54	2.20	1.86	1.50

05482500 NORTH RACCOON RIVER NEAR JEFFERSON, IA

LOCATION.--Lat 41°59'17", long 94°22'36", in SW1/4 NW1/4 sec. 20, T.83 N., R.30 W., Greene County, Hydrologic Unit 07100006, on right bank 5 ft downstream from bridge on State Highway 4, 0.1 mi downstream from Drainage ditch 33 and 40, 1.9 mi south of Jefferson, 4.2 mi upstream from Hardin Creek, and at mile 292.5 upstream from mouth of Des Moines River.

DRAINAGE AREA.--1,619 mi².

PERIOD OF RECORD.--March 1940 to current year. Prior to April 1940, monthly discharge only, published in WSP 1308. Prior to October 1955, published as Raccoon River near Jefferson.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940 (M), 1950-51.

GAGE.--Water-stage recorder. Datum of gage is 967.09 ft NGVD. Prior to Apr. 22, 1946, nonrecording gage at site 4 mi upstream at different datum. Apr. 22 to June 25, 1946, nonrecording gage, June 26, 1946 to Sept. 30, 1955, water-stage recorder, Oct. 1, 1955 to Apr. 30, 1958, nonrecording gage, at present site and datum.

REMARKS.--Records good except those for winter period, which are poor. National Weather Service gage-height telemeter at station.

COOPERATION.--Two discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--44 years, 740 ft³/s, 6.21 in/yr, 536,100 acre-ft/yr; median of yearly mean discharges, 600 ft³/s, 5.0 in/yr, 435,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,100 ft³/s June 23, 1947, gage height, 22.3 ft; minimum daily, 0.6 ft³/s Oct. 5, 1956.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 19	0200	5,790	12.05	May 31	0400	7,170	13.05
Apr. 6	0600	4,840	11.00	June 11	1315	9,930	14.94
Apr. 11	1030	6,320	12.38	June 17	1145	11,500	15.85
Apr. 25	1045	6,570	12.58	June 21	0745	*15,600	*17,86
May 1	1800	11,300	15.69				

Minimum daily discharge, 141 ft³/s Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	346	753	1150	420	460	2010	1890	11000	5080	2500	484	185
2	467	737	1300	440	480	1810	1810	10800	3540	2290	462	197
3	463	729	1200	460	500	1720	1940	10100	3300	2090	439	190
4	439	724	1100	480	520	1620	2980	9350	3200	1910	417	182
5	431	1370	1000	480	480	1570	4400	8230	3110	1750	398	176
6	413	2150	950	480	460	1470	4740	6870	3010	1640	382	173
7	360	1760	900	510	480	1320	3900	5490	2960	1520	369	172
8	323	1500	850	550	500	1210	4780	4700	2870	1610	353	174
9	305	1400	800	530	520	1000	4780	4320	4760	1310	341	174
10	306	1420	760	510	540	900	5860	3720	6930	1240	334	178
11	382	1810	720	490	700	1000	6250	3300	9490	1190	318	179
12	500	1940	680	470	900	1400	5650	3030	8070	1110	304	169
13	844	1710	640	460	1400	1800	5100	2830	6200	1060	291	161
14	877	1610	610	450	2000	2400	5640	2550	7670	1010	281	158
15	768	1740	580	440	2600	1430	6140	2370	10200	1010	273	161
16	686	2060	550	430	3100	1510	6000	2250	10700	944	267	159
17	639	1920	520	420	4540	1610	5020	2130	11300	897	261	157
18	600	1700	500	410	5310	1350	3880	2080	10800	852	258	157
19	585	1720	480	400	5550	1250	3150	2390	11500	796	253	154
20	719	2150	460	400	4660	1180	2730	3010	11600	757	248	151
21	1200	2890	440	390	3840	1110	2510	2870	14500	731	243	148
22	1420	2580	430	390	3990	1080	3620	2670	10900	699	237	143
23	1280	2190	420	380	4100	1580	5190	2920	9740	664	232	141
24	1140	2000	410	380	4680	3160	6180	3240	8020	619	228	144
25	1030	1830	400	400	4410	3300	6470	3360	6420	580	222	156
26	954	1660	390	400	3880	2900	5690	3600	5300	731	214	146
27	900	1590	380	420	3590	2680	5010	3690	4270	776	209	147
28	867	1610	370	420	3180	2600	5580	4040	3560	670	205	145
29	792	1300	360	450	2430	2570	6140	5270	3130	607	199	148
30	801	1000	380	450	---	2480	8900	6690	2790	550	191	142
31	764	---	400	460	---	2160	---	6900	---	514	186	---
TOTAL	21601	49553	20130	13770	69800	55180	141930	145770	204920	34627	9099	4867
MEAN	697	1652	649	444	2407	1780	4731	4702	6831	1117	294	162
MAX	1420	2890	1300	550	5550	3300	8900	11000	14500	2500	484	197
MIN	305	724	360	380	460	900	1810	2080	2790	514	186	141
CFSM	.43	1.02	.40	.27	1.49	1.10	2.92	2.90	4.22	.69	.18	.10
IN.	.50	1.14	.46	.32	1.60	1.27	3.26	3.35	4.71	.80	.21	.11
AC-FT	42850	98290	39930	27310	138400	109400	281500	289100	406500	68680	18050	9650

CAL YR 1983 TOTAL 865331 MEAN 2371 MAX 14300 MIN 211 CFSM 1.46 IN 19.88 AC-FT 1716000
WTR YR 1984 TOTAL 771247 MEAN 2107 MAX 14500 MIN 141 CFSM 1.30 IN 17.72 AC-FT 1530000

05483000 EAST FORK HARDIN CREEK NEAR CHURDAN, IA

LOCATION.--Lat 42°06'27", long 94°22'12", in SE1/4 SW1/4 sec. 5, T.84 N., R.30 W., Greene County, Hydrologic Unit 07100006, on left bank 35 ft upstream from bridge on county highway E26, 1.6 mi upstream from small left-bank tributary, 4.4 mi upstream from mouth, and 6.5 mi southeast of Churdan.

DRAINAGE AREA.--24.0 mi².

PERIOD OF RECORD.--July 1952 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1708: 1954-55, 1957 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,050.90 ft NGVD.

REMARKS.--Records good. Small diversion for irrigation above station.

AVERAGE DISCHARGE.--32 years, 10.6 ft³/s, 6.00 in/yr, 7,680 acre-ft/yr; median of yearly mean discharges, 8.3 ft³/s, 4.7 in/yr, 6,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 413 ft³/s May 5, 1960, gage height, 8.92 ft, from rating curve extended above 330 ft³/s; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 15	2000	187	5.32	June 13	0800	158	4.93
Apr. 29	2400	*331	*7.10	June 16	1645	162	4.98

No flow Aug. 28 to Sept. 1, 4-7, 22, 26-28, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.87	9.1	22	11	5.4	22	22	240	49	20	1.8	.00
2	.87	8.3	22	4.5	5.3	20	22	201	44	19	1.6	.03
3	1.4	7.9	22	18	6.0	19	57	166	41	18	1.5	.01
4	1.4	8.6	22	31	7.4	19	80	141	42	16	1.4	.00
5	1.2	8.8	20	16	58	17	54	114	50	15	1.3	.00
6	1.1	8.4	19	10	48	15	42	94	46	14	1.1	.00
7	1.0	7.9	18	6.4	20	13	38	82	41	12	1.0	.00
8	.80	7.4	17	7.0	7.2	13	96	66	36	12	.88	.02
9	.74	20	16	8.2	8.9	14	100	56	35	10	.77	1.5
10	1.4	28	15	4.1	11	12	75	50	34	9.7	.72	1.7
11	24	21	14	7.6	22	9.6	63	44	32	8.5	.65	.47
12	19	20	14	7.2	78	13	66	41	46	7.7	.56	.24
13	12	20	14	6.1	79	10	73	37	135	6.9	.46	.13
14	8.9	38	14	5.3	87	10	79	34	101	6.3	.40	.11
15	7.2	33	14	5.4	149	13	67	33	77	5.8	.37	.09
16	5.3	28	13	5.6	167	11	56	29	113	5.4	.36	.07
17	4.6	25	10	5.8	132	11	48	29	103	5.0	.33	.05
18	4.5	23	9.7	5.8	110	10	41	28	73	4.4	.32	.04
19	7.5	49	9.7	5.5	111	11	36	27	56	3.9	.28	.03
20	22	43	9.7	6.2	76	10	33	26	49	3.7	.22	.01
21	21	34	11	9.8	71	9.8	42	25	49	3.4	.20	.01
22	30	33	9.7	5.4	76	11	121	29	53	3.1	.15	.02
23	24	33	6.4	4.3	74	36	106	32	44	2.8	.11	.00
24	19	28	6.7	4.0	55	52	82	32	38	2.2	.10	.02
25	15	27	11	3.6	46	44	62	65	35	2.1	.07	.07
26	14	25	12	3.5	40	40	54	57	32	3.4	.04	.00
27	14	23	13	4.3	34	42	106	49	28	2.6	.01	.00
28	12	23	14	5.9	27	41	75	115	26	2.7	.00	.00
29	9.8	23	14	6.0	24	34	143	92	23	2.7	.00	.01
30	9.9	23	14	8.5	---	27	295	67	22	2.4	.00	.00
31	9.5	---	14	5.2	---	24	---	56	---	2.1	.00	---
TOTAL	303.98	686.4	440.9	237.2	1635.2	633.4	2234	2157	1553	232.8	16.70	4.63
MEAN	9.81	22.9	14.2	7.65	56.4	20.4	74.5	69.6	51.8	7.51	.54	.15
MAX	30	49	22	31	167	52	295	240	135	20	1.8	1.7
MIN	.74	7.4	6.4	3.5	5.3	9.6	22	25	22	2.1	.00	.00
CFSM	.41	.95	.59	.32	2.35	.85	3.10	2.90	2.16	.31	.02	.006
IN.	.47	1.06	.68	.37	2.53	.98	3.46	3.34	2.41	.36	.03	.01
AC-FT	603	1360	875	470	3240	1260	4430	4280	3080	462	33	9.2

CAL YR 1983 TOTAL 9304.82 MEAN 25.5 MAX 206 MIN .02 CFSM 1.06 IN 14.42 AC-FT 18460
WTR YR 1984 TOTAL 10135.21 MEAN 27.7 MAX 295 MIN .00 CFSM 1.15 IN 15.71 AC-FT 20100

05483450 MIDDLE RACCOON RIVER NEAR BAYARD, IA

LOCATION.--Lat 41°46'43", long 94°29'33", in SW1/4 SW1/4 sec. 32, T.81 N., R.31 W., Guthrie County, Hydrologic Unit 07100007, on left bank 110 ft, downstream from bridge on State Highway 25, 0.2 mi downstream from Battle Run Creek, 1.8 mi upstream from Springbrook Creek, 5.8 mi southeast of Bayard, 10.4 mi upstream from dam at Lake Panorama, and at mile 279.2 upstream from mouth of Des Moines River.

DRAINAGE AREA.--375 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1979 to current year. Occasional low-flow measurements, water years 1976,77. Contracted opening measurement of July 3, 1973 flood.

GAGE.--Water-stage recorder. Datum of gage is 1,040.00 ft NGVD. Prior to June 23, 1979 nonrecording gage on downstream side of State Highway 25 bridge.

REMARKS.--Records good except those for winter period, which are poor. Gage height telemeter at station.

AVERAGE DISCHARGE.--Five years, 236 ft³/s, 8.55 in/yr 171,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,190 ft³/S July 2, 1983, gage height, 19.79 ft, maximum gage height, 19.99 ft, Apr. 30, 1984 minimum daily, 5.5 ft³/s, June 13, 14, 1981.

EXTREMES OUTSIDE PEIROD OF RECORD.--Flood of July 3, 1973 reached a stage of 21.63 ft, from contracted opening measurement, discharge, 14,600 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 16	2015	1,700	14.76	May 29	0115	2,060	15.65
Apr. 9	0700	1,440	14.24	June 13	1830	1,920	15.14
Apr. 22	2330	2,150	16.12	June 15	1600	2,400	16.33
Apr. 27	1445	2,000	15.72	June 17	0745	3,700	18.50
Apr. 30	1830	*4,960	*19.99	June 20	2030	1,810	14.85
May 25	1515	1,420	14.02				

Minimum daily discharge, 38 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	114	265	118	112	318	388	3720	734	455	207	44
2	52	111	255	118	125	303	382	2500	690	435	198	57
3	66	111	225	118	140	281	587	1950	647	420	186	57
4	97	126	205	120	158	280	998	1480	638	407	177	52
5	72	116	200	125	180	274	840	1270	866	395	175	46
6	62	111	170	132	175	237	597	1110	761	403	158	45
7	59	108	145	132	150	253	542	1070	643	369	158	45
8	59	106	110	132	135	481	906	897	594	348	155	50
9	57	143	82	130	155	571	1340	774	567	337	158	48
10	67	265	93	122	270	601	992	704	588	338	145	51
11	165	206	97	115	350	516	781	654	531	321	134	55
12	245	184	105	115	600	344	806	616	583	297	125	53
13	154	183	110	115	1000	412	924	583	1410	281	113	47
14	126	213	115	110	1080	441	883	540	1080	280	108	45
15	111	212	115	105	1100	343	867	521	1910	355	103	44
16	103	189	110	105	1590	342	726	502	2070	297	105	43
17	92	178	105	105	1200	224	617	484	3040	287	103	42
18	87	172	118	100	828	205	543	474	1910	259	99	43
19	103	274	122	98	728	192	491	529	1370	244	95	42
20	162	454	125	94	681	192	452	510	1150	259	90	41
21	209	334	142	95	596	192	570	480	1230	240	86	39
22	202	275	132	90	738	195	1790	525	1230	225	88	38
23	189	264	120	80	920	261	2000	600	1140	219	85	39
24	168	240	110	70	628	893	1440	539	938	213	81	43
25	152	224	94	74	510	688	1030	1100	706	195	78	136
26	141	215	80	80	465	590	807	1100	634	406	71	77
27	135	210	88	87	429	561	1620	773	578	518	65	55
28	130	235	102	93	381	578	1320	1230	531	305	58	48
29	120	250	96	98	338	580	1430	1630	510	259	56	46
30	114	280	110	105	---	477	4200	1060	481	239	59	45
31	114	---	112	110	---	419	---	847	---	224	44	---
TOTAL	3667	6103	4058	3291	15762	12244	30869	30772	29760	9830	3563	1516
MEAN	118	203	131	106	544	395	1029	993	992	317	115	50.5
MAX	245	454	265	132	1590	893	4200	3720	3040	518	207	136
MIN	52	106	80	70	112	192	382	474	481	195	44	38
CFSM	.32	.54	.35	.28	1.45	1.05	2.74	2.65	2.65	.85	.31	.14
IN.	.36	.61	.40	.33	1.56	1.21	3.06	3.05	2.95	.98	.35	.15
AC-FT	7270	12110	8050	6530	31260	24290	61230	61040	59030	19500	7070	3010

CAL YR 1983 TOTAL 153300 MEAN 420 MAX 4150 MIN 41 CFSM 1.12 IN 15.21 AC-FT 304100
WTR YR 1984 TOTAL 151435 MEAN 414 MAX 4200 MIN 38 CFSM 1.10 IN 15.02 AC-FT 300400

05483450 MIDDLE RACCOON RIVER NEAR BAYARD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1979 to current year.
WATER TEMPERATURES: April 1979 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1979 to current year.

REMARKS.--Records of specific conductance are obtained from suspended-sediment samples at time of analysis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 880 micromhos Mar. 8, 1984; minimum daily, 230 micromhos Feb. 22, 1982.
WATER TEMPERATURES: Maximum daily, 32.0C Aug. 5, 1979; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 9,440 mg/L June 27, 1979; minimum daily mean, 1 mg/L Jan. 29, 1982.
SEDIMENT LOADS: Maximum daily, 62,000 tons July 2, 1983; minimum daily, 0.06 tons Jan. 29, 1982.

EXTREMES FOR CURRENT YEAR:
SPECIFIC CONDUCTANCE: Maximum daily, 880 micromhos May 11; minimum daily, 260 micromhos Apr. 30.
WATER TEMPERATURES: Maximum daily, 29.0°C Aug. 3, 4, 14; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,440 mg/L June 15; minimum daily mean, 12 mg/L Oct. 2.
SEDIMENT LOADS: Maximum daily, 75,300 tons Apr. 30; minimum daily, 1.7 tons Oct. 2.

SPECIFIC CONDUCTANCE, LABOR ATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---		---	660	650	310	540	540	600	650
2	---	---	720		---	---	590	450	580	510	540	610
3	680	---	---		---	---	580	490	660	520	540	600
4	---	660	---		---	---	600	540	660	560	540	680
5	---	---	---		---	---	640	560	580	680	540	---
6	---	---	720		---	860	650	570	620	570	540	700
7	---	---	720		---	---	660	590	620	520	540	610
8	---	640	---		705	880	580	620	570	580	530	640
9	---	---	---		---	---	580	560	570	540	530	670
10	---	680	720		460	---	630	560	570	530	530	660
11	---	---	---		---	---	610	610	570	520	530	---
12	---	---	720		---	690	600	610	560	550	580	600
13	640	---	720		360	660	620	610	530	510	580	650
14	---	710	---		---	---	630	610	590	590	580	640
15	---	---	720		---	---	640	610	480	610	580	660
16	---	---	700		---	---	600	620	510	---	560	680
17	680	---	---		---	---	590	620	340	520	610	520
18	---	---	---		---	---	560	620	500	510	580	630
19	710	---	---		---	---	570	620	560	500	560	600
20	---	---	---		---	670	580	620	630	610	600	625
21	---	750	---		600	590	580	620	480	540	640	600
22	---	760	---		---	680	470	620	540	500	610	660
23	---	700	---		---	660	500	620	500	---	650	625
24	710	---	---		600	460	570	620	560	---	640	640
25	---	700	---		---	480	610	620	580	---	830	370
26	---	700	---		---	---	570	580	560	540	540	540
27	720	---	---		---	590	460	---	560	420	540	610
28	---	---	---		650	630	530	580	530	560	600	600
29	---	720	700		---	630	620	580	560	560	660	680
30	---	620	---		---	640	260	600	520	580	580	680
31	660	---	---		---	590	---	540	---	600	610	---

05483450 MIDDLE RACCOON RIVER NEAR BAYARD--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---		---	3.0	7.0	8.0	19.0	20.0	23.0	22.0
2	---	---	---		---	---	7.0	10.0	19.0	21.0	23.0	21.0
3	18.0	---	---		---	---	6.0	11.0	18.0	21.0	29.0	17.0
4	---	13.0	---		---	---	5.0	10.0	18.0	21.0	29.0	17.0
5	---	---	1.5		---	---	8.0	10.0	18.0	21.0	24.0	---
6	---	---	.5		---	3.0	8.0	12.0	21.0	19.0	25.0	16.0
7	---	---	---		---	---	10.0	11.0	21.0	19.0	26.0	20.0
8	---	12.0	---		.0	3.0	8.0	9.0	20.0	19.0	24.0	17.0
9	---	---	---		---	---	7.0	10.0	19.0	25.0	25.0	18.0
10	---	13.0	1.0		5.0	---	8.0	12.0	17.0	25.0	28.0	17.0
11	---	---	---		---	---	8.0	14.0	17.0	21.0	22.0	---
12	---	---	---		---	2.0	8.0	14.0	18.0	22.0	28.0	20.0
13	14.0	---	.5		4.0	---	8.0	15.0	19.0	22.0	22.0	21.0
14	---	13.5	---		---	---	8.0	15.0	19.0	23.0	29.0	17.0
15	---	6.0	.5		---	3.0	8.0	15.0	19.0	21.0	23.0	11.0
16	---	5.0	1.0		---	---	10.0	15.0	19.0	21.0	24.0	12.0
17	14.0	4.0	---		---	---	8.0	15.0	22.0	21.0	23.0	13.0
18	---	5.0	---		---	---	8.0	18.0	21.0	20.0	22.0	15.0
19	13.0	---	---		---	---	9.0	18.0	20.0	24.0	23.0	17.0
20	---	9.0	---		---	2.0	12.0	16.0	19.0	24.0	19.0	18.0
21	---	6.0	---		4.0	3.0	10.0	18.0	20.0	23.0	21.0	17.0
22	---	5.5	---		---	4.0	6.0	18.0	20.0	24.0	20.0	18.0
23	---	3.0	---		---	5.0	6.0	18.0	21.0	---	24.0	18.0
24	13.0	---	---		4.0	5.0	9.0	17.0	20.0	---	25.0	20.0
25	---	.5	---		---	---	11.0	15.0	19.0	---	18.0	11.0
26	---	3.0	---		---	---	15.0	14.0	21.0	25.0	22.0	9.0
27	13.0	---	---		---	2.0	15.0	---	21.0	21.0	23.0	10.0
28	---	---	---		3.0	2.0	10.0	14.0	20.0	21.0	21.0	10.0
29	---	---	.0		---	3.0	10.0	14.0	21.0	25.0	22.0	---
30	---	.5	---		---	4.0	10.0	14.0	20.0	20.0	22.0	9.0
31	13.0	---	---		---	4.0	---	19.0	---	21.0	17.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	13	1.9	88	27	119	85	20	6.4	25	7.6	292	251
2	12	1.7	82	25	97	67	20	6.4	31	10	288	236
3	40	7.1	82	25	91	55	20	6.4	39	15	262	199
4	125	33	115	39	120	66	22	7.1	70	30	247	187
5	78	15	100	31	177	96	24	8.1	120	58	231	171
6	66	11	80	24	203	93	25	8.9	116	55	218	139
7	57	9.1	94	27	133	52	24	8.6	111	45	182	124
8	48	7.6	113	32	110	33	23	8.2	107	39	148	192
9	39	6.0	160	62	97	21	22	7.7	115	48	128	197
10	43	7.8	338	242	87	22	20	6.6	165	120	106	172
11	190	114	194	108	95	25	18	5.6	296	280	180	251
12	249	173	142	71	140	40	16	5.0	410	664	240	223
13	110	46	111	55	143	42	15	4.7	1300	3510	217	241
14	106	36	170	98	142	44	15	4.5	3230	9420	200	238
15	107	32	168	96	138	43	15	4.3	1310	3890	245	227
16	111	31	98	50	124	37	16	4.5	1080	4640	355	328
17	112	28	88	42	116	33	17	4.8	2780	9010	272	165
18	109	26	87	40	114	36	17	4.6	2960	6620	247	137
19	110	31	131	97	107	35	18	4.8	1440	2830	230	119
20	175	77	860	1050	97	33	16	4.1	670	1230	208	108
21	253	143	460	415	83	32	15	3.8	512	824	235	122
22	240	131	290	215	68	24	16	3.9	569	1130	217	114
23	210	107	290	207	56	18	15	3.2	631	1570	810	571
24	162	73	252	163	49	15	15	2.8	487	826	4000	6720
25	150	62	225	136	47	12	18	3.6	390	537	1920	3570
26	140	53	211	122	45	9.7	20	4.3	348	437	1110	1770
27	129	47	207	117	38	9.0	22	5.2	316	366	800	1210
28	115	40	264	168	38	10	20	5.0	305	314	720	1120
29	106	34	240	162	25	6.5	20	5.3	300	274	750	1170
30	98	30	168	127	23	6.8	20	5.7	---	---	520	670
31	92	28	---	---	22	6.7	23	6.8	---	---	440	498
TOTAL	---	1442.2	---	4073	---	1107.7	---	170.9	---	48799.6	---	21440

05483450 MIDDLE RACCOON RIVER BAYARD, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	350	367	2720	27300	635	1260	442	543	262	146	120	14
2	410	423	1750	11800	570	1060	430	505	244	130	275	42
3	930	1470	1750	9210	440	769	390	442	218	109	242	37
4	1670	4500	930	3720	350	603	372	409	188	90	86	12
5	980	2220	740	2540	1620	4270	372	397	206	97	56	7.0
6	690	1110	750	2250	940	1930	480	522	203	87	70	8.5
7	600	878	690	1990	640	1110	359	358	184	78	71	8.6
8	1010	2470	540	1310	610	978	307	288	205	86	115	16
9	1560	5640	460	961	580	888	336	306	203	87	97	13
10	930	2490	463	880	520	826	435	397	175	69	107	15
11	640	1350	430	759	360	516	379	328	184	67	117	17
12	780	1700	423	704	1050	1650	326	261	190	64	145	21
13	1110	2770	375	590	4800	20100	322	244	217	66	102	13
14	700	1670	390	569	2000	5830	287	217	220	64	88	11
15	650	1520	390	549	8440	47800	619	593	192	53	43	5.1
16	540	1060	329	446	4000	22400	470	377	240	68	44	5.1
17	470	783	340	444	2800	23000	360	279	290	81	67	7.6
18	460	674	350	448	2200	11300	318	222	225	60	58	6.7
19	420	557	500	714	1450	5360	280	184	210	54	55	6.2
20	360	439	438	603	1540	5560	470	329	220	53	48	5.3
21	760	1170	377	489	1970	6540	309	200	178	41	54	5.7
22	2600	12600	540	765	790	2620	259	157	143	34	56	5.7
23	1900	10300	640	1040	760	2340	228	135	99	23	63	6.6
24	1180	4590	378	550	542	1370	197	113	68	15	114	13
25	780	2170	1120	4770	600	1140	165	87	157	33	1300	477
26	700	1530	850	2520	502	859	2210	2930	174	33	300	62
27	2240	28900	400	835	460	718	1700	2380	210	37	114	17
28	1970	7020	779	3140	482	691	580	478	195	31	80	10
29	980	3780	1410	6410	428	589	380	266	160	24	51	6.3
30	6240	75300	762	2180	442	574	313	202	100	16	31	3.8
31	---	---	720	1650	---	---	290	175	123	15	---	---
TOTAL	---	181451	---	92136	---	174651	---	14324	---	1911	---	878.2

TOTAL LOAD FOR YEAR: 542384.6 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
OCT							
03...	1210	18.0	65	108	19	--	--
NOV							
14...	1245	13.5	219	162	96	--	--
MAR							
20...	1150	2.0	184	199	99	--	--
APR							
27...	0800	15.0	1580	5860	25000	53	55
30...	0830	10.0	3860	4720	49200	66	70
MAY							
08...	1142	9.0	874	549	1300	41	46
JUN							
11...	1020	19.0	574	399	618	--	--
JUL							
26...	1200	25.0	637	3870	6660	58	61
SEP							
04...	1212	23.0	56	79	12	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT							
03...	--	--	--	--	--	--	95
NOV							
14...	--	--	--	--	--	--	89
MAR							
20...	--	--	--	--	--	--	91
APR							
27...	61	71	92	95	97	100	--
30...	73	80	91	92	95	100	--
MAY							
08...	48	57	93	98	100	--	--
JUN							
11...	--	--	--	--	--	--	85
JUL							
26...	68	81	98	99	100	--	--
SEP							
04...	--	--	--	--	--	--	93

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)
OCT							
03...	1155	65	5	1	1	14	57
NOV							
14...	1230	219	5	1	1	7	33
MAR							
20...	1150	184	5	1	2	11	56
MAY							
08...	1225	874	5	1	4	28	78
JUN							
11...	1020	574	5	0	1	8	58
JUL							
26...	1233	637	5	1	3	22	62
SEP							
04...	1228	56	5	1	1	12	60

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT						
03...	84	94	97	99	100	--
NOV						
14...	49	67	75	86	97	100
MAR						
20...	88	97	100	--	--	--
MAY						
08...	95	99	100	--	--	--
JUN						
11...	88	97	99	100	--	--
JUL						
26...	86	94	97	97	97	100
SEP						
04...	87	95	98	99	100	--

05483470 LAKE PANORAMA AT PANORA, IOWA

LOCATION.--Lat 41°41'44", long 94°22'53", in SW1/4 NE1/4 sec.31, T.80 N., R.30 W., Guthrie County, Hydrologic Unit 07100007, in gate control building of dam on Middle Raccoon River, 0.5 mi upstream from State Highway 44, 1.0 mi west of Panora, 4.4 mi upstream from Bay Branch, and at mile 268.8 upstream from mouth of Des Moines River.

DRAINAGE AREA.--433 mi².

PERIOD OF RECORD.--May 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,000.00 ft NGVD.

REMARKS.--Lake is formed by earthfill dam with 100 ft bascule gate and concrete chute spillway, and 300 ft earthen emergency spillway. Low-flow outlet is 30-inch conduit and gate valve through dam. Dam was completed in August 1970 and began filling April 27, 1971. Total storage, 60,000 acre-ft, surface area, 2,9000 acres, at top of dam, elevation 1,068 ft. Storage unknown at top of spillway, elevation 1,048 ft. Normal storage, 19,700 acre-ft, surface area, 1,270 acres with bascule gate closed, elevation 1,045 ft. Dead storage unknown with bascule gate open, elevation 1,036 ft. Present lake classification is utility (industrial) but is also used for recreation. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 46.61 ft June 30, 1981; minimum, 44.05 ft Mar. 11, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 46.27 ft May 29; minimum, 44.35 ft June 20.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45.23	45.39	45.28	---	64.73	---	---	---	45.87	45.71	45.42	45.22
2	45.23	45.39	45.17	---	64.73	---	---	---	45.84	45.72	45.38	45.31
3	45.32	45.40	45.13	---	64.73	---	---	---	45.37	45.53	45.48	45.34
4	41.11	45.46	45.08	---	64.73	---	---	---	45.43	45.47	45.53	45.34
5	40.28	45.44	45.25	---	64.73	---	---	---	45.51	45.35	45.49	45.30
6	40.32	45.42	45.51	---	64.73	---	---	---	45.26	45.37	44.91	45.27
7	40.32	45.39	45.52	---	64.73	---	---	---	45.18	45.33	44.81	45.27
8	40.38	45.38	45.53	---	45.63	---	---	45.57	45.19	45.28	45.05	45.29
9	40.52	45.51	---	---	45.63	---	---	45.42	45.49	45.29	45.22	45.30
10	40.44	45.61	---	45.70	45.63	---	---	45.26	45.68	45.36	45.35	45.31
11	45.20	45.64	---	50.92	45.74	---	---	45.23	45.29	45.38	45.42	45.30
12	40.70	45.62	---	52.63	45.45	---	---	45.51	44.92	45.35	45.44	45.31
13	40.93	45.63	---	53.95	45.80	---	---	45.54	45.50	45.31	45.05	45.31
14	40.95	45.66	---	54.93	45.83	---	---	45.49	45.42	45.32	44.86	45.32
15	40.57	45.69	---	56.21	45.72	---	---	45.44	45.26	45.64	44.93	45.32
16	40.52	45.65	---	57.66	45.82	---	---	45.39	45.69	45.73	44.94	45.33
17	40.68	45.61	---	58.99	45.31	---	---	45.37	45.38	45.71	44.69	45.32
18	45.12	45.60	---	60.29	45.58	---	---	45.35	45.63	45.66	44.77	45.28
19	45.27	45.70	---	60.95	45.66	---	---	45.39	45.18	45.63	44.88	45.24
20	45.46	45.94	---	61.78	45.58	45.65	---	45.44	44.88	45.66	44.98	45.27
21	45.57	45.92	---	62.40	45.47	---	---	45.40	45.42	45.66	45.05	45.28
22	45.60	45.37	---	64.03	45.43	---	---	45.44	45.20	45.61	45.09	45.30
23	45.60	45.16	---	64.73	45.64	---	---	45.22	45.36	45.58	45.06	45.30
24	45.58	45.05	---	64.73	45.76	---	---	45.20	45.43	45.54	45.00	45.32
25	45.52	45.03	---	64.73	45.50	---	45.02	45.48	45.15	45.48	45.02	45.44
26	45.49	45.20	---	64.73	45.42	---	45.04	45.78	45.11	45.55	45.06	45.44
27	45.46	45.41	---	64.73	45.24	---	45.25	45.82	45.43	45.60	45.12	45.38
28	45.45	45.64	---	64.73	45.15	---	---	45.92	45.41	45.13	45.17	45.33
29	45.40	45.65	---	64.73	---	---	---	46.13	45.29	45.19	45.21	45.28
30	45.39	45.52	---	64.73	---	---	---	45.62	45.46	45.43	45.22	45.25
31	45.39	---	---	64.73	---	46.13	---	45.31	---	45.46	45.21	---
MEAN	43.39	45.50	---	---	---	---	---	---	45.37	45.48	45.12	45.31
MAX	45.60	45.94	---	---	---	---	---	---	45.87	45.73	45.53	45.44
MIN	40.28	45.03	---	---	---	---	---	---	44.88	45.13	44.69	45.22

05483600 MIDDLE RACCOON RIVER AT PANORA, IA

LOCATION.--Lat 41°41'14", long 94°22'15", in NE1/4 NW1/4 sec.5, T.79 N., R.30 W., Guthrie County, Hydrologic Unit 07100007, on left bank 15 ft downstream from bridge on county highway, 0.2 mi southwest of Panora, 1.5 mi upstream from Andy's Branch, 1.6 mi downstream from Lake Panorama, 18.2 mi upstream from mouth, and at mile 267.2 upstream from mouth of Des Moines River.

DRAINAGE AREA.--440 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1958 to current year.

REVISED RECORDS.--WDR IOWA 1974: 1973 (P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 991.20 ft NGVD.

REMARKS.--Records good. City of Panora diverts approximately 100 acre-ft/yr above station. Flow regulated by dam on Lake Panorama since August 1970.

AVERAGE DISCHARGE.--26 years, 220 ft³/s, 6.79 in/yr 159, 400 acre-ft/yr; median of yearly mean discharges, 170 ft³/s, 5.2 in/yr, 123,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s May 19, 1974, gage height, 14.80 ft, from rating curve extended above 5,200 ft³/s by step-backwater analysis; no flow June 9, 10, 1977, result of gate operation at Lake Panorama; minimum daily discharge excluding regulation at Lake Panorama, 3.0 ft³/s July 9, 14, 22-23, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1953, reached a stage of 14.3 ft, from floodmark, discharge, about 14,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 16	1100	2,730	7.78	Apr. 30	2200	*7,530	*11.18
Apr. 4	1530	2,680	7.73	June 16	0530	3,210	8.19
Apr. 23	1415	2,810	7.85	June 17	0930	4,090	8.89

Minimum daily discharge, 28 ft³/s Oct. 18, Aug. 18, 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	123	334	115	113	269	455	5820	551	313	184	37
2	52	121	287	116	121	200	433	2820	1030	484	89	51
3	64	125	268	116	143	251	560	1880	749	392	87	61
4	66	144	250	115	182	284	1560	1250	613	413	133	64
5	70	137	254	118	197	301	1090	1360	898	367	252	59
6	65	127	222	123	181	272	463	1330	928	352	357	52
7	65	121	186	130	171	262	584	893	723	328	61	51
8	63	116	171	137	160	245	827	983	594	309	32	57
9	58	160	110	144	171	210	1680	943	450	269	37	59
10	68	201	83	141	243	207	1390	841	638	273	52	62
11	201	212	136	136	713	220	1400	574	844	278	70	61
12	275	209	162	130	984	207	709	574	762	262	76	62
13	232	210	171	128	1150	185	998	610	819	241	252	66
14	179	222	179	123	1160	220	1070	562	1870	183	42	45
15	148	238	165	119	1090	259	1020	534	869	230	43	38
16	128	220	124	116	1950	330	847	513	2510	254	184	48
17	72	206	121	115	1300	308	677	492	3310	246	89	48
18	28	199	131	111	812	272	550	470	1680	225	28	74
19	35	240	137	108	880	252	384	508	1870	212	32	48
20	81	342	143	101	799	239	455	536	623	224	29	32
21	182	585	148	98	706	238	621	481	1270	217	33	29
22	196	550	144	94	691	232	1950	583	1220	199	54	32
23	191	413	138	78	844	265	2410	683	893	187	70	49
24	184	334	131	72	839	555	1950	550	1020	173	62	59
25	167	192	115	81	648	775	1140	1090	807	153	29	61
26	156	124	96	89	548	725	1000	1030	438	257	28	70
27	144	211	87	94	496	689	1240	936	442	544	28	74
28	138	310	91	97	451	664	1600	1150	539	410	29	80
29	125	313	95	107	391	652	1920	1810	492	39	33	76
30	122	348	101	113	---	590	5680	1410	221	106	34	72
31	125	---	105	114	---	513	---	824	---	181	35	---
TOTAL	3733	7053	4885	3479	18134	10891	36663	34040	29673	8321	2564	1677
MEAN	120	235	158	112	625	351	1222	1098	989	268	82.7	55.9
MAX	275	585	334	144	1950	775	5680	5820	3310	544	357	80
MIN	28	116	83	72	113	185	384	470	221	39	28	29
CFSM	.27	.53	.36	.26	1.42	.80	2.78	2.50	2.25	.61	.19	.13
IN.	.32	.60	.41	.29	1.53	.92	3.10	2.88	2.51	.70	.22	.14
AC-FT	7400	13990	9690	6900	35970	21600	72720	67520	58860	16500	5090	3330

CAL YR 1983 TOTAL 162230 MEAN 444 MAX 3550 MIN 28 CFSM 1.01 IN 13.72 AC-FT 321800
WTR YR 1984 TOTAL 161113 MEAN 440 MAX 5820 MIN 28 CFSM 1.00 IN 13.62 AC-FT 319600

05483600 MIDDLE RACCOON RIVER AT PANORA, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1979 to current year.
WATER TEMPERATURES: April 1979 to current year.
SUSPENDED SEDIMENT DISCHARGE: April 1979 to current year.

REMARKS.--Records of specific conductance are obtained from suspended-sediment samples at time of analysis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 800 micromhos Oct. 29, 1979, Dec. 26, 28, 1983; minimum daily, 280 micromhos Feb. 25, 26, 1982.
WATER TEMPERATURES: Maximum daily, 32.0°C July 15, 1979; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,600 mg/L April 20, 1976; minimum daily mean, 3 mg/L Dec. 10, 1983, Mar. 15, 1984.
SEDIMENT LOADS: Maximum daily, 6,300 tons June 15, 1982; minimum daily, 0.51 ton Jan. 16, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 800 micromhos Dec. 26, 28; minimum daily, 360 micromhos May 3, 4.
WATER TEMPERATURES: Maximum daily, 29.0°C July 25, 26, 30; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 634 mg/L June 15; minimum daily mean, 3 mg/L Dec. 10, Mar. 15.
SEDIMENT LOADS: Maximum daily, 6,300 tons June 15; minimum daily, 0.67 tons Dec. 10.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	680	---	750	520	---	380	---	---	---	---
2	---	---	---	760	520	---	---	---	---	550	520	---
3	540	---	---	---	---	---	---	360	---	---	---	---
4	---	580	---	---	---	---	590	360	---	---	---	---
5	---	---	---	690	---	---	---	---	600	550	---	590
6	---	---	700	---	---	550	---	---	---	---	---	---
7	---	---	---	710	740	---	---	460	600	---	---	---
8	---	600	---	770	720	580	---	490	---	---	---	---
9	---	---	720	700	---	---	620	---	---	---	---	---
10	---	560	---	---	---	---	---	---	---	---	---	---
11	---	---	---	670	---	---	---	---	500	500	---	490
12	---	---	720	---	---	590	620	620	---	---	---	---
13	---	---	---	740	660	---	---	---	500	500	560	530
14	---	600	720	---	---	---	---	600	---	---	---	---
15	---	---	---	---	490	600	---	---	---	---	---	520
16	---	680	---	670	---	---	640	600	---	---	520	---
17	560	---	720	---	480	---	---	---	530	560	545	540
18	---	600	---	---	---	---	---	---	530	---	---	580
19	550	---	---	700	---	---	620	---	---	560	460	440
20	---	---	---	---	---	600	---	---	530	---	---	---
21	---	680	760	---	420	---	---	---	---	---	580	---
22	---	---	---	---	---	---	---	---	530	---	---	---
23	---	680	---	740	---	---	650	600	---	530	540	---
24	560	---	---	---	420	---	---	---	---	---	---	---
25	---	---	---	760	---	---	---	560	---	600	---	440
26	---	---	800	---	---	---	560	590	550	460	---	---
27	560	---	---	760	---	---	---	---	550	---	580	540
28	---	---	800	---	---	---	---	590	---	---	---	---
29	---	---	700	---	---	---	---	---	550	---	560	480
30	---	700	---	730	---	---	470	---	---	540	---	---
31	560	---	---	---	---	---	---	---	---	---	---	---

05483600 MIDDLE RACCOON RIVER AT PANORA, IA-Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	1.0	---	3.0	3.0	---	10.0	---	---	---	---
2	---	---	---	.0	3.0	---	---	---	---	24.0	29.0	---
3	13.0	---	---	---	---	---	---	10.0	---	---	---	---
4	---	13.0	---	---	---	---	4.0	10.0	---	---	---	---
5	---	---	---	2.0	---	---	---	---	21.0	25.0	---	24.0
6	---	---	---	---	---	3.0	---	---	---	---	---	---
7	---	---	---	3.0	2.0	---	---	10.0	21.0	---	---	---
8	---	13.0	---	---	.5	3.0	---	11.0	---	---	---	---
9	---	---	.0	2.0	.5	---	5.0	---	---	26.0	---	---
10	---	12.0	---	---	---	---	---	---	---	---	---	---
11	---	---	---	2.0	---	---	---	---	19.0	26.0	---	23.0
12	---	---	.0	---	---	2.0	5.0	15.0	---	---	---	---
13	---	---	---	2.0	3.0	---	---	---	22.0	---	27.0	24.0
14	---	9.0	.0	---	---	---	---	16.0	---	---	---	---
15	---	---	---	---	4.0	---	---	---	---	---	---	23.0
16	---	9.0	---	2.0	---	---	5.0	17.0	---	---	27.0	---
17	13.0	---	.0	---	4.0	---	---	---	22.0	26.0	27.0	23.0
18	---	8.0	---	---	---	---	---	---	22.0	---	---	19.5
19	14.0	---	---	1.0	---	---	5.0	---	---	---	27.0	21.0
20	---	---	---	---	---	2.0	---	---	23.0	---	---	---
21	---	8.0	---	---	4.0	---	---	---	---	---	26.0	---
22	---	---	---	---	---	---	---	---	23.0	---	---	---
23	---	---	---	2.0	---	---	5.0	16.0	---	28.0	26.0	---
24	14.0	---	---	---	4.0	---	---	---	---	---	---	---
25	---	---	---	3.0	---	---	---	17.0	---	29.0	---	17.0
26	---	---	.0	---	---	4.0	9.0	---	24.0	29.0	---	---
27	14.0	---	---	2.0	---	---	---	---	24.0	---	27.0	17.0
28	---	---	.0	---	---	4.0	---	---	---	---	---	---
29	---	---	.0	---	---	---	---	---	24.0	---	27.0	16.0
30	---	5.0	---	3.0	---	---	10.0	---	---	29.0	27.0	---
31	13.0	---	---	---	---	---	---	---	---	---	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	13	1.9	20	6.6	22	20	26	8.1	46	14	74	54
2	12	1.7	23	7.5	14	11	36	11	46	15	64	35
3	12	2.1	26	8.8	13	9.4	38	12	47	18	52	35
4	12	2.1	27	10	11	7.4	38	12	48	24	34	26
5	11	2.1	22	8.1	11	7.5	38	12	44	23	19	15
6	12	2.1	20	6.9	7	4.2	35	12	41	20	10	7.3
7	12	2.1	19	6.2	6	3.0	32	11	41	19	5	3.5
8	11	1.9	23	7.2	4	1.8	32	12	85	37	7	4.6
9	12	1.9	21	9.1	4	1.2	42	16	92	42	7	4.0
10	13	2.4	32	17	3	.67	43	16	89	58	7	3.9
11	25	14	31	18	4	1.5	44	16	120	231	6	3.6
12	27	20	32	18	8	3.5	42	15	61	162	7	3.9
13	21	13	28	16	9	4.2	37	13	38	118	5	2.5
14	14	6.8	24	14	7	3.4	39	13	46	144	4	2.4
15	13	5.2	21	13	6	2.7	40	13	108	318	3	2.1
16	10	3.5	17	10	7	2.3	39	12	226	1190	4	3.6
17	10	1.9	18	10	8	2.6	39	12	146	512	5	4.2
18	9	.68	28	15	8	2.8	40	12	100	219	5	3.7
19	15	1.4	36	23	7	2.6	43	13	91	216	5	3.4
20	22	4.8	49	45	7	2.7	45	12	90	194	6	3.9
21	35	17	68	107	4	1.6	46	12	90	172	9	5.8
22	32	17	56	83	4	1.6	48	12	91	170	10	6.3
23	25	13	28	31	5	1.9	47	9.9	105	239	13	9.3
24	14	7.0	22	20	6	2.1	40	7.8	90	204	25	37
25	14	6.3	16	8.3	7	2.2	32	7.0	80	140	33	69
26	14	5.9	18	6.0	6	1.6	27	6.5	74	109	23	45
27	16	6.2	33	19	10	2.3	24	6.1	67	90	14	26
28	16	6.0	36	30	17	4.2	25	6.5	61	74	9	16
29	16	5.4	25	21	26	6.7	34	9.8	70	74	8	14
30	17	5.6	28	26	28	7.6	41	13	---	---	10	16
31	17	5.7	---	---	26	7.4	42	13	---	---	11	15
TOTAL	---	186.68	---	620.7	---	133.67	---	356.7	---	4846	---	481.0

05483600 MIDDLE RACCOON RIVER AT PANORA, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	11	14	113	1780	40	60	30	25	50	25	35	3.5
2	8	9.4	97	739	43	120	67	88	50	12	39	5.4
3	13	20	110	558	50	101	44	47	45	11	54	8.9
4	25	105	102	344	52	86	39	43	44	16	34	5.9
5	33	97	89	327	68	165	37	37	60	41	28	4.5
6	19	24	69	248	44	110	35	33	111	107	27	3.8
7	18	28	59	142	23	45	33	29	41	6.8	26	3.6
8	20	45	47	125	19	30	30	25	35	3.0	26	4.0
9	63	286	35	89	16	19	26	19	35	3.5	25	4.0
10	43	161	28	64	34	59	33	24	30	4.2	25	4.2
11	35	132	24	37	70	160	42	32	24	4.5	24	4.0
12	43	82	21	33	78	160	38	27	30	6.2	23	3.9
13	19	51	28	46	73	161	34	22	87	59	22	3.9
14	16	46	32	49	199	1000	29	14	48	5.4	33	4.0
15	19	52	45	65	634	6300	33	20	20	2.3	45	4.6
16	26	59	48	66	245	1660	40	27	19	9.4	36	4.7
17	24	44	48	64	470	4630	28	19	16	3.8	27	3.5
18	25	37	49	62	55	249	30	18	20	1.5	30	6.0
19	29	30	48	66	83	419	53	30	48	4.1	43	5.6
20	35	43	50	72	62	104	54	33	34	2.7	55	4.8
21	37	62	50	65	52	178	52	30	26	2.3	60	4.7
22	44	232	102	161	50	165	50	27	31	4.5	58	5.0
23	81	527	210	387	42	101	46	23	29	5.5	55	7.3
24	64	337	201	298	35	96	42	20	27	4.5	49	7.8
25	49	151	240	706	30	65	40	17	25	2.0	42	6.9
26	56	151	194	540	26	31	48	33	25	1.9	32	6.0
27	65	218	144	364	25	30	78	115	27	2.0	22	4.4
28	97	419	123	382	24	35	72	80	29	2.3	28	6.0
29	112	581	105	513	23	31	48	5.1	33	2.9	42	8.6
30	170	2610	95	362	24	14	44	13	37	3.4	28	5.4
31	---	---	57	127	---	---	47	23	36	3.4	---	---
TOTAL	---	6653.4	---	8881	---	16384	---	998.1	---	363.1	---	154.9

TOTAL LOAD FOR YEAR: 40059.25 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 03...	1525	18.0	63	17	2.9	86
NOV 14...	1525	14.0	219	20	12	97
MAR 20...	1450	19.0	227	7	4.3	85
MAY 08...	1615	11.0	1010	39	106	97
JUN 11...	1400	19.0	806	47	102	84
JUL 26...	1538	26.0	376	50	51	89
SEP 18...	1253	19.0	74	41	8.2	98

05483600 MIDDLE RACCOON RIVER AT PANORA, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)
OCT							
03...	1510	63	5	1	2	13	49
NOV							
14...	1515	219	5	1	1	6	43
MAR							
20...	1528	227	5	2	4	18	47
MAY							
08...	1635	1010	5	15	18	25	43
JUL							
26...	1555	376	5	1	2	12	44
SEP							
18...	1240	74	5	2	3	6	31

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT						
03...	66	82	87	93	100	--
NOV						
14...	81	94	97	98	100	--
MAR						
20...	69	83	88	94	97	100
MAY						
08...	71	83	88	90	94	100
JUL						
26...	68	81	89	96	99	100
SEP						
18...	56	66	74	84	95	100

05484000 SOUTH RACCOON RIVER AT REDFIELD, IA

LOCATION.--Lat 41°34'48", long 94°10'58", in SW1/4 SW1/4 sec. 3, T.78 N., R.29 W., Dallas County, Hydrologic Unit 07100007, on left bank 35 ft (revised) downstream from bridge on county highway at Redfield, 0.8 mi downstream from bridge on U.S. Highway 6, 1.0 mi downstream from Middle Raccoon River, 16.4 mi upstream from mouth, and at mile 248.0 upstream from mouth of Des Moines River.

DRAINAGE AREA.--988 mi².

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940.

GAGE.--Water-stage recorder. Datum of gage is 896.43 ft NGVD. Prior to June 12, 1946, nonrecording gage, and June 12, 1946, to Sept. 30, 1966, water-stage recorder at site 20 ft upstream at same datum.

REMARKS.--Records good except those for winter period, which are poor. National Weather Service gage-height telemeter at station.

COOPERATION.--Three discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--44 years, 460 ft³/s, 6.32 in/yr, 333,300 acre-ft/yr; median of yearly mean discharges 410 ft³/s, 5.6 in/yr, 297,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s July 2, 1958, gage height, 29.04 ft, from flood-mark; minimum daily, 17 ft³/s Aug. 4, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 30	1430	*14,500	*18.58	June 16	2130	6,840	12.02
May 25	1200	5,020	10.22	June 17	1530	6,850	12.03
June 15	0345	5,630	10.84				

Minimum daily discharge, 105 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	132	260	724	290	340	754	826	8930	1400	736	392	111
2	126	245	600	310	350	465	799	5500	1850	847	362	132
3	158	271	560	320	420	500	1530	3490	1930	883	249	158
4	161	410	520	330	540	537	2250	2740	1830	809	287	154
5	160	310	480	340	490	575	2330	2380	1750	801	318	148
6	161	275	420	350	450	511	1020	2370	1980	772	245	151
7	151	256	400	355	420	494	1110	1980	1620	730	283	151
8	154	245	410	360	410	450	2280	1800	2690	670	241	145
9	146	397	450	360	480	410	3050	1740	2010	637	188	148
10	147	560	320	330	900	425	2480	1600	2050	742	171	151
11	265	459	280	310	1200	440	2330	1400	1830	1020	177	158
12	504	423	270	290	2100	464	1900	1250	2140	625	181	161
13	434	437	260	280	2080	459	1700	1290	2420	567	473	164
14	346	473	250	275	2000	469	1900	1210	2970	582	198	164
15	290	488	210	270	2600	497	1980	1150	3520	1440	161	132
16	256	441	160	260	3700	497	2010	1120	4440	769	205	126
17	226	414	180	250	2900	492	1910	1080	6020	657	350	138
18	126	401	200	240	1810	502	1700	1040	3520	577	164	151
19	138	669	210	235	2200	492	1480	1100	3080	523	145	164
20	167	674	218	225	1680	473	1240	1250	2000	538	138	126
21	290	729	217	230	1430	469	1210	1140	2090	539	132	108
22	379	960	208	240	1390	457	1900	1100	2390	479	138	105
23	362	900	185	240	1630	592	4500	1460	1860	473	161	111
24	334	703	160	230	1600	1150	3490	1200	1870	446	177	132
25	310	600	145	240	1340	1350	2430	3800	1590	419	148	174
26	283	423	129	260	1240	1280	1970	2690	1240	555	129	298
27	267	595	160	285	1110	1290	2830	2160	976	1040	123	245
28	256	1080	200	300	965	1250	2670	2820	1080	911	123	212
29	245	879	245	320	842	1170	4790	3330	1070	419	120	191
30	237	713	260	345	---	1040	12600	2710	782	298	111	174
31	237	---	275	325	---	918	---	2190	---	388	111	---
TOTAL	7448	15690	9306	8995	38617	20872	74215	69020	65998	20892	6401	4683
MEAN	240	523	300	290	1332	673	2474	2226	2200	674	206	156
MAX	504	1080	724	360	3700	1350	12600	8930	6020	1440	473	298
MIN	126	245	129	225	340	410	799	1040	782	298	111	105
CFSM	.24	.53	.30	.29	1.35	.68	2.50	2.25	2.23	.68	.21	.16
IN.	.28	.59	.35	.34	1.45	.79	2.79	2.60	2.48	.79	.24	.18
AC-FT	14770	31120	18460	17840	76600	41400	147200	136900	130900	41440	12700	9290

CAL YR 1983 TOTAL 350818 MEAN 961 MAX 6220 MIN 92 CFSM .97 IN 13.21 AC-FT 695800
WTR YR 1984 TOTAL 342137 MEAN 935 MAX 12600 MIN 105 CFSM .95 IN 12.88 AC-FT 678600

05484500 RACCOON RIVER AT VAN METER, IA

LOCATION.--Lat 41°32'02", long 93°56'59", in SW1/4 SW1/4 sec.22, T.78 N., R.27 W., Dallas County, Hydrologic Unit 07100007, on right bank 10 ft downstream from bridge on county highway R16, 0.3 mi northeast of Van Meter, 0.7 mi upstream from small left bank tributary, 1.1 mi downstream from confluence of North and South Raccoon Rivers, 29.0 mi upstream from mouth, and at mile 230.5 upstream from mouth of Des Moines River.

DRAINAGE AREA.--3,441 mi².

PERIOD OF RECORD.--April 1915 to current year. Prior to October 1934, monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1927 (M), WSP 1438: Drainage area, WSP 1508: 1915 (M), 1925 (M), 1926, 1933 (M), 1939 (M), 1947 (M), 1949 (M).

GAGE.--Water-stage recorder. Datum of gage is 841.16 ft NGVD. See WSP 1308 for history of changes prior to Aug. 8, 1934.

REMARKS.--Records fair except those for winter period which are poor. Corps of Engineers rain-gage and gage-height telemeters at station.

COOPERATION.--Seven discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--69 years, 1,384 ft³/s, 5.46 in/yr, 1,002,700 acre-ft/yr; median of yearly mean discharges, 1,180 ft³/s, 4.7 in/yr, 855,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,200 ft³/s June 13, 1947, gage height, 21.37 ft, from flood-mark; maximum gage height, 21.77 ft July 3, 1958; minimum daily discharge, 10 ft³/s Jan. 22-31, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 12	unknown	13,900	13.61	May 29	1845	9,830	11.39
Feb. 19	0900	10,800	11.61	June 8	0900	8,790	10.73
Apr. 12	0300	10,200	11.64	June 9	2200	13,300	13.45
Apr. 16	1230	9,550	11.21	June 13	0700	13,100	13.31
Apr. 30	2200	*28,500	*19.51	June 17	2400	24,000	18.09
May 25	1445	10,700	11.94	June 23	0900	22,400	17.50

Minimum daily discharge, 163 ft³/s Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	477	1480	3100	980	880	4590	4120	24700	8330	4410	1290	261
2	444	1420	3000	1010	950	3900	3860	23900	7030	4170	1240	299
3	581	1480	2700	1040	990	3520	4880	22400	6180	3940	1100	299
4	655	1820	2650	1080	1040	3340	5640	19500	5430	3720	1030	327
5	697	1540	2400	1090	1100	3240	6940	16500	5220	3440	1000	304
6	722	1790	2300	1110	1180	3030	6700	14600	5710	3300	1130	276
7	719	2710	2200	1150	1280	2700	7210	12300	5450	3100	697	266
8	692	2510	2100	1180	1380	2300	7560	10100	6950	2890	843	283
9	663	2490	1850	1110	1600	2150	8910	8560	7430	2690	740	282
10	647	2860	1700	1090	2050	2090	9590	7600	8540	2580	614	287
11	805	2860	1420	1000	3000	1990	9710	6690	8380	2690	662	315
12	1110	2940	1410	960	10100	1810	9940	5850	11200	2510	648	332
13	1410	3240	1400	900	6660	1690	9240	5420	13000	2220	726	327
14	1480	3110	1320	860	5490	1780	8940	4810	11900	2160	726	298
15	1560	3060	1370	830	6110	2370	9010	4460	14800	3360	602	245
16	1400	3160	1410	810	8020	2630	9400	4160	15200	2700	630	210
17	1260	3400	1490	740	10400	2710	9150	3910	22200	2160	842	225
18	1140	3220	1650	600	9650	2760	8220	3730	19900	2030	648	235
19	1060	3790	1780	490	10500	2480	6330	3880	17800	1910	516	250
20	1070	3740	2050	520	10300	2340	5470	4310	16700	1850	525	227
21	1280	4230	2050	580	9560	2250	5530	4690	15800	1770	502	179
22	1860	4790	2020	660	7930	2120	10900	4550	17400	1680	490	172
23	2320	4710	1800	660	7860	2280	11500	4630	17800	1620	483	163
24	2230	4290	1560	690	7650	3540	11600	4640	14800	1840	500	210
25	2050	3870	1350	700	7530	5800	11200	8970	12000	1620	466	235
26	1900	3450	1200	740	7030	5980	10800	8380	9640	1880	398	502
27	1750	3240	1100	780	6320	5650	11300	7220	7700	2600	299	374
28	1630	3280	1040	790	5880	5330	10300	8200	6350	2690	299	315
29	1560	3710	1020	840	5250	5080	12500	9630	5560	1960	299	287
30	1500	3720	1000	920	---	4920	26400	9510	4820	1460	299	235
31	1410	---	980	890	---	4610	---	9160	---	1350	299	---
TOTAL	38082	91910	54420	26800	157690	100980	272850	286960	329220	78300	20543	8220
MEAN	1228	3064	1755	865	5438	3257	9095	9257	10970	2526	663	274
MAX	2320	4790	3100	1180	10500	5980	26400	24700	22200	4410	1290	502
MIN	444	1420	980	490	880	1690	3860	3730	4820	1350	299	163
CFSM	.36	.89	.51	.25	1.58	.95	2.64	2.69	3.19	.73	.19	.08
IN.	.41	.99	.59	.29	1.70	1.09	2.95	3.10	3.56	.85	.22	.09
AC-FT	75540	182300	107900	53160	312800	200300	541200	569200	653000	155300	40750	16300

CAL YR 1983	TOTAL	1614094	MEAN	4422	MAX	24400	MIN	339	CFSM	1.29	IN	17.45	AC-FT	3202000
WTR YR 1984	TOTAL	1465975	MEAN	4005	MAX	26400	MIN	163	CFSM	1.16	IN	15.85	AC-FT	2908000

05484800 WALNUT CREEK AT DES MOINES, IA

LOCATION.--Lat 41°35'14", long 93°42'11", in SW1/4 SE1/4 sec.2, T.78 N., R.25 W., Polk County, Hydrologic Unit 07100006, on left bank, 25 ft downstream from bridge on 63rd Street in Des Moines, and 2.2 mi upstream from Raccoon River.

DRAINAGE AREA.--78.4 mi².

PERIOD OF RECORD.--October 1971 to current year.

REVISED RECORDS.--WDR Iowa 1973: 1972. WDR IA-75-1: 1973-74.

GAGE.--Water-stage recorder. Datum of gage is 801.04 ft NGVD (levels by Iowa Natural Resources Council).

REMARKS.--Records good except those for winter period, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--13 years, 65.7 ft³/s, 11.0 in/yr, 47,60 0 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,000 ft³/s July 1, 1973, gage height, 17.72 ft; no flow for many days in 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 3	2200	700	8.41	June 9	2300	*2,820	*14.63
Nov. 19	0030	638	8.14	June 11	2115	1,240	10.75
Apr. 29	1800	989	9.85	June 14	2300	1,180	10.56
May 25	0415	1,130	10.38	July 14	2145	1,640	12.07
May 28	0900	774	9.01	July 26	0730	1,240	10.77
June 8	0300	1,820	12.58				

Minimum daily discharge, 1.0 ft³/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	69	124	41	49	60	65	384	157	70	33	4.8
2	1.5	32	111	42	48	57	80	306	141	65	31	6.5
3	22	138	94	42	56	54	166	265	126	63	29	6.0
4	4.9	169	88	47	70	52	149	221	162	59	28	5.8
5	3.8	77	82	55	120	50	113	202	153	63	27	5.1
6	2.5	63	74	52	120	48	94	171	124	74	27	4.4
7	2.2	47	70	50	100	47	89	150	227	50	69	4.9
8	1.4	42	68	47	76	46	175	124	843	47	45	12
9	1.0	130	66	43	72	45	168	110	1010	45	28	3.8
10	16	113	64	38	110	44	137	102	1070	64	25	9.5
11	118	79	63	41	140	43	122	92	409	54	24	3.9
12	35	75	58	42	180	42	125	80	409	41	23	2.7
13	25	71	57	40	150	43	112	74	367	37	22	6.5
14	21	78	59	37	100	44	107	63	348	334	21	2.6
15	20	68	47	39	110	44	101	59	688	442	19	1.9
16	18	57	38	42	140	43	95	73	286	119	18	1.1
17	15	54	40	38	120	44	84	76	247	90	18	3.0
18	14	71	41	34	150	43	78	86	201	67	18	3.1
19	35	346	40	36	287	43	71	160	176	57	16	1.8
20	25	178	39	34	159	45	63	121	158	54	15	1.6
21	73	118	38	32	125	44	243	108	195	45	14	1.5
22	55	120	38	36	111	54	487	127	138	40	14	1.4
23	39	123	38	46	100	66	307	105	123	37	13	1.5
24	32	107	33	53	87	98	215	108	111	35	12	1.6
25	28	107	29	60	80	98	163	628	106	32	11	6.3
26	25	101	34	63	75	100	138	270	96	358	10	5.0
27	24	191	40	54	69	108	225	208	91	103	9.0	3.3
28	23	331	44	54	64	98	136	597	84	66	8.4	2.4
29	21	224	42	56	60	87	430	311	78	50	8.0	3.1
30	25	158	38	55	---	76	752	215	73	42	7.2	4.0
31	27	---	40	48	---	71	---	180	---	35	5.7	---
TOTAL	755.3	3537	1737	1397	3128	1837	5290	5776	8397	2738	648.3	121.1
MEAN	24.4	118	56.0	45.1	108	59.3	176	186	280	88.3	20.9	4.04
MAX	118	346	124	63	287	108	752	628	1070	442	69	12
MIN	1.0	32	29	32	48	42	63	59	73	32	5.7	1.1
CFSM	.31	1.51	.71	.58	1.38	.76	2.25	2.37	3.57	1.13	.27	.05
IN.	.36	1.68	.82	.66	1.48	.87	2.51	2.74	3.98	1.30	.31	.06
AC-FT	1500	7020	3450	2770	6200	3640	10490	11460	16660	5430	1290	240

CAL YR 1983 TOTAL 33845.50 MEAN 92.7 MAX 842 MIN .60 CFSM 1.18 IN 16.06 AC-FT 67130
WTR YR 1984 TOTAL 35361.70 MEAN 96.6 MAX 1070 MIN 1.0 CFSM 1.23 IN 16.78 AC-FT 70140

05485500 DES MOINES RIVER BELOW RACCOON RIVER AT DES MOINES, IA

LOCATION.--Lat 41°34'30", long 93°35'48", in NE1/4 SE1/4 sec.10, T.78 N., R.24 W., Polk County, Hydrologic Unit 07100008, on right bank 10 ft downstream from bridge on Southeast 14th Street at Des Moines, 0.8 mi downstream from Raccoon River and Scott Street Dam, and at mile 200.7.

DRAINAGE AREA.--9,879 mi².

PERIOD OF RECORD.--April 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1943 (P).

GAGE.--Water-stage recorder. Datum of gage is 762.52 ft NGVD. Prior to Oct. 1, 1951, and Oct. 1, 1953, to Sept. 30, 1959, water-stage recorder above Scott Street Dam, 0.8 mi upstream at datum 11.16 ft higher. Oct. 1, 1951, to Sept. 30, 1953, and Oct. 1, 1959 to Sept. 30, 1961, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are poor. Des Moines municipal water supply is taken from infiltration galleries on Raccoon River, 3.5 mi above station. Average daily pumpage was about 58 ft³/s. At times, water is pumped from Raccoon River into recharge basins, or into Waterworks Reservoir, capacity, 4,800 acre-ft. Effluent from sewage treatment plant enters the river 2.3 mi below station. Net effect of diversions not known. Flow regulated by Saylorville Lake (station 0591630) 13.0 mi upstream, since Apr. 12, 1977. Corps of Engineers gage-height telemeter at station.

COOPERATION.--Five discharge measurements furnished by Corps of Engineers. Average monthly pumpage from galleries furnished by Des Moines Water Works.

AVERAGE DISCHARGE.--44 years, 4,456 ft³/s, 6.13 in/yr, 3,228,000 acre-ft/yr; median of yearly mean discharges, 3,670 ft³/s, 5.0 in/yr, 2,660,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 77,000 ft³/s June 26, 1947, gage height, 20.8 ft in gage well, 21.6 ft from outside floodmark, site and datum then in use; minimum daily, 26 ft³/s Jan. 16-29, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1893, that of June 26, 1947, site and datum then in use. Flood of May 31, 1903, reached a stage of 20.9 ft, from flood profile, at Scott Street site and datum, by office of Des Moines City Engineer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 58,400 ft³/s June 19, gage height, 28.46 ft; minimum daily discharge, 768 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2010	4210	7870	3610	2020	19700	15100	37900	24800	31800	5400	1690
2	1950	4200	6880	3400	1980	17500	13900	33800	22900	30700	4620	1550
3	2000	3880	5750	3390	2120	16500	13700	30600	21400	29600	4160	1410
4	2020	4340	5690	3440	2420	15300	15600	31300	20500	29500	4000	1350
5	2020	3580	5870	3010	2480	12100	18900	31200	20000	28800	3980	1250
6	1940	3390	6160	2870	2590	9130	20400	31400	20000	28300	3960	1170
7	1710	4160	5740	2530	2420	8360	20700	31500	20600	27700	4220	1150
8	1070	4660	5530	2540	2060	7780	21100	29600	24100	27100	3970	976
9	1000	4920	5280	2540	1980	6340	22500	28200	23700	25900	3790	1060
10	1020	5730	4950	2620	2270	5210	23800	26800	30800	23000	3670	1170
11	1480	6330	4520	2940	2950	5170	24600	25700	25400	20400	3610	1330
12	1430	6440	4480	3140	4590	5190	25300	24500	27700	18300	3650	1380
13	1900	6640	4590	2820	7810	4990	25000	23800	30000	16700	3640	1560
14	2420	6570	4690	2650	10400	5010	24400	23300	29100	16900	3800	1350
15	3370	6500	4930	2260	9880	5950	24300	22700	32800	20500	3870	1340
16	4340	6570	4430	2060	12600	7130	24900	22200	34700	17700	4440	1160
17	4020	6680	3440	2240	16900	7810	25300	21700	41800	16400	4730	898
18	2400	6740	2460	2270	18500	7740	25100	20800	54500	15800	4830	852
19	2400	8220	2070	2630	20600	7140	23700	19200	56700	15700	4640	823
20	2850	8670	2690	2860	22300	6550	22000	18600	55100	15400	4740	899
21	4470	9540	3280	2870	24100	6430	20800	19100	49300	14900	4650	893
22	5720	10600	4120	2480	24300	6300	25500	19100	55100	13700	2320	856
23	6270	11300	5410	2060	24000	6050	27200	19000	56000	12300	4630	827
24	6330	10800	6650	1840	24200	7370	26600	18900	53200	11000	6820	799
25	5730	9880	7340	1800	24100	11400	25800	23700	46800	9820	7030	926
26	4760	9000	7020	1790	23900	15400	25200	25700	42600	10200	6540	1050
27	3990	8700	6070	1800	22900	15900	25500	23500	38400	9560	5420	915
28	3820	10300	5410	1810	22000	16600	25500	24900	34900	8770	4330	829
29	3710	10400	5230	1830	21200	16400	25700	26300	32700	8050	3710	779
30	3620	9300	4780	1910	---	16100	34800	26400	31900	6880	3630	768
31	3560	---	3920	1990	---	15800	---	26000	---	6000	2850	---
TOTAL	95330	212250	157250	78000	359570	314350	692900	787400	1057500	567380	135650	33010
MEAN	3075	7075	5073	2516	12400	10140	23100	25400	35250	18300	4376	1100
MAX	6330	11300	7870	3610	24300	19700	34800	37900	56700	31800	7030	1690
MIN	1000	3390	2070	1790	1980	4990	13700	18600	20000	6000	2320	768
AC-FT	189100	421000	311900	154700	713200	623500	1374000	1562000	2098000	1125000	269100	65480

CAL YR 1983 TOTAL 4519890 MEAN 12380 MAX 36600 MIN 1000 AC-FT 8965000
WTR YR 1984 TOTAL 4490590 MEAN 12270 MAX 56700 MIN 768 AC-FT 8907000

05485640 FOURMILE CREEK AT DES MOINES, IA

LOCATION.--Lat 41°36'50", long 93°32'43", in NE1/4 NE1/4 sec.32, T.79 N., R.23 W., Polk County, Hydrologic Unit 07100008, on right bank 20 ft downstream from bridge on Easton Blvd., 4.4 mi downstream from Muchikinock Creek and 5.0 mi upstream from Des Moines River.

DRAINAGE AREA.--92.7 mi².

PERIOD OF RECORD.--October 1971 to current year.

REVISED RECORDS.--WDR IA-75-1: 1974 (P).

GAGE.--Water-stage recorder. Datum of gage is 795.87 ft NGVD.

REMARKS.--Records good except those for winter period, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--13 years, 78.2 ft³/s, 11.5 in/yr, 56,660 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,340 ft³/s June 9, 1974, gage height, 14.84 ft; no flow for many days in 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 22	0800	1,020	8.47	June 9	2245	3,670	13.23
Nov. 4	0115	644	7.23	June 11	2345	2,030	11.02
Nov. 19	0915	896	8.10	June 13	0515	1,980	10.92
Nov. 28	1000	818	7.85	June 14	2400	2,300	11.50
Feb. 19	unknown	1,890	10.70	June 16	1015	1,020	8.61
Apr. 29	2400	1,330	9.85	July 15	0230	*3,720	*13.62
May 25	0730	1,760	10.44	July 26	0930	971	8.51
May 28	1230	1,830	10.59				

Minimum daily discharge, 2.2 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	322	250	45	40	82	93	460	266	88	42	9.9
2	20	290	215	41	38	77	95	326	229	83	38	9.8
3	29	273	182	41	40	73	166	284	191	81	35	9.3
4	23	445	168	41	52	71	228	236	230	77	35	10
5	21	284	154	42	78	69	185	204	181	77	35	9.7
6	18	232	139	43	70	65	149	196	154	83	30	9.7
7	17	196	130	42	62	64	128	174	234	67	30	10
8	16	174	121	39	55	62	150	149	1100	60	37	14
9	14	306	116	37	58	61	172	139	1300	56	24	20
10	22	414	110	28	100	59	163	134	1890	59	20	72
11	172	285	111	32	140	55	148	120	688	69	18	27
12	332	235	103	35	170	54	143	110	823	59	20	12
13	201	223	101	33	130	55	139	106	1170	50	15	17
14	159	221	102	31	100	56	143	97	848	505	13	11
15	142	191	94	31	120	57	143	95	1090	1320	13	8.1
16	127	168	77	32	160	59	135	91	707	234	13	6.4
17	109	157	63	29	140	55	120	90	587	175	12	5.8
18	100	156	56	28	200	55	107	88	448	132	14	4.6
19	118	757	46	29	300	54	96	127	356	113	13	3.4
20	139	519	39	30	260	55	90	125	311	105	13	2.7
21	295	331	34	31	205	54	153	117	298	87	13	2.6
22	901	276	35	36	175	58	327	119	345	77	12	2.2
23	538	348	42	39	143	90	280	97	276	65	13	2.3
24	362	278	38	40	134	175	222	96	215	58	13	2.4
25	277	247	36	39	120	172	177	837	201	57	12	8.1
26	234	231	38	42	110	169	156	425	154	269	11	7.5
27	196	351	52	42	102	171	179	289	146	112	10	4.0
28	172	760	49	40	92	159	131	1140	129	81	10	2.7
29	144	510	39	44	84	137	357	675	115	64	9.4	5.4
30	138	323	39	37	---	113	919	425	102	54	9.1	5.7
31	134	---	43	38	---	101	---	323	---	48	8.3	---
TOTAL	5190	9503	2822	1137	3478	2637	5694	7894	14784	4465	590.8	315.3
MEAN	167	317	91.0	36.7	120	85.1	190	255	493	144	19.1	10.5
MAX	901	760	250	45	300	175	919	1140	1890	1320	42	72
MIN	14	156	34	28	38	54	90	88	102	48	8.3	2.2
CFSM	1.80	3.42	.98	.40	1.29	.92	2.05	2.75	5.32	1.55	.21	.11
IN.	2.08	3.81	1.13	.46	1.40	1.06	2.28	3.17	5.93	1.79	.24	.13
AC-FT	10290	18850	5600	2260	6900	5230	11290	15660	29320	8860	1170	625

CAL YR 1983 TOTAL 59859.8 MEAN 164 MAX 2160 MIN 3.1 CFSM 1.77 IN 24.02 AC-FT 118700
WTR YR 1984 TOTAL 58510.1 MEAN 160 MAX 1890 MIN 2.2 CFSM 1.73 IN 23.48 AC-FT 116100

DES MOINES RIVER BASIN

05486000 NORTH RIVER NEAR NORWALK, IA

LOCATION.--Lat 41°27'25", long 93°39'10", in NW1/4 SW1/4 sec.20, T.77 N., R.24 W., Warren County, Hydrologic Unit 07100008, on left bank 10 ft downstream from bridge on county highway R57, 1.7 mi southeast of Norwalk, 5.2 mi upstream from Middle Creek, and 6.2 mi downstream from Badger Creek.

DRAINAGE AREA.--349 mi².

PERIOD OF RECORD.--February 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1946. WDR IA-76-1: 1975 (P).

GAGE.--Water-stage recorder. Datum of gage is 788.45 ft NGVD (levels by Corps of Engineers). Prior to June 12, 1946, nonrecording gage at same site and datum. Jan. 7 to Oct. 11, 1960, nonrecording gage at site 2.1 mi upstream at different datum.

REMARKS.--Records fair except those for winter period, which are poor. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--44 years, 189 ft³/s, 7.35 in/yr, 136,900 acre-ft/yr; median of yearly mean discharges, 170 ft³/s, 6.6 in/yr, 123,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft³/s June 13, 1947, gage height, 25.3 ft, from floodmark, from rating curve extended above 9,100 ft³/s on basis of velocity-area studies no flow at times during period 1954-58.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 28	2015	1,800	18.91	May 1	1015	8,830	22.21
Feb. 13	2315	1,920	19.14	May 27	0245	6,030	21.71
Apr. 24	0400	3,740	20.71	June 11	1030	*13,700	*23.03

Minimum daily discharge, 4.2 ft³/s Sept. 19-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	528	365	105	120	208	314	7740	603	231	93	11
2	5.0	315	350	105	125	205	312	4430	526	223	85	10
3	5.0	209	330	105	130	200	549	2430	464	214	77	9.4
4	4.9	995	294	110	135	195	1140	1050	422	216	71	8.6
5	4.9	474	270	115	140	190	808	847	467	209	66	8.2
6	4.7	275	247	115	150	180	560	727	443	212	60	7.8
7	4.8	224	229	120	160	165	453	625	896	207	55	8.0
8	4.9	180	220	120	180	160	606	551	1120	183	49	8.2
9	5.0	284	210	120	200	150	1330	486	1780	169	81	7.4
10	7.0	688	200	120	240	155	1080	446	3280	161	105	7.6
11	13	557	190	120	350	160	741	421	10800	155	95	8.0
12	60	290	180	115	800	165	652	396	5450	152	83	9.2
13	56	270	170	115	1100	170	609	369	3610	152	70	11
14	31	342	160	110	1400	172	538	338	2620	153	58	9.9
15	22	322	150	110	852	181	511	309	2690	745	47	8.1
16	16	249	145	110	853	198	475	300	3970	1290	39	7.7
17	13	202	140	105	791	225	427	285	3750	466	33	5.9
18	12	180	135	100	563	204	380	280	1540	270	28	4.7
19	17	830	130	98	986	201	346	719	727	213	27	4.2
20	35	680	125	96	889	196	322	1090	571	185	26	4.2
21	47	350	120	96	541	196	437	645	514	180	25	5.6
22	76	280	120	95	451	194	2040	556	524	160	23	7.0
23	59	281	115	96	404	239	2960	759	455	139	22	6.1
24	44	320	110	98	368	421	3460	550	392	126	21	7.8
25	38	337	105	100	316	576	1310	1820	349	116	20	8.0
26	24	400	105	105	290	528	674	3620	323	132	19	6.9
27	19	720	105	105	268	554	851	5190	299	285	17	8.5
28	15	1520	105	110	245	626	1110	3200	272	195	15	7.4
29	12	1340	105	110	221	529	1000	1640	256	141	14	6.7
30	13	586	105	115	---	419	2880	936	246	118	13	8.0
31	15	---	105	120	---	349	---	707	---	103	12	---
TOTAL	688.1	14228	5440	3364	13268	8311	28875	43462	49359	7501	1449	231.1
MEAN	22.2	474	175	109	458	268	963	1402	1645	242	46.7	7.70
MAX	76	1520	365	120	1400	626	3460	7740	10800	1290	105	11
MIN	4.7	180	105	95	120	150	312	280	246	103	12	4.2
CFSM	.06	1.36	.50	.31	1.31	.77	2.76	4.02	4.71	.69	.13	.02
IN.	.07	1.52	.58	.36	1.41	.89	3.08	4.63	5.26	.80	.15	.02
AC-FT	1360	28220	10790	6670	26320	16480	57270	86210	97900	14880	2870	458

CAL YR 1983 TOTAL 127621.6 MEAN 350 MAX 3950 MIN 3.6 CFSM 1.00 IN 13.60 AC-FT 253100
WTR YR 1984 TOTAL 176176.2 MEAN 481 MAX 10800 MIN 4.2 CFSM 1.38 IN 18.78 AC-FT 349400

05486490 MIDDLE RIVER NEAR INDIANOLA, IA

LOCATION.--Lat 41°25'27", long 93°35'09", in SW1/4 SE1/4 sec.35, T.77 N., R.24 W., Warren County, Hydrologic Unit 07100008, on right bank 10 ft downstream from bridge on county highway, 0.4 mi upstream from Cavitt Creek, 1.5 mi upstream from bridge on U.S. Highway 69, and 4.6 mi northwest of Indianola.

DRAINAGE AREA.--503 mi².

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940 (M), 1941, 1944, 1946, 1949 (M).

GAGE.--Water-stage recorder. Datum of gage is 776.15 ft NGVD (Corps of Engineers bench mark). Prior to June 11, 1946, June 9, 1947, to Nov. 23, 1948, and Sept. 8, 1951, to Oct. 30, 1952, nonrecording gage and June 11, 1946, to June 8, 1947 (destroyed by flood), Nov. 24, 1948, to Sept. 7, 1951, Sept. 1, 1952, to Sept. 30, 1962, 30, 1962, water-stage recorder at site 1.6 mi downstream at datum 2.81 ft lower.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--44 years, 263 ft³/s, 7.10 in/yr, 190,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,000 ft³/s June 13, 1947, gage heights: 26.40 ft, from floodmark, former site and datum; 28.27 ft, from floodmark, present site and datum; minimum daily, 0.11 ft³/s July 2, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 22	0945	6,240	18.69	June 10	1345	9,000	21.24
Apr. 30	1215	9,780	21.50	June 15	1915	7,050	19.74
May 25	2130	*9,800	*21.65				

Minimum daily discharge, 9.7 ft³/s Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	1050	372	155	175	308	423	3690	664	248	131	31
2	11	586	353	155	190	300	417	1660	575	230	117	30
3	11	254	317	160	210	290	1510	1400	515	218	107	30
4	11	1390	300	160	220	280	1700	1180	474	216	100	28
5	11	420	285	160	210	270	1040	1050	464	214	95	28
6	9.7	297	275	160	200	260	746	899	480	215	90	26
7	9.9	261	209	165	200	240	614	762	1170	228	85	27
8	9.8	204	220	165	210	225	1360	669	1420	200	82	28
9	10	483	230	170	230	210	2180	595	2560	183	79	27
10	10	1320	220	170	280	190	1460	543	8040	169	78	29
11	31	510	210	170	380	200	1020	505	3000	165	81	30
12	54	332	200	165	640	220	895	454	1460	154	78	28
13	44	319	190	160	1400	230	816	418	2030	176	77	38
14	38	570	185	155	1220	244	728	393	1660	179	74	39
15	42	358	180	150	1050	282	710	369	5650	2270	74	31
16	35	255	175	145	1100	365	642	343	3950	1480	70	27
17	28	220	170	140	1140	340	555	322	1560	522	50	26
18	23	200	165	140	921	302	479	310	1430	328	49	24
19	38	863	160	140	2040	287	423	963	1080	257	49	23
20	73	777	155	135	1130	286	388	1630	773	230	49	22
21	60	384	150	135	758	300	856	764	670	224	45	21
22	80	281	150	140	623	294	5320	937	635	244	45	21
23	56	294	150	140	557	533	2330	1430	529	189	44	21
24	51	354	145	140	508	1210	1360	707	464	154	46	22
25	41	326	145	140	459	957	960	6290	406	138	45	21
26	36	437	145	140	416	775	775	5170	364	591	40	21
27	33	906	145	145	386	1120	1480	1570	349	1050	37	21
28	29	2740	150	150	357	981	1320	1720	301	372	36	21
29	27	1160	150	155	326	719	2000	1430	279	231	36	21
30	24	572	150	160	---	552	8300	1040	264	177	35	21
31	26	---	155	170	---	468	---	791	---	149	32	---
TOTAL	973.4	18123	6206	4735	17536	13238	42807	40004	43216	11401	2056	783
MEAN	31.4	604	200	153	605	427	1427	1290	1441	368	66.3	26.1
MAX	80	2740	372	170	2040	1210	8300	6290	8040	2270	131	39
MIN	9.7	200	145	135	175	190	388	310	264	138	32	21
CFSM	.06	1.20	.40	.30	1.20	.85	2.84	2.57	2.87	.73	.13	.05
IN.	.07	1.34	.46	.35	1.30	.98	3.17	2.96	3.20	.84	.15	.06
AC-FT	1930	35950	12310	9390	34780	26260	84910	79350	85720	22610	4080	1550

CAL YR 1983 TOTAL 156619.4 MEAN 429 MAX 4500 MIN 9.7 CFSM .85 IN 11.58 AC-FT 310700
WTR YR 1984 TOTAL 201078.4 MEAN 549 MAX 8300 MIN 9.7 CFSM 1.09 IN 14.87 AC-FT 398800

05487470 SOUTH RIVER NEAR ACKWORTH, IA

LOCATION.--Lat 41°20'14", long 93°29'10", in SE1/4 SE1/4 sec.34, T.76 N., R.23 W., Warren County, Hydrologic Unit 07100008, on right bank 15 ft downstream from bridge on county highway, 0.5 mi downstream from Otter Creek, and 2.2 mi southwest of Ackworth.

DRAINAGE AREA.--460 mi².

PERIOD OF RECORD.--February 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1941, 1945 (M), 1946.

GAGE.--Water-stage recorder. Datum of gage is 769.97 ft NGVD. Prior to June 12, 1946, nonrecording gage, June 13, 1946, to Apr. 13, 1960, water-stage recorder, and Apr. 14, 1960, to Sept. 30, 1961, gage, all at site 4.0 mi downstream at datum 8.06 ft lower.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--44 years, 249 ft³/s, 7.35 in/yr, 180,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,000 ft³/s June 5, 1947, gage height, 24.60 ft, site and datum then in use; maximum gage height, 32.85 ft July 5, 1981; no flow Sept. 19 to Oct. 13, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1930 reached a stage of 24.5 ft, from information by local residents, discharge, about 30,000 ft³/s, at site 4.0 mi downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 22	0430	9,470	21.81	May 25	1130	10,100	22.06
Apr. 30	0045	*10,900	*23.15				

Minimum daily discharge, 3.6 ft³/s Oct. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	1580	360	145	170	196	320	1350	362	105	46	6.8
2	4.9	660	300	150	190	192	388	815	288	98	39	7.0
3	5.8	277	238	150	210	179	2080	688	237	89	35	7.0
4	6.4	1510	220	150	230	170	1440	589	213	82	32	6.8
5	5.8	390	200	155	210	160	719	548	184	76	29	6.7
6	5.1	206	188	155	200	151	514	454	170	72	25	6.8
7	4.8	175	200	155	190	145	427	382	160	67	22	6.9
8	4.6	139	220	155	180	140	1570	323	792	63	19	8.5
9	4.3	785	230	155	180	133	1910	281	1140	60	17	9.7
10	4.4	2230	220	155	250	135	939	254	2320	56	17	14
11	28	560	210	155	1800	135	664	234	625	52	16	15
12	54	285	205	150	2520	135	631	206	535	45	14	20
13	29	324	200	145	1510	160	615	186	854	41	14	19
14	8.3	698	190	140	1010	161	618	163	617	71	13	24
15	8.2	341	180	135	734	199	848	147	1740	2010	13	10
16	8.4	193	170	130	665	244	562	141	2010	424	13	7.4
17	4.4	148	160	130	524	195	430	129	1050	151	13	7.6
18	3.6	132	155	130	722	197	356	128	1660	90	13	7.3
19	29	580	155	130	1860	181	313	1850	800	66	13	6.9
20	63	483	150	125	708	193	292	2230	620	62	11	6.8
21	70	221	145	125	487	239	1310	712	470	76	13	7.0
22	124	193	145	130	404	221	6650	1370	380	53	16	6.2
23	94	1240	145	130	346	552	1870	2020	310	40	12	6.5
24	47	708	140	130	295	1430	931	634	260	34	11	6.5
25	25	460	140	130	266	1160	639	6400	230	134	11	5.8
26	11	891	140	130	249	1080	511	2600	190	1100	9.1	5.3
27	7.8	1420	140	135	228	1650	1120	987	170	406	8.8	6.0
28	6.4	3430	140	140	198	1010	800	3760	150	150	8.5	5.9
29	5.5	1140	145	145	182	606	2480	1480	135	91	8.4	6.3
30	6.6	503	145	150	---	422	6520	702	115	67	7.5	6.1
31	9.9	---	145	160	---	354	---	479	---	54	6.9	---
TOTAL	694.1	21902	5721	4400	16718	12125	38467	32242	18787	5985	526.2	265.8
MEAN	22.4	730	185	142	576	391	1282	1040	626	193	17.0	8.86
MAX	124	3430	360	160	2520	1650	6650	6400	2320	2010	46	24
MIN	3.6	132	140	125	170	133	292	128	115	34	6.9	5.3
CFSM	.05	1.59	.40	.31	1.25	.85	2.79	2.26	1.36	.42	.04	.02
IN.	.06	1.77	.46	.36	1.35	.98	3.11	2.61	1.52	.48	.04	.02
AC-FT	1380	43440	11350	8730	33160	24050	76300	63950	37260	11870	1040	527

CAL YR 1983 TOTAL 119294.9 MEAN 327 MAX 5380 MIN 3.6 CFSM .71 IN 9.65 AC-FT 236600
WTR YR 1984 TOTAL 157833.1 MEAN 431 MAX 6650 MIN 3.6 CFSM .94 IN 12.76 AC-FT 313100

05487980 WHITE BREAST CREEK NEAR DALLAS, IA

LOCATION.--Lat 41°14'41", long 93°16'08", in NW1/4 NW1/4 sec.3, T.74 N., R.21 W., Marion County, Hydrologic Unit 07100008, on left bank 15 ft downstream from bridge on county highway, 0.5 mi downstream from Kirk Branch, and 1.7 mi northwest of Dallas.

DRAINAGE AREA.--342 mi².

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 759.21 ft (revised) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers gage-height telemeter at station.

COOPERATION.--One discharge measurement furnished by Corps of Engineers.

AVERAGE DISCHARGE.--22 years, 208 ft³/s, 8.26 in/yr, 150,700 acre-ft/yr; median of yearly mean discharges, 160 ft³/s, 6.4 in/yr, 116,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,300 ft³/s July 16, 1982, gage height, 33.45 ft; minimum daily, 0.07 ft³/s Sept. 29, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 11, 1962, reached a stage of 28.87 ft, from floodmark, discharge, about 12,000 ft³/s. Flood of June 6, 1947, may have been slightly higher.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 1	1200	3,900	16.42	Apr. 30	0730	*6,670	*20.45
Nov. 10	1000	3,450	15.52	May 25	1115	5,160	18.22
Nov. 28	unknown	3,040	15.40	July 26	1130	3,180	15.02
Apr. 22	0245	5,520	18.77				

Minimum daily discharge, 1.6 ft³/s Oct. 3-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	2050	214	61	86	94	262	2950	200	90	49	3.3
2	1.7	1110	189	60	91	90	299	757	160	83	38	3.4
3	1.6	618	168	60	100	84	1980	514	130	79	30	3.4
4	1.6	1340	161	60	115	80	1780	417	110	77	23	3.3
5	1.6	618	150	61	105	77	645	386	130	77	17	3.2
6	1.6	324	140	62	100	74	370	299	120	79	13	3.3
7	1.7	281	150	63	100	72	266	234	140	74	11	3.4
8	1.7	246	160	64	100	67	981	179	1500	71	8.6	3.5
9	1.8	626	170	66	105	67	2020	147	800	69	8.2	3.6
10	1.9	3130	165	66	140	67	865	131	1300	67	7.8	5.4
11	8.0	1440	160	65	500	68	501	125	680	66	7.4	6.2
12	19	428	150	64	1900	70	1740	115	400	67	6.6	7.4
13	12	269	145	63	1500	74	955	110	380	70	6.4	7.0
14	7.2	205	140	62	760	79	762	150	370	76	6.2	9.1
15	7.8	168	130	61	541	94	992	130	1700	2300	6.1	6.0
16	6.0	139	125	60	523	119	560	120	960	550	6.2	5.0
17	4.9	123	120	59	398	119	347	110	410	210	6.2	3.8
18	4.2	106	110	59	348	112	247	100	530	140	6.1	2.6
19	8.0	363	105	59	1250	110	194	400	250	120	6.0	4.3
20	15	315	100	59	685	107	166	2060	170	105	5.4	2.9
21	24	218	95	59	321	120	1160	1010	150	95	6.0	2.6
22	31	136	88	60	305	151	3870	1560	135	89	6.4	2.3
23	16	736	82	60	250	240	2440	1970	120	84	5.8	3.2
24	11	842	78	60	204	1000	841	771	115	82	5.2	2.8
25	7.6	505	74	62	173	1670	454	2880	110	300	5.1	3.6
26	6.0	578	68	62	155	1580	323	1500	105	1050	4.5	10
27	5.0	1220	67	63	146	1970	1350	600	103	400	4.3	16
28	4.2	2600	66	66	120	1380	1440	2720	101	150	4.2	12
29	3.4	1460	64	70	98	988	961	1500	99	100	4.1	27
30	4.2	501	63	74	---	553	4420	800	96	82	3.7	24
31	5.4	---	62	80	---	356	---	400	---	62	3.4	---
TOTAL	226.8	22695	3759	1950	11219	11732	33191	25145	11574	6964	320.9	193.6
MEAN	7.32	757	121	62.9	387	378	1106	811	386	225	10.4	6.45
MAX	31	3130	214	80	1900	1970	4420	2950	1700	2300	49	27
MIN	1.6	106	62	59	86	67	166	100	96	62	3.4	2.3
CFSM	.02	2.21	.35	.18	1.13	1.11	3.23	2.37	1.13	.66	.03	.02
IN.	.02	2.47	.41	.21	1.22	1.28	3.61	2.74	1.26	.76	.03	.02
AC-FT	450	45020	7460	3870	22250	23270	65830	49880	22960	13810	637	384

CAL YR 1983 TOTAL 100029.6 MEAN 274 MAX 5070 MIN 1.6 CFSM .80 IN 10.88 AC-FT 198400
WTR YR 1984 TOTAL 128970.3 MEAN 352 MAX 4420 MIN 1.6 CFSM 1.03 IN 14.03 AC-FT 255800

05488100 LAKE RED ROCK NEAR PELLA, IA

LOCATION.--Lat 41°22'11", long 92°58'48", in NE1/4 NW1/4 sec.19, T.76 N., R.18 W., Marion County, Hydrologic Unit 07100008, at outlet works near right end of Red Rock Dam on Des Moines River, 1.4 mi upstream from Lake Creek, 4.5 mi southwest of Pella and at mile 142.3.

DRAINAGE AREA.--12,323 mi².

PERIOD OF RECORD.--March 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at NGVD (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam completed in 1969. Storage began in March 1969. Releases controlled through 14 concrete conduits extending through the concrete ogee spillway section into the stilling basin. Inlet invert elevation at 690 ft NGVD. Maximum design discharge through the conduits is 37,500 ft³/s but normal flood control operation limits maximum outflow to 30,000 ft³/s. Spillway section consists of 5 tainter gates, 41 ft wide and 46 ft high, on concrete ogee crest at elevation 736 ft. The storage capacity of the reservoir at full flood-control pool level, 780 ft, is 1,790,000 acre-ft, surface are, 65,500 acres and that of conservation pool level, 728 feet, is 89,000 acre-feet, surface area, 9,980 acres. Reservoir is used flood control, low-flow augmentation, conservation and recreation. Normal operation will maintain an elevation of 728 ft with minimum release of 300 ft³/s and maximum release of 30,000 ft³/s during the non-growing season, providing discharges at Ottumwa and Keosauqua do not exceed 30,000 ft³/s and 35,000 ft³/s respectively.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 1,765,000 acre-ft June 25, 1984; maximum elevation, 779.61 ft June 25, 1984; minimum daily contents, 58,000 acre-ft Feb. 16, 1977; minimum elevation, 719.68 ft Feb. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 1,765,000 acre-ft June 25; maximum elevation, 779.61 ft June 25; minimum daily contents, 86,800 acre-ft Mar. 16; minimum elevation, 727.70 ft Mar. 4.

Capacity table (elevation, in feet, and contents, in acre-feet)

722	45,600	740	256,000	760	789,000
725	63,400	745	357,000	765	983,000
730	110,000	750	479,000	770	1,213,000
735	174,000	755	623,000		

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113000	132000	181000	92300	91900	100000	93300	667000	1330000	1670000	960000	129000
2	112000	137000	167000	89500	90500	96900	90800	722000	1330000	1640000	930000	126000
3	112000	135000	156000	91300	92200	86800	92500	768000	1330000	1620000	894000	126000
4	112000	147000	145000	93800	99000	93700	96200	809000	1330000	1600000	854000	126000
5	112000	147000	138000	93300	104000	98200	90300	843000	1330000	1570000	822000	126000
6	112000	138000	135000	92400	97400	92600	92100	874000	1330000	1550000	784000	125000
7	114000	127000	132000	92400	92900	90800	95000	906000	1330000	1510000	752000	125000
8	116000	120000	127000	92000	90900	91100	96800	936000	1350000	1490000	715000	126000
9	116000	123000	125000	91500	91000	93100	107000	952000	1400000	1470000	678000	126000
10	117000	148000	124000	89400	91700	92800	116000	970000	1440000	1450000	640000	127000
11	120000	160000	123000	89800	96400	91500	121000	987000	1460000	1430000	604000	127000
12	120000	158000	120000	94100	110000	89900	133000	998000	1470000	1400000	571000	128000
13	117000	151000	115000	92200	119000	92600	140000	1010000	1490000	1370000	538000	129000
14	116000	140000	108000	88700	119000	94900	147000	1020000	1520000	1370000	504000	131000
15	119000	127000	101000	91700	116000	94700	153000	1030000	1570000	1380000	472000	131000
16	121000	119000	97100	95800	111000	92800	157000	1030000	1610000	1370000	443000	131000
17	119000	120000	96500	95100	101000	94800	161000	1040000	1640000	1350000	413000	131000
18	115000	121000	96000	93000	104000	93800	163000	1050000	1680000	1330000	384000	130000
19	115000	126000	97000	91900	121000	92800	165000	1060000	1700000	1300000	352000	129000
20	115000	129000	97900	92000	123000	92900	163000	1070000	1710000	1280000	323000	128000
21	116000	126000	98000	91700	123000	91300	186000	1080000	1720000	1250000	294000	127000
22	123000	124000	97500	91400	123000	91400	232000	1100000	1740000	1230000	265000	128000
23	125000	125000	96600	91600	124000	93100	278000	1100000	1750000	1200000	238000	128000
24	123000	123000	95800	91200	122000	97900	318000	1110000	1760000	1170000	208000	128000
25	120000	117000	95600	90100	120000	101000	351000	1150000	1760000	1140000	184000	128000
26	117000	118000	97600	90100	117000	101000	379000	1190000	1760000	1130000	167000	127000
27	120000	133000	101000	90400	114000	102000	424000	1210000	1750000	1110000	153000	128000
28	117000	172000	102000	93200	108000	98800	450000	1260000	1740000	1080000	142000	129000
29	115000	191000	99600	97500	100000	94200	501000	1290000	1710000	1050000	132000	130000
30	114000	193000	98000	96600	---	92900	582000	1310000	1690000	1020000	128000	131000
31	115000	---	97200	93500	---	94300	---	1320000	---	993000	130000	---
MAX	125000	193000	181000	97500	124000	102000	582000	1320000	1760000	1670000	960000	131000
MIN	112000	117000	95600	88700	90500	86800	90300	667000	1330000	993000	128000	125000

WTR YR 1984 MAX 1760000 MIN 86800

05488500 DES MOINES RIVER NEAR TRACY, IA

LOCATION.--Lat 41°16'53", long 92°51'34", in NW1/4 SE1/4 sec.19, T.75 N., R.17 W., Mahaska County, Hydrologic Unit 07100009, on right bank 250 ft upstream from abandoned Bellefountaine Bridge, 0.5 mi downstream from bridge on old State Highway 92 (now relocated), 0.8 mi east of Tracy, 3.1 mi upstream from Cedar Creek, 3.8 mi downstream from bridge on newly located State Highway 92, 6.4 mi downstream from English Creek, and at mile 130.4.

DRAINAGE AREA.--12,479 mi².

PERIOD OF RECORD.--March 1920 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1920 (M), 1922 (M), 1933.

GAGE.--Water-stage recorder. Datum of gage is 670.91 ft NGVD. Prior to June 26, 1940, and June 30, 1952, to Nov. 4, 1960, nonrecording gage, and June 27, 1940, to June 29, 1952, water-stage recorder, at site 250 ft downstream at same datum.

REMARKS.--Records good except those for winter period, which are fair. Flow regulated by Lake Red Rock (station 05488100) 11.9 mi upstream, since March 12, 1969. Corps of Engineers gage-height telemeter at station.

COOPERATION.--Five discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--64 years, 5,026 ft³/s, 5.47 in/yr, 3,641,000 acre-ft/yr; median of yearly mean discharges 4,170 ft³/s, 4.5 in/yr, 3,020,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 155,000 ft³/s, June 14, 1947, gage height, 26.5 ft; minimum daily, 40 ft³/s Jan. 29 to Feb. 1, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1851, that of June 14, 1947. Flood of May 31, 1903, reached a stage of about 25 ft, discharge, about 130,000 ft³/s. Minimum daily discharge since at least 1910, that of Jan. 29 to Feb. 1, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42,600 ft³/s June 27, gage height, 18.11 ft; minimum daily discharge, 521 ft³/s Sept. 29-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2550	7130	16300	4300	4100	23000	17400	12700	20900	40500	21300	3440
2	2540	10200	16300	4100	4100	21000	16900	16300	21100	40200	22700	3310
3	2520	8800	15300	3600	4050	20500	17100	16700	21100	39900	22400	2670
4	2460	9060	14100	3300	4080	17900	20400	15200	21100	39700	22000	1700
5	2340	9570	12300	3850	4770	14400	22600	17100	21000	39400	21600	1600
6	2280	10200	9280	4100	6200	14400	21100	17900	21000	39200	21500	1560
7	1900	10100	8510	4100	6000	11600	20100	17400	21000	38700	21500	1430
8	1080	9440	8530	4100	4700	9760	21400	16700	21200	38400	21700	1270
9	1210	8710	7990	4100	3900	8160	23800	17300	19100	35000	21900	1250
10	1210	8930	7250	4100	4170	7730	25000	18300	17400	32600	21300	1290
11	1390	7670	7240	3600	5360	6810	25100	18400	21300	31300	20700	1360
12	2130	9830	7740	3300	6990	6330	26000	18500	26100	30400	20200	1420
13	3530	12200	8460	3900	10900	5770	25700	18500	26400	28800	19500	1460
14	3120	14700	9570	4100	15500	5300	24500	18600	26400	27000	19100	1410
15	2460	15100	8530	3000	17500	6520	25000	18600	29700	29000	18800	1380
16	3240	12000	7730	2600	19100	7370	24800	18700	28400	28200	18300	1370
17	5180	8330	4960	2700	22000	8200	24700	18700	27500	26900	18800	1370
18	5430	8580	4440	2800	21200	8930	24700	18700	28600	26600	18600	1370
19	3880	9640	4050	2900	22100	9310	24700	19100	34000	26400	18300	1380
20	3460	12100	3030	3000	23300	8560	23900	19200	39800	26200	18200	1340
21	4340	13500	3540	3100	25600	8330	19000	18300	41100	26000	18400	898
22	5030	13400	4000	2900	25600	7550	20700	19200	41300	25800	18700	762
23	6250	15300	4100	2800	25600	7070	19400	20900	41400	25600	18900	758
24	8720	16800	4350	2700	25500	8280	16600	20300	41400	25300	18500	764
25	8350	16200	4250	2700	25400	11400	15900	21000	41400	25200	17500	846
26	7770	13400	4000	2700	25300	16800	15300	19000	41500	25200	15600	1060
27	4780	12300	4300	2600	25200	20300	15900	20500	42400	24100	13300	814
28	5630	13000	5400	2500	25100	22600	18200	21800	42300	22800	10800	526
29	5510	11200	5800	2700	24800	21800	18300	20100	41100	22500	8730	521
30	4810	14100	5200	3600	---	19600	14200	20500	40800	21800	6780	521
31	4420	---	4700	4100	---	17400	---	20700	---	21100	3600	---
TOTAL	119520	341490	231250	103950	438120	382680	628400	574900	907800	929800	559210	40850
MEAN	3855	11380	7460	3353	15110	12340	20950	18550	30260	29990	18040	1362
MAX	8720	16800	16300	4300	25600	23000	26000	21800	42400	40500	22700	3440
MIN	1080	7130	3030	2500	3900	5300	14200	12700	17400	21100	3600	521
AC-FT	237100	677300	458700	206200	869000	759000	1246000	1140000	1801000	1844000	1109000	81030

CAL YR 1983 TOTAL 5237500 MEAN 14350 MAX 28200 MIN 1080 AC-FT 10390000
WTR YR 1984 TOTAL 5257970 MEAN 14370 MAX 42400 MIN 521 AC-FT 10430000

05489000 CEDAR CREEK NEAR BUSSEY, IA

LOCATION.--Lat 41°13'09", long 92°54'38", at SW corner sec.11, T.74 N., R.18 W., Marion County, Hydrologic Unit 07100009, on left bank 10 ft downstream from bridge on State Highway 156, 0.8 mi downstream from North Cedar Creek, 1.6 mi northwest of Bussey, 3.0 mi upstream from Honey Creek, and 8.9 mi upstream from mouth.

DRAINAGE AREA.--374 mi².

PERIOD OF RECORD.--October 1947 to current year.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 682.15 ft NGVD (levels by Corps of Engineers). Prior to Feb. 21, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--37 years, 218 ft³/s, 7.92 in/yr, 157,900 acre-ft/yr; median of yearly mean discharges, 180 ft³/s, 6.5 in/yr, 130,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 96,000 ft³/s July 3, 1982, gage height, 34.61 ft; no flow Sept. 6-20, 1955, Oct. 11, 12, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1946 reached a stage of 28.45 ft on upstream side and 28.05 ft on downstream side of bridge, levels to floodmarks by Corps of Engineers, discharge, 31,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 10	1800	*6,630	*20.36	June 8	1715	5,620	19.06
Nov. 28	1030	5,470	19.00	June 10	0515	5,230	18.57
Apr. 22	1100	4,340	17.27	June 15	1615	4,260	17.14
Apr. 29	2200	4,930	18.18	July 15	2100	6,270	19.85

Minimum daily discharge, 2.8 ft³/s Oct. 1,4-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	2120	252	65	88	151	262	1540	232	103	88	9.2
2	3.0	1500	220	65	94	145	292	628	194	94	76	9.4
3	3.0	254	189	65	105	140	1140	1160	167	89	65	9.6
4	2.8	1560	180	65	120	135	1470	863	164	88	55	9.4
5	2.8	454	165	65	115	130	553	631	197	90	37	9.2
6	2.8	196	155	66	110	125	349	447	154	94	30	9.3
7	2.9	177	144	66	110	120	267	343	181	91	32	9.4
8	3.1	139	145	68	110	115	414	274	4100	82	31	12
9	3.0	632	145	69	120	110	1370	236	2260	78	40	15
10	3.0	5660	145	70	140	105	649	216	3650	78	32	18
11	13	1390	203	70	230	105	410	204	665	77	28	20
12	45	383	1390	70	740	110	1110	186	392	79	23	25
13	54	324	640	68	1200	120	818	174	399	91	20	24
14	31	316	364	68	800	130	601	169	425	117	17	31
15	18	238	244	68	547	152	1250	142	3430	4180	16	32
16	13	176	182	66	506	189	589	142	1350	1390	17	18
17	8.9	150	160	65	494	176	358	136	477	298	16	8.1
18	8.2	140	145	65	530	153	274	123	598	175	17	6.2
19	28	331	130	65	1550	176	229	216	281	144	16	6.7
20	141	314	115	65	584	169	208	1470	209	129	15	6.0
21	150	201	105	65	367	169	375	551	185	128	17	6.0
22	168	150	96	65	305	204	3250	601	167	115	20	5.8
23	128	1120	90	65	265	335	885	644	154	111	17	6.7
24	79	1450	85	66	232	991	494	291	138	106	15	7.0
25	47	473	80	66	208	1480	343	1230	126	520	15	11
26	30	388	76	67	194	2320	278	938	131	1170	13	5.1
27	23	1030	72	68	181	2100	359	382	1660	630	12	4.8
28	15	4370	70	72	159	1370	259	1990	269	200	11	4.6
29	9.4	1050	68	74	146	618	1320	1200	154	133	11	4.8
30	11	377	67	78	---	387	2550	511	118	106	10	4.4
31	28	---	66	82	---	300	---	292	---	96	9.6	---
TOTAL	1077.7	27063	6188	2102	10350	13030	22726	17930	22627	10882	821.6	347.7
MEAN	34.8	902	200	67.8	357	420	758	578	754	351	26.5	11.6
MAX	168	5660	1390	82	1550	2320	3250	1990	4100	4180	88	32
MIN	2.8	139	66	65	88	105	208	123	118	77	9.6	4.4
CFSM	.09	2.41	.54	.18	.96	1.12	2.03	1.55	2.02	.94	.07	.03
IN.	.11	2.69	.62	.21	1.03	1.30	2.26	1.78	2.25	1.08	.08	.03
AC-FT	2140	53680	12270	4170	20530	25840	45080	35560	44880	21580	1630	690

CAL YR 1983 TOTAL 111903.2 MEAN 307 MAX 8220 MIN 2.5 CFSM .82 IN 11.13 AC-FT 222000
WTR YR 1984 TOTAL 135145.0 MEAN 369 MAX 5660 MIN 2.8 CFSM .99 IN 13.44 AC-FT 268100

05489500 DES MOINES RIVER AT OTTUMWA, IA

LOCATION.--Lat 41°00'39", long 92°24'40", in SE1/4 NE1/4 sec.25, T.72 N., R.14 W., Wapello County, Hydrologic Unit 07100009, on right bank 15 ft downstream from Wabash Railroad Bridge at Ottumwa, 0.4 mi downstream from Ottumwa powerplant, 6.5 mi upstream from Village Creek, 9.5 mi downstream from South Avery Creek, and at mile 94.1.

DRAINAGE AREA.--13,374 mi².

PERIOD OF RECORD.--March 1917 to current year (published as "at Eldon" October 1930 to March 1935). Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 525: 1917-20. WSP 1308: 1917-23 (M), 1925-27 (M), 1931. WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 622.00 ft NGVD. Prior to Sept. 30, 1930, nonrecording gages at Market Street Bridge 1,700 ft upstream at datum 0.83 ft higher. Oct. 1, 1930, to Mar. 31, 1935, nonrecording Mar. 31, 1935, nonrecording gage at Eldon 15 mi downstream at different datum. Apr. 1, 1935, to Oct. 25, 25, 1963, water-stage recorder at site 1,100 ft downstream at Vine Street Bridge at datum 0.77 ft higher.

REMARKS.--Records good except those for winter period, which are fair. Prior to Dec. 12, 1958, and since Nov. 30, 1960, diurnal fluctuation at low flow caused by powerplant above station. Flow regulated by Lake Red Rock (station 05488100) 48.2 mi upstream, since March 12, 1969. Corps of Engineers gage-height telemeter and data collection platform at station.

COOPERATION.--Six discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--67 years, 5,446 ft³/s, 5.53 in/yr, 3,946,000 acre-ft/yr; median of yearly mean discharges, 4,690 ft³/s, 4.8 in/yr, 3,400,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 135,000 ft³/s June 7, 1947, gage height, 20.2 ft, site and datum then in use; minimum daily, 30 ft³/s Jan. 27-29, 31, Feb. 2, 3, 5-7, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1850, that of June 7, 1947. Flood of May 31, 1903, reached a stage of 19.4 ft, former site and datum at Vine Street Bridge or about 22 ft at Market Street Bridge, from information by Corps of Engineers and National Weather Service, discharge, about 140,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 47,800 ft³/s June 27, gage height, 14.64 ft; minimum daily, 705 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2800	9440	15700	4550	4400	22200	18300	19200	21400	42000	22400	4190
2	2700	14800	16100	4400	4700	20400	18200	16900	21900	41800	23400	4050
3	2410	10400	15700	4300	4850	20600	19000	22700	21800	41600	24200	3640
4	2330	11200	14100	3500	5000	19900	21500	19600	21900	41500	23900	1960
5	2210	10500	13500	3300	4800	14800	23700	18100	21800	41400	23500	2050
6	2130	10500	10200	3800	4500	14900	23000	19200	21700	41200	23100	1780
7	2060	10400	8060	4200	6100	12500	20500	19200	21700	41000	23200	1710
8	1320	10200	8400	4150	5800	10300	22100	18100	26500	40600	23000	1580
9	987	9570	8600	4200	4600	7820	24800	17600	26600	39400	23800	1350
10	1160	17800	7600	4200	4000	7480	25700	18600	24100	36200	23400	1460
11	1180	11800	7200	4150	5200	6620	25500	19200	20500	34200	22800	1390
12	1720	9270	6900	3550	6200	6090	26100	19200	26100	33100	22200	1520
13	2830	11300	7900	3200	8600	6040	27400	19200	28200	31200	21200	1560
14	3440	13700	9100	3950	14000	4950	25600	19300	28700	29800	21000	1590
15	2630	15500	8700	4000	16500	6070	26200	19300	34900	33100	20800	1480
16	2470	14100	7600	3000	18100	7030	26000	19300	36800	32700	20200	1540
17	3980	9920	6070	2600	21400	8120	25300	19300	32700	28900	20300	1420
18	6120	8040	4400	2700	21300	8840	25200	19400	30800	28000	20700	1480
19	4690	8810	3970	2900	22800	10100	25100	19600	31800	27600	20500	1470
20	3500	10700	3370	2800	21700	9340	25000	21000	34800	27500	20300	1640
21	3800	13100	2120	3050	23800	9050	21400	21500	38500	27300	20300	1200
22	4650	13300	3680	3100	23500	8570	22900	19400	40800	27100	20400	981
23	5130	14800	3900	3000	23200	8380	23000	21600	41700	27000	20900	921
24	8060	18500	4000	2850	23000	9660	18700	21500	41900	26900	21100	894
25	8750	17000	4300	2800	22900	12700	17300	23700	42000	27000	20600	979
26	7570	15700	4300	2750	22900	18900	16600	21300	43300	28400	19100	964
27	7120	15200	4200	2850	22800	22200	15900	22300	46800	28400	17100	1610
28	3060	19600	4400	2800	22900	24800	18100	27100	44600	25600	14600	1160
29	4930	14200	5200	2850	22900	23800	18600	23300	42900	24400	11400	879
30	4140	12900	5800	2900	---	22000	28300	21800	42300	24000	9430	705
31	3390	---	5200	3500	---	18600	---	21800	---	22900	4940	---
TOTAL	113267	382250	230270	105900	412450	402760	675000	629300	959500	1001800	623770	49153
MEAN	3654	12740	7428	3416	14220	12990	22500	20300	31980	32320	20120	1638
MAX	8750	19600	16100	4550	23800	24800	28300	27100	46800	42000	24200	4190
MIN	987	8040	2120	2600	4000	4950	15900	16900	20500	22900	4940	705
AC-FT	224700	758200	456700	210100	818100	798900	1339000	1248000	1903000	1987000	1237000	97490

CAL YR 1983 TOTAL 5442237 MEAN 14910 MAX 35500 MIN 987 AC-FT 10790000
WTR YR 1984 TOTAL 5585420 MEAN 15260 MAX 46800 MIN 705 AC-FT 11080000

05490500 DES MOINES RIVER AT KEOSAUQUA, IA

LOCATION.--Lat 40°43'40", long 91°57'34", in SE1/4 SW1/4 sec.36, T.69 N., R.10 W., Van Buren County, Hydrologic Unit 07100009, on right bank 10 ft upstream from bridge on State Highway 1 at Keosauqua, 4.0 mi downstream from Chequest Creek, and at mile 51.3.

DRAINAGE AREA.--14,038 mi².

PERIOD OF RECORD.--May 1903 to July 1906, April to December 1910, August 1911 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 525: 1913-20. WSP 1438: Drainage area. WSP 1508: 1903, 1905-6, 1915-18 (M), 1922 (M), 1924-26 (M), 1932-34 (M), 1937, 1942 (M).

GAGE.--Water-stage recorder. Datum of gage is 547.36 ft NGVD. Prior to Dec. 24, 1933, nonrecording gage, and Dec. 25, 1933, to Sept. 30, 1972, water-stage recorder, at same site at datum 10.00 ft higher.

REMARKS.--Records good except those for winter period, which are fair. Prior to Dec. 21, 1958, and since Nov. 30, 1960, some diurnal fluctuation at medium and low stages caused by powerplant at Ottumwa. Flow regulated by Lake Red Rock (station 05488100) 91.0 mi upstream, since March 12, 1969. Naitonal Weather Service gage-height telemeter and Corps of Engineers data collection platform at station.

COOPERATION.--Eight discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--75 years (water years 1904-05, 1912-84), 5,834 ft³/s, 5.64 in/yr, 4,227,000 acre-ft/yr; median of yearly mean discharges, 4,990 ft³/s, 4.8 in/yr, 3,620,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 146,000 ft³/s June 1, 1903, gage height, 27.85 ft, from flood-mark, datum then in use; minimum daily, 40 ft³/s Jan. 30, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1851, reached a stage of 24 ft, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 46,600 ft³/s June 27, gage height, 23.13 ft; maximum gage height, 24.65 ft. Feb. 15, backwater from ice; minimum daily discharge, 1,060 ft³/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3100	4760	14700	4600	5400	24000	17000	22600	21600	38900	20100	3700
2	2640	15400	16500	4400	5700	21800	17000	16500	21300	38700	20600	3440
3	2480	12600	16300	4300	5800	20400	17800	31800	21900	38500	21800	3400
4	2540	10400	15100	3600	6200	20000	22000	24900	22100	38300	21500	3190
5	2460	11300	14200	3300	5600	16900	22600	18300	22500	38100	21100	1920
6	2320	10200	12400	3900	5000	14000	23100	19000	22700	38000	20800	1820
7	2250	10400	9440	4400	6400	13800	20800	19000	22900	37600	20800	1670
8	2160	10200	8090	4600	6200	11300	20800	18000	24900	37200	20800	1740
9	1440	9880	8460	4750	5000	9480	25200	17200	28400	36900	21100	1630
10	1060	18400	8680	4750	4600	7700	26100	17900	29700	35200	21200	1590
11	1260	17100	7500	4500	7000	7430	25600	18700	23400	33500	20700	1790
12	1350	10100	8000	3750	8000	6610	25600	18700	23400	31000	20000	1710
13	1880	10400	8600	3400	9100	6400	27000	18700	26200	29800	19300	1910
14	3280	12600	9400	4100	16000	5800	26100	18800	27000	27900	18600	2030
15	3550	14900	10400	4150	21000	5480	25300	18800	32800	37300	18500	1950
16	2640	16000	8400	3000	17800	8710	25900	18800	36800	34800	18100	1810
17	2700	12500	7000	2600	20600	7930	24900	18800	31800	29000	17900	1850
18	4730	8620	5000	2650	21700	8470	24400	18900	28700	26200	18500	1730
19	5750	8600	4000	2900	24300	9210	24200	19100	29300	25600	18100	1830
20	4710	9790	3200	2950	22800	9760	24100	20400	32100	25300	17900	1850
21	3690	12000	2900	3200	23300	8960	22800	21100	35600	25000	17900	2050
22	4630	13600	3500	3200	24300	9160	20400	19200	38000	24800	18000	1770
23	5210	15900	4000	3100	24200	10200	23700	21100	38900	24600	18400	1500
24	6110	19300	4100	3050	24100	9980	19800	22000	39000	24700	18600	1350
25	8440	18300	4400	3300	24000	11500	17200	22100	39000	25500	18200	1450
26	8140	16600	4600	3600	24000	18000	16400	24200	39000	28100	17100	1500
27	7430	17700	4150	3700	23900	23000	15700	20400	43900	29200	15300	1320
28	6260	26200	4300	4000	24100	26000	16500	24000	43600	24500	13000	1630
29	4380	18700	5300	4150	24300	24500	18800	27100	40900	22300	10500	1310
30	5590	13200	5800	4300	---	23000	29900	22400	39500	21700	8200	1160
31	5020	---	5200	4600	---	19400	---	21600	---	20800	6900	---
TOTAL	119200	405650	243620	116800	440400	418880	666700	640100	926900	949000	559500	57600
MEAN	3845	13520	7859	3768	15190	13510	22220	20650	30900	30610	18050	1920
MAX	8440	26200	16500	4750	24300	26000	29900	31800	43900	38900	21800	3700
MIN	1060	4760	2900	2600	4600	5480	15700	16500	21300	20800	6900	1160
AC-FT	236400	804600	483200	231700	873500	830800	1322000	1270000	1839000	1882000	1110000	114200

CAL YR 1983 TOTAL 5545810 MEAN 15190 MAX 35600 MIN 1060 AC-FT 11000000
WTR YR 1984 TOTAL 5544350 MEAN 15150 MAX 43900 MIN 1060 AC-FT 11000000

06483500 ROCK RIVER NEAR ROCK VALLEY, IA

LOCATION.--Lat 43°12'52", long 96°17'39", in SW1/4 SW1/4 sec.16, T.97 N., R.46 W., Sioux County, Hydrologic Unit 10170204, on left bank 3 ft upstream from bridge on county highway K30, 0.3 mi north of Rock Valley and at mile 19.1.

DRAINAGE AREA.--1,592 mi².

PERIOD OF RECORD.--June 1948 to current year.

REVISED RECORDS.--WSP 1439: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,222.54 ft NGVD. Prior to Aug. 13, 1952, nonrecording gage with supplementary water-stage recorder operating above 6.2 ft gage height June 4, 1949, to Aug. 12, 1952, and Aug. 13, 1952, to May 4, 1976, water-stage recorder, at site 3.2 mi downstream at datum 10.73 ft lower.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height satellite data colleciton platform at station.

AVERAGE DISCHARGE.--36 years, 389 ft³/s, 3.32 in/yr, 281,800 acre-ft/yr; median of yearly mean discharges, 280 ft³/s, 2.4 in/yr, 203,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,400 ft³/s Apr. 7, 1969, gage height, 17.32 ft; no flow for many days during winter period in 1959 and 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1897 reached a stage of 17.0 ft, former site and datum, discharge not determined, from information by State Highway Commission.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 27	0745	9.630	15.59	May 2	1115	6,000	13.51
Apr. 4	1430	7,440	14.48	May 7	unknown	10,100	a15.82
Apr. 9	----	7,200	unknown	June 13	1000	8,560	15.07
Apr. 13	2100	11,000	16.17n	June 18	0245	*16,300	*18.06
Apr. 28	0200	4,640	12.21	June 22	0500	15,300	17.75

a From floodmark
Minimum daily discharge, 149 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	199	450	210	170	975	4800	5030	1580	2030	489	175
2	209	201	450	210	170	978	5030	5760	1450	1870	484	176
3	202	227	420	220	170	926	6030	4880	1350	1730	487	173
4	191	306	410	220	170	937	7210	4000	1290	1600	512	168
5	186	302	390	230	165	769	6690	3630	1700	1490	505	166
6	176	284	380	230	160	600	5610	4410	1580	1410	465	165
7	173	271	370	240	155	500	5110	8570	1550	1330	444	164
8	171	265	360	250	150	650	5960	8860	2350	1470	443	168
9	168	276	350	240	155	750	7030	6320	1810	1370	419	165
10	173	295	340	230	170	860	6470	4210	2310	1290	396	161
11	192	291	330	220	180	820	5300	3210	2660	1270	366	160
12	197	286	320	210	400	780	8540	2700	6000	1290	344	175
13	202	294	310	200	700	766	10300	2340	8340	1200	328	172
14	195	305	300	190	500	648	9230	2120	7700	1140	311	177
15	198	312	280	180	800	675	6250	1960	6990	1250	298	176
16	198	316	270	170	1500	669	4610	1800	7050	1160	287	171
17	195	322	260	160	3000	664	3640	1680	8430	1070	292	163
18	194	324	250	160	2800	683	3050	1610	14700	987	295	160
19	198	546	250	150	1420	664	2660	1540	9190	910	277	157
20	206	891	240	150	990	646	2320	1500	7260	873	264	154
21	211	858	240	150	932	591	2160	1400	9530	826	262	150
22	215	842	230	150	975	602	2320	1370	13900	778	254	149
23	215	707	230	150	986	984	2290	1300	11000	719	249	152
24	213	561	220	155	944	2720	2120	1230	11800	668	243	153
25	208	511	220	160	1010	6070	1950	1200	7920	638	227	154
26	207	515	210	160	1130	8830	2840	1160	4760	678	221	155
27	204	350	210	160	1080	9190	4010	1250	3520	633	215	155
28	204	300	200	160	981	7900	4270	2000	2920	599	207	158
29	197	350	200	160	969	6630	3290	2190	2580	566	196	157
30	195	400	200	170	---	5900	3540	2040	2250	538	188	158
31	195	---	200	170	---	5350	---	1790	---	507	180	---
TOTAL	6099	11907	9090	5815	22932	69727	144630	93060	165470	33890	10148	4887
MEAN	197	397	293	188	791	2249	4821	3002	5516	1093	327	163
MAX	215	891	450	250	3000	9190	10300	8860	14700	2030	512	177
MIN	168	199	200	150	150	500	1950	1160	1290	507	180	149
CFSM	.12	.25	.18	.12	.50	1.41	3.03	1.89	3.47	.69	.21	.10
IN.	.14	.28	.21	.14	.54	1.63	3.38	2.17	3.87	.79	.24	.11
AC-FT	12100	23620	18030	11530	45490	138300	286900	184600	328200	67220	20130	9690

CAL YR 1983	TOTAL	534214	MEAN	1464	MAX	13900	MIN 162	CFSM .92	IN 12.48	AC-FT	1060000
WTR YR 1984	TOTAL	577655	MEAN	1578	MAX	14700	MIN 149	CFSM .99	IN 13.50	AC-FT	1146000

06485500 BIG SIOUX RIVER AT AKRON, IA
(National stream-quality accounting network station)

LOCATION.--Lat 42°49'42", long 96°33'45", in NW1/4 SW1/4 sec.31, T.93 N., R.48 W., Plymouth County, Hydrologic Unit 10170203, on left bank at west edge of Akron, 0.6 mi downstream from bridge on State Highway 48, and 2.3 mi upstream from Union Creek.

DRAINAGE AREA.--8,424 mi², approximately, of which about 1,487 mi² is probably noncontributing (revised).

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929 (M), 1931-33 (M), 1936 (M), 1938 (M), 1940 (M). WSP 1389: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,118.90 ft NGVD. Prior to Dec. 3, 1934, nonrecording gage at bridge 300 ft upstream at same datum.

REMARKS.--Records good except those for the winter period, Dec. 1 to Feb. 28, which are poor. Corps of Engineers satellite data-collection platform at station.

AVERAGE DISCHARGE.--56 years, 961 ft³/s, 696,200 acre-ft/yr; median of yearly mean discharges, 740 ft³/s, 536,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,800 ft³/s Apr. 9, 1969, gage height, 22.99 ft; minimum daily, 4.0 ft³/s Jan. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (m)	Date	Time	Discharge (ft³/s)	Gage height (m)
Feb. 19	0915	4,900	a14.33	May 30	0745	4,810	13.52
Apr. 14	1815	37,300	21.52	June 19	1000	34,500	21.24
May 3	1845	11,600	17.40	June 23	1715	*52,200	*22.27
May 9	2400	15,100	18.63				

Minimum daily discharge, 430 ft³/s Dec. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	591	546	480	480	450	3160	12600	8870	4030	11100	1940	855
2	585	546	470	480	460	2400	12500	10100	3660	9710	1900	830
3	595	555	460	470	470	2500	13100	11300	3410	8590	1860	804
4	573	614	450	470	480	2590	15700	10800	3210	7620	1820	784
5	561	747	440	470	480	2610	18400	9350	3170	6690	1850	766
6	545	743	430	480	480	2150	18500	8600	3720	5680	1890	753
7	546	717	450	490	470	2230	16900	9590	3650	5150	1770	746
8	546	695	480	500	460	2220	15500	11600	5130	4820	1700	739
9	542	686	510	500	460	2200	14700	14200	4300	5020	1680	733
10	541	697	530	500	450	2100	15100	14000	4280	4770	1630	727
11	555	735	540	500	460	2100	15300	10700	4890	4440	1570	726
12	566	725	550	500	500	2050	15000	8720	8150	4290	1510	720
13	560	722	560	480	750	2000	18000	7540	11100	4260	1450	732
14	560	730	550	460	1100	2000	33300	6520	14600	4090	1400	769
15	569	745	540	450	1600	1970	31800	5560	16600	3990	1340	793
16	563	740	530	440	2000	1900	19300	5050	17400	3980	1290	756
17	563	744	520	440	3000	1810	15200	4700	17500	3870	1260	732
18	566	753	510	450	4000	1840	13000	4540	20700	3710	1250	713
19	579	800	500	450	4800	1470	11700	4440	32100	3490	1240	699
20	598	1240	500	450	3300	1620	10700	4270	24900	3290	1220	676
21	604	1730	500	450	2900	1640	9630	4100	18600	3120	1190	657
22	618	1820	500	450	2700	1740	9010	3910	24200	2970	1170	641
23	625	1780	500	450	2800	2090	8640	3710	49000	2820	1170	630
24	618	1640	490	450	2900	2940	7930	3610	45300	2680	1160	621
25	609	1520	490	450	2800	5030	7040	3470	37200	2570	1100	612
26	599	1430	490	450	2800	7830	6960	3280	28100	2510	1050	603
27	597	1070	490	450	3000	11300	7880	3130	20400	2530	1020	597
28	590	554	490	450	2900	13900	8190	4220	17400	2520	996	599
29	568	511	490	450	2900	13700	8390	4760	14900	2510	965	601
30	556	490	480	450	---	13000	8140	4790	12900	2450	928	603
31	548	---	480	450	---	12700	---	4500	---	2020	887	---
TOTAL	17836	27025	15400	14410	51870	128790	418110	213930	474500	137260	43206	21217
MEAN	575	901	497	465	1789	4155	13940	6901	15820	4428	1394	707
MAX	625	1820	560	500	4800	13900	33300	14200	49000	11100	1940	855
MIN	541	490	430	440	450	1470	6960	3130	3170	2020	887	597
CFSM	.07	.11	.06	.06	.21	.49	1.66	.82	1.88	.53	.17	.08
IN.	.08	.12	.07	.06	.23	.57	1.85	.94	2.10	.61	.19	.09
AC-FT	35380	53600	30550	28580	102900	255500	829300	424300	941200	272300	85700	42080

CAL YR 1983 TOTAL 1223332 MEAN 3352 MAX 27700 MIN 430 CFSM .40 IN 5.40 AC-FT 2426000
WTR YR 1984 TOTAL 1563554 MEAN 4272 MAX 49000 MIN 430 CFSM .51 IN 6.90 AC-FT 3101000

06486000 MISSOURI RIVER AT SIOUX CITY, IA

(National stream-quality accounting network station)

LOCATION.--Lat 42°29'09", long 96°24'49", in NW1/4 SE1/4 sec.16 T.29 N., R.9 E., sixth principal meridian, Dakota County, Nebraska, Hydrologic Unit 10230001, on right bank on upstream side of bridge on U.S. Highway 20 and 77 at South Sioux City, Nebraska, 1.9 mi downstream from Big Sioux River, and at mile 732.2.

DRAINAGE.--314,600 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1897 to current year in reports of Geological Survey. Prior to October 1928 and October 1931 to September 1938, monthly discharges only, published in WSP 1310. January 1879 to December 1890 (monthly discharges only) in House Document 238, 73rd Congress, 2d session, Missouri River. Gage-height records collected in this vicinity September 1878 to December 1899 are contained in reports of Missouri River Commission and since July 1889 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 716: 1929-30. WSP 876: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,056.98 ft NGVD. Sept. 2, 1878, to Dec. 31, 1905, nonrecording gauges at various locations within 1.7 mi of present site and at various datums. Jan. 1, 1906 to Feb. 14, 1935, nonrecording gage, and Feb. 15, 1935 to Sept. 30, 1969, water-stage recorder at site 227 ft downstream at datum 19.98 ft higher, and Oct. 1, 1969 to Sept. 30, 1970 at datum 20.00 ft higher. Oct. 1, 1970 to Jan. 30, 1981, water-stage recorder at site 227 ft downstream at present datum.

REMARKS.--Records good. Flow regulated by upstream main-stem reservoirs. National Weather Service gage-height telemeter at station. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--87 years 32,040 ft³/s, 23,210,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft³/s Apr. 14, 1952 gage height, 24.28 ft, datum them in use; minimum, 2,500 ft³/s Dec. 29, 1941; minimum gage height, 9.00 ft Jan. 8, 1980, based on gage readings at site 14 mi downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharges, 104,000 ft³/s June 25, gage height, 30.91 ft; minimum daily discharge, 10,500 ft³/s Dec. 22; minimum gage height not determined, occurred during period of no gage-height record Dec. 22-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37700	36900	35400	21900	21300	23700	37700	39900	29300	50300	48700	47400
2	38100	37100	35400	22600	21200	24100	37900	38700	30100	45700	48400	47000
3	38300	37500	34300	22400	21100	24400	39600	38700	30800	43000	48100	46500
4	38200	37900	33500	22000	21000	25100	39700	39500	31700	42200	47900	46300
5	37900	38000	32400	21000	19400	25400	38400	41000	32300	41600	48300	46100
6	37100	37900	30400	21100	16800	25000	39500	39900	32900	38700	47800	45800
7	36700	38000	28500	19900	19500	25100	41100	41900	33100	37900	47900	46000
8	37100	38100	26100	19200	21000	21700	43700	42300	34300	37900	48300	46100
9	37200	38600	24900	18700	20900	26400	42700	41900	32200	39100	48300	46100
10	37600	38200	24500	18800	20800	27800	40100	43500	29000	41900	48400	46300
11	38300	37500	26000	18700	20300	29400	38800	45200	26600	44000	48600	46600
12	38200	37600	24700	19300	20400	27400	44400	42800	33400	46400	48500	46700
13	38600	37700	23900	18600	21500	28000	50500	38900	33400	48100	48300	46600
14	38100	37800	24100	18300	21500	27900	53300	35800	31100	50700	48100	46500
15	38000	37500	22900	19200	21800	27200	57300	33000	33800	52600	48600	46500
16	37800	37400	21700	19900	24500	26700	63900	28700	42500	53600	49100	46200
17	37500	37400	21100	20400	27400	27000	63000	29300	43700	53800	49000	46000
18	37200	37400	18100	21600	25700	27600	57500	31200	45500	53000	48700	46100
19	38000	38100	20300	21200	21100	28100	53500	30700	48700	52500	48400	46200
20	38200	38700	20500	20900	24000	28900	49700	30000	61000	52700	48400	46400
21	37500	38000	15300	21800	24000	29700	47000	29300	68100	50800	49500	45700
22	37400	38800	10500	22600	24500	30500	44600	29100	76000	50500	49100	45700
23	37200	38900	12500	23100	22700	31600	39700	28700	77700	49800	49100	46100
24	36800	38200	17000	23000	23000	33300	37300	28800	91500	49100	48800	46100
25	37300	37600	17600	22500	23200	34300	35300	29600	103000	48700	48100	46200
26	37800	37600	20600	22700	23200	34400	36100	29100	96000	50000	47500	45900
27	38400	37500	22600	21800	23400	33100	37400	30100	83700	50300	47000	46100
28	38100	37000	22500	20900	23400	32600	36700	32800	72900	49700	47300	46200
29	37600	36100	22400	21000	23400	34800	36200	32200	65200	50300	47800	46100
30	37200	36100	23200	21000	---	36200	38800	28700	57600	50200	47800	46300
31	36600	---	23200	21100	---	37300	---	28500	---	49000	47400	---
TOTAL	1167700	1131100	736100	647200	642000	894700	1321400	1079800	1507100	1474100	1497200	1387800
MEAN	37670	37700	23750	20880	22140	28860	44050	34830	50240	47550	48300	46260
MAX	38600	38900	35400	23100	27400	37300	63900	45200	103000	53800	49500	47400
MIN	36600	36100	10500	18300	16800	21700	35300	28500	26600	37900	47000	45700
AC-FT	2316000	2244000	1460000	1284000	1273000	1775000	2621000	2142000	2989000	2924000	2970000	2753000

CAL YR 1983 TOTAL 12062100 MEAN 33050 MAX 44000 MIN 10500 AC-FT 23930000
WTR YR 1984 TOTAL 13486200 MEAN 36850 MAX 103000 MIN 10500 AC-FT 26750000

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year. Daily sediment loads October 1954 to September 1971 in reports of Corps of Engineers. Samples for particle-size distribution were collected from boat cross-section 0.2 mile downstream from gage.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1972 to September 1976, November 1977 to September 1981.
WATER TEMPERATURES: October 1971 to September 1976, November 1977 to September 1981.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 950 micromhos June 17, 19, 1981; minimum daily, 410 micromhos Mar. 22, 1978.
WATER TEMPERATURES: Maximum daily, 28.0°C July 30, 1976 and Aug. 7, 1979; minimum daily, 0.0°C on many days during the winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,620 mg/L Nov. 20, 1972; minimum daily mean, 42 mg/L Dec. 29, 1975.
SEDIMENT LOADS: Maximum daily, 222,000 tons Nov. 20, 1972; minimum daily, 2,970 tons Dec. 29, 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT												
31...	1250	36600	845	8.2	11.0	14	10.0	95	33	54	250	89
DEC												
19...	1420	22000	850	8.4	.0	5.1	14.0	98	35	K3600	300	110
MAR												
06...	1500	25000	790	8.0	1.0	32	13.1	96	54	80	290	100
MAY												
07...	1045	40500	890	--	10.0	180	10.0	92	2100	2400	360	320
JUL												
10...	1230	39200	805	8.2	24.0	70	7.8	97	86	1100	320	140
AUG												
28...	1200	46000	800	8.3	25.0	18	7.5	96	K18	K34	270	100

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT												
31...	59	25	72	38	2	4.8	162	230	14	.50	7.1	528
DEC												
19...	74	28	73	34	2	4.9	194	250	14	.60	10	570
MAR												
06...	71	26	54	29	1	5.8	185	210	13	.50	13	506
MAY												
07...	89	33	47	22	1	7.7	41	250	120	.40	11	644
JUL												
10...	81	28	49	24	1	9.3	181	230	11	.40	17	638
AUG												
28...	65	25	78	38	2	5.6	163	250	12	.50	7.0	525

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
OCT												
31...	510	.72	52200	.15	.040	.05	.80	.010	.15	.020	.050	265
DEC												
19...	570	.78	33900	.65	.020	.03	.70	.020	.18	.030	.060	28
MAR												
06...	510	.69	34200	1.0	.200	.26	.70	.050	.43	.050	.140	483
MAY												
07...	580	.88	70400	<.10	.050	.06	4.5	.060	2.0	.100	.650	924
JUL												
10...	540	.87	67500	.89	.040	.05	1.4	.080	--	.110	.410	423
AUG												
28...	540	.71	65200	<.10	<.010	--	.80	<.010	--	.010	.090	368

K Results based on colony count outside the acceptable range (non-ideal colony count).

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT											
31...	26200	18	1	10	49	<.5	1	<1	<3	5	7
DEC											
19...	1660	71	--	--	--	--	--	--	--	--	--
MAR											
06...	32600	41	1	10	60	<.5	<1	<1	<3	4	7
MAY											
07...	101000	91	2	60	120	<.5	<1	1	<3	7	88
JUL											
10...	44800	76	3	20	81	1	<1	5	<3	8	27
AUG											
28...	45700	18	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT											
31...	4	60	8	<.1	<10	7	2	<1	580	<6	22
DEC											
19...	--	--	--	--	--	--	--	--	--	--	--
MAR											
06...	2	47	24	<.1	<10	<1	2	<1	540	<6	12
MAY											
07...	<1	51	240	.3	<10	4	4	<1	560	<6	39
JUL											
10...	<1	53	8	<.1	<10	12	2	<1	530	<6	52
AUG											
28...	--	--	--	--	--	--	--	--	--	--	--

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)	DEPTH AT SAMPLE LOCATION, TOTAL (FEET) (81903)	SAMPLING DEPTH (FEET) (00003)	STREAM VELOCITY, POINT (FPS) (81904)	SEDIMENT, SUSPENDED (MG/L) (80154)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
OCT												
27...	WATER TEMPERATURE, 10.5° (1205-1300 HOURS); DISCHARGE, 38,300ft³/s.											
27...	1205	470	20.4	4.70	5.35	160	--	27	37	95	100	--
27...	1207	470	--	10.2	5.28	218	--	25	40	96	100	--
27...	1209	470	--	14.6	4.91	287	--	15	29	92	100	--
27...	1211	470	--	17.0	4.59	547	--	10	18	73	100	--
27...	1213	470	--	18.4	4.44	382	--	7	12	59	100	--
27...	1214	470	--	19.2	4.52	1920	--	2	5	38	98	100
27...	1215	405	20.2	4.70	5.24	175	--	24	44	96	100	--
27...	1217	405	--	10.1	4.98	365	--	13	32	98	100	--
27...	1219	405	--	14.4	4.59	592	--	2	16	90	100	--
27...	1221	405	--	16.8	4.26	803	--	10	20	88	100	--
27...	1223	405	--	18.2	4.15	884	--	5	15	83	100	--
27...	1224	405	--	19.0	3.61	910	--	5	16	81	100	--
27...	1226	325	19.0	--	--	530	6	9	--	--	--	--
27...	1235	225	15.4	3.60	4.46	153	--	35	60	100	--	--
27...	1236	225	--	7.70	3.98	240	--	20	43	98	100	--
27...	1237	225	--	11.0	3.63	322	--	14	35	94	100	--
27...	1238	225	--	12.8	3.22	472	--	10	34	95	100	--
27...	1239	225	--	13.9	3.22	550	--	9	29	81	100	--
27...	1240	225	--	14.5	2.81	682	--	7	22	88	100	--
27...	1243	100	12.4	2.90	4.26	92	--	46	73	100	--	--
27...	1245	100	--	6.20	3.76	113	--	42	67	94	100	--
27...	1247	100	--	8.90	3.28	160	--	31	57	95	100	--
27...	1249	100	--	10.3	3.24	241	--	19	34	84	100	--
27...	1250	100	--	11.2	2.74	211	--	23	41	92	100	--

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)	DEPTH AT SAMPLE LOCATION, TOTAL (FEET) (81903)	SAMPLING DEPTH (FEET) (00003)	STREAM VELOCITY, POINT (FPS) (81904)	SEDIMENT, SUSPENDED (MG/L) (80154)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
MAY												
10...	WATER TEMPERATURE, 10.5° (0935-1300 HOURS); DISCHARGE, 43,400ft³/s.											
10...	0935	80.0	14.4	3.30	4.02	587	--	94	98	99	100	--
10...	0940	80.0	--	7.20	3.74	585	--	94	97	99	100	--
10...	0945	80.0	--	10.3	3.33	615	--	90	92	98	100	--
10...	0950	80.0	--	12.0	2.89	655	--	84	90	97	100	--
10...	0955	80.0	--	13.0	3.09	688	--	79	85	94	100	--
10...	1000	80.0	--	13.6	2.94	796	--	67	73	81	100	--
10...	1015	190	14.4	3.30	4.96	594	--	84	88	96	100	--
10...	1019	190	--	7.20	4.37	604	--	77	82	94	100	--
10...	1023	190	--	10.3	3.83	787	--	63	70	85	100	--
10...	1027	190	--	12.0	3.74	761	--	67	73	89	100	--
10...	1031	190	--	13.0	3.85	846	--	59	65	79	100	--
10...	1035	190	--	13.6	3.63	864	--	62	69	82	100	--
10...	1110	290	18.8	--	--	457	33	55	--	--	--	--
10...	1120	380	24.2	5.60	5.56	212	--	67	82	100	--	--
10...	1124	380	--	12.1	5.17	246	--	59	71	97	100	--
10...	1128	380	--	17.3	4.39	367	--	48	58	92	100	--
10...	1132	380	--	20.2	4.37	364	--	44	55	86	100	--
10...	1136	380	--	21.8	3.61	371	--	40	53	81	100	--
10...	1140	380	--	22.8	3.52	809	--	17	23	42	99	100
10...	1225	470	23.4	5.40	5.82	203	--	71	82	100	--	--
10...	1230	470	--	11.7	5.45	247	--	64	73	91	100	--
10...	1235	470	--	16.7	5.17	430	--	34	44	64	100	--
10...	1240	470	--	19.5	4.41	399	--	40	49	70	100	--
10...	1245	470	--	21.1	4.20	708	--	20	27	50	100	--
10...	1250	470	--	22.0	3.94	620	--	23	31	51	100	--
10...	1255	470	--	22.5	4.09	653	--	24	31	52	99	100
JUN												
07...	WATER TEMPERATURE, 20.0° (1010-1305 HOURS); DISCHARGE, 32,400ft³/s.											
07...	1010	210	11.2	2.60	4.19	236	--	90	98	100	--	--
07...	1015	210	--	5.60	3.61	264	--	84	92	98	100	--
07...	1020	210	--	8.00	3.33	290	--	79	85	95	100	--
07...	1025	210	--	9.30	2.48	337	--	67	75	88	100	--
07...	1030	210	--	10.1	2.18	333	--	67	74	86	100	--
07...	1045	310	13.4	3.10	4.54	266	--	77	89	100	--	--
07...	1050	310	--	6.70	3.87	253	--	70	87	100	--	--
07...	1055	310	--	9.60	3.50	323	--	59	76	96	100	--
07...	1100	310	--	11.2	3.24	293	--	60	73	96	100	--
07...	1105	310	--	12.1	2.79	347	--	53	67	92	100	--
07...	1110	310	--	12.6	2.81	401	--	47	64	89	100	--
07...	1132	400	17.5	--	--	365	15	28	--	--	--	--
07...	1200	490	21.0	4.90	4.26	234	--	63	82	100	--	--
07...	1205	490	--	10.5	3.85	287	--	45	65	99	100	--
07...	1210	490	--	15.0	3.07	330	--	43	66	98	100	--
07...	1215	490	--	17.5	2.18	440	--	34	53	96	100	--
07...	1220	490	--	18.9	2.20	444	--	32	55	97	100	--
07...	1223	490	--	19.8	2.05	645	--	23	45	89	100	--
07...	1224	490	--	20.2	1.55	719	--	18	38	90	100	--
07...	1225	555	21.6	5.00	5.15	180	--	65	80	99	100	--
07...	1230	555	--	10.8	4.72	265	--	54	68	98	100	--
07...	1235	555	--	15.4	4.15	298	--	45	62	97	300	--
07...	1240	555	--	18.0	3.83	407	--	35	51	90	100	--
07...	1245	555	--	19.4	3.33	419	--	36	52	94	100	--
07...	1250	555	--	20.3	2.66	390	--	34	53	92	100	--
07...	1300	555	--	20.8	2.66	549	--	26	41	77	100	--
JUL												
26...	WATER TEMPERATURE, 23.5° (0745-1030 HOURS); DISCHARGE, 49,800ft³/s.											
26...	0745	70.0	18.6	4.30	4.50	154	--	63	84	100	--	--
26...	0750	70.0	--	9.30	4.37	169	--	60	84	100	--	--
26...	0755	70.0	--	13.3	3.94	196	--	55	72	97	100	--
26...	0800	70.0	--	15.5	3.94	257	--	52	71	97	100	--
26...	0805	70.0	--	16.7	3.44	220	--	51	65	92	100	--
26...	0810	70.0	--	17.5	2.74	306	--	40	57	91	100	--
26...	0815	170	20.8	4.80	4.98	248	--	45	67	97	100	--
26...	0820	170	--	10.4	4.28	311	--	36	67	98	100	--
26...	0825	170	--	14.9	3.89	382	--	26	55	97	100	--
26...	0830	170	--	17.3	3.89	492	--	22	47	97	100	--
26...	0835	170	--	18.7	3.46	473	--	25	52	97	100	--
26...	0840	170	--	19.6	3.39	635	--	18	44	92	100	--
26...	0925	300	21.8	--	--	783	8	18	--	--	--	--
26...	0930	400	24.0	5.50	5.67	190	--	47	73	99	100	--
26...	0935	400	--	12.0	5.61	356	--	27	49	98	100	--
26...	0940	400	--	17.1	4.87	392	--	27	55	99	100	--
26...	0945	400	--	20.0	3.89	530	--	20	49	97	100	--
26...	0950	400	--	21.6	3.68	632	--	16	41	92	100	--
26...	0955	400	--	22.6	3.77	611	--	19	41	90	100	--
26...	0958	400	--	23.1	3.68	1170	--	10	28	79	95	100
26...	1000	460	24.8	5.70	5.67	181	--	49	64	97	100	--
26...	1005	460	--	12.4	5.15	303	--	32	53	94	100	--
26...	1010	460	--	17.7	3.94	253	--	38	59	97	100	--
26...	1015	460	--	20.7	3.94	412	--	26	46	92	100	--
26...	1020	460	--	22.3	3.20	383	--	27	46	88	100	--
26...	1025	460	--	23.3	3.11	675	--	16	35	80	100	--
26...	1030	460	--	23.9	2.85	749	--	14	31	76	98	100

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)	DEPTH AT SAMPLE LOCATION, TOTAL (FEET) (81903)	SAMPLING DEPTH (FEET) (00003)	STREAM VELOCITY, POINT (FPS) (81904)	SEDIMENT, SUSPENDED (MG/L) (80154)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
SEP												
06...	WATER TEMPERATURE, 21.0° (0953-1300 HOURS); DISCHARGE, 45,800ft³/s.											
06...	0953	70.0	18.6	4.30	3.76	144	--	64	82	100	--	--
06...	0957	70.0	--	9.30	3.81	150	--	63	78	100	--	--
06...	1001	70.0	--	13.4	3.42	195	--	52	67	97	100	--
06...	1005	70.0	--	15.5	3.20	195	--	51	76	100	--	--
06...	1009	70.0	--	16.7	2.85	354	--	30	51	91	100	--
06...	1013	70.0	--	17.5	2.85	319	--	33	51	89	100	--
06...	1015	200	19.4	4.50	5.24	310	--	39	58	97	100	--
06...	1020	200	--	9.70	4.85	372	--	29	53	99	100	--
06...	1025	200	--	13.9	4.02	424	--	23	45	98	100	--
06...	1030	200	--	16.2	4.02	539	--	19	41	97	100	--
06...	1035	200	--	17.5	3.42	276	--	29	52	100	--	--
06...	1040	200	--	18.3	3.32	739	--	15	36	96	100	--
06...	1045	300	19.0	4.40	5.45	--	--	--	--	--	--	--
06...	1050	300	--	9.50	5.02	--	--	--	--	--	--	--
06...	1055	300	--	13.6	4.15	--	--	--	--	--	--	--
06...	1100	300	--	15.8	3.94	--	--	--	--	--	--	--
06...	1102	300	19.0	--	--	489	7	12	--	--	--	--
06...	1105	300	--	17.1	3.68	--	--	--	--	--	--	--
06...	1108	300	--	17.9	3.50	--	--	--	--	--	--	--
06...	1110	370	20.0	4.60	5.22	245	--	37	58	100	--	--
06...	1115	370	--	10.0	4.61	369	--	26	44	98	100	--
06...	1120	370	--	14.3	4.28	446	--	21	38	98	100	--
06...	1125	370	--	16.7	3.72	240	--	40	59	98	100	--
06...	1130	370	--	18.0	3.50	597	--	13	32	96	100	--
06...	1135	370	--	18.8	2.98	733	--	13	31	92	100	--
06...	1140	470	22.0	5.70	5.76	156	--	54	70	100	--	--
06...	1145	470	--	11.0	5.11	213	--	42	51	97	100	--
06...	1150	470	--	15.7	4.54	338	--	26	37	95	100	--
06...	1155	470	--	18.3	4.02	446	--	19	29	90	100	--
06...	1200	470	--	19.8	3.89	465	--	21	29	89	100	--
06...	1205	470	--	20.7	3.63	676	--	13	20	89	100	--
06...	1210	470	--	21.2	3.18	829	--	12	21	82	100	--

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	NUMBER OF SAMPLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT												
27...	1300	5	0	1	11	87	99	99	99	100	--	--
MAY												
10...	1300	5	--	0	7	75	93	97	99	100	--	--
JUN												
07...	1305	5	--	0	7	64	94	98	100	--	--	--
JUL												
26...	0925	3	--	0	8	82	91	93	95	97	97	100
SEP												
06...	1300	5	0	1	24	91	99	100	--	--	--	--

MISCELLANEOUS SEDIMENT RECORD, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
JUN						
22...	0940	24.0	74600	1770	357000	100

06600000 PERRY CREEK AT 38th STREET, SIOUX CITY, IA

LOCATION.--Lat 42°32'08", long 96°24'39", Woodbury County, Hydrologic Unit 10230001, on left bank at downstream side of bridge on 38th Street in Sioux City, 1.9 mi downstream from West Branch, and 3.6 mi upstream from mouth.

DRAINAGE AREA.--65.1 mi².

PERIOD OF RECORD.--October 1945 to September 1969, June 1981 to current year.

REVISED RECORDS.--WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,112.04 ft NGVD (city of Sioux City benchmark). Prior to May 20, 1954, nonrecording gage with supplementary water-stage recorder in operation above 5.0 ft gage height and May 20, 1954 to Sept. 30, 1969, water-stage recorder at present site at datum 5.0 ft higher.

REMARKS.--Records fair except those for winter period, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--27 years (water years 1946-69, 1982-84), 16.0 ft³/s, 3.34 in/yr, 11,590 acre-ft/yr; median of yearly mean discharges, 12 ft³/s, 2.3 in/yr, 8,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,780 ft³/s Sept. 10, 1949, gage height, 26.80 ft, present datum, from rating curve extended above 1,700 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1946, 1958-60.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 7, 1944, reached a stage of about 30.5 ft, from floodmarks, present datum, discharge, 9,600 ft³/s, on basis of contracted-opening measurement of peak flow by Corps of Engineers.

EXTREMES FOR CURRENT PERIOD.--Peak discharges above base of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 12	0800	1,160	12.45	June 21	2100	2,310	16.63
June 20	0730	*3,500	*18.16				

Minimum daily discharge 6.7 ft³/s Oct. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	12	10	9.0	13	26	49	134	39	47	19	13
2	7.6	12	11	9.5	14	27	54	74	37	46	19	13
3	7.5	21	12	10	15	26	122	64	35	43	19	13
4	7.6	21	13	11	16	37	92	64	39	47	18	12
5	7.4	15	14	11	12	24	66	76	41	45	18	11
6	7.7	13	13	12	10	22	56	110	36	43	18	11
7	8.6	12	12	12	12	20	107	175	173	38	18	11
8	7.9	12	12	12	12	18	160	64	124	37	17	11
9	7.8	18	12	11	14	16	90	59	59	39	17	11
10	10	18	12	10	14	18	71	58	41	49	17	12
11	11	14	11	10	16	20	85	55	43	42	17	12
12	7.4	13	11	10	18	22	276	50	422	37	16	12
13	6.7	14	11	9.0	20	25	168	45	86	36	16	12
14	7.0	14	11	9.0	28	28	100	41	61	38	16	12
15	7.9	14	11	9.0	95	64	77	38	57	37	16	12
16	7.6	12	10	8.0	146	62	64	37	255	34	16	12
17	7.9	13	9.5	8.0	66	38	58	35	75	33	15	12
18	10	13	9.0	8.0	37	29	53	40	64	29	15	12
19	18	18	9.0	8.0	32	26	49	40	55	29	15	11
20	18	20	9.0	8.0	32	26	46	35	898	44	15	11
21	13	15	9.0	8.0	34	25	51	30	420	23	15	11
22	11	16	9.0	8.0	34	47	84	33	165	20	14	11
23	10	17	9.0	8.0	35	131	62	33	106	20	14	11
24	10	15	9.0	8.5	34	269	48	32	70	19	14	11
25	12	16	9.0	9.0	31	262	43	48	65	20	14	11
26	12	15	9.0	10	33	132	142	35	62	48	14	11
27	10	13	9.0	11	28	135	63	65	56	24	14	12
28	9.0	14	9.0	11	26	76	48	130	56	20	14	12
29	8.6	12	9.0	12	25	64	63	53	52	20	13	12
30	9.8	9.0	9.0	12	---	54	140	45	48	19	12	12
31	12	---	9.0	12	---	50	---	42	---	19	13	---
TOTAL	298.8	441.0	321.5	304.0	902	1819	2587	1840	3740	1045	488	350
MEAN	9.64	14.7	10.4	9.81	31.1	58.7	86.2	59.4	125	33.7	15.7	11.7
MAX	18	21	14	12	146	269	276	175	898	49	19	13
MIN	6.7	9.0	9.0	8.0	10	16	43	30	35	19	12	11
CFSM	.15	.23	.16	.15	.48	.90	1.32	.91	1.92	.52	.24	.18
IN.	.17	.25	.18	.17	.52	1.04	1.48	1.05	2.14	.60	.28	.20
AC-FT	593	875	638	603	1790	3610	5130	3650	7420	2070	968	694

CAL YR 1983 TOTAL 9349.5 MEAN 25.6 MAX 668 MIN 4.0 CFSM .39 IN 5.34 AC-FT 18540
WTR YR 1984 TOTAL 14136.3 MEAN 38.6 MAX 898 MIN 6.7 CFSM .59 IN 8.08 AC-FT 28040

06600100 FLOYD RIVER AT ALTON, IA

LOCATION.--Lat 42°58'55", long 96°00'03", in NE1/4 NE1/4 sec.11, T.94 N., R.44 W., Sioux County, Hydrologic Unit 10230002, on left bank 270 ft. from South County Road at east edge of Alton, 34.3 mi upstream from West Branch Floyd River, and at mile 58.1.

DRAINAGE AREA.--268 mi².

PERIOD OF RECORD.--October 1955 to current year. Prior to December 1955, monthly discharge only, published in WSP 1730.

REVISED RECORDS.--WDR IA-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,269.55 ft NGVD.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--29 years, 66.9 ft³/s, 3.39 in/yr, 48,470 acre-ft/yr; median of yearly mean discharges, 53 ft³/s, 2.7 in/yr, 38,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,300 ft³/s June 20, 1983, gage height 18.54 ft, from flood-mark, from rating curve extended above 8,500 ft³/s; no flow at times in 1956, 1958-59, 1965, 1968, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1953 reached a discharge of about 45,500 ft³/s, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 17	1400	1,970	13.15	June 13	0430	*4,990	*16.58
Mar. 25	2000	2,570	14.03	June 16	0045	1,480	12.19
Apr. 13	0315	2,000	13.20	June 18	0145	1,840	12.95
May 1	1300	1,190	11.40	June 22	0730	3,550	15.21
May 7	1000	1,430	12.04				

Minimum daily discharge, 22 ft³/s June 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	47	55	36	32	186	256	1120	267	266	90	27
2	52	47	65	36	32	183	250	703	246	249	85	27
3	50	62	70	38	30	172	299	559	231	233	84	27
4	49	94	68	38	30	178	416	468	225	222	85	27
5	48	87	66	40	32	150	386	587	226	213	85	25
6	47	78	64	40	35	135	337	532	214	204	85	25
7	46	71	62	40	38	120	309	1150	225	192	91	25
8	46	69	60	40	38	110	447	648	311	205	192	27
9	45	74	58	38	40	90	642	459	321	262	124	26
10	46	83	56	32	45	94	495	395	298	223	97	26
11	47	83	56	36	54	110	449	364	345	207	85	27
12	52	80	56	36	100	115	1280	339	1960	194	76	27
13	53	80	54	34	250	121	1630	310	4380	186	70	27
14	51	80	54	32	200	122	1030	275	1560	179	66	26
15	53	84	52	32	350	212	665	254	1160	181	62	24
16	54	84	52	30	700	221	511	244	1260	176	58	23
17	47	81	50	30	1300	192	419	235	1390	167	54	23
18	47	79	50	28	777	153	360	231	1440	153	50	23
19	52	95	50	28	289	138	320	231	754	145	47	23
20	56	124	48	25	226	134	293	220	1250	141	45	23
21	56	123	40	22	230	124	280	213	2660	134	43	23
22	56	114	40	23	210	239	382	215	3150	124	41	24
23	56	103	35	24	205	1020	512	206	2260	116	39	24
24	57	97	35	25	206	1840	435	199	793	109	37	25
25	53	105	35	26	222	2260	356	208	513	108	35	25
26	52	86	35	27	269	1400	686	202	436	133	34	26
27	51	60	35	27	263	712	598	213	371	118	33	26
28	51	30	35	27	240	593	484	371	347	117	32	26
29	48	45	35	27	219	406	378	379	324	107	31	26
30	47	50	35	28	---	323	580	321	284	100	30	---
31	47	---	35	26	---	275	---	289	---	95	27	---
TOTAL	1568	2395	1541	971	6662	12128	15485	12140	29201	5259	2013	---
MEAN	50.6	79.8	49.7	31.3	230	391	516	392	973	170	64.9	---
MAX	57	124	70	40	1300	2260	1630	1150	4380	266	192	---
MIN	45	30	35	22	30	90	250	199	214	95	27	---
CFSM	.19	.30	.19	.12	.86	1.46	1.93	1.46	3.63	.63	.24	---
IN.	.22	.33	.21	.13	.92	1.68	2.15	1.69	4.05	.73	.28	---
AC-FT	3110	4750	3060	1930	13210	24060	30710	24080	57920	10430	3990	---

CAL YR 1983 TOTAL 106719 MEAN 292 MAX 6000 MIN 30 CFSM 1.09 IN 14.81 AC-FT 211700

06600300 WEST BRANCH FLOYD RIVER NEAR STRUBLE, IA

LOCATION.--Lat 42°55'25", long 96°10'34", in NE1/4 NE1/4 sec. 32, T.94 N., R.45 W., Sioux County, Hydrologic Unit 10230002, on left bank near wingwall at downstream side of bridge on county highway B62, 0.1 mi west of U.S. Highway 75, 0.8 mi downstream from Orange City slough, 2.2 mi northeast of Struble, 21.4 mi upstream from Floyd River, and at mile 45.2, above mouth of Floyd River.

DRAINAGE AREA.--180 mi².

PERIOD OF RECORD.--October 1955 to current year. Prior to December 1955, monthly discharge only, published in WSP 1730.

REVISED RECORDS.--WDR IA-82-1: Drainage area, 1978-81 (P).

GAGE.--Water-stage recorder. Datum of gage is 1,239.40 ft NGVD (State Highway Commission bench mark). Prior to Jan. 5, 1978, at site 721 ft right at old channel at same datum.

REMARKS.--Records good except those for winter period, which are poor. National Weather Service gage-height height telemeter at station.

AVERAGE DISCHARGE.--29 years, 44.1 ft³/s, 3.33 in/yr, 31,950 acre-ft/yr; median of yearly mean discharges, 31 ft³/yr, 2.3 in/yr, 22,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,060 ft³/s Mar. 28, 1962, gage height, 15.63 ft; maximum gage height, 15.86 ft June 20, 1983; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 21	1315	664	8.26	Apr. 30	1900	783	8.82
Mar. 24	2030	2,440	12.88	May 6	2115	1,030	9.66
Mar. 27	0745	1,380	10.76	May 28	0500	853	9.06
Apr. 4	0030	480	7.53	June 7	2300	566	7.91
Apr. 8	1030	790	8.82	June 12	1130	2,280	12.70
Apr. 12	0730	1,320	10.59	June 16	1230	1,100	9.89
Apr. 22	1330	494	7.65	June 20	2400	*4,610	*14.37
Apr. 26	1115	744	8.67	June 23	0500	1,640	11.49

Minimum daily discharge, 24 ft³/s Sept. 22, 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	36	110	60	28	134	228	619	238	232	97	34
2	41	36	100	60	30	129	227	441	228	216	93	34
3	42	46	96	60	32	117	357	375	215	210	90	33
4	41	146	92	60	32	124	380	366	218	203	81	33
5	41	106	90	60	30	101	292	506	213	196	79	31
6	40	93	90	58	28	85	258	459	199	194	72	31
7	38	90	85	56	28	90	323	694	242	183	65	30
8	36	100	85	54	30	85	700	410	366	205	76	31
9	35	139	80	50	40	85	487	327	248	221	70	29
10	34	116	80	50	50	85	353	292	279	184	68	28
11	36	97	80	47	80	80	446	289	395	185	67	31
12	36	92	80	47	650	80	1210	275	1630	171	67	31
13	34	86	80	44	600	80	755	278	1230	167	63	29
14	36	84	75	40	400	85	539	242	431	158	60	27
15	36	83	70	40	550	120	401	232	511	210	60	28
16	34	82	70	40	1000	250	335	223	700	162	62	27
17	33	80	70	40	600	336	293	212	803	158	60	27
18	34	79	70	40	550	95	265	213	547	146	56	27
19	35	123	70	35	450	85	243	210	358	141	54	26
20	35	200	70	30	530	84	229	197	1560	138	52	25
21	35	148	70	28	594	80	237	200	1750	132	52	25
22	35	135	70	26	541	168	440	211	1300	130	49	24
23	35	127	70	26	443	616	354	182	902	125	46	25
24	36	119	70	26	358	1390	285	177	420	120	42	24
25	36	112	70	26	243	1540	251	190	362	114	40	24
26	37	109	65	26	190	863	532	176	316	136	38	25
27	38	90	65	26	164	1070	478	228	288	122	38	26
28	38	70	65	28	142	446	333	620	270	114	37	26
29	36	90	60	28	135	328	290	340	270	111	36	26
30	36	100	60	28	---	275	542	283	244	108	34	26
31	36	---	60	28	---	245	---	256	---	104	34	---
TOTAL	1138	3014	2368	1267	8548	9351	12063	9723	16733	4996	1838	843
MEAN	36.7	100	76.4	40.9	295	302	402	314	558	161	59.3	28.1
MAX	43	200	110	60	1000	1540	1210	694	1750	232	97	34
MIN	33	36	60	26	28	80	227	176	199	104	34	24
CFSM	.20	.56	.42	.23	1.64	1.68	2.23	1.74	3.10	.89	.33	.16
IN.	.24	.62	.49	.26	1.77	1.93	2.49	2.01	3.46	1.03	.38	.17
AC-FT	2260	5980	4700	2510	16950	18550	23930	19290	33190	9910	3650	1670

CAL YR 1983	TOTAL	82535	MEAN 226	MAX 3910	MIN 33	CFSM 1.26	IN 17.06	AC-FT	163700
WTR YR 1984	TOTAL	71882	MEAN 196	MAX 1750	MIN 24	CFSM 1.09	IN 14.86	AC-FT	142600

06600500 FLOYD RIVER AT JAMES, IA

LOCATION.--Lat 42°34'36", long 96°18'43", in SE1/4 SE1/4 sec.30, T.90 N., R.46 W., Plymouth County, Hydrologic Unit 10230002, on right bank at downstream side of bridge on county highway C70, 0.2 mi east of James, 14.3 mi downstream from West Branch Floyd River, and at mile 9.5.

DRAINAGE AREA.--886 mi².

PERIOD OF RECORD.--December 1934 to current year.

REVISED RECORDS.--WSP 1240: 1935 (M), 1936, 1937-38 (M), 1942, 1945. WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,092.59 ft NGVD. Prior to Sept. 11, 1938, June 9 to Nov. 5, 1953, and Oct. 1, 1955, to May 22, 1957, nonrecording gage and May 23, 1957, to Sept. 30, 1970, water-stage recorder at same site at datum 10.0 ft higher.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height satellite telemeter at station.

AVERAGE DISCHARGE.--49 years (water years 1936-84), 211 ft³/s, 3.23 in/yr, 152,900 acre-ft/yr; median of yearly discharges, 150 ft³/s, 2.3 in/yr, 109,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,500 ft³/s June 8, 1953, gage height, 25.3 ft, from flood-marks, datum then in use, from rating curve extended above 16,000 ft³/s on basis of contracted-opening and flow-over-embankment measurement of peak flow; minimum daily, 0.90 ft³/s Jan. 10-22, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage and discharge since 1892, that of June 8, 1953, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 17	0600	3,440	16.30	June 8	0100	4,690	17.80
Mar. 25	0445	5,070	18.23	June 13	1200	5,870	19.10
Apr. 13	0615	3,940	16.92	June 16	1600	4,600	17.70
May 1	1315	2,920	15.87	June 21	2100	*7,880	*21.18
May 7	0815	3,400	16.51				

Minimum daily discharge, 140 ft³/s Jan. 20 to Feb. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	204	180	230	220	140	651	1110	2770	1120	1250	403	182
2	199	179	240	220	150	669	1060	2380	1040	1170	387	183
3	196	184	250	230	170	616	1470	1900	956	1100	368	181
4	191	335	250	230	160	651	1830	1640	932	1050	357	178
5	191	453	250	230	150	647	1540	1820	956	988	351	173
6	185	338	250	230	160	570	1340	1840	889	948	345	172
7	184	290	250	230	160	494	1330	3050	1800	884	328	174
8	179	263	250	240	160	380	2090	2450	3780	836	464	175
9	176	272	240	230	190	350	2290	1750	2040	928	525	171
10	176	302	230	230	300	347	1920	1490	2000	966	410	173
11	207	315	220	220	600	352	1750	1360	2020	942	360	175
12	195	309	200	210	800	352	3190	1280	4670	834	329	181
13	192	312	190	200	1200	424	3800	1200	5710	789	310	176
14	189	318	180	190	1000	670	3170	1090	5000	741	293	170
15	190	322	170	180	1300	937	2400	1010	2950	791	277	168
16	189	315	150	170	2900	874	1960	956	3810	795	275	166
17	192	312	160	160	3080	845	1670	903	3450	729	286	162
18	188	309	180	160	2230	940	1480	892	3400	674	282	159
19	216	335	200	150	1380	730	1340	906	2680	626	279	158
20	237	522	200	140	803	570	1240	854	4460	626	262	155
21	227	534	210	140	757	506	1160	804	6480	583	259	155
22	218	476	210	140	803	596	1480	820	7050	542	258	150
23	213	453	210	140	780	2340	1760	796	5700	507	241	150
24	209	355	210	140	762	4100	1500	737	3560	476	228	151
25	204	300	190	140	744	4810	1270	800	2330	460	226	154
26	196	250	190	140	776	4030	1560	790	1990	545	220	156
27	195	150	190	140	812	3340	1930	823	1740	627	218	156
28	189	200	200	140	744	2370	1650	1730	1570	530	216	159
29	183	210	200	140	642	1780	1350	1710	1480	491	210	159
30	183	210	210	140	---	1430	1680	1390	1350	449	193	160
31	183	---	220	140	---	1230	---	1230	---	422	184	---
TOTAL	6076	9303	6530	5610	23853	38601	53320	43171	86913	23299	9344	4982
MEAN	196	310	211	181	823	1245	1777	1393	2897	752	301	166
MAX	237	534	250	240	3080	4810	3800	3050	7050	1250	525	183
MIN	176	150	150	140	140	347	1060	737	889	422	184	150
CFSM	.22	.35	.24	.20	.93	1.41	2.01	1.57	3.27	.85	.34	.19
IN.	.26	.39	.27	.24	1.00	1.62	2.24	1.81	3.65	.98	.39	.21
AC-FT	12050	18450	12950	11130	47310	76570	105800	85630	172400	46210	18530	9880

CAL YR 1983 TOTAL 334934 MEAN 918 MAX 11900 MIN 134 CFSM 1.04 IN 14.06 AC-FT 664300
WTR YR 1984 TOTAL 311002 MEAN 850 MAX 7050 MIN 140 CFSM .96 IN 13.06 AC-FT 616900

06602020 WEST FORK DITCH AT HORNICK, IA

LOCATION.--Lat 42°13'37", long 96°04'40", in SW1/4 sec.27, T.86 N., R.45 W., Woodbury County, Hydrologic Unit 10230004, on left bank at upstream side of State Highway 141 bridge, 1.0 mi east of Hornick, 9.2 mi upstream from Wolf Creek, and 13.5 mi north of Onawa.

DRAINAGE AREA.--403 mi².

PERIOD OF RECORD.--April 1939 to September 1969 (published as "at Holly Springs"), July 1974 to current year.

REVISED RECORDS.--WSP 1240: 1943, 1945 (M). WSP 1310: 1941 (M) 1944-46 (M). WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,045.82 ft NGVD. Prior to June 16, 1959, nonrecording gage at site 3.0 mi upstream and June 16, 1959 to Sept. 30, 1969, recording gage at site 2.2 mi upstream at datum 7.0 ft higher.

REMARKS.--Records good except those for winter period, which are poor. West Fork ditch is a dredged channel which diverts flow of West Fork Little Sioux River at Holly Springs 5.5 mi south, thence southeast 6.5 mi to a point 1.2 mi west of Kennebec, where Wolf Creek enters from left. From this point, ditch roughly parallels the Little Sioux River and becomes known as Monona-Harrison ditch.

AVERAGE DISCHARGE.--40 years (water years 1940-69, 1975-84), 106 ft³/s, 3.57 in/yr, 76,800 acre-ft/yr; median of yearly mean discharges 86 ft³/s, 2.9 in/yr, 62,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft³/s Mar. 28, 1962, gage height, 22.46 ft, site and datum then in use; maximum gage height, 25.2 ft Mar. 30, 1960, from floodmark, site and datum then in use; minimum daily discharge, 0.2 ft³/s July 30, Aug. 17, 1956.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 24	0700	1,820	14.36	June 19	0245	*9,960	*22.80
June 8	1830	8,730	22.13	June 22	0400	6,960	21.04
June 12	1730	4,420	18.87				

Minimum daily discharge, 40 ft³/s Dec. 21-31, Jan. 15-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	71	53	42	57	219	300	778	423	483	227	99
2	71	71	60	42	57	236	308	642	399	462	216	97
3	71	71	58	42	57	224	443	554	373	442	190	94
4	72	80	58	42	60	266	657	520	365	426	184	91
5	73	91	56	42	57	230	470	500	388	423	181	87
6	72	84	50	45	50	180	391	700	359	424	181	90
7	71	80	50	45	50	150	361	1000	851	397	173	89
8	70	77	50	45	55	130	538	600	7390	378	170	88
9	69	81	50	45	65	160	611	450	2370	373	174	87
10	68	94	50	45	85	180	483	400	1310	377	162	87
11	76	96	50	45	130	170	450	370	1070	408	157	87
12	78	91	50	45	180	160	821	350	3380	367	150	88
13	72	94	50	45	230	180	886	340	2370	346	149	85
14	71	94	50	45	200	200	700	333	1020	333	141	82
15	71	94	50	40	190	260	541	327	632	331	139	77
16	70	92	45	40	450	394	465	320	3720	328	138	78
17	69	92	45	40	941	305	426	303	7690	334	142	79
18	69	91	45	40	444	237	394	323	7490	324	138	78
19	77	94	42	40	267	195	367	346	4340	298	134	79
20	88	104	42	40	206	176	350	320	1660	330	130	77
21	88	102	40	40	220	175	336	299	3850	296	129	76
22	81	97	40	45	256	223	390	359	6260	276	126	72
23	77	96	40	45	267	916	506	339	1680	261	120	74
24	76	81	40	45	254	1430	440	309	901	249	116	77
25	75	88	40	50	251	1090	396	377	739	246	116	74
26	73	104	40	50	277	649	419	392	679	348	116	72
27	73	85	40	50	264	502	375	357	608	320	111	75
28	71	80	40	50	221	460	350	666	565	265	108	79
29	70	60	40	50	220	382	332	720	542	251	105	80
30	69	45	40	52	---	337	507	523	500	240	100	80
31	70	---	40	55	---	312	---	465	---	230	99	---
TOTAL	2275	2580	1444	1387	6061	10728	14013	14282	63924	10566	4522	2478
MEAN	73.4	86.0	46.6	44.7	209	346	467	461	2131	341	146	82.6
MAX	88	104	60	55	941	1430	886	1000	7690	483	227	99
MIN	68	45	40	40	50	130	300	299	359	230	99	72
CFSM	.18	.21	.12	.11	.52	.86	1.16	1.14	5.29	.85	.36	.21
IN.	.21	.24	.13	.13	.56	.99	1.29	1.32	5.90	.98	.42	.23
AC-FT	4510	5120	2860	2750	12020	21280	27790	28330	126800	20960	8970	4920

CAL YR 1983 TOTAL 112566 MEAN 308 MAX 3640 MIN 40 CFSM .76 IN 10.39 AC-FT 223300
WTR YR 1984 TOTAL 134260 MEAN 367 MAX 7690 MIN 40 CFSM .91 IN 12.39 AC-FT 266300

06602400 MONONA-HARRISON DITCH NEAR TURIN, IA

LOCATION.--Lat 41°57'52", long 95°59'30", in NW1/4 NE1/4 sec.32, T.83 N., R.44 W., Monona County, Hydrologic Unit 10230004, on left pier at downstream side of bridge on county highway E54, 1.0 mi west of gaging station on Little Sioux River near Turin, 4 mi southwest of Turin, 5.2 mi northeast of Blencoe, and 12.5 mi upstream from mouth.

DRAINAGE AREA.--900 mi².

PERIOD OF RECORD.--April 1939 to current year. Records for April 1939 to January 1958 not equivalent owing to diversion from Little Sioux River through equalizer ditch 1.5 mi upstream. Prior to May 1942, published as "near Blencoe".

GAGE.--Water-stage recorder. Datum of gage is 1,015.00 ft NGVD (Corps of Engineers bench mark). Prior to May 7, 1942, nonrecording gage at site 4.8 mi downstream at datum 5.40 ft lower. May 7, 1942 to Oct. 13, 1953, nonrecording gage and Oct. 14, 1953 to Sept. 30, 1975, recording gage at same site at datum 5.00 ft higher.

REMARKS.--Records good except those for winter period, which are poor. Monona-Harrison ditch is a dug channel and and is a continuation of West Fork ditch, paralleling the Little Sioux River, and discharging into the Missouri River 1.5 mi upstream from the mouth of the Little Sioux River. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--26 years (water years 1959-84), 238 ft³/s, 3.59 in/yr, 172,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,900 ft³/s Feb. 19, 1971, gage height, 23.03 ft, datum then in use; minimum daily, 8.5 ft³/s Jan. 3-11, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 24	1515	2,520	13.83	June 12	2245	6,700	20.22
Apr. 13	0145	2,980	14.88	June 18	0500	*13,300	*24.80
May 7	----	2,600	----	June 22	0630	8,900	22.01
June 8	1000	9,550	23.17				

Minimum daily discharge, 60 ft³/s Dec. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	146	130	110	134	375	529	1400	848	913	409	163
2	140	145	110	120	140	406	546	1300	780	847	398	161
3	139	151	115	130	150	383	1190	1250	731	796	368	159
4	141	161	120	140	165	391	1530	1200	704	795	354	159
5	142	181	120	150	100	542	986	1200	747	772	348	158
6	137	175	115	134	100	429	718	1400	721	782	340	158
7	135	165	110	133	110	300	641	2360	730	727	328	158
8	133	161	120	138	120	220	1320	1670	7940	680	321	157
9	131	158	130	136	130	280	1580	1010	5310	659	315	155
10	135	197	125	100	158	260	1040	870	2780	651	298	154
11	145	209	120	130	220	240	915	834	2250	718	281	164
12	174	188	120	165	348	300	2490	835	4860	666	276	172
13	149	190	120	140	586	244	2700	743	5940	608	269	159
14	141	199	100	100	700	296	1880	685	4200	581	262	161
15	141	192	60	80	728	660	1270	640	2740	580	251	157
16	138	195	80	100	1340	858	962	621	6170	579	244	149
17	134	183	100	120	1840	617	800	589	9680	572	248	150
18	135	176	110	120	1070	486	750	1100	11000	592	256	153
19	156	187	110	110	611	389	720	1460	8330	535	254	150
20	195	231	105	100	456	325	700	904	6030	560	244	146
21	195	223	100	95	448	314	800	708	6330	597	240	142
22	178	195	100	90	547	372	1050	1260	8470	500	257	138
23	167	185	110	85	711	1410	1100	994	5840	461	228	138
24	162	152	110	80	709	2130	1000	719	3500	438	214	139
25	157	150	105	90	585	1950	950	1080	2190	421	213	133
26	151	195	100	100	597	1270	1050	1160	1540	796	211	134
27	151	175	100	100	543	914	950	813	1320	765	204	137
28	149	150	100	100	410	889	900	1650	1190	527	199	140
29	145	130	100	100	371	727	1100	1780	1090	466	185	142
30	142	115	100	110	---	623	1600	1170	1030	443	172	142
31	143	---	100	120	---	552	---	952	---	423	162	---
TOTAL	4633	5260	3345	3526	14127	19152	33767	34357	114991	19450	8349	4528
MEAN	149	175	108	114	487	618	1126	1108	3833	627	269	151
MAX	195	231	130	165	1840	2130	2700	2360	11000	913	409	172
MIN	131	115	60	80	100	220	529	589	704	421	162	133
CFSM	.17	.19	.12	.13	.54	.69	1.25	1.23	4.26	.70	.30	.17
IN.	.19	.22	.14	.15	.58	.79	1.40	1.42	4.75	.80	.35	.19
AC-FT	9190	10430	6630	6990	28020	37990	66980	68150	228100	38580	16560	8980

CAL YR 1983 TOTAL 228318 MEAN 626 MAX 4870 MIN 60 CFSM .70 IN 9.44 AC-FT 452900
WTR YR 1984 TOTAL 265485 MEAN 725 MAX 11000 MIN 60 CFSM .81 IN 10.97 AC-FT 526600

06604200 WEST OKOBOJI LAKE AT LAKESIDE LABORATORY NEAR MILFORD, IA

LOCATION.--Lat 43°22'43", long 95°10'52", in NE1/4 SW1/4 sec.23, T.99N., R.37W., Dickinson County, Hydrologic Unit 10230003, at pumping station of Lakeside Laboratory on west shore, 2.3 mi upstream from lake outlet and 3.8 mi northwest of Milford.

DRAINAGE AREA.--125 mi².

PERIOD OF RECORD.--May 1933 to current year. Published as "Okoboji Lake at Arnold's Park" 1933-37 and as "Okoboji Lake at Lakeside Laboratory near Milford" 1937-66.

GAGE.--Water-stage recorder. Datum of gage is 1,391.76 ft NGVD, 94.51 ft above Iowa Lake Survey datum, and about 4.0 ft below crest of spillway. Prior to June 17, 1938, nonrecording gage at State Pier at Arnolds Park at same datum.

REMARKS.--Lake formed by concrete dam with ungated spillway at elevation 1,395.8 ft NGVD. Lake is used for conservation and recreation. Area of lake is approximately 3,900 acres.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 6.18 ft July 7, 1962; minimum observed, 0.20 ft Sept. 20, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 6.28 ft June 22; minimum, 3.73 ft Oct. 9, 10.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.82	3.76	4.08	4.12	4.16	4.43	4.76	5.28	4.97	5.94	4.85	4.21
2	3.81	3.77	4.08	4.12	4.16	4.43	4.77	5.30	4.94	5.89	4.85	4.20
3	3.81	3.79	4.08	4.12	4.16	4.43	4.84	5.30	4.92	5.86	4.82	4.18
4	3.80	3.80	4.08	4.12	4.16	4.43	4.88	5.28	4.91	5.80	4.80	4.17
5	3.78	3.78	4.09	4.12	4.15	4.49	4.90	5.29	4.90	5.74	4.78	4.14
6	3.77	3.79	4.08	4.11	4.15	4.48	4.91	5.28	4.90	5.69	4.76	4.13
7	3.75	3.78	4.08	4.10	4.15	4.48	4.93	5.31	4.93	5.64	4.78	4.11
8	3.74	3.79	4.08	4.10	4.15	4.48	5.00	5.27	4.97	5.58	4.84	4.09
9	3.73	3.85	4.09	4.10	4.15	4.47	5.05	5.24	4.98	5.54	4.81	4.08
10	3.73	3.84	4.08	4.10	4.15	4.46	5.06	5.23	4.98	5.53	4.78	4.08
11	3.82	3.82	4.10	4.10	4.15	4.46	5.11	5.20	5.00	5.48	4.76	4.07
12	3.80	3.82	4.10	4.11	4.16	4.45	5.24	5.18	5.20	5.44	4.72	4.06
13	3.79	3.84	4.10	4.12	4.17	4.45	5.30	5.15	5.29	5.40	4.70	4.06
14	3.79	3.86	4.11	4.12	4.17	4.45	5.35	5.14	5.31	5.37	4.67	4.04
15	3.80	3.87	4.12	4.12	4.19	4.45	5.35	5.11	5.35	5.35	4.65	4.02
16	3.79	3.86	4.12	4.12	4.24	4.44	5.35	5.08	5.41	5.31	4.64	4.00
17	3.78	3.85	4.11	4.12	4.28	4.44	5.33	5.06	5.63	5.27	4.65	3.97
18	3.77	3.86	4.11	4.12	4.34	4.44	5.30	5.05	5.79	5.23	4.63	3.97
19	3.81	3.93	4.11	4.12	4.38	4.44	5.28	5.04	5.83	5.19	4.60	3.96
20	3.83	3.94	4.12	4.12	4.39	4.43	5.26	5.01	5.86	5.17	4.55	3.95
21	3.83	3.95	4.13	4.12	4.39	4.43	5.25	4.99	5.96	5.14	4.52	3.93
22	3.82	3.97	4.13	4.12	4.39	4.43	5.27	5.00	6.11	5.10	4.48	3.92
23	3.82	3.97	4.13	4.12	4.39	4.45	5.26	4.97	6.22	5.08	4.45	3.92
24	3.82	3.96	4.13	4.12	4.39	4.52	5.25	4.95	6.23	5.03	4.42	3.90
25	3.81	3.97	4.13	4.12	4.40	4.58	5.24	4.96	6.22	5.01	4.39	3.87
26	3.80	3.98	4.12	4.12	4.42	4.64	5.25	4.94	6.19	4.98	4.36	3.85
27	3.79	4.02	4.13	4.12	4.43	4.68	5.23	4.97	6.14	4.97	4.35	3.83
28	3.79	4.09	4.13	4.12	4.43	4.70	5.26	5.03	6.09	4.94	4.33	3.81
29	3.78	4.08	4.13	4.14	4.43	4.72	5.24	5.01	6.05	4.92	4.31	3.79
30	3.77	4.08	4.13	4.17	---	4.74	5.25	4.99	5.99	4.87	4.27	3.78
31	3.76	---	4.13	4.16	---	4.75	---	4.97	---	4.84	4.24	---
MEAN	3.79	3.89	4.11	4.12	4.26	4.51	5.15	5.12	5.51	5.33	4.61	4.00
MAX	3.83	4.09	4.13	4.17	4.43	4.75	5.35	5.31	6.23	5.94	4.85	4.21
MIN	3.73	3.76	4.08	4.10	4.15	4.43	4.76	4.94	4.90	4.84	4.24	3.78

06605000 OCHEYEDAN RIVER NEAR SPENCER, IA

LOCATION.--Lat 43°07'44", long 95°12'37", in SW1/4SW1/4 sec.15, T.96N., R.37W., Clay County, Hydrologic Unit 10230003, on left bank 3 ft downstream from bridge on county highway M38, 3.4 mi west by southwest of Spencer, and at mile 4.1.

DRAINAGE AREA.--426 mi².

PERIOD OF RECORD.--October 1977 to current year. Occasional low-flow measurements, water years 1957-61, 1964, 1966-68, 1970, 1971, 1974-77.

GAGE.--Water-stage recorder. Datum of gage is 1,311.66 ft NGVD.

REMARKS.--Records good except those for winter period, which are poor.

AVERAGE DISCHARGE.--7 years, 263 ft³/s, 8.38 in/yr, 190,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,450 ft³/s June 21, 1983, gage height, 10.49 ft; no flow Jan. 24 to Mar. 9, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 8, 1953 reached a stage of 12.89 ft, discharge, 26,000 ft³/s on basis of contracted-opening measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 26	2200	2,720	9.02	June 13	1400	5,100	10.13
Apr. 9	1600	1,770	7.82	June 18	1550	3,180	9.59
Apr. 13	0230	3,080	9.24	June 22	1615	*5,200	*10.15

Minimum daily discharge, 28 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	57	88	57	64	170	759	1340	482	683	152	48
2	53	55	88	56	64	165	739	1510	436	622	144	48
3	53	62	87	56	65	159	815	1280	401	569	145	46
4	51	86	84	56	66	155	954	1030	386	527	140	45
5	51	85	83	55	67	150	1010	943	380	489	132	44
6	49	82	82	55	68	150	929	861	357	450	125	42
7	48	76	80	54	70	150	830	948	356	415	125	43
8	48	74	77	54	74	150	1210	945	753	537	172	43
9	47	82	75	54	76	150	1700	813	664	493	140	41
10	48	89	72	52	79	148	1380	740	614	439	130	40
11	60	87	68	52	82	145	1180	687	617	402	115	39
12	65	86	66	50	84	135	2070	625	1210	368	105	38
13	61	88	62	50	88	138	2800	598	4070	338	97	36
14	60	110	60	49	92	135	2110	551	2700	320	90	35
15	57	126	58	48	98	138	1580	530	1750	337	86	34
16	56	119	58	48	102	140	1290	504	1780	311	80	32
17	54	115	58	47	113	152	1090	484	1900	293	78	32
18	54	110	58	49	132	165	939	465	2750	268	77	31
19	65	130	58	49	162	175	835	458	2420	252	71	30
20	74	199	57	50	190	190	763	436	1650	247	68	29
21	78	180	56	51	262	235	703	420	2100	230	67	29
22	74	144	56	52	248	390	758	419	3980	229	67	28
23	72	124	56	54	225	520	907	392	4640	216	64	32
24	70	98	56	55	210	900	836	381	3900	203	64	30
25	68	94	56	56	200	1500	731	404	2130	200	61	30
26	65	94	56	58	195	2200	712	388	1400	199	58	29
27	60	91	56	60	185	2330	856	390	1110	189	57	29
28	60	92	57	61	180	1500	799	586	936	190	55	30
29	58	90	57	63	180	1250	693	709	834	179	52	29
30	58	89	57	64	---	1010	753	601	751	165	50	29
31	57	---	57	64	---	806	---	528	---	158	49	---
TOTAL	1829	3014	2039	1679	3721	15701	32731	20966	47457	10518	2916	1071
MEAN	59.0	100	65.8	54.2	128	506	1091	676	1582	339	94.1	35.7
MAX	78	199	88	64	262	2330	2800	1510	4640	683	172	48
MIN	47	55	56	47	64	135	693	381	356	158	49	28
CFSM	.14	.24	.15	.13	.30	1.19	2.56	1.59	3.71	.80	.22	.08
IN.	.16	.26	.18	.15	.32	1.37	2.86	1.83	4.14	.92	.25	.09
AC-FT	3630	5980	4040	3330	7380	31140	64920	41590	94130	20860	5780	2120

CAL YR 1983 TOTAL 171549 MEAN 470 MAX 4830 MIN 47 CFSM 1.10 IN 14.98 AC-FT 340300
WTR YR 1984 TOTAL 143642 MEAN 392 MAX 4640 MIN 28 CFSM .92 IN 12.54 AC-FT 284900

06605850 LITTLE SIOUX RIVER AT LINN GROVE, IA

LOCATION.--Lat 42°53'24", long 95°14'30", in SW1/4 SW1/4 sec.5, T.93 N., R.37 W., Buena Vista County, Hydrologic Unit 10230003, on right bank at downstream side of bridge on State Highway 264, in Linn Grove, and at mile 123.7.

DRAINAGE AREA.--1,548 mi².

PERIOD OF RECORD.--October 1972 to current year.

REVISED RECORDS.--WDR IA-80-1: 1978-79.

GAGE.--Water-stage recorder. Datum of gage is 1,223.60 ft NGVD.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--12 years, 723 ft³/s, 6.34 in/yr, 523,800 acre-ft/yr; median of yearly mean discharges, 660 ft³/s, 5.8 in/yr, 478,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft³/s June 17, 1984, gage height, 19.58 ft; maximum gage height, 19.58 ft June 17, 1984; minimum daily discharge, 0.70 ft³/s Feb. 4, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 18	----	2,500	ice jam	May 31	1245	2,460	11.90
Mar. 29	1000	4,450	15.05	June 17	2300	*13,100	*19.58
Apr. 14	2345	7,000	16.82	June 24	1100	12,000	19.16
May 3	1600	4.950	15.45				

Minimum daily discharge, 115 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	278	274	300	200	250	1300	3670	3000	2360	4090	608	228
2	272	277	350	200	260	1280	3420	3920	2170	3660	589	235
3	265	285	350	200	280	1220	3270	4810	1970	3330	572	250
4	259	462	340	210	300	1220	3280	4810	1810	3020	572	236
5	247	633	330	220	270	1100	3410	4420	1730	2720	542	207
6	239	581	320	230	250	900	3560	4040	1690	2450	515	197
7	234	511	310	240	230	800	3550	3770	1650	2190	495	191
8	226	473	300	260	230	700	3580	3650	1860	1990	517	167
9	216	464	290	240	250	650	3830	3560	2160	1900	610	158
10	214	526	280	220	300	600	4250	3430	2400	2010	603	152
11	294	573	270	220	380	600	4620	3170	2620	1980	538	150
12	415	552	270	220	520	620	4780	2890	2920	1780	489	148
13	387	536	270	210	710	640	5450	2650	3560	1620	456	145
14	352	611	260	210	880	705	6600	2440	4770	1480	425	140
15	327	881	250	210	1000	768	6840	2250	7660	1380	398	134
16	314	918	250	200	1300	781	6150	2100	9180	1320	376	129
17	290	838	250	200	1800	625	5540	1960	9640	1270	371	127
18	279	769	240	200	2400	624	4920	1850	10900	1200	373	125
19	278	746	240	200	2300	672	4280	1760	9350	1120	367	124
20	321	937	240	200	2200	633	3770	1690	8600	1090	355	121
21	383	1080	230	200	2200	684	3410	1620	8080	1040	338	118
22	401	1040	230	200	2000	1040	3300	1670	7580	969	316	115
23	390	946	230	200	1800	1380	3400	1740	9130	895	306	122
24	363	845	220	200	1700	1710	3650	1690	11700	831	296	122
25	345	650	220	210	1600	2150	3650	1620	10800	795	284	121
26	329	550	220	220	1600	2580	3360	1680	9180	790	269	121
27	320	400	210	220	1770	3550	3010	1740	7490	779	257	122
28	310	300	210	230	1540	4300	2740	1880	6250	734	247	126
29	292	200	210	250	1350	4390	2660	2070	5350	705	239	126
30	280	250	200	250	---	4100	2730	2300	4650	675	233	127
31	273	---	200	250	---	3870	---	2440	---	636	228	---
TOTAL	9393	18108	8090	6720	31670	46192	120680	82620	169210	50449	12784	4584
MEAN	303	604	261	217	1092	1490	4023	2665	5640	1627	412	153
MAX	415	1080	350	260	2400	4390	6840	4810	11700	4090	610	250
MIN	214	200	200	200	230	600	2660	1620	1650	636	228	115
CFSM	.20	.39	.17	.14	.71	.96	2.60	1.72	3.64	1.05	.27	.10
IN.	.23	.44	.19	.16	.76	1.11	2.90	1.99	4.07	1.21	.31	.11
AC-FT	18630	35920	16050	13330	62820	91620	239400	163900	335600	100100	25360	9090

CAL YR 1983 TOTAL 618105 MEAN 1693 MAX 9030 MIN 185 CFSM 1.09 IN 14.85 AC-FT 1226000
WTR YR 1984 TOTAL 560500 MEAN 1531 MAX 11700 MIN 115 CFSM .99 IN 13.47 AC-FT 1112000

06606600 LITTLE SIOUX RIVER AT CORRECTIONVILLE, IA

LOCATION.--Lat 42°28'20", long 95°47'49", in NE1/4 NW1/4 sec.1, T.88 N., R.43 W., Woodbury County, Hydrologic Unit 10230003 on right bank 50 ft upstream from bridge on State Highway 31, 0.3 mi upstream from Bacon Creek, 0.5 mi west of Correctionville, 0.8 mi downstream from Pierson Creek, and at mile 56.0.

DRAINAGE AREA.--2,500 mi².

PERIOD OF RECORD.--May 1918 to July 1925, October 1928 to July 1932, June 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 856: 1919. WSP 1240: 1924-25, 1931, 1932 (M), 1937, 1945 (M), 1947 (M), 1949 (M). WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,096.49 ft NGVD. May 28, 1918, to July 1, 1925 and Oct. 29, 1928 to July 15, 1929, nonrecording gage 0.2 mi downstream at datum 1.25 ft lower. July 16, 1929, to July 2, 1932, and June 15, 1936, to Nov. 7, 1938, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--57 years (water years 1919-24, 1929-31, 1937-84), 798 ft³/s, 4.33 in/yr, 578,200 acre-ft/yr; median of yearly mean discharge, 590 ft³/s, 3.2 in/yr, 427,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,800 ft³/s Apr. 7, 1965, gage height, 25.86 ft; minimum daily, 2.6 ft³/s July 17, 25, 1936, caused by construction dam above gage; minimum daily discharge excluding regulation, 4.0 ft³/s Oct. 9, 12, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23 or 24, 1891, reached a stage of 29.34 ft, present datum, from levels to floodmark by Soil Conservation Service (discharge not determined).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 18	0930	4,870	14.97	June 9	0745	6,790	16.58
Apr. 17	1000	10,000	19.32	June 14	1600	10,100	19.36
May 7	0900	7,870	17.56	June 18	0200	*20,400	*23.28
May 29	1530	4,000	13.23				

Minimum daily discharge, 271 ft³/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	747	670	650	460	520	2090	5370	5520	3690	8120	1230	433
2	715	663	800	480	540	2180	5080	6160	3620	7050	1180	420
3	708	663	900	500	560	2010	5070	6300	3370	6040	1130	410
4	699	728	1000	540	580	2130	5230	6520	3130	5340	1100	396
5	677	945	1000	580	540	1930	5110	7330	3050	4790	1090	384
6	652	1040	980	620	500	1780	4960	7670	2810	4380	1080	376
7	631	1080	940	680	480	1550	4910	7830	3220	3900	1030	367
8	614	1020	900	680	480	1220	5400	7530	5370	3520	1150	356
9	597	996	860	670	520	1110	5860	6810	6250	3260	1270	342
10	585	1030	860	650	600	1070	6150	5940	4410	3130	1100	340
11	674	1030	820	630	800	1150	6160	5520	4550	3170	1080	336
12	676	1060	820	600	1000	1210	7070	5120	6460	3090	1020	325
13	745	1090	760	580	1200	1170	8440	4700	8320	2850	944	319
14	822	1080	720	560	1500	1200	9700	4250	9770	2620	883	311
15	796	1110	690	540	1800	1880	9390	3880	8610	2480	835	306
16	754	1250	660	520	2200	1690	9630	3590	10400	2340	807	299
17	716	1390	630	500	2800	1410	9930	3370	12700	2310	779	293
18	690	1380	600	490	4750	1420	9280	3260	19400	2170	765	287
19	741	1340	600	480	4110	1320	8390	3160	17500	2050	752	281
20	761	1340	600	470	3490	1260	7410	2950	15800	2050	719	278
21	776	1400	580	460	3210	1210	6380	2760	13700	1890	707	274
22	814	1540	580	450	3050	1680	5950	2900	14400	1810	679	271
23	847	1570	580	460	2800	3140	6210	2790	14500	1700	639	276
24	844	1480	560	470	2600	4100	6240	2710	12700	1600	607	278
25	817	1380	540	480	2440	4630	5800	2890	12300	1520	590	281
26	783	1300	520	490	2360	5160	5690	2810	13700	1500	572	281
27	757	1150	500	500	2410	4950	5460	2780	13000	1510	550	284
28	735	646	480	500	2400	4520	4960	3520	11500	1480	524	292
29	713	500	460	500	2260	4820	4500	3970	10300	1400	500	294
30	696	580	440	500	---	5210	4730	3800	9090	1330	471	296
31	681	---	440	500	---	5450	---	3700	---	1280	449	---
TOTAL	22463	32451	21470	16540	52500	75650	194460	142040	277620	91680	26232	9686
MEAN	725	1082	693	534	1810	2440	6482	4582	9254	2957	846	323
MAX	847	1570	1000	680	4750	5450	9930	7830	19400	8120	1270	433
MIN	585	500	440	450	480	1070	4500	2710	2810	1280	449	271
CFSM	.29	.43	.28	.21	.72	.98	2.59	1.83	3.70	1.18	.34	.13
IN.	.33	.48	.32	.25	.78	1.13	2.89	2.11	4.13	1.36	.39	.14
AC-FT	44560	64370	42590	32810	104100	150100	385700	281700	550700	181800	52030	19210

CAL YR 1983	TOTAL	1167291	MEAN	3198	MAX	15600	MIN	440	CFSM 1.28	IN 17.37	AC-FT	2315000
WTR YR 1984	TOTAL	962792	MEAN	2631	MAX	19400	MIN	271	CFSM 1.05	IN 14.33	AC-FT	1910000

LITTLE SIOUX RIVER BASIN

06607200 MAPLE RIVER AT MAPLETON, IA

LOCATION.--Lat 42°09'25", long 95°48'35", in SE1/4 SE1/4 sec.23, T.85 N., R.43 W., Monona County, Hydrologic Unit 10230005, on right bank at downstream side of bridge on State Highway 175, 1.0 mi downstream from Simmons Creek, 1.1 mi southwest of intersection of State Highways 175 and 141 in Mapleton, 2.1 mi upstream from McCleery Creek, and 16.0 mi upstream from mouth.

DRAINAGE AREA.--669 mi².

PERIOD OF RECORD.--October 1941 to current year.

REVISED RECORDS.--WSP 1310: 1942 (M), 1946 (M), 1948 (M). WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,085.86 ft NGVD. See WSP 1730 for history of changes prior to Sept. 20, 1956.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height telemeter at station.

AVERAGE DISCHARGE.--43 years, 258 ft³/s, 5.24 in/yr, 186,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft³/s Sept. 12, 1978, gage height, 16.74 ft; maximum gage height, 22.1 ft June 12, 1950; no flow Sept. 21, 22, 1945 caused by temporary dam above gage; minimum daily discharge excluding regulation, 2.5 ft³/s Feb. 17-20, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 8	1145	*14,900	*15.51	June 16	0815	13,100	14.01
June 13	0200	10,800	12.44				

Minimum daily discharge, 120 ft³/s Dec. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	305	302	120	190	300	566	665	2320	1200	929	539	345
2	292	304	240	200	300	552	678	2410	1190	900	521	354
3	284	296	300	210	300	519	860	2170	1110	875	506	304
4	298	311	300	220	270	527	1200	1680	1090	875	491	287
5	275	335	280	240	240	523	1290	1450	1320	880	484	274
6	265	375	255	270	220	470	1070	1310	1240	896	482	252
7	274	346	235	280	240	438	964	1510	2950	838	483	233
8	266	336	215	280	260	390	1340	1400	10800	806	501	219
9	256	382	205	270	300	318	1730	1200	2790	799	499	217
10	260	447	200	270	350	400	1450	1100	1920	798	452	216
11	353	434	200	270	500	407	1260	1120	1760	821	429	225
12	451	417	200	270	700	342	1800	1110	5660	777	415	213
13	381	420	200	270	1200	363	2110	994	7010	741	409	210
14	338	418	200	270	1000	484	1860	932	3010	717	393	209
15	316	438	200	270	800	1800	1560	889	3170	774	390	208
16	304	445	180	270	1000	1340	1340	867	8870	706	397	205
17	289	421	170	255	1300	779	1200	842	6020	755	420	203
18	281	407	150	245	1000	627	1100	1040	4260	695	418	202
19	358	494	135	235	779	546	1020	1340	3640	657	407	200
20	447	642	130	225	619	509	961	1140	2160	675	392	194
21	433	580	130	220	590	498	966	1020	1800	706	382	183
22	405	515	135	225	708	896	1210	1230	2300	629	405	178
23	384	475	140	235	1640	2050	1730	1300	1980	603	373	182
24	367	433	145	250	1080	1500	1530	1100	1530	583	370	184
25	348	438	150	260	932	1090	1300	1300	1360	589	368	187
26	334	441	155	270	973	936	1160	1350	1290	1050	362	180
27	329	412	165	270	900	889	1120	1210	1100	848	352	182
28	320	245	170	270	689	863	1030	1670	1070	676	344	201
29	307	265	175	280	590	835	1010	1890	1080	620	339	195
30	300	225	180	290	---	748	1280	1490	1010	585	335	184
31	303	---	180	300	---	691	---	1310	---	552	332	---
TOTAL	10123	11999	5840	7880	19780	22896	37794	41694	85690	23355	12990	6626
MEAN	327	400	188	254	682	739	1260	1345	2856	753	419	221
MAX	451	642	300	300	1640	2050	2110	2410	10800	1050	539	354
MIN	256	225	120	190	220	318	665	842	1010	552	332	178
CFSM	.49	.60	.28	.38	1.02	1.11	1.88	2.01	4.27	1.13	.63	.33
IN.	.56	.67	.32	.44	1.10	1.27	2.10	2.32	4.76	1.30	.72	.37
AC-FT	20080	23800	11580	15630	39230	45410	74960	82700	170000	46320	25770	13140

CAL YR 1983 TOTAL 340871 MEAN 934 MAX 14400 MIN 120 CFSM 1.40 IN 18.95 AC-FT 676100
WTR YR 1984 TOTAL 286667 MEAN 783 MAX 10800 MIN 120 CFSM 1.17 IN 15.94 AC-FT 568600

06607500 LITTLE SIOUX RIVER NEAR TURIN, IA

LOCATION.--Lat 41°57'52, long 95°58'21", in NW1/4 NE1/4 sec.33, T.83 N., R.44 W., Monona County, Hydrologic Unit 10230003, on left bank on downstream side of bridge on county highway E54, 1.0 mi east of gaging station on Monona-Harrison ditch near Turin, 2.5 mi downstream from Maple River, 3.8 mi south of Turin, 6.2 mi northeast of Blencoe, and at mile 13.5.

DRAINAGE AREA.--3,526 mi². Prior to Jan. 15, 1958, 4,426 mi², combined area above this station and Monona-Harrison ditch station 1.0 mi west.

PERIOD OF RECORD.--January 1958 to current year. April 1939 to May 1942 at site 4.7 mi downstream, published as "near Blencoe" June 1942 to January 1958 at site 1,200 ft east on old river channel; records not equivalent owing to diversion into Monona-Harrison ditch through equalizer ditch 1.5 mi upstream.

GAGE.--Water-stage recorder. Datum of gage is 1,019.850 ft NGVD (Corps of Engineers bench mark). Prior to July 15, 1958, nonrecording gages near present site at different datums. July 15 to Sept. 3, 1958, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--26 years (water years 1959-84), 1,343 ft³/s, 5.17 in/yr, 973,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,200 ft³/s June 21, 1983 gage height, 26.54 ft; maximum gage height, 27.44 ft Feb. 19, 1971, backwater from ice; minimum daily discharge, 17 ft³/s Jan. 18-20, Jan. 28 to Feb. 1, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 15	1530	5,110	12.23	June 13	0700	19,800	19.17
Apr. 17	1915	10,900	15.80	June 16	1500	*31,000	*22.60
May 7	2015	9,080	15.45	June 19	1615	28,400	21.88
May 29	0815	6,350	14.17	June 26	1700	5,290	12.36
June 8	1700	21,500	19.77				

Minimum daily discharge, 513 ft³/s Sept. 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1070	980	1000	660	720	3300	6210	6930	5120	11600	2070	722
2	1030	967	1100	660	720	3220	6060	7620	5070	10300	1990	700
3	1020	972	1200	700	800	3090	6280	7900	4980	8920	1890	700
4	1000	978	1350	700	800	3110	6670	7690	4370	7620	1810	686
5	989	1090	1400	780	800	3030	6760	8080	4350	6460	1740	673
6	958	1390	1380	900	780	2780	6470	8540	4330	6030	1670	659
7	927	1500	1300	900	750	2540	6430	8910	4580	5600	1590	647
8	912	1520	1250	900	750	1900	7070	8410	20000	5190	1560	628
9	887	1520	1200	860	750	1670	8010	7780	10000	4810	1860	615
10	877	1570	1200	860	800	1600	7710	7040	9210	4580	1800	617
11	937	1570	1200	860	900	1600	7460	6980	8040	4480	1610	629
12	1110	1550	1100	830	1000	1750	8110	6800	12400	4400	1580	624
13	1090	1610	1100	800	1200	2150	9490	6360	17200	4060	1490	598
14	1130	1630	1050	800	1500	3000	10600	5810	13600	3650	1380	583
15	1160	1620	1000	800	2000	3930	10600	5280	15800	3430	1300	576
16	1110	1740	950	780	3000	3720	10200	4870	24100	3210	1240	566
17	1060	1970	900	760	5000	2630	10600	4470	23100	3190	1210	562
18	1030	2100	850	740	7000	2360	10300	4820	26200	3060	1190	551
19	1110	2130	850	720	6000	2200	9340	5190	28000	2820	1170	537
20	1220	2260	850	700	5000	1970	8590	4450	26400	2800	1130	525
21	1230	2270	850	680	8000	1940	7840	3950	21600	2840	1140	513
22	1210	2370	800	680	6000	2040	7290	4210	20900	2530	1120	513
23	1240	2490	800	680	5000	5090	7700	4410	21600	2420	1040	513
24	1250	2360	800	680	4500	5770	7540	3790	19900	2300	980	525
25	1210	2170	760	680	4330	5910	7170	4160	17600	2200	930	545
26	1160	2070	720	680	4390	6110	7080	4460	18600	3390	890	553
27	1120	1830	700	680	4110	6200	7160	3910	19400	3260	850	561
28	1070	1200	660	700	3740	5740	6480	4660	17300	2760	820	565
29	1030	800	660	700	3500	5860	5870	6170	15200	2480	800	574
30	997	600	660	720	---	6170	5770	5720	13300	2300	781	561
31	989	---	660	720	---	6390	---	5310	---	2170	746	---
TOTAL	33133	48827	30300	23310	83840	108770	232860	184680	452250	134860	41377	17821
MEAN	1069	1628	977	752	2891	3509	7762	5957	15080	4350	1335	594
MAX	1250	2490	1400	900	8000	6390	10600	8910	28000	11600	2070	722
MIN	877	600	660	660	720	1600	5770	3790	4330	2170	746	513
CFSM	.30	.46	.28	.21	.82	1.00	2.20	1.69	4.28	1.23	.38	.17
IN.	.35	.52	.32	.25	.88	1.15	2.46	1.95	4.77	1.42	.44	.19
AC-FT	65720	96850	60100	46240	166300	215700	461900	366300	897000	267500	82070	35350

CAL YR 1983	TOTAL	1575448	MEAN	4316	MAX	26000	MIN	600	CFSM 1.22	IN 16.62	AC-FT	3125000
WTR YR 1984	TOTAL	1392028	MEAN	3803	MAX	28000	MIN	513	CFSM 1.08	IN 14.69	AC-FT	2761000

06608500 SOLDIER RIVER AT PISGAH, IA

LOCATION.--Lat 41°49'50", long 95°55'54", in NW1/4 NE1/4 sec.14, T.81 N., R.44 W., Harrison County, Hydrologic Unit 10230001, on right bank at downstream side of bridge on county highway F20, at west edge of Pisgah, 0.4 mi downstream from Cobb Creek, 0.5 mi upstream from Mogger Ditch, and 13.1 mi upstream from mouth.

DRAINAGE AREA.--407 mi².

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 956: 1940 (M). WSP 1240: 1940, 1941 (M), 1947. WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,036.53 ft NGVD. Prior to Oct. 11, 1954, nonrecording gage at same site and datum with supplementary water-stage recorder operating above 8.2 ft gage height Mar. 2, 1946 to Sept. 24, 1953. Prior to Feb. 1954, on left bank at downstream side of bridge.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--44 years, 130 ft³/s, 4.33 in/yr, 94,180 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,500 ft³/s June 12, 1950, gage height, 28.17 ft; minimum daily, 2.0 ft³/s Jan. 2-10, 1945.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,700 ft³/s June 16, gage height 20.35 ft, no other peak above base of 5,000 ft³/s; minimum daily, 90 ft³/s Dec. 25-31, Jan 18-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119	152	160	95	130	225	266	699	456	333	253	169
2	114	151	180	100	150	225	293	600	488	324	243	191
3	162	212	180	110	170	209	510	575	425	324	234	175
4	162	197	170	110	200	232	490	510	536	737	227	168
5	135	152	170	120	170	223	371	586	739	597	224	163
6	125	146	160	130	140	189	332	497	456	440	219	156
7	123	146	160	140	140	176	316	695	393	333	217	156
8	134	152	150	140	140	150	487	488	1200	315	224	151
9	125	227	150	130	160	130	502	445	891	312	217	151
10	131	247	140	115	200	160	400	427	942	312	206	159
11	209	176	140	100	400	150	392	427	524	320	202	175
12	175	164	130	100	800	150	753	425	2370	330	200	162
13	139	174	130	100	700	167	672	399	1880	321	198	156
14	137	167	120	100	600	201	532	361	931	318	198	157
15	139	156	120	95	900	1550	468	354	979	363	198	158
16	135	149	105	95	800	458	428	343	5110	324	198	153
17	132	147	100	95	432	293	394	330	2770	502	200	151
18	132	147	100	90	329	250	366	910	2400	317	199	148
19	343	317	100	90	288	230	348	906	1850	296	200	147
20	251	297	100	90	234	227	331	559	1500	368	190	144
21	188	188	95	90	235	224	403	464	1200	309	233	138
22	165	165	95	90	313	287	647	737	980	280	240	135
23	161	156	95	95	988	801	600	571	793	263	196	141
24	157	148	95	100	396	583	447	469	647	249	191	149
25	149	152	90	110	310	377	400	980	539	240	185	174
26	150	159	90	130	287	340	376	617	490	883	187	160
27	149	150	90	150	253	353	388	525	360	454	177	154
28	150	130	90	130	219	345	346	695	549	296	175	155
29	143	100	90	130	215	311	493	598	490	269	179	156
30	143	130	90	140	---	279	1150	514	390	255	172	145
31	149	---	90	140	---	273	---	492	---	247	167	---
TOTAL	4826	5154	3775	3450	10299	9768	13901	17198	33278	11231	6349	4697
MEAN	156	172	122	111	355	315	463	555	1109	362	205	157
MAX	343	317	180	150	988	1550	1150	980	5110	883	253	191
MIN	114	100	90	90	130	130	266	330	360	240	167	135
CFSM	.38	.42	.30	.27	.87	.77	1.14	1.36	2.73	.89	.50	.39
IN.	.44	.47	.35	.32	.94	.89	1.27	1.57	3.04	1.03	.58	.43
AC-FT	9570	10220	7490	6840	20430	19370	27570	34110	66010	22280	12590	9320

CAL YR 1983 TOTAL 115467 MEAN 316 MAX 2400 MIN 80 CFSM .78 IN 10.55 AC-FT 229000
WTR YR 1984 TOTAL 123926 MEAN 339 MAX 5110 MIN 90 CFSM .83 IN 11.33 AC-FT 245800

06609500 BOYER RIVER AT LOGAN, IA

LOCATION.--Lat 41°38'33", long 95°46'57", in SE1/4 NW1/4 sec.19, T.79 N., R.42 W., Harrison County, Hydrologic Unit 10230007, on left bank 9 ft downstream from Illinois Central Railroad bridge at Logan, 0.4 mi downstream from Elk Grove Creek, 10.5 mi upstream from Willow Creek, and 15.8 mi upstream from mouth.

DRAINAGE AREA.--871 mi².

PERIOD OF RECORD.--May 1918 to July 1925, November 1937 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 956: 1938-39. WSP 1240: 1918-19, 1920 (M), 1921, 1922 (M), 1924-25, 1938 (M), 1945. WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,009.38 ft NGVD (Chicago and Northwestern Railway Company bench mark). See WSP 1918 for history of changes prior to Oct. 18, 1960.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--52 years (water years 1919-24, 1939-84), 324 ft³/s, 5.05 in/yr, 234,700 acre-ft/yr; median of yearly mean discharge, 280 ft³/s, 4.4 in/yr, 203,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,000 ft³/s Feb. 19, 1971, gage height, 22.65 ft, from floodmark; maximum gage height, 25.22 ft Mar. 1, 1965, backwater from ice; minimum daily discharge, 1.5 ft³/s July 16, 1938.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 29	2330	8,380	13.76	June 17	0500	7,840	13.98
June 15	0030	*8,700	*14.63				

Minimum daily discharge, 170 ft³/s Dec. 26, Jan. 20 - 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	207	265	300	210	210	613	654	3220	1400	1010	597	277
2	187	268	300	220	220	597	658	3220	1320	972	571	287
3	224	313	280	220	230	563	871	2700	1260	953	498	299
4	252	367	270	220	240	565	1300	2070	1230	950	464	315
5	211	299	260	230	240	569	1290	1910	1300	1010	457	326
6	190	277	240	230	220	490	1220	1630	1260	1020	442	307
7	180	271	220	240	220	451	990	1900	1130	906	414	302
8	177	261	210	240	220	475	1330	1640	1550	836	417	279
9	171	299	210	240	220	434	2150	1400	4770	818	414	275
10	189	375	210	230	300	487	1740	1320	2750	825	410	260
11	755	325	210	220	600	485	1380	1250	1580	819	384	284
12	548	303	210	210	1000	481	1770	1230	3600	778	379	289
13	412	311	210	200	1500	458	2430	1170	5100	763	362	263
14	342	315	210	190	1200	490	2030	1070	3480	723	360	256
15	308	305	210	190	1500	1220	1720	1020	5820	759	342	270
16	289	298	200	190	2770	1280	1450	1000	4350	741	317	302
17	268	292	190	190	1930	778	1270	969	5980	753	332	302
18	252	291	200	180	1440	637	1130	1200	5410	712	349	254
19	356	388	210	180	1000	557	1020	2090	2490	645	349	251
20	473	517	210	170	772	523	953	1500	2680	706	322	251
21	446	437	210	170	724	498	998	1260	2080	683	342	260
22	378	375	210	170	974	501	1830	1710	2370	621	362	249
23	349	357	200	170	2320	1580	2510	1830	1720	570	327	249
24	324	340	190	180	1530	2350	1890	1400	1480	543	314	254
25	302	329	180	190	1170	1280	1530	1710	1370	529	315	542
26	290	344	170	190	1040	1030	1400	1900	1300	774	293	302
27	280	411	180	200	955	964	2890	1440	1200	1210	310	247
28	275	348	190	200	776	918	1760	1840	1120	683	323	239
29	263	339	200	200	640	883	2730	2660	1140	604	302	234
30	257	200	200	210	---	781	4580	1810	1050	556	292	230
31	260	---	200	210	---	700	---	1560	---	524	282	---
TOTAL	9415	9820	6690	6290	26161	23638	49474	52629	73290	23996	11642	8455
MEAN	304	327	216	203	902	763	1649	1698	2443	774	376	282
MAX	755	517	300	240	2770	2350	4580	3220	5980	1210	597	542
MIN	171	200	170	170	210	434	654	969	1050	524	282	230
CFSM	.35	.38	.25	.23	1.04	.88	1.89	1.95	2.81	.89	.43	.32
IN.	.40	.42	.29	.27	1.12	1.01	2.11	2.25	3.13	1.02	.50	.36
AC-FT	18670	19480	13270	12480	51890	46890	98130	104400	145400	47600	23090	16770

CAL YR 1983 TOTAL 313167 MEAN 858 MAX 4620 MIN 170 CFSM .99 IN 13.38 AC-FT 621200
WTR YR 1984 TOTAL 301500 MEAN 824 MAX 5980 MIN 170 CFSM .95 IN 12.88 AC-FT 598000

MISSOURI RIVER MAIN STEM

06610000 MISSOURI RIVER AT OMAHA, NE

LOCATION.--Lat 41°15'32", long 95°55'20", in SE1/4 NW1/4 sec.23, T.15 N., R.13 E., Douglas County, Hydrologic Unit 10230006, on right bank on left side of concrete floodwall, at foot of Douglas Street, 275 ft downstream from Interstate 480 Highway bridge in Omaha, and at mile 615.9.

DRAINAGE AREA.--322,800 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1928 to current year. April 1872 to December 1899 (gage heights only) in reports of the Missouri River Commission and since January 1875, (gage heights only) in reports of the U.S. Weather Bureau.

REVISED RECORDS.--WSP 761: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 948.24 ft NGVD. See WSP 1730 for history of changes prior to Sept. 30, 1936. Oct. 1, 1936 to Sept. 30, 1982 at datum 10.00 ft higher.

REMARKS.--Records good except those for Dec. 30 to Jan. 8, Jan 15 to Feb. 6, which are poor. Flow regulated by upstream main-stem reservoirs. National Weather Service gage-height telemeter at station. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--56 years, 30,420 ft³/s, 22,039,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 396,000 ft³/s Apr. 18, 1952, gage height, 40.20 ft, present datum; minimum, about 2,200 ft³/s Jan. 6, 1937; minimum gage height observed, 7.23 ft, present datum, Jan. 10, 1957, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 116,000 ft³/s June 27, gage height, 29.02 ft backwater from Platte River; minimum daily discharge, 15,500 ft³/s Dec. 24; minimum gage height 12.58 ft Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43000	41800	37200	27000	24000	33300	48000	58900	40600	85000	55300	50800
2	42400	40300	36200	27000	24000	32800	48800	61000	41500	73500	56100	50400
3	42900	39900	36100	26400	24000	32700	51700	59400	41300	64200	56100	49900
4	43500	41100	33900	26200	24000	32400	57700	58300	41400	58400	55600	49200
5	43400	41100	33300	26300	26000	32900	53400	58300	41500	56600	55500	48800
6	43300	41800	32200	26300	26000	33100	50200	58400	42100	54400	56300	49200
7	42800	42000	29500	26000	24700	31900	49600	58200	42700	50000	56600	49500
8	41900	42800	28400	25300	22200	31200	53400	60800	54400	48400	56200	50100
9	42000	44300	27200	24900	24900	28500	60600	57600	72700	48700	56200	51100
10	42100	44900	27100	24600	26000	28700	59600	53300	64500	49700	57000	51500
11	42700	45800	27200	23800	26400	34000	56000	53100	48300	52300	56300	51900
12	43200	44300	27500	23400	27500	35900	60100	54000	44900	54900	55200	52400
13	42500	44100	26900	23900	28000	34100	70900	52500	68400	55700	54500	51800
14	41700	44100	24900	23600	30400	33600	76000	50100	70100	56300	54200	52000
15	41300	43900	23900	23200	33700	37500	76700	47000	72400	57800	53500	51900
16	40300	43000	23000	22900	39700	36300	78000	44400	70900	59700	53300	52400
17	40000	43400	22200	22800	42200	33300	81900	40000	87400	61900	53500	51700
18	40500	43200	22200	23500	42100	33100	82700	38400	92300	63900	53000	51200
19	41200	44400	22000	24400	37800	35100	76500	48500	94200	63100	53200	51400
20	42800	45600	22000	25500	32200	34000	69600	49300	93800	61600	53700	51700
21	42200	46400	21000	25800	31900	34600	65300	42300	94600	61400	53400	52100
22	40400	46200	20000	25600	34000	34700	63200	41400	96900	59200	53800	51700
23	40200	47000	18600	25600	37000	38700	62900	45300	102000	57000	54000	51200
24	40600	46900	15500	26600	33900	45400	58200	40300	107000	55600	52800	51500
25	40200	45200	17100	26600	32200	47400	51300	39300	111000	54900	52800	52500
26	40400	44100	18300	26100	33300	48600	49200	43900	112000	54900	53100	52700
27	41100	43800	19000	25500	34600	49400	50500	41300	114000	58700	53700	51600
28	41700	42500	24000	24800	34100	48100	52400	40700	111000	58000	52400	50700
29	42500	40400	28000	24400	33900	45400	51000	48400	104000	55000	51600	49800
30	42800	38600	27300	24100	---	46800	59500	50800	93900	54100	51300	50000
31	43700	---	27000	24000	---	46800	---	43100	---	55200	51400	---
TOTAL	1299300	1302900	798700	776100	890700	1150300	1824900	1538300	2271800	1800100	1681600	1532700
MEAN	41910	43430	25760	25040	30710	37110	60830	49620	75730	58070	54250	51090
MAX	43700	47000	37200	27000	42200	49400	82700	61000	114000	85000	57000	52700
MIN	40000	38600	15500	22800	22200	28500	48000	38400	40600	48400	51300	48800
AC-FT	2577000	2584000	1584000	1539000	1767000	2282000	3620000	3051000	4506000	3570000	3335000	3040000

CAL YR 1983 TOTAL 15718600 MEAN 43060 MAX 80500 MIN 15500 AC-FT 31180000
WTR YR 1984 TOTAL 16867400 MEAN 46090 MAX 114000 MIN 15500 AC-FT 33460000

06610000 MISSOURI RIVER AT OMAHA, NB--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Water quality samples were collected from Interstate 80 highway bridge 2.0 mi downstream from gaging station. Samples for particle-size distribution were collected from boat cross-section 3.6 mi downstream from gaging station.

PERIOD OF RECORD.--Water years 1969-76, 1978 to current year. Daily sediment loads for April 1939 to September 1971 are in reports of Corps of Engineers.

PERIOD OF DAILY RECORD.--
CHEMICAL ANALYSES: July 1969 to June 1972.
SPECIFIC CONDUCTANCE: October 1972 to September 1976, January 1978 to September 1981.
WATER TEMPERATURES: October 1971 to September 1976, January 1978 to September 1981.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 950 micromhos Dec. 4,5, 1980; minimum daily, 335 micromhos Mar. 22, 1978.
WATER TEMPERATURES: Maximum daily, 32.0°C July 24, 1972; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,180 mg/L May 19, 1974; minimum daily mean, 165 mg/L Sept. 13, 1976.
SEDIMENT LOADS: Maximum daily, 1,060,000 tons May 19, 1974; minimum daily, 3,990 tons Jan. 14, 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT 17...	1210	40100	810	8.2	13.0	22	9.9	97	78	98	270
JAN 03...	1045	20000	840	7.9	.0	9.2	13.0	92	130	1200	300
FEB 22...	1200	33900	690	7.8	1.5	60	13.1	98	580	310000	250
APR 23...	1045	64000	770	7.8	9.0	100	9.4	85	3800	K3100	320
JUN 26...	1330	112000	545	8.1	25.0	200	5.5	70	1000	6300	240
AUG 27...	1200	53400	800	8.2	24.0	20	7.6	95	100	K14	260

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT 17...	96	65	25	72	37	2	4.6	170	220	16	.50
JAN 03...	100	77	27	69	33	2	5.0	201	230	16	.50
FEB 22...	74	62	22	49	30	1	5.3	172	170	13	.40
APR 23...	140	80	29	28	16	.7	7.1	183	200	13	.40
JUN 26...	80	60	21	18	14	.5	6.5	157	110	9.4	.40
AUG 27...	89	65	24	72	37	2	5.7	172	230	13	.50

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)
OCT 17...	8.6	501	510	.68	54200	.55	.080	.10	1.3	.020	.34
JAN 03...	9.9	559	560	.76	30200	.99	.140	.18	.50	.030	.15
FEB 22...	13	446	440	.61	40800	1.9	.310	.40	2.2	.070	1.3
APR 23...	14	502	480	.68	86700	3.5	.130	.17	1.6	.060	4.3
JUN 26...	13	362	330	.49	109000	3.0	.030	.04	2.0	.060	--
AUG 27...	7.2	532	520	.72	76700	.37	.040	.05	1.0	.020	--

K Results based on colony count outside the acceptable range (non-ideal colony count).

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
OCT											
17...	.030	.110	441	47700	25	2	20	55	<.5	<1	<1
JAN											
03...	.010	.050	--	--	--	1	20	62	<.5	2	<1
FEB											
22...	.080	.410	640	58600	49	1	30	62	.5	<1	<1
APR											
23...	.100	1.40	763	132000	61	2	20	92	.5	<1	1
JUN											
26...	.070	.110	1060	321000	61	2	30	110	1	<1	1
AUG											
27...	.040	.110	411	59300	40	--	--	--	--	--	--

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)
OCT											
17...	<3	5	5	2	56	4	.1	<10	2	2	<1
JAN											
03...	<3	3	35	2	60	25	.2	<10	3	2	1
FEB											
22...	<3	7	39	<1	42	16	.2	<10	<1	2	<1
APR											
23...	<3	4	15	<1	35	2	<.1	<10	<1	3	<1
JUN											
26...	<3	4	24	4	27	3	.2	<10	1	2	<1
AUG											
27...	--	--	--	--	--	--	--	--	--	--	--

DATE	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L) (09511)
OCT										
17...	580	<6	10	--	--	--	--	--	--	--
JAN										
03...	590	<6	220	<13	.9	<7.6	<6.5	1.9	1.7	.09
FEB										
22...	430	<6	29	--	--	--	--	--	--	--
APR										
23...	410	<6	17	--	--	--	--	--	--	--
JUN										
26...	320	<6	5	--	--	--	--	--	--	--
AUG										
27...	--	--	--	<12	3.5	<7.3	<6.3	5.0	4.3	.12

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)	DEPTH AT SAMPLE LOCATION, TOTAL (FEET) (81903)	SAMPLING DEPTH (FEET) (00003)	STREAM VELOCITY, POINT (FPS) (81904)	SEDIMENT, SUSPENDED (MG/L) (80154)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
OCT												
26...	WATER TEMPERATURE, 11.0° (1210-1515 HOURS); DISCHARGE, 40,100ft³/s.											
26...	1405	625	20.0	4.60	5.15	114	--	54	81	100	--	--
26...	1407	625	--	10.0	4.80	142	--	41	67	100	--	--
26...	1409	625	--	14.3	4.48	204	--	32	52	100	--	--
26...	1411	625	--	16.7	3.85	269	--	23	33	97	100	--
26...	1413	625	--	18.0	3.44	297	--	22	31	93	100	--
26...	1415	625	--	18.8	3.22	366	--	17	29	93	100	--
26...	1430	525	17.2	--	--	431	8	16	--	--	--	--
26...	1435	445	17.0	3.90	5.69	205	--	27	43	100	--	--
26...	1437	445	--	8.50	5.45	298	--	24	41	100	--	--
26...	1439	445	--	12.1	4.91	331	--	21	35	100	--	--
26...	1441	445	--	14.2	4.70	733	--	12	20	97	100	--
26...	1443	445	--	15.3	4.44	236	--	30	50	98	100	--
26...	1445	445	--	16.0	4.28	1230	--	6	16	90	100	--
26...	1455	325	11.6	2.70	5.39	282	--	21	39	95	100	--
26...	1456	325	--	5.80	4.98	370	--	22	34	98	100	--
26...	1457	325	--	8.30	4.85	427	--	15	31	100	--	--
26...	1458	325	--	9.70	4.80	624	--	11	24	97	100	--
26...	1459	325	--	10.4	4.48	644	--	11	23	89	100	--
26...	1500	225	14.2	3.30	5.02	224	--	30	48	96	100	--
26...	1502	225	--	7.10	4.54	299	--	22	40	94	100	--
26...	1504	225	--	10.1	3.96	670	--	11	21	78	100	--
26...	1506	225	--	11.8	3.55	841	--	9	17	76	100	--
26...	1508	225	--	12.8	3.50	1040	--	4	8	54	100	--
26...	1510	225	--	13.4	3.20	2630	--	3	6	43	100	--
MAY												
09...	WATER TEMPERATURE, 10.5° (1120-1530 HOURS); DISCHARGE, 57,900ft³/s.											
09...	1120	260	16.4	3.80	4.52	880	--	84	88	99	100	--
09...	1127	260	--	8.20	4.28	917	--	84	89	99	100	--
09...	1134	260	--	11.7	3.85	947	--	79	84	99	100	--
09...	1141	260	--	13.7	3.94	1150	--	67	72	96	100	--
09...	1148	260	--	14.8	3.22	1150	--	68	73	94	100	--
09...	1155	260	--	15.4	3.13	1120	--	69	75	94	100	--
09...	1218	445	18.6	4.30	6.06	901	--	82	86	100	--	--
09...	1222	445	--	9.30	5.69	953	--	79	84	100	--	--
09...	1226	445	--	13.3	5.54	1170	--	64	69	98	100	--
09...	1230	445	--	15.5	4.44	1770	--	43	50	84	100	--
09...	1234	445	--	16.7	4.04	2120	--	37	42	82	100	--
09...	1238	445	--	17.5	3.81	2560	--	30	34	78	99	100
09...	1245	550	18.6	--	--	1240	27	57	--	--	--	--
09...	1330	650	21.8	5.00	5.98	827	--	85	90	100	--	--
09...	1333	650	--	10.9	5.72	1030	--	70	79	100	--	--
09...	1336	650	--	15.6	5.28	1170	--	64	73	100	--	--
09...	1339	650	--	18.2	4.89	1090	--	68	77	100	--	--
09...	1342	650	--	19.6	4.00	1340	--	56	66	100	--	--
09...	1346	650	--	20.5	4.59	695	--	94	98	100	--	--
09...	1350	650	--	21.0	4.15	1710	--	43	54	100	--	--
09...	1440	740	25.0	5.80	4.59	699	--	94	98	100	--	--
09...	1443	740	--	12.5	3.63	737	--	90	94	100	--	--
09...	1446	740	--	17.9	3.76	771	--	88	92	100	--	--
09...	1449	740	--	20.8	3.35	748	--	89	93	100	--	--
09...	1452	740	--	22.5	2.79	756	--	89	93	100	--	--
09...	1456	740	--	23.5	2.79	770	--	88	92	100	--	--
09...	1500	740	--	24.1	2.53	788	--	85	89	100	--	--
JUN												
06...	WATER TEMPERATURE, 20.0° (1040-1415 HOURS); DISCHARGE, 42,100ft³/s.											
06...	1040	200	13.2	3.10	4.35	455	--	86	91	100	--	--
06...	1045	200	--	6.60	3.87	551	--	72	77	97	100	--
06...	1050	200	--	9.40	3.28	557	--	70	75	96	99	100
06...	1055	200	--	11.0	2.61	782	--	51	56	85	100	--
06...	1057	200	--	11.9	2.20	762	--	52	57	86	100	--
06...	1100	200	--	12.4	2.37	816	--	51	57	85	100	--
06...	1120	300	12.2	2.80	5.06	597	--	73	78	99	100	--
06...	1125	300	--	6.10	4.59	694	--	65	71	97	100	--
06...	1130	300	--	8.70	4.33	714	--	60	66	96	100	--
06...	1135	300	--	10.2	4.04	822	--	55	61	94	100	--
06...	1140	300	--	11.0	4.02	894	--	52	60	93	100	--
06...	1225	400	15.0	--	--	886	19	46	--	--	--	--
06...	1230	500	22.3	5.20	5.06	570	--	81	86	100	--	--
06...	1234	500	--	11.2	3.83	630	--	75	81	99	100	--
06...	1238	500	--	16.0	4.48	741	--	66	73	99	100	--
06...	1242	500	--	18.7	4.11	692	--	68	75	99	100	--
06...	1246	500	--	20.2	3.76	967	--	53	62	100	--	--
06...	1250	500	--	21.1	3.00	994	--	48	59	98	100	--
06...	1255	500	--	21.6	2.59	1380	--	36	46	97	100	--
06...	1315	620	22.4	5.20	4.91	480	--	90	95	100	--	--
06...	1320	620	--	11.2	4.70	462	--	91	96	100	--	--
06...	1325	620	--	16.0	3.72	484	--	86	89	100	--	--
06...	1330	620	--	18.7	3.42	499	--	84	88	99	100	--
06...	1335	620	--	20.2	3.07	556	--	78	81	97	100	--
06...	1340	620	--	21.1	2.85	626	--	69	73	95	100	--
06...	1345	620	--	21.6	2.46	489	--	85	88	96	100	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)	DEPTH AT SAMPLE LOCATION, TOTAL (FEET) (81903)	SAMPLING DEPTH (FEET) (00003)	STREAM VELOCITY, POINT (FPS) (81904)	SEDIMENT, SUSPENDED (MG/L) (80154)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
JUL												
30...	WATER TEMPERATURE, 25.0° (1115-1420 HOURS); DISCHARGE, 53,900ft³/s.											
30...	1115	160	14.8	3.40	4.93	253	--	66	74	97	100	--
30...	1120	160	--	7.40	4.30	213	--	3	20	90	100	--
30...	1125	160	--	10.6	3.78	436	--	40	51	88	99	100
30...	1130	160	--	12.3	3.83	535	--	31	42	78	100	--
30...	1135	160	--	13.3	3.72	775	--	25	35	74	100	--
30...	1140	160	--	13.9	3.42	817	--	21	30	72	100	--
30...	1155	340	14.0	3.20	5.45	439	--	39	53	97	100	--
30...	1200	340	--	7.00	5.32	532	--	35	47	94	100	--
30...	1205	340	--	10.0	4.89	555	--	32	44	92	100	--
30...	1210	340	--	11.7	5.02	809	--	17	27	80	100	--
30...	1215	340	--	12.6	5.13	740	--	24	37	86	100	100
30...	1220	340	--	13.2	4.78	1330	--	14	24	81	100	--
30...	1230	475	16.4	--	--	374	14	27	--	--	--	--
30...	1315	560	21.0	4.90	5.98	257	--	61	71	98	100	--
30...	1320	560	--	10.5	5.80	340	--	52	66	99	100	--
30...	1325	560	--	15.0	5.45	273	--	62	74	99	100	--
30...	1330	560	--	17.5	5.13	472	--	39	55	99	100	--
30...	1335	560	--	18.9	4.80	349	--	49	61	98	100	--
30...	1340	560	--	19.8	4.80	528	--	35	51	100	--	--
30...	1345	560	--	20.2	4.30	570	--	32	49	99	100	--
30...	1355	660	20.2	4.70	5.24	196	--	89	96	100	--	--
30...	1400	660	--	10.1	5.24	201	--	77	86	100	--	--
30...	1405	660	--	14.4	4.80	191	--	79	88	100	--	--
30...	1410	660	--	16.8	4.80	199	--	82	90	100	--	--
30...	1415	660	--	18.2	4.72	195	--	81	90	100	--	--
30...	1420	660	--	19.0	4.02	211	--	75	85	100	--	--
SEP												
05...	WATER TEMPERATURE, 22.0° (1005-1300 HOURS); DISCHARGE, 48,900ft³/s.											
05...	1005	150	11.8	2.70	4.28	169	--	65	80	97	100	--
05...	1013	150	--	5.90	4.07	242	--	52	63	96	100	--
05...	1021	150	--	8.40	3.37	275	--	41	52	93	100	--
05...	1029	150	--	9.80	3.20	320	--	36	45	91	100	--
05...	1037	150	--	10.6	3.28	409	--	28	38	86	100	--
05...	1040	280	13.4	3.10	6.19	236	--	49	61	97	100	--
05...	1045	280	--	6.70	5.67	348	--	36	46	96	100	--
05...	1050	280	--	9.60	5.15	474	--	27	39	96	100	--
05...	1055	280	--	11.2	5.67	489	--	25	40	98	100	--
05...	1100	280	--	12.1	4.54	470	--	23	38	96	100	--
05...	1105	280	--	12.6	4.80	539	--	23	37	95	100	--
05...	1110	400	15.0	3.50	5.89	--	--	--	--	--	--	--
05...	1115	400	--	7.50	5.59	--	--	--	--	--	--	--
05...	1120	400	--	10.7	5.41	--	--	--	--	--	--	--
05...	1125	400	--	12.5	5.02	--	--	--	--	--	--	--
05...	1128	400	15.0	--	--	522	8	15	--	--	--	--
05...	1130	400	--	13.5	5.30	--	--	--	--	--	--	--
05...	1140	500	18.0	4.20	6.02	272	--	45	60	99	100	--
05...	1145	500	--	9.00	5.76	360	--	34	50	98	100	--
05...	1150	500	--	12.9	5.45	545	--	23	40	98	100	--
05...	1155	500	--	15.0	5.37	449	--	27	43	98	100	--
05...	1200	500	--	16.2	5.37	557	--	21	38	98	100	--
05...	1205	500	--	17.0	5.02	645	--	19	35	94	100	--
05...	1210	580	20.2	4.70	5.24	234	--	49	60	97	100	--
05...	1215	580	--	10.1	5.24	351	--	35	47	96	100	--
05...	1220	580	--	14.4	5.02	233	--	51	62	99	100	--
05...	1225	580	--	16.8	4.59	305	--	40	52	96	100	--
05...	1230	580	--	18.2	4.37	392	--	29	42	96	100	--
05...	1235	580	--	19.0	4.50	638	--	21	33	88	100	--

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	NUMBER OF SAMPLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
OCT											
26...	1515	5	--	0	22	93	100	--	--	--	--
MAY											
09...	1530	4	0	1	25	80	90	97	99	100	--
JUN											
06...	1415	5	0	1	19	92	98	99	100	--	--
JUL											
30...	1250	5	--	0	26	99	100	--	--	--	--
SEP											
05...	1300	5	0	1	22	95	99	99	99	99	100

06807000 MISSOURI RIVER AT NEBRASKA CITY, NE

LOCATION.--Lat 40°40'55", long 95°50'48", in NW1/4 NE1/4 sec.9, T.8 N., R.14 E., Otoe County, Hydrologic Unit 10240001, on right bank 0.7 mi upstream from Waubonsie Highway Bridge at Nebraska City, and at mile 562.6.

DRAINAGE AREA .--410,000 mi², approximately. The 3,959 mi² in Great Divide basin are not included.

PERIOD OF RECORD.--August 1929 to current year. Gage-height records collected in this vicinity from August 1878 to December 1899 are contained in reports of Missouri River Commission.

REVISED RECORDS.--WSP 761: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 905.36 ft NGVD, supplementary adjustment of 1954. See WSP 1918 or 1919 for history of changes prior to Apr. 1, 1963.

REMARKS.--Records good except those for Dec. 25 to Feb. 4, which are poor. Flow regulated by upstream main-stem reservoirs. National Weather Service gage-height telemeter at station. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--55 years, 36,530 ft³/s, 26,470,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 414,000 ft³/s Apr. 19, 1952; maximum gage height, 27.66 ft Apr. 18, 1952; minimum discharge, 1,600 ft³/s Dec. 31, 1946 (discharge measurement); minimum gage height observed, -0.28 ft Dec. 24, 1960, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 182,000 ft³/s June 15, gage height, 24.78 ft; minimum daily, 22,900 ft³/s Dec.24; minimum gage height, 5.07 ft Dec. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53000	43800	41000	33500	32700	47100	66500	98500	64300	114000	59800	54700
2	53100	45800	40500	33800	34000	46300	67400	100000	65000	101000	59200	55600
3	52700	47100	40700	33400	35400	46100	80900	101000	64900	89100	58500	54500
4	52400	48700	39600	33000	37800	47100	97700	101000	63000	83800	57800	54000
5	52700	47900	38300	33000	41500	48700	101000	100000	65600	80000	58100	53800
6	52200	47600	38600	33000	39300	50700	91800	99700	66600	78300	58800	54400
7	51700	47500	36500	33000	37900	48700	84100	98200	64000	71800	59300	54400
8	50400	47100	34600	33000	35700	47700	83100	106000	67200	65900	59200	55000
9	49300	47800	33500	33000	36300	44400	93700	108000	92000	61700	58700	54500
10	49200	48100	32400	32200	38500	40900	97700	99700	94900	58800	58000	54300
11	50200	48800	33200	32000	40600	41800	93000	94600	77500	59600	57500	53800
12	50100	48200	33400	31800	43800	44200	94400	90600	76900	62100	56000	55200
13	49000	47900	34800	31500	46500	44900	104000	85300	136000	64300	56200	55900
14	47700	48200	34100	31300	47600	45700	113000	77900	166000	64500	55800	56300
15	47500	48200	33600	31000	53700	48800	112000	72200	180000	64700	54600	56100
16	46900	48000	33600	31000	60100	54100	110000	67800	163000	65900	54500	56400
17	46700	48200	32200	31000	64200	52900	110000	64100	161000	66700	55000	57000
18	46700	48500	31200	31000	64600	50500	112000	61600	170000	67800	54900	56900
19	47200	48900	31000	30800	60600	51600	108000	78300	172000	68200	54600	56300
20	48500	49600	29400	30000	53100	50100	99300	97100	161000	67900	54900	55800
21	49200	50700	29300	29400	50200	49800	93800	80200	147000	66900	54900	55800
22	49000	50500	29000	29300	51200	50500	99500	76500	136000	65300	55900	55100
23	48000	50300	26100	29500	53600	54000	111000	90500	134000	62700	55900	54500
24	48400	50400	22900	31000	53900	63100	111000	78700	135000	61000	55400	54800
25	47900	49300	24700	31900	51500	65900	96200	74700	136000	59700	55600	55200
26	47300	47400	27700	32100	50900	68700	87000	76900	135000	59200	55800	55200
27	46800	47600	31000	32400	51100	78000	85400	74400	135000	61000	56000	55400
28	46000	46900	35500	32400	49700	78400	87700	70000	135000	62000	55300	55100
29	46100	43000	34800	32400	48300	75200	83500	71500	134000	60700	54900	54400
30	45300	41500	34200	32400	---	72300	95100	75200	126000	60100	55100	53800
31	43900	---	33500	32400	---	69200	---	69900	---	60400	55100	---
TOTAL	1515100	1433500	1030900	987500	1364300	1677400	2869800	2640100	3523900	2135100	1751300	1654200
MEAN	48870	47780	33250	31850	47040	54110	95660	85160	117500	68870	56490	55140
MAX	53100	50700	41000	33800	64600	78400	113000	108000	180000	114000	59800	57000
MIN	43900	41500	22900	29300	32700	40900	66500	61600	63000	58800	54500	53800
AC-FT	3005000	2843000	2045000	1959000	2706000	3327000	5692000	5237000	6990000	4235000	3474000	3281000

CAL YR 1983	TOTAL	20173000	MEAN	55270	MAX	119000	MIN	22900	AC-FT	40010000
WTR YR 1984	TOTAL	22583100	MEAN	61700	MAX	180000	MIN	22900	AC-FT	44790000

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1951 to current year. Daily sediment loads August 1957 to September 1971 in reports of Corps of Engineers.

REMARKS.--Samples for particle size distribution were collected from boat cross-section 0.7 mi upstream from gage.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1951 to September 1976.
WATER TEMPERATURES: May 1951 to September 1976.
SEDIMENT DISCHARGE: October 1971 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 994 micromhos Dec. 17, 1962; minimum daily, 273 micromhos June 17, 1964.
WATER TEMPERATURES: Maximum daily, 31°C July 26, 1977; minimum, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,220 mg/L May 19, 1974; minimum daily mean, 137 mg/L Jan. 14, 1975.
SEDIMENT LOADS: Maximum daily, 1,590,000 tons May 19, 1974; minimum daily, 4,050 tons Jan. 17, 1972.

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)	DEPTH AT SAMPLE LOCATION, TOTAL (FEET) (81903)	SAMPLING DEPTH (FEET) (00003)	STREAM VELOCITY, POINT (FPS) (81904)	SEDIMENT, SUSPENDED (MG/L) (80154)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
OCT												
11...	WATER TEMPERATURE, 16.0° (1330-1430 HOURS); DISCHARGE, 50,100ft³/s.											
11...	1330	530	18.0	4.20	4.26	268	--	89	100	--	--	--
11...	1332	530	--	9.00	3.83	278	--	83	90	100	--	--
11...	1334	530	--	12.9	3.39	249	--	75	87	100	--	--
11...	1336	530	--	15.0	3.18	311	--	79	88	100	--	--
11...	1337	530	--	16.2	2.74	346	--	68	77	100	--	--
11...	1338	530	--	17.0	2.42	344	--	70	78	100	--	--
11...	1339	305	16.4	--	--	937	10	23	--	--	--	--
11...	1340	395	15.2	3.50	6.52	319	--	77	87	100	--	--
11...	1342	395	--	7.60	5.78	499	--	56	66	100	--	--
11...	1344	395	--	10.9	5.24	812	--	36	44	99	100	--
11...	1346	395	--	12.7	5.56	966	--	28	38	98	100	--
11...	1348	395	--	13.7	4.59	1170	--	23	29	98	100	--
11...	1349	395	--	14.3	4.48	1260	--	21	27	94	100	--
11...	1400	215	21.5	4.40	6.52	363	--	58	68	100	--	--
11...	1402	215	--	9.50	5.45	490	--	38	48	98	100	--
11...	1404	215	--	13.6	4.70	839	--	32	40	96	100	--
11...	1406	215	--	15.8	4.37	1270	--	21	27	83	98	--
11...	1410	90.0	18.6	4.30	4.70	329	--	76	88	100	--	--
11...	1412	90.0	--	9.30	4.80	369	--	71	80	100	--	--
11...	1414	90.0	--	13.3	4.15	386	--	66	76	100	--	--
11...	1416	90.0	--	15.5	3.83	395	--	64	70	98	100	--
11...	1418	90.0	--	16.7	3.18	408	--	62	70	100	--	--
11...	1420	90.0	--	17.5	2.96	427	--	56	64	98	100	--
JUN												
05...	WATER TEMPERATURE, 19.0° (1050-1500 HOURS); DISCHARGE, 66,500ft³/s.											
05...	1050	90.0	23.8	5.50	6.15	842	--	91	95	100	--	--
05...	1055	90.0	--	11.9	5.91	1010	--	78	84	99	100	--
05...	1100	90.0	--	17.0	4.96	1160	--	70	77	99	100	--
05...	1105	90.0	--	19.8	4.80	1410	--	58	65	99	100	--
05...	1110	90.0	--	21.4	1.83	1570	--	53	60	99	99	100
05...	1120	90.0	--	22.4	1.39	1480	--	55	63	99	100	--
05...	1130	90.0	--	22.9	1.24	1560	--	52	59	98	100	--
05...	1140	195	20.2	4.70	6.71	1160	--	83	88	100	--	--
05...	1145	195	--	10.1	6.60	1480	--	69	75	99	100	--
05...	1150	195	--	14.4	6.00	2070	--	51	58	98	100	--
05...	1155	195	--	16.8	5.45	2340	--	43	48	95	99	100
05...	1200	195	--	18.2	5.35	2240	--	45	50	95	100	--
05...	1205	195	--	19.0	4.98	2720	--	39	47	90	98	100
05...	1300	310	18.4	--	--	2550	22	55	--	--	--	--
05...	1315	450	20.4	4.70	5.63	2030	--	98	99	100	--	--
05...	1320	450	--	10.2	5.02	2250	--	92	95	100	--	--
05...	1325	450	--	14.6	4.44	2460	--	87	91	100	--	--
05...	1330	450	--	17.0	4.00	2570	--	83	89	100	--	--
05...	1340	450	--	18.4	3.74	2590	--	81	86	99	100	--
05...	1345	450	--	19.2	.91	2740	--	77	84	99	100	--
05...	1400	600	13.4	3.10	.87	2070	--	99	100	--	--	--
05...	1405	600	--	6.60	.94	2140	--	99	100	--	--	--
05...	1410	600	--	9.40	1.15	2180	--	98	100	--	--	--
05...	1415	600	--	11.0	3.09	2210	--	98	100	--	--	--
05...	1420	600	--	11.9	3.24	2200	--	98	100	--	--	--
05...	1430	600	--	12.4	3.20	2210	--	98	100	--	--	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)	DEPTH AT SAMPLE LOCATION, TOTAL (FEET) (81903)	SAMPLING DEPTH (FEET) (00003)	STREAM VELOCITY, POINT (FPS) (81904)	SEDIMENT, SUSPENDED (MG/L) (80154)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
JUL												
24...	WATER TEMPERATURE, 25.5° (1155-1520 HOURS); DISCHARGE, 60,900ft³/s.											
24...	1155	90.0	19.2	4.40	7.00	376	--	61	68	100	--	--
24...	1200	90.0	--	9.60	6.97	530	--	40	47	100	--	--
24...	1205	90.0	--	13.7	6.28	555	--	41	47	100	--	--
24...	1210	90.0	--	16.0	6.41	436	--	50	57	100	--	--
24...	1215	90.0	--	17.3	5.87	742	--	31	36	98	100	--
24...	1220	90.0	--	18.1	5.37	914	--	24	34	98	100	--
24...	1340	275	15.0	--	--	551	13	29	--	--	--	--
24...	1345	185	16.4	4.30	7.86	345	--	57	67	99	100	--
24...	1350	185	--	9.20	7.02	521	--	37	47	97	100	--
24...	1355	185	--	13.1	6.76	655	--	29	36	97	99	100
24...	1400	185	--	15.3	6.84	1070	--	18	28	98	100	--
24...	1405	185	--	16.6	6.50	871	--	23	32	93	100	--
24...	1410	185	--	17.3	6.13	1860	--	11	18	92	99	100
24...	1425	405	17.4	4.00	3.94	227	--	85	96	100	--	--
24...	1430	405	--	8.70	4.02	305	--	67	76	100	--	--
24...	1435	405	--	12.4	3.50	322	--	60	70	100	--	--
24...	1440	405	--	14.5	3.20	247	--	79	85	100	--	--
24...	1445	405	--	15.7	2.85	294	--	65	74	100	--	--
24...	1450	405	--	16.4	2.63	--	--	72	81	100	--	--
24...	1500	555	10.2	2.40	1.68	183	--	94	--	--	--	--
24...	1505	555	--	5.10	1.89	182	--	91	--	--	--	--
24...	1510	555	--	7.30	1.94	184	--	92	--	--	--	--
24...	1515	555	--	8.50	1.76	160	--	93	--	--	--	--
24...	1520	555	--	9.20	1.55	253	--	95	--	--	--	--
SEP												
04...	WATER TEMPERATURE, 22.0° (1205-1300 HOURS); DISCHARGE, 51,600ft³/s.											
04...	1208	80.0	--	15.1	4.52	480	--	33	42	80	100	--
04...	1215	80.0	--	15.8	4.04	487	--	30	41	81	100	--
04...	1225	210	18.0	4.20	6.54	328	--	45	58	98	100	--
04...	1230	210	--	9.00	5.70	543	--	27	41	91	100	--
04...	1235	210	--	12.9	4.59	654	--	22	32	76	100	--
04...	1240	210	--	15.0	4.37	1490	--	10	18	79	100	--
04...	1245	210	--	16.2	3.68	1320	--	12	21	80	100	--
04...	1250	210	--	17.0	2.81	1550	--	11	19	76	99	100
04...	1300	330	15.8	3.70	6.59	--	--	--	--	--	--	--
04...	1308	330	--	7.90	5.89	--	--	--	--	--	--	--
04...	1310	330	--	--	--	1140	4	10	--	--	--	--
04...	1316	330	--	11.3	5.32	--	--	--	--	--	--	--
04...	1324	330	--	13.2	4.74	--	--	--	--	--	--	--
04...	1332	330	--	14.2	4.50	--	--	--	--	--	--	--
04...	1340	330	--	14.9	4.54	--	--	--	--	--	--	--
04...	1345	430	14.0	3.20	6.19	305	--	46	60	99	100	--
04...	1350	430	--	7.00	5.98	388	--	33	44	96	100	--
04...	1355	430	--	10.0	5.93	491	--	30	42	94	100	--
04...	1400	430	--	11.7	5.54	604	--	24	34	95	100	--
04...	1405	430	--	12.6	5.45	539	--	24	37	95	100	--
04...	1410	430	--	13.2	5.02	656	--	22	37	89	100	--
04...	1415	560	20.6	4.80	4.59	172	--	82	90	97	100	--
04...	1420	560	--	10.3	4.33	165	--	76	84	97	100	--
04...	1425	560	--	14.7	3.63	196	--	66	75	96	100	--
04...	1430	560	--	17.2	3.20	217	--	61	70	97	100	--
04...	1435	560	--	18.5	2.98	223	--	63	72	95	100	--
04...	1440	560	--	19.4	2.81	234	--	55	63	97	100	--

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	NUMBER OF SAMPLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
OCT											
11...	1430	5	--	0	15	35	64	81	91	96	100
JUN											
05...	1500	4	0	1	29	46	71	87	96	99	100
SEP											
04...	1500	5	--	0	14	67	84	94	99	100	--

MICELLANEOUS SEDIMENT RECORDS, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
JUN						
18...	0930	24.0	165000	2030	904000	98

06807410 WEST NISHNABOTNA RIVER AT HANCOCK, IA

LOCATION.--Lat 41°23'24",long 95°22'17",in NW1/4 NE1/4 sec.18, T.76 N., R.39 W., Pottawattamie County, Hydrologic Unit 10240002, on right bank at upstream side of bridge on county highway G30, 0.6 mi west of Hancock school, 3.0 mi downstream from Jim Creek, 59.6 mi upstream from confluence with East Nishnabotna River, and at mile 75.1 mi above mouth of Nishnabotna River.

DRAINAGE AREA.--609 mi².

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,085.83 ft NGVD. Prior to Sept. 15, 1980, on downstream end of right pier at same datum.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--25 years, 286 ft³/s, 6.38 in/yr, 207,200 acre-ft/yr; median of yearly mean discharges, 240 ft³/s, 5.4 in/yr, 174,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,400 ft³/s Sept. 13, 1972, gage height, 22.12 ft; minimum daily, 2.2 ft³/s Feb. 8, 9, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 30	1015	6,840	10.55	June 15	0900	*12,000	*14.52
June 13	1530	5,170	9.57	June 16	2030	10,300	13.28

Minimum daily discharge, 84 ft³/s Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	145	180	110	130	586	573	2770	1030	998	424	174
2	84	146	220	120	130	581	582	2370	1200	961	441	269
3	107	162	190	120	140	546	796	2180	1080	932	383	239
4	142	222	210	130	140	537	990	1930	1260	911	366	193
5	116	193	185	140	150	528	846	1830	1940	887	358	180
6	100	167	170	140	140	454	761	1650	1300	854	347	174
7	95	158	170	140	130	440	712	1720	1130	840	340	173
8	90	155	160	130	130	434	846	1470	1070	802	357	191
9	85	181	160	130	130	402	1140	1340	1320	762	324	181
10	108	253	150	120	150	410	965	1270	1210	734	302	186
11	562	221	150	120	200	408	890	1200	1020	726	287	195
12	563	199	140	120	500	373	1060	1120	2030	681	279	181
13	272	200	140	120	1000	399	1290	1100	3830	653	270	174
14	209	204	130	120	800	392	1110	988	2940	641	261	164
15	194	207	130	120	800	514	1050	952	6690	861	257	159
16	174	190	120	120	2000	688	969	916	6020	690	253	158
17	160	184	110	120	1620	474	902	879	4230	644	256	157
18	152	184	110	118	1180	443	837	873	2860	603	263	155
19	172	201	100	110	1020	412	792	1070	2240	573	260	152
20	209	278	100	100	876	395	759	1010	2060	589	243	149
21	267	252	100	100	881	411	799	885	2050	593	252	144
22	223	224	100	105	1250	427	1530	906	1820	524	255	143
23	197	221	95	110	1610	653	1590	1110	1610	489	239	146
24	176	211	95	115	981	1130	1280	945	1450	463	227	163
25	165	209	95	120	834	916	1120	1340	1360	449	220	209
26	152	217	95	120	778	833	1050	1320	1320	571	213	313
27	150	211	90	120	740	841	1920	1100	1210	690	207	191
28	150	205	90	120	664	777	1350	1190	1140	492	198	173
29	141	211	90	120	597	745	1590	1470	1120	457	190	162
30	140	205	95	120	---	648	3670	1190	1040	431	181	158
31	144	---	100	120	---	603	---	1100	---	411	175	---
TOTAL	5590	6016	4070	3718	19701	17400	33769	41194	60580	20912	8628	5406
MEAN	180	201	131	120	679	561	1126	1329	2019	675	278	180
MAX	563	278	220	140	2000	1130	3670	2770	6690	998	441	313
MIN	84	145	90	100	130	373	573	873	1020	411	175	143
CFSM	.30	.33	.22	.20	1.12	.92	1.85	2.18	3.32	1.11	.46	.30
IN.	.34	.37	.25	.23	1.20	1.06	2.06	2.52	3.70	1.28	.53	.33
AC-FT	11090	11930	8070	7370	39080	34510	66980	81710	120200	41480	17110	10720

CAL YR 1983 TOTAL 209777 MEAN 575 MAX 5640 MIN 73 CFSM .94 IN 12.81 AC-FT 416100
WTR YR 1984 TOTAL 226984 MEAN 620 MAX 6690 MIN 84 CFSM 1.02 IN 13.87 AC-FT 450200

06808500 WEST NISHNABOTNA RIVER AT RANDOLPH, IA

LOCATION.--Lat 40°52'23", long 95°34'48", in NE1/4 NE1/4 sec.17, T.70 N., R.41 W., Fremont County, Hydrologic Unit 10240002, on right bank at upstream side of bridge on State Highway 184, 0.3 mi downstream from Deer Creek, 0.5 mi west of Randolph, and 16.0 mi upstream from confluence with East Nishnabotna River and at mile 31.5 above mouth of Nishnabotna River.

DRAINAGE AREA.--1,326 mi².

PERIOD OF RECORD.--June 1948 to current year.

REVISED RECORDS.--WSP 1440: Drainage area. WDR IA-74-1: 1973 (M). WDR IA-76-1: 1975 (P).

GAGE.--Water-stage recorder. Datum of gage is 932.99 ft NGVD, unadjusted. Prior to Aug. 26, 1955, nonrecording gage with supplementary water-stage recorder operating above 8.4 ft June 30, 1949 to Aug. 25, 1955 at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--36 years, 572 ft³/s, 5.86 in/yr, 414,400 acre-ft/yr; median of yearly mean discharges, 490 ft³/s, 5.0 in/yr, 355,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,500 ft³/s June 21, 1967, gage height, 22.60 ft; maximum gage height, 24.8 ft Mar. 5, 1949, from graph based on gage readings (backwater from ice); minimum daily discharge, 10 ft³/s Dec. 17-21, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of about 24 ft, discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 30	0930	10,200	18.11	June 13	0400	18,000	21.55
May 25	1315	7,260	16.23	June 15	1145	*20,900	*22.35
June 5	1230	7,550	16.45	June 17	0645	11,200	18.64

Minimum daily discharge, 250 ft³/s Dec. 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	278	329	358	260	400	842	1030	4540	1890	1770	801	454
2	276	325	401	280	440	836	1250	3600	2240	1710	818	454
3	279	523	397	300	460	778	1660	3230	2060	1660	818	454
4	296	720	401	330	500	844	1570	2970	2090	1670	757	454
5	332	438	401	360	450	844	1520	2800	5010	1600	746	440
6	328	398	389	380	400	781	1340	2570	2850	1520	735	430
7	313	361	350	380	370	740	1240	2400	2690	1470	714	415
8	308	342	300	360	360	725	1390	2370	3440	1410	752	400
9	308	410	350	340	390	700	1610	2120	3240	1380	725	390
10	332	489	400	320	460	715	2000	2010	2990	1350	676	381
11	560	448	400	300	550	704	1610	1920	2190	1350	619	401
12	676	423	380	300	1000	710	1800	1810	5150	1280	630	403
13	631	408	360	290	1900	674	1900	1940	12700	1230	620	376
14	453	398	340	290	1650	687	1800	1810	5740	1180	569	359
15	407	386	320	280	1470	726	1700	1620	19000	1210	581	352
16	379	378	310	280	3180	791	1530	1580	10100	1330	570	340
17	365	364	300	280	2220	898	1450	1520	8980	1190	516	334
18	351	356	300	270	1430	730	1360	1490	4740	1120	520	333
19	407	356	290	270	1400	722	1330	2900	3940	1090	540	330
20	410	355	290	270	1140	684	1300	2130	3230	1070	543	330
21	406	384	280	260	1050	715	1520	1820	3080	1070	559	327
22	460	397	280	260	1080	807	1870	2390	2860	1030	571	323
23	429	397	280	270	1350	942	2170	2350	2670	955	536	330
24	395	389	270	280	1500	1180	1970	2030	2440	905	498	325
25	372	358	270	300	1080	1500	1700	5470	2300	889	472	334
26	356	373	270	320	981	1400	1580	3020	2190	999	463	369
27	343	409	260	340	965	1760	2200	2430	2210	1070	454	460
28	338	450	260	360	914	1390	2450	2270	2000	1060	454	382
29	337	389	260	380	848	1200	3090	2260	1970	909	454	362
30	329	366	250	400	---	1130	8880	2210	1860	855	454	362
31	328	---	250	400	---	1040	---	2000	---	833	454	---
TOTAL	11782	12119	9967	9710	29938	28195	57820	75580	127850	38165	18619	11404
MEAN	380	404	322	313	1032	910	1927	2438	4262	1231	601	380
MAX	676	720	401	400	3180	1760	8880	5470	19000	1770	818	460
MIN	276	325	250	260	360	674	1030	1490	1860	833	454	323
CFSM	.29	.31	.24	.24	.78	.69	1.45	1.84	3.21	.93	.45	.29
IN.	.33	.34	.28	.27	.84	.79	1.62	2.12	3.59	1.07	.52	.32
AC-FT	23370	24040	19770	19260	59380	55920	114700	149900	253600	75700	36930	22620

CAL YR 1983 TOTAL 365068 MEAN 1000 MAX 6080 MIN 229 CFSM .75 IN 10.24 AC-FT 724100
WTR YR 1984 TOTAL 431149 MEAN 1178 MAX 19000 MIN 250 CFSM .89 IN 12.10 AC-FT 855200

06809210 EAST NISHNABOTNA RIVER NEAR ATLANTIC, IA

LOCATION.--Lat 41°20'46", long 95°04'36", in NW1/4 NW1/4 sec.35, T.76 N., R.37 W., Cass County, Hydrologic Unit 10240003, on left bank at downstream side of bridge on county highway, 1.6 mi upstream from Turkey Creek, 5.2 mi southwest of junction of U.S. Highway 6 and State Highway 83 in Atlantic, 69.1 mi upstream from confluence with West Nishnabotna River, and at mile 84.6 above mouth of Nishnabotna River.

DRAINAGE AREA.--436 mi².

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,105.83 ft NGVD. Prior to Oct. 1, 1970, at site 2.2 mi upstream at datum 5.00 ft higher.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--24 years, 220 ft³/s, 6.85 in/yr, 159,400 acre-ft/yr; median of yearly mean discharges, 220 ft³/s, 6.9 in/yr, 159,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,700 ft³/s Sept. 12, 1972, gage height, 22.81 ft; minimum daily, 2.5 ft³/s July 10, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 2, 1958 (corrected) reached a stage of 22.49 ft, from flood-mark, discharge, 34,200 ft ³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 27	0315	4,250	9.87	May 25	1145	4,170	9.79
Apr. 30	0130	*12,600	*15.42	June 16	1345	5,430	10.95

Minimum daily discharge, 50 ft³/s Dec. 21-30, Jan 16-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	68	135	55	75	361	345	1960	683	505	216	74
2	62	68	135	60	75	324	364	1660	741	493	213	99
3	64	81	130	60	80	308	584	1240	695	492	207	96
4	67	105	125	60	80	311	694	1040	1140	479	198	80
5	68	96	135	65	80	295	545	961	1440	460	193	76
6	65	87	130	65	80	267	487	840	924	448	196	74
7	62	81	120	65	80	265	475	814	847	428	186	74
8	62	78	100	65	80	287	1020	708	1500	414	251	77
9	62	97	95	60	85	282	1120	653	1480	405	196	76
10	61	166	95	60	100	315	799	615	1180	390	169	86
11	129	122	90	55	160	274	695	580	801	399	153	80
12	152	113	85	55	400	266	1230	539	1680	367	144	74
13	99	114	85	55	600	267	1050	522	2210	347	138	76
14	86	114	80	55	500	261	835	477	1420	346	133	83
15	83	116	70	55	1000	297	750	465	2390	869	122	75
16	77	108	60	50	1570	307	692	453	2840	414	119	71
17	71	106	60	50	801	265	642	436	2200	365	116	72
18	67	106	60	50	580	253	605	426	1460	325	112	73
19	73	115	55	50	650	253	576	508	1090	305	109	71
20	82	150	55	50	520	240	554	591	944	326	106	70
21	84	127	50	50	530	263	626	432	868	314	105	69
22	86	118	50	55	643	271	1660	546	795	271	103	69
23	88	114	50	55	637	367	1270	554	711	251	101	67
24	82	113	50	55	456	565	951	453	641	241	100	67
25	81	116	50	60	423	529	797	2550	608	235	100	80
26	77	123	50	60	413	489	780	1260	582	264	97	127
27	71	124	50	65	393	512	2400	922	573	374	91	92
28	70	100	50	65	378	497	1130	1050	562	264	85	86
29	68	120	50	70	362	473	3400	1030	564	241	83	82
30	67	110	50	70	---	403	5700	819	528	222	79	82
31	67	---	55	75	---	367	---	743	---	216	74	---
TOTAL	2395	3256	2455	1820	11831	10434	32776	25847	34097	11470	4295	2378
MEAN	77.3	109	79.2	58.7	408	337	1093	834	1137	370	139	79.3
MAX	152	166	135	75	1570	565	5700	2550	2840	869	251	127
MIN	61	68	50	50	75	240	345	426	528	216	74	67
CFSM	.18	.25	.18	.14	.94	.77	2.51	1.91	2.61	.85	.32	.18
IN.	.20	.28	.21	.16	1.01	.89	2.80	2.21	2.91	.98	.37	.20
AC-FT	4750	6460	4870	3610	23470	20700	65010	51270	67630	22750	8520	4720

CAL YR 1983	TOTAL	143838	MEAN 394	MAX 2080	MIN 50	CFSM .90	IN 12.27	AC-FT	285300
WTR YR 1984	TOTAL	143054	MEAN 391	MAX 5700	MIN 50	CFSM .90	IN 12.21	AC-FT	283700

06809500 EAST NISHNABOTNA RIVER AT RED OAK, IA

LOCATION.--Lat 41°00'31", long 95°14'29", in NW1/4 SE1/4 sec.29, T.72 N., R.38 W., Montgomery County, Hydrologic Unit 10240003, on left bank on downstream side of Coolbaugh Street bridge in Red Oak, and 0.2 mi upstream from Red Oak Creek, 38.0 mi upstream from confluence with West Nishnabotna River, and at mile 53.6 above mouth of Nishnabotna River.

DRAINAGE AREA.--894 mi².

PERIOD OF RECORD.--May 1918 to July 1925, May 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1240: 1921, 1922-23 (M), 1924, 1942 (M), 1944 (M), 1946. WSP 1440: Drainage area. WSP 1710: 1957.

GAGE.--Water-stage recorder. Datum of gage is 1,005.45 ft NGVD. Prior to July 5, 1925, nonrecording gage at present site at datum 4.60 ft higher. May 29, 1936, to Nov. 13, 1952, nonrecording gage with supplementary water-stage recorder in operation above 3.2 ft gage height July 30, 1939, to Nov. 13, 1952, and Nov. 14, 1952, to June 13, 1966, water-stage recorder, all at site 0.5 mi upstream at datum 5.00 ft higher. June 14, 1966, to Sept. 30, 1969, at present site at datum 5.00 ft higher.

REMARKS.--Records good except those for winter period, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--54 years (water years 1919-24, 1937-84), 388 ft³/s, 5.89 in/yr, 281,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft³/s Sept. 13, 1972, gage height, 27.43 ft; maximum gage height, 28.23 ft June 13, 1947, present datum; minimum daily discharge, 6 ft³/s Aug. 18, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 27	0930	7,680	15.06	June 13	0400	6,050	13.70
Apr. 30	1230	*15,000	*20.11	June 15	1000	12,100	18.28
May 25	1500	7,150	14.63	June 16	2000	9,680	16.61
June 8	0830	5,370	13.08				

Minimum daily discharge, 99 ft³/s Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	149	190	118	165	571	665	4670	1500	1080	373	144
2	99	150	160	124	175	560	723	3630	1520	1060	370	170
3	108	205	180	130	180	541	1050	3220	1670	1010	356	192
4	115	214	170	135	210	541	1460	2660	1680	1010	340	181
5	125	232	160	140	180	552	1190	2430	3400	968	330	154
6	118	209	150	146	215	500	1020	2150	2350	911	328	145
7	109	188	145	152	215	481	933	1980	1860	875	321	141
8	105	175	135	160	205	454	1360	1820	4550	834	333	150
9	104	212	130	155	210	439	2320	1640	2990	808	370	151
10	111	273	125	150	235	425	1760	1530	3300	813	302	157
11	194	301	120	145	450	512	1480	1460	2000	832	281	168
12	251	245	120	140	1190	457	2140	1360	3300	785	272	164
13	225	237	120	140	2080	432	2420	2080	5140	731	265	153
14	164	236	110	140	1490	498	1820	1320	3520	702	254	153
15	149	243	110	130	1580	504	1620	1200	8590	1720	246	160
16	142	236	110	130	2750	574	1470	1160	5760	1210	237	144
17	132	222	100	130	1610	518	1350	1100	4980	843	230	140
18	128	216	100	120	1150	497	1250	1080	3330	734	230	135
19	152	224	100	120	1150	476	1160	1710	2400	651	234	134
20	161	252	100	120	1050	451	1090	1530	2100	626	229	128
21	179	268	100	110	900	500	1250	1280	1960	660	234	124
22	183	242	100	110	923	529	2300	1520	1790	564	224	117
23	182	239	100	110	1030	621	2520	1680	1660	508	215	118
24	179	234	100	120	938	794	1900	1300	1500	478	203	118
25	161	227	100	130	735	945	1640	5700	1400	467	194	116
26	152	237	100	140	687	897	1570	3580	1350	543	188	149
27	146	264	100	150	653	1020	5120	2290	1320	678	181	176
28	145	283	104	160	611	962	2640	2100	1220	527	172	143
29	139	276	106	170	555	895	3650	2190	1210	456	168	132
30	143	205	110	165	---	783	12200	1800	1140	419	162	128
31	146	---	114	165	---	700	---	1640	---	392	149	---
TOTAL	4549	6894	3769	4255	23522	18629	63071	64810	80490	23895	7991	4385
MEAN	147	230	122	137	811	601	2102	2091	2683	771	258	146
MAX	251	301	190	170	2750	1020	12200	5700	8590	1720	373	192
MIN	99	149	100	110	165	425	665	1080	1140	392	149	116
CFSM	.16	.26	.14	.15	.91	.67	2.35	2.34	3.00	.86	.29	.16
IN.	.19	.29	.16	.18	.98	.78	2.62	2.70	3.35	.99	.33	.18
AC-FT	9020	13670	7480	8440	46660	36950	125100	128600	159700	47400	15850	8700

CAL YR 1983 TOTAL 270115 MEAN 740 MAX 3900 MIN 99 CFSM .83 IN 11.24 AC-FT 535800
WTR YR 1984 TOTAL 306260 MEAN 837 MAX 12200 MIN 99 CFSM .94 IN 12.74 AC-FT 607500

06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IA
(National stream-quality accounting network station)

LOCATION.--Lat 40°37'57", long 95°37'32", in SW1/4 SE1/4 sec.11, T.67 N., R.42 W., Fremont County, Hydrologic Unit 10240004, on left bank 1.7 mi downstream from confluence of East Nishnabotna and West Nishnabotna Rivers, 2 mi northeast of Hamburg, and at mile 13.8.

DRAINAGE AREA.--2,806 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1922 to September 1923, October 1928 to current year. Monthly discharge only for some periods published in WSP 1310.

REVISED RECORDS.--WSP 1240: 1923, 1929-37, 1938-40 (M), 1943 (M). WSP 1440: Drainage area. WDR IA-74-1: 1973.

GAGE.--Water-stage recorder. Datum of gage is 894.17 ft NGVD. See WSP 1730 for history of changes prior to prior to Nov. 16, 1950.

REMARKS.--Records good except those for winter period, which are poor. Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--57 years (water years 1923, 1929-84), 1,084 ft³/s, 5.25 in/yr, 785,400 acre-ft/yr; median of yearly mean discharges, 940 ft³/s, 4.5 in/yr, 681,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,500 ft³/s June 24, 1947, gage height, 26.03 ft, from flood-mark, present site and datum; maximum gage height, 27.46 ft Mar. 7, 1979 (back-water from ice); minimum daily discharge, 4.5 ft³/s Aug. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 27	1700	11,400	21.13	June 8	1830	10,200	20.46
Apr. 30	1900	21,800	25.65	June 9	2030	16,700	23.71
Mar. 26	0130	13,600	22.29	June 13	1130	21,900	27.08
June 5	2230	11,000	20.96	June 16	0345	24,300	27.90

Minimum daily discharge, 400 ft³/s Dec. 29-31, Jan 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	505	851	700	420	650	1620	2080	17000	4240	3660	1560	699
2	498	852	800	460	680	1620	2570	10900	4170	3540	1540	767
3	489	1080	860	500	690	1590	3910	9360	4540	3480	1550	803
4	488	1660	820	540	720	1590	3650	7870	4080	3750	1460	819
5	532	1100	780	570	720	1590	3660	7380	7680	3490	1440	753
6	539	1030	740	600	800	1550	3130	6210	8170	3240	1400	688
7	512	956	700	620	800	1470	2870	5580	4980	3050	1370	660
8	492	879	660	640	800	1410	3090	5120	9780	2950	1360	661
9	482	983	640	640	900	1360	3990	4660	10300	2820	1390	684
10	512	1170	600	620	1100	1590	4390	4320	13300	2710	1350	675
11	891	1090	560	600	1400	1390	3740	4160	7130	2820	1240	677
12	1070	1060	540	560	2000	1400	4060	4000	8740	2660	1200	696
13	1240	979	520	520	3500	1350	4690	4040	20000	2500	1160	643
14	1030	934	500	500	3940	1330	4590	4650	15300	2360	1130	613
15	921	899	490	490	3170	1400	4000	3670	20300	2300	1100	594
16	876	883	480	490	3770	1420	3710	3500	22800	3440	1070	589
17	848	862	470	490	4890	1630	3450	3350	22000	2680	1030	562
18	834	817	460	470	3460	1540	3240	3250	18500	2340	1020	552
19	915	817	450	470	3050	1410	3070	5870	14200	2190	1030	538
20	959	804	450	450	2790	1360	2930	5500	10800	2100	1020	520
21	942	817	440	420	2400	1340	3140	4360	8430	2040	1010	512
22	1030	846	440	400	2300	1540	4300	4630	7210	2030	1070	500
23	990	830	430	420	2450	1660	5280	5450	6660	1880	987	506
24	946	808	430	470	2720	1890	5030	4690	5490	1810	951	507
25	917	783	420	480	2330	2400	4280	9200	4920	1760	911	508
26	918	796	420	493	2000	2480	3920	11100	4580	1790	881	564
27	880	897	410	500	1890	2990	8640	6460	4350	1890	852	678
28	847	1140	410	520	1800	2900	7460	5510	4130	2060	821	688
29	829	956	400	600	1690	2600	7060	5180	3990	1770	791	617
30	832	850	400	650	---	2420	20100	5150	3820	1670	756	598
31	847	---	400	650	---	2200	---	4520	---	1610	725	---
TOTAL	24611	28429	16820	16253	59410	54040	140030	186640	284590	78390	35175	18871
MEAN	794	948	543	524	2049	1743	4668	6021	9486	2529	1135	629
MAX	1240	1660	860	650	4890	2990	20100	17000	22800	3750	1560	819
MIN	482	783	400	400	650	1330	2080	3250	3820	1610	725	500
CFSM	.28	.34	.19	.19	.73	.62	1.66	2.15	3.38	.90	.40	.22
IN.	.33	.38	.22	.22	.79	.72	1.86	2.47	3.77	1.04	.47	.25
AC-FT	48820	56390	33360	32240	117800	107200	277700	370200	564500	155500	69770	37430

CAL YR 1983 TOTAL 793604 MEAN 2174 MAX 9860 MIN 400 CFSM .78 IN 10.52 AC-FT 1574000
WTR YR 1984 TOTAL 943259 MEAN 2577 MAX 22800 MIN 400 CFSM .92 IN 12.51 AC-FT 1871000

06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1979 to September 1981.
WATER TEMPERATURES: April 1979 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 815 micromhos Sept. 16,18, 19, 28,30, 1979; minimum daily, 155 micromhos, July 20, 1981.
WATER TEMPERATURES: Maximum daily, 32.0°C July 14, 1980; minimum daily 0.0°C, on many days during winterr period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV												
21...	1240	804	630	8.1	6.0	60	11.7	98	2100	3000	290	61
FEB												
21...	1330	2400	470	7.7	5.0	260	12.6	103	6000	100000	200	45
MAY												
21...	1015	4100	520	7.4	18.0	170	8.8	97	1500	80000	230	41
AUG												
20...	1130	1060	575	8.5	24.0	75	7.8	96	1000	200	270	37

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
NOV												
21...	78	23	15	10	.4	3.1	229	43	27	.30	18	370
FEB												
21...	53	17	11	10	.3	4.3	158	36	22	.40	14	284
MAY												
21...	59	19	10	9	.3	3.0	185	31	17	.40	13	289
AUG												
20...	70	22	10	8	.3	2.1	229	42	12	.40	16	345

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
NOV												
21...	350	.50	803	5.6	.090	.12	2.0	.120	1.5	.160	.500	237
FEB												
21...	250	.39	1840	9.9	.450	.58	3.3	.090	2.6	.090	.840	1220
MAY												
21...	260	.39	3200	8.2	.080	.10	2.2	.090	3.1	.130	1.00	1750
AUG												
20...	310	.47	987	6.0	.010	.01	1.2	.180	--	.180	.380	248

DATE	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
NOV											
21...	514	89	2	<10	150	<.5	<1	<1	<3	4	4
FEB											
21...	7910	91	3	<10	130	<.5	<1	<1	<3	5	10
MAY											
21...	19400	75	1	30	160	<1	<1	<1	<3	2	39
AUG											
20...	710	96	2	20	140	<1	1	8	<3	4	7

DATE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV											
21...	3	22	110	.2	<10	1	3	<1	270	<6	17
FEB											
21...	<1	13	32	<.1	<10	1	4	<1	200	<6	6
MAY											
21...	4	13	6	.2	<10	<1	3	<1	230	<6	7
AUG											
20...	5	20	10	.1	<10	<1	3	<1	250	<6	15

06811840 TARKIO RIVER AT STANTON, IA

LOCATION.--Lat 40°58'52", long 95°06'32", in NW1/4 SW1/4 sec.4, T.71 N., R.37 W., Montgomery County, Hydrologic Unit 10240005, on right bank 10 ft downstream from bridge on county highway H42, 0.1 mi downstream from Little Tarkio Creek, and 0.5 mi west of Stanton.

DRAINAGE AREA.--49.3 mi².

PERIOD OF RECORD.--October 1957 to current year. Annual maximum, water years 1952-57.

REVISED RECORDS.--WSP 1919: 1960 (M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,104.67 ft NGVD.

REMARKS.--Records fair, except those for period of no gage-height record, July 6 to Sept. 12 and winter period, which are poor.

AVERAGE DISCHARGE.--27 years, 29.0 ft³/s, 7.99 in/yr, 21,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,500 ft³/s June 9, 1967, gage height, 28.56 ft, from rating curve extended above 1,600 ft³/s on basis of slope-area measurement of peak flow; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s, and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 19	0515	1,980	13.70	June 9	1630	*3,620	*15.65
May 25	0430	2,610	14.51	June 15	0130	2,800	14.73
June 5	0745	1,790	13.42				

Minimum daily discharge, no flow Sept. 21-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	6.8	9.0	7.7	10	15	36	151	78	58	13	1.2
2	4.2	6.4	11	7.8	20	14	175	131	73	55	12	2.0
3	3.9	22	10	7.9	30	14	190	106	70	62	11	1.7
4	4.0	10	12	7.9	35	18	93	137	71	62	10	1.4
5	4.4	6.1	11	8.2	17	15	69	111	413	52	9.0	1.2
6	4.7	6.0	8.6	8.6	25	14	56	93	105	48	8.0	1.0
7	4.8	6.0	8.9	8.6	14	14	57	81	179	46	7.0	.90
8	4.9	5.9	7.9	8.2	14	11	204	71	109	44	7.0	1.4
9	4.9	43	8.1	7.9	33	12	120	66	705	70	6.0	1.2
10	5.1	17	7.9	7.7	60	14	92	64	194	50	6.0	1.0
11	11	8.5	8.3	7.7	91	12	93	59	131	45	5.0	1.4
12	7.7	7.6	7.9	7.7	93	12	295	54	439	40	5.0	1.4
13	5.9	7.5	8.2	7.5	49	13	123	290	316	35	4.5	1.3
14	5.8	7.3	7.5	7.1	48	13	99	77	376	30	4.0	1.1
15	5.6	6.6	7.2	7.0	66	21	82	71	780	27	4.0	.86
16	5.8	6.4	7.1	7.0	62	14	70	68	257	24	3.5	.70
17	5.9	6.5	7.4	6.7	50	16	66	71	173	30	3.0	.58
18	5.8	6.5	7.6	6.5	45	14	70	84	139	26	3.0	.49
19	10	6.9	7.5	6.5	40	12	72	565	119	24	2.5	.21
20	7.9	6.5	7.4	6.2	36	17	57	154	109	30	2.5	.01
21	8.4	6.1	7.6	6.1	32	18	192	108	102	27	4.0	.00
22	8.8	6.8	7.6	6.6	30	37	135	272	94	24	4.0	.00
23	7.6	6.9	7.6	7.0	29	63	99	127	85	22	3.5	.00
24	6.9	6.8	7.4	6.8	25	61	79	112	77	20	3.0	.00
25	6.4	7.0	7.3	6.7	21	57	70	814	74	18	2.5	.00
26	6.1	8.0	7.2	6.8	20	109	68	171	81	22	2.5	.00
27	6.4	37	7.4	6.8	18	101	132	138	89	18	2.0	.00
28	6.1	46	7.7	7.0	10	71	91	123	71	16	2.0	.00
29	5.8	20	7.7	8.3	20	53	519	103	66	15	1.8	.00
30	5.9	12	7.6	9.0	---	42	362	94	61	14	1.6	.00
31	6.3	---	7.5	9.0	---	38	---	85	---	14	1.4	---
TOTAL	191.5	356.1	253.1	230.5	1043	935	3866	4651	5636	1068	154.3	21.05
MEAN	6.18	11.9	8.16	7.44	36.0	30.2	129	150	188	34.5	4.98	.70
MAX	11	46	12	9.0	93	109	519	814	780	70	13	2.0
MIN	3.9	5.9	7.1	6.1	10	11	36	54	61	14	1.4	.00
CFSM	.13	.24	.17	.15	.73	.61	2.62	3.04	3.81	.70	.10	.01
IN.	.14	.27	.19	.17	.79	.71	2.92	3.51	4.25	.81	.12	.02
AC-FT	380	706	502	457	2070	1850	7670	9230	11180	2120	306	42

CAL YR 1983 TOTAL 14697.67 MEAN 40.3 MAX 832 MIN .00 CFSM .82 IN 11.09 AC-FT 29150
WTR YR 1984 TOTAL 18405.55 MEAN 50.3 MAX 814 MIN .00 CFSM 1.02 IN 13.89 AC-FT 36510

06813500 MISSOURI RIVER AT RULO, NE

LOCATION.--Lat 40°03'13", long 95°25'19", in NW1/4 NW1/4 sec.17, T.1 N., R.18 E., Richardson County, Hydrologic Unit 10240005, on right bank at downstream side of bridge on U.S. Highway 159 at Rulo, 3.2 mi upstream from Big Nemaha River, and at mile 498.0.

DRAINAGE AREA.--414,900 mi², approximately. The 3,959 mi² in Great Divide basin are not included.

PERIOD OF RECORD.--October 1949 to current year in reports of Geological Survey. Gage-height record collected at site 80 ft upstream January 1886 to December 1899 published in reports of Missouri River Commission September 1929 to September 1950 in files of Kansas City office of Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 837.23 ft NGVD. Oct. 1949 to Sept. 12, 1950, nonrecording gage at site 80 ft upstream and Sept. 13, 1950 to Apr. 19, 1983, recording gage on downstream end of middle pier, all at same datum.

REMARKS.--Records good except those for Dec. 17 to Feb. 5, which are poor. Flow regulated by upstream main-stem reservoirs. National Weather Service gage-height telemeter at station. Corps of Engineers gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--35 years, 40,930 ft³/s, 29,650,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 358,000 ft³/s Apr. 22, 1952, gage height, 25.60 ft; minimum daily, 4,420 ft³/s Jan. 13, 1957; minimum gage height, 0.65 ft Jan. 7, 1971, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1881 reached a stage of 22.9 ft, from floodmark, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 242,000 ft³/s June 16, gage height, 24.40 ft; minimum daily, 23,300 ft³/s Dec. 24; minimum gage height not determined, occurred during period of no gage-height record Dec. 17 to Feb. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54200	46800	43200	34000	34000	50900	68600	123000	70500	136000	61300	55300
2	54500	46400	41700	33900	35000	49300	69700	116000	66600	125000	60000	55900
3	53600	47000	40700	33800	37000	48800	98300	111000	67400	115000	59000	56500
4	53100	50700	40200	33700	40000	48800	103000	111000	64300	116000	58600	55500
5	53600	50000	39000	33700	43000	50400	102000	110000	67000	110000	59000	54700
6	53700	48700	38800	33700	41000	53700	98200	110000	76400	96300	59400	55300
7	52800	48700	38400	33700	39400	52600	88900	110000	72400	84500	59900	55600
8	52000	48200	36000	33700	38400	50800	87100	109000	83200	75700	60000	56000
9	50100	49200	35000	33300	38600	49000	96400	112000	104000	68800	59400	55400
10	49600	52000	34100	32900	41200	44500	101000	112000	132000	66100	59400	55700
11	50500	52200	33900	32500	43800	44300	100000	104000	109000	65300	59400	55700
12	51600	50900	34500	32300	46300	46000	100000	97600	83600	65000	58600	55500
13	50900	49900	35000	32000	50200	47000	103000	92800	102000	65600	58300	56400
14	49500	48800	35200	31800	51800	46700	110000	88300	134000	66100	57600	56600
15	48300	49600	34000	31500	52200	48200	115000	82500	169000	66000	56800	56800
16	48300	49100	33900	31500	60100	53700	115000	76900	216000	67700	56300	57000
17	47500	49200	33000	31500	68200	56300	113000	71300	184000	70700	55600	57500
18	47800	49400	31800	31500	66000	53900	112000	66100	182000	71100	56100	58000
19	47900	50800	31400	31400	65500	52700	112000	77200	186000	71400	56100	56700
20	48700	50200	30000	30600	58100	53000	109000	107000	188000	70500	56400	57000
21	49600	51900	29500	30000	62600	51500	108000	103000	186000	69400	56400	56800
22	49200	52000	29300	29800	51500	52900	116000	90100	172000	69400	57500	56400
23	48400	51500	26800	30400	53200	58600	113000	93100	162000	67400	58000	56500
24	48300	52100	23300	31600	57400	68000	115000	91200	155000	65000	57500	56400
25	48500	52200	25500	32500	54500	76700	112000	85100	152000	63500	56900	56400
26	48000	50500	28400	33000	53300	75000	99900	90100	148000	62300	57300	56600
27	47500	51100	32000	33000	53100	86300	93400	84400	147000	63100	57500	56500
28	47300	54700	36000	33000	53300	88200	94900	78400	146000	65600	57100	55900
29	47100	49400	35200	33000	52500	82000	102000	72500	148000	64700	56300	54600
30	46800	45100	34500	33000	---	76600	132000	78800	145000	62600	55500	53900
31	46600	---	34000	33000	---	72900	---	71100	---	61500	55400	---
TOTAL	1545500	1498300	1054300	1005300	1441200	1789300	3088400	2925500	3918400	2387300	1792600	1683100
MEAN	49850	49940	34010	32430	49700	57720	102900	94370	130600	77010	57830	56100
MAX	54500	54700	43200	34000	68200	88200	132000	123000	216000	136000	61300	58000
MIN	46600	45100	23300	29800	34000	44300	68600	66100	64300	61500	55400	53900
AC-FT	3065000	2972000	2091000	1994000	2859000	3549000	6126000	5803000	7772000	4735000	3556000	3338000

CAL YR 1983 TOTAL 21352900 MEAN 58500 MAX 121000 MIN 23300 AC-FT 42350000
WTR YR 1984 TOTAL 24129200 MEAN 65930 MAX 216000 MIN 23300 AC-FT 47860000

06817000 NODAWAY RIVER AT CLARINDA, IA

LOCATION.--Lat 40°44'19", long 95°00'47", in SW1/4 NE1/4 sec.32, T.69 N., R.36 W., Page County, Hydrologic Unit 10240009, near left abutment on downstream side of bridge on State Highway 2 (city route), 0.5 mi downstream from North Branch, 1.2 mi east of city square of Clarinda, and 7.5 mi upstream from East Nodaway River.

DRAINAGE AREA.--762 mi².

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--May 1918 to July 1925, May 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1240: 1918-20 (M), 1921, 1922-25 (M), 1936-38, 1942, 1943-45 (M), 1948. WSP 1440: Drainage area. WSP 1710: 1958, 1959 (P).

GAGE.--Water-stage recorder. Datum of gage is 960.36 ft NVGD. Prior to July 5, 1925, and May 28, 1936, to Mar. 26, 1957 nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Clarinda municipal water supply is taken from Nodaway River, 500 ft above station. Average daily pumpage was 1.83 ft³/s. National Weather Service gage-height telemeter at station.

COOPERATION.--Average pumpage furnished by Clarinda water works.

AVERAGE DISCHARGE.--54 years (1918-24, 1936-84), 345 ft³/s, 6.15 in/yr, 250,000 acre-ft/yr; median of yearly mean discharges, 270 ft³, 4.8 in/yr, 196,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,100 ft³/S June 13, 1947, gage-height, 25.3 ft, from floodmark, from rating curve extended above 15,000 ft³/s on basis of an overflow profile and extended channel rating; minimum daily, 1.0 ft³/s Sept. 5, 9, 12, 1918, Dec. 9 27-31 1923. 27-31, 1923.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1903 reached a stage of 25.4 ft, from floodmarks, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 29	unknown	16,200	a14.49	May 25	1230	13,200	12.98
May 13	0800	8,110	9.90	June 9	2045	*18,400	*15.51
May 19	0800	9,790	11.04	June 15	0215	10,400	11.46

a From floodmark.
Minimum daily discharge, 30 ft³/s Oct. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	48	150	85	140	319	520	4130	1050	480	185	53
2	33	46	100	90	160	320	1400	2500	923	447	174	53
3	31	145	150	95	190	300	2980	2000	838	516	167	63
4	30	136	150	100	230	302	2300	1500	774	530	159	77
5	38	109	140	110	240	311	1250	2500	1990	456	155	67
6	40	103	140	120	200	271	940	1670	1290	395	150	61
7	40	86	135	120	150	257	803	1270	1170	352	143	56
8	40	81	130	120	160	235	2580	1090	3750	329	131	58
9	36	273	130	115	180	211	3480	971	6160	311	124	61
10	41	461	130	110	250	252	1980	860	6640	292	121	64
11	79	297	120	105	500	329	1560	813	2510	297	115	61
12	96	191	110	100	1000	240	2490	725	3910	291	111	67
13	79	172	100	100	2250	242	2160	2800	5290	261	108	72
14	60	160	100	100	1290	278	1560	1330	2770	239	105	67
15	52	162	100	100	1370	297	1350	912	7670	1270	96	60
16	47	150	95	100	2030	358	1180	789	4700	1220	89	56
17	47	132	90	97	1110	327	1030	712	2930	500	89	56
18	47	125	90	95	833	318	912	735	2330	381	87	53
19	53	132	90	95	1250	320	829	5000	1570	312	89	49
20	70	185	85	95	910	282	777	2840	1270	285	87	47
21	56	172	85	90	631	336	1340	1460	1210	279	87	46
22	77	140	85	90	574	475	3190	2930	1020	269	93	47
23	67	151	80	90	531	968	1990	2740	891	231	85	47
24	61	210	80	95	484	1080	1480	1400	774	214	77	49
25	60	178	80	95	428	944	1200	7930	693	200	72	52
26	51	185	80	100	402	1100	1070	4140	644	243	69	49
27	45	286	80	105	376	2080	1310	2330	775	827	67	47
28	48	573	80	110	341	1330	1390	1940	587	351	66	42
29	46	462	80	120	294	905	5130	1660	561	257	60	39
30	46	219	80	130	---	679	8970	1370	526	221	60	40
31	48	---	80	140	---	572	---	1170	---	199	56	---
TOTAL	1596	5770	3225	3217	18504	16238	59151	64217	67216	12455	3277	1659
MEAN	51.5	192	104	104	638	524	1972	2072	2241	402	106	55.3
MAX	96	573	150	140	2250	2080	8970	7930	7670	1270	185	77
MIN	30	46	80	85	140	211	520	712	526	199	56	39
CFSM	.07	.25	.14	.14	.84	.69	2.59	2.72	2.94	.53	.14	.07
IN.	.08	.28	.16	.16	.90	.79	2.89	3.13	3.28	.61	.16	.08
AC-FT	3170	11440	6400	6380	36700	32210	117300	127400	133300	24700	6500	3290

CAL YR 1983 TOTAL 204480 MEAN 560 MAX 5600 MIN 30 CFSM .74 IN 9.98 AC-FT 405600

06817000 NODAWAY RIVER AT CLARINDA, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1976 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to current year.
WATER TEMPERATURES: October 1975 to September 1978, October 1979 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1975 to current year.
r.SK
REMARKS.--Records of specific conductance are obtained from suspended-sediment samples at time of analysis. Suspended-sediment samples at normal flows and winter period are collected below dam 300 ft upstream from gage. Samples at higher stages are collected from bridge at gage. Random water temperatures are on file for the 1979 water year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 600 micromhos Aug. 22, 1982; minimum daily, 130 micromhos June 15, 1976.
WATER TEMPERATURES: Maximum daily, 30.5°C Aug. 23, 1978; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 23,800 mg/L Apr. 17, 1978; minimum daily mean, 5 mg/L Dec. 14, 1977, Feb. 24, 1978.
SEDIMENT LOADS: Maximum daily, 1,500,000 tons June 16, 1982; minimum daily, 0.23 ton Dec. 14, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 475 micromhos Nov. 27, Dec. 7; minimum daily, 160 micromhos June 15, 1976.
WATER TEMPERATURES: Maximum daily, 27.0°C Jul.2; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 12,200 mg/L May 13; minimum daily mean, 3 mg/L Jan. 30.
SEDIMENT LOADS: Maximum daily, 299,000 tons May 25; minimum daily, .73 ton Oct. 4.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C) WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	350	420	410	380	380	360	360	240	380	400	440	400
2	370	420	420	400	360	380	310	300	420	440	460	380
3	400	420	430	420	350	380	280	310	400	400	460	380
4	400	350	440	430	320	360	300	320	400	350	440	380
5	350	420	440	410	---	380	300	320	380	400	450	380
6	400	430	420	430	430	380	300	330	310	---	450	380
7	400	430	475	410	360	380	350	340	370	370	440	380
8	400	440	370	400	360	340	350	340	250	440	440	380
9	400	440	440	420	360	380	280	350	240	440	440	380
10	400	350	430	410	---	380	---	350	200	440	440	380
11	340	---	350	420	310	340	320	340	300	440	440	420
12	340	---	340	440	260	370	320	350	380	440	420	420
13	400	420	410	420	230	360	300	350	260	420	420	420
14	400	430	410	400	240	370	320	270	---	420	410	420
15	400	440	---	430	280	360	340	320	160	460	420	420
16	400	440	330	430	270	350	340	340	230	240	400	420
17	430	460	430	440	260	320	360	340	270	320	400	420
18	440	460	430	430	300	340	360	350	330	360	410	410
19	400	420	420	430	300	340	360	180	370	360	410	---
20	380	440	---	360	300	340	360	240	370	410	410	410
21	415	440	350	360	320	350	360	300	370	420	410	410
22	430	440	380	350	340	340	280	---	380	420	390	380
23	440	440	410	370	340	300	280	---	400	420	390	400
24	420	450	370	360	340	300	320	310	380	440	390	400
25	440	420	380	430	340	300	340	230	390	440	400	400
26	460	420	420	410	350	320	350	240	400	440	400	380
27	440	380	420	410	---	280	350	340	380	340	400	380
28	440	310	400	400	---	300	350	360	380	340	380	380
29	440	320	430	380	380	320	340	360	410	360	380	380
30	440	360	430	430	---	320	180	380	410	420	380	420
31	460	---	430	400	---	360	---	400	---	440	380	---

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	12.0	---	2.0	---	---	9.0	11.0	14.0	22.0	25.0	22.0
2	19.0	18.0	---	2.0	5.0	---	9.0	11.0	17.0	27.0	25.0	22.0
3	20.0	18.0	---	1.0	5.0	---	8.0	12.0	17.0	23.0	25.0	22.0
4	14.0	12.0	---	3.0	5.0	---	8.0	12.0	18.0	21.0	25.0	21.0
5	12.0	9.0	---	2.0	5.0	---	8.0	11.0	18.0	24.0	26.0	21.0
6	14.0	10.0	---	2.0	5.0	---	9.0	13.0	18.0	---	26.0	21.0
7	14.0	11.0	.0	2.0	5.0	---	10.0	14.0	21.0	21.0	26.0	22.0
8	13.0	13.0	---	2.0	5.0	---	10.0	13.0	21.0	22.0	25.0	21.0
9	14.0	13.0	---	2.0	6.0	---	9.0	14.0	19.0	24.0	25.0	20.0
10	11.0	6.0	---	---	5.5	---	---	14.0	20.0	24.0	25.0	---
11	13.0	---	---	---	5.0	6.0	8.5	16.0	18.0	24.0	22.0	21.0
12	13.0	6.0	---	---	5.0	---	8.0	14.0	21.0	24.0	23.0	21.0
13	10.0	9.5	---	---	6.0	---	8.0	14.0	20.0	24.0	25.0	23.0
14	8.0	17.0	---	---	5.0	---	11.0	---	---	24.0	24.0	16.0
15	10.0	11.0	---	---	6.0	---	10.0	14.0	21.0	24.0	26.0	16.0
16	13.0	8.0	1.0	---	6.0	---	10.0	12.0	22.0	22.0	25.0	13.0
17	13.0	16.0	1.0	.0	7.0	---	12.0	12.0	24.0	23.0	24.0	16.0
18	13.0	15.0	.0	---	7.0	---	10.0	20.0	23.0	23.0	24.0	15.0
19	14.0	14.0	---	---	7.0	---	11.0	19.0	23.0	23.0	24.0	---
20	14.0	14.0	---	---	7.0	---	11.0	18.0	24.0	24.0	---	15.0
21	13.0	14.0	1.0	---	4.0	4.0	11.0	---	24.0	25.0	24.0	14.0
22	11.0	13.0	1.0	1.0	5.0	5.0	11.0	---	24.0	25.0	23.0	14.0
23	11.0	13.0	.0	1.0	10.0	5.0	10.0	---	24.0	25.0	24.0	---
24	11.0	6.0	---	---	7.0	8.0	11.0	17.5	24.0	26.0	24.0	14.0
25	11.0	5.0	---	---	5.0	9.0	14.0	18.0	25.0	25.0	24.0	14.0
26	11.0	7.0	---	---	6.0	8.0	16.0	14.0	25.0	25.0	24.0	16.0
27	11.0	5.0	---	---	---	8.0	17.0	15.0	23.0	25.0	24.0	12.5
28	13.0	---	---	5.0	---	8.0	12.0	14.0	22.0	24.0	23.0	14.0
29	12.0	---	1.0	5.0	.0	5.0	12.0	14.0	22.0	24.0	23.0	15.0
30	13.0	---	1.0	---	---	---	10.0	15.0	22.0	24.0	22.0	14.0
31	10.0	---	1.0	---	---	---	---	15.0	---	25.0	22.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	23	2.0	19	2.5	49	20	18	4.1	27	10	158	136
2	24	2.1	18	2.2	34	9.2	10	2.4	56	24	169	146
3	22	1.8	388	152	58	23	8	2.1	64	33	138	112
4	9	.73	312	115	66	27	8	2.2	120	75	131	107
5	17	1.7	168	49	74	28	20	5.9	78	51	144	121
6	18	1.9	136	38	48	18	4	1.3	24	13	104	76
7	18	1.9	100	23	49	18	7	2.3	63	26	79	55
8	21	2.3	93	20	64	22	11	3.6	50	22	48	30
9	11	1.1	647	665	48	17	8	2.5	35	17	63	36
10	27	3.0	1060	1320	53	19	5	1.5	110	74	56	38
11	27	5.8	620	497	87	28	15	4.3	550	742	116	103
12	29	7.5	315	162	77	23	9	2.4	1380	3730	126	82
13	16	3.4	133	62	36	9.7	8	2.2	2400	14600	128	84
14	13	2.1	115	50	33	8.9	7	1.9	780	2720	181	136
15	14	2.0	92	40	27	7.3	6	1.6	2270	8780	166	133
16	13	1.6	77	31	19	4.9	7	1.9	3790	21200	311	303
17	14	1.8	71	25	18	4.4	10	2.6	2360	7070	238	210
18	20	2.5	56	19	13	3.2	8	2.1	1140	2560	158	136
19	27	3.9	34	12	14	3.4	12	3.1	1930	6510	116	100
20	34	6.4	168	90	22	5.0	15	3.8	1580	3880	112	85
21	25	3.8	214	99	20	4.6	15	3.6	580	988	278	252
22	24	5.0	94	36	13	3.0	15	3.6	450	697	580	744
23	19	3.4	71	29	13	2.8	13	3.2	434	622	2180	5700
24	17	2.8	216	122	12	2.6	11	2.8	327	427	1620	4720
25	13	2.1	236	113	9	1.9	8	2.1	238	275	1430	3640
26	14	1.9	172	86	9	1.9	10	2.7	198	215	1350	4960
27	15	1.8	348	331	12	2.6	4	1.1	162	164	3660	20700
28	19	2.5	804	1240	16	3.5	10	3.0	146	134	1510	5420
29	13	1.6	456	569	8	1.7	14	4.5	136	108	700	1710
30	13	1.6	152	90	9	1.9	3	1.1	---	---	420	770
31	13	1.7	---	---	6	1.3	10	3.8	---	---	330	510
TOTAL	---	83.73	---	6089.7	---	326.8	---	85.3	---	75767	---	51355

06817000 NODAWAY RIVER AT CLARINDA, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	370	519	1080	12000	541	1530	228	295	125	62	55	7.9
2	3850	14600	2550	17200	470	1170	212	256	95	45	53	7.6
3	4150	33400	1770	9560	390	882	1320	2060	65	29	90	15
4	2970	18400	1660	6720	343	717	1500	2150	53	23	83	17
5	1110	3750	1730	11700	1480	10100	710	874	69	29	40	7.2
6	610	1550	970	4370	1340	5030	301	321	84	34	31	5.1
7	650	1410	970	3330	1950	13400	170	162	89	34	38	5.7
8	2470	19000	620	1820	9180	102000	159	141	91	32	50	7.8
9	3420	33500	470	1230	8650	252000	154	129	103	34	32	5.3
10	1620	8660	450	1040	9760	219000	142	112	62	20	40	6.9
11	860	3620	420	922	2950	20000	150	120	72	22	33	5.4
12	2540	18500	370	724	3710	46000	144	113	85	25	32	5.8
13	2740	16500	12200	137000	3950	58800	139	98	77	22	35	6.8
14	1040	4380	2400	8620	1510	15600	143	92	66	19	30	5.4
15	680	2480	700	1720	9210	177000	3910	26600	39	10	16	2.6
16	489	1560	530	1130	5050	67200	5540	21800	85	20	24	3.6
17	410	1140	430	827	3000	23700	1280	1730	120	29	27	4.1
18	320	788	420	833	1930	12100	520	535	89	21	25	3.6
19	270	604	7540	117000	1230	5210	365	307	85	20	25	3.3
20	228	478	3300	25300	720	2470	259	199	108	25	27	3.4
21	1090	5370	1500	5910	668	2180	242	182	115	27	25	3.1
22	2980	25900	2190	21000	579	1590	246	179	105	26	15	1.9
23	1400	7520	1980	13900	508	1220	251	157	95	22	24	3.0
24	710	2840	1200	4540	420	878	226	131	83	17	30	4.0
25	460	1490	11400	299000	363	679	174	94	63	12	30	4.2
26	360	1040	6560	76500	318	553	184	121	51	9.5	20	2.6
27	1070	4210	720	4530	512	1070	2560	6380	86	16	19	2.4
28	1900	7450	1630	8540	428	678	1250	1180	78	14	15	1.7
29	6190	179000	1270	5690	167	253	390	271	92	15	7	.74
30	11400	296000	853	3160	136	193	225	134	76	12	8	.86
31	---	---	638	2020	---	---	163	88	58	8.8	---	---
TOTAL	---	715659	---	807836	---	1043203	---	67011	---	734.3	---	154.00

TOTAL LOAD FOR YEAR: 2768304.83 TONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
OCT							
25...	1050	11.0	60	17	2.8	--	--
DEC							
07...	1015	.0	133	74	27	--	--
FEB							
16...	0730	6.0	2460	4300	28600	37	40
29...	0902	.0	264	130	93	--	--
MAR							
27...	0730	8.0	2240	4570	27600	40	44
APR							
09...	0730	9.0	4000	3830	41400	35	38
MAY							
24...	0938	17.5	1430	1200	4630	35	37
JUN							
15...	0630	21.0	8390	12800	290000	44	47
AUG							
15...	1250	27.0	93	39	9.8	--	--
SEP							
27...	1200	11.0	47	19	2.4	--	--

06817000 NODAWAY RIVER AT CLARINDA, IA--Continued

WATER-QUALITY RECORDS

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 25...	--	--	--	--	--	--	83
DEC 07...	--	--	--	--	--	--	99
FEB 16...	44	55	--	--	--	--	96
29...	--	--	87	87	96	100	--
MAR 27...	48	56	95	98	100	--	--
APR 09...	42	50	93	97	100	--	--
MAY 24...	40	52	83	86	94	100	--
JUN 15...	52	58	96	98	100		
AUG 15...	--	--	--	--	--	--	88
SEP 27...	--	--	--	--	--	--	82

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)
OCT 25...	1105	60	3	--	0	3	35
DEC 07...	1040	133	3	--	0	4	48
JAN 17...	1000	97	3	0	1	4	54
FEB 29...	1000	264	3	1	3	59	98
APR 11...	0950	1580	3	--	0	9	92
MAY 24...	0944	1430	3	0	1	8	31
JUL 05...	1258	458	3	0	1	8	58
AUG 15...	1258	93	3	1	1	5	25
SEP 27...	1220	47	3	1	1	6	25

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT 25...	63	70	76	85	93	100
DEC 07...	79	87	92	95	97	100
JAN 17...	91	97	99	100	--	--
FEB 29...	100	--	--	--	--	--
APR 11...	99	99	100	--	--	--
MAY 24...	67	87	95	97	100	--
JUL 05...	76	86	91	96	100	--
AUG 15...	40	52	63	75	94	100
SEP 27...	40	53	63	74	89	100

06818750 PLATTE RIVER NEAR DIAGONAL, IA

LOCATION.--Lat 40°46'02", long 94°24'46", in NE1/4 NW1/4 sec.22, T.69 N., R.31 W., Ringgold County, Hydrologic Unit 10240012, on left bank at downstream side of bridge on county highway, 2.2 mi upstream from Turkey Creek, 4.6 mi southwest of Diagonal, and 4.9 mi downstream from Gard Creek.

DRAINAGE AREA.--217 mi².

PERIOD OF RECORD.--April 1968 to current year.

REVISED RECORDS.--WSP 2119: 1969 (P).

GAGE.--Water-stage recorder. Datum of gage is 1,095.27 ft NGVD.

REMARKS.--Records good except those for winter period, which are poor.

AVERAGE DISCHARGE.--16 years, 137 ft³/s, 8.57 in/yr, 99,260 acre-ft/yr; median of yearly mean discharges, 120 ft³/s, 7.5 in/yr, 86,940 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,420 ft³/s Oct. 12, 1973, gage height, 23.24 ft; minimum daily, 0.21 ft³/s Jan. 14, 15, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1967 reached a stage of 23.16 ft, from floodmark by local resident, discharge, 6,360 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 3,000 ft ³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 27	1315	3,340	16.37	May 25	1615	3,250	16.12
Apr. 30	0700	4,590	19.35	June 10	1045	4,190	18.42
May 19	1845	*6,190	*22.77	June 15	0215	5,700	21.77
May 22	1600	4,140	18.31				

Minimum daily discharge, 1.4 ft³/s Sept. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	14	100	28	100	78	159	733	141	64	12	5.3
2	3.3	33	80	30	150	69	948	495	115	61	11	6.6
3	3.6	78	60	32	200	64	2060	379	109	60	9.8	5.6
4	1.5	296	70	34	250	69	749	335	106	63	9.2	5.3
5	2.2	84	60	36	200	76	405	350	98	67	8.7	4.8
6	3.9	36	80	38	160	65	285	272	94	55	8.3	4.2
7	3.2	28	70	38	120	58	228	243	238	50	7.3	3.4
8	2.5	25	65	36	120	50	825	211	472	46	7.6	4.8
9	3.0	346	60	34	160	80	769	189	700	44	7.0	3.9
10	2.9	798	55	30	400	103	465	168	3380	38	6.3	3.2
11	6.6	155	50	28	700	51	359	169	748	36	5.9	2.5
12	21	84	50	28	1290	49	330	156	1180	34	5.8	3.4
13	20	83	45	28	583	54	275	481	831	31	5.6	3.2
14	8.0	113	45	26	303	54	246	246	1360	29	5.3	3.9
15	4.2	82	40	26	325	93	242	180	5060	37	5.2	3.4
16	3.4	60	40	26	386	103	227	152	2060	43	5.6	3.2
17	2.7	49	35	25	379	79	174	132	773	31	5.6	1.6
18	2.2	44	35	24	404	102	137	139	514	30	5.6	1.4
19	4.5	301	30	24	795	83	117	3420	320	25	5.6	1.4
20	27	193	30	23	282	124	108	2890	237	24	5.3	1.6
21	18	90	30	22	214	134	707	747	198	25	6.7	1.6
22	13	64	30	22	179	243	1480	2280	165	22	6.4	2.7
23	10	66	27	22	156	774	623	1130	141	19	7.0	1.6
24	9.2	94	27	23	128	966	370	423	123	18	6.3	1.7
25	6.9	104	27	24	110	677	267	1970	102	18	5.1	2.5
26	5.4	205	24	26	104	708	219	1050	91	108	5.2	2.6
27	4.9	436	24	30	94	997	1430	413	80	100	5.3	2.7
28	4.8	1370	24	40	78	546	492	573	72	30	5.3	2.3
29	4.8	422	25	50	74	339	953	318	76	19	5.3	2.1
30	4.8	220	26	70	---	232	3010	228	71	16	5.3	1.9
31	4.9	---	26	100	---	183	---	176	---	13	5.4	---
TOTAL	215.8	5973	1390	1023	8444	7303	18659	20648	19655	1256	206.0	94.4
MEAN	6.96	199	44.8	33.0	291	236	622	666	655	40.5	6.65	3.15
MAX	27	1370	100	100	1290	997	3010	3420	5060	108	12	6.6
MIN	1.5	14	24	22	74	49	108	132	71	13	5.1	1.4
CFSM	.03	.92	.21	.15	1.34	1.09	2.87	3.07	3.02	.19	.03	.02
IN.	.04	1.02	.24	.18	1.45	1.25	3.20	3.54	3.37	.22	.04	.02
AC-FT	428	11850	2760	2030	16750	14490	37010	40960	38990	2490	409	187

CAL YR 1983	TOTAL	58857.6	MEAN 161	MAX 2020	MIN 1.5	CFSM .74	IN 10.09	AC-FT	116700	
WTR YR 1984	TOTAL	84867.2	MEAN 232	MAX 5060	MIN 1.4	CFSM 1.07	IN 14.55	AC-FT	168300	

06819185 EAST FORK ONE HUNDRED AND TWO RIVER AT BEDFORD, IA

LOCATION.--Lat 40°39'38", long 94°42'59", in NE1/4 sec.35, T.68 N., R.34 W., Taylor County, Hydrologic Unit 10240013, on left bank at downstream side of bridge of county highway N44, 0.1 mi south of Bedford, 0.4 mi upstream from concrete stablization dam, and 3.0 mi upstream from Daugherty creek.

DRAINAGE AREA.--85.4 mi².

PERIOD OF RECORD.--October 1983 to Sept. 30, 1984.

GAGE.--Water-stage recorder. Datum of gage is 1,069.16 ft NGVD.

REMARKS.--Records good except those below 5.0 ft³/s and those for winter period, which are poor. Slight regulation at low flow by low dam used for water supply in Bedford. National Weather Service gage-height telemeter at station.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 27	0545	2,600	18.49	May 19	1100	2,700	18.25
Apr. 29	1900	3,090	18.96	May 22	1000	3,550	19.74
May 13	0730	2,450	17.75	June 15	0300	*4,930	*21.90

Minimum daily discharge, 0.38 ft³/s Sept. 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.83	3.2	37	5.0	30	16	61	246	34	14	2.6	.99
2	.78	1.7	26	5.0	80	15	697	233	30	12	2.9	.99
3	.74	9.7	17	5.0	80	20	1050	202	25	14	2.6	1.0
4	.71	56	19	6.0	60	20	215	269	22	21	2.3	1.0
5	.67	16	16	8.0	20	20	114	233	22	14	2.3	.99
6	.66	4.3	11	10	15	12	76	152	19	8.7	2.3	1.0
7	.64	3.3	12	10	10	14	60	125	29	6.1	2.3	1.0
8	.63	2.7	12	10	8.0	14	492	96	240	5.6	2.3	1.0
9	.61	196	10	10	15	11	266	82	171	5.6	2.3	1.0
10	.61	271	10	8.0	30	12	152	73	196	4.7	2.3	1.0
11	3.7	42	10	9.0	60	11	112	64	130	4.3	2.1	1.0
12	2.6	21	10	9.0	100	11	106	53	462	3.9	2.0	1.0
13	1.2	25	9.0	8.0	50	11	88	948	275	3.6	1.8	1.0
14	1.2	26	9.0	7.0	30	13	90	185	805	3.6	1.7	1.0
15	1.2	17	8.0	7.0	40	27	80	119	2370	3.6	1.5	1.0
16	1.2	15	8.0	8.0	70	21	78	94	359	3.2	1.3	1.0
17	1.2	15	7.0	6.5	60	24	51	77	194	3.2	1.2	.99
18	1.2	15	5.0	5.0	204	31	41	123	163	2.9	1.1	.84
19	5.1	54	4.0	4.0	293	19	36	2040	86	2.6	1.1	.41
20	9.0	32	5.0	4.0	85	48	34	813	62	2.3	1.2	.43
21	6.6	18	6.0	3.0	60	40	790	262	51	2.3	1.4	.42
22	3.9	17	5.0	3.5	50	176	453	1830	43	2.3	1.7	.40
23	2.3	21	5.0	4.0	44	436	182	306	33	2.3	1.8	.38
24	1.3	30	5.0	5.0	33	447	104	132	24	2.6	1.6	.38
25	1.3	33	5.0	6.0	27	360	72	269	19	2.6	1.4	.39
26	1.3	117	6.0	7.0	26	448	56	121	19	2.6	1.2	.39
27	1.3	372	6.0	8.0	23	379	1100	88	53	2.6	1.0	.40
28	1.3	438	6.0	20	17	203	158	163	25	2.6	1.0	.39
29	1.2	118	6.0	40	16	125	1030	78	21	2.3	.99	.39
30	1.2	54	5.0	50	---	90	840	54	16	2.3	1.0	.39
31	1.3	---	5.0	30	---	72	---	44	---	2.3	.99	---
TOTAL	57.48	2043.9	305.0	321.0	1636.0	3146	8684	9574	5998	165.7	53.28	22.57
MEAN	1.85	68.1	9.84	10.4	56.4	101	289	309	200	5.35	1.72	.75
MAX	9.0	438	37	50	293	448	1100	2040	2370	21	2.9	1.0
MIN	.61	1.7	4.0	3.0	8.0	11	34	44	16	2.3	.99	.38
CFSM	.02	.80	.12	.12	.66	1.18	3.38	3.62	2.34	.06	.02	.009
IN.	.03	.89	.13	.14	.71	1.37	3.78	4.17	2.61	.07	.02	.01
AC-FT	114	4050	605	637	3250	6240	17220	18990	11900	329	106	45

WTR YR 1984 TOTAL 32006.93 MEAN 87.5 MAX 2370 MIN .38 CFSM 1.03 IN 13.94 AC-FT 63490

06897950 ELK CREEK NEAR DECATUR CITY, IA
(Hydrologic bench-mark station)

LOCATION.--Lat 40°43'18", long 93°56'12", near SE corner sec.34, T.69 N., R.27 W., Decatur County, Hydrologic Unit 10280102, at right downstream corner of bridge on county highway, 1,000 ft downstream from West Elk Creek, 5.2 mi upstream from mouth, and 5.7 mi southwest of Decatur City.

DRAINAGE AREA.--52.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 924.70 ft NGVD. Oct. 1, 1967, to Sept. 30, 1974, at datum 10.00 10.00 ft higher.

REMARKS.--Records good except those for winter period, which are poor.

AVERAGE DISCHARGE.--17 years, 31.0 ft³/s, 8.02 in/yr, 22,460 acre-ft/yr; median of yearly discharges, 26 ft³/s, 6.7 in/yr, 18,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,400 ft³/s June 2, 1980, gage height, 28.22 ft, from rating curve extended above 5,300 ft³/s on basis of step-backwater computation; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 14, 1967, reached a stage of 18.35 ft, datum in use prior to Oct. 1, 1974, discharge, 17,800 ft³/s, estimated from rating curve extended above 5,300 ft³/s on basis of step-backwater computation. Flood of Aug. 6, 1959, reached a stage between 20.5 and 22.5 ft, datum in use prior to Oct. 1, 1974, 300 ft downstream , from information by assistant county engineer, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 27	2015	630	14.10	May 19	1745	899	14.79
Apr. 3	0430	922	14.85	May 22	0945	1,840	16.77
Apr. 22	0415	1,460	16.06	June 8	0100	2,610	17.95
Apr. 27	0700	918	14.84	June 9	1030	*4,080	*19.75
Apr. 29	1830	2,490	17.79				

Minimum daily discharge, no flow Oct. 1-10, Aug. 30 - Sept. 9, Sept. 20-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.88	15	3.8	29	12	21	68	21	10	2.2	.00
2	.00	9.3	12	4.1	50	12	111	70	17	7.6	2.0	.00
3	.00	8.0	9.1	4.5	51	11	429	51	15	13	2.5	.00
4	.00	20	8.5	5.2	42	11	89	50	13	16	2.7	.00
5	.00	9.4	7.9	6.1	24	10	54	49	11	12	2.8	.00
6	.00	5.0	5.3	7.4	20	9.8	44	37	9.3	9.6	3.0	.00
7	.00	4.5	6.2	9.0	16	9.6	36	31	125	8.0	3.7	.00
8	.00	4.3	5.1	10	15	9.4	269	26	511	6.4	5.6	.00
9	.00	16	5.0	8.2	20	9.2	105	22	843	5.4	5.1	.00
10	.00	50	5.3	6.5	31	9.0	52	20	178	4.8	4.9	3.7
11	.66	14	6.0	5.0	74	8.8	37	17	72	4.3	4.2	5.6
12	.72	4.0	5.6	4.3	84	9.0	60	15	90	3.9	3.6	5.4
13	.90	5.2	5.2	3.7	28	9.2	35	25	82	3.5	3.3	5.0
14	1.7	4.0	4.8	3.4	24	13	37	15	68	3.8	3.8	4.1
15	1.9	3.4	4.5	3.3	22	25	32	13	285	30	4.3	3.0
16	2.1	3.5	4.4	3.1	21	16	25	12	100	15	3.0	2.0
17	2.3	4.5	4.2	3.0	19	18	19	11	50	10	1.9	1.0
18	2.7	5.6	4.1	2.8	119	18	16	9.0	90	8.5	1.3	.50
19	4.3	12	4.0	2.7	117	13	13	421	44	6.4	.92	.04
20	3.9	10	4.0	2.6	48	24	13	194	35	5.2	.60	.00
21	3.7	9.0	3.9	2.5	35	28	469	71	28	4.5	.43	.00
22	2.8	19	3.9	2.8	29	105	659	553	22	4.1	.25	.00
23	1.5	42	3.8	4.1	24	119	99	110	18	3.7	.17	.00
24	1.3	33	3.8	6.2	20	86	57	61	14	26	.11	.00
25	1.1	34	3.8	8.5	18	57	39	315	11	8.4	.08	.00
26	.85	56	3.7	12	17	95	30	91	24	40	.05	.00
27	.78	204	3.7	16	16	201	191	63	16	7.6	.04	.00
28	.75	176	3.6	19	13	78	45	108	13	4.3	.02	.00
29	.75	38	3.6	21	13	43	589	52	12	3.2	.01	.00
30	.77	20	3.5	23	---	30	251	36	11	2.6	.00	.00
31	.81	---	3.5	25	---	24	---	26	---	2.4	.00	---
TOTAL	36.29	824.58	167.0	238.8	1039	1123.0	3926	2642.0	2828.3	290.2	62.58	30.34
MEAN	1.17	27.5	5.39	7.70	35.8	36.2	131	85.2	94.3	9.36	2.02	1.01
MAX	4.3	204	15	25	119	201	659	553	843	40	5.6	5.6
MIN	.00	.88	3.5	2.5	13	8.8	13	9.0	9.3	2.4	.00	.00
CFSM	.02	.52	.10	.15	.68	.69	2.50	1.62	1.80	.18	.04	.02
IN.	.03	.58	.12	.17	.74	.80	2.78	1.87	2.00	.21	.04	.02
AC-FT	72	1640	331	474	2060	2230	7790	5240	5610	576	124	60

CAL YR 1983 TOTAL 9958.54 MEAN 27.3 MAX 763 MIN .00 CFSM .52 IN 7.06 AC-FT 19750
WTR YR 1984 TOTAL 13208.09 MEAN 36.1 MAX 843 MIN .00 CFSM .69 IN 9.36 AC-FT 26200

06897950 ELK CREEK NEAR DECATUR CITY, IA--Continued
(Hydrologic bench-mark station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

REMARKS.--Miscellaneous biological data collected September 1970 to September 1972 are available in the District office.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
NOV												
15...	1645	3.8	449	7.6	6.0	17	--	--	--	4500	210	68
FEB												
08...	1530	15	440	7.6	.0	5.6	14.1	99	K28	300	230	58
MAY												
08...	1715	26	437	8.0	15.0	18	9.4	96	160	210	210	27

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
NOV												
15...	62	14	9.9	9	.3	4.9	145	72	11	.20	11	292
FEB												
08...	68	14	10	9	.3	3.4	170	59	8.7	.20	11	277
MAY												
08...	60	14	9.9	9	.3	2.7	181	51	6.9	.20	11	277

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
NOV												
15...	270	.40	3.0	3.4	.120	.15	1.8	.010	.37	.050	.120	33
FEB												
08...	280	.38	11	1.7	.150	.19	.70	.030	.15	.020	.050	16
MAY												
08...	260	.38	19	.75	.060	.08	.90	.030	.28	.040	.090	60

DATE	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
NOV											
15...	.34	94	1	10	110	<.5	<1	<1	<3	4	12
FEB											
08...	.65	96	--	--	--	--	--	--	--	--	--
MAY											
08...	4.2	97	<1	10	120	<.5	<1	<1	<3	4	6

DATE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV											
15...	2	14	260	.1	<10	2	2	<1	210	<6	130
FEB											
08...	--	--	--	--	--	--	--	--	--	--	--
MAY											
08...	3	10	51	.2	<10	5	2	<1	230	<6	13

K Results based on colony count outside the acceptable range (non-ideal colony count).

06898000 THOMPSON RIVER AT DAVIS CITY, IA

LOCATION.--Lat 40°38'25", long 93°48'29", in SE1/4 SE1/4 sec.35, T.68 N., R.26 W., Decatur County, Hydrologic Unit 10280102, on right bank 15 ft downstream from bridge on U.S. Highway 69 at Davis City, 2.6 mi upstream from Dickersons Branch, and 5.2 mi upstream from Iowa-Missouri State line.

DRAINAGE AREA.--701 mi².

PERIOD OF RECORD.--May 1918 to July 1925, July 1941 to current year. Monthly discharge only for some periods, published in WSP 1310. Prior to October 1918, published as "Grand River".

REVISED RECORDS.--WSP 1240: 1918, 1920-21 (M), 1922-24, 1925 (M), 1946-47 (M). WSP 1440: Drainage area. WSP 1710: 1957.

GAGE.--Water-stage recorder. Datum of gage is 874.04 ft NGVD. May 14, 1918, to July 2, 1925, July 14, 1941, to Feb. 24, 1942, nonrecording gage, and Feb. 25, 1942, to Feb. 8, 1967, water-stage recorder at same site at datum 2.00 ft higher.

REMARKS.--Records good except those for winter period, which are fair. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--49 years (water years 1919-24,1942-84), 376 ft³/s, 7.28 in/yr, 272,400 acre-ft/yr; median of yearly mean discharges, 340 ft³/s, 6.6 in/yr 246,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,300 ft³/s June 10, 1974, gage height, 19.43 ft, from rating curve extended above 17,000 ft³/s onbasis of velocity-area study; minimum daily, 0.1 ft³/s June 25, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 8, 1885, reached a stage of 22.8 ft, datum in use prior to Feb. 9, 1967, from floodmark, discharge, 30,000 ft³/s, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 22	2330	5,470	8.05	June 9	1515	*6,950	*9.23
Apr. 30	1945	5,590	8.15	June 12	2000	4,570	7.27
May 20	0400	4,910	7.57	June 18	0630	5,390	7.98
May 26	0715	4,830	7.50				

Minimum daily discharge, 5.7 ft³/s Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	17	707	110	540	194	435	5000	683	278	81	19
2	8.2	73	487	110	750	190	588	3940	619	261	72	17
3	7.9	237	340	110	1000	170	2800	1370	533	249	68	16
4	5.8	188	253	110	1100	165	2890	985	490	242	61	16
5	5.7	510	220	115	820	160	1350	880	462	215	58	14
6	5.8	230	200	125	540	150	763	780	453	197	55	14
7	5.9	118	180	150	390	145	551	655	494	136	52	13
8	6.9	88	190	185	260	140	1360	553	3600	95	60	16
9	7.8	92	180	210	210	130	2550	482	4260	87	48	17
10	8.2	1700	270	190	235	120	1660	430	3790	81	45	18
11	14	1160	350	160	290	120	1030	396	3320	75	42	23
12	16	525	290	150	1100	130	943	363	4090	68	40	20
13	31	430	220	125	2330	140	873	361	2880	65	37	18
14	32	391	190	115	1500	160	698	405	1570	64	37	26
15	40	331	170	110	965	209	650	333	2440	77	35	23
16	34	216	150	105	867	290	616	288	4540	170	35	20
17	26	150	140	100	1040	358	529	269	4720	575	34	18
18	21	133	130	96	950	306	440	257	3780	164	33	23
19	22	125	120	94	2460	266	371	1540	1440	107	32	23
20	20	405	120	91	1690	240	332	4680	905	89	29	19
21	24	572	115	89	851	317	1080	2770	711	79	31	17
22	57	315	110	90	609	492	5160	2410	607	76	48	16
23	54	672	105	92	499	1250	4950	3170	539	77	36	16
24	49	489	100	95	424	2070	2020	1780	475	77	29	16
25	50	419	99	105	365	1710	1040	2570	423	143	26	15
26	37	660	97	120	319	1290	747	4530	382	268	24	15
27	29	1030	96	145	284	2390	1550	4160	352	208	24	16
28	24	3240	93	240	249	1850	1830	3540	321	483	24	15
29	19	2370	94	310	209	913	2020	2180	301	217	22	14
30	18	1070	98	410	---	623	5500	1230	287	121	20	14
31	17	---	100	470	---	508	---	854	---	96	19	---
TOTAL	705.6	17956	6014	4727	22846	17196	47326	53161	49467	5140	1257	527
MEAN	22.8	599	194	152	788	555	1578	1715	1649	166	40.5	17.6
MAX	57	3240	707	470	2460	2390	5500	5000	4720	575	81	26
MIN	5.7	17	93	89	209	120	332	257	287	64	19	13
CFSM	.03	.85	.28	.22	1.12	.79	2.25	2.45	2.35	.24	.06	.03
IN.	.04	.95	.32	.25	1.21	.91	2.51	2.82	2.63	.27	.07	.03
AC-FT	1400	35620	11930	9380	45320	34110	93870	105400	98120	10200	2490	1050

CAL YR 1983 TOTAL 178948.6 MEAN 490 MAX 5250 MIN 5.7 CFSM .70 IN 9.50 AC-FT 354900
WTR YR 1984 TOTAL 226322.6 MEAN 618 MAX 5500 MIN 5.7 CFSM .88 IN 12.01 AC-FT 448900

06898400 WELDON RIVER NEAR LEON, IA

LOCATION.--Lat 40°41'45", long 93°38'07", in NE1/4 NE1/4 sec.17, T.68 N., R.24 W., Decatur County, Hydrologic Unit 10280102, on left bank 10 ft downstream from bridge on county highway A, 200 ft upstream from unnamed creek, 1.3 mi downstream from Brush Creek, and 6.5 mi southeast of post office at Leon.

DRAINAGE AREA.--104 mi².

PERIOD OF RECORD.--October 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 906.26 ft NGVD.

REMARKS.--Records good except those for winter period which are fair.

AVERAGE DISCHARGE.--26 years, 72.2 ft³/s, 9.43 in/yr, 52,310 acre-ft/yr; median of yearly mean discharges, 61 ft³/s, 8.0 in/yr, 44,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,600 ft³/s Aug. 6, 1959, gage height, 25.27 ft, from rating curve extended above 5,600 ft³/s on basis of contracted-opening and flow-over-embankment measurement at gage height 25.27 ft; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Stage and discharge of the flood of Aug. 6, 1959 are the greatest since at least 1919.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,940 ft³/s June 9, gage height, 14.16 ft., no peak above base of 4,500 ft³/s; minimum daily, 0.08 ft³/s Aug. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.47	35	58	5.4	33	26	45	110	18	8.3	1.5	.09
2	.49	48	48	6.3	64	24	120	88	14	7.0	1.5	.22
3	.40	38	35	7.5	82	23	551	72	11	7.6	1.2	1.1
4	.40	99	32	9.4	59	22	144	74	11	7.6	.96	1.1
5	.37	37	24	12	31	21	74	78	10	6.0	1.0	.91
6	.64	20	23	15	24	21	56	50	9.0	4.8	.98	.27
7	.81	21	24	19	16	20	53	40	200	4.0	.84	.22
8	.61	18	19	27	15	20	524	36	974	3.2	2.9	.65
9	.72	151	16	25	19	20	245	28	1440	2.4	1.2	.68
10	.79	400	14	18	30	19	96	23	359	1.9	.76	1.3
11	2.2	61	15	13	65	19	210	17	72	1.6	.73	1.6
12	2.5	26	16	11	165	19	586	14	54	1.4	.77	1.4
13	1.7	29	15	8.0	64	20	102	40	50	1.4	.65	1.3
14	1.9	50	14	7.1	48	22	92	23	42	1.9	.48	1.7
15	2.4	23	12	6.8	45	52	130	13	264	6.3	.42	1.8
16	3.4	13	9.7	6.6	41	56	68	14	163	1.9	.49	1.5
17	4.0	10	7.0	6.4	39	35	52	11	47	1.9	.58	1.6
18	4.7	9.3	6.6	6.4	180	32	43	9.9	84	1.9	.36	1.8
19	11	12	6.1	6.3	280	31	46	1030	42	1.5	.31	1.7
20	11	16	5.9	6.1	130	28	45	488	33	1.8	.25	1.7
21	21	10	5.6	6.0	90	39	491	85	27	2.1	.96	1.8
22	24	8.6	5.4	9.6	64	117	950	624	25	1.4	.94	1.9
23	14	56	5.2	13	51	332	159	249	23	1.6	.75	2.0
24	10	61	5.1	16	49	331	87	50	20	1.5	.39	2.0
25	9.6	45	4.9	17	38	194	64	534	18	1.3	.24	2.0
26	8.4	93	4.8	23	35	260	56	103	22	37	.30	1.7
27	8.3	514	4.6	45	31	409	1010	46	15	5.6	.23	1.9
28	8.4	631	4.5	50	28	169	129	251	13	2.5	.18	2.0
29	8.5	117	4.4	56	27	84	850	79	11	3.0	.22	1.9
30	8.9	47	4.3	60	---	61	1040	40	9.2	2.3	.14	2.1
31	9.6	---	4.7	46	---	50	---	31	---	2.0	.08	---
TOTAL	181.20	2698.9	453.8	563.9	1843	2576	8118	4350.9	4080.2	134.7	22.31	41.94
MEAN	5.85	90.0	14.6	18.2	63.6	83.1	271	140	136	4.35	.72	1.40
MAX	24	631	58	60	280	409	1040	1030	1440	37	2.9	2.1
MIN	.37	8.6	4.3	5.4	15	19	43	9.9	9.0	1.3	.08	.09
CFSM	.06	.87	.14	.18	.61	.80	2.61	1.35	1.31	.04	.007	.01
IN.	.06	.97	.16	.20	.66	.92	2.90	1.56	1.46	.05	.01	.02
AC-FT	359	5350	900	1120	3660	5110	16100	8630	8090	267	44	83

CAL YR 1983	TOTAL	18968.68	MEAN	52.0	MAX	1370	MIN	.28	CFSM	.50	IN	6.78	AC-FT	37620
WTR YR 1984	TOTAL	25064.85	MEAN	68.5	MAX	1440	MIN	.08	CFSM	.66	IN	8.97	AC-FT	49720

06903400 CHARITON RIVER NEAR CHARITON, IA

LOCATION.--Lat 40°57'12", long 93°15'37", in SW1/4 NE1/4 sec.15, T.71 N., R.21 W., Lucas County, Hydrologic Unit 10280201, on right bank 15 ft downstream from bridge on county highway S43, 0.4 mi downstream from Wolf Creek and 5.0 mi southeast of Chariton.

DRAINAGE AREA.--182 mi².

PERIOD OF RECORD.--October 1965 to current year. Occasional low-flow measurements, water years 1958-60, 1962, 1964.

GAGE.--Water-stage recorder. Datum of gage is 917.90 ft (revised) NGVD (Corps of Engineers bench mark).

REMARKS.--Records fair except those for winter period which are poor. Corps of Engineers data collection platform at the station.

AVERAGE DISCHARGE.--19 years, 115 ft³/s, 8.58 in/yr, 83,320 acre-ft/yr; median of yearly mean discharges, 98 ft³/s, 7.3 in/yr, 71,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,600 ft³/s July 4, 1981, gage height, 23.14 ft; no flow Aug. 1, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1960 reached a stage of about 23 ft, discharge, about 15,000 ft³/s and flood of June 5, 1947 reached a stage of 21.65 ft, from floodmark, discharge, 11,000 ft³/s. A discharge of 0.08 ft³/s was measured on Oct. 30, 1963.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 12	2245	1,630	16.34	June 8	1415	1,780	*17.17
Apr. 22	1415	1,740	16.58	June 10	0545	1,730	17.16
Apr. 30	0915	*1,970	17.07	June 15	1545	1,620	16.73

Minimum daily discharge, 0.34 ft³/s Oct. 1,2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.34	10	260	16	77	31	62	1230	50	7.4	3.1	.50
2	.34	147	120	17	84	29	64	1160	37	6.0	2.7	.47
3	.36	78	72	18	89	28	594	277	28	4.5	2.4	.50
4	.42	187	62	20	95	27	776	138	42	3.4	2.1	.46
5	.42	136	49	22	100	26	525	115	36	2.3	1.9	.36
6	.46	71	47	24	105	26	166	93	19	1.7	1.7	.48
7	.58	48	50	28	81	25	80	76	57	1.4	1.4	.45
8	.62	29	38	37	58	25	321	56	1650	1.1	2.1	.76
9	.62	87	33	44	40	25	840	44	1330	1.0	1.3	.89
10	.60	860	27	41	59	24	516	37	1540	.95	1.2	1.1
11	2.3	524	50	34	100	24	225	32	1000	.88	1.2	1.9
12	12	360	220	26	190	24	985	28	660	.81	1.1	2.0
13	5.0	112	125	22	140	25	1050	29	102	.62	1.1	1.5
14	2.1	105	92	20	80	26	638	79	74	5.2	1.0	1.3
15	1.4	116	62	18	41	31	424	85	1300	506	1.0	1.1
16	1.3	76	41	17	21	48	281	39	1170	100	1.0	.95
17	1.6	41	28	16	18	94	136	25	652	28	.95	.95
18	1.4	28	22	16	72	82	77	18	330	10	.95	.95
19	1.3	40	18	15	190	71	52	161	205	6.1	.95	.92
20	8.8	58	16	15	145	66	43	967	87	4.2	.89	.88
21	9.1	43	16	14	94	69	167	480	47	3.4	.91	.88
22	30	33	15	16	70	66	1550	533	34	3.0	1.0	.88
23	17	143	15	17	54	129	926	612	28	2.7	.99	.88
24	9.9	246	15	19	47	519	926	472	23	2.7	.88	.88
25	10	189	14	20	41	1100	253	561	19	2.4	.87	.88
26	16	180	14	32	38	1140	89	476	17	40	.81	.88
27	9.7	362	15	39	35	1180	529	403	15	38	.79	.88
28	18	1270	16	48	33	722	839	392	14	20	.75	.88
29	18	847	17	54	32	400	954	439	11	12	.75	.88
30	18	762	16	58	---	155	1800	223	9.2	6.7	.65	.88
31	20	---	16	63	---	89	---	80	---	4.5	.52	---
TOTAL	217.66	7188	1601	846	2229	6326	15888	9360	10586.2	826.96	38.96	27.22
MEAN	7.02	240	51.6	27.3	76.9	204	530	302	353	26.7	1.26	.91
MAX	30	1270	260	63	190	1180	1800	1230	1650	506	3.1	2.0
MIN	.34	10	14	14	18	24	43	18	9.2	.62	.52	.36
CFSM	.04	1.32	.28	.15	.42	1.12	2.91	1.66	1.94	.15	.007	.005
IN.	.04	1.47	.33	.17	.46	1.29	3.25	1.91	2.16	.17	.01	.01
AC-FT	432	14260	3180	1680	4420	12550	31510	18570	21000	1640	77	54

CAL YR 1983	TOTAL	44054.02	MEAN 121	MAX 2040	MIN .34	CFSM .67	IN 9.00	AC-FT 87380
WTR YR 1984	TOTAL	55135.00	MEAN 151	MAX 1800	MIN .34	CFSM .83	IN 11.27	AC-FT 109400

CHARITON RIVER BASIN

06903700 SOUTH FORK CHARITON RIVER NEAR PROMISE CITY, IA

LOCATION.--Lat 40°48'02", long 93°11'32", in SW1/4 SW1/4 sec.5, T.69 N., R.20 W., Wayne County, Hydrologic Unit 10280201, on right bank 20 ft downstream from bridge on county highway S50, 1.3 mi downstream from Jordan Creek and 4.3 mi northwest of Promise City.

DRAINAGE AREA.--168 mi².

PERIOD OF RECORD.--October 1967 to current year. Occasional low-flow measurements, water years 1958-66, published as "near Bethlehem". Monthly discharge measurements for March 1965 to September 1967 available in files of Iowa City district office.

GAGE.--Water-stage recorder. Datum of gage is 913.70 ft NGVD (Corps of Engineers bench mark).

REMARKS.--Records good except for winter period, which are fair. Corps of Engineers data collection platform at station.

AVERAGE DISCHARGE.--17 years, 119 ft³/s, 9.62 in/yr, 86,220 acre-ft/yr; median of yearly mean discharges, 110 ft³/s, 8.9 in/yr, 79,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,000 ft³/s July 4, 1981, gage height, 29.95 ft; no flow July 6, 7, 21-24, 28-31, and Aug. 1, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 21, 1965, reached a stage of 25.5 ft, from floodmarks, discharge, about 18,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 22	0215	2,710	15.58	May 20	0200	3,290	16.88
Apr. 30	0345	5,600	19.21	June 10	0230	*6,500	*19.83

Minimum daily discharge, 0.17 ft³/s Oct. 5,6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.44	2.8	78	12	54	24	65	356	35	7.4	1.6	.61
2	.34	3.0	37	14	60	23	83	195	26	6.6	1.3	.83
3	.24	5.4	44	14	66	22	933	201	20	6.0	1.2	.72
4	.20	25	25	15	70	25	473	164	34	7.4	1.1	.60
5	.17	20	21	18	57	32	172	213	34	8.2	.99	.62
6	.17	15	20	23	40	26	93	113	18	7.4	.97	.65
7	.22	8.8	18	37	25	26	69	83	20	8.6	.85	.56
8	.40	6.2	17	56	23	25	589	64	456	6.6	.83	.92
9	.51	18	15	57	24	23	745	49	2760	5.3	.73	1.0
10	.52	307	13	32	39	22	261	41	3460	4.7	.71	1.7
11	1.9	95	68	22	68	22	147	37	266	3.8	.64	2.1
12	1.9	29	245	17	270	23	1210	31	110	3.8	.64	1.5
13	.51	19	100	16	260	22	361	160	74	3.4	.67	.96
14	.50	33	50	13	165	20	204	65	122	3.4	.61	.95
15	.72	28	41	12	150	55	317	37	618	9.0	.53	.95
16	.77	14	35	11	110	99	141	30	394	7.4	.51	.82
17	.56	8.6	22	10	107	67	84	25	119	4.7	.51	.80
18	.34	6.7	16	9.8	151	67	61	21	80	2.7	.58	.93
19	2.2	8.0	14	9.0	455	62	47	1020	73	1.9	.64	.96
20	2.4	13	12	8.0	140	62	41	1750	38	2.1	.57	1.1
21	3.2	14	11	7.0	84	71	630	260	29	2.1	.67	1.4
22	4.0	10	10	9.4	69	74	1660	315	25	1.6	.87	1.5
23	2.7	94	9.7	13	59	338	357	379	21	1.3	.70	1.8
24	2.0	161	8.2	14	49	920	187	103	18	3.3	.72	1.9
25	1.2	65	7.6	15	42	1060	103	493	15	6.2	.75	1.6
26	.50	59	8.6	18	37	618	74	250	12	39	.73	1.3
27	.27	154	9.5	21	35	966	236	83	19	54	.72	1.8
28	.29	690	11	27	29	403	96	357	14	12	.65	2.1
29	.21	203	12	32	26	192	780	191	11	4.5	.59	2.1
30	.28	84	11	39	---	102	3400	74	9.0	2.8	.56	2.6
31	.56	---	11	46	---	77	---	48	---	2.0	.57	---
TOTAL	30.22	2199.5	1000.6	647.2	2764	5568	13619	7208	8930.0	239.2	23.71	37.38
MEAN	.97	73.3	32.3	20.9	95.3	180	454	233	298	7.72	.76	1.25
MAX	4.0	690	245	57	455	1060	3400	1750	3460	54	1.6	2.6
MIN	.17	2.8	7.6	7.0	23	20	41	21	9.0	1.3	.51	.56
CFSM	.006	.44	.19	.12	.57	1.07	2.70	1.39	1.77	.05	.005	.007
IN.	.01	.49	.22	.14	.61	1.23	3.02	1.60	1.98	.05	.01	.01
AC-FT	60	4360	1980	1280	5480	11040	27010	14300	17710	474	47	74

CAL YR 1983 TOTAL 32512.45 MEAN 89.1 MAX 4480 MIN .17 CFSM .53 IN 7.20 AC-FT 64490
WTR YR 1984 TOTAL 42266.81 MEAN 115 MAX 3460 MIN .17 CFSM .69 IN 9.36 AC-FT 83840

06903880 RATHBUN LAKE NEAR RATHBUN, IA

LOCATION.--Lat 40°49'30", long 92°53'33", in NW1/4 NE1/4 sec.35, T.70 N., R.18 W., Appanoose County, Hydrologic Unit 10280201, at control tower of Rathbun Dam, 1.8 mi north of Rathbun and 3.9 mi upstream from Walnut Creek and at mile 142.3.

DRAINAGE AREA.--549 mi².

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at NGVD.

REMARKS.--Reservoir is formed by earthfill dam completed in 1969. Storage began in November 1969. Release is controlled by two hydraulically controlled slide gages, 6 ft wide and 12 ft high, into forechamber of an 11-ft diameter horseshoe conduit through the dam. No dead storage. Maximum design discharge through gates is 5,000 ft³/s. Uncontrolled notch spillway is concrete overflow section 500 ft in length, located about 3,000 ft west of the right abutment of the dam and provides emergency discharge into the adjacent drainage area of Little Walnut Creek. Uncontrolled notch spillway is at elevation 926 ft, contents 545,621 acre-ft, surface area, 20,974 acres. Conservation pool level is at elevation 904.0 ft, contents 199,830 acre-ft, surface area, 10,989 acres. Reservoir is used for flood control, low-flow augumentation, conservation and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 514,000 acre-ft July 22, 23, 1982; maximum elevation, 924.46 ft July 22, 1982; minimum daily contents, 100 acre-ft Oct. 1-15, Nov. 17-21, 1969; minimum elevation, 855.40 ft Oct. 6-10, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 265,000 acre-ft June 18-19; maximum elevation 909.42 ft June 18; minimum daily contents, 157,000 acre-ft Mar. 12; minimum elevation, 899.86 ft Mar. 12.

Capacity table (elevation, in feet, and contents, in acre-feet)

860	150	880	31,900	905	211,000
862	226	885	52,700	910	272,600
865	950	890	80,300	915	345,000
870	5,870	895	115,600	920	428,900
875	17,000	900	158,800	925	524,900

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168000	168000	196000	192000	184000	175000	177000	215000	223000	250000	200000	193000
2	168000	169000	197000	192000	185000	173000	176000	220000	222000	248000	200000	193000
3	168000	169000	198000	191000	185000	171000	174000	223000	220000	246000	200000	193000
4	168000	170000	198000	191000	187000	168000	177000	225000	219000	243000	199000	192000
5	168000	170000	198000	190000	188000	167000	178000	225000	218000	241000	199000	192000
6	167000	170000	199000	190000	188000	165000	178000	225000	218000	239000	199000	192000
7	167000	171000	199000	190000	188000	162000	177000	224000	219000	236000	199000	191000
8	167000	171000	199000	190000	188000	160000	175000	223000	220000	233000	199000	191000
9	167000	171000	199000	190000	188000	158000	177000	222000	224000	231000	199000	192000
10	166000	175000	198000	189000	188000	158000	179000	220000	240000	228000	199000	191000
11	166000	175000	198000	189000	188000	158000	180000	218000	251000	226000	198000	192000
12	168000	177000	199000	189000	189000	157000	180000	217000	256000	224000	198000	191000
13	167000	178000	200000	189000	190000	158000	183000	216000	258000	221000	198000	192000
14	167000	179000	200000	188000	192000	158000	185000	215000	258000	218000	198000	191000
15	167000	180000	200000	188000	193000	158000	187000	213000	258000	222000	197000	191000
16	167000	180000	198000	187000	195000	159000	188000	212000	261000	223000	197000	191000
17	167000	179000	198000	187000	195000	159000	187000	211000	263000	221000	197000	190000
18	167000	180000	198000	187000	194000	160000	186000	209000	265000	219000	197000	190000
19	166000	180000	197000	186000	194000	160000	185000	209000	265000	216000	196000	190000
20	168000	181000	197000	186000	194000	161000	184000	213000	264000	214000	196000	190000
21	168000	180000	197000	185000	193000	161000	181000	218000	263000	211000	196000	190000
22	168000	180000	196000	185000	192000	160000	186000	219000	262000	209000	196000	189000
23	168000	182000	196000	184000	190000	159000	192000	220000	261000	207000	196000	189000
24	168000	182000	195000	184000	188000	161000	194000	221000	260000	204000	195000	189000
25	168000	183000	195000	183000	186000	164000	194000	222000	258000	203000	195000	190000
26	168000	184000	195000	183000	184000	169000	194000	223000	257000	204000	195000	189000
27	168000	184000	194000	183000	182000	173000	193000	223000	256000	203000	194000	189000
28	168000	188000	194000	183000	180000	178000	193000	225000	254000	202000	194000	189000
29	167000	192000	193000	183000	177000	180000	193000	225000	253000	201000	194000	188000
30	167000	194000	193000	184000	---	181000	205000	225000	251000	200000	194000	188000
31	167000	---	192000	184000	---	179000	---	224000	---	200000	194000	---
MAX	168000	194000	200000	192000	195000	181000	205000	225000	265000	250000	200000	193000
MIN	166000	168000	192000	183000	177000	157000	174000	209000	218000	200000	194000	188000

WTR YR 1984 MAX 265000 MIN 157000

CHARITON RIVER BASIN

06903900 CHARITON RIVER NEAR RATHBUN, IA

LOCATION.--Lat 40°49'22", long 92°53'22", in SE1/4 NE1/4 sec.35, T.70 N., R.18 W., Appanoose County, Hydrologic Unit 10280201, on left bank 600 ft downstream from outlet of Rathbun Dam, 1.8 mi north of Rathbun and 3.7 mi upstream from Walnut Creek and at mile 142.1.

DRAINAGE AREA.--549 mi².

PERIOD OF RECORD.--October 1956 to current year. Monthly discharge only for some periods, published in WSP 1730.

REVISED RECORDS.--WSP 1560: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 847.92 ft NGVD. Prior to Nov. 16, 1960, nonrecording gage and Nov. 17, 1960, to Sept. 30, 1969, recording gage, at site 3.1 mi downstream at datum 4.65 ft lower.

REMARKS.--Records good. Flow regulated by Rathbun Reservoir (station 06903880) since Nov. 21, 1969. Records of discharge include diversion of 11 ft³/s Oct. 1-3; 10 ft³/s Oct. 4; 11 ft³/s Oct. 5-28; 10 ft³/s Oct. 29; 11 ft³/s Oct. 30 to Nov. 1; 10 ft³/s Nov. 2 to Dec. 16; 16 ft³/s Dec. 17-19; 17ft³/s Dec. 20 to Mar. 12; 16 ft³/s Mar. 13; 17 ft³/s Mar. 14-16; 16 ft³/s Mar. 17-20; 11 ft³/s Mar. 21; 16 ft³/s Mar. 22; 17 ft³/s Mar. 23 to Apr. 6; 14 ft³/s Apr. 7 to June 11; 10 ft³/s June 12-15; 14 ft³/s June 16; 9 ft³/s June 17; 10 ft³/s June 18-20; 9 ft³/s June 21; 10 ft³/s June 22; 9 ft³/s June 23,24; 10 ft³/s June 25-29; 9 ft³/s June 30 to July 1; 10 ft³/s July 2-5; 9 ft³/s July 6-8; 10 ft³/s July 9-11; 9 ft³/s July 12,13; 10 ft³/s July 14-20; 9 ft³/s July 21, 22; 10 ft³/s July 23, 24; 13 ft³/s July 25 to Aug. 23; 15 ft³/s Aug. 24; and 16 ft³/s Aug. 25 to Sept. 30 from reservoir through fish ponds on left bank downstream from dam. Diverted flow returns to stream 0.1 mi downstream from gage. Corps of Engineers gage-height telemeter at station. Rathbun Regional Water Association permit No. 3663 allows withdrawal from Rathbun Dam discharge immediately downstream from gage for maximum rate of 4,200 gpm (9.36 ft³/s) and maximum quantity of 638 million gallons per year (1,955 acre-ft).

AVERAGE DISCHARGE.--28 years, 345 ft³/s, 8.53 in/yr, 250,000 acre-ft/yr; median of yearly mean discharges, 270 ft³/s, 6.7 in/yr, 196,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,800 ft³/s Mar. 31, 1960, gage height, 25.3 ft from flood-mark, site and datum then in use; no flow Oct. 26, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,240 ft³/s Feb. 19, gage height, 12.19 ft; minimum daily discharge, 20 ft³/s Oct. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	29	25	219	198	1150	1110	92	792	586	25	28
2	21	26	25	218	199	1140	1100	412	794	587	25	28
3	21	27	25	218	200	1140	1050	49	791	1180	25	28
4	20	26	25	217	200	1140	798	283	582	1210	25	28
5	21	24	24	218	201	1140	892	784	38	1210	25	28
6	22	23	24	218	201	1120	1110	783	30	1210	24	29
7	21	23	24	218	201	1130	1100	781	31	1210	25	28
8	22	23	139	217	201	1110	933	779	31	1210	25	29
9	22	23	373	212	203	526	806	779	30	1210	25	29
10	22	23	373	207	203	38	783	778	30	1210	24	29
11	23	25	385	208	204	35	773	777	29	1210	24	29
12	23	24	160	207	207	35	783	777	25	1210	25	29
13	22	24	196	207	207	34	784	776	306	1210	24	29
14	22	24	549	206	205	35	783	778	587	1210	24	29
15	22	23	702	206	206	36	805	739	276	739	24	28
16	22	23	320	206	206	35	791	751	402	21	24	27
17	22	23	281	206	564	35	784	747	593	1110	25	28
18	24	24	280	206	1170	34	781	745	593	1210	25	27
19	28	24	142	205	1220	182	781	426	592	1210	25	28
20	25	23	210	205	1190	366	781	385	592	1210	25	28
21	25	24	269	202	1180	429	570	628	591	1210	26	28
22	24	24	172	195	1170	555	248	784	592	1210	25	25
23	24	28	124	196	1170	344	624	787	590	1210	26	25
24	23	24	48	196	1160	130	793	787	588	1210	27	24
25	23	24	100	196	1160	140	791	798	588	559	28	25
26	26	25	179	197	1160	299	790	796	587	568	28	28
27	27	25	237	197	1150	648	790	784	587	567	28	27
28	28	25	217	197	1150	627	787	618	587	571	28	27
29	28	25	221	198	1150	703	692	797	587	578	28	28
30	27	25	221	197	---	935	477	804	586	26	28	28
31	27	---	220	198	---	1110	---	795	---	25	28	---
TOTAL	728	733	6290	6393	17836	16381	24090	20799	13027	28897	793	831
MEAN	23.5	24.4	203	206	615	528	803	671	434	932	25.6	27.7
MAX	28	29	702	219	1220	1150	1110	804	794	1210	28	29
MIN	20	23	24	195	198	34	248	49	25	21	24	24
AC-FT	1440	1450	12480	12680	35380	32490	47780	41250	25840	57320	1570	1650

CAL YR 1983 TOTAL 202004 MEAN 553 MAX 1540 MIN 18 AC-FT 400700
WTR YR 1984 TOTAL 136798 MEAN 374 MAX 1220 MIN 20 AC-FT 271300

06904010 CHARITON RIVER NEAR MOULTON, IA

LOCATION.--Lat 40°41'30", long 92°46'15", in SE1/4 NE1/4 sec.14, T.68N., R.17W., Appanoose County, Hydrologic Unit 10280201, on right bank 6 ft downstream from bridge on county highway J45, 0.7 mi downstream from Hickory Creek, 5.0 mi west of Moulton, 8.0 mi upstream from Iowa-Missouri border, 20.8 mi downstream from Rathun dam, and at mile 121.5.

DRAINAGE AREA.--740 mi².

PERIOD OF RECORD.--August 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 800.00 ft NGVD (Corps of Engineers bench mark).

REMARKS.--Records good except those for winter periods, which are fair. Flow regulated by Rathbun Reservoir (station 06903880) 20.8 mi upstream. Corps of Engineers rain-gage, gage-height telemeters and data collection platform at station.

AVERAGE DISCHARGE.--Five years, 716 ft³/s, 13.1 in/yr, 518,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,200 ft³/s July 16, 1982, gage height, 36.83 ft; minimum daily, 19 ft³/s Oct. 26, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of about 45 ft, discharge unknown, from information by Corps of Engineers.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 5,070 ft³/s June 10, gage height, 32.51 ft; minimum daily discharge, 22 ft³/s Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	51	117	290	270	1260	1340	1610	970	613	59	26
2	23	189	110	290	320	1260	1340	388	960	664	53	27
3	23	116	89	295	430	1260	1750	1140	940	1220	54	26
4	23	156	84	305	410	1260	1860	372	250	1300	52	26
5	22	126	82	310	330	1280	1200	866	62	1300	49	31
6	23	72	80	330	290	1250	1330	1020	55	1320	47	27
7	23	50	104	370	270	1250	1380	954	69	1300	44	28
8	24	41	199	395	265	1240	1690	913	232	1290	48	32
9	23	65	291	380	271	1160	2010	889	2280	1290	45	29
10	26	1830	460	320	269	262	1430	878	4650	1350	41	36
11	27	858	676	285	306	100	1090	871	1930	1490	39	38
12	32	190	1480	285	478	89	1250	863	416	1460	38	31
13	30	123	450	280	594	91	1250	856	168	1390	36	28
14	27	114	488	280	407	91	1060	844	653	1350	36	29
15	26	98	799	280	358	108	1520	832	566	2020	37	27
16	27	72	864	280	359	178	1280	784	338	298	36	25
17	25	61	617	275	412	177	1030	800	620	1150	35	25
18	25	56	500	270	1230	159	956	794	697	1280	38	25
19	46	56	450	260	1900	148	924	667	644	1290	37	30
20	109	56	410	270	1640	389	908	475	630	1310	35	30
21	79	52	375	270	1430	506	917	496	626	1310	34	29
22	58	50	350	305	1370	658	1120	822	622	1300	35	29
23	43	337	320	315	1350	1000	909	847	624	1320	33	27
24	35	634	290	320	1330	1400	1030	838	619	1260	31	27
25	31	226	255	330	1310	1620	992	885	614	703	31	50
26	30	136	230	380	1300	1080	955	980	613	749	30	45
27	30	618	230	520	1290	1590	935	910	618	736	29	40
28	32	2010	240	500	1270	1560	904	960	617	652	28	36
29	32	664	280	460	1270	980	1100	1050	615	614	27	34
30	34	211	275	340	---	998	3090	1000	613	173	26	33
31	37	---	280	280	---	1310	---	990	---	67	26	---
TOTAL	1048	9318	11475	10070	22729	25714	38550	26594	23311	33569	1189	926
MEAN	33.8	311	370	325	784	829	1285	858	777	1083	38.4	30.9
MAX	109	2010	1480	520	1900	1620	3090	1610	4650	2020	59	50
MIN	22	41	80	260	265	89	904	372	55	67	26	25
AC-FT	2080	18480	22760	19970	45080	51000	76460	52750	46240	66580	2360	1840

CAL YR 1983 TOTAL 263575 MEAN 722 MAX 5800 MIN 22 AC-FT 522800
WTR YR 1984 TOTAL 204493 MEAN 559 MAX 4650 MIN 22 AC-FT 405600

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years up to the current year for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1984

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft^3/s)
		Upper Iowa River Basin					
05387500	Upper Iowa River at Decorah, Iowa	Lat 43°18'19", long 91°47'48", in NE1/4 sec. 16, T.98N., R.8 W., Winneshiek County, on right bank 1,200 ft upstream from bridge on U.S. Highway 52 (city route) in Decorah.	511	1951-	1984	8.68	5,020
05388310	Waterloo Creek near Dorchester, Ia.	Lat 43°27'04", long 91°30'18", in NW1/4 sec.25, T.100 N., R.6 W., Allamakee County, on State Highway 76, 1.4 mi south of Dorchester.	43.6	1966-	1984	a	(+)
		Wexford Creek Basin					
05388400	Wexford Creek near Harpers Ferry, Ia.	Lat 43°16'22", long 91°08'00", in SE1/4 sec.25, T.98 N., R.3 W., Allamakee County, at bridge, 5 mi north of Harpers Ferry on county highway X52.	11.9	1953-	1984	a	(+)
		Paint Creek Basin					
05388600	Paint Creek near Waterville, Ia.	Lat 43°10'24", long 91°15'42", near center sec.36, T.97 N., R.4 W., Allamakee County, at bridge on county highway, 3 mi southeast of Waterville.	56.0	1953-	1984	a	(+)
05388700	Little Paint Creek tributary near Waterville, Ia.	Lat 43°14'23", long 91°15'07", in SE1/4 sec.1, T.97 N., R.4 W., Allamakee County, at culvert on county highway, 3.5 mi northeast of Waterville.	1.09	1953-	1984	a	(+)
		Turkey River Basin					
05411530	North Branch Turkey River near Cresco, Ia.	Lat 43°22'15", long 92°12'49", in NW1/4 sec.25, T.99 N., R.12.W, Howard County, at bridge on state highway 9, 5 mi west of Cresco.	19.5	1966-	06-17-84	91.83	2,500
05411700	Crane Creek near Lourdes, Ia.	Lat 43°14'57", long 92°18'32", in SE1/4 NW1/4 sec.6, T.97 N., R.12 W., Howard County, at bridge on State Highway 272, 1 mi southwest of Lourdes.	75.8	1951-	06-17-84	11.12	3,020
		Little Maquoketa River Basin					
05414350	Little Maqouketa River near Graf, Ia.	Lat 42°30'09", long 90°51'50", in SE1/4 sec.20, T.89 N., R.1 E., Dubuque County, at bridge on county highway, 300 ft downstream from Illinois Central railroad bridge, 0.5 mi northeast of Graf.	39.6	1951-	07-17-84	9.31	2,000
05414400	Middle Fork Little Maquoketa River near Rickardsville, Ia.	Lat 42°33'38", long 90°51'35", in SE1/4 sec.32, T.90 N., R.1 E., Dubuque County, at bridge on county highway, 2 mi southeast of Rickardsville.	30.2	1951-	06-22-84	13.13	280
05414450	North Fork Little Maquoketa River near Rickardsville, Ia.	Lat 42°35'09", long 90°51'20", near NW corner sec.28, T.90 N., R.1 E., Dubuque County, at bridge on county highway, 1 mi northeast of Rickardsville.	21.6	1951-	06-22-84	7.71	1,080
05414500	Little Maquoketa River near Durango, Ia.	Lat 42°33'18", long 90°44'46", in NW1/4 NE1/4 sec. 5, T.89 N., R.2 E., Dubuque County, on left bank 10 ft (3 m) upstream from bridge on county highway, 300 ft (91 m) upstream from Cloie Branch, 1.7 mi (2.7 km) east of Durango, 5.6 mi (9.0 km) northwest of court house at Dubuque and 6.4 mi (10.3 km) upstream from mouth.	130	1934-	1984	-	(+)
05414600	Little Maquoketa River tributary at Dubuque, Ia.	Lat 42°32'33", long 90°41'38", near NW corner sec.11, T.89 N., R.2 E., Dubuque County at bridge on State Highway 386, near north city limits of Dubuque.	1.54	1951-	06-22-84	11.03	150

Annual maximum discharge at crest-stage partial-record stations during water year 1984--Continued

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Annual maximum Gage height (feet)	Annual maximum Discharge (ft^3/s)
		Maquoketa River Basin--Continued					
05417000	Maquoketa River near Manchester, Ia. (Discontinued)	Lat 42°27'22", long 91°25'56", in NW1/4 NE1/4 sec.9, T.88 N., R.5 W., Delaware County on left bank, 0.6 mi downstream from Sand Creek, 1.5 mi upstream from Spring Branch 2.3 mi southeast of Manchester, and at mile 100.5.	305	1933-73, 1976-84	1984	-	(+)
05417530	Plum Creek at Earlville, Ia.	Lat 42°28'13", long 91°14'53", in NE1/4 sec.1, T.88 N., R.4 W., Delaware County, at bridge on U.S. Highway 20, 1.5 mi southeast of Earlville.	41.1	1966-	06-21-84	85.69	1,500
05417590	Kitty Creek near Langworthy, Ia.	Lat 42°12'04", long 91°12'27", in NW1/4 sec.4, T.85 N., R.3 W., Jones County, at bridge on U.S. Highway 151, 1 mi northeast of Langworthy.	14.4	1966-	06-22-84	86.53	760
		Wapsipinicon River Basin					
05420600	Little Wapsipinicon River tributary near Riceville, Ia.	Lat 43°21'31", long 92°29'08", near S1/4 corner sec.27, T.99 N., R.14 W., Howard County, at culvert on county highway, 3.5 mi east of Riceville.	0.90	1953-	06-17-84	5.08	350
05420620	Little Wapsipinicon River near Acme, Ia.	Lat 43°19'37", long 92°29'07", near N1/4 corner sec.10, T.98 N., R.14 W., Howard County, at bridge on county highway, 1 mi north of Acme.	7.76	1953-	06-17-84	8.91	2,100
05420640	Little Wapsipinicon River at Elma, Ia.	Lat 43°14'30", long 92°27'04", in NW1/4 sec.12, T.97 N., R.14 W., Howard County, at bridge on county highway B17, near west city limits of Elma.	37.3	1953-	06-17-84	9.56	1,280
05420650	Little Wapsipinicon River near New Hampton, Ia.	Lat 43°03'58", long 92°23'38", in NW1/4 sec.9, T.95 N., R.13 W., Chickasaw County, at bridge on U.S. Highway 18, 4 mi west of New Hampton.	95.0	1966-	06-17-84	85.89	1,080
05420690	East Fork Wapsipinicon River near New Hampton, Ia.	Lat 43°05'11", long 92°18'22", in SE1/4 sec.31, T.96 N., R.12 W., Chickasaw County, at bridge on U.S. Highway 63, 2 mi north of New Hampton.	30.3	1966-	1984	a	(+)
05420850	Little Wapsipinicon River near Oran, Ia.	Lat 42°42'53", long 92°02'29", near NW corner sec.9, T.91 N., R.10 W., Fayette County at bridge on State Highway 3, 2 mi northeast of Oran.	94.1	1966-	06-22-84	88.30	1,450
05420855	Buck Creek near Oran, Ia.	Lat 42°42'53", long 92°07'33", in NE1/4 sec.10, T.91 N., R.11 W., Bremer County, at bridge on State Highway 3, 2.5 mi northwest of Oran.	37.9	1966-	06-22-84	88.10	500
05421100	Pine Creek tributary near Winthrop, Ia.	Lat 42°29'17", long 91°47'10", in SW1/4 sec.27, T.89 N., R.8 W., Buchanan County, at culvert on county highway, 2.5 mi northwest of Winthrop.	0.334	1953-	07-09-04	6.57	150
0541200	Pine Creek near Winthrop, Ia.	Lat 42°28'11", long 91°47'01", in SW/4 sec.34, T.89 N., R.8 W., Buchanan County, at railroad bridge, 500 ft upstream from U.S. Highway 20, and 2.5 mi northwest of Winthrop.	28.3	1950-	07-09-84	13.04	870
05421300	Pine Creek tributary No. 2 at Winthrop, Ia.	Lat 42°28'06", long 91°44'33", at N1/4 corner sec.2, T.88 N., R.8 W., Buchanan County, at culvert on U.S. Highway 20, near west city limits of Winthrop.	0.704	1953-	06-22-84	6.85	270
05421550	Buffalo Creek above Winthrop, Ia.	Lat 42°29'51", long 91°43'42", near NE corner sec.25, T.89 N., R.8 W., Buchanan County, at bridge on county highway W45, 1.5 mi northeast of Winthrop.	68.2	1957-	05-25-84	17.08	1,200
05421600	Buffalo Creek near Winthrop, Ia.	Lat 42°28'07", long 91°43'04 in NE1/4 sec.1, T.88 N., R.8 W., Buchanan County, at bridge on U.S. Highway 20, 1 mi east of Winthrop.	71.4	1953-	05-25-84	89.00	2,900
05421890	Silver Creek at Welton, Ia.	Lat 41°54'54", long 90°36'00", in NW1/4 sec.15, T.82 N., R.3 E., Clinton County, at bridge on U.S. Highway 61, at north edge of Welton.	9.03	1966-	06-22-84	87.32	(+)

Annual maximum discharge at crest-stage partial-record stations during water year 1983--Continued

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft^3/s)
		Iowa River Basin					
05448400	Westmain drainage ditch 1 & 2 near Britt, Ia.	Lat 43°06'09", long 93°47'04", in SW1/4 sec.27, T.96 N., R.25 W., Hancock County, at bridge on U.S. Highway 18, near east city limits of Britt.	21.2	1966-	06-07-84	82.09	130
05448600	East Branch Iowa River above Hayfield, Ia.	Lat 43°09'21", long 93°41'21", near S1/4 corner sec.4, T.96 N., R.24 W., Hancock County, at bridge on county highway, 1.5 mi southeast of Hayfield.	2.23	1953-	06-07-84	6.26	(+)
05448700	East Branch Iowa River near Hayfield, Ia.	Lat 43°10'50", long 93°39'20", in NW1/4 sec.35, T.97 N., R.24 W., Hancock County, at bridge on county highway B20, 2 mi east of Hayfield.	7.94	1952-	06-07-84	8.89	130
05448800	East Branch Iowa River near Garner, Ia.	Lat 43°06'17", long 93°37'20", near center sec.25, T.96 N., R.24 W., Hancock County, at bridge on U.S. Highway 18, 1.2 mi west of Garner.	45.1	1952-	06-07-84	11.94	660
05448900	East Branch Iowa River tributary near Garner, Ia.	Lat 43°06'18", long 93°39'29", near E1/4 corner sec.27, T.96 N., R.24 W., Hancock County, at culvert on U.S. Highway 18, 2.1 mi west of Garner.	5.98	1952-	05-07-84	10.46	660
05451955	Stein Creek near Clutier, Ia.	Lat 42°04'46", long 92°18'00", in NE1/4 sec.24, T.84 N., R.13 W., Tama County, at bridge on State Highway 318, 5 mi east of Clutier.	23.4	1971-	06-10-84	75.04	1,700
05453200	Price Creek at Amana, Ia.	Lat 41°48'18", long 91°52'23", in SE1/4 sec.22, T.81 N., R.9 W., Iowa County, at bridge on State Highway 149, near north edge of Amana.	29.1	1966-	02-18-84	84.97	2,800
05453600	Rapid Creek below Morse, Ia.	Lat 41°43'45", long 91°25'38", near NE corner sec.21, T.80 N., R.5 W., Johnson County, at bridge on county highway, 1.5 mi southeast of Morse.	8.12	1951-	02-18-84	17.01	240
05453750	Rapid Creek southwest of Morse, Ia.	Lat 41°43'23", long 91°26'16", in W1/2 sec. 21, T.80 N., R.5 W., Johnson County, at bridge on county highway, 2 mi southwest of Morse.	15.2	1951-	02-18-84	21.87	390
05453850	Rapid Creek tributary No. 3 near Oasis, Ia.	Lat 41°42'33", long 91°27'14", near center sec. 29, T.80 N., R.5 W., Johnson County, at bridge on county highway, 3.5 mi west of Oasis.	1.62	1951-	1984	a	(+)
05453900	Rapid Creek tributary near Oasis, Ia.	Lat 41°41'14", long 91°26'37", near SW corner sec.33, T.80 N., R.5 W., Johnson County, at bridge on county highway X16, 3 mi southwest of Oasis.	0.97	1951-	1984	a	(+)
05453950	Rapid Creek tributary near Iowa City, Ia.	Lat 41°41'56", long 91°28'39", in NW1/4 sec.31, T.80 N., R.5 W., Johnson County, at bridge on county highway, 4 mi northeast of Iowa City.	3.43	1951-	1984	a	(+)
05455100	Old Mans Creek near Iowa City, Ia.	Lat 41°36'23", long 91°36'56", in NW1/4 sec.36, T.79 N., R.7 W., Johnson County, at bridge on county highway W62, 3 mi southwest of Iowa City.	201	1950-64, 1965-	02-18-84	10.31	1,700
05455140	North English River near Montezuma, Ia.	Lat 41°38'45", long 92°34'20", in SW1/4 sec.14, T.79 N., R.15 W., Poweshiek County, at bridge on county highway, 5.0 mi northwest of Montezuma.	31.0	1972-	06-09-84	22.91	1,050
05455200	North English River near Guernsey, Ia.	Lat 41°38'47", long 92°23'47", near SW corner sec.17, T.79 N., R.13 W., Poweshiek County, at bridge on county highway V21, 2.2 mi west of Guernsey.	68.7	1953-	04-29-84	11.38	2,100
05455210	North English River at Guernsey, Ia.	Lat 41°38'42", long 92°21'28", at NW corner sec.22, T.79 N., R.13 W., Poweshiek County at bridge on State Highway 21, 1 mi southwest of Guernsey.	81.5	1960, 1966-	04-29-84	84.10	2,700

Annual maximum discharge at crest-stage partial-record stations during water year 1984--Continued

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Annual maximum Gage height (feet)	Annual maximum Discharge (ft³/s)
		Iowa River Basin--Continued					
05455230	Deep River at Deep River, Ia.	Lat 41°35'29", long 92°21'18', in SW1/4 sec.3, T.78 N., R.13 W., Poweshiek County, at bridge on State Highway 21, 1 mi northeast of Deep River.	30.5	1960, 1966-	1984	a	(+)
05455300	South English River near Barnes City, Ia.	Lat 41°31'26", long 92°27'56", near NW corner sec.34, T.78 N., R.14 W., Poweshiek County, at bridge on county highway, 1 mi north of Barnes City.	11.5	1953-	04-29-84	10.93	420
05455350	South English River tributary No. 2 near Montezuma, Ia.	Lat 41°34'02", long 92°27'01", near SW corner sec.11, T.78 N., R.14 W., Poweshiek County, at box culvert on county highway, 4 mi southeast of Montezuma.	0.523	1953-	02-18-84	10.63	103
05455550	Bulgers run near Riverside, Ia.	Lat 41°29'02", long 91°37'36", in SE1/4 sec.11, T.77 N., R.7 W., Washington County, at bridge on State Highway 22, 2.5 mi west of Riverside.	6.31	1965	05-28-84	85.26	800
05457440	Deer Creek near Carpenter, Ia.	Lat 43°24'54", long 92°59'05", at NW corner sec.9, T.99 N., R.18 W., Mitchell County, at bridge on State Highway 105, 1.5 mi east of Carpenter.	91.6	1966-	06-18-84	81.76	2,400
05458560	Beaverdam Creek near Sheffield, Ia.	Lat 42°56'11", long 93°12'09", at NW corner sec.27, T.94 N., R.20 W., Cerro Gordo County, at bridge on U.S. Highway 65, 3 mi north of Sheffield.	123	1966-	06-17-84	58.90	5,600
05459010	Elk Creek at Kensett, Ia.	Lat 43°22'18", long 93°12'37", in NE1/4 sec.28, T.99 N., R.20 W., Worth County, at bridge on U.S. Highway 65, 1 mi north of Kensett.	58.1	1966-	06-16-84	91.48	790
05459490	Spring Creek near Mason City, Ia.	Lat 43°12'48", long 93°12'38", in SE1/4 sec.16, T.97 N., R.20 W., Cerro Gordo County, at bridge on U.S. Highway 65, 4 mi north of Mason City.	29.3	1966-	06-16-84	86.81	960
05460100	Willow Creek near Mason City, Ia.	Lat 43°08'55", long 93°16'07", near center sec.12, T.96 N., R.21 W., Cerro Gordo County, at bridge on U.S. Highway 18, 3.5 mi west of Mason City.	78.6	1966-	06-17-84	91.97	1,050
05462750	Beaver Creek tributary near Aplington, Ia.	Lat 42°34'40", long 92°50'49", in NW1/4 sec.27, T.90 N., R.17 W., Butler County, at bridge on U.S. Highway 20, 2 mi east of Aplington.	11.6	1966-	06-14-84	92.99	450
05463090	Black Hawk Creek at Grundy Center, Ia.	Lat 42°22'10", long 92°46'05", in NW1/4 sec.7, T.87 N., R.16 W., Grundy County, at bridge on State Highway 14, at north edge of Grundy Center.	56.9	1966-	07-10-84	86.44	1,100
05464145	Twelve Mile Creek near Traer, Ia.	Lat 42°13'50", long 92°27'56", in SE1/4 sec.27, T.86 N., R.14 W., Tama County, at bridge on U.S. Highway 63, 2.5 mi north of Traer.	43.8	1966-	02-18-84	87.62	1,900
05464310	Pratt Creek near Garrison, Ia.	Lat 42°10'53", long 92°11'10", in SE1/4 sec.12, T.85 N., R.12 W., Benton County, at bridge on U.S. Highway 218, 3.5 mi northwest of Garrison.	23.4	1966-	04-29-84	90.44	1,700
05464318	East Blue Creek at Center Point, Ia.	Lat 42°12'44", long 91°47'21", in SW1/4 sec.33, T.86 N., R.8 W., Linn County, at bridge on State Highway 150, 1.5 mi north of Center Point.	17.6	1966-	06-22-84	81.44	1,550
05464560	Prairie Creek at Blairstown, Ia.	Lat 41°54'42", long 92°05'03", in SW1/4 sec.13, T.82 N., R.11 W., Benton County, at bridge on State Highway 82, at north edge of Blairstown.	87.0	1966-	04-29-84	81.49	1,700
05464880	Otter Creek at Wilton, Ia.	Lat 41°36'17", long 91°02'08", in NE1/4 sec.35, T.79 N., R.2 W., Cedar County, at bridge on State Highway 38, 1.5 mi northwest of Wilton.	10.7	1966-	1984	a	(+)
05465150	North Fork Long Creek at Ainsworth, Ia.	Lat 41°16'51", long 91°32'16", in SW1/4 sec.22, T.75 N., R.6 W., Washington County, at bridge on U.S. Highway 218, 1 mi southeast of Ainsworth.	30.2	1951, 1965-	05-03-84	87.60	470

Annual maximum discharge at crest-stage partial-record stations during water year 1984--Continued

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft³/s)
		Skunk River Basin					
05469860	Mud Lake drainage ditch 71 in Jewell, Ia.	Lat 42°18'52", long 93°38'23", in SW1/4 sec.27, T.87 N., R.24 W., Hamilton County, at bridge on U.S. Highway 69, in Jewell.	65.4	1966-	07-20-84	88.10	1,250
05469990	Keigley Branch near Story City, Ia.	Lat 42°09'01", long 93°37'13", in NW1/4 sec.26, T.85 N., R.24 W., Story County, at bridge on U.S. Highway 69, 3 mi south of Story City.	31.0	1966-	07-20-84	91.05	1,510
05472090	North Skunk River near Baxter, Ia.	Lat 41°49'13", long 93°03'41", in NE1/4 sec.21, T.81 N., R.19 W., Jasper County, at bridge on State Highway 223, 4.5 mi east of Baxter.	52.2	1966-	07-08-84	80.12	(+)
05472290	Sugar Creek near Searsboro, Ia.	Lat 41°34'26", long 92°44'20", at E1/4 corner sec.7, T.78 N., R.16 W., Poweshiek County, at bridge on State Highway 225, 1.8 mi west of Searsboro.	52.7	1966-	06-08-84	90.66	1,140
05472390	Middle Creek near Lacey, Ia.	Lat 41°25'17", long 92°39'04", near N1/4 corner sec.1, T.76 N., R.16 W., Mahaska County, at bridge on U.S. Highway 63, 1.5 mi northwest of Lacey.	23.0	1966-	04-29-84	86.96	1,200
05472445	Rock Creek at Sigourney, Ia.	Lat 41°20'12", long 92°13'20", in NE1/4 sec.3, T.75 N., R.12 W., Keokuk County, at bridge on State Highway 92, near west edge of Sigourney.	26.3	1966-	06-22-84	88.36	600
05473300	Cedar Creek near Batavia, Ia.	Lat 41°00'34", long 92°07'06", in SW1/4 sec.27, T.72 N., R.11 W., Jefferson County, at bridge on U.S. Highway 34, 2.5 mi northeast of Batavia.	252	1966-	05-03-84	82.40	5,300
		Des Moines River Basin					
05480930	White Fox Creek at Clarion, Ia.	Lat 42°43'55", long 93°42'26", in NW1/4 sec.5, T.91 N., R.24 W., Wright County, at bridge on State Highway 3, 1.5 mi east of Clarion.	13.3	1966-	06-16-84	93.11	500
05481510	Bluff Creek at Pilot Mound, Ia.	Lat 42°09'59", long 94°01'15", in NW 1/4 sec.20, T.85 N., R.27 W., Boone County, at bridge on State Highway 329, at northwest edge of Pilot Mound.	23.5	1966-	06-13-84	88.49	980
05481680	Beaver Creek at Beaver, Ia.	Lat 42°02'04", long 94°08'46", in NE1/4 sec.6, T.83 N., R.28 W., Boone County, at bridge on U.S. Highway 30, at southwest edge of Beaver.	38.5	1966-	05-02-84	88.50	760
05481690	West Beaver Creek at Grand Junction, Ia.	Lat 42°01'56", long 94°12'38", in NE1/4 sec.3, T.83 N., R.29 W., Greene County, at bridge on U.S. Highway 30, near east edge of Grand Junction.	12.6	1966-	04-25-84 06-29-83	86.21 87.27	168 c250
05482600	Hardin Creek at Farnhamville, Ia.	Lat 42°16'01", long 94°25'10", near NE corner sec.14, T.86 N., R.31 W., Calhoun County, at bridge on State Highway 175, near west city limits of Farnhamville.	43.7	1952-	06-21-84	9.97	1,350
05482800	Happy Run at Churdan, Ia.	Lat 42°10'16", long 94°29'39', in SW1/4 sec.17, T.85 N., R.31 W., Greene County, at bridge on county highway, 1 mi northwest of Churdan.	7.58	1952-	05-01-84	4.21	17
05482900	Hardin Creek near Farlin, Ia.	Lat 42°05'34", long 94°25'39", near N1/4 corner sec.14, T.84 N., R.31 W., Greene County, at bridge on county highway, 1.5 mi northeast of Farlin.	101	1951-	04-30-84	9.55	860
05483318	Brushy Fork Creek near Templeton, Ia.	Lat 41°56'45", long 94°52'45", in NW1/4 sec.1, T.82 N., R.35 W., Carroll County, at bridge on U.S. Highway 71, 4 mi northeast of Templeton.	45.0	1966-	06-13-84	83.89	(+)
05483349	Middle Raccoon River tributary at Carroll, Ia.	Lat 42°02'30", long 94°52'43", in NW1/4 sec.36, T.84 N., R.35 W., Carroll County, at bridge on U.S. Highway 71, 1.5 mi south of Carroll.	6.58	1966-	06-13-84	22.91	(+)
05487350	South Otter Creek tributary near Woodburn, Ia.	Lat 41°02'48", long 93°35'26" near SW corner sec.11, T.72 N., R.24 W., Clarke County, at bridge on county highway, 2 mi north of Woodburn.	0.71	1955-	04-29-84	11.62	(+)

Annual maximum discharge at crest-stage partial-record stations during water year 1983--Continued

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft³/s)
		Des Moines River Basin--Continued					
05467800	White Breast Creek at Lucas, Ia.	Lat 41°01'24", long 93°27'56", in NE1/4 sec.23, T.72 N., R.23 W., Lucas County, at bridge on U.S. Highway 65, near south city limits of Lucas.	128	1953-	04-29-84	15.03	3,700
05488620	Coal Creek near Albia, Ia.	Lat 41°01'02", long 92°50'46", in SW1/4 sec.20, T.72 N., R.17 W., Monroe County, at bridge on U.S. Highway 34, 2 mi southwest of Albia.	13.5	1966-	04-29-84	81.71	1,800
05489150	Little Muchakinock Creek at Oskaloosa, Ia.	Lat 41°15'58", long 92°38'33", in SE1/4 sec.25, T.75 N., R.16 W., Mahaska County, at bridge on State Highway 137, at south edge of Oskaloosa.	9.12	1966-	04-29-84	87.73	900
05489350	South Avery Creek near Blakesburg, Ia.	Lat 41°00'59", long 92°37'32", in SE1/4 sec.19, T.72 N., R.15 W., Wapello County, at bridge on U.S. Highway 34, 3.5 mi north of Blakesburg.	33.1	1965-	06-08-84	84.78	5,200
05489490	Bear Creek at Ottumwa, Ia.	Lat 41°00'43", long 92°27'54", in NW1/4 sec.27, T.72 N., R.14 W., Wapello County, at bridge on U.S. Highway 34, near west edge of Ottumwa.	22.9	1965-	06-08-84	87.75	2,050
		Fox River Basin					
05494110	South Fox Creek near West Grove, Ia.	Lat 40°43'31", long 92°36'16", in SE1/4 sec.32, T.69 N., R.15 W., Davis County, at bridge on State Highway 2, 2.4 mi west of West Grove.	12.2	1965-	1984	a	(+)
		Big Sioux River Basin					
06483410	Otter Creek north of Sibley, Ia.	Lat 43°27'41", long 95°44'29", at NE corner sec.25, T.100 N., R.42 W., Osceola County, at bridge on county highway L40, 4 mi north of Sibley.	11.9	1952-	06-12-84	7.59	640
06483430	Otter Creek at Sibley, Ia.	Lat 43°24'14", long 95°46'10", near N1/4 corner sec.14, T.99 N., R.42 W., Osceola County, at bridge on county highway A22, 1 mi northwest of Sibley.	29.9	1952-	06-12-84	8.81	1,750
06483440	Dawson Creek near Sibley, Ia.	Lat 43°23'23", long 95°42'53", near NW corner sec.20, T.99 N., R.41 W., Osceola County, at culvert on county highway A30, 2 mi southeast of Sibley.	4.35	1952-	06-12-84	6.67	(+)
06483460	Otter Creek near Ashton, Ia.	Lat 43°20'07", long 95°45'43", in SE1/4 sec.2, T.98 N., R.42 W., Osceola County, at bridge on county highway L36, 2 mi northeast of Ashton.	88.0	1952-	02-15-84	b9.83	(+)
06483495	Burr Oak Creek near Perkins, Ia.	Lat 43°14'43", long 96°10'38", in SE1/4 sec.5, T.97 N., R.45 W., Sioux County, at bridge on U.S. Highway 75, 4 mi north of Perkins.	30.9	1966-	06-12-84	86.30	1,040
		Perry Creek Basin					
06599800	Perry Creek near Merrill, Ia.	Lat 42°43'16", long 96°20'33", in NW1/4 sec.12, T.91 N., R.47 W., Plymouth County, at bridge on county highway C44, 5 mi west of Merrill.	8.17	1953-	06-12-84	8.93	(+)
06599950	Perry Creek near Hinton, Ia.	Lat 42°37'57", long 96°22'13", in NE1/4 sec.15, T.90 N., R.47 W., Plymouth County, at bridge on county highway, 4 mi west of Hinton.	30.8	1953-	06-20-84	36.77	(+)
		Floyd River Basin					
06600030	Little Floyd River near Sanborn, Ia.	Lat 43°11'10", long 95°43'30", in NE1/4 sec.31, T.97 N., R.41 W., O'Brien County, at bridge on U.S. Highway 18, 3.5 mi west of Sanborn.	8.44	1966-	06-12-84	88.22	(+)
		Monona-Harrison Ditch Basin					
06601480	Big Whiskey Slough near Remsen, Ia.	Lat 42°48'28", long 95°53'21", in NW1/4 sec.11, T.92 N., R.43 W., Plymouth County, at bridge on State Highway 3, 4.2 mi east of Remsen.	12.9	1966-	06-12-84	92.77	725

Annual maximum discharge at crest-stage partial-record stations during water year 1984--Continued

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Annual maximum Gage height (feet)	Annual maximum Discharge (ft³/s)
		Monona-Harrison Ditch Basin--Continued					
06602190	Elliott Creek at Lawton, Ia.	Lat 42°28'30", long 96°11'22", in NW1/4 sec.3, T.88 N., R.46 W., Woodbury County, at bridge on U.S. Highway 20, at west edge of Lawton.	34.8	1966-	1966	a	<1,100
					06-08-67	83.61	2,450
					06-24-68	80.61	1,660
					06-25-69	84.40	2,650
					1970	a	<1,100
					1971	a	<1,100
					1974	a	<1,100
					1979	a	<1,100
					1980	a	<1,100
					1981	a	<1,100
					06-20-83	79.13	1,220
					06-12-84	86.14	3,050
		Little Sioux River Basin					
06604510	Ocheyedan River near Ocheyedan, Ia.	Lat 43°25'58", long 95°36'41", in NE1/4 sec.6, T.99 N., R.40 W., Osceola County, at bridge on State Highway 9, 4 mi northwest of Ocheyedan.	73.5	1966-	04-13-84	84.61	(+)
06605340	Prairie Creek near Spencer, Ia.	Lat 43°05'16", long 95°09'40", in SE1/4 sec.36, T.96 N., R.37 W., Clay County, at bridge on U.S. Highway 71, 4 mi south of Spencer.	22.3	1966-	06-21-84	89.53	410
06605750	Willow Creek near Cornell, Ia.	Lat 42°58'21", long 95°09'40", in SE1/4 sec.12, T.94 N., R.37 W., Clay County, at bridge on U.S. Highway 71, 2 mi northwest of Cornell.	78.6	1966-	06-17-84	90.37	2,100
06605890	Waterman Creek at Hartley, Ia.	Lat 43°11'06", long 95°30'43", in NE1/4 sec.36, T.97 N., R.40 W., O'Brien County, at bridge on U.S. Highway 18, 1.8 mi west of Hartley.	28.7	1966-	06-12-84	87.65	1,700
06606790	Maple Creek near Alta, Ia.	Lat 42°44'56", long 95°22'16", in NE1/4 sec.31, T.92 N., R.38 W., Buena Vista County, at bridge on State Highway 3, 6 mi northwest of Alta.	15.5	1966-	04-12-84	86.38	190
		Soldier River Basin					
06608450	Jordan Creek at Moorhead, Ia.	Lat 41°54'59", long 95°51'33", in NW1/4 sec.16, T.82 N., R.43 W., Monona County, at bridge on State Highway 183, at southwest corner of Moorhead.	30.1	1966-	06-16-84	77.19	(+)
		Boyer River Basin					
06609560	Willow Creek near Soldier, Ia.	Lat 41°55'17", long 95°42'05", near S1/4 corner sec.11, T.82 N., R.42 W., Monona County, at bridge on State Highway 37, 6 mi southeast of Soldier.	29.1	1966-	06-16-84	74.64	(+)
		Mosquito Creek Basin					
06610510	Moser Creek near Earling, Ia.	Lat 41°46'35", long 95°26'55", in NE1/4 sec.1, T.80 N., R.40 W., Shelby County, at bridge on State Highway 37, 1.5 mi west of Earling.	21.6	1966-	06-15-84	87.89	(+)
06610600	Mosquito Creek at Neola, Ia.	Lat 41°26'36", long 95°36'42", in NE1/4 sec.25, T.77 N., R.42 W., Pottawattamie County, at bridge on county highway, 0.5 mi south of Neola. Prior to 04-19-63, gage located 0.9 miles upstream D.A. 128 mi².	131	1952-	06-15-84	18.45	2,900
		Nishnabotna River Basin					
06807418	Graybill Creek near Carson, Ia.	Lat 41°13'57", long 95°22'51", in NW1/4 sec.7, T.74 N., R.39 W., Pottawattamie County, at bridge on State Highway 92, 2 mi east of Carson.	45.9	1966-	1984	a	(+)
06807470	Indian Creek near Emerson, Ia.	Lat 41°01'50", long 95°22'51", in NW1/4 sec.19, T.72 N., R.39 W., Montgomery County, at bridge on U.S. Highway 34, 1 mi east of Emerson.	37.3	1966-	06-15-84	87.87	1,310
06807720	Middle Silver Creek near Avoca, Ia.	Lat 41°28'33", long 95°28'06", near N1/4 corner sec.17, T.77 N., R.40 W., Pottawattamie County, at bridge on State Highway 83, 7 mi west of Avoca.	3.21	1955-	02-15-84	b 7.36	(+)
					04-30-84	6.03	150

Annual maximum discharge at crest-stage partial-record stations during water year 1984--Continued

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft³/s)
		Nishnabotna River Basin--Continued					
06807760	Middle Silver Creek near Oakland, Ia.	Lat 41°19'28", long 95°33'19", near E1/4 corner sec. 4, T.75., R.41 W., Pottawattamie County, at bridge on county highway, 8.5 mi northwest of Oakland.	25.7	1953-	04-30-84	7.39	670
06807780	Middle Silver Creek at Treynor, Ia.	Lat 41°14'37", long 95°36'53", near NE corner sec. 1, T.74 N., R.42 W., Pottawattamie County, at bridge on county highway L55, 1 mi north of Treynor.	42.7	1953-	04-30-84	12.28	2,500
06808880	Bluegrass Creek at Audubon, Ia.	Lat 41°42'46", long 94°55'43", in NW1/4 sec.28, T.80 N., R.35 W., Audubon County, at bridge on U.S. Highway 71, near south edge of Audubon.	15.4	1966-	1984	a	(+)
		Tarkio River Basin					
06811760	Tarkio River near Elliot, Ia.	Lat 41°06'06", long 95°06'09", near NE corner sec.28, T.73 N., R.37 W., Montgomery County, at bridge on county highway, 4.5 mi southeast of Elliot.	10.7	1952-	06-09-84	8.51	610
06811800	East Tarkio Creek near Stanton, Ia.	Lat 41°04'48", long 95°05'34", in W1/2 sec. 34, T.73 N., R.37 W., Montgomery County, at bridge on county highway H24, 7 mi north of Stanton.	4.66	1952-	1984	a	<359
06811820	Tarkio River tributary near Stanton, Ia.	Lat 41°02'38", long 95°05'55", near NE corner sec.16, T.72 N., R.37 W., Montgomery County, at box culvert on county highway H63, 4 mi north of Stanton.	0.67	1952-	1984	a	(+)
06811875	Snake Creek near Yorktown, Ia.	Lat 40°44'33", long 95°07'46", in NW1/4 sec.32, T.69 N., R.37 W., Page County, at bridge on State Highway 2, 1.5 mi northeast of Yorktown.	9.10	1966-	06-15-84	92.85	1,100
		Nodaway River Basin					
06816290	West Nodaway River at Massena, Ia.	Lat 41°14'44", long 94°45'27", in E1/2 sec.33, T.75 N., R.34 W., Cass County, at bridge on State Highway 148, at southeast corner of Massena.	23.4	1966-	1984	a	(+)
		Platte River Basin					
06818598	Platte River near Stringtown, Ia.	Lat 40°58'44", long 94°29'39", in SE1/4 sec.2, T.71 N., R.32 W., Adams County, at bridge on U.S. Highway 34, 3.8 mi east of Stringtown.	51.7	1966-	06-14-84	91.65	2,350
06819110	Middle Branch 102 River near Gravity, Ia.	Lat 40°49'40", long 94°44'18", in SE1/4 sec.27, T.70 N., R.34 W., Taylor County, at bridge on State Highway 148, 4.8 mi north of Gravity.	33.5	1966-	1984	a	(+)
		Chariton River Basin					
06903980	Chariton River near Udell, Ia.	Lat 40°46'53", long 92°50'12, in NE1/4 sec.17, T.69 N., R.17 W., Appanoose County, at bridge on county highway, 5.0 mi west of Udell.	631	1972-	06-09-84	853.07	2,700
06903990	Cooper Creek at Centerville, Ia.	Lat 40°45'02", long 92°51'36", in NW1/4 sec.30, T.69 N., R.17 W., Appanoose County, at bridge on State Highway 5, at north edge of Centerville.	47.8	1966-	06-09-84	74.17	2,300
06904040	Chariton River at Coal City, Ia.	Lat 40°35'35", long 92°42'40", in NE1/4 sec.20, T.67 N., R.16 W., Appanoose County, at bridge on county highway, at Coal City.	816	1972-	1984	a	(+)

\+ Discharge not determined.
a Peak stage did not reach bottom of gage.
b Ice affected.
c Revised

423646N095020101. Local number, 90-36-13 ADDA1.
LOCATION.--Lat 42°36'46", long 95°02'01", Hydrologic Unit 07100006, north of the Illinois Central Gulf Railroad tracks, approximately 1 mi west and .5 mi north of the Town of Newell.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Limestone of Mississippian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 338 ft, cased to 338 ft, perforated 323 to 338 ft.
DATUM.--Altitude of land-surface datum is 1,281 ft. Measuring point; Top of casing 3.30 ft above land-surface datum.
REMARKS.--Well D-26. 8.5 ft of casing perforated in Pleistocene glacial drift. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--May 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 99.52 ft below land-surface datum, May 9, 1984; lowest 101.82 ft below land-surface datum, Aug. 5, 1980.

Nov. 22, 1983	100.08	Feb. 15, 1984	99.85	May 9, 1984	99.52	July 31, 1984	100.22

423618N095194511. Local number, 90-38-16 DDDD11.
LOCATION.--Lat 42°36'18", long 95°19'45", Hydrologic Unit 10230005, north of County Highway C-65, 2 mi east of the Village of Hanover.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 497 ft, cased to 497 ft, perforated 346.5 to 349.5 ft.
DATUM.--Altitude of land-surface datum is 1,365 ft. Measuring point; Top of casing 3.50 ft above land-surface datum.
REMARKS.--Well D-25. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--April 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 188.25 ft below land-surface datum, Jun. 2, 1980; lowest 189.53 ft below land-surface datum, Dec. 6, 1983.

Dec. 6, 1983	189.53	Feb. 21, 1984	188.60	May 23, 1984	188.08	Aug. 17, 1984	188.35

424023N095571401. Local number, 91-35-26 BCCC1.
LOCATION.--Lat 42°40'23", long 95°57'14", Hydrologic Unit 07100006, approximately 2.7 mi west and .5 mi north of the Village of Varina.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 357 ft, cased to 357 ft, perforated 338 to 347 ft.
DATUM.--Altitude of land-surface datum is 1,291 ft. Measuring point; Top of casing 2.00 ft above land-surface datum.
REMARKS.--Well D-24. Paleozoic rock at 347 ft. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--December 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 18.40 ft below land-surface datum, Jan. 7, 1980; lowest 41.14 ft below land-surface datum, July 31, 1984.

Nov. 22, 1983	38.35	Feb. 15, 1984	39.35	May 9, 1984	40.32	July 31, 1984	41.14

425233N094545001. Local number, 93-35-13 ADAA1.
LOCATION.--Lat 42°52'33", long 94°54'50", Hydrologic Unit 07100006, south of the Chicago, Rock Island and Pacific Railroad track, approximately 3.5 mi east and .75 mi north of the Town of Marathon.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 1.50 in, depth 381 ft, cased to 381 ft, perforated 350 to 360 ft.
DATUM.--Altitude of land-surface datum is 1,330 ft. Measuring point; Top of casing 3.00 ft above land-surface datum.
REMARKS.--Well D-36. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--February 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 132.06 ft below land-surface datum, May 12, 1983; lowest 133.67 ft below land-surface datum, Sept. 11, 1981.

Dec. 6, 1983	132.22	Mar. 1, 1984	132.08	May 21, 1984	131.75	Aug. 16, 1984	131.95

CALHOUN COUNTY

422846N094375601. Local number, 89-32-33 CABC1.
LOCATION.--Lat 42°28'46", long 94°37'56", Hydrologic Unit 07100006, west edge of the picnic area on the east side of North Twin Lake, approximately 5 mi north of Rockwell City.
Owner: Iowa State Conservation Commission.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in, depth 53 ft, lined with tile.
DATUM.--Altitude of land-surface datum is 1,222 ft. Measuring point; Hole in concrete platform 0.50 ft above land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements. 1948 to 1955 records published in Geological Survey Water-Supply Papers. Well 33F1. A public-supply well prior to 1978.
PERIOD OF RECORD.--October 1948 to June 1959, December 1961 to August 1966, July 1968 to November 1971, October 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.82 ft below land-surface datum, May 9, 1984; lowest 32.12 ft below land-surface datum, Aug. 8, 1977.

Nov. 14, 1983	20.98	Feb. 15, 1984	19.00	May 9, 1984	3.82	Aug. 15, 1984	27.16

CARROLL COUNTY

420702N094404001. Local number, 84-33-3 BDAA1.
LOCATION.--Lat 42°07'02", long 94°40'40", Hydrologic Unit 07100006, approximately .2 mi west of the Kendal Bridge, 2.3 mi east and 3.8 mi north of the Town of Glidden.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Sandstone of Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 135 ft, cased to 135 ft, perforated 115 to 135 ft.
DATUM.--Altitude of land-surface datum is 1,065 ft. Measuring point; casing at land-surface datum.
REMARKS.--Well WC-130. Water levels, in ft, above land-surface datum from steel tape measurements.
PERIOD OF RECORD.--November 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.45 ft above land-surface datum, Mar. 11, 1983; lowest 4.35 ft above land-surface datum, Apr. 2, 1984.

Oct. 5, 1983	+5.60	Nov. 8, 1983	+5.96	Apr. 2, 1984	+4.35	well destroyed	

420335N094521501. Local number, 84-35-25 BDAD1.
LOCATION.--Lat 42°03'35", long 94°52'15", Hydrologic Unit 07100007, near the city water plant, Carroll.
Owner: City of Carroll.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in, depth 120 ft, cased to 100 ft, open end.
DATUM.--Altitude of land-surface datum is 1,275 ft. Measuring point; Top of casing 4.00 ft above land-surface datum.
REMARKS.--City test No. 1. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--September 1939 to December 1949, May 1952 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 34.55 ft below land-surface datum, Sept. 8, 1945; lowest 85.50 ft below land-surface datum, Jul. 15, 1981.

Oct. 13, 1983	64.71	Jan. 23, 1984	61.23	Mar. 25, 1984	60.87	July 16, 1984	61.86
Oct. 25	61.60	Feb. 1	61.38	May 8	58.00	July 23	63.05
Oct. 28	63.60	Feb. 8	62.43	May 29	60.11	Aug. 2	60.71
Nov. 3	60.76	Feb. 17	62.22	June 5	61.10	Aug. 7	64.49
Nov. 11	62.60	Feb. 22	61.04	June 15	60.93	Aug. 17	67.35
Dec. 7	57.46	Mar. 22	60.12	July 9	64.08	Aug. 20	64.31
Jan. 5, 1984	58.35	Mar. 18	62.01	July 13	63.57	Aug. 29	69.08

421058N094582701. Local number, 85-35-7 CCCC1.
LOCATION.--Lat 42°10'58", long 94°58'27", Hydrologic Unit 07100006, approximately 1 block north of Iowa Highway 217, next to the town maintenence building, Breda.
Owner: Town of Breda.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled municipal artesian well, diameter 10 in, depth 340 ft, cased to 320 ft, screen 320 to 340 ft.
DATUM.--Altitude of land-surface datum is 1,362 ft. Measuring point; Vent pipe 1.60 ft above land-surface datum.
REMARKS.--Town well No. 3. Water levels affected by pumping. Original depth 349 ft. Water levels, in ft, below land-surface datum from steel tape or airline measurements. 1942 to 1955 records published in Geological Survey Water-Supply Papers.
PERIOD OF RECORD.--March 1942 to August 1966, March 1968 to November 1971, June 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 187.70 ft below land-surface datum, Mar. 25, 1948; lowest 250.40 ft below land-surface datum, May 24, 1977.

Nov. 23, 1983	201.68	Feb. 8, 1984	199.50	May 10, 1984	198.46	Sept. 14, 1984	199.69

CERRO-GORDO COUNTY

430456N093253601. Local number, 95-22-3 ABBA1.
LOCATION.--Lat 43°04'56", long 93°25'36", Hydrologic Unit 07080203, approximately 2.25 mi south of Dodges Point at Clear Lake.
Owner: Knut Olson.
AQUIFER.--Limestone of Devonian Age.
WELL CHARACTERISTICS.--Drilled domestic and stock artesian well, diameter 4 in, depth 134 ft.
DATUM.--Altitude of land-surface datum is 1,258 ft. Measuring point; Top of casing 1.40 ft above land-surface datum.
REMARKS.--Casing information not available. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--October 1941 to August 1971, March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 14.34 ft below land-surface datum, Jul. 3, 1945; lowest 24.87 ft below land-surface datum, Feb. 14. 1979.

Feb. 2, 1984	23.85	July 11, 1984	23.36	Discontinued			

430806N093164501. Local number, 96-21-13 BCCB1.
LOCATION.--Lat 43°08'06", long 93°16'45", Hydrologic Unit 07080203, south of the County Home, just north of Iowa Highway 106, east of the City of Clear Lake.
Owner: Mason City and Clear Lake Railroad.
AQUIFER.--Dolomite in Cedar Valley Limestone of Devonian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 5 in, depth 198 ft.
DATUM.--Altitude of land-surface datum is 1,165 ft. Measuring point; Top of well curb 1.30 ft above land-surface datum.
REMARKS.--Casing information not available. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--November 1940 to August 1971, March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.73 ft below land-surface datum, Jan. 28, 1951; lowest 17.26 ft below land-surface datum, Nov. 18, 1955.

Nov. 1, 1983	5.09	Jan. 31, 1984	6.49	July 11, 1984	5.02	Sept. 26, 1984	6.30

430658N093281001. Local number, 96-22-20 CADC1.
LOCATION.--Lat 43°06'58", long 93°28'10", Hydrologic Unit 07080203, east of County Road S-14 in Ventura Heights.
Owner: W. Baine and H. Elder.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 5 in, depth 126 ft.
DATUM.--Altitude of land-surface datum is 1,249 ft. Measuring point; Hole in side of casing 0.87 ft above land-surface datum.
REMARKS.--Casing information not available. Formerly Boy Scouts of America. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--July 1940 to August 1971, March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 29.65 ft below land-surface datum, Mar. 25, 1942; lowest 51.37 ft below land-surface datum, Aug. 4, 1977.

Dec. 20, 1983	42.57	Feb. 2, 1984	42.63	July 11, 1984	42.47	Sept. 26, 1984	44.72

CHEROKEE COUNTY

423833N095365701. Local number, 90-40-6 BDCD1.
LOCATION.--Lat 42°38'33", long 95°36'57", Hydrologic Unit 10230003, approximately 3.1 mi east of U.S. Highway 59 and .55 mi north of Iowa Highway 31 along the Illinois Central Railroad track.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 1.25 in, depth 253 ft, cased to 252 ft, sandpoint 252 to 253 ft.
DATUM.--Altitude of land-surface datum is 1,182 ft. Measuring point; Top of casing 4.00 ft above land-surface datum.
REMARKS.--Well D-6. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--December 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 28.38 ft below land-surface datum, Aug. 27, 1983; lowest 37.22 ft below land-surface datum, Sept. 10, 1981.

Oct. 20, 1983	30.24	Apr. 4, 1984	31.75	June 26, 1984	28.79	Sept. 19, 1984	31.54
Jan. 11, 1984	31.65						

CHEROKEE COUNTY

424348N095231601. Local number, 91-39-1 ADAD1.
LOCATION.--Lat 42°43'48", long 95°23'16", Hydrologic Unit 10230005, approximately 2 mi east and .5 mi north of the Town of Aurelia at the Larson Lake County Park.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dolomite of Ordovician Age and Sandstone of Cambrian Age.
WELL CHARACTERISITICS.--Drilled observation artesian well, diameter 6 in to 236 ft, 5 in to 486 ft, 2 in to 1,545 ft, depth 1,545 ft, cased to 1,126 ft, open end.
DATUM.--Altitude of land-surface datum is 1,370 ft. Measuring point; Top of casing 3.20 ft above land-surface datum.
REMARKS.--Well D-28. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--September 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 190.70 ft below land-surface datum, Dec. 6, 1984; lowest 194.47 ft below land-surface datum, May 5, 1982.

Dec. 6, 1983	190.70	Feb. 2, 1984	192.65	May 23, 1984	192.42	Aug. 17, 1984	191.56

424348N095231602. Local number, 91-39-1 ADAD2.
LOCATION.--Lat 42°43'48", long 95°23'16", Hydrologic Unit 10230005, approximately 2 mi east and .5 mi north of the Town of Aurelia at the Larson Lake County Park.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 4 in to 340 ft, depth 340 ft, cased to 340 ft, perforated 235 to 240 ft.
DATUM.--Altitude of land-surface datum is 1,370 ft. Measuring point; Top of casing 3.30 ft above land-surface datum.
REMARKS.--Well D-29. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--September 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 189.97 ft below land-surface datum, May 23, 1984; lowest 194.15 ft below land-surface datum, Aug. 24, 1982.

Dec. 6, 1983	192.98	Feb. 21, 1984	190.00	May 23, 1984	189.97	Aug. 17, 1984	190.46

424132N095480211. Local number, 91-42-16 DDDD11.
LOCATION.--Lat 42°41'32", long 95°48'02", Hydrologic Unit 10230004, approximately 2 mi north of the Village of Fielding at the junction of County Roads L-36 and C-44.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 390 ft, cased to 390 perforated 386 to 390 ft.
DATUM.--Altitude of land-surface datum is 1,320 ft. Measuring point; Top of casing 1.50 ft above land-surface datum.
REMARKS.--Well D-11. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--March 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 152.75 ft below land-surface datum, June 27, 1984; lowest 155.50 ft below land-surface datum, Dec. 15, 1980.

Oct. 20, 1983	153.64	Apr. 4, 1984	153.74	June 27, 1984	152.75	Sept. 19, 1984	153.69

424802N095331201. Local number, 92-40-10 BDDD1.
LOCATION.--Lat 42°48'02", long 95°33'12", Hydrologic Unit 10230003, along U.S. Highway 59, approximately 2.5 mi north of the City of Cherokee.
Owner: Iowa Geological Survey and U.S. Geological
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2.50 in, depth 300 ft, cased to 300 ft, perforated 114 to 118 ft.
DATUM.--Altitude of land-surface datum is 1,210 ft. Measuring point; Top of casing 0.30 ft above land-surface datum.
REMARKS.--Well D-5. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--April 1980 to October 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 26.05 ft below land-surface datum, June 27, 1984; lowest 29.19 ft below land-surface datum, May 5, 1982.

Oct. 20, 1983	27.59	Apr. 11, 1984	26.97	June 27, 1984	26.05	Sept. 19, 1984	27.26
Jan. 11, 1984	27.19						

424023N091291201. Local number, 91-5-30 BBBB1.
LOCATION.--Lat 42°40'23", long 91°29'12", Hydrologic Unit 07060006, 5 mi northwest of the City of Edgewood, or 2 mi northwest of the junction of Iowa Highways 3 and 13 east of Strawberry Point.
Owner: Harold Knight.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 36 in, depth 36 ft.
DATUM.--Altitude of land-surface datum is 1,233 ft. Measuring point; Hole in pump base at land-surface datum.
REMARKS.--Casing information not available. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--June 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 15.10 ft below land-surface datum, Apr. 5, 1983; lowest 30.68 ft below land-surface datum, Jan. 12, 1959.

Oct. 7, 1983	20.10	Feb. 20, 1984	16.45	May 20, 1984	19.10	Aug. 5, 1984	20.15
Oct. 23	18.70	Mar. 6	20.48	June 8	14.87	Aug. 20	19.77
Nov. 5	20.20	Mar. 20	19.85	June 20	16.97	Aug. 21	19.84
Nov. 23	19.40	Apr. 7	19.82	July 9	18.74	Sept. 7	20.22
Dec. 6	19.96	Apr. 21	19.59	July 23	18.72	Sept. 25	20.25
Jan. 20, 1984	18.00	May 5	16.53				

424057N091320001. Local number, 91-6-22 ACAC1.
LOCATION.--Lat 42°40'57", long 91°32'00", Hydrologic Unit 07060006, southeast corner of the junction of Iowa Highways 3 and 13, Strawberry Point.
Owner: City of Strawberry Point.
AQUIFER.--Dolomite of Silurian Age and Dolomite of Upper Ordovician Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 16 in, 0-130 ft, 12 in 130-161 ft depth 492 ft, cased to 161 ft with a 10 in liner 229-370 ft, open end.
DATUM.--Altitude of land-surface datum is 1,219 ft. Measuring point; Top of recorder platform 2.10 ft above land-surface datum.
REMARKS.--City well No. 2. Water levels from recorder graphs.
PERIOD OF RECORD.--March 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 114.38 ft below land-surface datum, May 9, 1973; lowest 133.18 ft below land-surface datum, Feb. 4, 1968.
REVISION.--WTR YEAR 1983 MAX 117.68 MAY 31, 1983; MIN 125.81 OCT 20, 1982.

Water level, in feet, below land-surface datum, water year October 1983 to September 1984
NOON VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	122.61	123.12	121.75	122.41	124.18	121.02	----	118.22	117.47	----	----	122.20
10	122.63	123.01	121.92	123.60	123.91	121.50	121.07	117.45	117.88	118.03	----	122.25
15	122.66	122.84	122.31	123.38	123.68	121.86	120.70	117.98	117.75	118.57	121.02	122.82
20	122.79	122.25	122.25	123.90	122.34	121.54	120.27	117.81	117.07	118.88	121.25	----
25	122.84	122.35	122.86	123.65	121.07	122.12	119.80	118.35	116.75	119.43	121.62	123.11
Eom	122.95	122.26	122.86	123.93	121.04	----	119.59	117.72	e117.00	119.92	121.72	123.16

WTR YEAR 1984 MAX 116.15 JUN 26, 1984 MIN 124.55 FEB 7, 1984

e Estimated.

430156N091182901. Local number, 95-4-22 BCBD1.
LOCATION.--Lat 43°01'56", long 91°18'29", Hydrologic Unit 07060001, approximately 2 mi north of the junction of U.S. Highway 18 and U.S. Highway 52-Iowa Highway 13, near Spook Cave.
Owner: Gerald Mielke.
AQUIFER.--Limestone of Middle Ordovician Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in, depth 49 ft.
DATUM.--Altitude of land-surface datum is 940 ft. Measuring point; Top of casing 1.00 ft above land-surface datum.
REMARKS.--Casing information not available. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--October 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 19.77 ft below land-surface datum, Aug. 17, 1977; lowest 27.88 ft below land-surface datum, Mar. 4, 1968.

Dec. 7, 1983	13.98	July 10, 1984	23.02	Aug. 21, 1984	23.60

425940N091194701. Local number, 95-4-32 DDDD1.
LOCATION.--Lat 42°59'40", long 91°19'47", Hydrologic Unit 07060004, 1 mi west of the junction of U.S. Highway 52 and Iowa Highway 13, or northeast of the City of Farmersburg.
Owner: Milton and Willis Meier.
AQUIFER.--St. Peter Sandstone of Middle Ordovician Age.
WELL CHARACTERISTICS.--Drilled stock artesian well, diameter 6 in, depth 380 ft (reported).
DATUM.--Altitude of land-surface datum is 1,090 ft. Measuring point; Plug in pump base 1.00 ft above land-surface datum.
REMARKS.--Casing information not available. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--October 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 74.08 ft below land-surface datum, July 10, 1984; lowest 126.56 ft below land-surface datum, Jan. 13, 1969.

Dec. 7, 1983	79.78	July 10, 1984	74.08	Aug. 21, 1984	75.62

CRAWFORD COUNTY

421031N095225611. Local number, 85-39-16 ADDD1.
LOCATION.--Lat 42°10'31", long 95°22'56", Hydrologic Unit 10230007, approximately 2.5 mi east and .5 mi north of the Town of Schleswig.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Limestone of Mississippian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 561 ft, cased to 561 ft, perforated 543 to 561 ft.
DATUM.--Altitude of land-surface datum is 1,370 ft. Measuring point; Top of casing 3.14 ft above land-surface datum.
REMARKS.--Well WC-7B. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--June 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 305.58 ft below land-surface datum, Feb. 8, 1983; lowest 307.64 ft below land-surface datum, Oct. 4, 1983.

Oct. 4, 1983	307.64	Dec. 7, 1983	306.58	Feb. 8, 1984	307.17	Apr. 2, 1984	307.26
Nov. 8	307.06	Jan. 9, 1984	307.00	Mar. 5	307.06	July 12	306.96

DES MOINES COUNTY

404844N091142701. Local number, 69-3-6 AABA1.
LOCATION.--Lat 40°48'44", long 91°14'27", Hydrologic Unit 07080104, at the Iowa Army Ammunition Plant, near the Town of Middleton.
Owner: Iowa Ordnance Plant.
AQUIFER.--St. Peter Sandstone of Middle Ordovician Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 16 in, depth 1209 ft, cased to 855 ft, open end.
DATUM.--Altitude of land-surface datum is 717 ft. Measuring point; Top of platform 1.61 ft above land-surface datum.
REMARKS.--Plant well No. 3. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--March 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 114.97 ft below land-surface datum, June 11, 1984; lowest 201.75 ft below land-surface datum, Aug. 15, 1978.

Oct. 1, 1983	122.69	Mar. 16, 1984	117.67	June 11, 1984	114.97	Aug. 12, 1984	117.04
Jan. 7, 1984	119.22	Apr. 15	117.29				

404753N091142501. Local number, 69-3-6 DDCD1.
LOCATION.--Lat 40°47'53", long 91°14'25", Hydrologic Unit 07080104, at the Iowa Army Ammunition Plant, near the Town of Middleton.
Owner: Iowa Ordnance Plant.
AQUIFER.--Limestone of Devonian and Mississippian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 19 in, depth 675 ft, cased to 75 ft, open end.
DATUM.--Altitude of land-surface datum is 699 ft. Measuring point; Top of platform 1.91 ft above land-surface datum.
REMARKS.--Plant well No. 2. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--March 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 74.46 ft below land-surface datum, Apr. 18, 1975; lowest 83.19 ft below land-surface datum, Apr. 26, 1950.

Oct. 1, 1983	80.65	Mar. 16, 1984	80.79	June 11, 1984	80.32	Aug. 12, 1984	80.33
Jan. 7, 1984	80.79	Apr. 15	80.66				

EMMET COUNTY

432927N094345501. Local number, 100-32-11 DDDD1.
LOCATION.--Lat 43°29'27", long 94°34'55", Hydrologic Unit 07100003, at Okamanpedan Lake Reserve State Park, north of the Town of Dolliver.
Owner: State of Iowa.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled public-supply artesian well, diameter 6 in, depth 277 ft.
DATUM.--Altitude of land-surface datum is 1,233 ft. Measuring point; Plug in pump base 0.61 ft above land-surface datum.
REMARKS.--Casing information not available. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--November 1939 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 59.60 ft below land-surface datum, Dec. 19, 1946; lowest 77.86 ft below land-surface datum, Aug. 27, 1979.

Dec. 5, 1983	71.47	Mar. 14, 1984	72.65	May 21, 1984	68.24	Aug. 16, 1984	68.54

GREENE COUNTY

415449N094161501. Local number, 82-29-18 CAAA1.
LOCATION.--Lat 41°54'49", long 94°16'15", Hydrologic Unit 07100006, approximately .5 mi south and 4 mi east of the Village of Cooper and just south of County Road E-57.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Sandstone of Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 101 ft, cased to 100 ft, perforated 89 to 100 ft, open end.
DATUM.--Altitude of land-surface datum is 960 ft. Measuring point; Top of casing 2.00 ft above land-surface datum.
REMARKS.--Well WC-116. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--September 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.41 ft above land-surface datum, Jul. 5, 1983; lowest 4.52 ft below land-surface datum, Nov. 5, 1982.

Oct. 5, 1983	4.03	Dec. 8, 1983	2.85	Feb. 9, 1984	3.34	Apr. 2, 1984	2.13
Nov. 8	3.80	Jan. 10, 1984	2.08	Mar. 5	1.92	July 12	1.10

415449N094173201. Local number, 82-30-13 CABA1.
LOCATION.--Lat 41°54'49", long 94°17'32", Hydrologic Unit 07100006, approximately .5 mi south and 3 mi east of the Village of Cooper and just south of County Road E-57.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Sandstone of Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 230 ft, cased to 230 ft, perforated 209 to 230 ft.
DATUM.--Altitude of land-surface datum is 1,035 ft. Measuring point; Top of casing 1.45 ft above land-surface datum.
REMARKS.--Well WC-118. Water levels, in ft, below land-surface datum from steel tape of electric line measurements. Original depth 245 ft, casing plugged at 230 ft.
PERIOD OF RECORD.--September 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 66.79 ft below land-surface datum, Jul. 5, 1983; lowest 71.48 below land-surface datum, Sep. 2, 1982.

Oct. 5, 1983	70.95	Dec. 8, 1983	70.07	Feb. 9, 1984	70.41	Apr. 2, 1984	69.18
Nov. 8	70.75	Jan. 10, 1984	70.33	Mar. 5	69.47	July 12	68.59

GRUNDY COUNTY

422605N092560001. Local number, 88-18-15 DBBB1.
LOCATION.--Lat 42°26'05", long 92°56'00", Hydrologic Unit 07080205, west of the corner of Monroe and 4th Streets and west of the high school, Wellsburg.
Owner: City of Wellsburg.
AQUIFER.--Limestone and Dolomite of Upper Devonian Age.
WELL CHARACTERISTICS.--Drilled public-emergency-supply artesian well, diameter 12 in, depth 280 ft, cased to 128 ft, open end.
DATUM.--Altitude of land-surface datum is 1,060 ft. Measuring point; Edge of vent pipe 1.25 ft above land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--September 1960 to August 1971, May 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 34.45 ft below land-surface datum, Feb. 22, 1983; lowest 96.81 ft below land-surface datum, Sep. 27, 1960.

Nov. 4, 1983	40.78	Jan. 24, 1984	35.91	May 29, 1984	40.00	Sept. 28, 1984	36.73

HARRISON COUNTY

413838N095462001. Local number, 79-42-19 AADB1.
LOCATION.--Lat 41°38'38", long 95°46'20", Hydrologic Unit 10230007, approximately .5 mi east of the Town of Logan, near U.S. Highway 30.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dolomite of Mississippian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 628 ft, cased to 628 ft, perforated 588 to 628 ft.
DATUM.--Altitude of land-surface datum is 1,045. Measuring point; Top of casing 4.40 ft above land-surface datum.
REMARKS.--Well WC-22. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--November 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.30 ft below land-surface datum, Apr.11, 1984; lowest 16.37 ft below land-surface datum, Jun. 3, 1982.

Oct. 4, 1983	14.21	Dec. 6, 1983	12.89	Feb. 7, 1984	11.44	Apr. 11, 1984	9.30
Nov. 8	14.44	Jan. 11	12.02	Mar. 6	10.19	Aug. 21	9.90

HARRISON COUNTY

414955N096000601. Local number, 81-44-18 AADA1.
LOCATION.--Lat 41°49'55", long 96°00'06", Hydrologic Unit 10230003, approximately 1.8 mi northeast of the Town of Little Sioux, just west of Iowa Highway 301.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Sandstone of Pennsylvania Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 126 ft, cased to 126 ft, perforated 108 to 126 ft.
DATUM.--Altitude of land-surface datum is 1,075 ft. Measuring point; Top of casing 2.80 ft above land-surface datum.
REMARKS.--Well WC-23. Original depth 209 ft, casing plugged 126 ft. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--January 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 52.33 ft below land-surface datum, Jul. 12, 1984; lowest 64.07 ft below land-surface datum, Jan. 15, 1982.

Oct. 4, 1983	60.63	Dec. 6, 1983	60.52	Feb. 7, 1984	61.88	Apr. 11, 1984	58.43
Nov. 7	61.08	Jan. 11, 1984	61.44	Mar. 7	60.25	July 12	52.33

HENRY COUNTY

405810N091330502. Local number, 71-6-9 ABAC2.
LOCATION.--Lat 40°58'10", long 91°33'05", Hydrologic Unit 07080107, in the city water plant on Adams Street, Mount Pleasant.
Owner: City of Mount Pleasant.
AQUIFER.--Jordan Sandstone of Late Cambrian Age.
WELL CHARACTERISTICS.--Drilled municipal artesian well, diameter 20 to 19 in, depth 1,860 ft, cased to 623 ft, open end.
DATUM.--Altitude of land-surface datum is 725 ft. Measuring point; Hole in pump base 2.25 ft above land-surface datum.
REMARKS.--City well No. 4. Water levels affected by pumping. Water levels, in ft, below land-surface datum from airline measurements.
PERIOD OF RECORD.--April 1946 to December 1950, January 1953 to November 1955, December 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 132.00 ft below land-surface datum, May 5, 1946; lowest nonpumping 198.75 ft below land-surface datum, Jan. 7, 1978.

Oct. 4, 1983	p190.25	Feb. 28, 1984	p190.25	Apr. 26, 1984	p196.25	Sept. 20, 1984	p193.25

p Well being pumped.

410848N091394801. Local number, 73-7-9 AABD1.
LOCATION.--Lat 41°08'48", long 91°39'48", Hydrologic Unit 07080107, north of Main Street near the water tower, Wayland.
Owner: Town of Wayland.
AQUIFER.--Glacial Drift of Pleistocene Age.

WELL CHARACTERISTICS.--Dug unused water-table well, diameter 4 ft, depth 52 ft.
DATUM.--Altitude of land-surface datum is 735 ft. Measuring point; Top of cement cover 0.21 ft above land-surface datum.
REMARKS.--Casing information not available. Water levels, in ft, below land-surface datum from steel tape measurement.
PERIOD OF RECORD.--September 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.30 ft below land-surface datum, Sep. 1, 1965; lowest 14.69 ft below land-surface datum, Feb. 2, 1977.

Oct. 4, 1983	10.17	Feb. 28, 1984	9.14	Apr. 26, 1984	8.70	Sept. 20, 1984	11.56

IDA COUNTY

422215N095390811. Local number, 87-41-5 CCCC11.
LOCATION.--Lat 42°22'15", long 95°39'08", Hydrologic Unit 10230005, approximately .75 mi east and 6.5 mi south of the Village of Cushing.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 490 ft, cased to 490 ft, perforated 301 to 305 ft.
DATUM.--Altitude of land-surface datum is 1,344 ft. Measuring point; Top of cssing 3.00 ft above land-surface datum.
REMARKS.--Well D-10. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--June 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 202.55 ft below land-surface datum, Jun. 4, 1980; lowest 206.50 ft below land-surface datum, May 7, 1982.

Oct. 20, 1983	204.31	Apr. 4, 1984	204.10	June 29, 1984	202.68	Sept. 19, 1984	205.54
Jan. 11, 1984	204.14						

IDA COUNTY

423107N095383201. Local number, 89-41-13 CCCC1.
LOCATION.--Lat 42°31'07", long 95°38'32", Hydrologic Unit 10230003, at a roadside park on County Road D-15, approximately 1.5 mi east and 3.5 mi north of the Village of Cushing.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Limestone of Mississippian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 469 ft, cased to 468 ft, perforated 465 to 468 ft, open end.
DATUM.--Altitude of land-surface datum is 1,320 ft. Measuring point; Top of casing 1.50 ft above land-surface datum.
REMARKS.--Well D-9. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--December 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 186.45 ft below land-surface datum, Jul. 27, 1983; lowest 207.14 ft below land-surface datum, Apr. 8, 1980.

Oct. 20, 1983	186.86	Apr. 4, 1984	188.99	June 27, 1984	187.64	Sept. 19, 1984	187.83
Jan. 11, 1984	188.59						

JACKSON COUNTY

420842N090165701. Local number, 85-6E-29 ACAD1.
LOCATION.--Lat 42°08'42", long 90°16'57", Hydrologic Unit 07060005, 1 mi east of U.S. Highway 52, 2 mi southeast of the Village of Green Island beside the Chicago, Milwaukee, St. Paul and Pacific Railroad tracks in the Upper Mississippi River Wildlife and Fish Refuge.
Owner: U.S. Geological Survey.
AQUIFER.--Mt. Simon Sandstone of Early Cambrian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in depth 1,804 ft, cased to 1,725 ft, screened 1,705 to 1,725 ft, open end.
DATUM.--Altitude of land-surface datum is 610 ft. Measuring point; Mark on angle iron attached to well house 6.05 ft above land-surface datum.
REMARKS.--Water levels, in ft, above land-surface datum from engineers rule measurements.
PERIOD OF RECORD.--May 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.41 ft above land-surface datum, Apr. 12, 1984; lowest 7.67 ft above land-surface datum, Sept. 6, 1984.

Oct. 12, 1983	+7.94	Jan. 17, 1984	+7.86	Apr. 12, 1984	+9.41	July 12, 1984	+8.27
Nov. 14	+8.30	Feb. 14	+8.25	May 10	+8.63	Aug. 8	+8.07
Dec. 15	+8.43	Mar. 13	+8.15	June 14	+8.07	Sept. 6	+7.67

420842N090165702. Local number, 85-6E-29 ACAD2.
LOCATION.--Lat 42°08'42", long 90°16'57", Hydrologic Unit 07060005, 1 mi east of U.S. Highway 52, 2 mi southeast of the Village of Green Island beside the Chicago, Milwaukee, St. Paul and Pacific Railroad tracks in the Upper Mississippi River Wildlife and Fish Refuge.
Owner: U.S. Geological Survey.
AQUIFER.--Ironton-Galesville Sandstone of Middle Cambrian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 1,275 ft, cased to 1,224.4 ft, screened 1,204.4 to 1,224.4 ft, open end.
DATUM.--Altitude of land-surface datum is 610 ft. Measuring point; Top of casing 2.00 ft above land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--July 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.32 ft below land-surface datum, Nov. 14, 1984; lowest 3.88 ft below land-surface datum, Nov. 4, 1982.

Nov. 14, 1983	1.32

420842N090165703. Local number, 85-6E-29 ACAD3.
LOCATION.--Lat 42°08'42", long 90°16'57", Hydrologic Unit 07060005, 1 mi east of U.S. Highway 52, 2 mi southeast of the Village of Green Island beside the Chicago, Milwaukee, St. Paul and Pacific Railroad tracks in the Upper Mississippi River Wildlife and Fish Refuge.
Owner: U.S. Geological Survey.
AQUIFER.--St. Peter Sandstone and Prairie du Chien Dolomite of Ordovician Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 910 ft, cased to 624.2 ft, screened 604.2 to 624.2 ft, open end.
DATUM.--Altitude of land-surface datum is 610 ft. Measuring point; Top of casing 2.00 ft above land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.01 ft below land-surface datum, May 10, 1984; lowest 9.90 ft below land-surface datum, Aug. 31, 1983.

Oct. 12, 1983	9.55	Jan. 17, 1984	8.84	Apr. 12, 1984	7.29	July 12, 1984	7.54
Nov. 14	8.89	Feb. 14	8.34	May 10	7.01	Aug. 8	7.89
Dec. 15	8.45	Mar. 13	8.05	June 14	7.66	Sept. 6	8.25

JACKSON COUNTY

420842N090165704. Local number, 85-6E-29 ACAD4.
LOCATION.--Lat 42°08'42", long 90°16'57", Hydrologic Unit 07060005, 1 mi east of U.S. Highway 52, 2 mi southeast of the Village of Green Island beside the Chicago, Milwaukee, St. Paul and Pacific Railroad tracks in the Upper Mississippi River Wildlife and Fish Refuge.
Owner: U.S. Geological Survey.
AQUIFER.--Galena Dolomite of Ordovician Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 400 ft, cased to 319.6 ft, screened 299.6 to 319.6 ft, open end.
DATUM.--Altitude of land-surface datum is 610 ft. Measuring point; Top of casing 2.00 ft above land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 12.22 ft below land-surface datum, Apr. 22, 1983; lowest 17.30 ft below land-surface datum, Sept. 6, 1984.

Oct. 12, 1983	16.83	Jan. 17, 1984	15.70	Apr. 12, 1984	14.16	July 12, 1984	13.80
Nov. 14	16.36	Feb. 14	15.57	May 10	12.66	Aug. 8	16.40
Dec. 15	15.80	Mar. 13	15.23	June 14	14.70	Sept. 6	17.30

JASPER COUNTY

414205N092592001. Local number, 80-18-31 ABBB1.
LOCATION.--Lat 41°42'05", long 92°59'20", Hydrologic Unit 07080105, approximately 3 mi east of the City of Newton on U.S. Highway 6.
Owner: P.W. Beukema.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Dug stock water-table well, diameter 36 in, depth 37 ft, cribbed with brick.
DATUM.--Altitude of land-surface datum is 940 ft. Measuring point; Top of cement platform 0.70 ft land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--February 1940 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.67 ft below land-surface datum, Jun. 10, 1947; lowest 27.15 ft below land-surface datum, Dec. 18, 1948.

Dec. 1, 1983	4.04	Feb. 23, 1984	4.79	May 17, 1984	4.60	Aug. 8, 1984	5.12

414147N093035401. Local number, 80-19-33 ACAC.
LOCATION.--Lat 41°41'47", long 93°03'54", Hydrologic Unit 07080105, 231 West 10th Street, Newton.
Owner: John Coppess.
AQUIFER.--Jordan Sandstone of Late Cambrian Age.
WELL CHARACTERISTICS.--Drilled unused private artesian well, diameter 12 to 6 in, depth 2,567 ft, cased to 1,750 ft, open end.
DATUM.--Altitude of land-surface datum is 915 ft. Measuring point; Plug in cement well cover 0.50 ft above land-surface datum.
REMARKS.--461 ft of the Prairie du Chien Formation of Ordovician Age, 262 ft of the St. Lawrence Formation of Cambrian Age, and 94 ft of Franconia Sandstone of Cambrian Age open. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--September 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 98.43 ft below land-surface datum, Jun. 14, 1966; lowest 266.10 ft below land-surface datum, Jan. 27, 1982.

Dec. 1, 1983	241.18	Feb. 23, 1984	244.82	May 17, 1984	246.05	Aug. 8, 1984	238.00

JOHNSON COUNTY

414107N091322901. Local number, 79-6-4 AAAA1.
LOCATION.--Lat 41°41'07", long 91°32'29", Hydrologic Unit 07080209, at Forest View Trailer Court, northern edge of Iowa City.
Owner: Forest View Trailer Court.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in, depth 280 ft, cased to 96 ft, open end.
DATUM.--Altitude of land-surface datum is 735 ft. Measuring point; Top of casing 1.00 ft above land-surface datum.
REMARKS.--Water levels affected by wells in the area pumping in late spring, summer, and early fall. Water levels from recorder graph.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 96.93 ft below land-surface datum, Mar. 23, 1979; lowest 146.01 ft below land-surface datum, Jul. 17, 1971.
REVISION.--WTR YEAR 1983 MIN 131.42 AUG. 8, 1983.

Water level, in feet, below land-surface datum, water year October 1983 to September 1984
NOON VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	127.14	126.02	109.47	103.28	101.80	100.36	100.08	107.47	120.76	124.50	124.98	126.18
10	128.17	125.15	107.66	103.48	101.48	100.19	100.20	111.73	121.50	e125.25	125.26	125.74
15	127.04	121.63	105.96	103.02	101.17	99.75	100.31	115.90	122.17	124.94	125.67	125.57
20	126.51	----	105.53	102.76	100.77	99.42	100.34	117.73	122.57	124.85	125.68	124.74
25	126.94	----	105.03	102.05	100.58	99.75	99.81	119.24	123.45	125.10	125.74	124.80
Eom	126.67	----	104.21	101.93	100.80	100.33	103.07	120.15	124.14	124.71	125.67	124.00

WTR YEAR 1984 MAX 99.16 MAR 21, 1984 MIN 128.20 OCT 8, 1983

e Estimated.

JOHNSON COUNTY

413925N091324001. Local number, 79-6-9 DDBC1.
LOCATION.--Lat 41°39'34", long 91°32'42", Hydrologic Unit 07080209, at the Quadrangle Dormitory, University of Iowa, Iowa City.
Owner: University of Iowa.
AQUIFER.--Niagaran and Alexandrian Dolomite of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in, depth 430.5 ft, cased to 225 ft, open end.
DATUM.--Altitude of land-surface datum is 714 ft. Measuring point; Hole in well cap 1. 50 ft above land-surface datum.
REMARKS.--Water levels affected by nearby wells pumping in late spring, summer and early fall. Water levels from April 1975 to October 1977 from recorder graph, from January 1978 to current year from steel tape measurements, in ft, below land-surface datum.
PERIOD OF RECORD.--April 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 75.02 ft below land-surface datum, Mar. 15, 1979; lowest 165.93 ft below land-surface datum, Jul. 13, 1977.
REVISIONS.--WTR YEAR 1975 MAX RECORDED 79.03 APR 15, 1975 MIN RECORDED 158.82 AUG 25, 1975.
WTR YEAR 1976 MAX RECORDED 79.25 MAR 23, 1976 MIN RECORDED 163.80 JUL 14, 1976.
WTR YEAR 1977 MAX RECORDED 79.75 MAR 28, 1977 MIN RECORDED 165.93 JUL 13, 1977.

Oct. 31, 1983	142.51	Jan. 30, 1984	85.40	Apr. 30, 1984	105.18	July 26, 1984	148.02
Nov. 30	105.14	Mar. 1	84.55	May 30	136.96	Aug. 27	136.68
Dec. 28	84.03	Mar. 29	85.09	June 27	149.07	Sept. 27	134.86

413955N091320303. Local number, 79-6-10 BDBC3.
LOCATION.--Lat 41°39'58", long 91°32'06", Hydrologic Unit 07080209, at the Currier Hall Dormitory, University of Iowa, Iowa City.
Owner: University of Iowa.
AQUIFER.--Niagaran and Alexandrian Dolomite of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in, depth 425 ft, cased to 160 ft, open end.
DATUM.--Altitude of land-surface datum is 707 ft. Measuring point; Nipple welded to plate on top of casing 7.94 ft below land-surface datum.
REMARKS.--Water levels affected by nearby wells pumping in late spring, summer, and early fall. Thirty-five ft of Devonian open. Water levels, in ft, from steel tape measurements, below land-surface datum.
PERIOD OF RECORD.--October 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 62.12 ft below land-surface datum, Apr. 23, 1973; lowest 163.16 ft below land-surface datum, Jul. 14, 1978.

Oct. 31, 1983	142.08	Jan. 30, 1984	70.16	Apr. 30, 1984	96.23	July 26, 1984	153.38
Nov. 30	85.32	Mar. 1	69.78	May 30	139.45	Aug. 27	153.83
Dec. 28	73.58	Mar. 29	69.53	June 27	150.15	Sept. 27	149.23

413844N091323201. Local number, 79-6-16 DDAD1.
LOCATION.--Lat 41°38'44", long 91°32'32", Hydrologic Unit 07080209, 1223 South Riverside Drive, Iowa City.
Owner: Iowa City Community School District.
AQUIFER.--Limestone and Dolomite of Devonian Age and Dolomite of Silurian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 363 ft, cased to 66.5 ft, open end.
DATUM.--Altitude of land-surface datum is 652 ft. Measuring point; Nipple welded to plate on top of casing 2.12 ft above land-surface datum.
REMARKS.--U.S.G.S.- I.G.S. warehouse well. Water levels affected by wells in the area pumping in late spring, summer, and early fall. Water levels from April 1974 to October 1979 from recorder graph, from October 1979 to June 1980 from digital recorder, from June 1980 to March 1983 from recorder graph, from March of 1983 to current year from steel tape measurements, in ft, below land-surface datum.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.96 ft below land-surface datum, Apr. 11, 1979; lowest 32.94 ft below land-surface datum, Jul. 15, 1977.
REVISIONS.--WTR YEAR 1974 MAX RECORDED 10.73 APR 5, 1974 MIN RECORDED 24.72 SEP 20, 1974.
WTR YEAR 1975 MAX 9.99 APR 17, 1975 MIN 26.99 SEP 4, 1975.
WTR YEAR 1976 MAX 11.51 MAR 30, 1976 MIN 31.94 SEP 17, 1976.
WTR YEAR 1977 MAX 13.19 MAR 28, 1977 MIN 32.94 JUL 15, 1977.
WTR YEAR 1978 MAX 11.50 APR 18, 1978 MIN 28.60 OCT 22, 1977.
WTR YEAR 1979 MAX 9.96 APR 11, 1979 MIN 26.14 OCT 7, 1978.
WTR YEAR 1980 MAX 11.33 MAR 3, 1980 MIN 29.66 AUG 15, 1980.
WTR YEAR 1981 MAX RECORDED 11.91 MAR 15, 1981 MIN RECORDED 27.83 AUG 22, 1981.
WTR YEAR 1982 MAX RECORDED 11.49 APR 12, 1982 MIN RECORDED 27.08 SEP 3,15 1982.
WTR YEAR 1983 MAX OBSERVED 10.87 APR 28, 1983 MIN OBSERVED 27.73 AUG 29, 1983.
WATER LEVELS 32.79 JUL 15, 1977; 26.04 OCT 5, 1978; 25.52 OCT 10, 1978;
11.19 MAR 5, 1979; 11.26 MAR 15, 1979; 11.32 APR 25, 1979;
17.15 NOV 25, 1979; 12.36 JAN 10, 1980; 14.04 MAY 5, 1980;
22.63 JUN 5, 1980; 28.70 AUG 10, 1980; 15.93 DEC 20, 1981;
e12.00 MAR 20, 1982; 26.56 OCT 25, 1982.

Oct. 31, 1983	26.44	Jan. 30, 1984	13.80	Apr. 30, 1984	11.82	July 26, 1984	24.42
Nov. 30	20.77	Mar. 1	12.83	May 30	20.79	Aug. 27	26.44
Dec. 28	15.41	Mar. 29	11.95	June 27	24.01	Sept. 27	25.28

JOHNSON COUNTY

414315N091252001. Local number, 80-5-22 CBCB1.
LOCATION.--Lat 41°43'15", long 91°25'20", Hydrologic Unit 07080209, along the Chicago, Rock Island and Pacific Railroad track, southeast of the overpass on Rapid Creek Road over the track, approximately 5.50 mi northeast of the junction of Interstate 80 and Iowa Highway 1.
Owner: Chicago, Rock Island and Pacific Railroad Co.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 1.25 in, depth 20 ft, cased to 18 ft, screened 18 to 20 ft.
DATUM.--Altitude of land-surface datum is 753 ft. Measuring point; Top of casing 4.20 ft above land-surface datum.
REMARKS.--At the site of the now destroyed Elmira depot. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--October 1941 to September 1956, January 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 5.78 ft below land-surface datum, Sep. 20, 1977; lowest dry, Dec. 2-31, 1955 and Nov. 8 - Dec. 31, 1964.

Oct. 20, 1983	16.34	Jan. 24, 1984	12.01	Apr. 24, 1984	9.09	July 24, 1984	9.66
Nov. 21	15.56	Feb. 21	11.82	May 22	8.34	Aug. 21	10.86
Dec. 19	10.91	Mar. 15	10.88	June 20	8.93	Sept. 25	13.18

414315N091252002. Local number, 80-5-22 CBCB2.
LOCATION.--Lat 41°43'15", long 91°25'20", Hydrologic Unit 07080209, along the Chicago, Rock Island and Pacific Railroad track, southeast of the overpass on Rapid Creek Road over the track, approximately 5.50 mi northeast of the junction of Interstate 80 and Iowa Highway 1.
Owner: Chicago, Rock Island and Pacific Railroad Co.
AQUIFER.--Limestone of Devonian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 5 in, depth 82 ft.
DATUM.--Altitude of land-surface datum is 753 ft. Measuring point; Top of casing 2.50 ft above land-surface datum.
REMARKS.--Casing information not available. At the site of the now destroyed Elmira depot. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--December 1941 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 8.15 ft below land-surface datum, Apr. 21, 1952; lowest 21.05 ft below land-surface datum, Sep. 26, 1957.

Oct. 20, 1983	18.10	Jan. 24, 1984	16.54	Apr. 24, 1984	14.67	July 24, 1984	16.04
Nov. 21	16.95	Feb. 21	14.86	May 22	15.36	Aug. 21	16.84
Dec. 19	16.19	Mar. 15	15.97	June 20	15.17	Sept. 25	17.64

414853N091425101. Local number, 81-7-19 BCBB1.
LOCATION.--Lat 41°48'53", long 91°42'51", Hydrologic Unit 07080208, approximately .75 mi west and 2.25 mi south of the Town of Swisher.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dolomite of Silurian Age and Limestone of Devonian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 535 ft, cased to 130 ft, open end.
DATUM.--Altitude of land-surface datum is 745 ft. Measuring point; Top of casing 3.50 ft above land-surface datum.
REMARKS.--[U.S.G.S.-I.G.S. Plum Creek well]. Water levels from November 1976 to October 1981 from recorder graph, from October 1981 to October 1982 from steel tape measurements, in ft, below land-surface datum, and from April 1983 to current year from recorder graph.
PERIOD OF RECORD.--November 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 64.46 ft below land-surface datum, May 31, 1983; lowest 72.92 ft below land-surface datum, Sept. 5, 1981.

Water level, in feet, below land-surface datum, water year October 1983 to September 1984
NOON VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	69.97	70.35	-----	-----	69.77	69.52	69.60	69.32	68.06	66.32	67.06	69.25
10	70.10	70.18	-----	-----	69.67	70.09	69.68	68.80	68.06	66.37	67.64	69.05
15	70.02	70.19	-----	-----	69.84	69.78	69.54	68.90	67.96	66.60	68.03	69.66
20	70.33	69.82	-----	-----	69.86	69.48	69.70	68.45	67.38	66.55	68.47	69.48
25	70.41	70.10	-----	69.62	69.67	69.71	69.39	68.44	66.90	66.82	68.80	69.67
Eom	70.46	70.32	-----	69.68	69.62	69.95	69.58	68.54	66.69	66.86	68.90	69.87

WTR YEAR 1984 MAX 66.20 JUL 10, 1984 MIN 70.71 OCT 29, 1983

JONES COUNTY

415808N091160501. Local number, 83-4-25 CBBB1.
LOCATION.--Lat 41°58'08", long 91°16'05", Hydrologic Unit 07080103, 4 mi north of the Town of Mechanicsville and 1 mi west of County Road X-40.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dolomite of Silurian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in to 41 ft, 5 in to 517 ft, depth 517 ft, cased to 41 ft, open end.
DATUM.--Altitude of land-surface datum is 807 ft. Measuring point; Top of casing 1.00 ft above land-surface datum.
REMARKS.--White Oak Creek well. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--July 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.24 ft below land-surface datum, Apr. 3, 1979; lowest 5.49 ft below land-surface datum, Jun. 29, 1977.

Oct. 5, 1983	4.66	Apr. 19, 1984	3.24	Aug. 7, 1984	3.50	Sept. 11, 1984	4.73

LINN COUNTY

415422N091422601. Local number, 82-7-18 CDCD1.
LOCATION.--Lat 41°54'22", long 91°42'26", Hydrologic Unit 07080205, on 76th Avenue SW, approximately 1.5 mi west of U.S. Highway 218, Cedar Rapids.
Owner: Lester Petrak.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 4 ft, depth 14 ft, cribbed with brick.
DATUM.--Altitude of land-surface datum is 835 ft. Measuring point; Base of recorder shelter 0.25 ft above land-surface datum.
REMARKS.--Water levels from recorder graph.
PERIOD OF RECORD.--July 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.09 ft below land-surface datum, Aug. 4, 1968; lowest ell. 75 ft below land-surface datum, Feb. 8, 1977.
REVISION.--WTR YEAR 1983 MAX 2.63 DEC 5, 1982 MIN 9.75 SEP 15, 1983.

Water level, in feet, below land-surface datum, water year October 1983 to September 1984
NOON VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	9.87	9.52	5.86	6.87	7.94	4.72	4.46	4.42	5.13	5.32	5.80	8.08
10	10.07	9.35	6.44	7.20	7.95	4.84	4.60	4.87	5.02	5.48	6.27	8.31
15	9.86	8.61	5.61	7.37	3.88	4.89	4.48	5.00	5.11	5.28	6.70	8.47
20	9.39	8.14	5.85	7.57	3.77	4.80	4.58	e5.00	4.50	5.16	7.03	8.65
25	9.25	7.50	6.05	7.72	4.36	4.04	4.37	5.06	4.94	5.47	7.35	8.84
Eom	9.49	5.81	6.66	7.91	4.59	4.46	4.22	4.84	5.13	5.41	7.74	8.86

WTR YEAR 1984 MAX 3.63 MAY 2, 1984 MIN 10.09 OCT 11, 1983

e Estimated.

415816N091393401. Local number, 83-7-28 ADDA1.
LOCATION.--Lat 41°58'16", long 91°39'34", Hydrologic Unit 07080205, 320 11th Avenue SE, Cedar Rapids.
Owner: Robert Chadima.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in, depth 420 ft, cased to 75 ft, open end.
DATUM.--Altitude of land-surface datum is 735 ft. Measuring point; Top of recorder platform 2.95 ft below land-surface datum.
REMARKS.--Formerly The Kacena Co., Inc. Water levels from recorder graph.
PERIOD OF RECORD.--January 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 51.10 ft below land-surface datum, Feb. 25, 1963; lowest 101.40 ft below land-surface datum, Jul. 27, 1981.
REVISION.--WTR YEAR 1983 MAX 83.26 JUL 2, 1983 MIN 90.58 SEP 1983 (day unknown).

Water level, in feet, below land-surface datum, water year October 1983 to September 1984
NOON VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	90.30	91.05	90.87	90.60	91.45	90.60	88.10	87.97	89.23	e92.30	94.25	94.61
10	90.50	90.86	91.27	91.50	91.43	90.58	88.00	87.79	e90.30	e93.00	94.85	94.51
15	90.62	90.92	90.67	91.52	91.53	90.08	87.80	88.73	e91.00	-----	94.76	95.65
20	90.94	90.30	91.30	91.96	91.30	89.36	88.25	88.68	-----	-----	94.55	95.25
25	91.08	90.86	91.36	91.15	91.22	89.27	87.75	e89.00	92.00	93.95	94.60	96.02
Eom	90.97	91.25	91.35	91.23	91.13	88.95	87.93	89.27	92.60	94.03	94.46	95.75

WTR YEAR 1984 MAX 86.97 APR 30, 1984 MIN 96.43 SEP 26, 1984

e Estimated.

415509N091461801. Local number, 82-8-20 ACBB1.
LOCATION.--Lat 41°55'09", long 91°46'18", Hydrologic Unit 070802005, approximately 1.5 mi southhwest OF the Town of Fairfax, just northwest of Iowa Highway 149.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Limestone of Devonian Age and Dolomite of Silurian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 5 in, depth 569 ft, cased to 100.5 ft, open end.
DATUM.--Altitude of land-surface datum is 842 ft. Measuring point; Top of casing 0.88 ft above land-surface datum.
REMARKS.--Rock Pile well. Water levels from March 1974 to May 1978 from recorder graph. Water levels from October 1978 to current year, in ft, below land-surface datum, from steel tape measurements.
PERIOD OF RECORD.--March 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 96.70 ft below land-surface datum, Jun. 21, 1974; lowest 108.37 ft below land-surface datum, Jul. 22-23, 1977.
REVISIONS.--WTR YEAR 1974 MAX RECORDED 96.70 JUN 21, 1974 MIN RECORDED 99.08 MAR 10, 1974.
WTR YEAR 1975 MAX RECORDED 98.52 OCT 2, 1974 MIN RECORDED 102.24 AUG 7, 1975.
WTR YEAR 1976 MAX 101.84 NOV 9, 1975 MIN 105.22 SEP 24, 1976.
WTR YEAR 1977 MAX 104.17 NOV 25, 1976 MIN 108.37 JUL 22-23, 1977.
WTR YEAR 1978 MAX RECORDED 101.86 MAY 30, 1978 MIN 105.50 OCT 2, 1977.
WATER LEVEL 101.94 May 31, 1978.

Oct. 5, 1983	102.76	Apr. 17, 1984	101.53	Aug. 7, 1984	100.92	Sept. 11, 1984	105.12

415725N091410101. Local number, 83-7-32 ACDC1.
LOCATION.--Lat 41°57'25", long 91°41'01", Hydrologic Unit 07080205, northwest corner of 22nd Avenue SW and 11th Street SW, Cedar Rapids.
Owner: Floyd Fetter.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 5 in, depth 282 ft.
DATUM.--Altitude of land-surface datum is 805 ft. Measuring point; Plug in well cover at land-surface datum.
REMARKS.--Name corrected from Felter to Fetter. Casing information not available. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--July 1940 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 75.80 ft below land-surface datum, Jan. 26, 1942; lowest 107.00 ft below land-surface datum, Sept. 16, 1976.

Oct. 20, 1983	97.91	Jan. 19, 1984	95.11	Apr. 24, 1984	91.86	July 24, 1984	91.78
Nov. 21	95.82	Feb. 21	95.22	May 22	92.03	Aug. 21	92.59
Dec. 19	95.26	Mar. 15	94.11	June 20	91.99	Sept. 25	91.35

LINN COUNTY

420526N091370701. Local number, 84-7-13 BCBB1.
LOCATION.--Lat 42°05'26", long 91°37'07", Hydrologic Unit 07080206, approximately 0.25 mi south of the junction of County Roads W-58 and E-34, or approximately 3.75 mi north of the City of Marion.
Owner: U.S. Geological Survey.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1.25 in, depth 17 ft, cased to 15 ft, screened 15 to 17 ft.
DATUM.--Altitude of land-surface datum is 882 ft. Measuring point; Top of casing 0.75 ft above land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--September 1948 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.93 ft below land-surface datum, May 18, 1982; lowest 12.90 ft below land-surface datum, Dec. 3, 1956.

Oct. 20, 1983	5.40	Jan. 19, 1984	4.69	Apr. 24, 1984	1.85	July 24, 1984	4.12
Nov. 21	3.94	Feb. 21	1.81	May 22	3.41	Aug. 21	4.74
Dec. 19	2.61	Mar. 15	3.35	June 20	2.02	Sept. 25	6.09

421149N091403301. Local number, 85-7-4 CCCC1.
LOCATION.--Lat 42°11'49", long 91°40'33", Hydrologic Unit 07080205, approximately 5 mi east of the Town of Center Point, north side of County Road E-16.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dolomite of Silurian Age and Limestone of Devonian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, cased to 41 ft, 5 in liner 129 to 147 ft, depth 435 ft, open end.
DATUM.--Altitude of land-surface datum is 912 ft. Measuring point; Top of casing at land-surface datum.
REMARKS.--Alice well. Water levels from July 1973 to March 1974 and October 1979 to current year are from steel tape measurements, in ft, below land surface datum. Water levels from March 1974 to September 1979 from recorder graph.
PERIOD OF RECORD.--July 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 17.06 ft below land-surface datum, Jun. 10, 1974; lowest 32.87 ft below land-surface datum, Mar. 23, 1977.
REVISIONS.--WTR YEAR 1976 MAX 26.81 MAY 30, 1976 MIN 31.88 FEB 14, 1976.
WTR YEAR 1977 MAX 27.86 SEP 30, 1977 MIN 32.87 MAR 23, 1977.
WTR YEAR 1978 MAX 24.47 MAY 4, 1978 Min 28.15 OCT 3, 1977.
WTR YEAR 1979 MAX 23.48 MAY 8, 1979.

Oct. 5, 1983	28.23	Apr. 17, 1984	25.99	Aug. 7, 1984	24.04	Sept. 17, 1984	26.68

LYON COUNTY

431812N096302701. Local number, 98-48-16 DDAD1.
LOCATION.--Lat 43°18'12", long 96°30'27", Hydrologic Unit 10170203, approximately 3.5 mi east of the City of Canton, S.D., south of U.S. Highway 18.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 358 ft, cased to 358 ft, perforated 335 to 355 ft.
DATUM.--Altitude of land-surface datum is 1,268 ft. Measuring point; Top of casing 2.00 ft above land-surface datum.
REMARKS.--Well D-20. Sioux Quartzite from 353 to 358 ft. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--December 1978 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 93.40 ft below land-surface datum, Mar. 28, 1980 and May 6, 1980; lowest 97.56 ft below land-surface datum, Dec. 9, 1982.

Oct. 6, 1983	96.85	Mar. 13, 1984	96.26	June 5, 1984	95.05	Aug. 28, 1984	95.78
Nov. 16	97.22						

432140N095595301. Local number, 99-44-26 DDDD1.
LOCATION.--Lat 43°21'40", long 95°59'53", Hydrologic Unit 10170204, 1 mi north of the City of George, west of Iowa Highway 339.
Owner: State of Iowa.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in, depth 38 ft, lined with tile.
DATUM.--Altitude of land-surface datum is 1,400 ft. Measuring point; Plug in well cover 2.01 ft above land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--October 1940 to June 1943, May 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.24 ft above land-surface datum, Apr. 24, 1984; lowest 9.47 ft below land-surface datum, Oct. 24, 1940.

Oct. 5, 1983	3.67	Jan. 31, 1984	1.86	Apr. 24, 1984	0.24	July 18, 1984	1.33
Nov. 14	1.11						

LYON COUNTY

432553N096105701. Local number, 99-45-5 ABAC1.
LOCATION.--Lat 43°25'53", long 96°10'55", Hydrologic Unit 10170204, .05 mi south of Iowa Highway 9 on 2nd Street, Rock Rapids.
Owner: City of Rock Rapids.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in, depth 375 ft, cased to 296 ft, open end.
DATUM.--Altitude of land-surface datum is 1,368 ft. Measuring point; Plug in cover over casing 1.00 ft above land-surface datum.
REMARKS.--City test well No. 3. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--August 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 100.08 ft below land-surface datum, Jul. 27, 1964; lowest 114.33 ft below land-surface datum, Oct. 22, 1981.

Oct. 5, 1983	114.18	Dec. 20, 1983	114.07	Mar. 3, 1984	113.88	June 6, 1984	113.47
Nov. 14	113.89	Jan. 31, 1984	113.79	Apr. 25	113.71	Aug. 29	113.08

432601N096335511. Local number, 100-48-31 CCCC11.
LOCATION.--Lat 43°26'01", long 96°33'55", Hydrologic Unit 10170203, .5 mi west and 2.5 mi south of the Village of Granite.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 657 ft, cased to 657 ft, perforated 450 to 455 ft and 630 to 650 ft.
DATUM.--Altitude of land-surface datum is 1,417 ft. Measuring point; Top of casing at land-surface datum.
REMARKS.--Well D-19. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--December 1978 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 152.57 ft below land-surface datum, June 5, 1984; lowest 157.53 ft below land-surface datum, Aug. 12, 1982.

Oct. 12, 1983	154.28	Mar. 13, 1984	155.55	June 5, 1984	152.57	Aug. 29, 1984	152.94
Nov. 14	155.20						

MADISON COUNTY

411727N093483001. Local number, 75-26-23 AAAC1.
LOCATION.--Lat 41°17'27", long 93°48'30", Hydrologic Unit 07100008, near the shelter house in the city park, St. Charles.
Owner: City of St. Charles
AQUIFER.--Limestone of Mississippian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in, depth 1,058 ft, cased to 657 ft, open end.
DATUM.--Altitude of land-surface datum is 1,067 ft. Measuring point; Plug in well cover 1.20 ft above land-surface datum.
REMARKS.--City well No. 1. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--November 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 261.62 ft below land-surface datum, Nov. 20, 1962; lowest 271.33 ft below land-surface datum, Sept. 7, 1983.

Nov. 30, 1983	271.24	Apr. 3, 1984	271.13				

MARION COUNTY

411323N093142601. Local number, 74-21-11 BBCD1.
LOCATION.--Lat 41°13'23", long 93°14'26", Hydrologic Unit 07100008, north of the water tower in the town square Melcher.
Owner: Town of Melcher.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 18 in, depth 12.2 ft, lined with tile.
DATUM.--Altitude of land-surface datum is 948 ft. Measuring point; Top of well cover 0.75 ft above land-surface datum.
REMARKS.--Town well No. 2. Water levels, in ft, below land-surface datum from steel tape measurements. Depth formerly 25 ft, re-measured in 1981.
PERIOD OF RECORD.--March 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.12 ft below land-surface datum, Apr. 24, 1976; lowest 16.27 ft below land-surface datum, Oct. 22, 1953.

Oct. 10, 1983	5.93	Jan. 3, 1984	4.65	Apr. 10, 1984	4.18	July 10, 1984	3.70
Oct. 24	5.26	Jan. 24	4.93	Apr. 24	2.33	July 23	5.11
Nov. 10	3.40	Feb. 10	2.72	May 16	3.83	Aug. 11	5.30
Nov. 22	3.00	Feb. 22	2.83	May 26	2.35	Aug. 23	5.88
Dec. 12	2.83	Mar. 10	4.15	June 10	3.75	Sept. 11	6.25
Dec. 26	2.90	Mar. 23	3.63	June 23	3.75	Sept. 24	6.85

MARSHALL COUNTY

420355N092534701. Local number, 84-18-24 CDCA1.
LOCATION.--Lat 42°03'55", long 92°53'47", Hydrologic Unit 07080208, east of Riverview Park and south of sewage treatment plant, Marshalltown.
Owner: City of Marshalltown.
AQUIFER.--Glacial Sand and Gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in, depth 200 ft, cased to 190 ft, screened 190 to 200 ft.
DATUM.--Altitude of land-surface datum is 871 ft. Measuring point; Top of casing at land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--May 1949 to August 1971, March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.92 ft below land-surface datum, Jul. 13, 1951; lowest 54.95 ft below land-surface datum, May 8, 1981.

Oct. 6, 1983	37.07	Feb. 22, 1984	30.57	June 26, 1984	26.98	Sept. 19, 1984	38.51
Jan. 9, 1984	29.74	May 17	28.46				

MONTGOMERY COUNTY

405841N095012701. Local number, 71-36-6 DADA1.
LOCATION.--Lat 40°58'41", long 95°01'27", Hydrologic Unit 10240009, east of Viking Lake in Viking Lake State Park.
Owner: State of Iowa.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1.25 in, depth 38 ft, cased to 36 ft, screened 36 to 38 ft.
DATUM.--Altitude of land-surface datum is 1,081 ft. Measuring point; Top of casing 3.02 ft above land-surface datum.
REMARKS.--Site identification number corrected 1983. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--April 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.52 ft below land-surface datum, May 31, 1951; lowest 30.99 ft below land-surface datum, Apr. 26, 1950.

Oct. 11, 1983	15.16	Jan. 23, 1984	15.22	Apr. 24, 1984	13.99	Aug. 1, 1984	13.34
Oct. 25	15.70	Feb. 14	14.89	May 22	13.35	Aug. 23	13.99
Nov. 21	15.21	Feb. 22	15.10	June 20	12.88	Sept. 21	14.60
Nov. 23	15.32	Mar. 21	14.93	June 22	12.68		
Dec. 21	15.18	Mar. 26	14.97	July 25	13.25		

e Estimated.

MUSCATINE COUNTY

412120N091080401. Local number, 76-2-30 CBAA1.
LOCATION.--Lat 41°21'20", long 91°08'04", Hydrologic Unit 07080101, west of the Town of Fruitland on an Iowa State University Agricultural Experiment Farm.
Owner: U.S. Geological Survey.
AQUIFER.--Alluvial Sand and Gravel of Holocene Age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 27 ft, cased to 24 ft, screened 24 to 27 ft.
DATUM.--Altitude of land-surface datum is 546 ft. Measuring point; Base of recorder shelter 3.70 ft above land-surface datum.
REMARKS.--Site identification number corrected 1983. Water levels from recorder graph.
PERIOD OF RECORD.--May 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 8.51 ft below land-surface datum, May 16, 1973; lowest 15.39 ft below land-surface datum, Aug. 10, 1980.
REVISION.--WTR YEAR 1983 MAX 10.94 APR 22, 1983 MIN 14.52 SEP 19, 1983

Water level, in feet, below land-surface datum, water year October 1983 to September 1984.
NOON VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	14.30	14.66	14.22	13.94	14.14	14.00	13.82	13.47	12.87	13.20	13.38	14.39
10	14.38	14.68	14.08	13.96	14.20	14.00	13.77	13.16	12.82	13.28	13.56	14.44
15	14.43	14.67	14.00	13.99	14.17	14.02	13.73	13.04	12.81	13.05	13.75	14.48
20	14.49	14.58	13.98	13.99	14.12	14.06	13.76	13.03	12.89	12.98	13.89	14.52
25	14.55	14.53	13.96	14.04	14.06	14.04	13.71	12.99	12.92	13.19	14.10	4.58
Eom	14.61	14.46	13.95	14.10	14.02	e13.90	13.64	12.92	13.07	13.24	14.27	14.62
WTR YEAR 1984		MAX	12.79	JUN 12, 1984		MIN	14.69	NOV 12, 1983				

e Estimated.

O'BRIEN COUNTY

425610N095250611. Local number, 94-39-26 BADB11.
LOCATION.--Lat 42°56'10", long 95°25'06", Hydrologic Unit 10230003, near a dead-end road just south of the Little Sioux River, .9 mi north of Iowa Highway 10, approximately 5 mi southeast of the Town of Sutherland.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2.50 in, depth 329 ft, cased to 329 ft, perforated 291 to 295 ft.
DATUM.--Altitude of land-surface datum is 1,212 ft. Measuring point; Top of casing at land-surface datum.
REMARKS.--Well D-3. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--April 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 35.38 ft below land-surface datum, Mar. 1, 1984; lowest 36.85 ft below land-surface datum, Dec. 15, 1980.

Dec. 6, 1983	36.56	Mar. 1, 1984	35.38	May 21, 1984	35.85	Aug. 16, 1984	35.29

425808N095480311. Local number, 94-42-9 DDDD11.
LOCATION.--Lat 42°58'08", long 95°48'03", Hydrologic Unit 10230003, along Iowa Highway 143, 1 mi west and 1 mi north of the Village of Germantown.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 638 ft, cased to 638 ft, perforated 516 to 536 ft.
DATUM.--Altitude of land-surface is 1,440 ft. Measuring point; Top of casing 4.00 ft above land-surface datum.
REMARKS.--Well D-42. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--July 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 215.09 ft below land-surface datum, May 6, 1982; lowest 260.64 ft below land-surface datum, July 10, 1980.

Oct. 5, 1983	225.55	Mar. 14, 1984	227.13	June 5, 1984	227.37	Aug. 29, 1984	228.84
Nov. 14	225.74						

430930N095350401. Local number, 96-40-5 DDDA1.
LOCATION.--Lat 43°09'30", long 95°35'04", Hydrologic Unit 10230003, approximately 3 mi east of the town of Sanborn and 2 mi south of U.S. Highway 18.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age and Sandy Shale of Ordivician Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 701 ft, cased to 701 ft, perforated 661 to 701 ft.
DATUM.--Altitude of land-surface datum is 1,560 ft. Measuring point; Top of casing 4.00 ft above land-surface datum.
REMARKS.--Well D-41. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--June 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 359.37 ft below land-surface datum, Sep. 10, 1980; lowest 361.40 ft below land-surface datum, Jul. 16, 1980.

Oct. 5, 1983	359.60	Feb. 1, 1984	359.48	June 5, 1984	359.72		

OSCEOLA COUNTY

431620N095250501. Local number, 98-39-26 CDAD1.
LOCATION.--Lat 43°16'20", long 95°25'05", Hydrologic Unit 10230003, 3.5 mi south and 2.5 mi east of the Village of May City.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--St. Peter Sandstone of Middle Ordovician Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 662 ft, cased to 662 ft, perforated 622 to 662 ft.
DATUM.--Altitude of land-surface datum is 1,402 ft. Measuring point; Top of low pipe 1.47 ft above land-surface datum.
REMARKS.--Well D-38 Deep Hibbing. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--June 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 197.68 ft below land-surface datum, May 8, 1984; lowest 199.52 ft below land-surface datum, Aug. 5, 1980.

May 8, 1984	197.68	July 21, 1984	198.26	Sept. 6, 1984	199.44	Sept. 27, 1984	198.62

431620N095250511. Local number, 98-39-26 CDAD11.
LOCATION.--Lat 43°16'20", long 95°25'05", Hydrologic Unit 10230003, 3.5 mi south and 2.5 mi east of the Village of May City.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 345 ft, cased to 345 ft, perforated 335 to 345 ft.
DATUM.--Altitude of land-surface datum is 1,402 ft. Measuring point; Top of high pipe 2.60 ft above land-surface datum.
REMARKS.--Well D-38 Shallow Hibbing. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--June 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 192.20 ft below land-surface datum, Sep. 10, 1981; lowest 194.11 ft below land-surface datum, Jul. 25, 1982.

May 8, 1984	193.42	July 21, 1984	193.11	Sept. 6, 1984	193.23	Sept. 27, 1984	193.80

OSCEOLA COUNTY

431613N095251801. Local number, 98-39-26 CDCC1.
LOCATION.--Lat 43°16'13", long 95°25'18", Hydrologic Unit 10230003, 3.5 mi south and 2.5 mi east of the Village of May City.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 500 ft, cased to 500 ft, perforated 490 to 500 ft.
DATUM.--Altitude of land-surface datum is 1,398 ft. Measuring point; Top of casing 2.70 ft above land-surface datum.
REMARKS.--Well D-39. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--June 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 189.99 ft below land-surface datum, Jun. 17, 1980; lowest 196.85 ft below land-surface datum, Sept. 6, 1984.

May 8, 1984	190.84	July 21, 1984	190.91	Sept. 6, 1984	*196.85	Sept. 27, 1984	191.55

* Nearby pumping.

431620N095482402. Local number, 98-42-33 AABB2.
LOCATION.--Lat 43°16'20", long 95°48'24", Hydrologic Unit 10170204, approximately 2.75 mi south of the Town of Ashton, west of Iowa Highway 60, near the Chicago and Northwestern Railroad tracks.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 400 ft, cased to 400 ft, perforated 385 to 395 ft.
DATUM.--Altitude of land-surface datum is 1,440 ft. Measuring point; Top of casing 2.80 ft above land-surface datum.
REMARKS.--Well D-40. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 195.87 ft below land-surface datum, June 1, 1983; lowest 206.48 ft below land-surface datum, May 6, 1982.

Nov. 14, 1983	196.98	Mar. 13, 1984	199.06	June 5, 1984	200.22	Aug. 29, 1984	201.90

432828N095283611. Local number, 100-39-17 DCCB11.
LOCATION.--Lat 43°28'28", long 95°28'36", Hydrologic Unit 10230003, approximately 2 mi west and 2 mi north of the Town of Harris, east of County Road M-12.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 5 in to 461 ft, 4 in to 760 ft, depth 760 ft, cased to 760 ft, perforated 680 to 700 ft.
DATUM.--Altitude of land-surface datum is 1,560 ft. Measuring point; Top of casing 3.00 ft above land-surface datum.
REMARKS.--Well D-13. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--July 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 341.80 ft below land-surface datum, Aug. 5, 1980; lowest 343.56 ft below land-surface datum, Aug. 15, 1984.

Dec. 5, 1984	343.40	Mar. 14, 1984	343.32	May 22, 1984	343.25	Aug. 15, 1984	343.56

PAGE COUNTY

404257N095150801. Local number, 68-38-7 CCAA1.
LOCATION.--Lat 40°42'57", long 95°15'08", Hydrologic Unit 10240005, approximately 2 mi south of the Village of Norwich and 1.5 mi west of County Road M-48.
Owner: William Brayman.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in, depth 44 ft, lined with tile.
DATUM.--Altitude of land-surface datum is 1,087 ft. Measuring point; Top of pipe inserted through board cover 1.00 ft above land-surface datum.
REMARKS.--Measuring point changed September 1983. Site identification number corrected 1983. Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--May 1934 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.44 ft below land-surface datum, Jun. 23, 1947; lowest 20.96 ft below land-surface datum, Nov. 24, 1958.

Oct. 25, 1983	13.94	Feb. 29, 1984	10.37	May 22, 1984	4.10	Aug. 16, 1984	13.32
Dec. 6	11.77	Apr. 11	5.66	July 6	10.92	Sept. 27	14.08

PLYMOUTH COUNTY

424850N096074801. Local number, 92-45-2 CBCB1.
LOCATION.--Lat 42°48'50", long 96°07'48", Hydrologic Unit 10230002, approximately 3.8 mi west and .6 mi south of the Village of Oyens.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dolomite of Ordovician Age and Dolomite of Cambrian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 5 in to 161 ft, 4 in to 598 ft, depth 1,089 ft, cased to 598 ft, open end.
DATUM.--Altitude of land-surface datum is 1,245 ft. Measuring point; Top of casing 3.20 ft above land-surface datum.
REMARKS.--Well D-21. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--May 1979 to January 1981, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 87.97 ft below land-surface datum, Mar. 13, 1984; lowest 102.10 ft below land-surface datum, Aug. 6, 1980.

Oct. 6, 1983	90.90	Mar. 3, 1984	87.97	Aug. 28, 1984	95.34		
Nov. 14	90.10						

424850N096074802. Local number, 92-45-2 CBCB2.
LOCATION.--Lat 42°48'50", long 96°07'48", Hydrologic Unit 10230002, approximately 3.8 mi west and .6 mi south of the Village of Oyens.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 4 in to 155 ft, 2 in to 365 ft, depth 365 ft, cased to 365 ft, perforated 347 to 365 ft.
DATUM.--Altitude of land-surface datum is 1,245 ft. Measuring point; Wood cover over well 3.50 ft above land-surface datum.
REMARKS.--Well D-22. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--April 1979 to January 1981, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 96.26 ft below land-surface datum, June 6, 1984; lowest 106.56 ft below land-surface datum, Sept. 4, 1980.

Oct. 6, 1983	101.61	Mar. 13, 1984	96.97	June 6, 1984	96.26	Aug. 28, 1984	97.77
Nov. 14	99.42						

424833N096324701. Local number, 92-48-6 DDDA1.
LOCATION.--Lat 42°48'33", long 96°32'47", Hydrologic Unit 10170203, just south of the curve on Iowa Highway 3, 1 mi south of the Town of Akron.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 4 in to 184 ft, 2 in to 581 ft, depth 581 ft, cased to 576 ft, perforated 430 to 434 ft and 510 to 515 ft, open end.
DATUM.--Altitude of land-surface datum is 1,282 ft. Measuring point; Top of casing 4.80 ft above land-surface datum.
REMARKS.--Well D-35. 5 feet of Paleozoic rock open 576 to 581 ft. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--December 1979 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 141.38 ft below land-surface datum, July 12, 1984; lowest 159.82 ft below land-surface datum, Aug. 6, 1980.

Dec. 14, 1983	143.85	Feb. 14, 1984	143.57	July 12, 1984	141.38		

425249N096125001. Local number, 93-46-12 DDDD1.
LOCATION.--Lat 42°52'49", long 96°12'50", Hydrologic Unit 10230002, 1 mi west and 1 mi south of the Village of Struble.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2.50 in, depth 570 ft, cased to 570 ft, perforated 356 to 360 ft.
DATUM.--Altitude of land-surface datum is 1,280 ft. Measuring point; top of coupling 4.80 ft above land-surface datum.
REMARKS.--Well D-2. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--March 1980 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 117.78 ft below land-surface datum, Apr. 9, 1980; lowest 122.00 ft below land-surface datum, Mar. 27, 1980.

Jan. 31, 1984	119.63	Apr. 25, 1984	118.73	July 16, 1984	118.60		

SAC COUNTY

422500N095084801. Local number, 88-37-22 CCCC1.
LOCATION.--Lat 42°25'00", long 95°08'48", Hydrologic Unit 10230007, approximately 3 mi south of the Town of Early or .5 mi south of the junction of U.S. Highways 20 and 71.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age and Limestone of Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 435 ft, cased to 435 ft, perforated 417 to 435 ft.
DATUM.--Altitude of land-surface datum is 1,320 ft. Measuring point; Top of casing 2.50 ft above land-surface datum.
REMARKS.--Well D-16. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--December 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 163.93 ft below land-surface datum, May 12, 1984; lowest 165.40 ft below land-surface datum, Dec. 16, 1980.

Nov. 22, 1983	164.19	Feb. 15, 1984	164.47	May 12, 1984	163.93	Aug. 17, 1984	164.48

423013N095175301. Local number, 89-38-26 ABAA1.
LOCATION.--Lat 42°30'13", long 95°17'53", Hydrologic Unit 10230005, northern part of the Town of Schaller.
Owner: Town of Schaller.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled public-emergency-supply artesian well, diameter 10 to 8 in, depth 352 ft, cased to 352 ft, perforated 304 to 352 ft.
DATUM.--Altitude of land-surface datum is 1,376 ft. Measuring point; Edge of pump breather pipe 1.80 ft above land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--October 1940 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 210.04 ft below land-surface datum, Mar. 25, 1948; lowest non-pumping 240.10 ft below land-surface datum, May 24, 1977.

Dec. 6, 1983	231.27	Feb. 15, 1984	231.29	May 23, 1984	232.10	Aug. 17, 1984	231.83

422850N095171501. Local number, 89-38-36 CBCC1.
LOCATION.--Lat 42°28'50", long 95°17'15", Hydrologic Unit 10230005, just east of Iowa Highway 110, .75 mi south of the Town of Schaller and .25 mi north of U.S. Highway 20.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 521 ft, cased to 512 ft, perforated 410 to 430 ft, open end.
DATUM.--Altitude of land-surface datum is 1,445 ft. Measuring point; Top of casing 4.00 ft above land-surface datum.
REMARKS.--Well D-17. 9 ft of Paleozoic rock open. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--December 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 288.05 ft below land-surface datum, Jun. 2, 1980; lowest 291.50 ft below land-surface datum, Apr. 8, 1980.

Dec. 6, 1983	291.10	Feb. 15, 1984	291.22	May 23, 1984	291.35	Aug. 17, 1984	291.30

SCOTT COUNTY

413544N090212901. Local number, 78-5E-3 AADA1.
LOCATION.--Lat 41°35'44", long 90°02'29", Hydrologic Unit 07080101, at the Bridgeview Elementary School, corner of 12th and Davenport Streets, LeClaire.
Owner: City of LeClaire.
AQUIFER.--Jordan Sandstone of Late Cambrian Age.
WELL CHARACTERISTICS.--Drilled unused municipal artesian well, diameter 16 to 12 in, depth 1,607 ft, cased to 1,128 ft, open end.
DATUM.--Altitude of land-surface datum is 703 ft. Measuring point; Top of casing 1.45 ft above land-surface datum.
REMARKS.--Water levels from recorder graph.
PERIOD OF RECORD.--July 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 247.46 ft below land-surface datum, Jul. 8, 1975; lowest 271.77 ft below land-surface datum, May 15, 1984.
REVISIONS.--

WTR YEAR 1975	MAX RECORDED	247.46	JUL	8, 1975	MIN RECORDED	250.73	SEP 24, 1975
WTR YEAR 1976					MIN	259.77	SEP 24, 1976
WTR YEAR 1977	MAX	251.88	FEB	24, 1977	MIN	262.77	SEP 11, 1977
WTR YEAR 1978	MAX	259.91	JAN	26, 1978	MIN	276.88	SEP 1, 1978
WTR YEAR 1979	MAX	260.04	MAY	10, 1979			
WTR YEAR 1980	MAX RECORDED	263.62	MAY	30, 1980	MIN	270.86	SEP 29, 1980
WTR YEAR 1981	MAX	265.11	MAR	15, 1981	MIN	275.21	SEP 28, 1981
WTR YEAR 1982	MAX RECORDED	264.35	JUL	26, 1982	MIN	275.26	OCT 7,11 1981
WTR YEAR 1983	MAX	263.18	JUN	3, 1983	MIN	270.26	SEP 14, 1983

Water level, in feet, below land-surface datum, water year October 1983 to September 1984
NOON VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	269.56	270.52	270.19	269.18	269.24	269.67	269.82	271.05	270.77	270.29	------	------
10	270.06	270.39	270.46	269.80	269.10	269.90	270.04	271.21	270.85	270.18	------	270.50
15	270.09	270.37	269.88	269.55	269.30	269.76	270.11	271.62	270.90	------	------	270.97
20	270.36	269.98	270.53	269.64	269.35	269.43	270.61	271.09	270.64	------	------	270.66
25	270.48	270.30	270.31	269.12	269.61	269.78	270.40	270.90	270.40	------	------	------
Eom	270.59	270.54	269.97	269.14	269.59	270.16	270.85	271.12	270.52	------	------	------

WTR YEAR 1984 MAX 268.69 FEB 28, 1984 MIN 271.77 MAY 15, 1984

SIOUX COUNTY

430140N095573101. Local number, 95-43-7 AAAAl.
LOCATION.--Lat 43°04'10", long 95°57'32", Hydrologic Unit 10230002, just south of County Road B-40, 1 mi east of the Village of Newkirk.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 681 ft, cased to 681 ft, perforated 641 to 681 ft.
DATUM.--Altitude of land-surface datum is 1,390 ft. Measuring point; Top of casing 3.70 ft above land-surface datum.
REMARKS.--Well D-43. Paleozoic rock from 674 to 681 ft. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--July 1980 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 215.13 ft below land-surface datum, June 5, 1984; lowest 216.64 ft below land-surface datum, Dec. 8, 1982.

Nov. 14, 1983	215.77	Mar. 13, 1984	213.66	June 5, 1984	215.13	Aug. 29, 1984	215.72

430913N096033201. Local number, 96-44-8 ADAAl.
LOCATION.--Lat 43°09'13", long 96°03'32", Hydrologic Unit 10230002, west side of County Road K-64, 2.5 mi west of the Town of Boyden and 2.2 mi south of U.S. Highway 18.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 682 ft, cased to 682 ft, perforated 647 to 667 ft.
DATUM.--Altitude of land-surface datum is 1,373 ft. Measuring point; top of casing 3.70 ft above land-surface datum.
REMARKS.--Well D-44. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--August 1980 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 191.25 ft below land-surface datum, Mar. 13, 1984; lowest 193.95 ft below land-surface datum, Dec. 8, 1982.

Nov. 14, 1983	193.37	Mar. 13, 1984	191.25	June 5, 1984	192.58	Aug. 29, 1984	193.31

WASHINGTON COUNTY

412037N091564701. Local number, 76-9-31 CBBCl.
LOCATION.--Lat 41°20'37", long 91°56'47", Hydrologic Unit 07080107, at Pepper Quarry on County Highway V-15, 1 mi south of the City of Keota.
Owner: River Products Co.
AQUIFER.--Limestone of Mississippian Age and Sandstone of Devonian Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 5 in, depth 136 ft, cased to 19 ft, open end.
DATUM.--Altitude of land-surface datum is 745 ft. Measuring point; Top of casing 2.88 ft above land-surface datum.
REMARKS.--Water levels affected by quarrying operations. Water levels from recorder graphs.
PERIOD OF RECORD.--August 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.77 ft below land-surface datum, Dec. 5, 1982; lowest 24.06 ft below land-surface datum, Sep. 18, 1983.
REVISIONS.--

WTR YEAR 1979	MAX RECORDED	20.36	AUG 24, 1979	MIN RECORDED	23.55	SEP 30, 1979
WTR YEAR 1980	MAX	14.70	MAR 15, 1980	MIN	23.99	OCT 17, 1979
WTR YEAR 1981	MAX RECORDED	16.00	DEC 10, 1980	MIN	21.71	SEP 24, 1981
WTR YEAR 1982	MAX RECORDED	9.62	MAR 19, 1982	MIN	21.65	OCT 13, 1981
WTR YEAR 1983	MAX RECORDED	9.77	DEC 5, 1982	MIN	24.06	SEP 18, 1983

WATER LEVELS

15.50 APR 15, 1980;	16.00 DEC 10, 1980;	21.50 SEP 20, 1981;
21.64 SEP 25, 1981;	21.07 SEP 30, 1981;	21.32 OCT 5, 1981;
21.48 OCT 10, 1981;	19.03 OCT 15, 1981;	9.70 MAR 20, 1982;
11.16 MAR 25, 1982;	11.73 MAR 31, 1982;	11.83 APR 5, 1982;
11.36 APR 10, 1982;	12.86 APR 15, 1982;	12.40 APR 20, 1982;
14.61 MAY 5, 1982;	14.93 MAY 10, 1982;	15.47 MAY 15, 1982.

Water level, in feet, below land-surface datum, water year October 1983 to September 1984
Noon Values

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	20.69	15.56	13.16	e15.30	----	14.41	----	----	13.33	16.87	19.95	21.85
10	20.98	11.67	14.09	e15.60	----	15.33	12.02	----	11.24	17.48	20.40	22.95
15	21.00	14.02	13.20	e15.80	11.84	14.90	12.68	----	12.97	17.35	20.75	23.50
20	20.68	14.10	----	e16.00	11.66	14.73	12.58	----	14.29	18.32	21.11	----
25	19.56	13.09	----	e16.10	12.79	12.68	12.72	12.00	15.23	19.01	21.50	----
Eom	19.58	----	e15.00	----	13.77	----	12.04	12.35	16.17	19.39	21.73	----

WTR YEAR 1984 MAX 10.87 JUN 10, 1984 MIN 23.54 SEP 18, 1984

e Estimated.

WASHINGTON COUNTY

412754N091494701. Local number, 77-9-24 AADA1.
LOCATION.--Lat 41°27'54", long 91°49'47", Hydrologic Unit 07080209, north of the city sewage treatment plant and west of First Avenue SE, Wellman.
Owner: City of Wellman.
AQUIFER.--Dolomite of Mississippian Age and Dolomite of Devonian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in, depth 110 ft, cased to 47 ft, open end.
DATUM.--Altitude of land-surface datum is 695 ft. Measuring point; Top of casing 1.35 ft above land-surface datum.
REMARKS.--City test well No. 1. Water levels, from May 1963 to October 1965 from recorder graph, from November 1965 to current year from steel tape measurements, in ft, above or below land-surface datum.
PERIOD OF RECORD.--May 1963 to October 1971, May 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.35 ft above land-surface datum, Nov. 3, 1977, Mar. 28, 1979, and Apr. 13, 1983; lowest 6.92 ft below land-surface datum, about Nov. 1, 1964.
REVISIONS.--WTR YEAR 1963 MAX RECORDED 3.04 MAY 14, 1963 MIN RECORDED 5.50 SEP 30, 1963
WTR YEAR 1964 MAX RECORDED 1.70 APR 21, 1964 MIN RECORDED 6.53 SEP 30, 1964
WTR YEAR 1965 MAX RECORDED 1.54 JUN 5, 1965 MIN RECORDED 6.92 about NOV 1, 1964

Oct. 4, 1983	4.17	Jan. 26, 1984	1.62	Apr. 26, 1984	+0.60	July 19, 1984	1.94
Nov. 3	2.16	Feb. 28	0.73	May 23	+0.07	Aug. 21	3.17
Dec. 1	0.83	Mar. 27	+0.35	June 19	0.02	Sept. 20	4.32
Dec. 27	1.01						

WEBSTER COUNTY

421550N094041001. Local number, 86-28-14 ADAB1.
LOCATION.--Lat 42°15'50", long 94°04'10", Hydrologic Unit 07100004, in the town water plant, next to the water tower, Dayton,
Owner: Town of Dayton.
AQUIFER.--Limestone of Devonian Age and Limestone of Mississippian Age.
WELL CHARACTERISTICS.--Drilled municipal artesian well, diameter 13 to 10 in, depth 1,240 ft, cased to 505 ft, 8 in liner 770 to 966 ft, open end.
DATUM.--Altitude of land-surface datum is 1,121 ft. Measuring point; Pump base 1.30 ft above land-surface datum.
REMARKS.--Town well No. 2. Water levels affected by pumping. Water levels, in ft, below land-surface datum from steel tape or airline measurements. 1942 to 1948 and 1952 to 1955 records published in Geological Survey Water Supply Papers.
PERIOD OF RECORD.--September 1942 to December 1948, January 1952 to November 1971, March 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 69.93 ft below land-surface datum, Nov. 17, 1942; lowest 144.70 ft below land-surface datum, Aug. 24, 1983 and July 23, 1984.

Jan. 1, 1984	141.20	Feb. 21, 1984	144.20	July 23, 1984	144.70

421837N094083601. Local number, 87-28-29 CCCD1.
LOCATION.--Lat 42°18'37", long 94°08'36", Hydrologic Unit 07100006, 3 mi north and 2 mi east of the Town of Hancourt.
Owner: Ransom Helms.
AQUIFER.--Glacial Drift of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in, depth 42 ft, lined with tile.
DATUM.--Altitude of land-surface datum is 1,165 ft. Measuring point; Top of casing 0.75 ft above land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements.
PERIOD OF RECORD.--October 1942 to June 1956, March 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.05 ft below land-surface datum, Aug. 1, 1972; lowest 13.62 ft below land-surface datum, Mar. 12, 1956.

Oct. 21, 1983	3.53	Jan. 19, 1984	5.44	Apr. 23, 1984	1.32	July 20, 1984	3.95
Nov. 22	2.37	Feb. 21	1.76	May 21	3.40	Aug. 20	4.94
Dec. 21	3.62	Mar. 19	3.48	June 20	2.33	Sept. 21	6.27

423018N094214701. Local number, 89-30-23 CCBB1.
LOCATION.--Lat 42°30'18", long 94°21'47", Hydrologic Unit 07100004, 75 ft west of the new school addition, Barnum.
Owner: Johnson Township Consolidated School.
AQUIFER.--Sandstone of Cretaceous Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 4 in, reported depth 203 ft, cased to 208 ft, perforated 203-208 ft.
DATUM.--Altitude of land-surface datum is 1,174 ft. Measuring point; Top of casing at land-surface datum.
REMARKS.--Water levels, in ft, below land-surface datum from steel tape measurements. Site identification number corrected 1983.
PERIOD OF RECORD.--October 1942 to September 1945, May 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 30.86 ft below land-surface datum, Jul. 2, 1945; lowest 52.60 ft below land-surface datum, Feb. 26, 1980.

Nov. 14, 1983	44.38	Mar. 25, 1984	43.48	May 9, 1984	42.98	Aug. 15, 1984	42.57

WOODBURY COUNTY

422058N09557301. Local number, 87-44-15 CBBB1.
LOCATION.--Lat 42°20'58", long 95°57'37", Hydrologic Unit 10230003, approximately 3.5 mi west and 5.5 mi north of the Village ot Oto.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 197 ft, cased to 197 ft, perforated 185 to 189 ft.
DATUM.--Altitude of land-surface datum is 1,165 ft. Measuring point; Top of casing 1.50 ft above land-surface datum.
REMARKS.--Well D-34. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--April 1980 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 56.05 ft below land-surface datum, Sep. 7, 1983; lowest 63.56 ft below land-surface datum, Nov. 2, 1982.

Dec. 14, 1983	57.42	Feb. 22, 1984	57.24	May 16, 1984	56.94		

422830N096000511. Local number, 88-44-6 BAAB11.
LOCATION.--Lat 42°28'30", long 96°00'05", Hydrologic Unit 10230004, approximately 3 mi east and .5 mi south of the Town of Moville.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 337 ft, cased to 337 ft, perforated 332 to 337 ft.
DATUM.--Altitude of land-surface datum is 1,340 ft. Measuring point; Top of casing 3.50 ft above land-surface datum.
REMARKS.--Well D-33. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--October 1979 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 199.85 ft below land-surface datum, Aug. 8, 1984, lowest 202.90 ft below land-surface datum, Oct. 17, 1979.

Dec. 14, 1983	200.36	Feb. 22, 1984	200.50	May 16, 1984	200.45	Aug. 8, 1984	199.85

423015N096034601. Local number, 89-44-20 DCDC1.
LOCATION.--Lat 42°30'15", long 96°03'46", Hydrologic Unit 10230004, east of Iowa Highway 140, approximately 1 mi north of the Town of Moville.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 221 ft, cased to 221 ft, perforated 206 to 221 ft.
DATUM.--Altitude of land-surface datum is 1,160 ft. Measuring point; Top of casing 4.00 ft above land-surface datum.
REMARKS.--Well D-32. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--October 1979 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 22.64 ft below land-surface datum, Aug. 8, 1984; lowest 26.65 ft below land-surface datum, Dec. 11, 1980.

Dec. 14, 1983	24.92	Feb. 22, 1984	24.38	May 16, 1984	23.57	Aug. 8, 1984	22.64

422910N096135811. Local number, 89-46-36 BBDC11.
LOCATION.--Lat 42°29'10", long 96°13'58", Hydrologic Unit 10230004, approximately .75 mi northeast of the Eberly Cemetary or 2.5 mi west and .75 mi north of the Village of Lawton.
Owner: Iowa Geological Survey and U.S. Geological Survey.
AQUIFER.--Dakota Sandstone of Early Cretaceous Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in, depth 500 ft, cased to 500 ft, perforated 358 to 362 ft.
DATUM.--Altitude of land-surface datum is 1,268 ft. Measuring point; Top of casing 3.00 ft above land-surface datum.
REMARKS.--Well D-30. Water levels, in ft, below land-surface datum from steel tape or electric line measurements.
PERIOD OF RECORD.--April 1980 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 128.50 ft below land-surface datum, Aug. 8, 1984; lowest 135.35 ft below land-surface datum, Nov. 2, 1982.

May 16, 1984	129.28	Aug. 8, 1984	128.50				

NOTE.--Measurements were discontinued in 1984 for the following wells:

Johnson County degree413844N091323201. Local number 79-6-16 DADD1.
Johnson County degree414315N091252001. Local number 80-5-22 CBCB1.
Johnson County degree414315N091252002. Local number 80-5-22 CBCB2.

Introduction

The following tables of water-quality data are a compilation of ground-water data collection activities by the USGS Iowa District in 1983 and 1984. All analyses were obtained through an ongoing groundwater-quality monitoring program which collects raw water samples at municipal wells throughout Iowa. This program is being conducted in cooperation with the UHL and the IGS. All water samples were collected by USGS personnel and were analyzed by UHL.

Explanation of tables

The following water-quality data table are arranged on facing pages, i.e. there are four headings of parameters (two on each page) with approximately 25 water analyses per set of facing pages. Individual analyses can be followed by parameter by reading from left to right: top of first page, bottom of first page, top of second page and them bottom of second page. The analyses are grouped and listed by county in alaphabetical order.

Explanation of descriptive headings

STATION NUMBER: 15 digit number based on the grid system of latitude and longitude which identifies each well.

STATION NAME: Descriptive identifier for each well which contains four elements that are explained below.

08812W06ACAA 10039 1958 EVANSDALE NO 3

Local well name

Date of well construction

W-number, refers to a strip log for the well on file at the Iowa Geological Survey

Local well number, refers to the Bureau of Land Management Sustem of land subdivision (see pages 15-16) for detailed explanation)

GEOLOGIC UNIT: Refers to the lithologic unit in which the well is completed. First two digits of the code refer to the principal unit which is providing the majority of water to the well.

11 = Quaternary	34 = Devonian
21 = Cretaceous	35 = Silurian
32 = Pennsylvanian	36 = Ordivician
33 = Mississippian	37 = Cambrian

Third digit and remaining alphabetic chara ters refer to the more specific lithologic unit which the well is tapping. The following examples are commonly used units.

CODE	General----------	Specific
112PLSC	-- Quaternary	(Pleistocene) [drift]
217DKDT	-- Cretaceous	[Dakota sandstone]
371JRDN	-- Cambrian	[Jordan sandstone]
325DSMS	-- Pennsylvanian	(Des Moinesian sandstone)
333STLS	-- Mississippian	(St. Louis limestone)
344CDVL	-- Devonian	[Cedar Valley limestone]
335HPKN	-- Silurian	(Hopkinton dolomite)
364STPR	-- Ordovician	(St. Peter sandstone)

AGENCY ANALYZING SAMPLE (CODE NUMBER): Refers to the laboratory which performed the chemical analyses.

9831 = Universtiy of Iowa Hygenic Laboratory, Iowa City, Iowa
2000 = U.S. Environmental Protection Agency Laboratory, Kansas City, Kansas

STATION NUMBER	STATION NAME			DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	FLOW RATE (GPM) (00058)
			ADAIR					
413014094185901	078 30W33CCCD		1963STUART NO 3	83-03-22	0950	371CMBRU	2800	300
			BLACK HAWK					
421857092115601	087 12W25CBCD		1961LA PORTE CITY NO 3	84-08-06	1000	350SLRN	250	100
422457092125101	088 12W23CDB	04778	GILBERTVILLE 1	84-08-06	1445	340DVNN	200	35
423351092092801	090 11W33BCB	01287	DUNKERTON IA 1	84-08-08	1320	355NIGR	272	200
			BOONE					
415212093520701	082 26W34BDCC		1974MADRID NO 9	84-08-01	1055	111ALVM	91.00	280
420156093562401	083 27W01ABCC		1956OGDEN NO 3	84-07-31	1320	111ALVM	67.00	220
420959094001901	085 27W16CCDC		1967PILOT MOUND NO 3	84-08-07	0905	112PLSC	30.00	25
421028094061201	085 28W15BCBC	03928	1949BOXHOLM CITY WELL	84-08-01	0950	364STPR	1950	42
			BREMER					
424011092194001	091 13W25BAAD	25344	1978DENVER NO 4	84-08-08	0840	367PRDC	1060	400
423902092272501	091 14W35ADD	11754	JANESVILLE 2	84-08-14	1430	350SLRN	120	110
			BUCHANAN					
423807092024301	090 10W05ADBD	14135	FAIRBANK SOUTH	83-09-06	1330	371JRDN	1290	110
			CALHOUN					
421626094242201	086 31W12ACC	02975	1947PARNHAMVILLE WELL NO 3	84-08-07	1300	210CRCS	850	110
421615094440701	086 33W07DCBB		1972LAKE CITY NO 3	84-08-07	1100	217DKOT	250	450
422236094254601	087 31W02BDC	21059	1968SOMERS MUNICIPAL WELL 1	84-08-07	1400	330MSSP	410	59
423255094410303	089 33W01DCAB	06223	1953POMEROY NO 2	84-08-03	0940	112PLSC	151	230
			CEDAR					
414423090582201	080 01W10BB		BENNETT 1	84-09-18	1000	350SLRN	265	288
415311091035301	082 02W27BADA		1977CLARENCE NO 3	84-09-18	1300	361ODVCU	475	250

DATE OF SAMPLE	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	HARDNESS (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
					ADAIR							
83-03-22	462	2400	7.7	570	140	54	320	40	179	240	780	2.4
					BLACK HAWK							
84-08-06	20	550	7.2	310	80	26	16	4.5	258	.50	64	1.2
84-08-06	60	440	7.3	210	58	17	4.5	.60	147	.50	37	.40
84-08-08	30	535	7.4	240	65	18	15	2.3	262	<.50	6.0	.60
					BOONE							
84-08-01	20	950	7.3	480	130	38	19	4.7	396	27	72	.55
84-07-31	--	720	7.6	410	110	33	8.3	2.6	313	26	69	.20
84-08-07	20	630	7.2	370	95	31	7.4	3.0	297	9.0	69	.30
84-08-01	20	2300	7.1	1100	300	82	200	23	234	40	1200	2.6
					BREMER							
84-08-08	20	610	7.2	280	70	25	26	9.2	276	1.0	52	1.1
84-08-14	30	610	8.4	310	87	22	6.0	1.3	218	14	16	.60
					BUCHANAN							
83-09-06	30	495	7.9	220	49	23	22	9.2	237	2.0	47	1.2
					CALHOUN							
84-08-07	360	1200	7.1	520	120	56	69	15	336	10	270	2.2
84-08-07	30	1050	7.1	580	150	49	40	5.1	452	1.5	190	.30
84-08-07	20	1040	7.2	530	120	55	58	7.8	362	9.0	260	1.1
84-08-03	20	1600	7.3	640	160	58	120	9.7	503	2.0	370	.40
					CEDAR							
84-09-18	30	730	7.3	400	97	38	14	2.4	396	1.0	6.8	.30
84-09-18	30	490	7.4	270	71	22	7.6	.90	261	<.50	3.0	.30

DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
						ADAIR						
83-03-22	15	1740	<.02	--	--	810	20	<10	<100	<1	<10	<10
						BLACK HAWK						
84-08-06	7.6	340	.11	1.50	.010	410	<10	<10	<100	<1	<10	<10
84-08-06	17	243	4.9	<.010	.050	<10	<10	<10	200	<1	<10	<10
84-08-08	14	277	.16	1.00	.070	1400	20	<10	<200	<1	<10	<10
						BOONE						
84-08-01	24	544	1.2	<.010	.020	310	1300	<10	300	<1	<10	<10
84-07-31	30	525	.44	<.010	.250	140	60	<10	200	<1	<10	<10
84-08-07	35	432	<.02	.220	.140	3200	210	<10	500	<1	<10	<10
84-08-01	8.6	2070	.02	1.10	.030	640	<10	<10	<100	<1	<10	<10
						BREMER						
84-08-08	7.5	340	.11	.530	.010	350	<10	<10	<100	<1	<10	<10
84-08-14	19	321	12	<.010	.030	20	<10	<10	200	<1	<10	<10
						BUCHANAN						
83-09-06	6.2	232	.07	--	--	200	<10	<10	<100	<1	<10	<10
						CALHOUN						
84-08-07	8.8	810	.04	1.40	.030	170	<10	<10	<100	<1	<10	<10
84-08-07	21	761	.07	.960	.030	50	1200	<10	200	<1	<10	<10
84-08-07	10	780	.04	.610	.030	510	20	<10	<100	<1	<10	<10
84-08-03	32	1140	<.02	2.40	.040	3900	340	10	200	<1	<10	<10
						CEDAR						
84-09-18	2.1	460	.73	.010	.010	<10	20	<10	300	<1	<10	<10
84-09-18	18	332	<.02	.190	.010	50	40	<10	300	<1	<10	<10

DATE OF SAMPLE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	RADIUM 226, DIS-SOLVED (PCI/L) (09503)	RADIUM 228 DIS-SOLVED (PCI/L AS RA-228) (81366)
					ADAIR				
83-03-22	<10	<1.0	<10	<10	<10	34	48	12	3.9
					BLACK HAWK				
84-08-06	<10	<1.0	<10	<10	<10	<.2	<.6	--	--
84-08-06	<10	<1.0	<10	<10	<10	1.1	<.6	--	--
84-08-08	<10	<1.0	<10	<10	<10	1.3	4.0	--	--
					BOONE				
84-08-01	<10	<1.0	<10	<10	<10	6.4	3.0	.3	3.2
84-07-31	<10	<1.0	<10	<10	<10	.4	2.0	--	--
84-08-07	<10	<1.0	<10	<10	<10	.4	5.0	--	--
84-08-01	<10	<1.0	<10	<10	<10	8.9	14	4.9	1.5
					BREMER				
84-08-08	<10	<1.0	<10	<10	<10	3.9	3.0	1.5	3.2
84-08-14	<10	<1.0	<10	<10	<10	<.2	2.0	--	--
					BUCHANAN				
83-09-06	<10	<1.0	<10	<10	<10	5.9	10	4.0	2.2
					CALHOUN				
84-08-07	<10	<1.0	<10	<10	20	3.6	15	1.3	.80
84-08-07	<10	<1.0	<10	<10	<10	8.0	20	2.7	<.40
84-08-07	<10	<1.0	<10	<10	10	1.9	10	--	--
84-08-03	<10	<1.0	<10	<10	<10	2.6	6.0	--	--
					CEDAR				
84-09-18	<10	<1.0	<10	<10	<10	1.0	1.3	--	--
84-09-18	<10	<1.0	<10	<10	<10	<.2	1.0	--	--

STATION NUMBER	STATION NAME			DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	FLOW RATE (GPM) (00058)
			CEDAR					
415337091084901	08203W24CAB	02288	STANWOOD CITY	84-09-18	1400	355NIGR	303	75
415418091153401	08204W13DCB	13609	MECHANICSVILL 2	84-09-20	1300	350SLRN	455	275
			CERRO GORDO					
425923093112001	09420W03ACBB	01023	1939ROCKWELL TOWN 3	83-02-09	1620	344CDVL	463	85
430929093113901	09620W03CAB	00075	1934MASON CITY WELL 7	83-02-10	0825	371JRDN	1230	1000
430933093114211	09620W03CABB	00115	1912MASON CITY NO 8	83-02-10	0850	371TMPL	1760	1000
			CHICKASAW					
425753092115501	09412W13AAAA		1956FREDERICKS BURG 1	84-08-07	1200	364STPR	792	--
425714092320801	09414W18DDAA	01505	1942NASHUA TOWN 1	84-08-07	0925	340DVNN	153	450
430211092270701	09514W24BBAC	04872	1950IONIA TOWN	84-08-13	1208	350SLRN	250	300
			CLARKE					
410038093361901	07224W27BDAC		1973WOODBURN NO 1	84-09-25	1100	112PLSC	33.00	20
			CLAYTON					
424706091061101	09202W17ACC	00588	1937GUTTENBERG CUTY 1	84-04-24	1400	371JRDN	450	390
425400091091601	09303W02ADCD	26579	CLAYTON NO 1	84-04-26	1115	371JRDN	375	110
425123091241702	09305W23BCDB		1934ELKADER NO 2	84-04-26	1345	364STPR	171	300
425123091241701	09305W23BCDB	00037	1927ELKADER CITY 3	84-04-26	1415	371JRDN	515	300
430130091103001	09503W22DD	05311	1952MC GREGOR CITY 6	84-04-24	1600	371SLRC	116	280
			CLINTON					
414926090385501	08103E18ADCA	14998	GRAND MOUND 2	84-04-18	1000	355NIGR	251	180
414902090320301	08104E18DCAD	23327	1974DEWITT NO 6	84-04-18	1115	371JRDN	1290	560
414806090212301	08105E22DDD	10742	LOW MOOR IOWA 2	84-04-18	1230	358ALXD	256	150
415752090485701	08301E26CBDD		1911LOST NATION NO 1	84-05-08	1415	350SLRN	125	--
415740090280202	08304E26CC		CHARLOTTE 3	84-05-09	1425	364STPR	740	140
			DALLAS					
413303094001001	07827W18DBCB		1977DESOTO NO 3	84-09-17	1330	111ALVM	40.00	83

DATE OF SAMPLE	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	HARDNESS (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
					CEDAR							
84-09-18	20	630	7.5	320	71	34	16	2.2	335	1.0	3.2	.30
84-09-20	60	460	7.6	210	44	25	6.5	1.1	218	7.0	16	.20
					CERRO GORDO							
83-02-09	10	665	7.0	320	70	36	23	9.4	369	6.5	7.5	2.3
83-02-10	60	740	7.0	340	83	32	34	8.6	330	6.5	65	.60
83-02-10	60	847	7.0	350	89	32	43	9.1	335	16	82	.60
					CHICKASAW							
84-08-07	30	510	7.4	230	51	24	11	5.4	147	9.0	32	.60
84-08-07	20	650	7.1	300	82	24	10	2.0	242	20	21	.20
84-08-13	30	600	7.3	280	72	25	15	2.6	248	.50	40	.60
					CLARKE							
84-09-25	30	630	7.3	280	86	16	14	1.1	222	8.0	82	.20
					CLAYTON							
84-04-24	30	725	7.4	330	77	34	32	2.9	303	31	37	.20
84-04-26	60	495	7.5	160	59	3.0	2.0	.90	256	1.0	12	.20
84-04-26	60	570	7.4	280	64	29	7.4	4.7	244	2.0	60	.40
84-04-26	60	570	7.4	300	68	31	7.4	5.1	247	2.5	54	.40
84-04-24	30	680	7.2	330	81	32	18	2.6	284	29	32	.10
					CLINTON							
84-04-18	15	510	7.5	270	67	24	7.7	1.1	253	3.0	18	.10
84-04-18	20	780	7.5	240	56	25	74	13	261	62	72	.90
84-04-18	15	680	7.3	360	86	36	8.1	<.10	314	8.5	45	.20
84-05-08	10	815	7.3	400	94	40	12	.30	315	28	45	.20
84-05-09	<15	715	7.4	330	82	31	27	7.7	258	34	62	.30
					DALLAS							
84-09-17	1440	1050	7.5	440	120	35	36	2.4	320	110	43	.20

DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
						CEDAR						
84-09-18	17	382	<.02	1.10	.050	810	30	<10	300	<1	<10	<10
84-09-20	16	257	.20	.040	<.010	170	40	<10	100	<1	<10	<10
						CERRO GORDO						
83-02-09	7.4	381	<.02	--	--	310	<10	<10	600	<1	<10	<10
83-02-10	7.6	428	.02	--	--	140	20	<10	<100	<1	<10	10
83-02-10	8.3	461	<.02	--	--	200	10	<10	<100	<1	<10	20
						CHICKASAW						
84-08-07	7.2	252	.11	.410	.010	180	<10	<10	<100	<1	<10	<10
84-08-07	15	391	8.9	.020	.030	<10	<10	<10	200	<1	<10	<10
84-08-13	11	303	<.02	2.00	.030	810	<10	<10	<100	<1	<10	<10
						CLARKE						
84-09-25	15	415	.04	.620	.590	26000	1700	<10	300	<1	<10	<10
						CLAYTON						
84-04-24	10	425	.09	--	--	<10	140	<10	200	<1	<10	<10
84-04-26	21	265	<.02	--	--	80	70	<10	300	<1	<10	<10
84-04-26	7.5	327	.11	--	--	<10	<10	<10	0	<1	<10	<10
84-04-26	7.3	299	.07	--	--	120	<10	<10	400	<1	<10	<10
84-04-24	12	398	2.4	--	--	<10	<10	<10	400	<1	<10	<10
						CLINTON						
84-04-18	17	277	<.02	.060	.080	1600	80	<10	200	<1	<10	<10
84-04-18	8.2	451	<.02	.930	.050	210	<10	<10	<100	<1	<10	<10
84-04-18	13	368	<.02	.060	.070	1700	60	<10	100	<1	<10	<10
84-05-08	24	445	6.8	--	--	10	<10	<10	400	<1	<10	<10
84-05-09	13	415	1.6	--	--	<10	<10	<10	200	<1	<10	<10
						DALLAS						
84-09-17	22	617	6.2	.010	.060	40	170	<10	200	<1	<10	40

DATE OF SAMPLE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	RADIUM 226, DIS-SOLVED (PCI/L) (09503)	RADIUM 228 DIS-SOLVED (PCI/L AS RA-228) (81366)
				CEDAR					
84-09-18	<10	<1.0	<10	<10	<10	<.2	7.0	--	--
84-09-20	<10	<1.0	<10	<10	20	3.6	4.0	.3	<.40
				CERRO GORDO					
83-02-09	<10	<1.0	<10	<10	30	1.6	6.0	--	--
83-02-10	<10	<1.0	<10	<10	10	7.7	14	5.4	2.5
83-02-10	<10	<1.0	<10	<10	20	3.6	7.0	3.6	1.3
				CHICKASAW					
84-08-07	<10	<1.0	<10	<10	10	3.4	9.0	1.5	.50
84-08-07	<10	<1.0	<10	<10	10	1.1	1.0	--	--
84-08-13	<10	<1.0	<10	<10	<10	<.2	5.0	--	--
				CLARKE					
84-09-25	<10	<1.0	<10	<10	20	<.2	3.0	--	--
				CLAYTON					
84-04-24	<10	<1.0	<10	<10	<10	3.1	3.0	1.0	<.40
84-04-26	<10	<1.0	<10	<10	<10	<.2	<.5	--	--
84-04-26	<10	<1.0	<10	<10	<10	.6	2.0	--	--
84-04-26	<10	<1.0	<10	<10	<10	1.8	<.5	--	--
84-04-24	<10	<1.0	<10	<10	<10	1.7	2.0	--	--
				CLINTON					
84-04-18	<10	<1.0	<10	<10	<10	1.2	<.5	--	--
84-04-18	<10	<1.0	--	<10	10	2.0	10	2.2	.80
84-04-18	<10	<1.0	<10	<10	20	<.1	<.5	--	--
84-05-08	<10	<1.0	<10	<10	<10	.9	3.0	--	--
84-05-09	<10	<1.0	<10	<10	<10	7.6	9.0	1.3	<.40
				DALLAS					
84-09-17	<10	<1.0	<10	<10	<10	.4	5.0	--	--

STATION NUMBER	STATION NAME			DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	FLOW RATE (GPM) (00058)
			DALLAS					
413148093570901	07827W27BBCA		1968VAN METER NO 2	84-09-19	0815	111ALVM	61.00	165
413517094112801	07829W04ACDC		1975DEXTER NO 1	84-09-18	1345	112PLSC	60.00	250
414538093491504	08026W12ABAB		GRANGER NO 4	84-09-18	1045	112PLSC	108	11
415055094131202	08129W10BBBA		1969DAWSON NO 2	84-09-18	0840	111ALVM	496	60
			DECATUR					
404248093331801	06826W35DC		1918DAVIS CITY PUBLIC	84-09-25	0900	338OSGE	920	40
			DELAWARE					
422543091200701	08804W17DCBC		1979DELHI TOWN 2	84-05-14	1000	350SLRN	280	330
422548091195001	08804W17DDB	10437	DELHI TOWN 1	84-05-14	1045	358ALXD	280	330
422852091161701	08804W36BCBB		1960EARLVILLE NO 2	84-05-14	1200	350SLRN	200	--
422925091080501	08903W25DADD	26211	1979DYERSVILLE NO 4	84-04-23	1400	371JRDN	1250	600
423020091273701	08905W20DBBB		1981MANCHESTER NO 7	84-04-25	0830	350SLRN	270	260
422925091270701	08905W29DAD	03221	MANCHESTER 4	84-04-25	--	350SLRN	231	500
422834091281601	08905W31DAAB		1972MANCHESTER NO 6	84-04-25	0930	350SLRN	160	1000
423837091235001	09005W02ABB	05650	EDGEWOOD 2	84-04-26	1600	350SLRN	269	80
			DES MOINES					
405153091185301	07004W16ADAA	01572	1942DANVILLE CITY NO 1	83-08-17	0905	360ODVC	1180	150
405138091185201	07004W16ADAA	08739	1957DANVILLE CITY NO 2	83-08-17	0920	360ODVC	1180	150
			DUBUQUE					
421812091004001	08701W31CBA	09786	CASCADE TOWN 2	84-04-23	1100	358ALXD	200	200
423305091064901	08902W05CBBB		1898NEW VIENNA NO 1	84-04-23	1630	350SLRN	170	50
422852091064301	08902W32BCD	22538	DYERSVILLE 3	84-04-23	1445	358KNKK	195	250
423138090383601	08903E18AADB	07468	1956DUBUQUE NO 2	84-04-24	0930	111ALVM	196	2100
423606090594901	09001W19AAAA	00682	HOLY CROSS 1	84-04-24	1200	364GLEN	625	32
			EMMET					
432351094285002	09931W14BBCA		1953ARMSTRONG NO 3	84-08-16	1120	112PLSC	135	309
432801094364601	10032W22BDCD		1975DOLLIVER NO 3	84-08-16	1000	112PLSC	200	--
			FAYETTE					
424033091563101	09109W20CADA		1976OELWEIN NO 76	84-04-27	0915	361MQKT	125	200

DATE OF SAMPLE	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	HARDNESS (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
					DALLAS							
84-09-19	1440	800	6.9	450	120	37	14	1.8	352	12	90	.20
84-09-18	30	650	7.2	350	94	28	6.3	1.6	270	10	60	.25
84-09-18	30	780	7.7	320	84	27	40	5.4	423	.50	14	.40
84-09-18	30	1490	8.1	260	49	33	230	16	213	100	400	2.7
					DECATUR							
84-09-25	30	3620	8.0	99	24	9.6	880	12	397	220	1300	1.9
					DELAWARE							
84-05-14	20	420	7.8	210	47	22	3.0	.80	157	5.0	48	<.10
84-05-14	20	595	7.4	300	67	33	5.0	1.1	245	10	38	<.10
84-05-14	--	665	7.3	340	78	35	6.2	1.7	266	12	55	<.10
84-04-23	20	515	7.7	210	46	23	31	8.9	237	3.0	35	.10
84-04-25	30	475	7.6	240	65	18	8.1	1.5	176	14	21	.10
84-04-25	90	525	7.6	270	70	23	7.9	1.6	195	17	32	.10
84-04-25	60	560	7.5	270	72	23	8.8	.74	184	16	38	.10
84-04-26	30	510	7.4	280	73	23	7.6	1.6	262	2.5	10	.30
					DES MOINES							
83-08-17	30	2530	7.3	580	140	57	390	20	231	160	960	3.6
83-08-17	15	2620	7.4	580	140	57	410	20	228	140	980	3.4
					DUBUQUE							
84-04-23	30	660	7.4	360	86	35	8.3	2.0	266	19	54	.20
84-04-23	30	675	7.3	360	86	35	8.8	.40	302	23	21	.20
84-04-23	20	790	7.2	400	87	45	20	2.5	296	44	35	.10
84-04-24	480	500	7.6	250	61	24	8.4	1.8	233	14	18	.10
84-04-24	20	600	7.3	340	79	34	1.2	1.9	307	1.0	25	.20
					EMMET							
84-08-16	180	1000	7.3	530	140	45	54	5.1	440	.50	210	.30
84-08-16	20	1500	7.1	680	180	55	100	6.2	400	.50	480	.30
					FAYETTE							
84-04-27	30	535	7.2	270	74	20	16	2.6	204	22	81	.10

DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
						DALLAS						
84-09-19	23	551	1.6	.050	.020	240	310	<10	100	<1	<10	<10
84-09-18	24	458	2.9	.050	.010	30	80	<10	200	<1	<10	<10
84-09-18	18	500	<.02	1.90	.220	6200	10	30	700	<1	<10	<10
84-09-18	3.8	911	<.02	1.40	.010	20	40	<10	<100	<1	<10	<10
						DECATUR						
84-09-25	3.4	2740	.13	1.60	<.010	300	<10	<10	<100	<1	<10	<10
						DELAWARE						
84-05-14	11	239	.59	--	--	<10	<10	<10	100	<1	<10	<10
84-05-14	12	334	4.8	--	--	40	<10	<10	<100	<1	<10	<10
84-05-14	11	386	5.9	--	--	20	<10	<10	200	<1	<10	<10
84-04-23	8.8	297	.57	--	--	200	<10	<10	200	<1	<10	<10
84-04-25	12	286	7.3	--	--	<10	<10	<10	300	<1	<10	<10
84-04-25	12	327	6.4	--	--	<10	<10	<10	400	<1	<10	<10
84-04-25	12	342	12	--	--	<10	<10	<10	200	<1	<10	<10
84-04-26	13	285	<.02	--	--	1000	<10	<10	400	<1	<10	<10
						DES MOINES						
83-08-17	9.4	1990	<.02	--	--	340	10	<10	<100	<1	<10	<10
83-08-17	9.0	2010	.04	--	--	260	10	<10	<100	<1	<10	<10
						DUBUQUE						
84-04-23	14	391	2.6	--	--	10	10	<10	20	<1	<10	<10
84-04-23	26	404	4.6	--	--	<10	<10	<10	200	<1	<10	<10
84-04-23	12	459	8.6	--	--	<10	<10	<10	<100	<10	<10	<10
84-04-24	19	301	.24	--	--	1200	2100	<10	300	<1	<10	<10
84-04-24	10	338	.04	--	--	100	<10	<10	200	<1	<10	<10
						EMMET						
84-08-16	33	722	.09	--	--	2700	420	<10	<100	<1	<10	<10
84-08-16	24	1080	.09	--	--	2800	850	10	<100	<1	<10	<10
						FAYETTE						
84-04-27	16	374	.75	--	--	110	170	<10	200	<1	<10	<10

DATE OF SAMPLE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	RADIUM 226, DIS-SOLVED (PCI/L) (09503)	RADIUM 228 DIS-SOLVED (PCI/L AS RA-228) (81366)
					DALLAS				
84-09-19	<10	<1.0	<10	<10	<10	1.7	6.0	--	--
84-09-18	<10	<1.0	<10	<10	<10	.4	1.0	--	--
84-09-18	<10	<1.0	<10	<10	20	.3	4.0	--	--
84-09-18	<10	<1.0	<10	<10	<10	<.2	12	--	--
					DECATUR				
84-09-25	<10	<1.0	<10	<10	30	6.6	39	1.0	.50
					DELAWARE				
84-05-14	<10	<1.0	<10	<10	<10	<.1	<.5	--	--
84-05-14	<10	<1.0	<10	<10	<10	3.5	2.0	2.3	<.40
84-05-14	<10	<1.0	<10	<10	<10	2.3	<.5	--	--
84-04-23	<10	<1.0	<10	<10	<10	.3	6.0	--	--
84-04-25	<10	<1.0	<10	<10	20	.6	2.0	--	--
84-04-25	<10	<1.0	<10	<10	<10	.9	2.0	--	--
84-04-25	<10	<1.0	<10	<10	10	.9	<.5	--	--
84-04-26	<10	<1.0	<10	<10	<10	<.1	3.0	--	--
					DES MOINES				
83-08-17	<10	<1.0	<10	<10	10	24	47	13	1.5
83-08-17	<10	<1.0	<10	<10	<10	11	39	1.3	3.4
					DUBUQUE				
84-04-23	<10	<1.0	<10	<10	<10	2.6	3.0	--	--
84-04-23	<10	<1.0	<10	<10	<10	<.1	<.5	--	--
84-04-23	<10	<1.0	<10	<10	20	.7	4.0	--	--
84-04-24	<10	<1.0	<10	<10	<10	1.2	2.0	--	--
84-04-24	<10	<1.0	<10	<10	10	.9	4.0	--	--
					EMMET				
84-08-16	<10	<1.0	<10	<10	<10	3.7	5.0	.3	<.40
84-08-16	30	<1.0	<10	<10	<10	.7	8.0	--	--
					FAYETTE				
84-04-27	<10	<1.0	<10	<10	<10	.3	2.0	--	--

STATION NUMBER	STATION NAME			DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	FLOW RATE (GPM) (00058)
			FAYETTE					
424054091543301	09109W21ACA	01511	1942OELWEIN CITY #2	84-04-27	1030	371JRDN	1320	600
424620091525001	09209W23BB	08873	1959MAYNARD TOWN #1	84-05-16	0830	364STPR	850	80
424606091594201	09210W23BDBD		1906WESTGATE NO 1	84-05-01	1130	344CDVL	98.00	65
425713091373101	09407W13CBCC	13991	1962ELGIN NO 3	84-05-15	1515	364GLEN	150	--
425717091382601	09407W14CBAD		1948ELGIN NO 1 NORTH	84-05-14	1530	364GLEN	208	300
425719091483301	09408W17DABC		WEST UNION TOWN	84-05-15	1020	--	54.00	420
425720091484201	09408W17DBAC	08615	1957WEST UNION NO 2	84-05-15	0915	355NIGR	90.00	250
430010091390102	09507W34ACAD		1924CLERMONT NO 2 EAST	84-05-15	1400	364GLEN	240	100
			FLOYD					
425754092515201	09417W16BBAA		1926MARBLE ROCK NO 1	84-07-11	0900	344CDVL	202	105
430458092403701	09516W01AAB	04869	1950CHARLES CITY WELL #5	84-07-10	0835	344CDVL	187	2300
430319092565801	09518W10DDBB		1914ROCKFORD NO 1	84-07-11	1035	344CDVL	185	240
430726092441501	09616W21ABDD	03352	1948FLOYD TOWN WELL	84-07-10	0945	344RPID	193	90
			FRANKLIN					
424533093061201	09219W28BBB	10584	1958HANSELL IOWA #1	83-02-09	1400	344CDVL	470	110
424414093220801	09221W31DBBC		COULTER NO 2	83-02-09	1230	330MSSP	257	65
			FREMONT					
405354095411402	07042W04BCBA		1968TABOR NO 1	84-08-07	1330	112PLSC	61.00	150
			GRUNDY					
422149092462601	08717W12ACAD	13152	1961GRUNDY CENTER #4	83-08-31	1440	344CLVL	530	500
			HARDIN					
423036093163401	08921W13BABD	09059	1957IOWA FALLS NO 5	83-09-02	0820	339KDRK	232	250
423131093164301	08921W13BBDD	08350	1957IOWA FALLS NO 4	83-09-02	0915	339HMPN	24.00	350
			HENRY					
405522091233001	07105W26ADAB	12683	1961NEW LONDON NO 3	83-08-17	1030	371JRDN	1870	500
			HOWARD					
431303092052001	09711W13DBBC	04001	1950PROTIVIN IA 2	84-07-10	1320	364ODVCM	699	165

DATE OF SAMPLE	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	HARDNESS (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
					FAYETTE							
84-04-27	20	520	7.6	250	59	26	20	8.2	233	2.0	42	.90
84-05-16	60	465	7.5	230	50	25	12	6.5	215	1.0	40	.60
84-05-01	30	740	7.3	390	97	36	22	3.1	368	.50	56	.40
84-05-15	20	630	7.2	330	87	27	6.1	2.8	277	12	47	.30
84-05-14	30	640	7.3	330	90	25	4.3	2.2	266	15	48	.30
84-05-15	40	820	7.2	390	100	34	18	2.5	294	40	40	.20
84-05-15	30	835	7.6	410	110	34	16	1.6	307	44	40	.20
84-05-15	20	625	7.4	330	80	32	4.3	2.4	278	11	24	.20
					FLOYD							
84-07-11	20	500	7.1	270	74	20	3.6	1.9	207	6.0	36	.20
84-07-10	15	480	7.1	230	63	18	5.4	1.8	214	2.0	18	.70
84-07-11	20	575	7.1	290	75	25	3.2	.90	247	2.8	40	.60
84-07-10	15	470	7.3	260	74	19	4.8	1.1	207	7.5	46	.30
					FRANKLIN							
83-02-09	10	725	7.0	380	83	42	11	5.0	249	25	150	2.2
83-02-09	10	725	7.0	350	93	28	13	4.1	374	.50	11	.50
					FREMONT							
84-08-07	360	540	7.4	250	67	21	11	3.1	251	3.0	12	.30
					GRUNDY							
83-08-31	15	1350	7.3	830	200	81	10	4.4	216	.50	560	.20
					HARDIN							
83-09-02	20	646	7.4	330	84	30	6.6	3.0	309	25	20	.04
83-09-02	20	900	7.0	390	100	35	11	2.5	334	16	86	.20
					HENRY							
83-08-17	30	1610	7.6	320	77	32	230	19	236	110	480	1.7
					HOWARD							
84-07-10	2220	760	7.1	380	96	33	16	4.9	272	8.0	100	.90

DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
FAYETTE												
84-04-27	7.0	297	.07	--	--	<10	<10	<10	200	<1	<10	<10
84-05-16	7.9	262	.02	--	--	40	<10	<10	100	<1	<10	<10
84-05-01	15	461	.18	--	--	1700	10	<10	300	<1	<10	<10
84-05-15	12	384	2.6	--	--	<10	<10	<10	200	<1	<10	<10
84-05-14	12	361	3.3	--	--	<10	<10	<10	100	<1	<10	<10
84-05-15	22	455	12	--	--	<10	<10	<10	100	<1	<10	<10
84-05-15	25	497	11	--	--	<10	<10	<10	300	<1	<10	<10
84-05-15	13	373	5.3	--	--	<10	<10	<10	<100	<1	<10	<10
FLOYD												
84-07-11	13	293	.37	--	--	120	20	<10	100	2	<10	<10
84-07-10	14	263	.09	.570	.010	660	20	<10	300	<1	<10	<10
84-07-11	17	326	.15	.170	.030	230	<10	<10	200	<1	<10	<10
84-07-10	14	295	.18	.130	.020	780	30	<10	200	<1	<10	10
FRANKLIN												
83-02-09	9.8	518	.02	--	--	960	<10	<10	<100	<1	<10	<10
83-02-09	18	375	<.02	--	--	2000	90	<10	300	<1	<10	<10
FREMONT												
84-08-07	25	319	.78	.160	.170	180	80	<10	200	<1	<10	<10
GRUNDY												
83-08-31	10	1120	.07	--	--	310	10	<10	<100	<1	<10	10
HARDIN												
83-09-02	12	336	.09	--	--	40	20	<10	<300	<1	<10	<10
83-09-02	11	452	1.3	--	--	550	40	<10	200	<1	<10	<10
HENRY												
83-08-17	9.8	1080	<.02	--	--	280	<10	<10	<100	<1	<10	<10
HOWARD												
84-07-10	11	461	3.1	1.20	<.010	170	30	<10	200	<1	<10	<10

DATE OF SAMPLE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	RADIUM 226, DIS-SOLVED (PCI/L) (09503)	RADIUM 228 DIS-SOLVED (PCI/L AS RA-228) (81366)
FAYETTE									
84-04-27	<10	<1.0	<10	<10	<10	<.2	<.5	--	--
84-05-16	<10	<1.0	<10	<10	80	5.2	5.0	2.0	<.40
84-05-01	<10	<1.0	<10	<10	<10	<.2	2.0	--	--
84-05-15	<10	<1.0	<10	<10	10	2.3	5.0	--	--
84-05-14	<10	<1.0	<10	<10	<10	4.0	<.5	1.8	<.40
84-05-15	<10	<1.0	<10	<10	<10	2.6	5.0	--	--
84-05-15	<10	<1.0	<10	<10	<10	<.1	3.0	--	--
84-05-15	<10	<1.0	<10	<10	30	1.2	3.0	--	--
FLOYD									
84-07-11	<10	<1.0	<10	<10	10	<.2	<.6	--	--
84-07-10	<10	<1.0	<10	<10	10	1.5	1.0	--	--
84-07-11	<10	<1.0	<10	<10	<10	1.0	<.6	--	--
84-07-10	<10	<1.0	<10	<10	<10	.6	1.0	--	--
FRANKLIN									
83-02-09	<10	<1.0	<10	<10	<10	4.2	6.0	1.6	<.50
83-02-09	<10	<1.0	<10	<10	10	1.6	6.0	--	--
FREMONT									
84-08-07	<10	<1.0	<10	<10	<10	2.4	5.0	--	--
GRUNDY									
83-08-31	<10	<1.0	<10	<10	20	2.4	2.0	.8	1.7
HARDIN									
83-09-02	<10	<1.0	<10	<10	<10	3.5	3.0	1.8	2.1
83-09-02	<10	<1.0	<10	<10	10	2.7	<.3	--	--
HENRY									
83-08-17	<10	<1.0	<10	<10	20	23	12	10	2.0
HOWARD									
84-07-10	<10	<1.0	<10	<10	10	<.2	3.0	--	--

STATION NUMBER	STATION NAME			DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	FLOW RATE (GPM) (00058)
			HOWARD					
431303092052002	09711W13DBCB		1906PROTIVIN NO 1	84-07-10	1350	340DVNN	72.00	100
431443092261401	09714W01DDAB		1914ELMA IOWA NO 1	84-07-10	--	112PLSC	143	--
432225092065701	09911W23CCCC	00004	1924CRESCO CITY 1	84-07-10	1535	364STPR	670	300
432144092332501	09914W30CACA	17554	1964RICEVILLE TOWN 3	84-07-09	1200	364GLEN	468	175
432150092332401	09915W25DABA		1917RICEVILLE NO 1	84-07-09	1600	344CDVL	460	330
			HUMBOLDT					
424317094120501	09128W06CACD	03222	1948DAKOTA CITY IOWA #2	83-05-06	0900	364GLEN	1020	150
424943093584201	09327W36ACDB		1941RENWICK IOWA NO 1	83-06-05	1100	330MSSP	294	190
425205094110801	09328W17CBDB		1968LIVERMORE IOWA NO 2	83-05-12	0925	330MSSP	227	90
425352094224501	09330W03CBD	07548	1956OTTOSEN IOWA #2	83-12-05	1110	340DVNN	600	--
			IOWA					
413048092043001	07811W36CDAB	02910	NORTH ENGLISH 2	83-02-17	1430	371JRDN	1940	--
414536091523201	08009W03DDCB	20011	HOMESTEAD 1	83-02-15	1240	350SLRN	750	140
414341091594901	08010W22ABCB		1981CONROY NO 2	83-02-17	0925	344CDVL	650	75
414752091520201	08109W26BCDB	04871	AMANA IOWA 5	83-02-15	0935	340DVSL	555	130
414745091521201	08109W26BCDC		AMANA 3	83-02-15	0930	111ALVM	33.00	40
			JACKSON					
420428090501901	08401E22BB		BALDWIN 1	84-05-08	0935	355HPKN	160	65
420414090113201	08407E19BD		SABULA	84-05-09	1130	371CMBRU	973	180
420414090113202	08407E19BD		1920SABULA	84-05-09	1215	350SLRN	112	100
420912090352101	08503E22DAA	06141	ANDREW 2	84-05-08	1245	358EDGD	1230	175
421745090370801	08703E33CDD	11757	LAMOTTE IOWA 2	84-05-09	0945	360ODVC	865	130
			JASPER					
413118093063201	07820W36ABB	12081	MONROE CITY 6	84-08-23	1400	325DSMS	305	66

DATE OF SAMPLE	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	HARDNESS (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
					HOWARD							
84-07-10	15	630	7.1	300	84	22	8.7	4.4	193	31	29	.20
84-07-10	--	610	7.1	300	83	22	8.2	.80	196	17	52	.20
84-07-10	15	620	7.2	300	71	29	12	2.5	251	24	54	.30
84-07-09	20	640	7.4	310	73	32	19	4.3	297	1.0	48	.70
84-07-09	30	650	7.2	300	73	28	18	4.2	297	<.50	42	.70
					HUMBOLDT							
83-05-06	30	905	7.1	450	100	49	15	7.0	281	7.0	220	.60
83-06-05	60	835	7.2	370	93	34	40	3.8	384	<.50	94	.20
83-05-12	60	780	7.4	360	92	31	26	4.3	364	2.0	64	.40
83-12-05	20	1080	7.0	560	140	51	37	8.1	382	7.5	260	.55
					IOWA							
83-02-17	20	1580	7.4	450	99	50	200	20	249	36	520	1.2
83-02-15	30	1780	7.2	850	210	78	110	15	241	5.0	840	.30
83-02-17	30	2540	7.2	1400	340	140	150	15	186	9.0	1500	.90
83-02-15	30	620	7.3	300	74	29	31	5.2	275	<.50	78	.50
83-02-15	30	920	6.7	460	120	39	32	14	260	52	120	.20
					JACKSON							
84-05-08	<15	635	7.4	380	86	39	4.2	.70	319	4.5	20	.20
84-05-09	15	505	7.5	280	54	35	1.0	4.4	244	3.0	32	.20
84-05-09	40	695	7.4	330	87	28	13	1.9	265	16	46	.10
84-05-08	20	1020	7.6	290	69	29	87	13	237	110	71	.70
84-05-09	5	830	7.6	310	73	32	57	10	233	28	160	.60
					JASPER							
84-08-23	60	1040	7.4	350	87	32	120	4.8	368	2.0	220	.70

DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
						HOWARD						
84-07-10	11	369	12	.050	.020	<10	<10	<10	300	<1	<10	<10
84-07-10	14	345	4.8	.010	.030	<10	<10	<10	200	<1	<10	<10
84-07-10	13	401	2.6	<.010	.010	20	<10	<10	200	<1	<10	20
84-07-09	11	374	.09	3.10	.020	910	20	<10	100	<1	<10	<10
84-07-09	11	369	.09	2.80	.020	520	20	<10	300	<1	<10	<10
						HUMBOLDT						
83-05-06	14	617	1.9	--	--	30	60	<10	200	<1	<10	20
83-06-05	20	500	<.02	--	--	1700	570	<10	<100	<1	<10	<10
83-05-12	18	450	.48	--	--	<10	40	<10	200	<1	<10	30
83-12-05	13	781	<.02	--	--	1100	180	<10	<100	<1	<10	<10
						IOWA						
83-02-17	11	1090	<.02	--	--	730	<10	<10	<100	<1	<10	<10
83-02-15	8.2	1560	.04	--	--	360	30	<10	<100	<1	<10	<10
83-02-17	8.4	2400	<.02	--	--	990	<10	<10	<100	<1	<10	10
83-02-15	11	393	<.02	--	--	590	20	<10	200	<1	<10	<10
83-02-15	22	647	12	--	--	120	400	<10	200	<1	<10	20
						JACKSON						
84-05-08	18	389	2.4	--	--	<10	<10	<10	100	<1	<10	<10
84-05-09	9.4	251	<.02	--	--	80	20	<10	100	<1	<10	10
84-05-09	26	390	7.9	--	--	70	660	<10	100	<1	<10	<10
84-05-08	8.2	523	.04	--	--	260	<10	<10	<100	<1	<10	<10
84-05-09	8.4	487	<.02	--	--	110	<10	<10	<100	<1	<10	<10
						JASPER						
84-08-23	9.0	619	.09	--	--	280	30	<10	<100	<1	<10	<10

DATE OF SAMPLE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	RADIUM 226, DIS-SOLVED (PCI/L) (09503)	RADIUM 228 DIS-SOLVED (PCI/L AS RA-228) (81366)
					HOWARD				
84-07-10	<10	<1.0	<10	<10	10	2.2	.4	--	--
84-07-10	<10	<1.0	<10	<10	<10	1.2	<.6	--	--
84-07-10	<10	<1.0	<10	<10	<10	2.0	<.6	--	--
84-07-09	<10	<1.0	<10	<10	<10	2.3	4.0	2.1	<.40
84-07-09	<10	<1.0	<10	<10	<10	1.0	<.6	--	--
					HUMBOLDT				
83-05-06	<10	<1.0	<10	<10	<10	7.0	6.0	1.3	.50
83-06-05	<10	<1.0	<10	<10	10	3.0	4.0	2.0	<.40
83-05-12	<10	<1.0	<10	<10	30	3.8	7.0	1.8	2.0
83-12-05	<10	<1.0	<10	<10	<10	4.5	7.0	1.1	.60
					IOWA				
83-02-17	<10	<1.0	<10	<10	<10	10	24	6.1	<.50
83-02-15	<10	<1.0	<10	<10	60	11	22	5.6	.60
83-02-17	<10	<1.0	<10	<10	10	4.6	20	3.3	<.50
83-02-15	<10	<1.0	<10	<10	40	3.2	7.0	1.7	.80
83-02-15	<10	<1.0	<10	<10	20	3.1	9.0	.4	.70
					JACKSON				
84-05-08	<10	<1.0	<10	<10	<10	<.2	<.5	--	--
84-05-09	<10	<1.0	<10	<10	<10	<.2	4.0	--	--
84-05-09	<10	<1.0	<10	<10	<10	.6	<.5	--	--
84-05-08	<10	<1.0	<10	<10	30	3.6	11	.2	<.40
84-05-09	<10	<1.0	<10	<10	<10	<.2	13	--	--
					JASPER				
84-08-23	<10	<1.0	<10	<10	10	5.9	6.0	1.9	1.2

STATION NUMBER	STATION NAME			DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	FLOW RATE (GPM) (00058)
			JASPER					
414029093145401	079 21W01CCDB		1930COLFAX NO 3	84-08-23	1115	111HLCN	47.00	--
414954093121202	081 20W17BADD		1970BAXTER NO 2	84-08-22	1500	112PLSC	58.00	110
			JOHNSON					
414110091352201	079 06W06BAAA		1975CORALVILLE NO 6	84-08-20	1415	112PLSC	86.00	310
414111091350401	080 06W31DCDD		1975CORALVILLE NO 8	84-08-20	1435	112PLSC	90.00	370
414213091394902	080 07W28DCAB	21746	TIFFIN CITY 2	84-09-19	0900	355NIGR	305	60
414324091473501	080 08W21BCCC	01699	OXFORD IOWA 2	84-08-20	0930	358KNKK	586	70
414801091294501	081 06W25BAA	12477	SOLON IOWA 2	84-09-19	1400	358KNKK	482	225
			JONES					
420638091044401	084 02W04CACC	00218	CENTER JCT 1	84-09-27	1230	350SLRN	300	--
420607091011001	084 02W12A		ONSLOW CITY #1	84-09-27	1315	112PLSC	275	--
			KEOKUK					
411019092182901	074 13W36BDBC		1977HEDRICK NO 2	83-04-19	1410	371JRDN	2050	250
412138091570702	076 10W25ACDA	11764	KEOTA IOWA	83-04-20	1115	367PRDC	1550	200
412701092053001	077 11W23ABCD		1974SOUTH ENGLISH NO 4	83-04-19	0855	330MSSP	330	35
412715092051501	077 11W23DDCC		1969SOUTH ENGLISH NO 3	83-04-19	0920	330MSSP	250	--
			KOSSUTH					
425427094050501	093 27W06BABB		1916LUVERNE NO 1	84-07-16	1535	339HMPN	155	190
430418094142301	095 29W02CABA	00858	1939ALGONA IA TEST #2	84-07-16	1310	217DKOT	155	250
430424094142701	095 29W02CABC		1968ALGONA NO 6	84-07-16	1400	217DKOT	141	550
430340094252703	095 30W08BBCD		1978WHITTEMORE NO 3	84-07-13	1615	112PLSC	120	180
430506093593201	096 27W35DADB	00602	1937WESLEY NO 2	84-07-16	1200	344CDVL	302	125
431407094022401	097 27W09ACB		1936TITONKA IA #1	84-07-13	1330	344CDVL	300	240
431255094253101	097 30W18DACD	00533	1937FENTON IA #2	84-07-13	1500	217DKOT	229	160
432247094052802	099 28W21ADCA	22018	1969LAKOTA NO 2	84-07-13	1155	344CDVL	211	80
			LEE					
404306091270201	068 05W05DAAC	24442	1977WEST POINT NO 3	83-08-16	1240	371JRDN	19.00	170
			LINN					
415526091225201	082 05W12CAC		LISBON IOWA 1	84-09-18	1545	350SLRN	350	100

DATE OF SAMPLE	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	HARDNESS (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
					JASPER							
84-08-23	1440	1180	7.1	530	140	43	27	2.2	277	31	270	.30
84-08-22	30	560	7.2	330	81	30	10	.80	240	8.5	68	.30
					JOHNSON							
84-08-20	10	675	6.9	360	86	35	9.1	.80	314	14	18	.30
84-08-20	20	560	6.9	320	78	31	9.5	1.0	323	5.0	20	.30
84-09-19	60	1520	7.3	670	160	65	150	11	259	7.0	660	.40
84-08-20	240	2380	7.1	1300	340	100	170	11	207	9.0	1300	.40
84-09-19	30	480	7.6	220	53	22	6.4	1.1	247	.50	4.9	.20
					JONES							
84-09-27	20	520	7.4	240	60	22	14	1.1	276	1.0	7.6	.30
84-09-27	30	600	7.1	310	79	28	11	1.7	323	<.50	8.4	.30
					KEOKUK							
83-04-19	30	1620	7.8	400	92	41	210	22	251	78	470	1.3
83-04-20	30	1630	7.3	490	110	52	180	21	236	48	590	1.1
83-04-19	15	2350	7.0	1000	230	110	190	12	324	20	1100	.60
83-04-19	45	2040	6.9	1100	260	120	74	7.6	427	1.0	830	.30
					KOSSUTH							
84-07-16	--	730	7.1	390	100	34	25	3.4	368	2.0	42	.35
84-07-16	20	1190	7.1	490	130	39	82	6.0	404	24	180	.40
84-07-16	840	1000	7.2	410	110	33	75	6.2	356	18	170	.30
84-07-13	30	1100	7.2	530	140	43	67	6.0	388	2.5	240	.50
84-07-16	20	850	7.5	230	55	22	130	2.9	421	4.5	48	.90
84-07-13	20	750	7.1	320	80	30	56	4.1	384	2.0	32	.80
84-07-13	20	1650	7.1	750	200	62	120	5.2	385	2.0	580	.35
84-07-13	20	900	7.1	430	110	37	51	6.9	388	1.5	110	.50
					LEE							
83-08-16	30	2110	7.6	310	76	28	360	18	234	300	440	3.0
					LINN							
84-09-18	30	590	7.7	320	62	39	7.6	.50	242	8.0	68	.20

DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
						JASPER						
84-08-23	25	736	2.7	--	--	40	90	<10	<100	<1	<10	<10
84-08-22	28	366	1.7	--	--	70	220	<10	200	<1	<10	<10
						JOHNSON						
84-08-20	21	372	.89	--	--	380	610	<10	600	<1	<10	20
84-08-20	20	345	.02	--	--	170	510	<10	600	<1	<10	10
84-09-19	13	1360	<.02	1.70	.010	110	20	<10	<100	<1	<10	<10
84-08-20	8.0	2320	<.02	--	--	910	20	<10	<100	<1	<10	10
84-09-19	20	242	<.02	.210	<.010	<10	<10	<10	<100	<1	<10	<10
						JONES						
84-09-27	10	287	<.02	--	--	1100	<10	<10	500	<1	<10	<10
84-09-27	10	333	<.02	--	--	1400	30	<10	300	<1	<10	<10
						KEOKUK						
83-04-19	12	1130	.02	--	--	570	30	<10	<100	<1	<10	<10
83-04-20	9.5	1120	<.02	--	--	790	20	<10	<100	<1	<10	<10
83-04-19	7.6	2040	.11	--	--	100	170	<10	<100	<1	<10	<10
83-04-19	7.8	1710	.07	--	--	2600	100	<10	<100	<1	<10	<10
						KOSSUTH						
84-07-16	22	411	.18	.590	.050	1400	260	10	200	<10	<10	<10
84-07-16	25	686	.20	.620	.120	2700	240	<10	100	<1	<10	<10
84-07-16	27	630	.18	.350	.090	1700	390	<10	<100	<1	<10	<10
84-07-13	23	735	.22	.900	.180	2200	210	<10	<100	<1	<10	<10
84-07-16	17	500	.18	.390	.040	580	30	<10	<100	<1	<10	<10
84-07-13	14	427	.04	1.50	.050	940	30	<10	300	<1	<10	<10
84-07-13	22	1210	.09	.880	.110	2100	270	<10	<100	<1	<10	<10
84-07-13	12	558	1.3	.020	.010	60	20	<10	<100	<1	<10	<10
						LEE						
83-08-16	9.8	1350	<.02	--	--	700	20	<10	<100	<1	<10	<10
						LINN						
84-09-18	14	370	1.9	.010	.010	30	<10	<10	<100	<1	<10	<10

DATE OF SAMPLE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	RADIUM 226, DIS-SOLVED (PCI/L) (09503)	RADIUM 228 DIS-SOLVED (PCI/L AS RA-228) (81366)
				JASPER					
84-08-23	<10	<1.0	<10	<10	<10	1.9	2.0	--	--
84-08-22	<10	<1.0	<10	<10	10	<.2	2.0	--	--
				JOHNSON					
84-08-20	<10	<1.0	<10	<10	<10	2.3	1.0	--	--
84-08-20	<10	<1.0	<10	<10	<10	2.0	<.5	--	--
84-09-19	<10	<1.0	<10	<10	<10	12	11	<.1	<.40
84-08-20	<10	<1.0	<10	<10	<10	24	21	1.6	3.0
84-09-19	<10	<1.0	<10	<10	<10	1.2	1.0	--	--
				JONES					
84-09-27	<10	<1.0	<10	<10	30	2.0	3.0	1.2	<.40
84-09-27	<10	<1.0	<10	<10	<10	1.2	1.0	--	--
				KEOKUK					
83-04-19	<10	<1.0	<10	<10	<10	37	33	5.5	2.4
83-04-20	<10	<1.0	<10	<10	<10	26	22	5.0	2.6
83-04-19	<10	<1.0	<10	<10	10	4.6	10	1.5	.40
83-04-19	<10	<1.0	<10	<10	<10	9.9	5.0	2.4	<.40
				KOSSUTH					
84-07-16	<10	<1.0	<10	<10	<10	1.8	2.0	--	--
84-07-16	<10	<1.0	<10	<10	<10	6.2	6.0	2.9	3.5
84-07-16	<10	<1.0	<10	<10	<10	6.8	6.0	4.1	1.2
84-07-13	<10	<1.0	<10	<10	<10	6.6	7.0	2.5	.50
84-07-16	<10	<1.0	<10	<10	<10	2.4	1.0	.2	<.40
84-07-13	<10	<1.0	<10	<10	<10	2.2	1.0	2.4	<.40
84-07-13	<10	<1.0	<10	<10	<10	7.4	2.0	2.7	1.5
84-07-13	<10	<1.0	<10	<10	<10	1.0	7.0	--	--
				LEE					
83-08-16	<10	<1.0	<10	<10	<10	12	22	8.7	.60
				LINN					
84-09-18	<10	<1.0	<10	<10	60	1.2	5.0	--	--

STATION NUMBER	STATION NAME			DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	FLOW RATE (GPM) (00058)
			LINN					
420901091373501	08507W26AB	13909	ALBURNETT 2	84-09-20	1100	358ALXD	400	--
421420091251501	08605W22CCCC		1910PRAIRIEBURG NO 1	84-09-20	1315	350SLRN	180	--
			MARION					
411855092552101	07518W10BDCA		1977HARVEY NO 1	84-09-20	1300	111ALVM	79.00	35
411548093020101	07519W27CDDD	23103	1972PERSHING UTILITY CORD	84-09-24	1145	300PLZC	2300	100
			MARSHALL					
420613092593601	08418W07BACA		ALBION NO 2	84-08-22	0825	111ALVM	26.00	--
420648093092101	08420W02CBBC	06943	1954CLEMENS NO 1	84-08-22	0830	112PLSC	52.00	29
421117093002201	08519W12ADCC		1974LISCOMB NO 2	84-08-22	1010	330MSSP	148	90
420728093121301	08520W32DCC	00171	1934ST ANTHONY 1	84-08-22	1130	339KDRK	438	--
			MITCHELL					
431701092484101	09817W25BBBB		1912OSAGE CITY NO 2	84-07-09	1420	364STPR	810	425
431654092484501	09817W26ADBC	16641	1964OSAGE CITY 5	84-07-09	1430	364GLEN	650	650
432241092550802	09918W24CABA		1960ST. ANSGAR NO 2	84-07-09	1230	344CDVL	240	255
			MUSCATINE					
413402091155501	07804W13BABA	10351	WEST LIBERTY 3	83-07-12	1420	371JRDN	1660	370
			PALO ALTO					
425611094410501	09433W25ABA	02863	1947MALLARD CITY WELL #2	84-08-15	1200	210CRCS	205	100
430218094495501	09534W23BBAA		1921AYRSHIRE NO 1	84-08-15	1235	217DKOT	359	57
430210094500001	09534W23BBAB	13839	1962AYRSHIRE TOWN #2	84-08-15	1230	364STPR	900	52
430624094411601	09633W25ACBC		1944EMMETSBURG NO 3	84-08-15	1400	112PLSC	38.00	450
431429094450601	09733W09BABB		1964GRAETTINGER NO 4	84-08-15	1510	112PLSC	30.50	235
			POCAHONTAS					
423750094355804	09032W10AAAD		1970PALMER NO 5	84-07-08	1515	112PLSC	165	60
423449094505002	09034W27CADA		1969FONDA NO 1	84-08-03	1155	112PLSC	120	245
424907094313001	09231W05AAC	02973	1947ROLFE TOWN WELL	84-08-15	0930	330MSSP	185	200

DATE OF SAMPLE	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	HARDNESS (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
					LINN							
84-09-20	30	527	7.7	250	61	24	14	1.8	275	.50	10	.30
84-09-20	--	720	7.8	260	50	33	48	3.9	303	1.0	81	.40
					MARION							
84-09-20	60	1090	7.1	600	200	25	15	1.9	253	14	390	.25
84-09-24	60	1120	7.3	280	68	26	150	21	264	51	240	1.4
					MARSHALL							
84-08-22	30	680	7.1	420	110	35	11	.70	272	30	68	.20
84-08-22	30	685	7.3	330	81	30	7.2	2.1	296	9.0	46	.20
84-08-22	30	515	7.0	300	73	29	8.5	1.6	267	1.0	49	.40
84-08-22	--	1100	7.2	420	85	50	120	12	247	5.5	460	2.4
					MITCHELL							
84-07-09	30	780	7.3	410	110	34	15	1.9	300	20	80	<.10
84-07-09	360	540	--	280	75	23	8.6	2.3	238	7.5	35	.35
84-07-09	20	680	7.2	350	84	34	8.9	1.3	241	19	54	.10
					MUSCATINE							
83-07-12	30	1580	7.6	320	74	34	230	16	241	110	410	1.6
					PALO ALTO							
84-08-15	20	1220	7.3	730	180	68	72	4.2	452	2.5	460	.30
84-08-15	20	1750	7.3	1000	270	88	100	7.7	319	6.0	850	.30
84-08-15	30	2000	7.3	980	250	87	100	7.2	357	6.5	820	.25
84-08-15	240	770	7.4	440	120	35	21	5.4	347	24	86	.30
84-08-15	20	600	7.3	350	93	29	6.8	3.4	266	10	46	.30
					POCAHONTAS							
84-07-08	30	1700	7.2	630	130	73	160	6.9	536	5.5	390	.30
84-08-03	60	1400	7.2	720	170	71	72	5.6	389	1.0	460	.30
84-08-15	20	980	7.2	580	150	51	40	3.5	419	2.0	210	.50

GROUND-WATER QUALITY DATA

DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
LINN												
84-09-20	5.6	260	<.02	1.30	<.010	40	<10	<10	<100	<1	<10	<10
84-09-20	13	393	<.02	3.20	<.010	680	<10	<10	200	<1	<10	<10
MARION												
84-09-20	20	864	<.02	.200	<.010	300	60	<10	<100	<1	<10	<10
84-09-24	6.5	772	<.02	1.90	<.010	1400	<10	<10	<100	<1	<10	<10
MARSHALL												
84-08-22	20	438	5.8	--	--	40	<10	<10	200	<1	<10	10
84-08-22	26	356	.89	--	--	2400	140	<10	400	<1	<10	<10
84-08-22	13	312	.07	--	--	320	150	<10	<100	<1	<10	<10
84-08-22	4.6	834	.09	--	--	140	10	<10	<100	<1	<10	10
MITCHELL												
84-07-09	20	490	3.5	<.010	.040	<10	<10	<10	100	<1	<10	<10
84-07-09	13	310	.18	.460	.010	200	20	<10	<100	<1	<10	<10
84-07-09	13	408	8.4	<.010	.010	<10	<10	<10	<100	<1	<10	<10
MUSCATINE												
83-07-12	8.6	1060	<.02	--	--	140	10	<10	<100	<1	<10	<10
PALO ALTO												
84-08-15	32	1040	.07	--	--	9100	20	110	100	<1	<10	<10
84-08-15	26	1690	.09	--	--	4000	170	<10	100	<1	<10	<10
84-08-15	26	1530	.09	--	--	2900	170	<10	<100	<1	<10	<10
84-08-15	28	533	1.4	--	--	1300	370	<10	<100	<1	<10	<10
84-08-15	23	410	9.5	--	--	<10	170	<10	100	<1	<10	<10
POCAHONTAS												
84-07-08	30	1260	.04	3.00	.280	1900	280	<10	<100	<1	<10	20
84-08-03	30	1110	<.02	3.90	--	5200	80	<10	<100	<1	<10	<10
84-08-15	20	716	.09	--	--	1600	310	<10	200	<1	<10	<10

DATE OF SAMPLE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	RADIUM 226, DIS-SOLVED (PCI/L) (09503)	RADIUM 228 DIS-SOLVED (PCI/L AS RA-228) (81366)
LINN									
84-09-20	<10	<1.0	<10	<10	<10	2.4	2.0	1.1	<.40
84-09-20	<10	<1.0	<10	<10	<10	1.3	3.0	--	--
MARION									
84-09-20	<10	<1.0	<10	<10	40	1.8	6.0	--	--
84-09-24	<10	<1.0	<10	<10	<10	.4	21	--	--
MARSHALL									
84-08-22	<10	<1.0	<10	<10	10	.7	4.0	--	--
84-08-22	<10	<1.0	<10	<10	<10	.7	6.0	--	--
84-08-22	<10	<1.0	<10	<10	10	.3	6.0	--	--
84-08-22	<10	<1.0	<10	<10	880	1.6	3.2	--	--
MITCHELL									
84-07-09	<10	<1.0	<10	<10	30	2.0	<.6	2.5	<.40
84-07-09	<10	<1.0	<10	<10	<10	2.1	<.6	1.8	<.40
84-07-09	<10	<1.0	<10	<10	190	<.2	3.0	--	--
MUSCATINE									
83-07-12	<10	<1.0	<10	<10	<10	9.4	22	2.7	.40
PALO ALTO									
84-08-15	<10	<1.0	<10	<10	<10	3.9	1.0	1.0	2.0
84-08-15	<10	<1.0	<10	<10	<10	1.0	12	--	--
84-08-15	<10	<1.0	<10	<10	<10	.7	8.0	--	--
84-08-15	<10	<1.0	<10	<10	<10	1.6	7.0	--	--
84-08-15	10	<1.0	<10	<10	<10	1.1	2.0	--	--
POCAHONTAS									
84-07-08	<10	<1.0	<10	<10	<10	3.1	10	.4	<.40
84-08-03	<10	<1.0	<10	<10	<10	2.6	6.0	--	--
84-08-15	<10	<1.0	<10	<10	<10	6.1	2.0	1.4	1.5

GROUND-WATER QUALITY DATA

STATION NUMBER	STATION NAME			DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	FLOW RATE (GPM) (00058)
			POCAHONTAS					
424406094400101	09232W31DCBD		1958POCAHONTAS NO 3	84-08-08	1115	217DKOT	255	480
425001094421701	09333W35ABAC	15974	1963HAVELOCK NO 3	84-08-08	1300	217DKOT	190	100
425058094510801	09334W27BBAA	12924	1961LAURENS NO 6	84-08-08	1150	217DKOT	367	150
			POLK					
413931093292001	07923W11DCDD	23701	1976ALTOONA TOWN NO 3	84-09-05	1000	360OVCB	2530	--
414356093363601	08024W23BADD	12574	1961ANKENY TOWN NO 4	84-09-05	1315	360OVCB	2710	750
414738093313601	08123W28DCD	18644	1966ELKHART TOWN NO 2	84-09-05	1200	112PLSC	280	120
415147093414102	08124W06BBAB		1951SHELDAHL NO 1	84-09-06	1200	112PLSC	310	--
414816093361701	08124W26AABC		ALLEMAN NO 2	84-09-06	1200	112PLSC	235	65
414627093424301	08125W01BACB		1967POLK CITY NO 2	84-09-06	0900	112PLSC	85.00	75
			POWESHIEK					
413449092223901	07813W08AACA		1940DEEP RIVER NO 1	84-04-09	1000	112PLSC	70.00	35
413429092420401	07816W09ADDD	08551	1955SEARSBORO NO 1	84-04-09	1145	338HGCK	200	30
414323092271601	08014W23ABCD	12686	BROOKLYN IOWA 5	84-04-10	1045	371JRDN	2040	190
414337092265707	08014W23BDB		BROOKLYN IOWA 3	84-04-10	1130	112PLSC	110	190
414224092333201	08015W26DBDC		1979MALCOLM NO 4	84-04-09	1330	330MSSP	220	150
414645092203801	08113W34DCA	07809	HARTWICK IOWA	84-04-09	1445	112PLSC	410	35
			RINGGOLD					
404831094201102	06930W05BBCD		1978DIAGONAL NO 5	84-08-06	1425	111ALVM	56.00	65
			SAC					
422447094594101	08836W26AAAC		1969SAC CITY NO 3E	83-01-18	1340	112PLSC	240	470
			SCOTT					
412728090431701	07702E22CAB	10563	BUFFALO IOWA	84-04-17	1515	350SLRN	480	250
413040090455001	07802E32CC	22757	BLUE GRASS 2	84-05-08	1600	364PLVL	640	210
414251090523401	08001E20CC		NEW LIBERTY 1	84-02-17	0920	350SLRN	205	240
414422090464701	08002E18BBBD		DIXON IOWA 1	84-04-18	0845	112PLSC	108	80
414151090345401	08003E35BAB	14529	LONG GROVE IOWA	84-04-17	1230	355NIGR	470	160
			STORY					
415403093181001	08221W21BDCA	24622	1977COLLINS NO 3	84-08-01	1435	371JRDN	2530	95

DATE OF SAMPLE	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	HARDNESS (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
					POCAHONTAS							
84-08-08	20	1480	7.1	780	190	73	73	4.7	409	1.0	500	.30
84-08-08	20	1200	7.1	680	170	62	51	3.6	417	.50	360	.40
84-08-08	--	2100	7.3	1100	260	100	100	7.7	412	.50	830	.20
					POLK							
84-09-05	--	710	7.6	--	59	<27	54	12	249	12	100	1.6
84-09-05	60	1140	7.7	330	75	35	100	16	259	23	280	1.9
84-09-05	30	980	7.5	350	86	32	86	4.9	363	2.5	160	.35
84-09-06	30	1300	7.5	450	100	48	91	6.5	285	4.5	380	.50
84-09-06	30	945	7.9	290	51	40	97	5.6	358	3.5	140	.40
84-09-06	30	770	7.3	380	100	32	14	2.9	362	16	53	.20
					POWESHIEK							
84-04-09	30	1110	7.4	570	150	48	22	3.6	286	17	320	.20
84-04-09	30	1830	7.5	770	190	71	150	10	150	6.0	900	.70
84-04-10	180	1200	7.4	450	100	49	120	19	284	17	400	1.2
84-04-10	30	1840	7.7	610	130	69	180	11	188	9.0	800	.60
84-04-09	20	1700	7.6	800	180	86	99	7.0	501	2.5	450	.40
84-04-09	30	1900	7.9	770	190	71	220	7.7	177	14	950	.30
					RINGGOLD							
84-08-06	180	830	6.9	340	100	23	38	2.7	256	7.0	170	.30
					SAC							
83-01-18	200	810	7.3	490	130	40	21	4.3	373	<.50	140	.30
					SCOTT							
84-04-17	15	1080	7.2	540	140	47	20	3.5	348	38	190	.20
84-05-08	15	660	7.3	370	88	36	9.6	1.5	343	<.50	17	.20
84-02-17	6	570	7.4	330	78	32	6.3	1.7	320	<.50	2.0	.40
84-04-18	60	610	7.4	320	73	33	7.0	1.1	284	9.5	22	.20
84-04-17	20	440	7.7	200	44	22	14	.50	236	<.50	5.2	.55
					STORY							
84-08-01	20	960	7.5	330	75	34	80	16	289	15	200	1.4

DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
POCAHONTAS												
84-08-08	20	1180	.09	2.60	.030	150	1200	<10	<100	<1	<10	<10
84-08-08	18	962	.07	1.20	.070	270	1400	<10	100	<1	<10	<10
84-08-08	32	1720	.02	4.90	.290	3000	220	<10	<100	<1	<10	10
POLK												
84-09-05	12	387	<.02	.680	.010	230	<10	<10	<100	<1	<10	<10
84-09-05	11	688	.04	.800	.010	<10	40	<10	<100	<1	<10	<10
84-09-05	20	597	<.02	2.40	.080	1400	20	<10	<100	<1	<10	<10
84-09-06	17	823	<.02	3.20	.040	1900	60	<10	<100	<1	<10	<10
84-09-06	10	533	<.02	3.70	.170	380	20	<10	600	<1	<10	<10
84-09-06	30	442	<.02	2.70	.320	6800	240	<10	900	<1	<10	<10
POWESHIEK												
84-04-09	23	738	<.02	--	--	3400	190	<10	<100	<1	<10	<10
84-04-09	6.8	1600	.07	--	--	190	170	20	<100	<1	10	<10
84-04-10	9.8	857	<.02	--	--	2000	<10	<10	<100	<1	<10	10
84-04-10	11	1420	<.02	--	--	620	470	20	<100	<1	<10	<10
84-04-09	12	1180	.04	--	--	800	90	<10	200	<1	<10	<10
84-04-09	10	1560	<.02	--	--	510	30	20	<100	<1	10	<10
RINGGOLD												
84-08-06	34	556	<.02	1.80	.850	1900	1400	<10	400	<1	<10	10
SAC												
83-01-18	31	566	<.02	--	--	2600	210	<10	<100	<1	<10	<10
SCOTT												
84-04-17	17	635	.04	<.010	.080	70	20	<10	<100	<1	<10	<10
84-05-08	16	373	<.02	--	--	60	<10	<10	200	<1	<10	<10
84-02-17	16	313	.09	--	--	760	170	<10	<100	<1	<10	<10
84-04-18	24	336	.64	<.010	.080	<10	<10	<10	<100	<1	<10	<10
84-04-17	16	208	.02	--	--	1300	10	<10	600	<1	<10	<10
STORY												
84-08-01	11	583	<.02	1.00	<.010	1300	50	<10	<100	<1	<10	<10

DATE OF SAMPLE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	RADIUM 226, DIS-SOLVED (PCI/L) (09503)	RADIUM 228 DIS-SOLVED (PCI/L AS RA-228) (81366)
POCAHONTAS									
84-08-08	<10	<1.0	<10	<10	<10	7.3	8.0	.8	1.3
84-08-08	<10	<1.0	<10	<10	30	10	6.0	1.3	<.40
84-08-08	<10	<1.0	<10	<10	<10	<.2	17	--	--
POLK									
84-09-05	<10	<1.0	<10	<10	<10	6.3	8.0	5.6	1.2
84-09-05	<10	<1.0	<10	<10	<10	13	12	7.1	<.40
84-09-05	<10	<1.0	<10	<10	<10	1.7	1.0	--	--
84-09-06	<10	<1.0	<10	<10	<10	.7	1.0	--	--
84-09-06	<10	<1.0	<10	<10	<10	1.5	3.0	--	--
84-09-06	<10	<1.0	<10	<10	<10	<.2	4.0	--	--
POWESHIEK									
84-04-09	<10	<1.0	<10	<10	<10	1.1	2.0	--	--
84-04-09	<10	<1.0	<10	<10	60	3.4	7.0	1.4	.80
84-04-10	<10	<1.0	<10	<10	<10	9.9	22	3.6	<.40
84-04-10	<10	<1.0	<10	<10	<10	2.7	5.0	--	--
84-04-09	<10	<1.0	<10	<10	<10	<.1	<.5	--	--
84-04-09	<10	<1.0	<10	<10	20	<.1	10	--	--
RINGGOLD									
84-08-06	<10	<1.0	<10	<10	<10	1.3	2.0	--	--
SAC									
83-01-18	<10	<1.0	<10	<10	30	<.1	3.0	--	--
SCOTT									
84-04-17	<10	<1.0	<10	<10	<20	<.1	<.5	--	--
84-05-08	<10	<1.0	<10	<10	<10	<.3	2.0	--	--
84-02-17	<10	<1.0	<10	<10	<10	.3	2.0	--	--
84-04-18	<10	<1.0	<10	<10	<10	<.1	<.5	--	--
84-04-17	<10	<1.0	<10	<10	<10	<.1	<.5	--	--
STORY									
84-08-01	<10	<1.0	<10	<10	10	7.2	12	2.7	1.6

STATION NUMBER	STATION NAME			DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	FLOW RATE (GPM) (00058)
			STORY					
415357093314101	08223W21DBAB		1973CAMBRIDGE NO 2	84-07-31	1440	112PLSC	80.00	225
415253093411301	08224W30DCBB		1957SLATER NO 2	84-08-01	1150	112PLSC	180	50
420059093190301	08321W08ACCA	10934	1959TOWN OF COLO NO 3	84-08-01	1530	330MSSP	775	120
425702093394901	08324W32DCDD	00199	1939KELLY NO 1	84-08-01	1305	112PLSC	216	80
420932093175101	08521W21ACCD	17445	1965ZEARING NO 3	84-08-02	0940	112PLSC	110	80
421110093351401	08524W12DBA	02158	1945TOWN OF STORY CITY NO 2	84-08-02	1055	330MSSP	261	500
			TAMA					
420029092190101	08313W12CCC	06017	ELBERON IOWA 1	84-04-12	1215	350SLRN	635	40
420504092240301	08413W18DAC	07402	CLUTIER IOWA 2	84-04-12	1030	344CDVL	290	75
420533092403801	08416W14ABA	01663	1910GARWIN 2	84-04-12	0900	341LMCK	171	120
421135092275002	08514W10ABCD		1923TRAER NO 2 SOUTH	84-04-11	1230	344CDVL	350	100
421126092273801	08514W10ABCD	14136	TRAER IOWA 3	84-04-11	1125	371TMPL	1810	240
421122092430401	08516W09BDDA		1960GLADBROOK NO 4	84-04-11	1500	111ALVM	52.00	37
421120092430401	08516W09BDDD	17970	1965GLADBROOK NO 5	84-04-11	1530	111ALVM	52.00	37
421549092413801	08616W15ADA	04064	LINCOLN IOWA 2	84-04-11	1745	344CDVL	528	90
			VAN BUREN					
405120091500401	07009W24A	23139	1972TOWN OF STOCKPORT NO 1	83-04-28	1020	360OVCB	1880	115
405030092050501	07011W26AAAB		1970DOUDS NO 2	83-09-08	1030	330MSSP	380	--
405001092052201	07011W26DBAC		1970LEANDO NO 1 (DOUDS)	83-09-08	1130	330MSSP	370	--
			WASHINGTON					
411735091333801	07506W21BBBB	24623	1977AINSWORTH NO 5	83-03-31	1155	360OVCB	1870	100
412740091500001	07709W24ACBD	06902	WELLMAN TOWN 3	83-03-30	1435	371JRDN	1710	275
			WEBSTER					
421600094042001	08628W 4AB	05548	1952DAYTON TOWN WELL NO 3	84-07-17	1450	340DVNN	1250	200
422803093591601	08827W03BBC	01931	1945DUNCOMBE TOWN NO 1	84-07-17	1625	340DVNN	971	80
422615094175801	08830W14AAAD	08215	1957MOORLAND TOWN WELL	84-07-18	1125	339KDRK	730	30
423014094114902	08928W19CAAD	03218	1949FT DODGE NO 15	84-07-18	1420	360OVCB	1300	1700
423018094120101	08928W19CACC	00216	1931FT DODGE NO 9	84-07-18	--	339KDRK	553	640
423517094010403	09027W22DBCC		1978VINCENT NO 3	84-07-17	1130	112PLSC	100	65

DATE OF SAMPLE	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	HARDNESS (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
					STORY							
84-07-31	540	820	7.3	410	110	33	24	2.3	288	36	110	.20
84-08-01	20	700	7.6	270	71	23	66	4.7	330	3.0	9.1	.50
84-08-01	20	2100	7.3	980	290	62	160	11	258	16	1000	1.8
84-08-01	--	850	7.6	330	78	33	60	5.7	310	3.0	170	.40
84-08-02	20	570	7.5	280	68	26	26	4.9	351	<.50	6.4	.40
84-08-02	60	580	7.3	330	79	31	17	2.7	362	1.0	1.3	1.9
					TAMA							
84-04-12	30	1990	7.4	560	130	58	260	17	259	12	790	2.5
84-04-12	30	2050	7.6	1200	300	110	88	7.5	167	4.5	1200	.70
84-04-12	60	1660	7.7	580	120	69	180	9.9	185	5.5	720	.80
84-04-11	30	1560	7.7	750	190	68	78	6.5	221	3.0	630	2.1
84-04-11	120	1100	7.2	440	100	47	67	17	310	6.5	260	1.1
84-04-11	30	720	7.1	340	100	21	13	2.8	230	22	79	.20
84-04-11	30	725	7.1	340	100	22	10	.60	247	26	92	.20
84-04-11	30	1960	7.3	1100	290	100	--	5.2	212	1.5	990	.70
					VAN BUREN							
83-04-28	30	1880	7.5	290	71	28	300	26	247	180	420	2.1
83-09-08	--	3980	7.2	1100	250	120	570	38	237	200	1900	2.0
83-09-08	60	3770	7.2	1000	220	120	550	56	248	200	1800	2.1
					WASHINGTON							
83-03-31	30	1560	7.4	400	93	41	230	20	230	65	590	1.2
83-03-30	30	1700	7.4	440	100	47	270	20	238	51	680	1.2
					WEBSTER							
84-07-17	30	1500	7.3	810	180	87	50	17	277	9.5	580	2.5
84-07-17	30	980	7.2	390	89	41	71	3.7	479	.50	78	.40
84-07-18	30	1200	7.1	570	140	54	50	8.2	417	2.5	240	.85
84-07-18	20	1010	7.3	510	130	44	45	6.3	383	1.5	170	.70
84-07-18	720	980	7.1	510	130	46	33	5.2	386	1.5	160	.70
84-07-17	30	710	7.0	390	110	29	13	5.5	356	12	21	.30

DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
STORY												
84-07-31	29	571	<.02	.110	.070	5700	410	<10	300	<1	<10	<10
84-08-01	14	488	<.02	3.00	.010	3600	70	<10	800	<1	<10	20
84-08-01	8.7	1810	<.02	3.50	<.010	2300	30	<10	<100	<1	<10	<10
84-08-01	18	533	.13	1.60	.030	1200	10	<10	<100	<1	<10	<10
84-08-02	25	359	<.02	4.70	.070	2600	30	90	400	<1	<10	<10
84-08-02	12	350	<.02	.750	.010	80	10	<10	500	<1	<10	<10
TAMA												
84-04-12	6.2	1480	<.02	1.20	.010	220	10	<10	<100	<1	<10	<10
84-04-12	12	1880	<.02	--	--	1600	510	<10	<100	<1	<10	<10
84-04-12	6.8	1250	.02	--	--	200	<10	<10	<100	<1	<10	<10
84-04-11	13	1200	<.02	--	--	2300	50	<10	<100	<1	<10	<10
84-04-11	6.4	688	<.02	--	--	1600	<10	<10	<100	<1	<10	<10
84-04-11	17	384	.88	.080	.020	100	150	<10	100	<1	<10	<10
84-04-11	20	417	.02	.230	.060	6400	950	<10	200	<1	<10	<10
84-04-11	11	1610	<.02	.430	<.010	640	<10	<10	100	<1	<10	<10
VAN BUREN												
83-04-28	10	1190	.04	--	--	1200	20	<10	<100	<1	<10	<10
83-09-08	7.0	3450	.31	--	--	100	10	<10	<100	<1	<10	<10
83-09-08	7.0	3260	.33	--	--	60	10	<10	<100	<1	<10	<10
WASHINGTON												
83-03-31	12	1150	<.02	--	--	1900	30	<10	<100	<1	<10	<10
83-03-30	11	1290	<.02	--	--	790	<10	<10	<100	<1	<10	<10
WEBSTER												
84-07-17	9.2	1150	<.02	--	--	1600	20	<10	<100	<1	<10	<10
84-07-17	18	569	<.02	--	--	1200	10	<10	100	<1	<10	<10
84-07-18	20	770	<.02	--	--	1200	80	<10	<100	<1	<10	<10
84-07-18	17	597	<.02	--	.000	930	80	<10	<100	<1	<10	<10
84-07-18	7.2	600	<.02	--	--	940	80	<10	<100	<1	<10	<10
84-07-17	31	407	<.02	.840	.030	1400	80	<10	300	<1	<10	<10

DATE OF SAMPLE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	RADIUM 226, DIS-SOLVED (PCI/L) (09503)	RADIUM 228 DIS-SOLVED (PCI/L AS RA-228) (81366)
STORY									
84-07-31	<10	<1.0	<10	<10	60	2.0	80	--	--
84-08-01	<10	<1.0	<10	<10	<10	1.7	5.0	--	--
84-08-01	<10	<1.0	<10	<10	20	5.4	11	2.9	.90
84-08-01	<10	<1.0	<10	<10	<10	.8	3.0	--	--
84-08-02	<10	<1.0	<10	<10	10	1.0	4.0	--	--
84-08-02	<10	<1.0	<10	<10	<10	2.7	<.5	--	--
TAMA									
84-04-12	<10	<1.0	<10	<10	<10	6.4	22	.5	<.40
84-04-12	<10	<1.0	<10	<10	20	3.3	7.0	.4	2.2
84-04-12	<10	<1.0	<10	<10	20	.5	6.0	--	--
84-04-11	<10	<1.0	20	<10	10	2.3	6.0	.6	2.0
84-04-11	<10	<1.0	<10	<10	<10	2.7	17	3.0	<.40
84-04-11	<10	<1.0	<10	<10	<10	<.1	4.0	--	--
84-04-11	<10	<1.0	<10	<10	10	1.6	2.0	--	--
84-04-11	<10	<1.0	<10	<10	<10	1.8	7.0	--	--
VAN BUREN									
83-04-28	<10	<1.0	<10	<10	30	7.0	20	5.3	1.8
83-09-08	<10	<1.0	<10	<10	580	3.8	39	2.9	2.3
83-09-08	<10	<1.0	<10	<10	340	8.7	29	2.6	1.4
WASHINGTON									
83-03-31	<10	<1.0	<10	<10	<10	11	23	3.6	.60
83-03-30	<10	<1.0	<10	<10	10	11	30	5.7	1.9
WEBSTER									
84-07-17	<10	<1.0	<10	<10	20	1.1	12	--	--
84-07-17	<10	<1.0	<10	<10	<10	<.2	1.0	--	--
84-07-18	<10	<1.0	<10	<10	60	3.9	14	2.1	1.3
84-07-18	<10	<1.0	<10	<10	<10	<1.2	5.0	<.0	.00
84-07-18	<10	<1.0	<10	<10	10	.4	7.0	--	--
84-07-17	<10	<1.0	<10	<10	20	<.2	2.0	--	--

STATION NUMBER	STATION NAME			DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	FLOW RATE (GPM) (00058)
			WEBSTER					
423517094010401	09027W22DCC	12537	1960VINCENT TOWN NO 1	84-07-17	1055	340DVNN	745	50
423650094085501	09028W15BBCB	23299	1973BADGER NO 3	83-07-27	1200	330MSSP	548	120
423512094202201	09030W25BBAA		1956CLARE NO 1	84-07-18	1035	210CRCS	232	30
			WOODBURY					
421406095433701	08642W27BCCA		1955DANBURY NO 4	84-09-12	1200	111ALVM	68.00	180
421705095533601	08643W06DCCB		1954OTO NO 2	84-09-12	1000	111ALVM	65.00	40
421834096171301	08747W35BCDB		1970SALIX NO 2	84-09-16	1000	110QRCU	168	70
422759095402501	08842W01ADCC		1950CUSHING NO 1	84-09-11	1435	111ALVM	40.00	90
422317095522201	08843W32DCBC		1973ANTHON NO 4	84-09-12	0820	112PLSC	160	400
422441096124001	08846W28BCBA	22795	1971BRONSON TOWN NO 1	84-09-11	1000	112PLSC	235	60
423242095521501	08943W12BADB		1920PIERSON NO 1	84-09-11	1325	111ALVM	26.00	200
422848096104301	08945W32DBDA		1971LAWTON NO 4	84-09-11	1145	217DKOT	205	100
			WRIGHT					
424415093500101	09225W31DADA		1946HOLMES TOWN	83-05-05	1430	330MSSP	205	50

DATE OF SAMPLE	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	SPECIFIC CONDUCTANCE (UMHOS) (00095)	PH (STANDARD UNITS) (00400)	HARDNESS (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
						WEBSTER						
84-07-17	30	720	7.0	390	110	28	13	5.5	359	10	20	.30
83-07-27	30	840	7.2	410	89	46	43	7.5	383	6.0	110	2.2
84-07-18	30	1100	7.1	490	130	40	52	4.7	287	.50	210	.70
						WOODBURY						
84-09-12	30	840	7.5	440	120	35	14	3.7	359	20	40	.20
84-09-12	1200	1060	7.3	560	160	39	18	5.1	437	28	130	.30
84-09-16	60	900	7.1	430	110	37	28	8.2	415	2.0	76	.40
84-09-11	30	840	7.3	440	120	34	17	1.0	274	16	100	.50
84-09-12	180	1200	7.4	560	160	39	49	10	304	7.0	320	.80
84-09-11	30	505	6.4	330	86	27	14	5.7	324	3.5	6.7	.40
84-09-11	30	650	7.8	410	110	34	30	1.7	324	32	84	.50
84-09-11	30	580	7.8	310	85	23	16	3.7	316	<.50	6.9	.30
						WRIGHT						
83-05-05	30	800	7.0	360	92	32	29	4.2	375	3.5	68	.30

DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
						WEBSTER						
84-07-17	31	434	<.02	.850	.080	1600	70	<10	300	<1	<10	<10
83-07-27	6.9	543	.02	--	--	<10	<10	<10	<100	<1	<10	<10
84-07-18	15	669	<.02	.350	.010	990	270	<10	<100	<1	<10	<10
						WOODBURY						
84-09-12	26	520	10	.010	.100	<10	<10	<10	200	<1	<10	<10
84-09-12	28	698	.69	.080	.060	530	1200	<10	100	<1	<10	<10
84-09-16	30	537	<.02	.260	.070	4500	240	<10	<100	<1	<10	<10
84-09-11	30	557	17	.010	.010	40	<10	<10	100	<1	<10	<10
84-09-12	28	818	.16	1.40	.010	40	160	<10	<100	<1	<10	<10
84-09-11	24	361	.38	--	--	<10	<10	<10	200	<1	<10	<10
84-09-11	23	554	8.2	.010	.040	<10	<10	<10	<100	<1	<10	<10
84-09-11	23	338	<.02	.120	.010	230	320	<10	400	<1	<10	<10
						WRIGHT						
83-05-05	24	471	.04	--	--	360	740	<10	<100	<1	<10	<10

DATE OF SAMPLE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	RADIUM 226, DIS-SOLVED (PCI/L) (09503)	RADIUM 228 DIS-SOLVED (PCI/L AS RA-228) (81366)
					WEBSTER				
84-07-17	<10	<1.0	<10	<10	50	<.2	3.0	--	--
83-07-27	<10	<1.0	<10	<10	10	<.1	8.0	--	--
84-07-18	<10	<1.0	<10	<10	20	7.4	7.0	2.7	1.6
					WOODBURY				
84-09-12	<10	<1.0	<10	<10	<10	--	7.0	--	--
84-09-12	<10	<1.0	<10	<10	<10	6.1	7.0	1.3	<.40
84-09-16	<10	<1.0	<10	<10	20	2.8	8.0	--	--
84-09-11	<10	<1.0	<10	<10	<10	2.9	2.0	--	--
84-09-12	<10	<1.0	<10	<10	<10	<.2	10	--	--
84-09-11	<10	<1.0	<10	<10	140	5.9	9.0	3.7	1.8
84-09-11	<10	<1.0	<10	<10	<10	3.0	5.0	1.2	3.8
84-09-11	<10	<1.0	<10	<10	<10	5.7	12	2.5	<.40
					WRIGHT				
83-05-05	<10	<1.0	<10	<10	80	5.4	6.0	4.6	1.6

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
05388250 - UPPER IOWA R NR DORCHESTER IA (LAT 43 25 16 LONG 091 30 31)									
NOV , 1983					APR , 1984				
01...	1330	679	11.0	560	17...	0915	1260	--	470
DEC					MAY				
07...	1415	915	.5	585	31...	0800	809	14.0	525
JAN , 1984					AUG				
25...	1220	419	.0	600	21...	0900	312	20.0	545
MAR									
07...	1010	775	.0	560					
05389500 - MISSISSIPPI RIVER AT MCGREGOR, IOWA (LAT 43 01 29 LONG 091 10 21)									
NOV , 1983					MAY , 1984				
02...	1030	41600	11.0	370	31...	1330	57600	17.5	460
APR , 1984					JUL				
18...	0830	105000	9.0	440	10...	1500	82100	23.5	505
05411600 - TURKEY RIVER AT SPILLVILLE, IOWA (LAT 43 12 28 LONG 091 56 56)									
OCT , 1983					APR , 1984				
31...	1400	93	10.0	545	16...	1500	332	11.5	440
DEC					JUN				
07...	1600	156	1.0	540	01...	1125	175	19.0	515
JAN , 1984					AUG				
25...	1500	55	.0	570	20...	1545	44	27.0	540
MAR									
06...	1440	163	2.0	515					
05412500 - TURKEY RIVER AT GARBER, IOWA (LAT 42 44 24 LONG 091 15 42)									
NOV , 1983					APR , 1984				
02...	1600	801	13.0	575	18...	1430	2120	10.0	510
DEC					MAY				
06...	1500	1360	1.0	575	30...	1400	3270	16.0	520
JAN , 1984					AUG				
24...	1630	472	.0	680	22...	0845	465	19.0	530
MAR									
07...	1545	1080	1.0	570					
05418450 - NF MAQUOKETA R AT FULTON IA (LAT 42 08 42 LONG 090 40 55)									
NOV , 1983					APR , 1984				
04...	0800	188	5.0	580	19...	0730	306	8.0	580
DEC					MAY				
06...	0900	247	.0	630	29...	1720	714	16.0	590
JAN , 1984					JUL				
24...	1200	170	.0	655	12...	0800	383	23.0	550
MAR					AUG				
08...	1530	248	2.0	625	22...	1145	195	21.5	590
05418500 - MAQUOKETA RIVER NEAR MAQUOKETA, IOWA (LAT 42 05 05 LONG 090 38 04)									
NOV , 1983					MAY , 1984				
03...	1500	572	11.0	550	30...	0915	2830	15.0	490
DEC					JUL				
05...	1600	985	1.0	550	11...	1420	3950	25.0	275
MAR , 1984					AUG				
08...	1315	844	1.0	560	22...	1710	544	23.5	530
APR									
19...	1630	1140	11.5	525					
05420500 - MISSISSIPPI RIVER AT CLINTON, IOWA (LAT 41 46 53 LONG 090 15 04)									
OCT , 1983					JUN , 1984				
25...	1145	69200	10.0	278	13...	1245	74300	23.0	422
NOV					SEP				
29...	1100	82000	1.0	320	06...	1300	28500	21.5	424
MAR , 1984									
15...	1100	53000	.0	390					
05420560 - WAPSIPINICON RIVER NEAR ELMA, IOWA (LAT 43 14 34 LONG 092 31 48)									
FEB , 1984					JUN , 1984				
01...	1435	20	.0	430	06...	1410	47	23.0	580
MAR					JUL				
06...	1535	57	1.0	400	10...	1400	39	29.0	410
APR					AUG				
17...	1515	143	10.0	420	22...	1340	23	23.0	520

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
05421000 - WAPSIPINICON R AT INDEPENDENCE, IOWA (LAT 42 27 49 LONG 091 53 42)									
OCT , 1983					APR , 1984				
31...	1000	556	9.0	458	16...	1115	2310	9.0	410
DEC					JUN				
08...	1200	680	1.5	480	06...	1030	962	22.0	455
JAN , 1984					JUL				
26...	1005	173	2.0	500	09...	0930	374	22.0	420
MAR					AUG				
06...	1050	670	1.0	400	20...	0945	115	24.5	405
05422000 - WAPSIPINICON RIVER NEAR DE WITT, IOWA (LAT 41 46 01 LONG 090 32 05)									
NOV , 1983					APR , 1984				
04...	1130	881	9.0	445	20...	0930	3230	10.5	430
DEC					MAY				
05...	1300	2860	.5	505	29...	1400	3950	15.0	465
JAN , 1984					AUG				
23...	1415	537	.0	550	22...	1510	463	25.0	350
MAR									
09...	1035	1660	.0	430					
05422470 - CROW C AT BETTENDORF IA (LAT 41 33 03 LONG 090 27 15)									
NOV , 1983					APR , 1984				
04...	1330	2.2	10.0	525	20...	1150	12	13.0	640
DEC					MAY				
05...	1000	4.4	.5	770	29...	1020	35	11.0	640
JAN , 1984					JUL				
23...	0950	4.4	.0	840	12...	1410	7.2	27.0	640
MAR					AUG				
09...	1250	7.0	.0	680	23...	1120	1.1	20.0	590
05449000 - EAST BRANCH IOWA RIVER NEAR KLEMME, IOWA (LAT 43 00 31 LONG 093 37 42)									
JAN , 1984					JUN , 1984				
31...	1400	28	.0	800	04...	1550	164	19.0	760
MAR					JUL				
05...	1515	130	1.0	700	12...	1145	107	23.0	590
APR					AUG				
16...	1310	410	10.0	760	20...	1225	22	23.0	540
05449500 - IOWA RIVER NEAR ROWAN, IOWA (LAT 42 45 36 LONG 093 37 23)									
JAN , 1984					JUN , 1984				
31...	1040	74	.0	550	04...	1255	498	19.0	730
MAR					JUL				
05...	1150	625	1.0	600	12...	1350	390	24.0	500
APR					AUG				
16...	1130	1490	10.0	720	28...	1110	71	29.0	590
05451500 - IOWA RIVER AT MARSHALLTOWN, IOWA (LAT 42 03 57 LONG 092 54 27)									
OCT , 1983					APR , 1984				
21...	1130	1310	9.0	694	05...	1030	3380	6.0	651
NOV					MAY				
30...	1230	2610	1.0	704	17...	1500	2030	17.5	630
JAN , 1984					AUG				
09...	1400	664	.0	694	06...	1400	645	28.0	626
FEB					SEP				
22...	1230	5730	4.0	451	19...	1120	161	17.5	463
05451700 - TIMBER CREEK NEAR MARSHALLTOWN, IOWA (LAT 42 00 25 LONG 092 51 15)									
OCT , 1983					MAY , 1984				
21...	1445	113	9.0	624	17...	1315	160	15.0	538
NOV					JUN				
30...	1430	456	1.5	570	26...	1345	206	19.0	575
JAN , 1984					AUG				
09...	1630	89	.0	582	06...	1130	67	23.0	604
FEB					SEP				
22...	1500	171	7.0	540	19...	1330	13	18.5	622
APR									
05...	1450	252	9.0	546					
05451900 - RICHLAND CREEK NEAR HAVEN, IOWA (LAT 41 53 58 LONG 092 28 27)									
DEC , 1983					MAY , 1984				
01...	1030	121	2.0	504	16...	1445	64	14.0	484
JAN , 1984					JUN				
10...	0940	21	.0	528	26...	1540	72	23.0	600
FEB					AUG				
21...	1445	78	6.0	465	10...	1220	14	24.0	541
APR					SEP				
04...	1335	152	4.5	435	17...	1310	3.6	16.5	490

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
05452000 - SALT CREEK NR ELBERON, IOWA (LAT 41 57 51 LONG 092 18 47)									
DEC , 1983					MAY , 1984				
01...	1200	302	.5	606	15...	1405	256	13.0	510
JAN , 1984					29...	1300	937	10.5	500
10...	1130	91	.0	613	JUN				
FEB					28...	1230	313	18.0	544
24...	1315	211	7.0	518	AUG				
APR					08...	1200	76	25.0	560
04...	1130	431	3.5	500					
05452200 - WALNUT CREEK NEAR HARTWICK, IOWA (LAT 41 50 06 LONG 092 23 10)									
NOV , 1983					MAY , 1984				
30...	1615	154	1.5	463	15...	1110	80	11.5	453
JAN , 1984					AUG				
09...	1100	42	.0	509	10...	1425	12	30.0	522
FEB					SEP				
21...	1250	103	5.0	448	17...	1055	3.0	15.0	508
APR									
06...	1325	114	10.0	465					
05453000 - BIG BEAR CREEK AT LADORA, IOWA (LAT 41 44 58 LONG 092 10 55)									
OCT , 1983					MAY , 1984				
20...	1100	88	9.0	546	15...	1005	210	13.5	472
DEC					29...	1430	531	12.0	448
01...	1500	412	2.0	280	JUN				
JAN , 1984					29...	1015	190	19.0	503
12...	1000	91	.0	574	AUG				
FEB					08...	1500	46	30.0	585
24...	1500	207	6.5	468	SEP				
APR					18...	1315	14	18.0	631
04...	1625	613	5.0	422					
11...	1215	289	8.5	461					
05453100 - IOWA RIVER NEAR MARENGO, IOWA (LAT 41 48 41 LONG 092 03 42)									
OCT , 1983					MAY , 1984				
20...	1315	1730	10.0	630	16...	1140	4310	16.0	562
DEC					30...	1120	6870	13.0	473
02...	1100	6160	.5	613	JUN				
JAN , 1984					27...	1300	9100	24.0	501
10...	1450	1430	.0	634	AUG				
FEB					08...	1215	1180	30.0	598
23...	1445	9350	5.0	391	SEP				
APR					18...	1050	370	--	471
06...	1200	4950	8.0	564					
05454000 - RAPID CREEK NEAR IOWA CITY, IOWA (LAT 41 41 19 LONG 091 29 15)									
OCT , 1983					MAY , 1984				
28...	1335	.29	13.5	600	02...	1345	27	12.0	540
DEC					JUN				
01...	1030	20	.0	660	04...	1150	17	17.5	590
JAN , 1984					JUL				
04...	1430	6.4	.0	520	02...	1120	12	19.5	610
FEB					AUG				
01...	0900	4.5	.0	415	01...	1335	4.2	23.5	610
MAR					SEP				
05...	1040	11	.5	570	04...	0830	.17	15.0	580
APR									
02...	0850	20	7.0	570					
05454300 - CLEAR CREEK NR CORALVILLE, IOWA (LAT 41 40 36 LONG 091 35 55)									
NOV , 1983					MAY , 1984				
08...	0830	11	9.5	620	03...	1500	566	9.0	375
DEC					JUN				
01...	1300	97	.0	570	05...	1330	85	22.0	530
30...	1430	25	.0	610	JUL				
JAN , 1984					02...	1400	51	24.0	530
26...	1430	21	.0	575	AUG				
FEB					01...	0830	24	20.0	645
24...	0900	113	4.0	480	SEP				
APR					04...	1345	4.2	22.5	610
04...	0815	227	4.0	495					
05454500 - IOWA RIVER AT IOWA CITY, IOWA (LAT 41 39 24 LONG 091 32 27)									
OCT , 1983					JUN , 1984				
26...	1240	3340	11.5	605	05...	1100	4590	19.0	540
DEC					JUL				
16...	1045	--	.0	643	03...	1130	7400	24.5	320
JAN , 1984					AUG				
24...	1415	1060	1.0	667	02...	1035	7030	25.5	495
MAR					SEP				
13...	1445	3310	1.0	610	05...	1045	490	22.0	530
MAY									
04...	1100	5200	12.0	430					

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
05455000 - RALSTON CREEK AT IOWA CITY, IOWA (LAT 41 39 50 LONG 091 30 48)				
OCT , 1983				
28...	1035	.00	12.0	675
DEC				
01...	1000	.88	.5	730
JAN , 1984				
04...	1030	.34	.0	750
FEB				
01...	1330	.27	1.0	990
MAR				
05...	0930	.91	.5	710
APR				
02...	1340	1.5	7.0	645
MAY , 1984				
02...	1500	2.4	12.5	640
03...	0850	38	8.0	320
JUN				
04...	1415	1.2	25.0	625
JUL				
02...	0945	.40	18.5	700
AUG				
03...	0800	.16	21.0	700
SEP				
04...	0915	.05	14.5	670
05455010 - SOUTH BRANCH RALSTON CREEK AT IOWA CITY, IOWA (LAT 41 39 05 LONG 091 30 27)				
OCT , 1983				
28...	0840	.03	11.0	838
DEC				
01...	0845	.84	.5	810
JAN , 1984				
04...	0930	.34	.0	1570
FEB				
01...	1205	.24	.0	1970
MAR				
05...	0820	1.0	.0	930
APR				
02...	1100	1.6	6.5	650
MAY , 1984				
03...	1015	21	8.0	360
JUN				
04...	1310	2.6	18.0	585
JUL				
02...	0845	.66	17.0	655
AUG				
01...	1115	.50	20.0	670
SEP				
04...	0930	.03	16.0	735
05455500 - ENGLISH RIVER AT KALONA, IOWA (LAT 41 27 59 LONG 091 42 56)				
NOV , 1983				
21...	1145	510	8.0	376
DEC				
27...	1315	190	.0	485
FEB , 1984				
22...	1425	800	5.0	370
MAY				
03...	1515	2540	9.0	298
JUN , 1984				
19...	1245	1310	22.5	245
JUL				
26...	1345	839	21.0	202
SEP				
07...	1000	18	19.5	470
05455700 - IOWA RIVER NEAR LONE TREE, IOWA (LAT 41 25 15 LONG 091 28 25)				
OCT , 1983				
07...	1415	863	18.0	513
NOV				
18...	1400	2460	6.0	579
DEC				
27...	1100	--	.0	700
FEB , 1984				
22...	1125	10700	1.5	322
MAY , 1984				
04...	1300	10400	11.0	374
JUN				
19...	1030	8210	22.5	378
JUL				
30...	1230	7420	24.5	470
SEP				
07...	1230	471	22.0	565
05457700 - CEDAR RIVER AT CHARLES CITY, IOWA (LAT 43 03 45 LONG 092 40 23)				
FEB , 1984				
02...	0930	351	.0	575
MAR				
07...	1130	630	1.0	580
APR				
18...	0915	1970	9.0	520
JUN , 1984				
06...	1010	762	23.0	580
JUL				
11...	1010	750	28.0	400
AUG				
21...	1910	292	22.0	590
05458000 - LITTLE CEDAR RIVER NEAR IONIA, IOWA (LAT 43 02 05 LONG 092 30 05)				
MAR , 1984				
07...	0915	--	1.0	500
JUN				
06...	1635	180	20.0	590
JUL , 1984				
10...	1630	159	29.0	400
AUG				
22...	1000	59	19.0	520
05458500 - CEDAR RIVER AT JANESVILLE, IOWA (LAT 42 38 54 LONG 092 27 54)				
JAN , 1984				
04...	1255	821	.0	580
25...	0950	622	.0	430
MAR				
14...	1010	--	1.0	590
APR				
18...	1710	3600	11.0	560
JUL , 1984				
17...	1125	2060	23.0	420
AUG				
30...	1200	455	29.0	510

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
05458900 - WEST FORK CEDAR RIVER AT FINCHFORD, IOWA (LAT 42 37 50 LONG 092 32 24)									
JAN , 1984					MAY , 1984				
04...	1600	361	.0	640	30...	1315	2380	15.0	580
25...	1210	219	.0	600	JUL				
MAR					17...	1715	--	23.0	410
14...	1420	760	1.0	610	AUG				
APR					30...	1420	96	28.0	520
18...	1515	2560	11.0	600					
05459000 - SHELL ROCK RIVER NEAR NORTHWOOD, IOWA (LAT 43 24 51 LONG 093 13 14)									
FEB , 1984					JUN , 1984				
01...	1150	81	.0	950	05...	1345	311	20.0	590
MAR					JUL				
06...	1000	--	1.0	650	11...	1350	325	25.0	360
APR					AUG				
17...	1010	987	7.0	480	21...	1045	54	21.0	610
05459500 - WINNEBAGO RIVER AT MASON CITY, IOWA (LAT 43 09 54 LONG 093 11 33)									
FEB , 1984					JUN , 1984				
01...	0950	130	.0	850	05...	1045	566	20.0	680
MAR					JUL				
06...	0830	--	1.0	580	11...	1700	450	24.0	500
APR					AUG				
17...	0900	1340	6.0	630	20...	1640	116	22.0	680
05462000 - SHELL ROCK RIVER AT SHELL ROCK, IOWA (LAT 42 39 10 LONG 092 35 46)									
JAN , 1984					MAY , 1984				
25...	1340	488	.0	650	30...	1600	2630	14.0	600
MAR					JUL				
14...	1735	1520	1.0	620	17...	1455	2090	24.0	440
APR					AUG				
18...	1320	3820	10.0	565	28...	1510	476	29.0	520
05463000 - BEAVER CREEK AT NEW HARTFORD, IOWA (LAT 42 30 50 LONG 092 37 55)									
JAN , 1984					APR , 1984				
03...	1425	130	.0	450	19...	1520	484	11.0	620
24...	1230	90	.0	680					
MAR									
13...	1405	--	1.0	600					
05463500 - BLACK HAWK CREEK AT HUDSON, IOWA (LAT 42 24 28 LONG 092 27 47)									
JAN , 1984					MAY , 1984				
24...	1415	79	.0	650	29...	1345	1930	13.0	520
MAR					JUL				
13...	1220	168	1.0	595	16...	1525	1750	23.0	420
APR									
19...	1315	372	10.0	620					
05464000 - CEDAR RIVER AT WATERLOO, IOWA (LAT 42 29 44 LONG 092 20 03)									
JAN , 1984					MAY , 1984				
04...	0750	--	.0	600	29...	1700	10800	12.0	600
MAR					JUL				
13...	1735	4360	1.0	645	18...	1105	7260	24.0	400
APR									
19...	1055	10800	10.0	560					
05464500 - CEDAR RIVER AT CEDAR RAPIDS, IOWA (LAT 41 58 14 LONG 091 40 01)									
NOV , 1983					MAY , 1984				
22...	1030	7320	5.5	565	23...	0950	8050	18.5	529
JAN , 1984					JUN				
24...	0915	--	.0	675	25...	0845	23200	23.5	438
FEB					JUL				
23...	1050	28000	3.0	318	24...	0915	5650	27.0	540
MAR					SEP				
23...	1125	5240	5.0	584	26...	1030	2920	15.0	344
APR									
25...	1125	9980	11.0	511					

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
05465000 - CEDAR RIVER NEAR CONESVILLE, IOWA (LAT 41 24 36 LONG 091 17 06)				
OCT , 1983				
07...	1215	3730	17.0	560
NOV				
18...	1110	4780	5.0	615
DEC				
27...	0945	--	.0	735
MAR , 1984				
19...	1215	6400	1.5	562
MAY , 1984				
04...	0945	21500	10.0	430
JUN				
15...	1230	18100	21.0	429
JUL				
27...	1115	6190	24.5	529
SEP				
11...	1145	1990	20.0	398
05465500 - IOWA RIVER AT WAPELLO, IOWA (LAT 41 10 48 LONG 091 10 57)				
NOV , 1983				
01...	1000	7540	12.0	630
DEC				
07...	1045	12400	.0	569
JAN , 1984				
04...	1500	8600	.0	649
MAR				
14...	1215	9970	1.0	573
MAY , 1984				
11...	1330	27200	14.0	520
JUL				
03...	1130	23400	24.0	513
AUG				
28...	0900	3510	25.0	417
05470000 - SOUTH SKUNK RIVER NEAR AMES, IOWA (LAT 42 04 05 LONG 093 37 02)				
DEC , 1983				
27...	1305	98	.0	770
FEB , 1984				
06...	1300	55	1.0	800
MAR				
22...	1100	150	3.0	760
MAY , 1984				
10...	1215	467	13.0	790
JUL				
23...	1345	340	25.0	760
05470500 - SQUAW CREEK AT AMES, IOWA (LAT 42 01 21 LONG 093 37 45)				
DEC , 1983				
27...	1400	77	.0	675
FEB , 1984				
06...	1405	41	.0	750
MAR				
22...	0955	106	2.0	640
JUN , 1984				
13...	1410	6020	23.0	200
JUL				
23...	1125	113	25.0	720
SEP				
06...	0840	2.3	17.0	750
05471500 - SOUTH SKUNK RIVER NEAR OSKALOOSA, IOWA (LAT 41 21 19 LONG 092 39 31)				
OCT , 1983				
11...	0935	401	13.5	710
NOV				
29...	1100	6640	2.0	500
FEB , 1984				
21...	1125	6360	4.0	430
APR				
02...	1100	1870	6.5	610
MAY , 1984				
14...	1110	2030	15.0	650
JUN				
29...	1020	3430	21.5	530
AUG				
06...	1055	744	25.5	590
05472500 - NORTH SKUNK RIVER NEAR SIGOURNEY, IOWA (LAT 41 18 03 LONG 092 12 16)				
NOV , 1983				
14...	1025	870	6.0	457
DEC				
29...	1400	455	.0	505
FEB , 1984				
07...	1100	377	.5	350
MAR				
20...	1115	366	1.0	442
APR , 1984				
24...	1200	875	7.5	439
JUN				
11...	1130	2240	19.0	271
SEP				
04...	1015	55	19.0	500
05473400 - CEDAR CR NR OAKLAND MILLS, IOWA (LAT 40 55 00 LONG 091 40 00)				
NOV , 1983				
17...	1100	157	4.5	493
DEC				
28...	1145	102	.0	325
MAR , 1984				
23...	1400	1620	3.5	269
MAY , 1984				
03...	1245	4260	11.0	204
JUN				
14...	1330	346	24.0	486
JUL				
24...	1030	411	21.5	218

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
05474000 - SKUNK RIVER AT AUGUSTA, IOWA (LAT 40 45 13 LONG 091 16 40)									
NOV , 1983					MAR , 1984				
03...	1100	8320	12.0	445	12...	1200	2200	.0	606
DEC					MAY				
07...	1230	5160	1.0	622	07...	1300	19700	15.0	406
JAN , 1984					JUL				
04...	1200	1840	.0	628	09...	1130	2930	25.0	580
FEB					AUG				
05...	1200	--	.0	647	27...	1700	517	27.0	413
05476500 - DES MOINES RIVER AT ESTHERVILLE, IOWA (LAT 43 23 51 LONG 094 50 38)									
DEC , 1983					JUL , 1984				
05...	1535	336	.0	650	02...	1325	4090	24.0	720
MAR , 1984					AUG				
14...	1310	300	.5	1000	15...	1350	410	26.0	670
APR					SEP				
11...	1400	6860	6.0	700	24...	1145	73	16.0	790
14...	1230	8530	8.0	680					
MAY									
22...	1515	2230	12.0	680					
05476750 - DES MOINES RIVER AT HUMBOLDT, IOWA (LAT 42 43 12 LONG 094 13 06)									
FEB , 1984					AUG , 1984				
27...	1520	2590	1.0	680	14...	1515	724	26.0	680
APR					SEP				
09...	1600	6360	1.0	700	28...	1500	211	12.0	680
MAY									
23...	1715	3510	13.0	690					
05479000 - EAST FORK DES MOINES RIVER AT DAKOTA CITY, IOWA (LAT 42 43 26 LONG 094 11 30)									
FEB , 1984					SEP , 1984				
27...	1030	4180	4.0	435	10...	1230	57	22.5	670
JUL					28...	1515	35	14.0	660
05...	0930	2430	24.0	690					
AUG									
14...	1115	157	26.0	690					
05480500 - DES MOINES RIVER AT FORT DODGE, IOWA (LAT 42 30 22 LONG 094 12 04)									
JAN , 1984					MAY , 1984				
16...	1315	677	.0	750	22...	1435	6270	19.0	720
FEB					AUG				
14...	1145	918	1.0	640	22...	1645	747	20.0	660
APR									
10...	1300	12900	3.0	670					
05481000 - BOONE RIVER NEAR WEBSTER CITY, IOWA (LAT 42 26 01 LONG 093 48 12)									
DEC , 1983					JUN , 1984				
27...	1020	164	.0	670	14...	1055	7290	21.0	410
FEB , 1984					18...	1215	11100	23.5	335
06...	0940	87	.0	520	JUL				
MAR					23...	1415	378	30.0	670
22...	1300	497	3.0	775	SEP				
MAY					06...	1030	31	17.0	680
10...	1525	1890	17.0	760					
05481300 - DES MOINES RIVER NR STRATFORD, IOWA (LAT 42 15 04 LONG 093 59 52)									
FEB , 1984					JUL , 1984				
09...	1145	574	.0	950	23...	1150	4530	29.0	690
MAR					SEP				
22...	1500	2700	4.0	810	06...	1310	434	19.0	640
MAY									
10...	1730	14200	14.0	850					
05481950 - BEAVER CREEK NEAR GRIMES, IOWA (LAT 41 41 18 LONG 093 44 08)									
FEB , 1984					JUN , 1984				
07...	1300	116	.0	700	12...	1505	695	20.0	685
MAR					AUG				
21...	1120	203	--	720	01...	0945	143	25.0	735
MAY									
09...	1140	745	12.0	700					

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
05482135 - NORTH RACCOON RIVER NR NEWELL, IOWA (LAT 42 36 16 LONG 095 02 42)									
FEB , 1984					AUG , 1984				
15...	1110	--	4.0	460	31...	1250	7.4	25.0	600
JUL					SEP				
31...	1420	45	24.0	630	13...	1215	5.9	21.0	690
05482170 - BIG CEDAR CREEK NEAR VARINA, IOWA (LAT 42 41 16 LONG 094 47 52)									
JAN , 1984					MAY , 1984				
12...	1750	--	.0	820	09...	1240	187	10.0	680
FEB					SEP				
15...	1015	--	2.0	525	13...	1025	.57	21.0	710
MAR									
01...	1600	89	3.0	650					
26...	1250	126	4.0	660					
05482300 - N RACCOON R NR SAC CITY IOWA (LAT 42 20 28 LONG 094 59 05)									
JAN , 1984					JUL , 1984				
12...	1140	226	.0	825	31...	1700	169	25.5	680
FEB					SEP				
15...	1510	--	3.0	400	13...	1545	33	22.5	650
MAY									
09...	1730	1720	11.0	700					
05482500 - NORTH RACCOON RIVER NEAR JEFFERSON, IOWA (LAT 41 59 17 LONG 094 22 36)									
JAN , 1984					AUG , 1984				
10...	1700	516	--	590	01...	1355	491	25.0	620
MAR					SEP				
27...	1035	2660	3.0	675	14...	1230	151	21.0	680
JUN									
15...	1615	11700	16.0	690					
05483000 - EAST FORK HARDIN CREEK NR. CHURDAN, IOWA (LAT 42 06 27 LONG 094 22 12)									
JAN , 1984					MAY , 1984				
11...	1250	7.7	.0	790	11...	0945	44	11.0	690
FEB					JUN				
16...	1545	166	3.0	440	20...	0955	47	18.0	600
MAR					AUG				
28...	0955	43	3.0	580	01...	1620	1.6	26.0	650
05483450 - M RACCOON R NR BAYARD, IOWA (LAT 41 47 00 LONG 094 30 00)									
FEB , 1984					MAR , 1984				
08...	1345	133	.0	790	20...	1230	184	2.0	690
05483600 - MIDDLE RACCOON RIVER AT PANORA, IOWA (LAT 41 41 14 LONG 094 22 15)									
FEB , 1984					JUL , 1984				
08...	1120	166	.5	800	26...	1530	376	26.0	610
MAR					SEP				
20...	1530	227	3.0	735	04...	1450	62	23.0	585
MAY									
08...	1605	1010	11.0	725					
05484000 - SOUTH RACCOON RIVER AT REDFIELD, IOWA (LAT 41 34 48 LONG 094 10 58)									
DEC , 1983					JUN , 1984				
29...	1105	246	.0	210	11...	1610	1800	--	610
FEB , 1984					JUL				
08...	0940	404	.0	675	19...	1655	496	26.0	600
MAR					SEP				
20...	1730	485	3.0	635	18...	1430	148	--	605
MAY									
08...	1850	1940	11.0	620					

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
05484500 - RACCOON RIVER AT VAN METER, IOWA (LAT 41 32 02 LONG 093 56 59)									
FEB , 1984					JUN , 1984				
07...	1610	1180	.0	650	12...	1145	10300	23.0	600
MAR					22...	0905	2730	26.0	610
21...	0930	2220	3.0	675	SEP				
MAY					18...	1740	270	21.0	560
09...	0945	9010	12.0	580					
05484800 - WALNUT CREEK AT DES MOINES, IOWA (LAT 41 35 14 LONG 093 42 11)									
OCT , 1983					MAY , 1984				
12...	1700	33	11.0	650	16...	0830	82	12.0	665
DEC					JUN				
01...	0845	121	.0	680	26...	1415	99	24.0	640
JAN , 1984					AUG				
10...	1335	38	.0	210	08...	0745	48	24.0	475
FEB					SEP				
23...	0820	104	3.5	680	19...	0940	1.7	17.5	800
APR									
03...	1615	157	5.0	600					
05485500 - DES MOINES R. BL RACCOON R. AT DES MOINES, IOWA (LAT 41 34 30 LONG 093 35 48)									
OCT , 1983					NOV , 1983				
13...	0820	1900	10.5	630	30...	1600	9400	.5	730
05485640 - FOURMILE CREEK AT DES MOINES, IOWA (LAT 41 36 50 LONG 093 32 43)									
OCT , 1983					MAY , 1984				
13...	0900	206	10.0	800	16...	1355	91	16.0	710
DEC					JUN				
01...	1115	243	.5	780	26...	1040	152	20.0	610
FEB , 1984					AUG				
23...	1045	157	3.5	690	08...	1320	29	28.5	560
APR					SEP				
04...	0835	244	3.0	680	19...	1430	3.9	27.0	1200
05486000 - NORTH RIVER NEAR NORWALK,IOWA (LAT 41 27 25 LONG 093 39 10)									
OCT , 1983					MAY , 1984				
12...	1330	76	10.5	480	15...	1530	306	16.0	430
NOV					JUN				
30...	1510	539	.0	360	27...	0900	302	18.0	460
FEB , 1984					AUG				
22...	1550	441	3.5	430	07...	1350	55	27.5	430
APR					SEP				
03...	1435	561	5.0	380	18...	1545	4.1	21.0	540
05486490 - MIDDLE RIVER NEAR INDIANOLA, IOWA (LAT 41 25 27 LONG 093 35 09)									
OCT , 1983					MAY , 1984				
12...	1210	56	9.5	430	15...	1345	368	17.0	470
NOV					JUN				
30...	1310	557	.0	340	27...	1055	332	23.0	480
JAN , 1984					AUG				
10...	0950	170	.0	380	07...	1230	86	30.0	440
FEB					SEP				
22...	1345	615	3.5	420	18...	1315	23	20.0	520
APR									
03...	1300	1590	5.0	340					
05487470 - SOUTH RIVER NEAR ACKWORTH, IOWA (LAT 41 20 14 LONG 093 29 10)									
OCT , 1983					MAY , 1984				
12...	1055	55	10.0	410	15...	1155	145	16.0	460
NOV					JUN				
30...	0955	511	.5	310	27...	1330	116	24.0	420
FEB , 1984					AUG				
22...	1135	408	3.5	395	07...	1025	23	28.0	470
APR					SEP				
03...	0915	1080	5.0	330	18...	1110	7.8	19.0	520

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
05487980 - WHITE BREAST CREEK NEAR DALLAS, IOWA (LAT 41 14 41 LONG 093 16 08)									
OCT , 1983					MAY , 1984				
12...	0900	10	10.0	450	15...	1000	131	15.5	360
NOV					JUN				
29...	1615	1190	1.0	260	27...	1430	106	27.0	390
FEB , 1984					AUG				
22...	0920	316	3.0	410	07...	0830	10	28.0	430
APR					SEP				
02...	1720	324	7.0	450	18...	0905	2.6	14.5	480
05488500 - DES MOINES RIVER NEAR TRACY, IOWA (LAT 41 16 53 LONG 092 51 34)									
OCT , 1983					MAY , 1984				
11...	1145	1210	15.0	680	14...	1245	18600	15.5	475
NOV					JUN				
29...	1155	11200	1.5	640	28...	1130	41400	23.0	490
FEB , 1984					AUG				
21...	1430	26900	3.0	480	06...	1345	22300	27.0	520
APR					SEP				
02...	1330	17600	5.5	600	17...	1350	1370	19.5	640
05489000 - CEDAR CREEK NEAR BUSSEY, IOWA (LAT 41 13 09 LONG 092 54 38)									
OCT , 1983					MAY , 1984				
11...	1515	8.7	13.5	780	14...	1505	151	19.5	600
NOV					JUN				
29...	1400	887	1.5	300	28...	0845	283	20.5	330
FEB , 1984					AUG				
21...	1605	344	3.0	450	06...	1525	30	28.5	630
APR					SEP				
02...	1515	290	8.5	530	17...	1605	6.2	--	530
05489500 - DES MOINES RIVER AT OTTUMWA, IOWA (LAT 41 00 39 LONG 092 24 40)									
NOV , 1983					JUL , 1984				
14...	1430	14200	7.0	510	23...	1530	25700	26.0	522
FEB , 1984					SEP				
07...	1230	--	.0	665	04...	1415	1980	23.0	565
APR									
24...	1615	18600	10.0	604					
05490500 - DES MOINES RIVER AT KEOSAUQUA, IOWA (LAT 40 43 40 LONG 091 57 34)									
NOV , 1983					APR , 1984				
16...	1400	15400	6.0	515	25...	1445	17100	10.5	590
MAR , 1984					JUN				
23...	1110	10200	2.5	486	14...	1100	26900	21.0	520
06483500 - ROCK RIVER NEAR ROCK VALLEY, IOWA (LAT 43 12 52 LONG 096 17 39)									
NOV , 1983					APR , 1984				
16...	1100	316	2.5	1100	25...	1200	1960	11.0	800
DEC					JUN				
20...	1300	244	.0	980	06...	1220	1560	21.0	775
JAN , 1984					JUL				
31...	1330	181	.0	1000	18...	1020	992	21.0	850
MAR					AUG				
13...	1320	748	.0	950	29...	1145	200	23.5	690

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06486000 - MISSOURI RIVER AT SIOUX CITY, IOWA (LAT 42 29 10 LONG 096 24 47)				
OCT , 1983				
21...	0800	38000	11.5	801
27...	0900	38300	10.5	780
31...	1250	36600	11.0	845
NOV				
03...	1100	37600	11.0	770
07...	1030	37900	11.0	820
10...	1045	38400	6.0	750
14...	1035	37800	7.0	875
17...	0820	37300	3.5	800
22...	1110	38800	2.0	650
DEC				
19...	1420	22000	.0	850
JAN , 1984				
24...	1145	22600	.0	650
FEB				
01...	1400	21100	.0	650
14...	1220	21800	.0	715
23...	1030	23000	.0	720
29...	1200	23400	1.0	670
MAR				
06...	1500	26000	1.0	790
14...	1355	27800	.0	670
22...	1025	31500	2.0	755
26...	1120	34700	3.0	730
29...	1100	34900	1.0	740
APR , 1984				
02...	1250	37800	5.0	825
05...	0930	37900	5.0	750
09...	1430	42700	7.0	660
12...	1100	43800	8.0	680
16...	1300	64400	10.0	730
19...	0830	54000	11.0	700
23...	1305	39600	8.5	750
26...	0840	35700	13.0	775
MAY				
03...	1200	38700	10.0	895
07...	1045	38900	10.0	890
10...	1010	43300	10.5	705
14...	0950	34200	15.5	875
17...	0815	28600	17.0	860
21...	1105	29000	19.0	875
MAY , 1984				
24...	0805	28500	18.0	825
31...	0840	28400	17.0	910
JUN				
04...	1555	31000	21.5	825
07...	1015	33700	20.0	875
11...	1150	26400	19.0	725
14...	0815	30200	20.0	700
21...	0900	66700	25.0	695
22...	1000	94600	24.0	615
25...	1250	103000	22.5	610
28...	1000	73600	25.0	660
JUL				
01...	1200	45800	--	690
06...	0905	39100	24.0	745
09...	1230	39200	24.0	805
10...	1230	39200	24.0	805
12...	0920	45900	24.5	800
19...	0935	51800	18.0	920
23...	1100	48300	25.5	830
26...	0920	49800	23.5	815
30...	1000	51100	22.0	950
AUG				
02...	1030	48500	26.0	780
06...	1130	46500	27.0	800
09...	0750	47800	26.5	800
13...	1025	48000	27.0	830
16...	1115	48600	25.0	800
20...	1120	48200	28.0	840
23...	0845	49100	21.0	825
28...	1200	46000	25.0	800
28...	1530	45900	25.0	800
30...	0920	49800	23.5	755
SEP				
10...	1130	46300	20.0	805
13...	0850	47900	21.0	800
17...	1215	45900	19.0	780
20...	0930	44500	20.0	760
24...	1120	46100	17.0	795
27...	1105	4600	15.0	750
06600000 - PERRY CREEK AT 38TH STREET, SIOUX CITY, IOWA (LAT 42 32 05 LONG 096 24 35)				
NOV , 1983				
16...	1615	12	4.0	825
DEC				
21...	1215	9.1	.0	845
JAN , 1984				
30...	1140	12	.0	790
MAR				
21...	1455	25	4.0	805
APR , 1984				
23...	1605	60	11.0	775
JUN				
06...	1710	36	20.0	800
13...	1620	76	18.5	750
20...	1315	596	19.0	300
21...	1030	95	20.0	675
06600100 - FLOYD RIVER AT ALTON, IOWA (LAT 42 58 55 LONG 096 00 03)				
NOV , 1983				
15...	1155	79	4.0	1000
DEC				
20...	1635	48	.0	1000
FEB , 1984				
01...	0940	32	.0	1020
15...	1240	338	.0	465
MAR				
12...	1715	113	.0	700
APR				
24...	1540	408	12.0	800
JUN , 1984				
05...	1225	230	18.0	850
12...	1410	1830	18.0	415
13...	0755	4900	21.0	270
JUL				
17...	1815	166	23.5	920
AUG				
29...	1330	31	27.0	780
06600300 - WEST BRANCH FLOYD RIVER NEAR STRUBLE, IOWA (LAT 42 55 15 LONG 096 10 30)				
NOV , 1983				
16...	1445	78	5.0	1180
DEC				
20...	1000	70	.0	1100
JAN , 1984				
31...	1035	27	.0	1120
MAR				
13...	1000	80	.0	1050
APR				
24...	1210	290	10.5	950
MAY , 1984				
05...	1020	216	16.5	970
JUN				
12...	1245	2130	17.0	450
13...	1115	1670	21.0	580
JUL				
17...	1300	158	21.5	1000
AUG				
29...	1545	36	26.5	975
06600500 - FLOYD RIVER AT JAMES, IOWA (LAT 42 34 36 LONG 096 18 43)				
NOV , 1983				
14...	1500	317	5.0	1030
DEC				
21...	1005	208	.0	1020
JAN , 1984				
30...	1440	167	.0	1050
FEB				
16...	1255	2900	.0	375
MAR				
12...	1410	362	.0	925
APR , 1984				
25...	1650	1230	12.5	835
JUN				
07...	0945	830	20.0	875
JUL				
17...	1015	750	21.0	845
AUG				
28...	1250	210	27.0	850

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06601200 - MISSOURI RIVER AT DECATUR, NEBR. (LAT 42 00 26 LONG 096 14 29)				
OCT , 1983				
21...	1232	38700	11.0	798
NOV				
01...	1155	37600	12.0	790
16...	1153	38200	5.5	650
23...	1112	39600	3.5	650
MAR , 1984				
21...	1010	31000	2.0	805
29...	1310	37800	3.0	645
APR				
05...	1250	40600	5.0	755
12...	1500	45900	8.0	850
19...	1135	54600	11.5	725
26...	1200	36700	14.0	840
MAY				
08...	1200	43600	11.0	845
17...	1045	29000	17.0	890
24...	1150	30500	18.0	820
31...	1140	30300	17.0	900
JUN				
07...	1225	36300	21.0	825
JUN , 1984				
14...	1115	35400	22.0	770
25...	1125	95900	23.0	550
27...	1820	69200	23.0	590
JUL				
01...	1020	46500	25.0	690
10...	1015	41400	24.0	805
18...	1050	52900	24.0	830
25...	1500	50300	25.0	855
AUG				
01...	1120	48600	25.0	830
08...	1100	49900	27.0	805
15...	1115	49000	27.0	800
23...	1150	48900	23.0	790
30...	1750	48300	25.0	790
SEP				
05...	1230	47500	23.0	750
12...	1400	49400	24.0	740
20...	1210	45200	21.0	775
26...	1200	46600	14.0	770
06602020 - WEST FORK DITCH AT HORNICK, IOWA (LAT 42 13 37 LONG 096 04 40)				
DEC , 1983				
11...	1115	6.2	.0	540
JAN , 1984				
10...	1115	44	6.0	755
FEB				
23...	1255	259	2.0	700
APR				
02...	1550	316	8.0	740
MAY				
14...	1535	322	15.5	750
JUN , 1984				
22...	1410	6300	22.0	200
22...	2105	5610	23.0	225
25...	1800	720	23.0	675
AUG				
06...	1450	181	28.0	886
SEP				
17...	1525	82	22.0	650
06602400 - MONONA-HARRISON DITCH NEAR TURIN, IOWA (LAT 41 57 52 LONG 095 59 30)				
NOV , 1983				
30...	1300	114	.5	795
JAN , 1984				
12...	1205	166	.0	800
FEB				
21...	1320	446	2.0	580
APR				
03...	0940	1210	5.0	520
MAY				
15...	1005	627	16.0	740
JUN , 1984				
08...	1730	8780	19.0	225
09...	1220	5160	21.0	310
12...	1900	6370	19.0	275
26...	1130	1560	22.0	910
AUG				
07...	0900	230	26.5	745
SEP				
19...	1025	151	17.0	700
06605000 - OCHEYEDAN R NR SPENCER, IOWA (LAT 43 07 44 LONG 095 12 37)				
DEC , 1983				
06...	1040	95	.0	1050
APR , 1984				
12...	0845	1830	6.0	675
MAY				
22...	0900	416	12.0	670
JUN				
22...	1230	4720	21.0	650
JUL , 1984				
03...	0830	566	23.0	660
AUG				
16...	0845	80	25.0	660
SEP				
25...	0900	29	14.5	680
06605850 - L SIOUX R AT LINN GROVE, IOWA (LAT 42 53 24 LONG 095 14 30)				
DEC , 1983				
06...	1340	--	.0	870
JAN , 1984				
18...	0930	203	.0	820
MAR				
15...	1220	800	.0	790
MAY				
21...	1630	1600	13.0	690
JUN , 1984				
18...	1110	10500	16.0	770
JUL				
03...	1100	3350	22.0	700
AUG				
16...	1430	372	27.0	600
SEP				
25...	1145	116	15.0	580
06606600 - LITTLE SIOUX RIVER AT CORRECTIONVILLE, IOWA (LAT 42 28 20 LONG 095 47 49)				
DEC , 1983				
01...	1100	6.5	.0	805
JAN , 1984				
11...	1155	133	.0	640
FEB				
22...	1450	3040	1.0	475
APR				
04...	1240	5520	4.5	580
12...	1255	2020	7.5	575
MAY , 1984				
16...	1330	3620	16.5	660
JUL				
05...	1640	4740	23.5	645
AUG				
08...	1430	1090	27.0	680
SEP				
19...	1120	281	20.0	560
29...	1520	560	10.0	700

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06607200 - MAPLE RIVER AT MAPLETON, IOWA (LAT 42 09 28 LONG 095 48 27)				
NOV , 1983				
30...	1600	231	.5	510
JAN , 1984				
12...	0900	264	.0	700
FEB				
22...	1740	738	4.0	599
APR				
03...	1540	880	5.0	685
MAY , 1984				
16...	0900	876	14.0	650
JUL				
05...	1330	871	22.0	700
AUG				
08...	1110	490	27.0	800
SEP				
18...	1630	203	27.0	690
06607500 - LITTLE SIOUX RIVER NR. TURIN, IOWA (LAT 41 57 52 LONG 095 58 21)				
JAN , 1984				
18...	1220	72	.0	800
APR				
02...	1245	6180	8.0	600
18...	1800	10200	11.5	600
MAY				
15...	1240	5280	16.5	650
JUN				
08...	1930	21400	20	275
JUN , 1984				
09...	1010	9180	20.0	480
JUL				
06...	1350	6490	22.5	650
AUG				
07...	1610	1530	27.0	700
SEP				
18...	1240	572	19.5	585
06608500 - SOLDIER RIVER AT PISGAH, IOWA (LAT 41 49 52 LONG 095 55 50)				
DEC , 1983				
16...	1100	105	.0	610
JAN , 1984				
24...	1040	99	.0	700
MAR				
07...	1150	166	.0	700
APR				
18...	1245	362	12.0	690
JUN , 1984				
03...	1300	695	18.0	660
12...	1020	332	23.0	770
AUG				
22...	1400	231	21.0	705
06609500 - BOYER RIVER AT LOGAN, IOWA (LAT 41 38 33 LONG 095 46 57)				
NOV , 1983				
08...	1105	293	5.0	770
DEC				
16...	1300	98	.0	790
JAN , 1984				
24...	1235	177	.0	840
MAR				
06...	1015	472	.5	525
APR , 1984				
17...	1110	1270	11.0	615
JUN				
13...	1435	5620	21.0	355
JUL				
11...	0925	826	22.5	700
AUG				
21...	1230	345	23.0	700
06610000 - MISSOURI RIVER AT OMAHA, NEBRASKA (LAT 41 15 32 LONG 095 55 20)				
OCT , 1983				
17...	1210	40100	13.0	810
20...	1325	42400	13.0	800
26...	1310	40100	11.0	795
31...	1030	43600	12.5	705
NOV				
03...	1100	39800	13.0	800
07...	0920	42100	12.0	750
10...	1030	43800	9.0	725
14...	1410	44400	8.0	800
17...	1335	44100	7.5	650
28...	1400	42600	2.0	750
JAN , 1984				
03...	1045	20000	.0	840
09...	1100	25500	.5	760
30...	1315	24100	.0	710
FEB				
08...	1450	21600	1.0	800
22...	1200	33900	.5	490
27...	1245	34700	2.5	500
MAR				
05...	1100	32800	2.5	700
15...	1500	37000	.0	790
22...	1415	34900	3.0	775
26...	1245	48500	4.0	625
28...	1100	45300	2.5	650
APR				
05...	1010	53200	6.0	630
09...	1255	61900	8.0	650
12...	1100	58300	7.0	760
16...	1145	76100	4.5	800
19...	1100	76600	12.0	630
23...	1030	64000	9.0	770
26...	10000	49000	14.0	750
MAY				
03...	1200	58000	11.0	740
09...	1345	57900	10.5	800
14...	0955	50700	15.0	890
14...	0955	50700	15.0	890
MAY , 1984				
17...	1015	40400	17.0	850
24...	1230	40900	19.0	810
29...	0925	47400	15.0	795
JUN				
06...	1110	41400	20.0	810
11...	1220	49500	20.0	700
14...	1350	70500	22.0	575
18...	1340	92000	24.0	550
21...	1055	94500	22.0	600
26...	1330	112000	25.0	545
27...	1025	113000	27.5	560
JUL				
02...	1145	74300	27.0	520
05...	1200	56600	24.0	680
09...	1235	48400	26.5	745
12...	1010	54800	24.5	795
16...	1020	59400	23.5	845
19...	1300	66800	23.0	850
25...	1030	55100	25.0	850
30...	1015	53900	25.0	830
AUG				
02...	1230	56700	25.0	825
06...	1240	56000	27.0	805
09...	1320	58300	28.0	830
13...	1115	56300	27.0	800
20...	1115	53700	26.0	860
23...	1110	54000	24.0	750
27...	1200	53300	24.0	800
30...	1020	51000	25.0	795
SEP				
05...	1210	48900	22.0	795
10...	0920	51400	21.0	760
13...	1145	51700	21.0	740
17...	1130	51300	19.0	795
20...	1110	51700	21.0	800
25...	0930	48000	20.0	740
27...	1145	52200	14.0	680

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06807000 - MISSOURI RIVER AT NEBRASKA CITY, NEBR. (LAT 40 40 55 LONG 095 50 48)				
OCT , 1983				
21...	1020	49300	11.0	825
25...	1030	48000	11.0	780
28...	1030	45800	11.5	850
NOV				
01...	1210	43900	12.5	825
04...	1325	48700	12.5	740
10...	1050	47900	9.5	650
15...	1055	48200	7.0	650
18...	1110	48200	6.0	650
22...	1100	49900	6.0	780
25...	0900	49400	4.0	650
FEB , 1984				
13...	1055	46300	3.0	750
28...	1000	47800	2.0	700
MAR				
05...	1150	48900	3.0	745
16...	1135	57800	1.0	790
21...	1200	42200	2.0	800
27...	1445	83700	2.0	645
30...	1020	72400	5.0	550
APR				
06...	0815	92100	6.5	595
13...	1035	108000	9.0	650
17...	1025	110000	9.0	700
20...	0920	95300	11.0	725
24...	1030	106000	29.5	690
27...	1115	80700	14.0	790
MAY				
04...	1040	101000	10.5	700
08...	1750	107000	11.0	670
11...	1120	94800	15.0	760
15...	1100	72300	17.0	800
18...	1030	61700	19.0	850
25...	1130	76000	18.0	790
JUN				
01...	1055	64300	19.0	850
08...	1245	63100	22.0	800
12...	1410	72400	21.0	695
15...	1115	181000	22.0	430
18...	0930	165000	24.0	410
19...	1020	172000	21.0	440
22...	1320	136000	25.0	590
26...	1215	135000	25.0	590
27...	1400	134000	25.0	580
JUL				
10...	1140	58900	26.0	750
13...	1015	63500	25.0	800
17...	1015	66600	24.0	750
20...	0845	68500	24.0	850
24...	1100	45400	25.5	845
27...	1020	62200	25.0	860
31...	0910	61800	23.0	845
AUG				
03...	1025	60100	25.0	805
10...	1100	58300	27.0	800
14...	1100	56000	26.0	880
17...	1045	56600	27.0	800
21...	1310	57000	26.0	830
24...	1010	55100	24.0	795
31...	0805	55400	25.5	805
SEP				
05...	1215	51400	22.0	750
07...	1225	54200	22.0	800
11...	0915	54000	21.0	750
14...	1150	56400	21.0	785
18...	0845	57100	18.0	800
21...	1200	55800	21.0	800
25...	0845	55200	19.0	745
27...	0940	55000	14.0	795
06807410 - WEST NISHNABOTNA RIVER AT HANCOCK, IOWA (LAT 41 23 24 LONG 095 22 17)				
DEC , 1983				
05...	1055	170	.0	640
JAN , 1984				
18...	1055	109	.0	620
FEB				
27...	1025	731	3.5	575
APR				
09...	1035	1180	6.0	570
MAY , 1984				
22...	1025	902	18.0	585
JUL				
02...	1110	970	20.0	640
AUG				
16...	1200	251	25.0	645
SEP				
25...	1010	184	17.0	575
06808500 - WEST NISHNABOTNA RIVER AT RANDOLPH, IOWA (LAT 40 52 23 LONG 095 34 48)				
DEC , 1983				
23...	0900	385	5.0	650
JAN , 1984				
04...	1605	328	.0	680
FEB				
13...	1520	1610	5.0	390
MAR				
28...	1030	1330	6.0	520
MAY , 1984				
08...	1105	2370	10.0	545
JUN				
19...	1245	4200	29.0	540
AUG				
03...	1510	812	25.0	625
SEP				
11...	1405	404	20.0	595
06809200 - E NISHNABOTNA R AT ATLANTIC, IOWA (LAT 41 24 00 LONG 095 02 00)				
DEC , 1983				
05...	1330	126	.0	540
JAN , 1984				
23...	1130	56	.0	600
FEB				
27...	1305	395	3.0	510
APR				
09...	1300	1100	6.5	480
MAY , 1984				
22...	1245	517	18.5	485
JUL				
02...	1335	487	22.0	550
AUG				
24...	1300	101	22.0	560
SEP				
25...	1230	79	14.0	550
06809500 - EAST NISHNABOTNA RIVER NEAR RED OAK, IOWA (LAT 41 00 41 LONG 095 14 07)				
DEC , 1983				
08...	1000	12	.0	515
JAN , 1984				
05...	0925	137	.0	530
FEB				
14...	1300	1480	3.0	280
MAR				
26...	1615	802	7.0	395
MAY , 1984				
07...	1750	1980	11.0	440
JUN				
20...	1030	2120	22.0	490
AUG				
01...	1400	372	25.0	485
SEP				
10...	1455	139	19.0	495

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06810000 - NISHNABOTNA RIVER ABOVE HAMBURG, IOWA (LAT 40 37 57 LONG 095 37 32)				
NOV , 1983				
21...	1240	805	6.0	630
DEC				
20...	1230	449	.0	590
JAN , 1984				
26...	1005	498	.0	725
FEB				
21...	1330	2400	5.0	400
MAR				
28...	1000	2810	6.0	420
MAY , 1984				
09...	1500	4550	11.5	460
21...	1015	4100	18.0	520
JUN				
22...	1100	7380	22.0	480
JUL				
20...	1240	2070	27.0	550
SEP				
11...	1045	672	18.5	530
06811840 - TARKIO RIVER AT STANTON, IOWA (LAT 40 58 52 LONG 095 06 32)				
NOV , 1983				
23...	1045	7.2	1.0	420
JAN , 1984				
05...	1155	7.7	.0	480
FEB				
14...	0955	40	.5	400
MAR				
20...	1230	53	5.0	405
MAY , 1984				
07...	1350	82	10.0	375
JUN				
20...	1400	113	20.0	400
AUG				
01...	1100	13	25.0	440
SEP				
10...	1210	1.0	20.0	425
06813500 - MISSOURI RIVER AT RULO, NEBRASKA (LAT 40 03 14 LONG 095 25 12)				
OCT , 1983				
20...	1140	47400	12.0	845
28...	1228	47300	13.0	799
31...	1305	46800	12.5	750
NOV				
09...	1137	49000	9.0	650
16...	1300	48900	7.5	745
22...	1445	51900	6.0	790
FEB , 1984				
10...	1200	40900	1.5	810
15...	1050	51600	3.0	750
21...	1500	52400	1.0	750
MAR				
01...	1200	51000	2.0	745
14...	1030	46200	1.0	805
20...	1240	52800	.0	800
28...	1020	88900	5.0	640
APR				
04...	1035	98400	6.0	650
11...	1510	99300	9.0	700
18...	1130	111000	10.0	700
MAY				
03...	1335	110000	10.0	665
09...	1040	110000	12.0	650
MAY , 1984				
16...	1045	77200	16.0	800
23...	1220	88800	21.0	690
30...	1300	49300	16.0	800
JUN				
05...	1340	65200	24.0	790
13...	1500	150000	24.0	400
18...	1330	185000	25.0	445
JUL				
19...	1325	71500	24.0	805
23...	1205	67500	25.5	845
31...	1400	61400	26.0	800
AUG				
16...	1625	55600	27.0	815
18...	1245	60000	28.0	810
22...	1100	54400	25.5	800
29...	1200	53600	25.0	795
SEP				
04...	1015	52500	25.0	740
12...	1215	52800	27.5	700
19...	1015	55600	21.0	810
26...	1040	54800	16.0	750
06817000 - NODAWAY RIVER AT CLARINDA, IOWA (LAT 40 44 19 LONG 095 00 47)				
DEC , 1983				
07...	1030	122	.0	450
JAN , 1984				
17...	0940	100	.0	360
FEB				
29...	0825	254	.0	390
APR				
11...	1015	1580	8.5	365
MAY , 1984				
22...	1030	1430	17.5	380
JUL				
05...	1230	458	24.0	400
AUG				
15...	1320	93	27.0	440
SEP				
27...	1200	46	11.0	410
06818750 - PLATTE RIVER NEAR DIAGONAL, IOWA (LAT 40 46 02 LONG 094 24 46)				
DEC , 1983				
06...	0910	308	.0	410
JAN , 1984				
17...	1540	27	.0	450
FEB				
21...	1025	73	.0	400
APR				
10...	0910	499	7.0	335
MAY , 1984				
22...	0940	1070	15.5	280
JUL				
03...	1035	58	20.5	390
AUG				
15...	1425	5.4	29.0	460
SEP				
26...	1045	2.5	10.0	500
06819190 - EAST FORK 102 RIVER NEAR BEDFORD, IOWA (LAT 40 38 01 LONG 094 44 41)				
DEC , 1983				
06...	1310	10	.0	400
FEB , 1984				
28...	1400	13	.0	405
APR				
02...	1555	828	5.0	215
03...	0820	1560	5.0	205
10...	1500	146	7.0	310
MAY , 1984				
23...	1450	260	18.5	285
JUL				
05...	1645	11	24.5	365
AUG				
16...	1130	1.3	26.0	500
SEP				
27...	0915	14	13.0	645

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06897950 - ELK CREEK NEAR DECATUR CITY, IOWA (LAT 40 43 18 LONG 093 56 19)				
NOV , 1983				
15...	1645	3.8	6.0	449
FEB , 1984				
08...	1530	15	.0	440
MAR				
22...	1100	38	3.5	347
MAY , 1984				
08...	1715	26	15.0	437
JUN				
12...	1500	305	22.0	236
JUL				
24...	1630	.23	31.5	519
06898000 - THOMPSON RIVER AT DAVIS CITY, IOWA (LAT 40 38 25 LONG 093 48 29)				
NOV , 1983				
15...	1415	390	5.0	350
FEB , 1984				
08...	1235	263	1.0	365
MAR				
22...	0900	410	2.0	402
MAY				
09...	0945	504	11.0	397
JUN , 1984				
12...	1800	4330	22.0	197
JUL				
24...	1315	77	29.0	435
SEP				
05...	1415	15	21.0	460
06898400 - WELDON RIVER NEAR LEON, IOWA (LAT 40 41 45 LONG 093 38 07)				
NOV , 1983				
15...	1200	22	5.0	382
DEC				
20...	1445	5.9	.0	448
FEB , 1984				
08...	0945	15	.0	440
MAR				
21...	1715	37	3.0	423
MAY , 1984				
09...	1215	29	13.0	444
JUN				
12...	1000	53	20.0	387
JUL				
24...	1050	1.5	26.5	502
SEP				
05...	1215	.87	19.0	495
06903400 - CHARITON RIVER NEAR CHARITON, IOWA (LAT 40 57 12 LONG 093 15 37)				
NOV , 1983				
14...	1730	122	6.0	363
DEC				
20...	1130	16	.0	425
FEB , 1984				
07...	1530	81	.0	265
MAR				
20...	1600	66	.0	451
MAY , 1984				
08...	1400	56	12.5	351
JUN				
11...	1700	934	22.0	184
JUL				
23...	1815	2.7	27.5	409
SEP				
04...	1645	.52	19.0	605
06903700 - SOUTH FORK CHARITON RIVER NEAR PROMISE CITY, IOWA (LAT 40 48 02 LONG 093 11 32)				
NOV , 1983				
15...	0900	30	6.0	451
FEB , 1984				
09...	1015	24	.0	465
MAR				
21...	0915	69	1.0	440
MAY				
09...	1430	48	13.0	413
JUN , 1984				
13...	1000	73	22.0	366
JUL				
25...	1020	2.3	24.0	375
SEP				
05...	0945	.55	18.5	490
06903900 - CHARITON RIVER NEAR RATHBUN, IOWA (LAT 40 49 22 LONG 092 53 22)				
NOV , 1983				
16...	0930	1610	546	1.5	281
APR , 1984				
06...	1140	12	22.0	255
06904010 - CHARITON R NR MOULTON, IOWA (LAT 40 41 30 LONG 092 46 15)				
NOV , 1983				
16...	1230	70	6.0	503
DEC				
29...	1015	284	.0	304
FEB , 1984				
09...	1300	260	2.0	365
MAR				
22...	1515	666	3.5	332
APR , 1984				
25...	1045	990	9.5	315
JUN				
13...	1315	136	24.0	474
JUL				
25...	1400	652	25.0	263
SEP				
06...	1000	28	19.5	310

05451500 - IOWA RIVER AT MARSHALLTOWN, IOWA

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. THAN .062 MM (70331)
JUN						
14...	1340	23.0	11100	412	12300	94

06813500 - MISSOURI RIVER AT RULO, NEBRASKA

JUN						
18...	1330	25.0	185000	1530	764000	93

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October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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