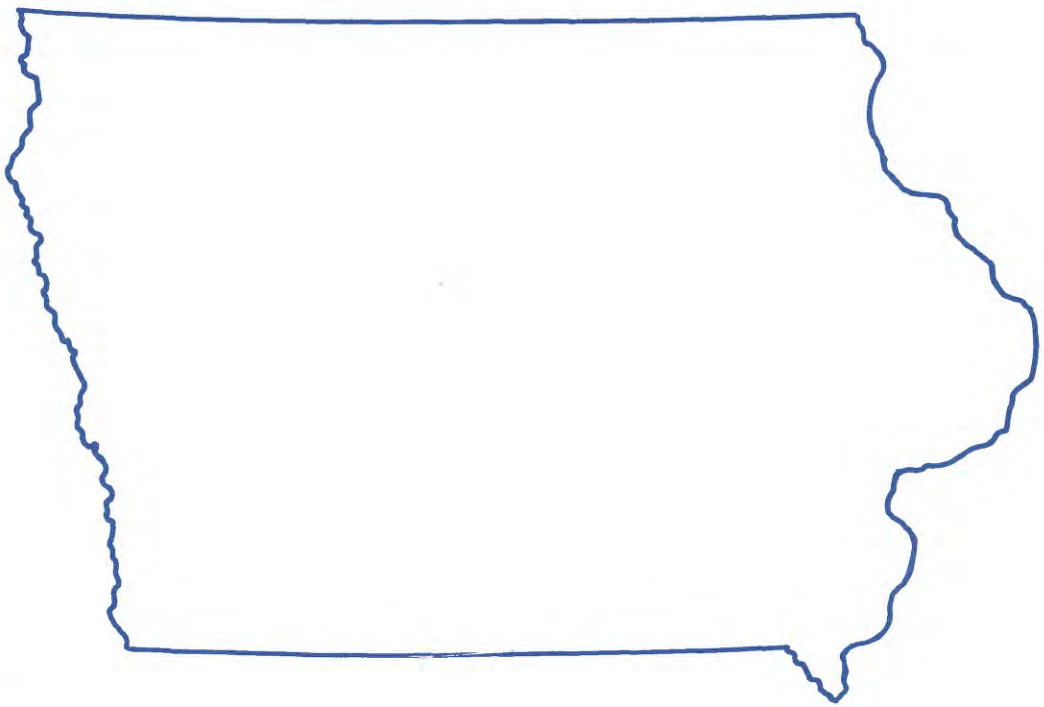
Water Resources Data
Iowa
Water Year 1986



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT IA-86-1
Prepared in cooperation with the Geological Survey Bureau, Iowa Department of Natural Resources, Iowa Department of Transportation and with Federal agencies

CALENDAR FOR WATER YEAR 1986

1985

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1986

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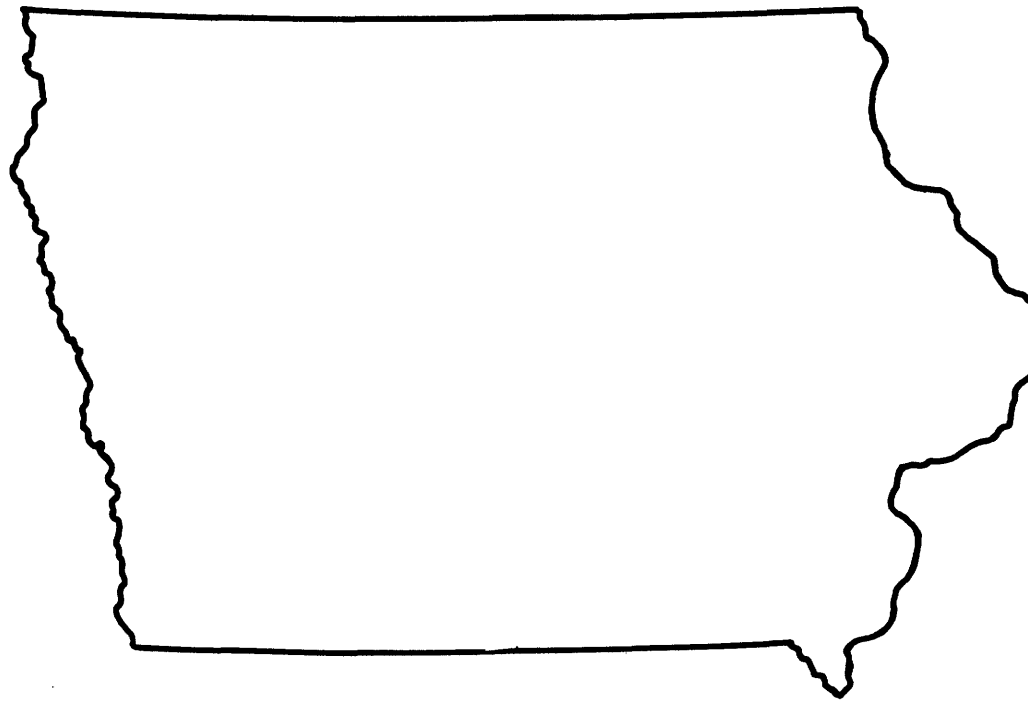
Water Resources Data
Iowa
Water Year 1986

by N.B. Melcher, M.G. Detroy, W.J. Matthes, and R.A. Karsten



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT IA-86-1
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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

1987

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. The authors had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines. Most of the data were collected, computed, and processed from area field offices. Personnel in charge of the field offices are:

Robert W. Baebenroth, Council Bluffs Field Headquarters
Von E. Miller, Iowa City Field Headquarters
Alvin R. Conkling, Fort Dodge Field Headquarters

The data were collected, computed and processed by the following personnel:

L.K. Amspoker	C.J. Anderson	R.W. Baebenroth
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D.A. Eash	N.V. Fish	R.D. Goodrich
J.G. Gorman	L.E. Hotka	R.A. Karsten
D.W. Kolpin	R.L. Kopish	R.B. Lambert
P.D. Lustgraaf	V.E. Miller	W.J. Matthes
D.C. Pedersen	R.D. Rowden	D.A. Rudkin
C.L. Schnell	J.R. Sondag	J.J. Wellman
D.W. Wolf		

This report was prepared in cooperation with the State of Iowa and with other agencies under the general supervision of R.A. Engberg, District Chief, Iowa.

50272-101

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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 1986 water year for Iowa consist 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 110 stream-gaging stations; stage and contents for 8 lakes and reservoirs; water quality for 8 stream-gaging stations; sediment records for 10 stream-gaging stations; water levels for 108 observation wells; and chemical analyses for 214 observation wells. Also included are 116 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, Stream-gaging stations, Lakes, Reservoirs, Chemical analyses, Sediment, Water, Temperature, Sampling sites, Water levels, Water analyses, Data collections, Ground water levels.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement: No restriction on distribution This report may be purchased from: National Technical Information Service Springfield, VA 22161	19. Security Class (This Report) Unclassified	21. No. of Pages 334
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Page

Page

ILLUSTRATIONS

TABLES

GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

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

WATER RESOURCES DATA - IOWA, 1986

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State agencies, obtains a large amount of data pertaining to the water resources of Iowa each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside of the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Iowa."

This report contains records for water discharge at 110 gaging stations; stage or contents for 8 lakes and reservoirs; water quality records for 8 gaging stations, sediment records for 10 gaging stations and water levels for 108 observation wells. Also included are data for 116 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-86-1." 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 1985 are:

Geological Survey Bureau, Iowa Department of Natural Resources, 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 Humphrey, Director, and Vernon J. Marks, Research Engineer

Iowa State University, Richard E. Hasbrook, Contracts and Grants Officer, and Engineering Research Institute, T. Al. Austin, Director.

City of Cedar Rapids, Donald Canney, Mayor

City of Des Moines, John Dorrian, Mayor

City of Fort Dodge, Michael D. McCarville, Mayor, Michael J. Wallner, Director, Public Works Department

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 for 1986 compared with long-term average for all major river basins in Iowa. [Average runoff for station based on period of record. Previous maximum runoff value, and the year of occurrence are shown.]

Station number and name	Drainage area square miles	Runoff, (inches) 1986 water year	Runoff, (inches) Average	Previous maximum (Inches)	Previous maximum Water Year
05388250 Upper Iowa R nr Dorchester	770	12.0	10.7	22.6	1983
05412500 Turkey R at Garber	1,545	11.2	8.4	19.6	1983
05418500 Maquoketa R at Maquoketa	1,553	12.7	9.0	20.3	1973
05422000 Wapsipinicon R nr Dewitt	2,330	13.9	9.1	20.3	1973
05451500 Iowa R at Marshalltown	1,564*	11.8	7.1	19.8	1983
05455700 Iowa R nr Lone Tree	4,293*	13.6	9.2	19.0	1973
05464000 Cedar R at Waterloo	5,460*	12.6	8.1	20.2	1983
05465000 Cedar R nr Conesville	7,785*	12.8	8.4	18.0	1983
05465500 Iowa R at Wapello	12,499	12.6	7.7	18.6	1973
05474000 Skunk R at Augusta	4,303	12.6	7.8	20.6	1973
05480500 Des Moines R at Ft. Dodge	4,190*	11.0	5.1	18.0	1983
05484500 Raccoon R at Van Meter	4,303*	10.5	5.6	19.2	1973
05485500 Des Moines R at Des Moines	9,879*	11.1	6.2	18.1	1983
05490500 Des Moines R Keosaqua	14.038	10.8	5.7	18.1	1983
06483500 Rock R at Rock Valley	1,592	10.1	3.6	14.0	1983
06600500 Floyd R at James	882	7.4	3.4	14.7	1983
06607500 Little Sioux R nr Turin	3,526	11.4	5.5	18.4	1983
06609500 Boyer R at Logan	871	8.0	5.1	13.9	1983
06810000 Nishnabotna R above Hamburg	2,806	9.4	5.3	17.4	1973
06811840 Tarkio R at Stanton	49.3	9.8	7.8	19.5	1973
06817000 Nodaway R at Clarinda	762	11.7	6.2	20.4	1973
06818750 Platte R nr Diagonal	217	12.3	8.4	18.2	1973
06898000 Thompson R at Davis City	701	11.0	7.2	20.8	1973
06898400 Weldon R nr Leon	104	14.1	9.3	23.3	1959
06903400 Chariton R nr Chariton	182	16.4	8.8	19.3	1973
06903700 SF Chariton R nr Promise City	168	14.9	9.6	18.7	1973
Total drainage area included in study	48,898	--	--	--	--
Areal weighted average	--	11.6	6.7		

* Not included in areal averaging of river basin runoff

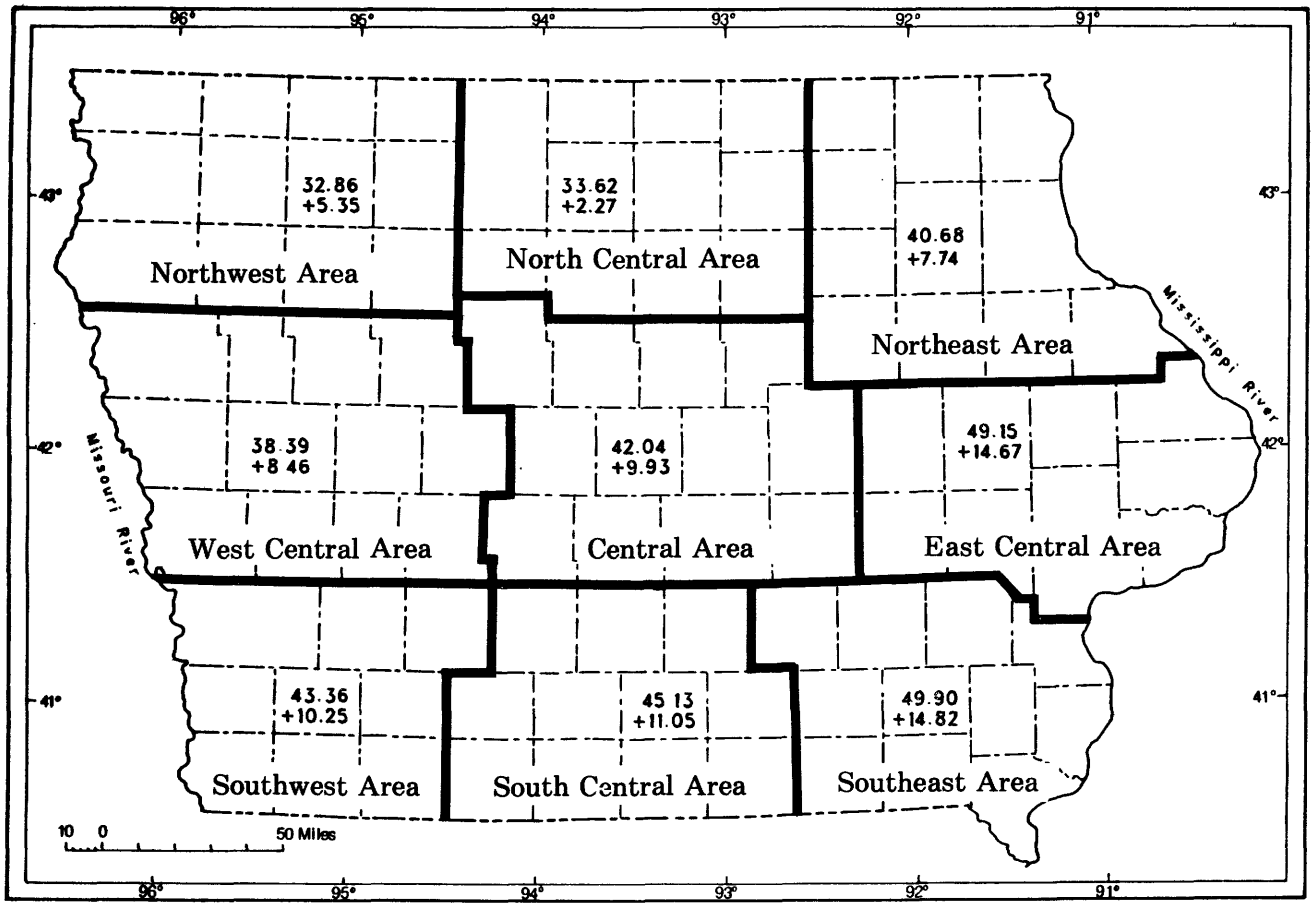
SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

Average annual precipitation (fig. 1) recorded in Iowa during water year 1986 (October 1, 1985 to September 30, 1986) ranged from 32.86 inches in the Northwest Area to 49.90 in the Southeast Area of the State. The statewide average during water year 1986 was 41.3 inches or 129 percent of the 1951-80 average. Winter snowfall was substantially greater in the northern part of the State. Total snowfall recorded from November to April ranged from 19.7 inches in the South Central Area to 45.4 inches in the Northeast Area of the State. Because of the greater than average precipitation recorded in the State, monthly mean discharges at all three index stations in Iowa (fig. 2) were either in the normal (25- to 75-percent quartiles of median daily discharges during water years 1951-80 for specified month) or excess range (75-percent quartile of median daily discharges during water years 1951-80 for specified month) during the entire year. A summary of runoff at streamflow stations in 1986 is shown in table 1.

Recorded monthly precipitation from October through December (fig. 3) was near average in all areas of Iowa except for the eastern areas of the State where precipitation was greater than average. Discharge at the index station on the Nishnabotna River above Hamburg was in the normal range during this period (fig. 2). Discharge at the index stations on the Des Moines River at Fort Dodge and the Cedar River at Cedar Rapids was in the excess range from October through December as a result of the greater precipitation recorded in the eastern areas of the State.

During January recorded precipitation was less than average in all areas of Iowa (fig. 3). Discharge at the index stations generally receded normally during the month, except at the Nishnabotna River above Hamburg (fig. 2) where the discharge increased during the second one-half of the month because of snowmelt from unseasonably warm temperatures recorded in western Iowa.



EXPLANATION
PRECIPITATION, IN INCHES
45.13 Water year 1986
+11.05 Deviation from long-term average (1951-80)

Figure 1.--Precipitation record in the National Weather Service's designated climatological areas (Source: P. J. Waite, State Climatologist, written commun., 1987).

During February and March, recorded precipitation was about average in all areas of Iowa (fig. 3). During February, discharge at the index stations generally continued their normal winter recession. Discharge at the index stations increased during March. During these months, the discharge at the Nishnabotna River above Hamburg remained in the normal range, while the discharge in the Des Moines River at Fort Dodge and in the Cedar River at Cedar Rapids was in or near the excess range (fig. 2).

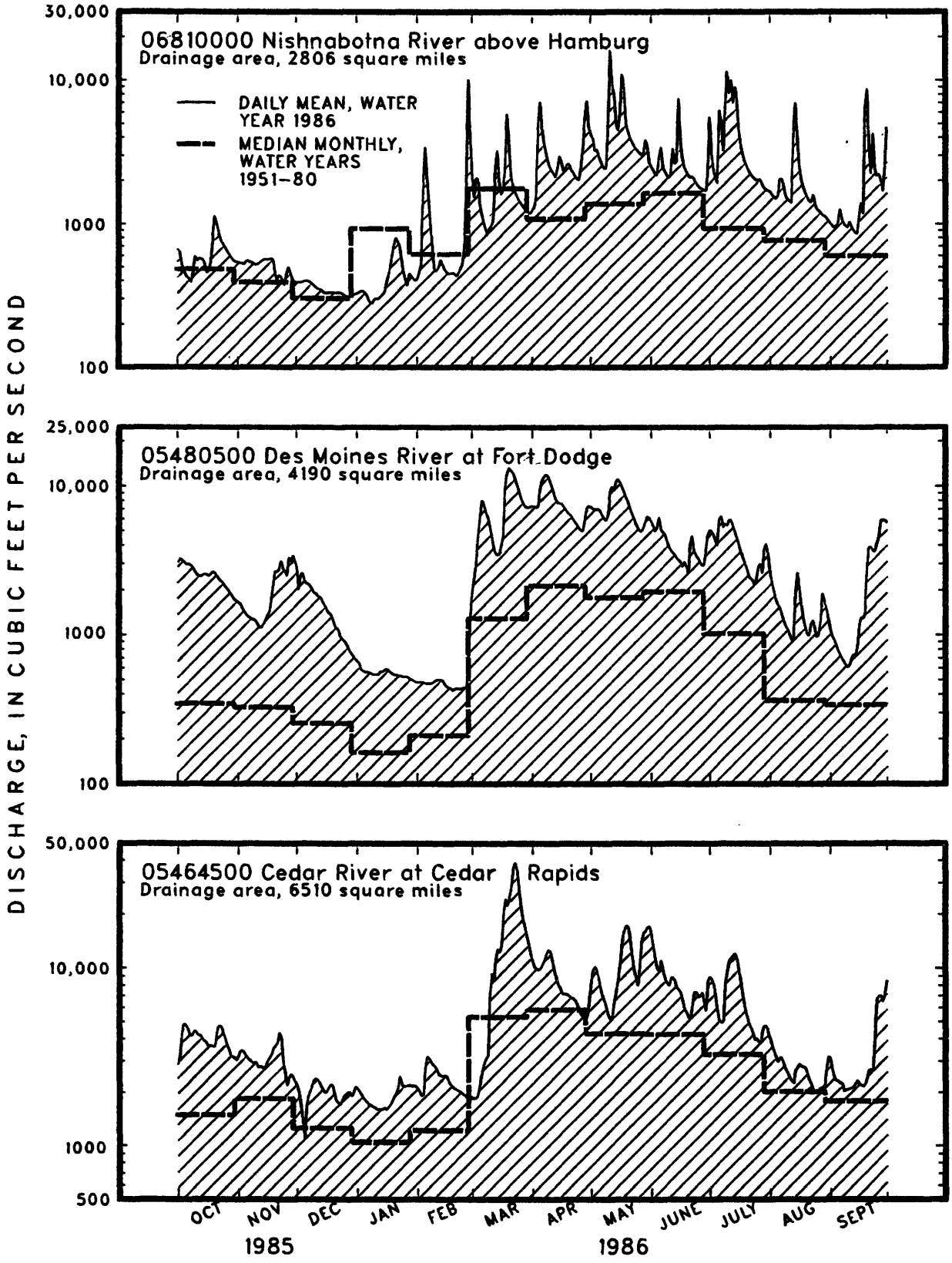


Figure 2.-- Daily mean discharge for water year 1986 compared with median monthly discharges for water years 1951–80 for three representative stations.

Recorded precipitation in Iowa was generally greater than average during April, except for the eastern areas of the State where precipitation was less than normal. Because of the greater than normal precipitation in the western and central areas of the State, discharge at the index stations on the Nishnabotna River above Hamburg and the Des Moines River at Fort Dodge was in the excess range during this month (fig. 2). The lesser precipitation recorded in the eastern part of the State caused the discharge in the Cedar River at Cedar Rapids to recede into the normal range during April (fig. 2). Snowmelt from the headwater areas of the Mississippi River basin caused the stage of the Mississippi River to crest at about 1 to 3 feet above flood stage at various stations along the Iowa border during April 11-15.

During May, recorded precipitation in Iowa was greater than average in all areas of Iowa (fig. 3). Discharge at all three index stations was in the excess range during this month (fig. 2). On May 10, an intense, localized thundershower occurred in central Iowa. Rainfall depths of 5 to 6 inches were recorded throughout the Des Moines area. This storm caused flooding on several small streams in the Des Moines area. The gage on Walnut Creek at Des Moines had a record stage of 18.32 feet and discharge of 12,500 cubic feet per second on May 10. This flood had an approximate recurrence interval of 70 years.

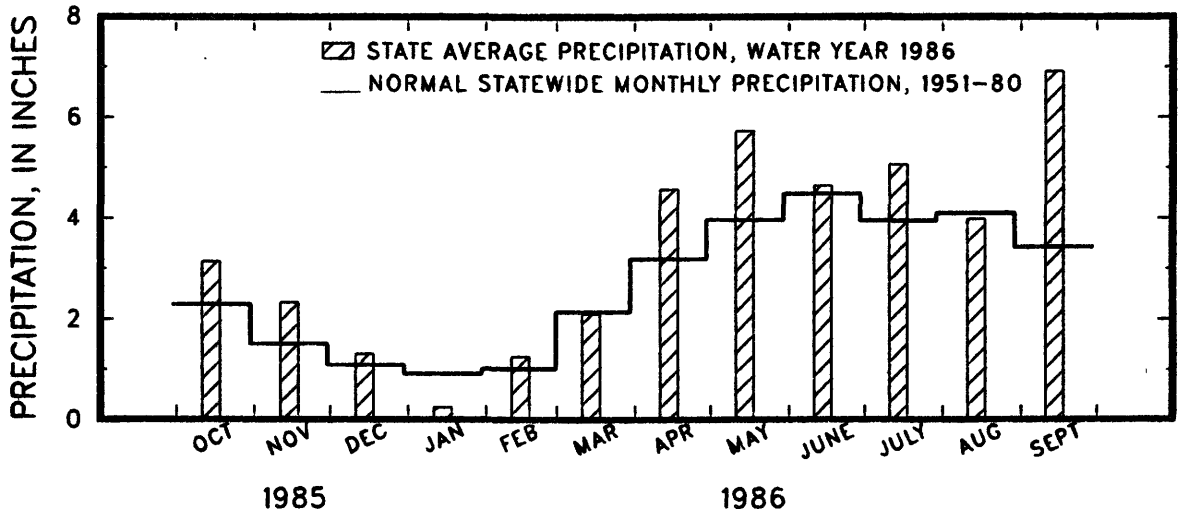


Figure 3.-- Statewide average monthly precipitation, during water year 1986 compared to normal statewide monthly precipitation, 1951-80 [Source: P.J. Waite, State climatologist, oral commun., 1986].

During June recorded precipitation was about average throughout Iowa (fig. 3), except in the Northeastern and North Central Areas of the State where precipitation was greater than average. Discharge at the index stations on the Nishnabotna River above Hamburg and on the Des Moines River at Fort Dodge was in the normal range during June (fig. 2). Because of the greater than average precipitation in the eastern areas of the State during June, the discharge in the Cedar River at Cedar Rapids remained in the excess range this month (fig. 2). During June 29-30 rainfall depths of 8 to 12 inches were recorded in the Central and North Central Areas. This rainfall caused large flows in streams thoughout central Iowa and record flood peaks occurred at several sites on the Raccoon River basin. As a result of the June 29-30 rainstorm, significant peak discharges were recorded at the following stream-gaging stations:

Station number	Stream	Period of record (water years)	Drainage area (square miles)	Date (1986)	Gage height (feet)	Discharge (cubic feet per second)	Recurrence interval (years)
05481950	Beaver Cr near Grimes	1960-	358	6/30	14.73	7,980	80
05483000	E.Fk. Hardin Cr near Churdan	1952-	24.0	6/30	10.78	870	15
05483450	Middle Raccoon R near Bayard	1979-	375	6/30	24.70	12,300	1.2*
05483600	Middle Raccoon R at Panora	1958-	440	6/30	15.50	15,300	1.1*
05484000	South Raccoon R at Redfield	1940-	988	7/01	25.15	26,300	35
05484500	Raccoon R at Van Meter	1915-	3441	7/01	22.69	40,200	40

*Ratio of flood discharge to that of regional 100-year flood.

Precipitation recorded during July and August was generally slightly greater than average or average (fig. 3). Primarily because of the large volume of runoff caused by the June 29-30 rainstorm, the discharges at all three index stations were in the excess range during July (fig. 2). During August, the discharge in the Nishnabotna River above Hamburg and the Des Moines River at Fort Dodge remained in the excess range, and the discharge in the Cedar River at Cedar Rapids receded into the normal range (fig. 2).

Precipitation recorded during September was significantly greater than average in all areas of Iowa (fig. 3). Precipitation ranged from 161 percent of the monthly normal in the West Central Area to 237 percent in the Southeast Area of the State. Because of the generally uniform temporal distribution of the precipitation during September, significant flooding did not occur. The discharge at all three index stations was in the excess range during the month (fig. 2).

Suspended-Sediment

The suspended-sediment discharge at the seven daily sediment stations reflected the greater than normal precipitation. Susupended-sediment transport exceeded the yearly mean suspended-sediment discharge at five of the seven stations. The maximum daily suspended-sediment discharge for the period of daily sediment record occurred in the Mississippi River at McGregor on March 19 as a result of snowmelt and runoff from spring rains.

In 1984, an impoundment was constructed upstream from the gage on Ralston Creek at Iowa City by the city government. Water year 1986 was the first year since the impoundment was constructed that storms of sufficient magnitude affected the water and suspended-sediment discharge. The stream stage, water discharge, and suspended-sediment yield peaks were greatly decreased from preimpoundment values for similar storms. The average mean suspended-sediment discharge ranked as the 11th largest in 34 years of record.

Records from the daily sediment stations on unregulated streams in Iowa indicated that water year 1986 was characterized by large suspended-sediment discharge. The Iowa River at Wapello had the second largest annual suspended-sediment discharge for 8 years of record. The Skunk River at Augusta had the third largest annual suspended-sediment discharge for 11 years of record. The Nodaway River at Clarinda had the fourth largest annual sediment discharge for 11 years of record.

Suspended-sediment discharge in the Iowa River at Iowa City and in the Des Moines River at Saylorville did not exceed annual mean values. These stations are long-term monitoring stations and are located downstream from major flood control reservoirs that significantly affect the suspended-sediment discharge.

Surface Water-Quality

The chemical quality of surface water in Iowa, as indicated by samples collected from major rivers at 8 stations, was not significantly different than that for previous years. Samples collected at these stations indicate that water in the major streams is generally suitable for public water supply and most industrial uses when properly treated. None of the samples analysed had concentrations of constituents that were in excess of environmental standards. Dissolved-oxygen concentrations were near or greater than saturation at all stations. This generally indicates that, with respect to dissolved oxygen, stream quality has not been significantly affected by oxygen-demanding substances such as nutrients, organic matter, or suspended sediment.

A comparison between selected water-quality data for water year 1986 and data for the period of record is shown for three stations in figures 4-6. Daily mean discharge for the 1986 water year also is shown so that general relations can be seen between flow conditions and water-quality data measurements collected during water year 1986. 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, Iowa, and Missouri Rivers. Concentrations of dissolved-solids for the Mississippi River at Keokuk (fig. 4) and the Iowa River at Wapello (fig. 5) were near normal for water year 1986 when compared to historical monthly means for the period of record. Dissolved-solids concentration for the Missouri River station at Sioux City (fig. 6) exceeded the historical monthly mean for all six samples analysed. The average increase for dissolved solids was 29 milligrams per liter.

Nitrate concentrations reported as nitrogen (analysis for nitrite plus nitrate as nitrogen, but nitrite concentration assumed to be negligible) for the Mississippi River at Keokuk (fig. 5) exceeded the historical monthly mean for all four measurements. Two measurements in November and May were significantly greater, both 4.1 milligrams per liter. All nitrate concentrations at the Iowa River station (fig. 6) were greater than monthly means. The largest concentration observed was 9.1 milligrams per liter which was measured in December. The average concentration for the six measurements was 6.5 milligrams per liter. Nitrate concentrations at the Missouri River station (fig. 6) exceeded historical monthly means five times, however all concentrations were equal to or less than 1.2 milligrams per liter.

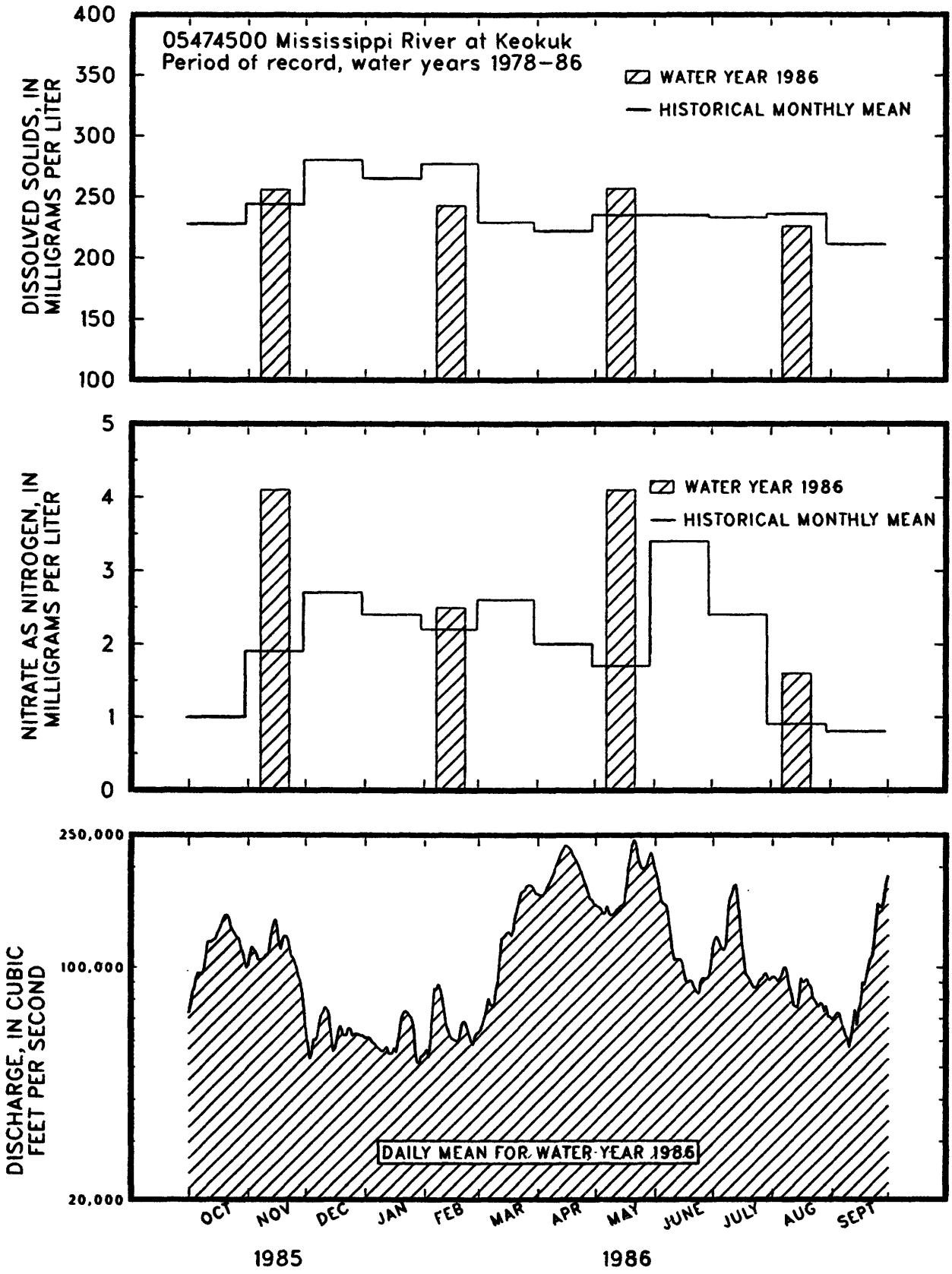


Figure 4.-- Comparison of dissolved solids and nitrate concentrations for water year 1986 with mean monthly values at the NASQAN station on the Mississippi River at Keokuk.

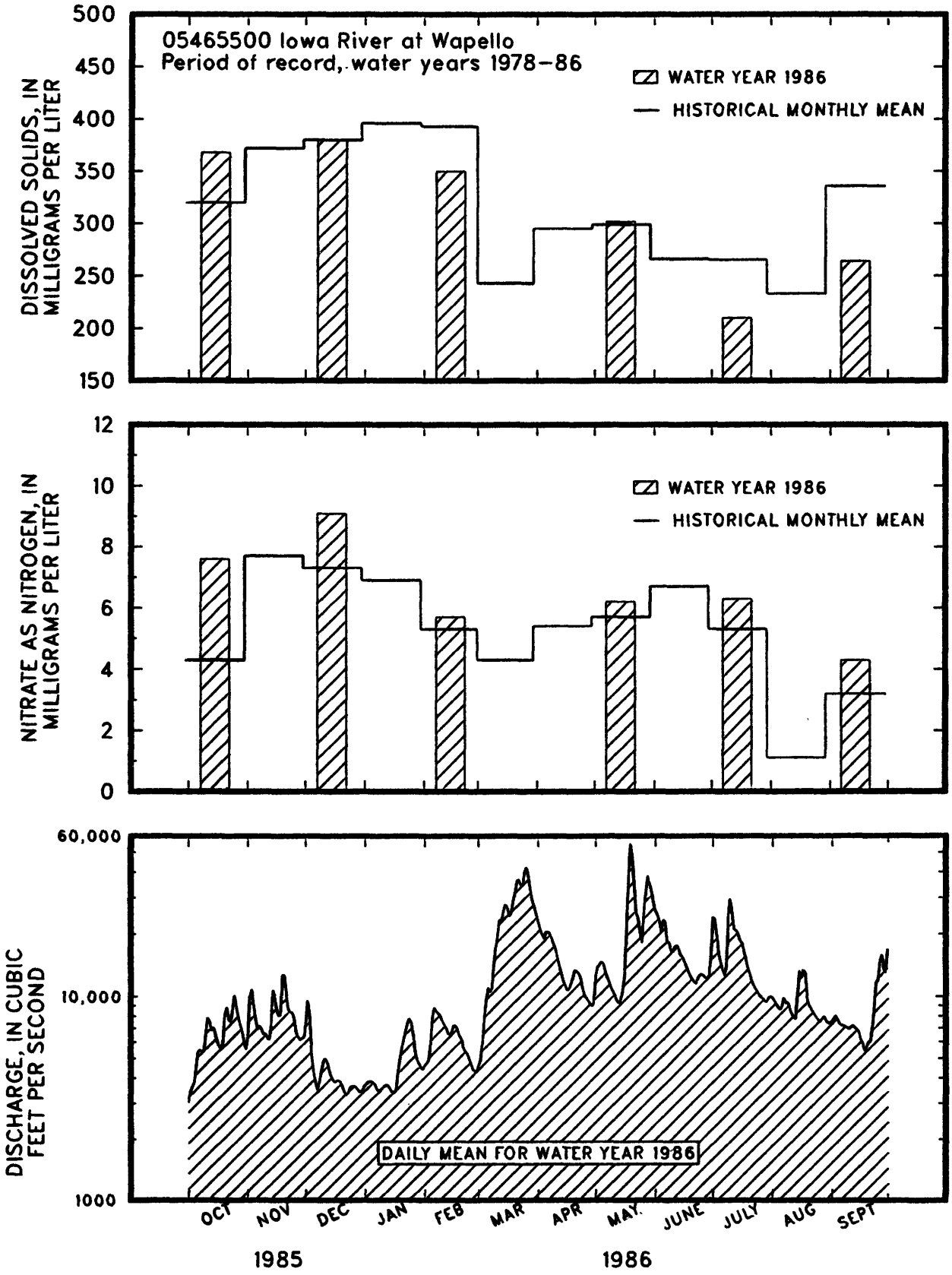


Figure 5.-- Comparison of dissolved solids and nitrate concentrations for water year 1986 with mean monthly values at the NASQAN station on the Iowa River at Wapello.

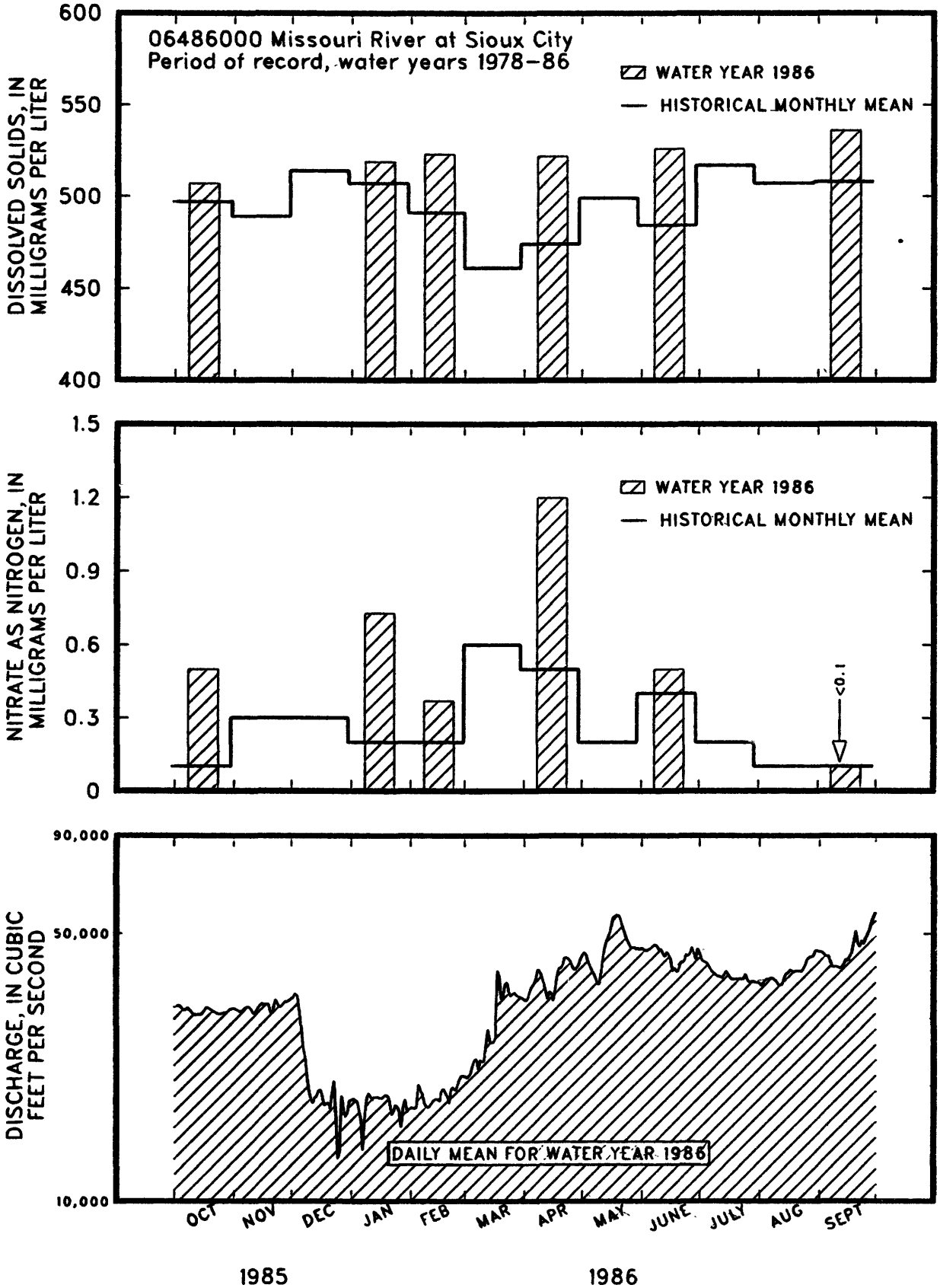


Figure 6.-- Comparison of dissolved solids and nitrate concentrations for water year 1986 with mean monthly values at the NASQAN station on the Missouri River at Sioux City.

GROUND WATER

Normally, water levels at the water table rise later in the spring or early summer than those that were measured in water year 1986. After the growing season begins, precipitation normally is lost to runoff and evapotranspiration so that recharge to the aquifers decreases. The water-level rises in water-table aquifers result, in part, from recharge by direct infiltration of precipitation.

The water levels shown in figure 7 are from three shallow, water-table wells completed in Pleistocene glacial drift in Linn, Webster, and Marion Counties. The water-levels reflect the precipitation pattern for water year 1986 shown in figure 3. The wells in Linn County in east-central Iowa and Webster County in central Iowa had water levels higher than the average monthly levels for the entire water year. The well in Marion County, in south-central Iowa, had water levels higher than the average monthly levels for all months except April and new high levels for the month were measured in October and November. A well in Johnson County, in east-central Iowa, completed in the same aquifer, had water levels higher than the average monthly levels for all the months except April and a new high level for the month was measured in November. Water levels in a number of artesian wells in Iowa had patterns similar to those for the water-table wells in water year 1986.

Eight wells completed in the Dakota aquifer of Early Cretaceous age in Buena Vista, Cherokee, Lyon, O'Brien, Plymouth, and Sioux Counties in northwest Iowa had new high water levels in water year 1986 compared to the period of record. Two wells completed in the St. Peter aquifer of Ordovician age in Des Moines and Jackson Counties had new high water levels in water year 1986 compared to the period of record. A well completed in the Devonian aquifer in Grundy County and a well completed in the Silurian aquifer in Delaware County also had new high water levels in water year 1986 compared to the period of record. Two other wells in Jackson County also had new high water levels in water year 1986 compared to the period of record: (1) A well completed in the Mount Simon aquifer of Cambrian age, and (2) a well completed in the Galena aquifer of Ordovician age. In western Iowa, in Harrison County, a well completed in the Mississippian aquifer also had a new high water level in water year 1986 compared to the period of record. Two artesian wells completed in Pleistocene glacial drift in Marion County also had new high water levels in water year 1986 compared to the period of record.

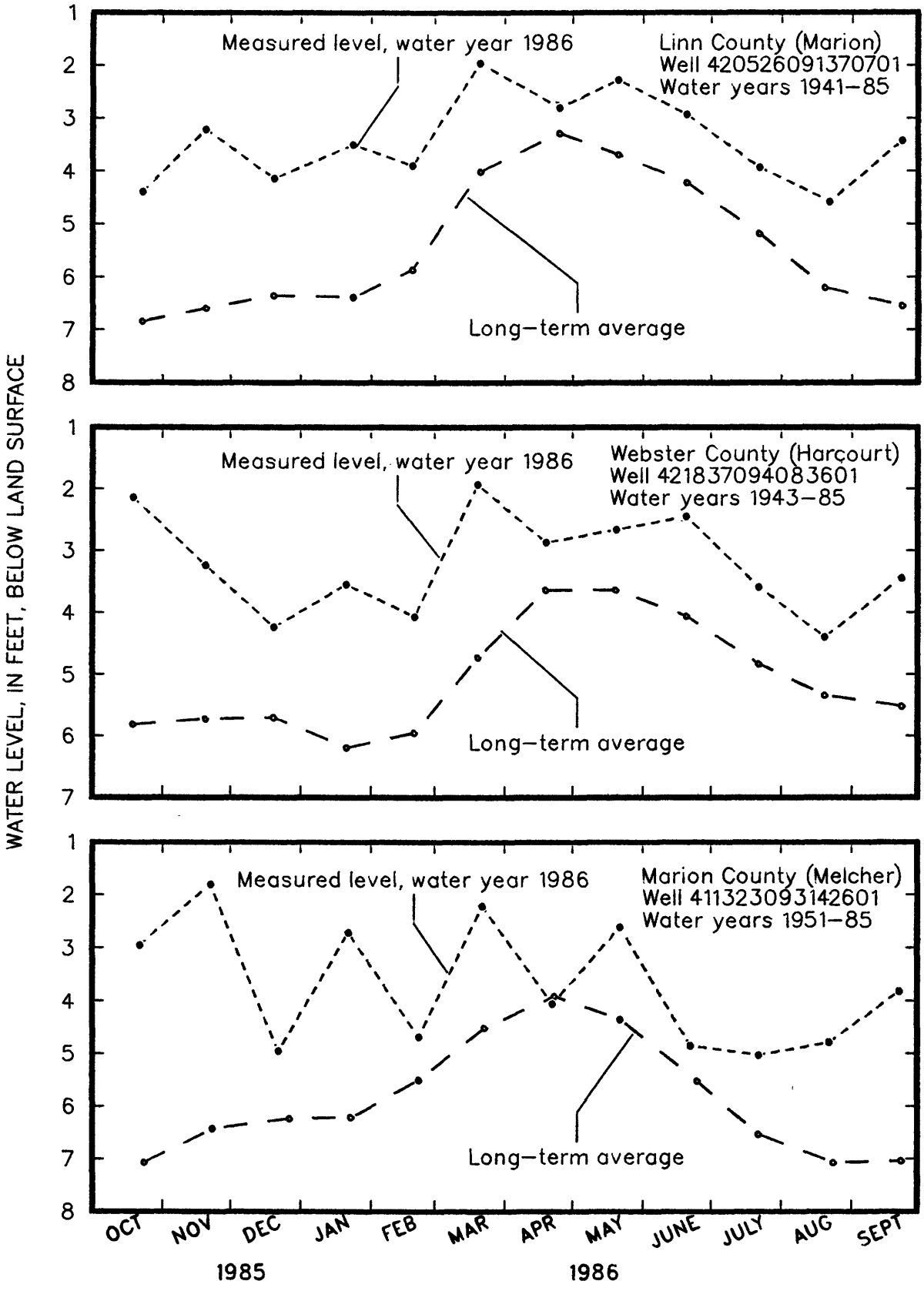


Figure 7. -- Monthly water levels during water year 1986 compared to the average monthly level for the period of record.

Ground Water-Quality

The water-quality data obtained from analysis of ground-water samples indicate that nitrate, numerous pesticides and radiochemical constituents are present in concentrations that may be considered undesirable and, in many cases, exceed public-drinking water standards. Two-hundred six water-quality analyses of raw water (untreated and obtained directly from the respective aquifer) from municipal wells throughout the State are listed in this report.

All ground-water samples were analysed for common mineral, metal, nutrient, and radiochemical constituents. About three-quarters of the samples were analysed for a comprehensive list of pesticides. This group of 150 samples were collected from shallow wells completed in aquifers composed of Quaternary-age materials or from wells completed in other aquifers with depths of less than 200 feet. Of particular interest for this category of shallow wells are the concentrations of nitrate and selected pesticides in shallow ground water. Of the 150 shallow wells sampled, 64 samples (42 percent) had nitrate concentrations greater than 1 milligram per liter, 32 samples (21 percent) had concentrations greater than 5 milligrams per liter (fig. 8) and 6 samples (5 percent) were concentrations greater than the maximum contaminant limit (MCL) for public drinking water of 10 milligrams per liter nitrate as nitrogen.

Samples from 40 (27 percent) of these shallow wells had detectable concentrations of at least one pesticide; either atrazine, cyanazine, metribuzin, alachlor, or metolachlor, all herbicides. The statewide distribution of these wells is shown in figure 9. All five herbicides were detected in two samples. Atrazine was the most prevalent and was detected in 36 of 150 comprehensive pesticide analyses. Metolachlor was next most prevalent and was detected in 12 samples. Fifteen of the 40 samples that contained at least one detectable herbicide, also contained nitrate at a concentration greater than 5 milligrams per liter.

Analyses are listed for 16 pesticides that commonly are used in Iowa. Ten are herbicides (atrazine thrrough silvex) and six are insecticides (carbofuran through terbfos). No detectable concentration of any insecticide was measured. Analyses for 18 chlorinated-hydrocarbon insecticides are not listed in this report: however, no detectable concentration was measured in any ground-water sample. Once widely used, these compounds are seldom used today on row crops.

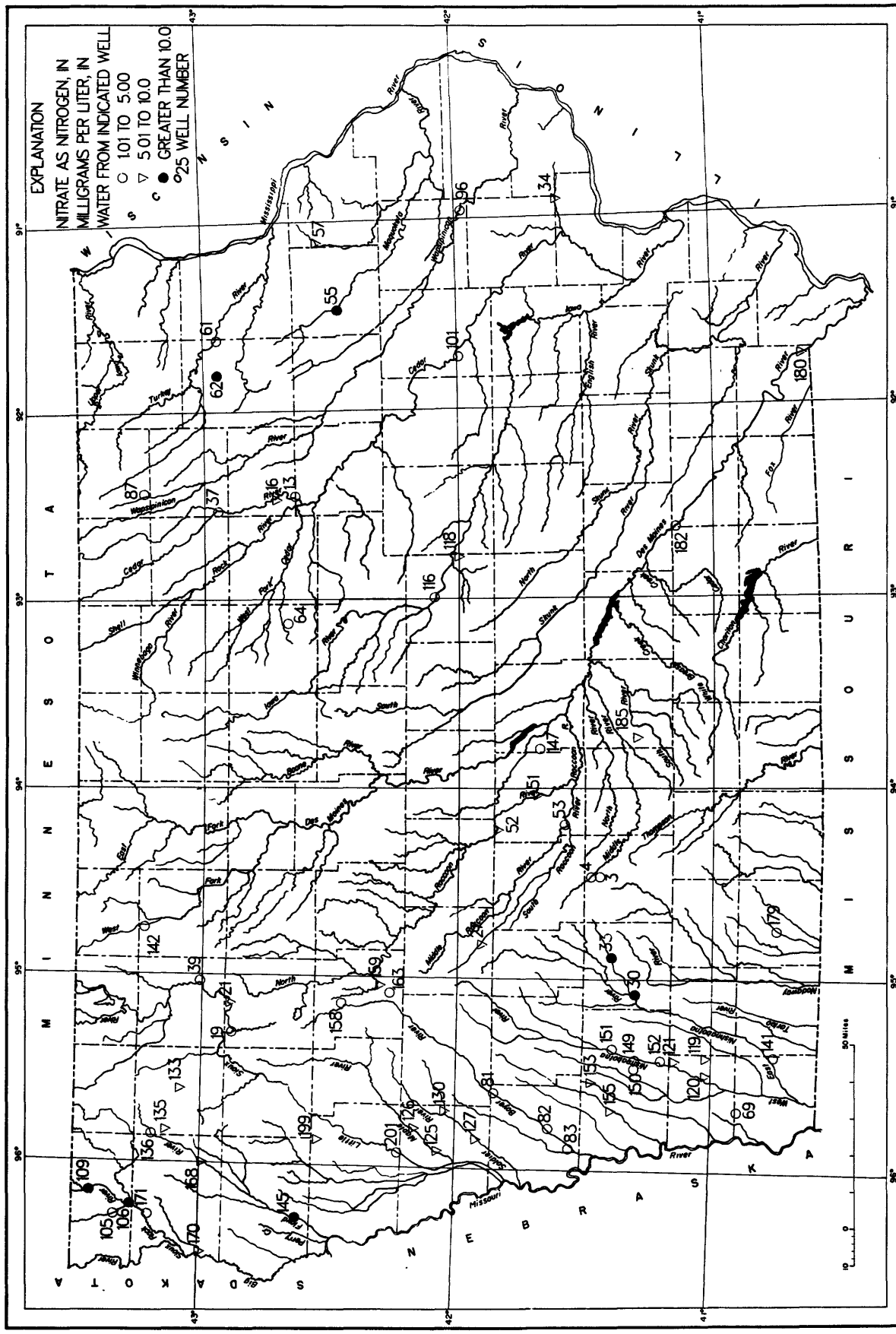


Figure 8.--Location of wells where water samples contained nitrate concentrations greater than 1.00 milligrams per liter.

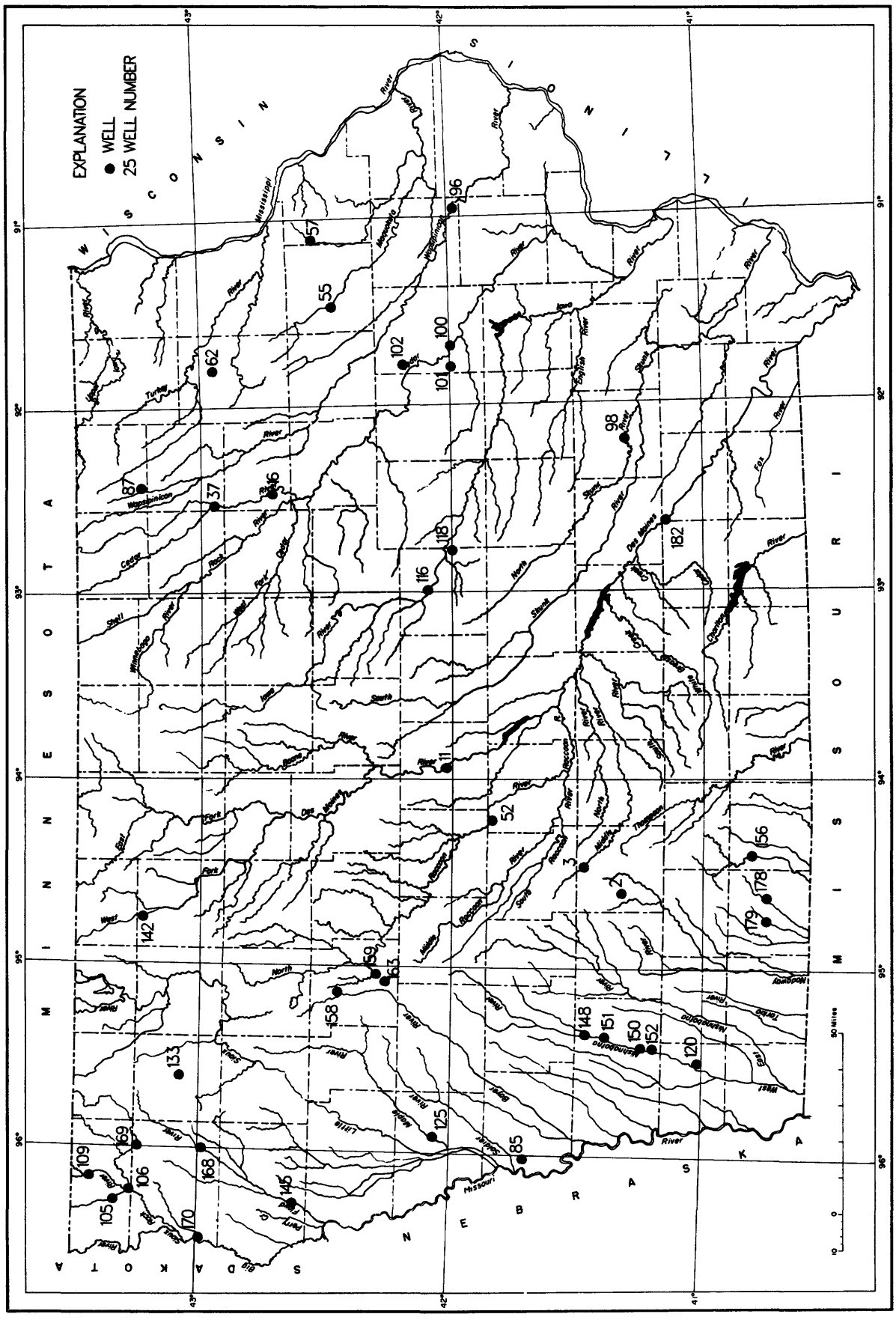


Figure 9.--Location of wells where water samples contained a detectable concentration of at least one herbicide.

The remainder of the samples collected represent the quality of water from wells more than 200 feet deep, which derive water from deeper bedrock aquifers. These samples indicate that few chemical constituents are present in concentrations that exceed environmental standards. The only significant exception are radiochemical constituents. Eight samples had gross-alpha activities greater than the MCL of 15 picocuries per liter and 13 samples had combined radium-226 and radium-228 concentrations greater than the MCL of 5 picocuries per liter.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

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 Nation'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 THE RECORDS

The surface-water and ground-water records published in this report are for the 1986 water year that began October 1, 1985, and ended September 30, 1986. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 10-12. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells.

Downstream Order System

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 mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indention in the "List of Stations" in the front of this report. Each indention represents one rank. This downstream order and system of indention shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

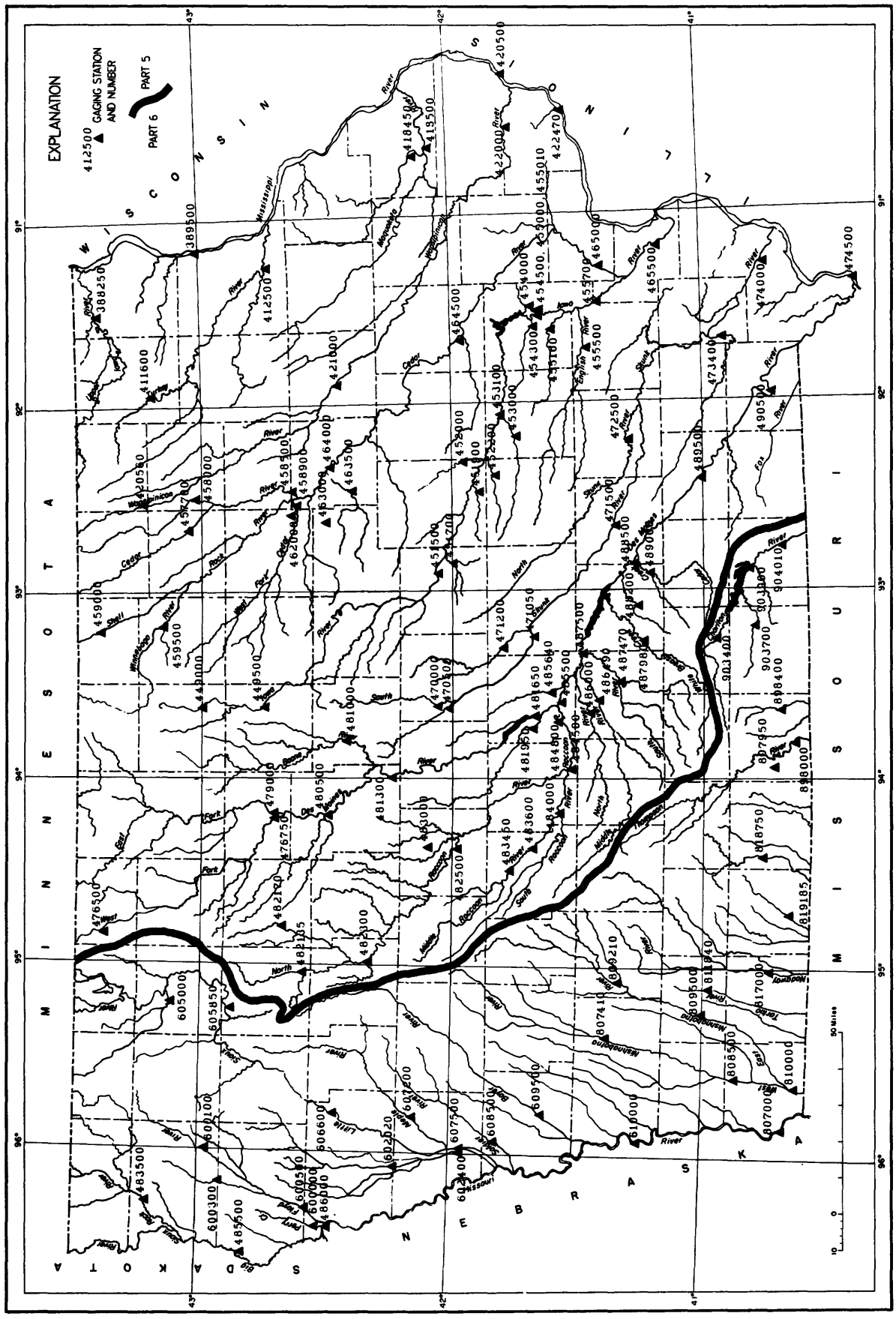


Figure 10.--Location of active, continuous-record gaging stations.

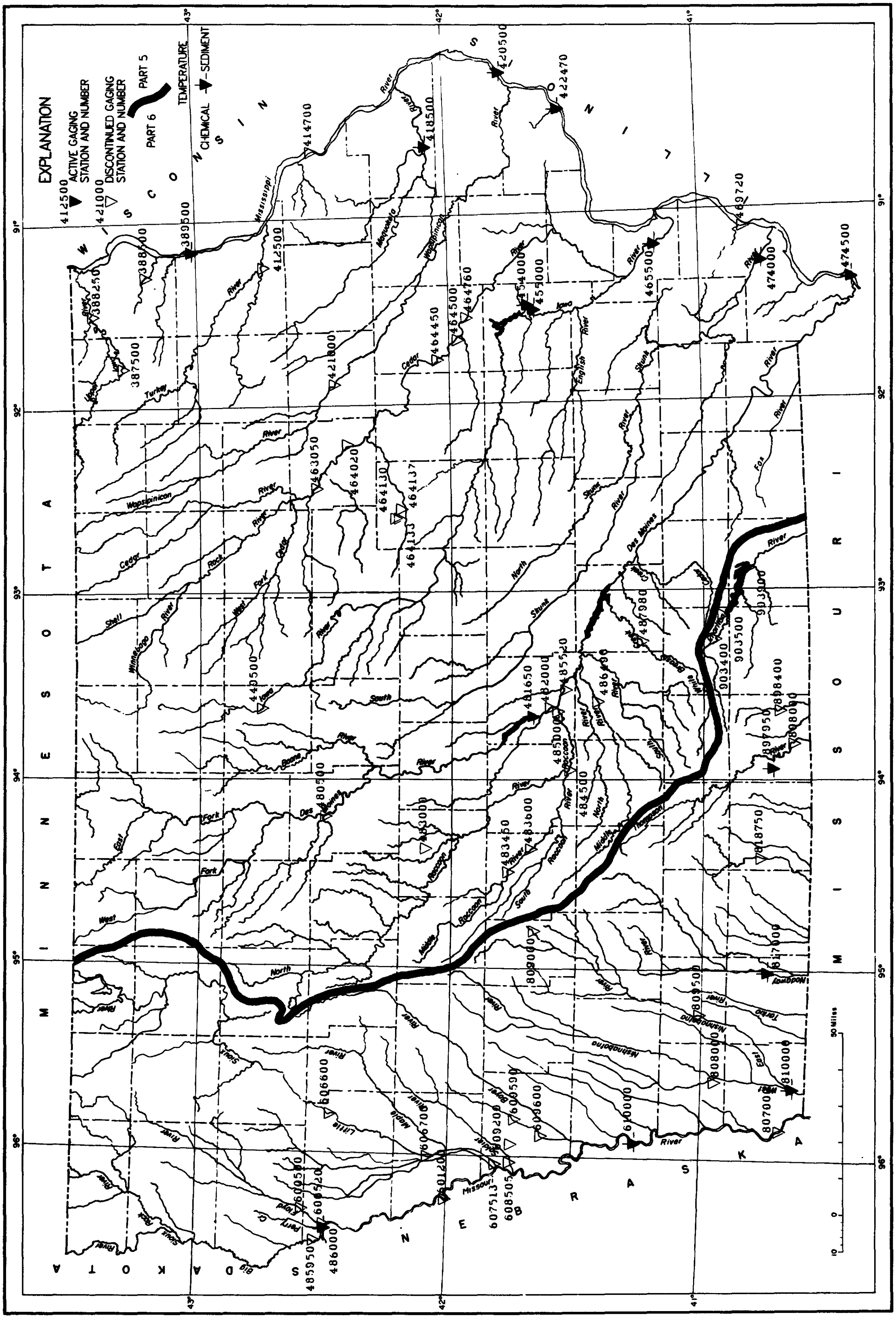


Figure 11.--Location of active and discontinued water-quality stations.

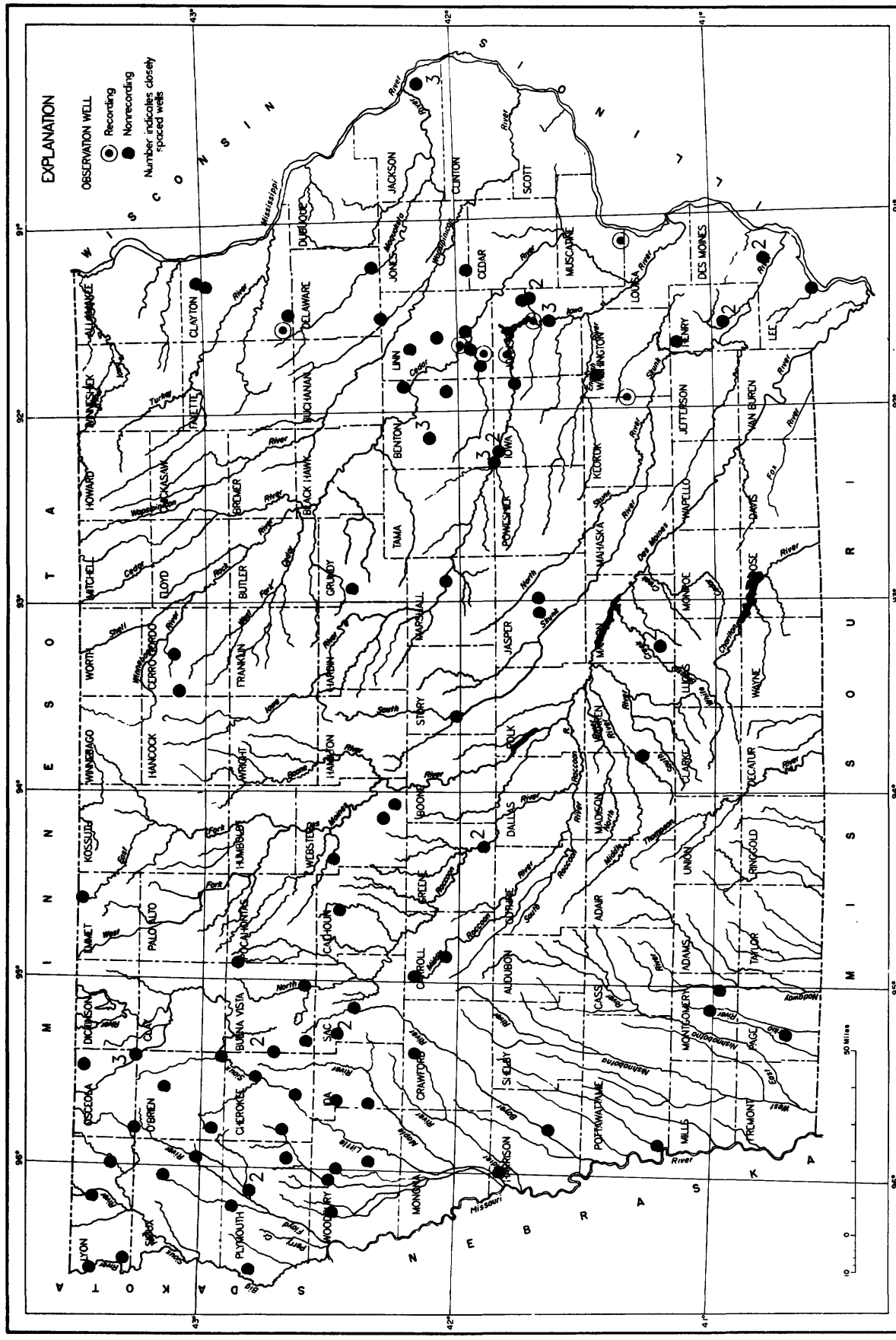


Figure 12.--Location of recording and nonrecording observation wells

The station-identification number is assigned according to downstream order. 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 eight-digit number for each station, such as 05388250, which appears just to the left of the station name, includes the two-digit Part number "05" plus the six-digit downstream-order number "388250." The Part number designates the major river basin; for example, Part "05" is the Mississippi River Basin.

Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure below.)

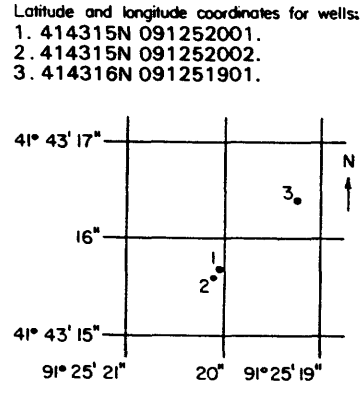


Figure 13.--Latitude-longitude well number.

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. 8-9). 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 denote degrees, minutes, and seconds of north latitude; the next seven digits are degrees, minutes, and seconds of west longitude; and the last two numbers are a sequential number assigned in the order in which the wells are located in a 1-second quadrangle.

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 located (fig. 14). 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 a 160-acre tract, the second a 40-acre tract, the third a 10-acre tract, and the fourth a 2.5 acre tract. Numbers are added as suffixes to distinguish wells in the same tract. Thus, the number 96-20-3CDBD1 designates the well in the SE 1/4 NW 1/4 SE 1/4 SW 1/4 sec.3, T.96 N., R.20 W.

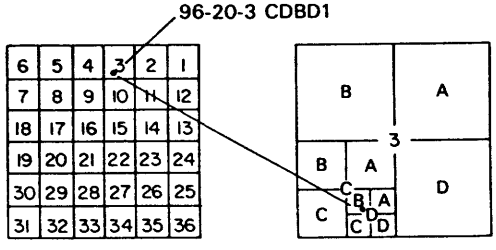


Figure 14.--Local well-numbering system for well 96-20-3CDBD1.

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations." Location of all complete-record surface water stations which are given in this report are shown in figure 10.

Partial records are obtained through discrete measurements without using a continuous stage-recording device and generally pertain only to a characteristic of either high, medium or low flow.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-capacity curves or tables to compute lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adopted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope- area or contracted-opening measurements, and computations of flow over dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. 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 determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations, the stage-discharge relation is affected by the 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.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relation. Even when this is done, the contents computed may become increasingly in error as the lapsed time since the last survey increases. Discharges over lake or reservoir spillways are computed using stage-discharge relations.

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 these periods, the daily discharges are estimated from the recorded range in stage, discharge computed before and after the missing record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted 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 most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see glossary), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development. The median of yearly mean discharges also is given under this heading for stations having 10 or more water years of record, if the median differs from the average given by more than 10 percent.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the offices whose addresses are given on the back of the title page of this report to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

The daily table for stream-gaging stations gives 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 is usually 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 or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Data collected at partial-record stations follow the information for continuous-record sites. This section consists of a table of annual maximum stage and discharge for crest-stage stations.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of the Records

The accuracy of streamflow records 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 measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of their true values; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft^3/s the nearest tenth between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures for more than 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

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.

Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables is on file in various field offices of the Iowa District. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the offices whose addresses are given on the back of the title page of this report.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 11.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

On-site measurements and sample collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, alkalinity and dissolved oxygen, are made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures are followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures of onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. C2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed on p. 22 of this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District office.

One sample can define adequately 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 the representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis.

Water temperature and specific conductance

Water temperatures are measured at most of the water-quality stations. 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 of 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. This determination is easily made in the field with a portable meter, and 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.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samples. 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, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges 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 were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, 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 the 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 "Analyses of samples at miscellaneous sites".

Laboratory measurements

Sediment samples, samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratories in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratories are given in TWRI, Book 1, Chap. D2, Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

PRINTED OUTPUT	REMARK
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

Records of Ground-Water Levels

Ground-water level data from a network of observation wells in Iowa are published in this report. These data provide a limited historical record of water-level changes in the State's most important aquifers. Locations of the observation wells in this network in Iowa are shown in figure 12. Information about the availability of the data in the water-level files and reports of the U.S. Geological Survey may be obtained from the Iowa District Office (see address on back of title page page).

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensures that measurements at each well are of consistent accuracy and reliability.

Tables of water-level data are arranged alphabetically by counties. The site identification number, based on latitude and longitude, for a given well is the 15-digit numeric value that appears in the upper left corner of the station description. The secondary identification number is the local well number, an alphanumeric value, derived from the township, range, and section location of the well (fig. 14).

Water-level records are obtained from direct measurements with a chalked steel tape, electric line, airline, or from the graph of a water-level recorder. The water-level measurements in this report are in feet with reference to land-surface datum. Land-surface datum is a plane that is approximately at land surface at each well. The elevation of the land-surface datum is given in the well description. The height of the measuring point above or below land-surface datum 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 hundreth of a foot. Estimates, indicated by an "e" may be reported in tenths of a foot. The error of water-level measurements may be, at most, a few hundreths of a foot.

Data Presentation

Each well record consists of two parts, the station description and the table of water levels observed during the water year. The description of the well is presented by headings preceding the tabular data. The following explains the information presented under each heading.

LOCATION.--This paragraph follows the well identification number and includes the latitude and longitude (given in degrees, minutes, and seconds), the hydrologic unit number, the distance and direction from a geographic point of reference, and the well owner's name.

AQUIFER.--This entry is the aquifer(s) name (if one exists) and geologic age of the strata open to the well.

WELL CHARACTERISTICS.--This entry describes the well depth, casing diameter, casing depth, opening or screened interval(s), method of construction, and use of water from the well.

INSTRUMENTATION.--This paragraph provides information on the frequency of measurement and the collection method used.

DATUM.--This entry includes the measuring point and the land-surface elevation at the well. The measuring point is described physically and in relation to land surface. The elevation of the land-surface datum is in feet above National Geodetic Vertical Datum of 1929 and its precision is dependent on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level and any information not presented in the other parts of the station description but considered useful.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the begining of publication of water-level records by the U.S. Geological Survey.

REVISED RECORDS.--If any revisions of previously published data were made for water-levels, the Water Data Report in which they appeared and year published would appear here.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels for the period of record, below land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum. For wells equipped with recorders, only abbreviated tables are published. The highest and lowest water levels of the water year and the dates of occurence are shown on a line below the abbreviated table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level.

Hydrographs are included for nine wells which are representative of hydrologic conditions in the important aquifers in Iowa.

Only water-level data from a national network of observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in Iowa are shown in figure 11.

Records of Ground-Water Quality

Records of ground-water quality in this report differ from other types of records in that for most sampling sites they consist of only one set of measurements for the water year. The quality of ground water ordinarily changes only slowly; therefore, for most general puposes one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

The records of ground-water quality in this report were obtained as a part a statewide ground-water quality monitoring network operated by the Iowa District. All samples were obtained from municipal wells throughout Iowa. This program is conducted in cooperation with the University of Iowa Hygienic Laboratory (UHL) and the Iowa Geological Survey. All samples are collected by USGS personnel, field-preserved and submitted to UHL for analysis. Chemical analyses include common constituents (major ions), nutrients, trace metals, radionuclides and pesticides. Approximately 10 percent of the samples receive additional analyses for about 90 organic priority pollutants, however these analyses are not presented in this report but are on file in the District office.

Most methods for collecting and analyzing water samples are described in the "U.S. Geological Survey Techniques of Water-Resources Investigations" manuals listed on a following page. The values reported in this report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples were obtained by trained personnel. The wells sampled were pumped long enough to assure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possible metal, comprising the casings. The samples collected represent raw water

Data Presentation

The records of ground-water quality are published in a section titled GROUND-WATER QUALITY DATA immediately following the ground-water-level records. Data for quality of ground water are listed alphabetically by County, and are identified by station number. The prime identification number for wells sampled is the 15-digit station number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the station number, date and time of sampling, depth of well, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

Explanation of descriptive headings

MAP STATION NUMBER: reference to illustrations found in "SUMMARY OF HYDROLOGIC CONDITIONS"

STATION NUMBER: 15-digit number based on grid system of latitude and longitude.

LOCAL WELL NUMBER: refers to the Bureau of Land Management System of land subdivision

DATE: Date of well construction

LOCAL WELL NAME: name used by community to identify well

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 characters 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)
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)

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 the offices whose addresses are 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

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, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while 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 warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5°C plus or minus 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 the intestine 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 plus or minus 1.0°C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

Bottom material: See Bed material.

Cubic-foot-per-second day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, 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.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic foot per second (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 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

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.

Discharge is the volume of water (or more broadly, volume of 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 that material in a representative water sample which passes through a 0.45 um membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

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 otherwise specified.

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 interchangeably 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 computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

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 eight-digit number.

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

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

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 dry sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) 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.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

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 a particle determined by either sieve or sedimentaiton 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 the recommendation made by the American Geophysical Union Subcommittee 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 matter 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.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

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

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.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

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.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

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).

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

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge ft^3/s x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

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 mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow ($7Q_{10}$) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within 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 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 microsiemens 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 microsiemens). 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 "discharge" 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 the 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 undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a represen- tative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table headings and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual 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 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 of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases ot the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

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

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1985, is called the "1985 water year."

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 abbreviaton for "Water-Supply Paper" in reference to previously published reports.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting 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) pertains to 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, Books and Open- File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for 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 measurement, 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 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-A7. *Stage measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 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-A10. *Discharge ratings at gaging stations,* by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. *Measurement 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-A15. *Computation of water-surface profiles in open channels,* by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 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. Bennett: 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.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

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 4, 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 of 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 sedments*, 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. Bredehoeft: 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. Schaffrannek, 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.
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.
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.
Muchakinock Creek near Eddyville, Iowa.	05489190	70.2	1975-79.
Lake Wapello near Drakesville, Iowa.	05490000	7.75	1936-71.
Sugar Creek near Keokuk, Iowa.	05491000	105	1922-31; 1958-73.
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.
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	81,600	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	114,000	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
M. Fork Raccoon River near Bayard, Iowa.	05483450		Chem.,Temp., Sed.	1979-85
M. Fork Raccoon River at Panora, Iowa.	05483600		Chem.,Temp., Sed.	1979-85
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 above 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.--Estimated daily discharges: Nov. 23 to Mar. 13, Sept. 12-17. Records good except for periods of estimated daily discharges, which are poor. U.S. Geological Survey gage-height telemeter at station.

AVERAGE DISCHARGE.--11 years, 608 ft³/s, 10.72 in/yr, 440,500 acre-ft/yr; median of yearly mean discharges, 530 ft³/s, 9.3 in/yr, 384,000 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 greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	0745	*8,620	*14.85	Sept. 29	1700	5,560	13.15
Sept. 21	1615	7,260	14.24				

Minimum daily discharge, 265 ft³/s Mar. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	575	337	335	270	270	270	1400	1030	751	414	508	518
2	646	374	315	280	270	270	1300	897	697	407	435	468
3	626	371	295	290	270	280	1330	813	659	405	395	435
4	564	368	300	285	270	290	1400	764	626	391	380	432
5	520	365	300	285	280	300	1490	732	597	381	363	408
6	478	364	300	280	290	300	1550	705	589	386	343	385
7	457	364	305	285	290	270	1580	675	578	388	338	371
8	455	353	295	285	280	265	1430	655	554	386	325	358
9	448	363	290	280	270	270	1300	646	530	384	309	350
10	422	370	290	290	270	300	1210	711	519	383	301	381
11	404	344	285	310	270	350	1150	763	535	389	296	560
12	393	342	280	320	270	415	1080	717	563	393	290	960
13	388	350	275	320	270	530	1030	791	541	463	280	1000
14	388	366	275	310	270	736	1020	1000	516	492	300	540
15	385	369	270	300	270	830	1070	1260	510	457	442	460
16	379	399	270	300	270	933	1090	1450	500	445	723	440
17	368	465	270	315	270	1300	1080	1290	482	413	569	440
18	368	545	270	325	270	3370	1050	1190	479	388	470	418
19	368	897	270	330	280	8130	1010	1090	484	373	408	407
20	355	1130	270	350	290	6790	976	996	467	357	368	404
21	349	1070	270	370	290	3520	974	918	474	341	342	3990
22	349	944	275	360	280	2710	901	863	539	323	326	4700
23	352	790	290	350	280	2540	858	810	550	309	315	3700
24	351	670	280	335	275	2430	824	761	517	304	306	2220
25	337	615	280	325	270	2270	794	742	518	359	314	1830
26	332	580	280	300	270	2120	784	975	502	399	488	1880
27	326	535	280	290	280	1980	765	949	485	378	1090	1970
28	319	450	275	280	270	1800	783	1100	464	415	1070	1790
29	316	385	275	275	---	1650	868	972	445	377	954	4160
30	311	350	275	270	---	1560	1110	881	426	609	680	4050
31	304	---	270	270	---	1470	---	810	---	613	576	---
TOTAL	12633	15225	8810	9435	7705	50249	33207	27956	16097	12522	14304	40025
MEAN	408	508	284	304	275	1621	1107	902	537	404	461	1334
MAX	646	1130	335	370	290	8130	1580	1450	751	613	1090	4700
MIN	304	337	270	270	270	265	765	646	426	304	280	350
CFSM	.53	.66	.37	.39	.36	2.11	1.44	1.17	.70	.52	.60	1.73
IN.	.61	.74	.43	.46	.37	2.43	1.60	1.35	.78	.60	.69	1.93
AC-FT	25060	30200	17470	18710	15280	99670	65870	55450	31930	24840	28370	79390

CAL YR 1985	TOTAL	171258	MEAN	469	MAX	5180	MIN	125	CFSM	.61	IN.	8.27	AC-FT	339700
WTR YR 1986	TOTAL	248168	MEAN	680	MAX	8130	MIN	265	CFSM	.88	IN.	11.99	AC-FT	492200

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 above 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.--Estimated daily discharge: Nov. 29 to Mar. 19. Records good except those for periods of estimated daily discharge, 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 U.S. Army Corps of Engineers.

AVERAGE DISCHARGE.--50 years, 35,670 ft³/s, 7.18 in/yr, 25,840,000 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, 168,000 ft³/s Apr. 11; maximum gage height, 20.10 ft Apr. 10; minimum daily discharge, 19,000 ft³/s Dec. 1; minimum gage height, 7.70 ft Nov. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68300	55100	19000	30000	22000	23000	104000	105000	91000	72900	67400	46700
2	70700	54600	19500	30000	22000	23000	105000	104000	87300	75300	68700	45100
3	69800	55100	20000	30000	22000	23000	110000	106000	83000	76200	68600	43000
4	69500	55100	23000	30000	24000	23000	116000	109000	78100	76200	67200	42200
5	70800	53700	28000	30000	25000	23000	126000	113000	71200	74800	63900	41500
6	72800	52500	30000	30000	26000	24000	137000	118000	65700	73400	59600	40600
7	75900	53200	30000	30000	27000	24000	148000	121000	65000	71300	54200	40400
8	79900	57800	29000	30000	27000	23000	157000	124000	63700	67200	52200	40600
9	83400	62700	30000	30000	27000	23000	163000	125000	60400	65000	51200	40800
10	87300	63800	32000	28000	27000	23000	167000	125000	56200	62900	50800	42400
11	92200	62400	34000	27000	27000	24000	168000	125000	53700	60600	50700	46500
12	97900	56700	35000	25000	27000	24000	163000	124000	51200	57500	50300	50000
13	101000	49000	35000	25000	27000	25000	160000	122000	48700	54300	50100	55100
14	103000	46500	35000	26000	23000	27000	156000	121000	48700	51100	50900	59400
15	102000	44500	35000	27000	23000	29000	151000	118000	49500	49100	51900	64100
16	99500	43800	35000	28000	22000	31000	145000	121000	50400	50000	52300	68200
17	96700	43400	34000	28000	21000	32000	140000	123000	50500	50400	52300	70900
18	94900	42800	33000	28000	21000	33000	136000	124000	50500	50900	52800	72200
19	93700	42600	32000	28000	21000	45000	133000	126000	50200	52400	54200	71900
20	91600	43000	32000	28000	22000	64400	129000	129000	49500	54200	54900	71400
21	89200	43900	31000	28000	23000	69200	125000	130000	48700	56100	55700	72000
22	85900	45400	30000	28000	23000	70400	122000	129000	49900	57100	55800	75100
23	83100	46100	31000	28000	23000	71000	119000	128000	51400	59200	55000	81600
24	80500	39900	31000	28000	23000	72300	117000	125000	52700	62400	51100	91000
25	77100	37900	31000	27000	23000	76600	114000	122000	55000	65500	47400	103000
26	74300	36300	31000	27000	23000	81900	112000	118000	57600	65200	47700	120000
27	71300	33100	31000	27000	23000	85400	109000	114000	61300	64100	54100	136000
28	67800	27900	30000	25000	23000	87400	108000	110000	65000	64100	56500	145000
29	61500	24000	30000	24000	---	91200	106000	104000	68000	63600	55200	153000
30	58800	21000	30000	24000	---	98300	105000	98700	69700	63900	51200	157000
31	55900	---	30000	23000	---	102000	---	94400	---	65500	49600	---
TOTAL	2526300	1393800	936500	857000	667000	1472100	3951000	3656100	1803800	1932400	1703500	2186700
MEAN	81490	46460	30210	27650	23820	47490	131700	117900	60130	62340	54950	72890
MAX	103000	63800	35000	30000	27000	102000	168000	130000	91000	76200	68700	157000
MIN	55900	21000	19000	23000	21000	23000	104000	94400	48700	49100	47400	40400
CFSM	1.21	.69	.45	.41	.35	.70	1.95	1.75	.89	.92	.81	1.08
IN.	1.39	.77	.52	.47	.37	.81	2.18	2.01	.99	1.06	.94	1.21
AC-FT	5011000	2765000	1858000	1700000	1323000	2920000	7837000	7252000	3578000	3833000	3379000	4337000

CAL YR 1985	TOTAL	18849500	MEAN	51640	MAX	110000	MIN	19000	CFSM	.77	IN.	10.39	AC-FT	37388000
WTR YR 1986	TOTAL	23086200	MEAN	63250	MAX	168000	MIN	19000	CFSM	.94	IN.	12.72	AC-FT	45791000

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, 2350 mg/L Mar. 19, 1986; minimum daily mean, 1 mg/L Dec. 23-25, 1976; Dec. 20, 28, 1977; Feb. 13-17, 23, Mar. 5-9, 1986.
SEDIMENT LOADS: Maximum daily, 363,000 tons Mar. 19, 1986; minimum daily, 31 tons Dec. 25, 1976.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2350 mg/L Mar. 19; minimum daily mean, 1 mg/L Feb. 13-17, 23, Mar. 5-9.
SEDIMENT LOADS: Maximum daily, 363,000 tons Mar. 19; minimum daily, 92 tons Feb. 17.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C.), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	390	440	420	---	425	---	---	---	---	---	---	---
2	---	---	---	---	---	400	---	---	---	---	---	350
3	---	---	---	---	---	---	360	---	380	400	---	---
4	---	440	---	440	---	---	---	---	---	---	---	---
5	400	---	405	---	440	400	---	410	380	---	---	360
6	---	---	---	---	---	---	320	---	---	---	360	---
7	---	---	---	440	---	---	---	---	---	382	---	---
8	360	440	440	---	---	---	---	395	---	---	---	360
9	---	---	---	---	450	400	320	---	400	---	370	---
10	---	---	---	---	---	---	---	---	---	390	---	---
11	---	---	---	440	---	---	340	---	---	---	375	350
12	340	400	440	---	425	380	340	385	410	---	---	---
13	---	---	---	---	---	---	335	---	---	---	---	---
14	350	---	---	425	---	---	---	---	---	408	370	---
15	---	405	---	---	---	375	330	385	---	---	---	---
16	---	---	440	---	420	---	---	---	420	---	---	340
17	---	---	---	---	---	---	340	---	---	418	---	---
18	360	420	---	425	---	---	---	---	---	---	---	320
19	---	---	430	---	420	360	340	390	420	---	360	---
20	400	---	---	---	---	---	---	---	---	---	---	---
21	420	425	---	420	---	---	370	---	---	400	---	---
22	420	---	---	---	---	420	---	380	---	---	350	310
23	---	---	460	---	420	---	---	---	420	---	---	---
24	---	---	---	---	---	---	380	---	---	390	---	300
25	---	430	---	420	---	---	---	---	410	---	355	300
26	---	---	---	---	400	440	---	350	---	---	---	300
27	---	---	---	---	---	---	---	---	410	---	350	---
28	440	420	460	420	---	---	400	340	---	372	---	280
29	---	---	---	---	---	---	---	---	---	---	---	290
30	---	---	---	---	---	430	400	---	390	---	---	295
31	---	---	440	---	---	---	---	---	---	375	---	---

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C.), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

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

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	22	4060	22	3270	5	.521	4	496	5	475	8	814
2	21	4010	20	2950	5	540	4	497	5	487	3	318
3	20	3770	24	3570	4	432	4	500	4	415	3	318
4	20	3750	33	4910	4	461	4	504	4	444	2	187
5	20	3820	42	6090	4	545	4	486	4	480	1	112
6	25	4910	50	7090	4	567	5	583	4	497	1	114
7	34	6970	77	11100	4	564	5	610	5	626	1	108
8	45	9710	190	28300	5	691	5	598	5	629	1	100
9	55	12400	204	34500	5	701	5	613	5	622	1	105
10	53	12500	135	23300	4	580	5	579	4	484	2	216
11	39	9710	81	13600	4	607	5	558	3	356	4	442
12	17	4490	56	8570	4	620	5	551	2	225	7	803
13	11	3000	42	5560	4	620	5	560	1	103	7	852
14	8	2220	28	3520	4	618	5	574	1	98	5	648
15	13	3580	16	1920	4	617	5	591	1	96	12	1660
16	13	3490	14	1660	5	749	5	601	1	93	174	24500
17	13	3390	18	2110	4	571	5	612	1	92	480	63900
18	12	3070	20	2310	5	688	4	498	6	559	1020	134000
19	15	3790	22	2530	5	655	4	499	18	1730	2350	363000
20	18	4450	24	2790	4	488	3	375	18	1840	1460	254000
21	23	5540	26	3080	4	471	3	375	15	1560	490	91600
22	33	7650	29	3550	4	481	3	374	8	836	94	17900
23	51	11400	30	3730	4	509	3	368	1	105	56	10700
24	38	8260	22	2280	4	511	4	487	3	318	53	10300
25	28	5830	13	1330	4	514	5	607	5	485	48	9930
26	27	5420	12	1180	4	518	5	602	7	750	46	10200
27	26	5010	11	983	4	516	5	562	8	864	43	9910
28	25	4580	11	829	4	512	5	505	10	1070	40	9440
29	24	3820	9	603	4	507	5	513	---	---	38	9360
30	24	3810	7	548	4	501	5	486	---	---	35	9290
31	23	3470	---	---	4	497	5	471	---	---	35	9640
TOTAL	---	171880	---	187763	---	17372	---	16235	---	16339	---	1044467

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	APRIL MEAN CONCEN-TRATION (MG/L)	APRIL LOADS (T/DAY)	MAY MEAN CONCEN-TRATION (MG/L)	MAY LOADS (T/DAY)	JUNE MEAN CONCEN-TRATION (MG/L)	JUNE LOADS (T/DAY)	JULY MEAN CONCEN-TRATION (MG/L)	JULY LOADS (T/DAY)	AUGUST MEAN CONCEN-TRATION (MG/L)	AUGUST LOADS (T/DAY)	SEPTEMBER MEAN CONCEN-TRATION (MG/L)	SEPTEMBER LOADS (T/DAY)
1	38	10700	20	5670	26	6390	27	5310	62	11300	41	5170
2	40	11300	17	4770	26	6130	26	5290	65	12100	32	3900
3	52	15400	14	4010	26	5830	27	5550	60	11100	32	3720
4	95	29800	15	4410	30	6330	27	5550	56	10200	45	5130
5	162	55100	19	5800	38	7310	26	5250	49	8450	39	4370
6	97	35900	23	7330	51	9050	26	5150	38	6110	35	3840
7	49	19600	20	6530	33	5790	26	5010	33	4830	33	3600
8	33	14000	17	5690	23	3960	28	5080	29	4090	30	3290
9	26	11400	17	5740	17	2770	30	5260	25	3320	28	3080
10	26	11700	16	5400	16	2430	31	5260	27	3400	25	2860
11	27	12200	15	5060	15	2170	30	4910	37	4650	37	4650
12	26	11100	15	5020	14	1940	28	4350	35	4550	72	9720
13	14	6050	17	5600	13	1710	25	3670	30	4060	84	12500
14	19	8000	24	7840	15	1970	22	3040	24	3300	66	10600
15	36	14700	23	7330	26	3470	22	2920	22	3080	36	6230
16	35	13700	20	6530	35	4760	23	3110	22	3110	22	4050
17	19	7180	22	7310	37	5040	29	3950	24	3390	18	3450
18	17	6240	29	9710	39	5320	30	3610	31	4420	18	3510
19	20	7180	34	11600	39	5290	29	4100	70	10200	17	3300
20	22	7660	40	13900	36	4810	27	3950	96	14200	16	3080
21	20	6750	37	13000	32	4210	25	3790	88	13200	33	6420
22	22	7250	22	7660	35	4520	26	4010	76	11500	102	20700
23	25	8030	20	6910	45	6250	27	4320	66	9800	85	18700
24	30	9480	20	6750	53	7540	27	4550	57	7860	39	9580
25	31	9540	18	5930	63	9360	29	5130	72	9210	42	11700
26	30	9070	19	6050	59	9180	30	5280	64	8160	37	12000
27	26	7650	23	7080	38	6020	30	5190	40	5840	40	14700
28	22	6420	27	8020	34	5970	31	5370	62	9460	42	16400
29	21	6010	26	7300	30	5510	28	4810	84	12500	48	19800
30	23	6520	26	6930	27	5080	26	4490	76	10500	37	15700
31	---	---	26	6630	---	---	34	6010	56	7500	---	---
TOTAL	---	385630	---	217510	---	156110	---	143270	---	235390	---	245750

TOTAL LOAD FOR YEAR: 2837716 TONS.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)
OCT 22...	16:00	12.0	76100	34	6990	96
APR 02...	14:30	11.0	98300	46	12200	86
MAY 13...	15:00	18.0	120000	22	7130	93

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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							
22...	16:00	76100	6	2	7	40	87
APR							
02...	14:30	98300	6	15	24	66	93
MAY							
13...	15:00	120000	6	0	2	25	78

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						
22...	94	96	96	97	98	100
APR						
02...	97	98	99	100	--	--
MAY						
13...	88	96	99	100	--	--

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 22 to Mar. 17, and Sept. 21-22. Records good except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--26 years, 128 ft³/s, 9.82 in/yr, 92,740 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 greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	0500	*4,660	*12.87	Sept. 30	0245	3,970	12.24
Sept. 21	----	unknown	unknown				

Minimum discharge, 43 ft³/s July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	413	108	97	57	60	50	247	225	172	72	67	56
2	261	123	91	57	62	52	230	192	155	71	68	54
3	218	123	86	57	62	54	252	172	143	68	78	54
4	187	113	85	56	63	56	360	164	140	65	70	60
5	172	108	84	56	64	59	422	158	137	62	63	56
6	168	107	77	56	62	60	466	149	132	69	59	54
7	153	106	74	56	62	58	341	135	129	70	56	51
8	140	104	72	56	60	56	284	131	123	66	54	49
9	128	119	72	58	56	56	250	133	114	64	51	49
10	119	116	70	60	54	60	227	281	119	64	51	74
11	118	106	70	62	52	66	216	218	134	66	49	176
12	128	108	65	64	51	80	205	190	143	64	47	181
13	132	118	60	63	50	98	192	228	130	61	45	126
14	133	133	56	62	49	130	210	332	118	60	96	107
15	126	147	56	59	49	200	277	317	116	60	195	101
16	118	166	55	60	48	330	262	350	114	65	135	101
17	113	216	55	63	48	600	242	350	105	66	91	96
18	117	315	54	64	49	2440	219	276	110	61	72	93
19	118	632	54	68	49	3420	217	239	108	56	65	92
20	115	480	55	69	50	1040	223	213	101	53	62	102
21	111	308	54	71	49	602	197	197	106	49	60	700
22	107	240	56	72	49	483	176	185	113	48	56	540
23	105	210	58	70	49	514	166	174	101	46	53	760
24	103	175	58	68	49	435	161	163	92	46	50	480
25	102	158	55	65	48	388	156	167	88	89	49	475
26	98	150	57	61	48	408	151	209	85	85	109	504
27	95	140	56	60	50	332	149	326	82	76	108	673
28	93	123	55	59	50	295	200	275	78	72	88	851
29	92	110	55	58	---	290	365	234	75	103	71	2520
30	90	105	56	58	---	275	263	209	72	90	63	2280
31	90	---	58	58	---	250	---	189	---	75	60	---
TOTAL	4263	5267	2006	1903	1492	13237	7326	6781	3435	2062	2241	11515
MEAN	138	176	64.7	61.4	53.3	427	244	219	115	66.5	72.3	384
MAX	413	632	97	72	64	3420	466	350	172	103	195	2520
MIN	90	104	54	56	48	50	149	131	72	46	45	49
CFSM	.78	.99	.37	.35	.30	2.41	1.38	1.24	.65	.38	.41	2.17
IN.	.90	1.11	.42	.40	.31	2.78	1.54	1.43	.72	.43	.47	2.42
AC-FT	8460	10450	3980	3770	2960	26260	14530	13450	6810	4090	4450	22840

CAL YR 1985	TOTAL	51667	MEAN	142	MAX	2400	MIN	17	CFSM	.80	IN.	10.86	AC-FT	102500
WTR YR 1986	TOTAL	61528	MEAN	169	MAX	3420	MIN	45	CFSM	.95	IN.	12.93	AC-FT	122000

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 above NGVD. Prior to Feb. 7, 1935, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 21 to Mar. 16, Mar. 19-20. Records good except for periods of estimated record, which are poor. U.S. Army Corps of Engineers operates a Data Collection Platform at station.

COOPERATION.--Two discharge measurements provided by U.S. Army Corps of Engineers.

AVERAGE DISCHARGE.--66 years (1913-16, 1919-27, 1929-30, 1932-86), 958 ft³/s, 8.42 in/yr, 694,100 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 greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	0800	*19,400	*22.47	Sept. 21	0745	8,900	16.50
June 22	0945	8,290	16.13				

Minimum discharge, 393 ft³/s Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1360	734	720	500	640	635	2240	1560	1690	684	601	482
2	1830	1150	670	490	675	680	2140	1390	1520	674	539	465
3	1500	1320	620	480	700	700	2080	1300	1390	663	504	459
4	1230	1130	600	480	720	720	2150	1230	1400	652	499	491
5	1050	1030	595	475	730	735	2370	1190	1490	631	535	445
6	913	979	590	470	720	720	2580	1170	1280	658	567	432
7	828	943	600	470	710	620	2640	1110	1200	616	516	419
8	794	893	590	470	700	600	2270	1080	1120	658	515	411
9	755	847	590	480	690	590	2020	1090	1030	868	493	408
10	700	845	590	505	660	620	1840	1180	1020	671	467	466
11	644	786	575	555	660	720	1710	1260	1180	740	442	493
12	696	778	565	605	655	850	1630	1460	1220	877	426	545
13	745	849	560	610	645	1200	1560	1370	1110	733	421	795
14	736	944	560	590	650	1700	1590	2430	1060	646	588	716
15	743	1100	560	570	645	2500	1810	2280	1010	616	762	629
16	712	1200	550	570	655	4000	1860	3170	1030	600	665	577
17	670	1320	540	580	660	5760	1840	3230	951	587	853	570
18	716	1480	535	640	660	12500	1730	3310	876	560	687	558
19	1020	1660	530	695	690	19100	1650	2740	867	545	580	547
20	1250	2070	525	720	690	17000	1570	2350	808	531	528	548
21	1210	1900	515	740	680	10200	1550	2100	810	511	505	4660
22	1110	1500	520	730	665	5810	1440	1900	2810	492	467	3950
23	1040	1310	545	710	655	5210	1360	1750	1300	473	452	4250
24	1050	1130	535	720	640	4650	1300	1630	1030	457	432	2720
25	943	1050	520	700	630	4170	1260	1540	920	602	425	5230
26	822	980	520	670	665	3890	1250	1600	851	664	941	3380
27	748	900	510	650	700	3470	1210	2090	806	565	688	2750
28	694	830	500	635	650	3120	1220	2480	752	616	604	2400
29	630	780	490	630	---	2850	1260	2380	718	570	612	3240
30	570	740	490	625	---	2620	1600	2110	727	596	569	3800
31	570	---	510	620	---	2400	---	1880	---	748	514	---
TOTAL	28279	33178	17320	18385	18840	120340	52730	57360	33976	19504	17397	46836
MEAN	912	1106	559	593	673	3882	1758	1850	1133	629	561	1561
MAX	1830	2070	720	740	730	19100	2640	3310	2810	877	941	5230
MIN	570	734	490	470	630	590	1210	1080	718	457	421	408
CFSM	.59	.72	.36	.38	.44	2.51	1.14	1.20	.73	.41	.36	1.01
IN.	.68	.80	.42	.44	.45	2.90	1.27	1.38	.82	.47	.42	1.13
AC-FT	56090	65810	34350	36470	37370	238700	104600	113800	67390	38690	34510	92900

CAL YR 1985	TOTAL	307174	MEAN	842	MAX	9920	MIN	208	CFSM	.54	IN.	7.40	AC-FT	609300
WTR YR 1986	TOTAL	464145	MEAN	1272	MAX	19100	MIN	408	CFSM	.82	IN.	11.18	AC-FT	920600

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 above NGVD. Nonrecording gage July 7 to September 22, 1977.

REMARKS.-Estimated daily discharges: Nov. 23 to Mar. 11, Aug. 24 to Sept. 15. Records good except those for periods of estimated record which are poor.

AVERAGE DISCHARGE.--9 years, 380 ft³/s, 10.00 in/yr, 275,300 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 greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 10	----	2,600	ice jam	Sept. 25	1100	*6,970	*13.02
Mar. 14	0500	3,080	8.62	Sept. 29	1700	4,430	10.32
Mar. 19	1115	5,380	11.35				

Minimum discharge, 144 ft³/s Oct. 6, 7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	202	364	400	215	210	200	588	455	562	598	287	302
2	189	436	270	210	215	215	567	433	515	493	279	286
3	172	389	240	208	220	230	558	393	479	445	269	276
4	169	340	260	205	250	275	563	376	474	414	264	279
5	160	290	340	200	260	350	571	384	859	393	266	330
6	148	275	300	195	305	335	572	394	850	380	380	289
7	146	277	360	190	280	230	556	372	585	384	391	279
8	147	257	345	190	230	220	526	353	520	480	346	273
9	236	249	340	195	200	240	503	344	476	1240	313	402
10	306	289	315	205	195	1000	495	352	936	1160	290	563
11	238	281	295	220	190	800	485	342	667	796	277	819
12	347	290	275	245	190	1860	477	342	590	698	268	852
13	525	310	260	240	190	2470	467	334	508	617	264	539
14	326	299	250	230	190	2700	463	339	482	555	706	451
15	247	291	235	225	190	1760	485	352	558	501	609	362
16	212	299	230	230	210	1450	459	520	574	469	513	354
17	195	306	220	240	230	1480	431	784	542	440	399	348
18	209	481	215	250	250	2220	417	988	510	412	342	373
19	213	704	210	265	265	4510	412	772	463	395	316	339
20	209	601	205	280	280	2180	408	648	439	379	302	338
21	188	478	200	280	250	1340	403	572	412	356	294	910
22	183	425	200	285	225	1120	387	530	588	339	282	2010
23	261	380	220	250	220	1010	374	498	1260	327	274	1020
24	591	330	240	270	215	930	372	471	803	320	279	862
25	329	300	210	250	215	851	372	458	612	330	286	4770
26	272	315	215	230	235	819	375	470	539	324	316	1720
27	244	300	205	210	260	769	376	878	523	322	344	1160
28	219	280	200	205	220	699	384	872	499	307	351	1080
29	209	260	200	202	---	671	393	766	454	317	326	3350
30	201	255	215	200	---	642	413	667	626	328	286	2570
31	200	---	225	200	---	609	---	606	---	300	283	---
TOTAL	7493	10351	7895	7020	6390	34185	13852	16065	17905	14819	10402	27506
MEAN	242	345	255	226	228	1103	462	518	597	478	336	917
MAX	591	704	400	285	305	4510	588	988	1260	1240	706	4770
MIN	146	249	200	190	190	200	372	334	412	300	264	273
CFSM	.47	.67	.49	.44	.44	2.14	.90	1.00	1.16	.93	.65	1.78
IN.	.54	.75	.57	.51	.46	2.46	.00	1.16	1.29	1.07	.75	1.98
AC-FT	14860	20530	15660	13920	12670	67810	27480	31860	35510	29390	20630	54560

CAL YR 1985	TOTAL	117716	MEAN	323	MAX	8000	MIN	132	CFSM	.63	IN.	8.49	AC-FT	233500
WTR YR 1986	TOTAL	173883	MEAN	476	MAX	4770	MIN	146	CFSM	.92	IN.	12.54	AC-FT	344900

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 300 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 above 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--Estimated daily discharges: Nov. 21, 23, 26-30, Dec. 2-8, and Dec. 11 to Mar. 10. Records good except those for estimated discharges, which are poor. Diurnal fluctuation caused by powerplant 4 mi upstream of station. U.S. Army Corps of Engineers Data Collection Platform at station.

COOPERATION.--One discharge measurement provided by U.S. Army Corps of Engineers.

AVERAGE DISCHARGE.--73 years, 1,034 ft³/s, 9.04 in/yr, 749,100 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.--Peak discharges greater than base discharge of 7,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	2400	7,950	20.86	Sept. 25	1145	*13,400	*24.68
July 9	1030	7,910	20.83	Sept. 29	2345	7,540	20.44

Minimum daily discharge, 409 ft³/s Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	795	1210	1420	600	625	610	1600	1090	2280	1830	856	852
2	538	1210	800	590	640	620	1730	1100	1990	1660	823	896
3	541	1340	780	580	680	700	1520	1110	1900	1510	750	760
4	453	1380	845	580	800	860	1570	1050	1690	1520	814	701
5	409	1180	940	560	1000	1110	1590	1090	2500	1290	736	884
6	488	1230	900	545	1130	940	1600	1070	2170	1200	1060	937
7	515	1090	970	540	1000	780	1570	1070	1930	1360	1140	877
8	464	1060	990	540	880	700	1510	998	1650	1690	1510	735
9	617	999	945	540	770	720	1360	959	1570	6430	1580	906
10	820	1020	920	560	700	2300	1380	976	2400	5920	1230	1270
11	702	1070	840	610	680	4690	1320	980	2120	4160	1170	1460
12	759	1020	790	640	660	4470	1260	1080	1940	3110	1010	1940
13	1030	1190	740	620	650	5270	1260	1040	1850	2710	987	1350
14	885	1140	700	580	640	6040	1280	991	1750	2290	1430	1150
15	713	1110	680	565	630	5710	1320	1110	1830	1980	1820	1040
16	670	1160	660	560	620	4970	1310	1330	1800	1780	1610	931
17	663	1150	640	600	620	4450	1210	2630	1710	1640	1220	900
18	676	1630	625	680	650	5390	1200	3940	1590	1550	1170	941
19	662	2240	620	840	755	7540	1180	3170	1520	1530	1080	960
20	748	1890	610	890	830	7780	1160	2680	1350	1440	1010	956
21	656	1560	600	875	760	6450	1180	2320	1320	1290	976	1100
22	684	1410	580	780	680	4060	1100	2010	1730	1230	887	3180
23	826	1220	600	720	640	3320	1040	1730	3210	1170	922	3300
24	1630	1130	640	700	630	2990	1020	1750	3850	1100	846	2420
25	1040	1080	605	680	620	2690	1020	1500	2360	1140	856	8010
26	935	1050	605	660	640	2560	1050	1710	1940	1050	877	5460
27	849	1080	600	640	650	2390	1050	2480	1970	1040	942	3490
28	818	930	580	625	640	2180	1040	3420	1830	992	991	3360
29	790	840	575	620	---	2080	1030	3560	1520	972	1060	6400
30	824	780	595	615	---	1900	1070	3030	2630	974	951	7150
31	747	---	615	620	---	1780	---	2610	---	927	780	---
TOTAL	22947	36399	23010	19755	20220	98050	38530	55584	59900	58485	33094	64316
MEAN	740	1213	742	637	722	3163	1284	1793	1997	1887	1068	2144
MAX	1630	2240	1420	890	1130	7780	1730	3940	3850	6430	1820	8010
MIN	409	780	575	540	620	610	1020	959	1320	927	736	701
CFSM	.48	.78	.48	.41	.46	2.04	.83	1.15	1.29	1.22	.69	1.38
IN.	.55	.87	.55	.47	.48	2.35	.92	1.33	1.43	1.40	.79	1.54
AC-FT	45520	72200	45640	39180	40110	194500	76420	110300	118800	116000	65640	127600

CAL YR 1985	TOTAL	359892	MEAN	986	MAX	15000	MIN	351	CFSM	.63	IN.	8.62	AC-FT	713800
WTR YR 1986	TOTAL	530290	MEAN	1453	MAX	8010	MIN	409	CFSM	.94	IN.	12.70	AC-FT	1052000

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 above 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.--Estimated daily discharge: Dec. 1 to Mar. 13, and Sept. 27-30. Records good except those for estimated daily discharges, which are fair. Minor flow regulation caused by navigation dams.

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

AVERAGE DISCHARGE.--113 years, 47,870 ft³/s, 7.59 in/yr, 34,680,000 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, 195,000 ft³/s Apr. 13; maximum gage height, 19.99 ft Apr. 13, minimum daily discharge, 20,000 ft³/s Dec. 4, minimum gage height, 9.02 ft. Dec. 2, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66800	71000	28000	38000	29000	32000	108000	118000	111000	73300	69000	54300
2	69400	71900	29000	37000	30000	32000	114000	114000	103000	75200	69800	54300
3	73000	69000	23000	37000	30000	32000	120000	110000	99900	77800	70500	55400
4	78100	67300	20000	37000	29000	34000	126000	108000	95800	78800	71700	54400
5	79300	66900	23000	37000	32000	35000	131000	108000	93400	78900	72600	52300
6	79000	65900	26000	37000	38000	36000	138000	112000	88300	79100	74000	50300
7	77000	69500	30000	37000	38000	35000	147000	114000	81600	79600	73300	47400
8	79500	70400	33000	37000	37000	35000	158000	117000	72400	79900	67600	46300
9	87600	72400	37000	37000	37000	35000	169000	122000	67700	83800	62700	45600
10	90600	74800	40000	37000	37000	36000	179000	125000	67300	83600	60400	46600
11	91000	75600	42000	37000	37000	43000	188000	128000	67700	79700	58700	51900
12	93500	75400	43000	36000	36000	47000	194000	130000	68200	74900	56700	56400
13	99200	75400	44000	35000	36000	50000	195000	130000	67100	68500	55400	56400
14	106000	75200	44000	34000	34000	53900	192000	132000	63400	65300	56600	56700
15	111000	70600	45000	34000	34000	55800	190000	131000	60700	60900	58800	62600
16	113000	64000	46000	34000	32000	57700	186000	133000	60000	58600	58100	67900
17	113000	61000	46000	34000	31000	59700	180000	135000	60200	57500	58200	68600
18	113000	59000	46000	35000	30000	67400	174000	137000	60400	57500	58300	73600
19	111000	63500	44000	35000	28000	77000	168000	137000	60700	58000	59300	78700
20	106000	66500	43000	36000	28000	86700	162000	137000	59500	58300	59500	80000
21	102000	62000	42000	36000	28000	94600	156000	137000	57500	59200	59500	81800
22	98700	59800	41000	36000	28000	96400	150000	137000	56000	61400	59500	88500
23	90000	60200	41000	36000	29000	100000	145000	138000	60700	62400	59500	96000
24	93300	60600	40000	36000	29000	99700	140000	138000	63800	64700	59500	95000
25	93000	57600	40000	36000	30000	96400	136000	139000	64200	66900	58400	99800
26	87500	58200	40000	36000	31000	97000	132000	139000	63800	70200	56600	113000
27	83800	56600	40000	35000	32000	98300	130000	141000	64000	69500	59500	115000
28	79900	54300	40000	34000	32000	98000	127000	139000	66600	69600	57900	105000
29	75800	42500	40000	34000	---	99500	124000	135000	69400	70100	55300	135000
30	74100	35400	40000	33000	---	103000	121000	130000	70700	69600	54900	150000
31	69900	---	39000	30000	---	105000	---	123000	---	68300	54100	---
TOTAL	2785000	1932500	1175000	1103000	902000	2028100	4580000	3974000	2145000	2161100	1905900	2238800
MEAN	89840	64420	37900	35580	32210	65420	152700	128200	71500	69710	61480	74630
MAX	113000	75600	46000	38000	38000	105000	195000	141000	111000	83800	74000	150000
MIN	66800	35400	20000	30000	28000	32000	108000	108000	56000	57500	54100	45600
CFSM	105	.75	.44	.42	.38	.76	178	150	.84	.81	.72	.87
IN	121	.84	.51	.48	.39	.88	199	173	.93	.94	.83	.97
ACFT	5524000	3833000	2331000	2188000	1789000	4023000	9084000	7882000	4255000	4287000	3780000	4441000

CAL YR 1985 TOTAL 22518300 MEAN 61690 MAX 139000 MIN 20000 CFSM .72 IN. 9.79 AC-FT44665000
WTR YR 1986 TOTAL 26930400 MEAN 73780 MAX 195000 MIN 20000 CFSM .86 IN. 11.70 AC-FT53416000

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). No temperature data collected October 1-30 while recorder was being repaired. Recorder clock stopped June 15 to June 24.

COOPERATION.--Temperature record was collected in cooperation with U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 560 microsiemens Nov. 24 to Dec. 3, 1979; minimum daily, 220 microsiemens 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 eacn year.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 28.5°C July 19-24, 27-30; minimum, 0.0°C on many days during winter period.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	12.0	11.5	10.0	9.5	.0	.0	.5	.0	.0	.0	.5	.0
2	12.0	11.0	10.0	9.0	.0	.0	.5	.0	.0	.0	.5	.0
3	12.0	11.5	9.0	8.5	.0	.0	.5	.0	.0	.0	.5	.0
4	12.5	12.0	8.5	7.5	.0	.0	.5	.0	.0	.0	.5	.0
5	12.0	10.5	7.5	7.0	.0	.0	.5	.0	.0	.0	1.0	1.0
6	11.0	10.0	7.5	7.0	.0	.0	.0	.0	.0	.0	1.0	1.0
7	11.5	11.0	7.0	6.5	.0	.0	.5	.0	.0	.0	1.0	.5
8	11.5	11.0	7.0	6.5	.0	.0	.5	.0	.0	.0	1.0	1.0
9	11.5	11.0	6.5	5.5	.0	.0	.5	.5	.0	.0	1.5	1.0
10	10.5	10.0	5.5	5.0	.5	.0	.5	.0	.0	.0	1.0	1.0
11	10.0	10.0	4.5	4.0	.0	.0	.5	.0	.0	.0	1.5	1.0
12	11.5	10.0	4.0	4.0	.0	.0	.5	.0	.5	.0	1.5	1.0
13	12.0	11.0	4.0	4.0	.0	.0	.5	.0	.0	.0	1.0	1.0
14	12.0	11.5	4.0	4.0	.0	.0	.5	.0	.0	.0	1.5	1.5
15	12.0	11.5	4.0	3.5	.5	.0	.0	.0	.0	.0	1.5	1.5
16	11.5	11.0	3.5	3.5	.0	.0	.5	.0	.0	.0	2.0	1.5
17	11.5	11.0	4.0	3.0	.0	.0	.5	.0	.0	.0	2.0	1.5
18	12.0	11.5	4.5	3.5	.0	.0	.0	.0	.5	.0	3.0	2.0
19	12.0	11.5	5.0	4.0	.5	.0	.0	.0	.5	.0	3.0	2.5
20	11.5	11.0	4.5	3.5	.0	.0	.0	.0	.5	.0	3.0	1.5
21	11.5	11.0	---	---	.0	.0	.0	.0	.5	.0	2.5	2.0
22	12.0	11.0	---	---	.5	.0	.0	.0	.5	.0	3.5	2.5
23	12.0	12.0	---	---	.0	.0	.0	.0	.0	.0	4.0	3.5
24	12.5	12.0	---	---	.0	.0	.0	.0	.5	.0	4.5	3.5
25	12.5	11.5	---	---	.5	.0	.0	.0	.0	.0	6.5	4.5
26	12.5	11.5	---	---	.5	.0	.0	.0	.0	.0	7.5	6.5
27	12.5	12.0	.0	.0	.0	.0	.0	.0	.0	.0	7.0	5.5
28	12.0	11.0	.0	.0	.5	.0	.0	.0	.5	.0	8.5	6.5
29	11.0	10.5	.0	.0	.0	.0	.0	.0	---	---	9.5	8.0
30	10.5	10.0	.0	.0	.5	.0	.0	.0	---	---	10.0	9.0
31	10.5	9.5	---	---	.5	.0	.0	.0	---	---	11.5	8.5
MONTH	12.5	9.5	10.0	.0	.5	.0	.5	.0	.5	.0	11.5	.0

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	12.5	10.5	17.0	16.0	23.5	22.5	22.0	22.0	27.0	25.0	22.0	20.5
2	12.5	11.5	16.5	15.0	22.0	20.5	23.0	21.5	26.5	24.5	22.0	21.0
3	12.0	11.0	17.5	15.5	22.5	21.0	23.5	22.5	25.0	23.5	22.0	21.5
4	11.5	11.0	17.5	16.0	23.5	22.0	24.5	23.0	24.5	23.5	22.5	21.5
5	13.0	11.5	18.0	16.5	23.5	21.5	25.5	24.0	24.0	23.0	22.5	21.0
6	13.0	11.5	18.5	17.5	21.5	21.0	26.5	25.0	23.0	22.0	21.5	20.5
7	12.5	11.0	19.0	18.0	22.5	21.5	26.5	25.5	23.0	21.5	20.5	19.5
8	12.0	11.0	19.0	18.0	25.0	22.0	25.5	24.5	23.5	22.0	20.0	19.0
9	12.0	10.5	19.0	18.0	23.0	21.5	25.5	---	24.0	22.5	20.0	18.5
10	11.5	10.5	19.5	18.0	24.0	22.5	---	---	24.0	23.0	20.0	19.0
11	12.0	11.0	19.5	18.5	24.0	23.0	---	---	23.5	22.0	20.0	20.0
12	12.0	11.5	20.0	17.5	24.0	21.5	---	---	24.0	23.0	20.0	18.5
13	11.5	11.0	20.0	18.5	23.0	21.5	---	---	24.0	22.5	20.0	18.5
14	11.5	10.5	19.0	18.0	23.0	21.5	---	---	22.5	21.5	19.5	18.5
15	10.5	10.0	19.5	18.5	22.0	21.0	---	25.0	23.0	22.0	19.5	19.0
16	10.5	10.0	19.0	17.0	23.0	21.5	27.0	25.5	24.0	22.5	19.5	17.5
17	11.0	10.5	19.0	18.0	23.5	22.0	28.0	26.5	25.0	23.5	18.5	17.5
18	11.5	11.0	18.5	18.0	23.0	22.0	27.5	27.0	25.0	24.0	18.0	17.0
19	12.5	11.5	18.5	18.0	24.5	23.0	28.5	27.5	25.0	24.0	17.5	17.0
20	13.0	12.5	18.0	17.0	25.5	24.0	28.5	27.0	25.5	24.0	17.5	17.0
21	13.0	11.5	18.5	17.5	26.0	24.5	28.5	27.0	25.5	24.5	17.5	17.0
22	12.0	10.0	19.5	18.5	26.0	25.0	28.5	27.0	25.0	24.0	18.5	17.5
23	12.5	11.5	19.0	18.0	26.0	24.5	28.5	27.5	25.0	24.0	19.0	18.0
24	14.0	12.0	19.5	18.5	25.5	24.0	28.5	27.0	24.0	23.0	19.0	18.5
25	15.5	14.0	18.5	17.0	25.5	23.5	27.5	26.5	24.0	22.5	19.0	19.0
26	17.0	15.5	18.5	17.5	25.0	23.0	27.5	26.5	24.0	23.5	20.0	19.0
27	18.0	16.5	18.0	17.5	25.0	24.0	27.5	27.0	24.0	21.5	21.0	20.0
28	18.0	15.5	19.0	18.0	25.5	24.0	28.0	26.5	21.5	20.5	21.5	20.5
29	17.5	15.0	20.5	19.0	25.5	24.5	28.0	26.5	21.5	20.5	21.5	21.0
30	17.5	17.0	22.0	20.0	25.5	22.5	27.5	26.5	21.5	20.0	21.5	20.5
31	---	---	23.0	21.0	---	---	27.0	26.0	21.5	20.5	---	---
MONTH	18.0	10.0	23.0	15.0	26.0	20.5	28.5	21.5	27.0	20.0	22.5	17.0
YEAR	28.5	.0										

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV 19...	1130	4080	339	8.30	5.0	13	--	--	748	250	2400
MAR 04...	1330	34000	379	8.00	1.0	5.7	--	--	754	K42	3800
MAY 28...	1000	152000	358	8.40	18.0	24	8.4	90	750	--	820
SEP 02...	1230	59400	360	8.90	21.0	12	9.9	112	756	33	63

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	HARD-NESS (MG/L AS CACO3) (00900)	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 WH WAT TOTAL FIELD MG/L AS CACO3 (00410)	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3) (99430)	BICAR-BONATE IT-FLD (MG/L AS HCO3) (99440)
NOV 19...	14	170	40	17	6.5	8	0.2	2.0	150	156	190
MAR 04...	--	150	40	13	5.0	7	0.2	2.3	171	168	205
MAY 28...	45	180	45	17	7.2	8	0.2	2.8	135	138	168
SEP 02...	26	170	41	17	7.0	8	0.2	2.7	146	147	180

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	CARBONATE IT-FLD (MG/L AS CO3) (99445)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, 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)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
NOV										
19...	0	30	13	0.1	9.5	210	220	0.29	2310	1.70
MAR										
04...	0	27	13	0.1	9.3	228	210	0.31	--	1.60
MAY										
28...	0	36	8.6	0.1	--	--	--	--	--	1.10
SEP										
02...	0	33	9.7	0.2	9.9	220	210	0.3	35300	0.59

DATE	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOSPHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV										
19...	0.02	0.06	0.80	0.8	0.04	0.06	0.13	--	--	--
MAR										
04...	0.01	0.23	0.24	0.8	0.07	0.09	0.12	13	1190	96
MAY										
28...	--	<0.10	--	1.4	--	0.05	0.16	74	30400	96
SEP										
02...	0.02	0.04	0.07	0.9	0.07	0.08	0.14	27	4330	99

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ALUMINUM, DIS-SOLVED (UG/L AS AL) (01106)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYLLIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHROMIUM, 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)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
NOV										
19...	<1	<10	35	<0.5	<1	<1	<3	5	100	2
MAR										
04...	<1	10	43	<0.5	2	<1	<3	10	150	2
MAY										
28...	--	<50	--	<2	<3	<5	<5	7	<50	--
SEP										
02...	2	<10	45	<0.5	<1	<1	<3	3	15	<5

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELENIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRONTIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANADIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV										
19...	8	12	<0.1	<10	5	<1	<1	85	<6	14
MAR										
04...	4	61	<0.1	<10	1	<1	<1	90	<6	65
MAY										
28...	--	6	<0.1	--	8	--	<7	110	9	<50
SEP										
02...	18	10	0.4	<10	2	<1	<1	98	<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 above NGVD.

REMARKS.--Estimated daily discharge: Nov. 26 to Mar. 8, Mar. 20, and 21. Records good, except for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--28 years, 69.1 ft³/s, 9.86 in/yr, 50,060 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 greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
March 19	0330	*3,780	*14.11	Sept. 29	0300	3,120	13.76
Sept. 27	0415	1,290	12.30				

Minimum discharge, 14.0 ft³/s Sept. 10-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	47	60	26	17	31	123	133	59	22	38	28
2	133	55	58	25	17	34	131	107	52	23	47	24
3	98	47	56	25	16	38	166	90	47	22	36	24
4	90	41	54	24	16	45	198	81	43	21	29	26
5	133	39	52	24	16	52	307	75	46	20	25	23
6	114	38	49	23	15	58	274	67	44	24	23	22
7	90	37	49	22	15	58	191	59	40	25	22	21
8	81	35	48	21	15	52	148	54	37	22	21	20
9	70	29	47	20	15	58	121	56	34	22	20	19
10	61	31	46	20	14	80	105	72	33	29	20	30
11	57	47	45	20	14	108	95	176	32	39	19	98
12	77	44	43	20	14	141	87	199	33	38	19	64
13	88	53	42	19	14	169	78	211	31	31	18	50
14	77	67	41	19	14	211	93	271	30	27	104	43
15	67	65	41	18	14	253	123	227	29	25	122	43
16	58	100	39	18	14	388	126	181	29	35	53	38
17	53	133	38	18	14	496	110	149	27	34	35	34
18	52	208	35	18	15	1870	103	120	27	26	26	32
19	49	284	34	18	15	3130	123	100	28	23	23	31
20	46	171	34	17	16	1030	109	85	25	22	21	51
21	43	165	34	17	16	358	94	75	25	21	21	135
22	41	139	34	17	17	247	82	68	28	20	20	243
23	41	93	33	17	20	271	74	61	29	19	19	164
24	38	104	33	17	21	228	69	57	26	20	19	113
25	34	77	30	17	22	197	66	59	24	43	20	168
26	33	75	30	17	25	216	70	124	25	38	38	236
27	31	70	30	17	27	159	79	134	26	46	192	759
28	29	68	29	17	29	135	191	105	23	302	123	283
29	27	64	28	17	---	136	238	88	23	137	61	1900
30	27	62	28	17	---	128	170	77	22	75	44	1650
31	27	---	27	17	---	114	---	68	---	50	34	---
TOTAL	2076	2488	1247	602	477	10491	3944	3429	977	1301	1312	6372
MEAN	67.0	82.9	40.2	19.4	17.0	338	131	111	32.6	42.0	42.3	212
MAX	211	284	60	26	29	3130	307	271	59	302	192	1900
MIN	27	29	27	17	14	31	66	54	22	19	18	19
CFSM	.70	.87	.42	.20	.18	3.55	1.38	1.17	.34	.44	.44	2.23
IN.	.81	.97	.49	.24	.19	4.10	1.54	1.34	.38	.51	.51	2.49
AC-FT	4120	4930	2470	1190	946	20810	7820	6800	1940	2580	2600	12640

CAL YR 1985	TOTAL	17875.0	MEAN	49.0	MAX	430	MIN	2.9	CFSM	.51	IN.	6.98	AC-FT	35460
WTR YR 1986	TOTAL	34716	MEAN	95.1	MAX	3130	MIN	14	CFSM	.00	IN.	13.57	AC-FT	68860

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 above NGVD. Prior to May 24, 1941 nonrecording gage in tailrace of powerplant 1,800 ft upstream at datum 80.00 ft lower.

REMARKS.--Estimated daily discharges: Nov. 27-30, Dec. 2-6, 11-30, Jan. 1-9, 14, 16, Jan. 26 to Feb. 1, Feb. 8-18, 22-25, Feb. 28 to Mar. 1, and Mar. 5-9. Records good except those for periods of estimated daily discharges, which are fair. U.S. Army Corps of Engineers Data Collection Platform at station.

AVERAGE DISCHARGE.--53 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 greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 20	----	11,300	13.57				

Minimum discharge, 42 ft³/s July 29, result of addition of sills to hydroelectric dam upstream

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	608	613	536	240	220	285	1440	916	2270	438	525	234
2	757	881	400	238	221	327	1360	997	1720	408	523	197
3	823	1010	350	232	216	348	1340	1000	1370	364	418	185
4	847	969	380	225	243	297	1310	931	1160	329	326	176
5	811	884	410	216	278	285	1390	837	1200	288	292	150
6	743	849	400	220	338	280	1550	768	1050	287	313	134
7	640	790	448	209	370	270	1700	699	1010	276	250	125
8	592	741	479	203	380	280	1730	644	885	314	222	117
9	584	711	489	210	370	380	1750	602	775	1450	196	123
10	550	674	505	218	320	616	1690	586	745	1410	185	131
11	492	637	480	220	290	910	1500	589	940	1530	156	147
12	515	617	450	221	280	1200	1270	589	892	1490	143	161
13	547	614	400	215	260	1680	1100	659	813	1240	140	204
14	612	724	360	210	260	2390	1040	720	756	981	207	280
15	599	827	340	210	253	2860	1020	774	720	774	208	301
16	560	900	320	210	253	3410	1020	1010	668	655	209	255
17	547	928	310	214	320	4440	1050	1370	595	553	222	250
18	563	984	300	217	400	6660	1080	1590	549	462	239	235
19	742	1020	280	220	437	9030	1090	1590	517	391	245	241
20	1050	1030	275	225	416	10800	1030	1450	473	334	205	233
21	1140	1020	280	239	384	10600	971	1240	515	293	169	228
22	1110	1110	290	245	350	10600	942	1050	857	258	143	247
23	1000	1050	305	254	325	7650	889	919	857	229	134	256
24	903	778	300	275	315	5530	837	824	768	212	114	358
25	808	768	290	265	315	4360	780	768	646	228	116	599
26	735	805	320	250	344	3450	737	1010	555	217	188	1210
27	671	720	275	238	319	2750	721	1990	491	221	187	1160
28	613	620	250	225	290	2260	723	2560	433	297	194	948
29	570	550	240	220	---	1950	711	2630	396	189	203	867
30	535	515	250	215	---	1760	805	2620	415	276	213	836
31	522	---	256	215	---	1580	---	2610	---	404	240	---
TOTAL	21789	24339	10968	7014	8767	99238	34576	36542	25041	16798	7125	10588
MEAN	703	811	354	226	313	3201	1153	1179	835	542	230	353
MAX	1140	1110	536	275	437	10800	1750	2630	2270	1530	525	1210
MIN	492	515	240	203	216	270	711	586	396	189	114	117
CFSM	.67	.77	.34	.22	.30	3.05	1.10	1.12	.80	.52	.22	.34
IN.	.77	.86	.39	.25	.31	3.52	1.23	1.30	.89	.60	.25	.38
AC-FT	43220	48280	21760	13910	17390	196800	68580	72480	49670	33320	14130	21000

CAL YR 1985	TOTAL	178590	MEAN	489	MAX	2880	MIN	38	CFSM	.47	IN.	6.34	AC-FT	354200
WTR YR 1986	TOTAL	302785	MEAN	830	MAX	10800	MIN	114	CFSM	.79	IN.	10.75	AC-FT	600600

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 22-25, 27-29, Dec. 1-4, and Dec. 12 to Mar. 9. Records good except those for periods of estimated record, which are poor. U. S. Army Corps of Engineers gage-height telemeter and Data Collection Platform at station.

COOPERATION.--One discharge measurement provided by U.S. Army Corps of Engineers.

AVERAGE DISCHARGE.--52 years, 1,559 ft³/s, 9.09 in/yr, 1,129,000 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 greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 26	0245	18,500	12.39	July 11	0215	*18,800	*12.41
May 19	1130	10,900	11.79				

Minimum discharge, 354 ft³/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	357	1620	2200	670	800	940	4980	1790	5160	4550	997	679
2	385	2260	1730	665	880	1010	3910	1710	4810	3040	923	659
3	443	2120	1610	660	1000	1500	3520	1730	4460	2520	913	653
4	499	1910	1560	650	1350	2250	3390	1750	4130	2180	960	652
5	554	1880	1700	650	2700	3300	3330	1780	4160	1940	1010	645
6	647	1950	1650	640	3000	2450	3310	1790	3720	1760	1140	659
7	730	2110	1640	630	1900	2000	3100	1730	3520	1720	1260	661
8	790	2020	1600	620	1400	1750	2940	1640	3250	2330	1650	630
9	869	1890	1560	610	1200	1800	2880	1540	2810	12600	1990	601
10	1000	1840	1510	620	1030	2510	2890	1470	2670	13600	1430	613
11	1020	1750	1460	640	960	4780	2890	1400	3460	17500	1200	784
12	971	1700	1420	680	920	4500	2860	1380	3200	11600	1050	708
13	968	1990	1330	690	900	5130	2800	1320	2830	7380	974	704
14	1010	2360	1130	660	890	6440	2650	1280	2800	4860	954	689
15	926	2210	1090	650	890	5820	2480	1360	2730	3940	985	652
16	866	2070	1030	680	890	5390	2330	1440	2550	3340	1240	623
17	849	2070	990	800	1000	5570	2190	3420	2430	2840	1080	618
18	873	2410	950	1050	1140	6220	2100	7720	2240	2470	1030	677
19	992	3810	880	1300	1300	7640	2040	10000	2070	2170	949	736
20	1290	3760	850	1500	1500	7980	2010	6630	1920	1960	892	792
21	1250	2980	820	1550	1600	8330	2000	4400	1790	1770	849	813
22	1180	2600	840	1520	1300	9680	1940	3740	1860	1600	823	829
23	1250	2320	870	1300	1100	11500	1880	3310	2090	1460	807	1630
24	1710	2100	860	1210	1000	14800	1810	2940	2540	1360	775	2190
25	2170	2050	780	1150	980	16900	1770	2670	3000	1350	736	2320
26	1900	1980	770	1050	1100	17700	1730	3090	2480	1340	738	4500
27	1710	1850	750	920	1080	16900	1660	4390	2220	1240	749	3800
28	1560	1740	720	860	920	15400	1610	5340	2830	1170	787	2490
29	1420	1660	690	820	---	12700	1560	5450	2290	1110	739	3140
30	1330	1660	720	800	---	10500	1760	5380	3030	1050	719	4990
31	1270	---	700	780	---	7850	---	5320	---	1010	703	---
TOTAL	32789	64670	36410	27025	34730	221240	76320	98910	89050	118760	31052	40137
MEAN	1058	2156	1175	872	1240	7137	2544	3191	2968	3831	1002	1338
MAX	2170	3810	2200	1550	3000	17700	4980	10000	5160	17500	1990	4990
MIN	357	1620	690	610	800	940	1560	1280	1790	1010	703	601
CFSM	.45	.93	.50	.37	.53	3.06	1.09	1.37	1.27	1.64	.43	.57
IN.	.52	1.03	.58	.43	.55	3.53	1.22	1.58	1.42	1.90	.50	.64
AC-FT	65040	128300	72220	53600	68890	438800	151400	196200	176600	235600	61590	79610

CAL YR 1985	TOTAL	519061	MEAN	1422	MAX	13800	MIN	217	CFSM	.61	IN.	8.29	AC-FT	1030000
WTR YR 1986	TOTAL	871093	MEAN	2387	MAX	17700	MIN	357	CFSM	1.02	IN.	13.91	AC-FT	1728000

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.

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

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

REMARKS.--Estimated daily discharges: Nov. 20-22, Dec. 6, 20-25, Jan. 1 to Feb. 19. Records good except those for estimated discharge, which are poor.

AVERAGE DISCHARGE.--9 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.--Peak discharges greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 17	1545	500	6.00	Sept. 24	1900	420	5.81
July 9	0100	*553	*6.18				

Minimum discharge, 0.92 ft³/s Aug. 22, 24, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	89	114	5.6	5.4	17	11	11	39	19	6.0	1.8
2	2.6	42	93	5.4	6.1	33	10	8.1	30	13	5.5	2.1
3	2.6	21	58	5.0	8.0	69	15	7.4	25	11	4.3	2.3
4	2.8	18	35	4.8	150	72	13	7.1	21	9.6	3.8	2.3
5	3.8	15	30	4.7	60	37	15	7.2	33	9.1	4.2	1.9
6	3.1	18	27	4.5	20	10	10	6.4	21	23	28	1.9
7	2.9	15	24	4.3	12	8.3	11	6.5	20	23	11	2.1
8	3.1	10	21	4.3	9.0	7.8	10	6.1	17	98	48	2.2
9	40	21	19	7.0	7.2	7.6	9.3	5.9	15	175	7.4	2.2
10	17	32	19	8.6	6.4	15	9.3	6.3	50	70	6.0	2.9
11	3.4	14	17	7.0	5.9	26	8.8	6.3	23	61	5.3	13
12	9.8	44	14	7.0	5.7	22	8.8	5.8	18	73	5.1	3.0
13	5.5	44	13	4.2	5.6	36	8.3	5.6	16	42	5.0	2.6
14	2.6	42	11	3.6	5.5	23	14	5.4	34	31	11	2.7
15	2.2	27	10	3.3	5.4	18	10	7.2	18	26	6.5	2.6
16	1.8	49	9.3	7.2	5.6	15	8.8	11	15	20	5.6	2.5
17	2.2	27	8.5	17	6.4	14	8.0	250	12	16	5.4	3.3
18	16	54	7.8	40	7.6	35	8.5	114	12	14	2.5	8.5
19	35	54	7.6	21	21	35	8.7	45	12	12	1.3	33
20	40	38	7.4	11	43	21	8.1	27	11	10	1.2	16
21	15	25	7.4	11	16	18	7.7	18	10	9.9	1.0	10
22	10	20	8.7	13	7.3	17	6.9	13	20	8.4	.98	11
23	23	20	12	9.6	5.7	16	7.2	11	10	8.1	1.0	25
24	50	17	7.4	6.6	5.3	14	8.0	8.9	8.7	7.0	1.0	121
25	11	16	6.6	6.0	5.6	14	8.0	40	8.0	17	1.1	35
26	7.9	15	7.6	5.4	6.2	17	7.3	81	7.7	6.6	2.8	13
27	6.2	12	6.4	5.2	7.2	13	6.6	82	13	5.9	1.6	9.1
28	5.9	12	6.1	5.0	9.2	13	6.9	60	11	5.4	1.2	8.7
29	4.5	9.7	5.7	5.0	---	12	6.0	52	7.8	5.4	1.2	32
30	4.1	9.9	5.8	4.9	---	12	32	45	75	4.8	1.2	43
31	7.4	---	6.2	5.0	---	11	---	48	---	4.5	1.4	---
TOTAL	344.3	830.6	625.5	252.2	458.3	678.7	302.2	1008.2	613.2	838.7	187.58	416.7
MEAN	11.1	27.7	20.2	8.14	16.4	21.9	10.1	32.5	20.4	27.1	6.05	13.9
MAX	50	89	114	40	150	72	32	250	75	175	48	121
MIN	1.8	9.7	5.7	3.3	5.3	7.6	6.0	5.4	7.7	4.5	.98	1.8
CFSM	.62	1.56	1.13	.46	.92	1.23	.57	1.83	1.15	1.52	.34	.78
IN.	.72	1.74	1.31	.53	.96	1.42	.63	2.11	1.28	1.75	.39	.87
AC-FT	683	1650	1240	500	909	1350	599	2000	1220	1660	372	827

CAL YR 1985	TOTAL	5568.13	MEAN	15.3	MAX	194	MIN	.22	CFSM	.86	IN.	11.64	AC-FT	11040
WTR YR 1986	TOTAL	6556.18	MEAN	18.0	MAX	250	MIN	.98	CFSM	1.01	IN.	13.70	AC-FT	13000

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 above NGVD. Apr. 1, 1948, to Sept. 30, 1955, nonrecording gage 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.--Estimated daily discharge: Nov. 22 to March 16, and March 20. Records good, except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--37 years (water years 1948-76, 1978-86), 67.6 ft³/s, 6.90 in/yr, 48,980 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 floodmark, 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 greater than base discharge of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
March 18	----	*840	unknown	No other peak greater than base discharge.			

Minimum daily discharge, 13.0 ft³/s Aug. 24, Sept. 6-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	392	69	50	21	22	50	208	165	107	46	39	15
2	282	65	48	21	23	80	212	141	97	42	34	15
3	211	63	47	20	23	120	199	129	94	39	30	15
4	182	60	46	20	23	130	297	124	91	38	25	16
5	195	60	45	20	23	175	511	118	87	38	24	14
6	183	61	43	20	23	170	488	103	84	298	21	13
7	162	57	43	20	22	170	365	95	81	284	19	13
8	151	57	41	21	22	175	263	93	75	193	18	13
9	132	56	40	21	22	185	210	98	71	289	17	13
10	126	48	38	21	22	195	179	125	70	267	17	15
11	120	58	37	21	22	220	159	278	70	335	16	20
12	127	57	36	21	22	230	141	323	68	265	16	18
13	131	59	35	22	21	240	130	337	64	186	19	16
14	127	60	34	22	21	250	149	624	63	142	23	16
15	122	63	33	22	20	300	161	582	61	121	17	36
16	113	75	32	22	21	350	149	438	59	106	16	31
17	107	90	31	22	21	405	140	323	53	89	15	26
18	104	143	30	22	21	748	143	250	58	75	15	21
19	102	192	29	22	21	768	167	205	57	65	15	22
20	102	200	28	22	21	635	158	180	53	56	14	26
21	99	169	28	22	21	493	133	163	67	50	14	36
22	97	115	27	22	21	367	122	148	82	47	14	34
23	95	86	26	22	22	294	116	135	75	41	14	31
24	86	110	25	22	22	233	107	126	67	41	13	30
25	82	98	25	21	22	212	97	122	61	150	18	64
26	81	80	24	21	22	193	103	121	57	132	53	63
27	76	70	23	21	22	167	127	126	53	94	44	68
28	73	64	23	21	25	156	252	131	48	75	28	78
29	72	60	23	21	---	151	247	126	47	63	20	146
30	70	56	22	22	---	144	203	122	48	55	18	162
31	70	---	22	22	---	143	---	115	---	47	16	---
TOTAL	4072	2501	1034	660	613	8149	5936	6166	2068	3769	662	1086
MEAN	131	83.4	33.4	21.3	21.9	263	198	199	68.9	122	21.4	36.2
MAX	392	200	50	22	25	768	511	624	107	335	53	162
MIN	70	48	22	20	20	50	97	93	47	38	13	13
CFSM	.98	.63	.25	.16	.16	1.98	1.49	1.50	.52	.92	.16	.27
IN.	1.14	.70	.29	.18	.17	2.28	1.66	1.72	.58	1.05	.19	.30
AC-FT	8080	4960	2050	1310	1220	16160	11770	12230	4100	7480	1310	2150

CAL YR 1985	TOTAL	19954.6	MEAN	54.7	MAX	843	MIN	3.3	CFSM	.41	IN.	5.58	AC-FT	39580
WTR YR 1986	TOTAL	36716	MEAN	101	MAX	768	MIN	13	CFSM	.76	IN.	10.27	AC-FT	72830

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 above NGVD. Prior to Oct. 14, 1948, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharge: Nov. 25 to March 8. Records good, except those for estimated daily dis-, charges, which are poor.

AVERAGE DISCHARGE.--45 years (water years 1941-76, 1978-86), 219 ft³/s, 6.93 in/yr, 158,700 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 greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 20	0900	*2,070	*11.42	May 16	1345	1380	10.06
Apr. 7	1130	1,270	9.84				

Minimum discharge, 62 ft³/s Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1030	226	240	78	76	100	478	661	499	207	244	85
2	1080	213	200	76	76	140	580	542	431	196	202	78
3	992	198	160	74	76	170	618	462	385	179	173	77
4	799	185	140	72	80	460	649	421	393	165	153	80
5	680	179	140	70	84	580	882	395	840	156	140	77
6	656	176	140	68	88	760	1160	369	772	473	132	72
7	610	173	135	68	90	750	1250	331	555	793	123	68
8	540	165	130	70	90	640	1160	314	473	775	114	64
9	476	164	130	70	88	546	940	312	408	804	108	63
10	426	150	125	70	88	733	719	385	358	887	103	64
11	398	133	125	72	86	840	583	706	329	956	98	66
12	405	172	120	72	86	741	504	975	307	951	93	74
13	434	174	120	72	84	667	448	1060	283	886	97	71
14	442	185	115	74	84	678	437	1150	263	680	98	66
15	420	194	115	74	84	785	479	1310	251	508	99	72
16	400	219	110	74	84	984	489	1370	234	417	90	82
17	373	265	110	76	82	1160	455	1310	216	351	84	81
18	433	331	110	76	82	1520	432	1140	214	296	80	79
19	598	455	105	78	82	1890	460	920	211	251	77	92
20	550	503	105	78	84	2000	511	724	199	217	74	101
21	475	425	105	78	84	1800	480	606	364	191	72	108
22	428	456	100	80	84	1530	413	534	615	176	71	111
23	394	450	100	80	84	1280	374	480	500	162	70	107
24	364	382	96	80	86	1060	350	440	376	151	69	103
25	324	350	94	80	86	869	337	420	308	548	67	123
26	299	320	92	80	88	745	333	452	267	926	202	167
27	285	300	90	80	90	656	363	496	238	686	326	402
28	259	270	86	80	94	569	508	537	222	469	194	453
29	243	260	84	80	---	516	714	602	209	455	137	432
30	233	250	82	78	---	485	758	689	213	378	111	524
31	227	---	80	76	---	458	---	590	---	300	96	---
TOTAL	15273	7923	3684	2334	2370	26112	17864	20703	10933	14590	3797	4042
MEAN	493	264	119	75.3	84.6	842	595	668	364	471	122	135
MAX	1080	503	240	80	94	2000	1250	1370	840	956	326	524
MIN	227	133	80	68	76	100	333	312	199	151	67	63
CFSM	1.15	.62	.28	.18	.20	1.96	1.39	1.56	.85	1.10	.28	.31
IN.	1.32	.69	.32	.20	.21	2.26	1.55	1.80	.95	1.27	.33	.35
AC-FT	30290	15720	7310	4630	4700	51790	35430	41060	21690	28940	7530	8020

CAL YR 1985	TOTAL	72796	MEAN	199	MAX	1860	MIN	23	CFSM	.46	IN.	6.31	AC-FT	144400
WTR YR 1986	TOTAL	129625	MEAN	355	MAX	2000	MIN	63	CFSM	.83	IN.	11.24	AC-FT	257100

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 above NGVD. See WSP 1728 for history of changes prior to Sept. 21, 1934.

REMARKS.--Estimated daily discharges: Oct. 24 to Nov. 11, Nov. 20 to Mar. 17, May 5-12, and July 5-7. Records are good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers data collection platform at station.

AVERAGE DISCHARGE.--68 years (water years 1903, 1915-27, 1933-86), 823 ft³/s 7.15 in/yr, 596,300 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 greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 14	----	6,800	ice jam	July 1	0345	*10,600	*18.10
Mar. 19	1030	7,460	16.89				

Minimum daily discharge, 290 ft³/s Jan. 7-10, 13-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1090	704	490	305	340	540	1980	2210	2410	8540	1070	473
2	1050	691	480	300	340	640	2070	2110	2190	4690	946	429
3	1090	687	460	305	340	830	2120	1940	1980	3110	836	436
4	1140	641	450	300	370	1050	2650	1750	1860	2410	757	456
5	1200	597	440	300	480	1500	3500	1610	2490	2060	711	399
6	1190	589	430	300	550	1650	3380	1510	2280	1750	735	383
7	1110	577	420	290	540	1600	3020	1410	2260	1650	698	365
8	1000	554	410	290	560	1550	2770	1390	2230	1920	650	346
9	940	561	400	290	550	1700	2690	1400	2030	2660	621	337
10	878	550	400	290	520	1800	2670	1750	1790	2690	596	326
11	828	534	390	300	490	1960	2520	2440	1630	3150	583	341
12	845	546	390	300	480	2160	2240	3470	1560	2910	556	329
13	919	544	390	290	460	3200	1920	3420	1590	2930	564	334
14	870	551	380	290	450	6800	1740	3770	1500	2790	2810	369
15	810	591	380	290	440	5800	1660	3870	1410	2580	1460	369
16	796	616	380	300	430	4000	1620	4600	1350	2290	962	398
17	777	644	380	300	420	4500	1460	4670	1210	1940	778	394
18	798	672	370	300	420	5570	1550	4330	1190	1580	679	390
19	1060	725	370	305	410	6940	1590	3860	1170	1360	607	493
20	1370	742	370	310	400	6090	1570	3460	1110	1200	552	1440
21	1370	725	360	330	410	5570	1550	3050	1370	1100	514	2630
22	1330	700	360	350	400	5140	1480	2740	3030	1030	477	1500
23	1330	660	350	360	395	4910	1430	2340	2090	1020	446	1190
24	1060	580	350	370	390	4400	1350	2100	2010	934	416	1020
25	959	570	345	360	380	3740	1270	2060	1780	967	413	1740
26	850	580	330	360	380	3180	1210	1920	1510	953	484	2000
27	823	580	320	350	420	2690	1240	2280	1330	1210	594	1570
28	796	560	320	340	470	2390	1430	2730	1250	1410	617	1440
29	796	540	310	350	---	2180	1710	2730	1450	1710	701	2020
30	764	510	300	350	---	1880	2000	2650	6210	1580	638	2230
31	751	---	305	340	---	1850	---	2500	---	1130	538	---
TOTAL	30590	18321	11830	9815	12235	97810	59390	82070	57270	67254	23009	26147
MEAN	987	611	382	317	437	3155	1980	2647	1909	2169	742	872
MAX	1370	742	490	370	560	6940	3500	4670	6210	8540	2810	2630
MIN	751	510	300	290	340	540	1210	1390	1110	934	413	326
CFSM	.63	.39	.24	.20	.28	2.02	1.27	1.69	1.22	1.39	.47	.56
IN.	.73	.44	.28	.23	.29	2.33	1.41	1.95	1.36	1.60	.55	.62
AC-FT	60680	36340	23460	19470	24270	194000	117800	162800	113600	133400	45640	51860

CAL YR 1985	TOTAL	216097	MEAN	592	MAX	6010	MIN	76	CFSM	.38	IN.	5.14	AC-FT	428600
WTR YR 1986	TOTAL	495741	MEAN	1358	MAX	8540	MIN	290	CFSM	.87	IN.	11.79	AC-FT	983300

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 25 to March 10, and Sept. 29. Records good except those for estimated daily discharges, which are poor. U. S. Army Corps of Engineers data collection platform at station.

AVERAGE DISCHARGE.--37 years, 134 ft³/s, 8.60 in/yr, 54,120 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 greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 13	1045	2,060	13.02	Aug. 14	1315	2,480	13.50
Mar. 19	0530	1,190	10.41	Sept. 21	0615	*4,030	*15.16
May 17	0745	1,720	12.04	Sept. 25	0400	1,220	10.53
June 21	2245	1,260	10.68	Sept. 29	----	1,900	unknown
June 30	----	2,500	unknown				

Minimum discharge, 8.3 ft³/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	37	26	21	28	110	84	153	223	555	65	55
2	19	32	25	20	29	300	87	120	196	363	63	52
3	14	29	24	20	36	360	98	106	183	266	57	54
4	12	28	24	20	110	280	138	98	196	242	54	56
5	9.8	27	23	20	370	225	155	92	259	210	56	50
6	9.1	28	22	20	200	180	135	83	202	208	61	49
7	9.4	29	22	20	125	170	120	76	181	181	53	49
8	15	27	21	20	105	160	106	72	162	181	49	47
9	13	25	21	20	90	185	97	80	147	210	46	50
10	25	24	20	20	80	270	91	119	142	181	46	59
11	27	25	20	20	73	177	88	143	140	188	43	84
12	77	24	20	20	64	346	83	106	135	171	40	65
13	68	26	20	21	56	1420	78	95	118	155	124	96
14	42	25	20	22	50	286	81	101	136	136	1640	74
15	36	24	20	23	46	213	81	216	160	127	479	63
16	31	27	20	24	44	167	80	371	137	119	228	56
17	29	27	20	26	41	145	72	1000	118	110	172	54
18	37	27	20	33	38	278	72	444	119	94	141	54
19	81	29	20	41	36	654	81	325	107	94	124	244
20	68	32	20	54	35	257	72	269	98	93	110	1530
21	55	36	20	58	34	193	71	236	377	86	101	2420
22	48	32	20	48	34	167	68	209	578	77	94	445
23	45	30	20	42	34	145	63	190	215	73	85	368
24	45	28	20	37	35	127	61	180	170	71	79	374
25	39	27	20	33	36	122	58	296	147	119	78	681
26	36	26	20	31	39	113	57	289	129	83	83	352
27	34	26	20	29	48	103	54	379	120	73	71	290
28	31	25	21	29	67	100	62	431	110	69	68	275
29	30	25	21	28	---	98	58	371	331	142	64	1500
30	29	25	21	28	---	86	149	303	1340	87	63	676
31	28	---	21	28	---	83	---	255	---	73	58	---
TOTAL	1065.3	832	652	876	1983	7520	2600	7208	6676	4837	4495	10222
MEAN	34.4	27.7	21.0	28.3	70.8	243	86.7	233	223	156	145	341
MAX	81	37	26	58	370	1420	155	1000	1340	555	1640	2420
MIN	9.1	24	20	20	28	83	54	72	98	69	40	47
CFSM	.29	.23	.18	.24	.60	2.06	.73	1.97	1.89	1.32	1.23	2.89
IN.	.34	.26	.21	.28	.63	2.37	.82	2.27	2.10	1.52	1.42	3.22
AC-FT	2110	1650	1290	1740	3930	14920	5160	14300	13240	9590	8920	20280

CAL YR 1985	TOTAL	13777.0	MEAN	37.7	MAX	849	MIN	1.8	CFSM	.32	IN.	4.34	AC-FT	27330
WTR YR 1986	TOTAL	48966.3	MEAN	134	MAX	2420	MIN	9.1	CFSM	1.14	IN.	15.44	AC-FT	97120

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 above NGVD. Prior to Oct. 1, 1971, at datum 10.00 ft higher.

REMARKS.--Estimated daily discharge: Nov. 21 to Mar. 10. Records are good except those for estimated daily discharges, which are poor. U.S. Army Corp of Engineers Data Collection Platform at gage.

AVERAGE DISCHARGE.--37 years, 36.6 ft³/s, 8.86 in/yr, 26,520 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 greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 15	1630	1,430	17.94	Aug. 14	0715	2,200	19.60
May 17	0500	2,170	19.55	Sept. 20	1900	1,570	18.30
June 30	1030	*2,390	*19.97	Sept. 29	0630	1,240	17.41

Minimum daily discharge, 0.50 ft³/s, Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	14	10	7.5	12	30	29	71	126	179	20	21
2	2.6	14	10	7.5	13	68	27	56	105	117	20	20
3	1.6	13	10	7.5	15	91	33	49	95	92	18	20
4	1.4	12	10	7.5	50	74	35	45	87	79	18	19
5	1.1	11	10	7.5	150	45	34	42	82	68	24	17
6	.92	11	10	8.0	70	34	32	37	77	62	26	17
7	.83	11	10	8.0	51	31	30	34	73	61	20	18
8	.72	9.8	10	8.0	41	28	28	33	65	69	19	17
9	3.3	9.7	9.5	8.0	27	47	27	32	61	60	17	28
10	5.7	9.9	9.0	8.0	21	110	26	39	62	63	17	22
11	6.1	9.4	9.0	8.0	18	68	26	38	97	67	16	29
12	14	9.5	9.0	8.0	17	233	25	34	64	54	16	23
13	16	11	8.5	8.5	16	260	23	33	56	46	164	24
14	9.6	12	8.5	8.5	15	73	28	31	83	43	1010	24
15	5.7	12	8.5	8.5	14	52	28	365	79	42	243	22
16	4.6	13	8.5	9.0	13	45	26	383	66	39	80	21
17	4.2	13	8.0	10	12	45	24	949	59	36	59	21
18	6.2	14	8.0	12	12	107	25	258	56	33	49	21
19	14	15	8.0	15	11	181	25	171	52	31	43	103
20	16	13	8.0	23	11	67	23	137	48	29	38	542
21	14	11	8.0	21	11	53	23	114	201	27	36	192
22	13	9.5	8.0	18	10	48	20	100	167	27	33	100
23	12	9.0	8.0	16	10	42	21	89	75	26	32	90
24	14	9.5	8.0	15	10	38	20	82	61	25	29	179
25	12	11	8.0	14	10	38	18	270	55	36	29	334
26	11	11	8.0	14	10	35	18	296	50	27	68	119
27	10	11	8.0	13	11	33	17	400	47	25	30	106
28	9.8	11	8.0	13	15	32	20	341	48	24	25	103
29	9.1	10	8.0	13	---	30	21	299	64	26	25	592
30	9.0	10	7.5	12	---	28	116	200	1340	23	24	337
31	9.1	---	7.5	12	---	27	---	155	---	22	22	---
TOTAL	243.27	340.3	269.5	349.0	676	2093	848	5183	3601	1558	2270	3181
MEAN	7.85	11.3	8.69	11.3	24.1	67.5	28.3	167	120	50.3	73.2	106
MAX	16	15	10	23	150	260	116	949	1340	179	1010	592
MIN	.72	9.0	7.5	7.5	10	27	17	31	47	22	16	17
CFSM	.14	.20	.15	.20	.43	1.20	.50	2.98	2.14	.90	1.30	1.89
IN.	.16	.23	.18	.23	.45	1.39	.56	3.44	2.39	1.03	1.51	2.11
AC-FT	483	675	535	692	1340	4150	1680	10280	7140	3090	4500	6310

CAL YR 1985	TOTAL	7063.80	MEAN	19.4	MAX	1100	MIN	.63	CFSM	.35	IN.	4.68	AC-FT	14010
WTR YR 1986	TOTAL	20612.07	MEAN	56.5	MAX	1340	MIN	.72	CFSM	1.01	IN.	13.67	AC-FT	40880

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 above 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.--Estimated daily discharges: Nov. 13 to Mar. 10 and Sept. 19-20, 25-30. Records good except those for periods of estimated discharges, which are poor. U.S. Army Corps of Engineers rain-gage telemeter and data collection platform at station.

AVERAGE DISCHARGE.--41 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.--Maximum discharge observed, 35,000 ft³/s June 13, 1947, gage height, 17.6 ft from rating curve extended above 17,000 ft³/s; maximum gage height, 20.00 ft June 15, 1982; minimum daily dis- 0.85 ft³/s Jan. 31, 1977.

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 greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 10	1830	2,600	15.90	May 27	1830	2,300	14.64
Mar. 13	0930	1,780	14.87	June 30	1900	*7,590	*16.88
Mar. 19	0700	1,660	13.53	Sept. 29	unknown	2,600	unknown
May 17	0615	1,550	13.25				

Minimum discharge, 13 ft³/s Oct. 7, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	82	41	29	44	52	117	81	371	3260	75	42
2	21	108	39	29	47	51	109	75	314	689	72	40
3	17	80	37	29	53	70	114	69	287	494	68	42
4	15	67	36	29	70	200	114	68	269	409	65	40
5	16	62	35	29	95	500	112	69	257	344	71	40
6	14	63	34	29	175	250	106	67	263	300	125	41
7	14	63	32	28	350	220	101	63	244	289	78	41
8	14	58	32	28	220	205	93	59	218	291	70	37
9	20	57	31	27	130	358	89	60	201	306	64	47
10	41	57	31	28	90	2110	88	60	207	327	64	50
11	37	53	30	28	74	1470	86	67	344	427	59	51
12	112	53	30	29	69	753	85	64	238	368	57	50
13	95	62	30	30	68	1730	83	63	201	282	66	49
14	56	58	30	29	68	720	87	63	237	239	169	47
15	45	56	30	29	66	427	88	142	252	220	110	48
16	39	54	30	30	62	434	84	509	216	199	84	45
17	36	54	30	31	59	336	83	1020	184	177	74	50
18	41	56	30	35	56	664	82	496	180	159	67	61
19	74	62	30	45	55	1150	82	331	171	146	62	86
20	76	70	30	74	55	395	79	263	156	133	59	179
21	62	64	30	65	54	292	76	223	300	122	57	108
22	55	60	31	59	54	249	73	197	581	113	55	86
23	54	54	31	54	53	222	73	179	269	107	52	78
24	83	50	31	52	53	193	70	168	213	101	49	78
25	62	46	30	49	52	187	68	197	186	135	49	144
26	55	42	31	48	53	169	66	1010	170	110	98	283
27	50	40	31	47	52	149	63	2080	157	100	71	136
28	44	39	31	46	52	145	65	1180	145	95	53	295
29	43	38	31	45	---	138	64	678	146	93	50	1880
30	42	39	30	45	---	127	80	535	4270	86	47	926
31	41	---	30	44	---	118	---	436	---	82	45	---
TOTAL	1408	1747	985	1199	2329	14084	2580	10572	11247	10203	2185	5100
MEAN	45.4	58.2	31.8	38.7	83.2	454	86.0	341	375	329	70.5	170
MAX	112	108	41	74	350	2110	117	2080	4270	3260	169	1880
MIN	14	38	30	27	44	51	63	59	145	82	45	37
CFSM	.23	.29	.16	.19	.41	2.26	.43	1.70	1.87	1.64	.35	.85
IN.	.26	.32	.18	.22	.43	2.61	.48	1.96	2.08	1.89	.40	.94
AC-FT	2790	3470	1950	2380	4620	27940	5120	20970	22310	20240	4330	10120

CAL YR 1985	TOTAL	32540.1	MEAN	89.2	MAX	3780	MIN	6.5	CFSM	.44	IN.	6.02	AC-FT	64540
WTR YR 1986	TOTAL	63639	MEAN	174	MAX	4270	MIN	14	CFSM	.87	IN.	11.78	AC-FT	126200

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 23 to Mar. 13, May 1, 2, May 9-29, and Sept. 21-28. Records good except those for periods of estimated discharge, which are poor. U. S. Army Corps of Engineers gage-height data collection platform at station.

AVERAGE DISCHARGE.--37 years, 45.5 ft³/s, 8.71 in/yr, 32,960 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 greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 25	2200	1,430	11.55	Aug. 15	0115	*3,880	*15.22
June 30	0400	3,800	15.16				

Minimum daily discharge, 0.80 ft³/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	27	19	12	20	57	61	86	149	177	23	28
2	2.6	22	20	12	20	97	58	70	125	135	23	27
3	1.8	18	18	12	20	150	66	62	114	109	20	26
4	1.9	16	17	12	110	120	65	56	104	99	19	25
5	1.6	14	16	12	115	74	62	53	103	83	35	23
6	1.0	15	16	12	92	51	59	47	94	75	35	22
7	.80	15	15	11	86	46	59	45	88	79	24	21
8	1.0	14	15	11	74	45	53	43	79	116	21	20
9	5.4	13	15	11	47	44	50	42	73	165	19	71
10	9.6	14	15	11	38	49	49	59	90	107	19	40
11	6.0	13	15	11	33	65	48	55	175	108	16	41
12	23	17	14	11	29	180	46	49	90	87	15	33
13	13	23	14	11	27	205	43	58	77	74	79	35
14	7.7	22	13	11	24	146	47	47	140	67	405	35
15	6.1	21	13	12	23	118	44	177	109	63	919	32
16	5.0	22	13	14	22	106	42	389	93	57	144	28
17	4.9	20	13	21	21	109	40	453	81	52	101	27
18	8.6	27	13	35	20	210	40	307	80	48	83	27
19	27	34	13	67	19	282	39	210	72	45	71	141
20	21	32	13	48	18	139	36	168	65	40	61	116
21	16	36	13	33	18	116	34	140	170	38	54	60
22	13	26	13	27	17	106	34	119	206	36	49	35
23	18	25	13	24	17	96	32	106	111	34	45	65
24	19	26	13	22	17	90	31	104	91	32	40	30
25	14	24	13	20	16	89	30	195	82	45	38	130
26	13	23	13	19	19	81	28	380	71	33	71	60
27	12	21	12	18	21	75	27	378	66	31	43	35
28	10	20	12	18	27	74	27	331	65	29	36	23
29	10	19	12	17	---	70	27	285	78	31	34	275
30	9.6	18	12	18	---	65	173	221	1170	26	32	308
31	10	---	12	19	---	62	---	174	---	25	30	---
TOTAL	297.70	637	438	592	1010	3217	1450	4909	4111	2146	2604	1839
MEAN	9.60	21.2	14.1	19.1	36.1	104	48.3	158	137	69.2	84.0	61.3
MAX	27	36	20	67	115	282	173	453	1170	177	919	308
MIN	.80	13	12	11	16	44	27	42	65	25	15	20
CFSM	.14	.30	.20	.27	.51	1.47	.68	2.23	1.93	.98	1.18	.86
IN.	.16	.33	.23	.31	.53	1.69	.76	2.58	2.16	1.13	1.37	.96
AC-FT	590	1260	869	1170	2000	6380	2880	9740	8150	4260	5170	3650

CAL YR 1985	TOTAL	10048.45	MEAN	27.5	MAX	2500	MIN	.80	CFSM	.39	IN.	5.27	AC-FT	19930
WTR YR 1986	TOTAL	23250.70	MEAN	63.7	MAX	1170	MIN	.80	CFSM	.90	IN.	12.20	AC-FT	46120

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 above 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.--Estimated daily discharges: Nov. 19 to Feb. 5, Feb. 9 to Mar. 4. Records good except those for periods of estimated record, which are poor. U. S. Army Corps of Engineers data collection platform at station.

AVERAGE DISCHARGE.--41 years, 125 ft³/s, 8.98 in/yr, 90,560 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 greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 5	----	ice jam	*23.89	Aug. 15	1245	*5,190	23.12
May 17	0545	4,020	21.76	Sept. 21	0215	4,520	22.40
May 26	0500	2,370	19.14	Sept. 23	0115	3,130	20.48
June 30	1000	4,040	21.83	Sept. 25	0400	3,320	20.78
July 9	0715	4,390	22.24				

Minimum discharge, 0.40 ft³/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	133	70	40	37	50	134	329	434	640	83	80
2	11	122	65	40	37	64	128	229	366	421	79	76
3	5.9	83	60	40	38	85	142	188	326	325	73	71
4	5.2	67	56	40	62	190	160	169	305	278	70	70
5	3.1	59	52	40	800	462	148	158	321	241	71	63
6	2.4	58	51	40	507	169	136	142	287	213	108	61
7	1.7	56	50	39	229	112	130	132	268	222	79	59
8	2.4	49	49	39	142	112	118	126	247	253	69	57
9	13	47	48	38	91	185	111	122	227	2210	63	97
10	55	44	47	38	77	702	111	140	223	768	62	114
11	38	40	46	38	59	482	108	198	445	647	58	83
12	124	60	45	38	51	581	105	135	309	457	54	77
13	90	119	44	38	49	949	100	132	233	337	155	82
14	39	110	43	39	48	378	106	124	501	278	2660	98
15	25	94	42	39	48	241	107	878	404	249	4070	76
16	18	94	43	40	49	202	101	1190	299	222	863	67
17	14	82	43	41	47	186	95	2580	251	198	490	66
18	17	152	42	54	45	334	94	1200	232	178	345	70
19	50	230	42	82	43	973	96	720	216	164	273	271
20	112	120	42	105	40	386	90	559	195	151	229	1610
21	66	115	42	98	41	283	86	469	208	139	199	2000
22	48	105	42	85	38	244	83	404	969	130	175	822
23	112	97	41	80	37	218	82	355	375	123	156	1370
24	197	90	41	78	35	194	81	326	281	116	140	624
25	89	84	41	72	33	191	80	398	239	132	132	1700
26	66	80	41	54	34	183	77	1410	215	122	131	603
27	52	77	40	40	38	165	74	1270	198	106	127	447
28	42	72	40	37	43	162	75	1010	189	100	105	380
29	38	70	40	36	---	155	75	793	310	100	99	745
30	34	66	40	35	---	144	684	663	2200	103	94	807
31	34	---	40	35	---	135	---	515	---	89	86	---
TOTAL	1433.7	2675	1428	1558	2798	8917	3717	17064	11273	9712	11398	12746
MEAN	46.2	89.2	46.1	50.3	99.9	288	124	550	376	313	368	425
MAX	197	230	70	105	800	973	684	2580	2200	2210	4070	2000
MIN	1.7	40	40	35	33	50	74	122	189	89	54	57
CFS	.24	.47	.24	.27	.53	1.52	.66	2.91	1.99	1.66	1.95	2.25
IN.	.28	.53	.28	.31	.55	1.76	.73	3.36	2.22	1.91	2.24	2.51
AC-FT	2840	5310	2830	3090	5550	17690	7370	33850	22360	19260	22610	25280

CAL YR 1985	TOTAL	31672.3	MEAN	86.8	MAX	3780	MIN	1.7	CFSM	.46	IN.	6.23	AC-FT	62820
WTR YR 1986	TOTAL	84719.7	MEAN	232	MAX	4070	MIN	1.7	CFSM	1.23	IN.	16.67	AC-FT	168000

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 22 to Mar. 13, July 5-6. Records good except those for periods of estimated discharge, which are poor. U. S. Army Corps of Engineers Data Collection Platform at gage.

AVERAGE DISCHARGE.--30 years, 1,853 ft³/s, 9.01 in/yr , 1,342,000 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 greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 15	0330	8,500	15.71	July 2	2400	11,600	16.38
Mar. 19	1430	10,400	16.65	July 9	1115	8,850	15.49
May 18	0045	*13,100	*16.59	Aug. 15	2030	10,400	16.20
May 29	0030	9,780	15.66	Sept. 25	0945	8,910	15.83

Minimum daily discharge, 460 ft³/s Jan. 8-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1000	1180	820	490	550	1600	2540	3490	6160	8460	2050	1150
2	1080	1240	810	480	540	1970	2540	3360	5130	10200	1830	1050
3	1130	1170	760	480	540	2300	2630	3250	4510	10600	1700	981
4	1090	1090	740	485	850	2700	2700	3060	4040	9400	1550	936
5	1100	1040	720	485	1550	3200	2890	2920	3730	8200	1470	929
6	1160	1000	700	485	1500	3800	3230	2670	3720	7200	1610	909
7	1220	981	690	480	1360	4200	3580	2440	3970	6360	1500	849
8	1230	943	680	460	1290	4100	3560	2250	3670	4430	1380	815
9	1210	920	670	460	1200	4300	3280	2220	3430	7090	1380	891
10	1220	896	670	470	1150	4600	3070	2090	3410	5190	1300	1060
11	1200	865	660	480	1130	5000	2980	2170	4030	5180	1210	916
12	1280	881	660	490	1050	5700	2900	2510	3450	5200	1140	904
13	1340	974	640	480	1000	6600	2730	3290	2970	5030	1170	899
14	1270	966	620	480	980	8520	2520	3660	3260	4500	6690	917
15	1210	932	610	490	970	8020	2350	4380	3400	4230	8880	912
16	1110	929	590	490	950	6950	2220	6960	3130	3860	7060	893
17	1040	949	580	500	930	6980	2120	11300	2820	3500	3860	863
18	1020	1030	570	530	910	8210	2040	12300	2630	3130	2630	888
19	1040	1310	560	650	890	10300	1930	10800	2450	2760	2160	1090
20	1260	1180	560	720	870	9290	2000	9350	2280	2440	1900	2270
21	1460	1120	540	750	860	8060	1970	8650	2200	2210	1660	5160
22	1620	1090	550	780	850	7550	1930	8030	3990	2080	1520	4560
23	1660	1060	550	760	840	8470	1890	6790	4490	1960	1360	6740
24	1790	1050	550	750	830	8140	1850	5140	4320	1840	1270	5090
25	1610	1040	540	740	840	7470	1810	4260	3550	1880	1190	8080
26	1450	920	530	700	860	6720	1770	6270	3180	1900	1170	6240
27	1320	880	520	640	920	6030	1690	8160	2870	1820	1310	4630
28	1210	840	510	620	1050	5080	1650	9100	2620	1790	1210	3910
29	1140	840	500	590	---	3880	1720	9330	2580	1960	1200	4340
30	1080	830	490	520	---	3220	4190	8550	8130	2150	1200	5930
31	1040	---	495	560	---	2820	---	7380	---	2340	1220	---
TOTAL	38590	30146	19085	17495	27260	175780	74280	176130	110120	138890	66780	74802
MEAN	1245	1005	616	564	974	5670	2476	5682	3671	4480	2154	2493
MAX	1790	1310	820	780	1550	10300	4190	12300	8130	10600	8880	8080
MIN	1000	830	490	460	540	1600	1650	2090	2200	1790	1140	815
CFSM	.45	.36	.22	.20	.35	2.03	.89	2.03	1.31	1.60	.77	.89
IN.	.51	.40	.25	.23	.36	2.34	.99	2.35	1.47	1.85	.89	.00
AC-FT	76540	59790	37860	34700	54070	348700	147300	349400	218400	275500	132500	148400

CAL YR 1985	TOTAL	380978	MEAN	1044	MAX	8420	MIN	171	CFSM	.37	IN.	5.07	AC-FT	755700
WTR YR 1986	TOTAL	949358	MEAN	2601	MAX	12300	MIN	460	CFSM	.93	IN.	12.64	AC-FT	1883000

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 U.S. Army 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 above 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 provided by U.S. Army 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, 178,000 acre-ft July 14-16; maximum elevation, 706.96 ft July 16; minimum daily contents, 9,040 acre-ft May 7; minimum elevation, 674.94 ft May 8.

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 1985 TO SEPTEMBER 1986
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25300	26600	19000	18300	17800	10600	41300	11900	113000	124000	143000	77600
2	25300	26000	18200	18200	17800	10200	36300	11300	116000	128000	140000	74200
3	25500	25600	18100	18200	17800	9770	31300	10400	117000	135000	138000	71000
4	25500	25600	18100	18200	18300	10300	25600	10100	119000	138000	134000	67500
5	25500	25600	18200	18100	18100	9630	20200	10200	122000	142000	133000	63800
6	25600	25700	18100	18000	18400	10200	14900	9890	124000	146000	131000	59900
7	25700	25700	18100	18000	18700	11200	11800	9040	124000	153000	127000	55700
8	26000	25600	18200	18000	18600	11200	9800	9400	123000	157000	124000	51500
9	25900	25400	18200	18000	18400	11200	10300	9400	122000	163000	121000	48100
10	25300	25200	18200	18100	17600	10800	13200	9360	124000	171000	117000	45600
11	25200	25200	18100	18100	17800	9970	16400	9330	124000	174000	113000	42800
12	25300	25700	18200	18100	18300	12300	19400	9400	123000	176000	110000	39100
13	25300	26300	18400	18200	17900	15700	21800	9760	122000	177000	107000	35700
14	25200	26100	18500	18100	16900	16500	24300	10400	123000	178000	110000	32800
15	25200	25700	18500	18200	15900	16200	27000	11600	122000	178000	115000	29900
16	25000	25200	18400	18200	14800	16100	27800	13700	121000	178000	119000	28400
17	25000	25000	18300	18300	13700	15800	27300	24700	120000	177000	123000	27400
18	25300	25400	18200	18700	12700	15400	25000	35100	118000	176000	122000	26000
19	25400	25900	18000	18900	12200	15200	21500	45800	116000	175000	120000	25900
20	25300	26000	17800	18900	11800	15500	17800	57100	114000	174000	117000	25700
21	25300	25900	17500	18900	11300	17700	14300	64200	112000	171000	114000	27400
22	25400	25900	17500	18700	10800	23000	11600	68500	111000	168000	111000	29600
23	26000	25900	17600	18600	10200	29800	10700	72100	111000	165000	108000	32100
24	26300	25600	17900	18400	9710	36800	10600	75000	112000	163000	105000	35300
25	26300	25200	18000	18200	9700	44700	10300	77900	112000	161000	101000	38500
26	26100	24600	18100	18100	9800	51600	9940	84900	111000	158000	99200	41400
27	25700	23700	18200	18200	9640	57100	9680	91100	110000	155000	95800	44200
28	25500	22600	18300	18200	9610	57100	9590	97000	108000	153000	92300	46000
29	25600	21300	18300	18100	---	54900	9740	102000	107000	150000	88600	47600
30	25800	19900	18300	17900	---	50400	11100	106000	119000	148000	84900	50000
31	26200	---	18300	17900	---	46100	---	110000	---	145000	81400	---
MEAN	25500	25100	18200	18300	14800	23300	18400	41200	117000	160000	114000	44000
MAX	26300	26600	19000	18900	18700	57100	41300	110000	124000	178000	143000	77600
MIN	25000	19900	17500	17900	9610	9630	9590	9040	107000	124000	81400	25700

CAL YR 1985 MEAN 20200 MAX 62500 MIN 9540
WTR YR 1986 MEAN 52000 MAX 178000 MIN 9040

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov.29, Dec. 3-9, Dec. 11 to Jan. 18, Jan. 26 to Feb. 4, and Feb. 7 to Mar. 8. Records good except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--49 years, 16.3 ft³/s, 8.75 in/yr, 11,810 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.--Peak discharges greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 17	0455	*2,620	*12.50	July 7	2055	1,870	11.45
May 26	1245	2,280	12.05	July 8	2310	2,350	12.15
June 30	0505	2,280	12.06				

Minimum daily discharge, 0.24 ft³/s, Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.56	92	54	6.4	8.0	14	16	33	43	70	10	5.0
2	.46	61	31	8.5	10	25	14	23	35	51	11	4.7
3	.32	40	25	8.8	16	49	18	19	31	38	9.4	4.8
4	.37	32	23	7.9	210	80	16	17	55	30	8.9	4.9
5	.32	28	22	6.6	187	50	20	16	95	25	38	3.8
6	.36	27	20	5.4	65	36	17	13	54	25	99	3.6
7	.32	27	21	4.7	24	20	16	12	43	272	26	3.6
8	.27	23	19	4.2	15	16	14	11	35	428	19	3.4
9	12	22	18	4.2	11	52	13	12	30	479	15	4.1
10	15	20	18	6.3	9.8	132	12	10	87	132	13	4.7
11	9.4	18	16	8.0	9.3	52	12	10	71	78	12	4.4
12	15	51	15	9.2	9.0	101	11	9.7	42	65	11	4.0
13	13	107	12	7.4	8.8	175	10	10	33	49	20	3.7
14	8.1	58	11	6.7	8.6	51	13	12	112	40	29	3.7
15	5.8	44	10	7.0	8.5	35	11	19	43	35	17	3.6
16	3.9	44	9.4	7.3	8.4	29	9.9	83	33	31	14	2.9
17	3.4	36	8.9	10	8.7	28	9.4	1720	27	27	13	3.5
18	5.0	69	8.8	70	9.3	74	9.2	175	24	24	12	4.7
19	50	91	8.1	67	17	59	9.0	88	22	22	11	11
20	37	54	7.8	30	33	35	8.5	63	20	22	10	8.8
21	24	43	7.6	42	25	28	7.9	51	19	19	9.0	7.4
22	20	38	9.0	57	17	25	7.3	42	34	17	8.4	29
23	75	33	12	23	11	22	7.1	36	19	16	7.9	39
24	70	28	8.8	18	10	19	7.1	31	16	15	7.1	19
25	35	27	7.5	16	9.0	20	7.0	28	15	23	7.1	16
26	27	26	8.6	12	9.7	33	6.5	1010	14	15	13	12
27	22	22	7.6	8.6	10	26	5.9	234	13	14	7.8	12
28	18	20	7.2	8.1	11	23	8.1	104	12	13	6.6	11
29	17	19	6.9	7.8	---	21	7.4	88	12	13	6.1	65
30	15	21	6.6	7.6	---	18	75	65	690	12	5.7	104
31	17	---	6.4	7.4	---	16	---	52	---	11	5.2	---
TOTAL	520.58	1221	446.2	493.1	779.1	1364	398.3	4096.7	1779	2111	482.2	407.3
MEAN	16.8	40.7	14.4	15.9	27.8	44.0	13.3	132	59.3	68.1	15.6	13.6
MAX	75	107	54	70	210	175	75	1720	690	479	99	104
MIN	.27	18	6.4	4.2	8.0	14	5.9	9.7	12	11	5.2	2.9
CFSM	.66	1.61	.57	.63	1.10	1.74	.53	5.22	2.34	2.69	.62	.54
IN.	.77	1.80	.66	.73	1.15	2.01	.59	6.02	2.62	3.10	.71	.60
AC-FT	1030	2420	885	978	1550	2710	790	8130	3530	4190	956	808

CAL YR 1985	TOTAL	6615.41	MEAN	18.1	MAX	734	MIN	.00	CFSM	.72	IN.	9.73	AC-FT	13120
WTR YR 1986	TOTAL	14098.48	MEAN	38.6	MAX	1720	MIN	.27	CFSM	1.53	IN.	20.73	AC-FT	27960

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 above NGVD (levels by U.S. Army Corps of Engineers). Prior to Jan. 7, 1957, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharge: Dec. 3 to Feb. 4, Feb. 8 to March 4, and 12-26. Records good except those for periods of estimated daily discharges, which are fair. U.S. Army Corps of Engineers operate a Data Collection Platform at gage.

AVERAGE DISCHARGE.--34 years, 68.1 ft³/s, 9.43 in/yr, 49,340 acre-ft/yr; median of yearly mean discharges, 58 ft³/s, 8.0 in/yr, 42,000 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.--Peak discharges greater than base discharge of 1000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 30	0700	1,200	8.65	June 5	----	1,650	10.73
May 17	1945	3,640	13.20	June 30	0745	*4,100	*13.32
May 26	----	1,690	10.52	July 7	2345	1,050	8.62

Minimum daily discharge, 6.0 ft³/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	211	144	26	33	50	70	314	192	607	38	35
2	7.2	189	218	27	35	80	63	169	158	228	39	32
3	6.8	107	130	27	40	140	73	127	140	164	34	31
4	7.9	80	76	27	60	250	71	109	232	131	33	29
5	7.2	69	62	25	492	381	100	96	550	108	62	27
6	6.7	67	54	22	195	142	82	84	249	91	168	26
7	6.4	66	49	20	108	97	74	90	197	270	62	25
8	6.0	56	47	20	80	88	65	72	157	717	49	24
9	71	54	46	21	56	142	60	71	131	502	42	25
10	100	53	45	22	41	645	56	61	254	393	41	36
11	49	47	44	23	37	341	54	65	247	414	36	27
12	80	98	40	24	36	320	51	61	168	366	34	25
13	66	297	34	24	36	750	48	56	129	235	75	24
14	39	189	31	23	36	425	56	52	141	173	436	26
15	31	140	30	23	35	295	56	88	133	146	183	22
16	26	125	29	25	35	240	50	282	113	126	114	19
17	22	108	28	30	37	220	46	2700	95	109	91	21
18	27	137	28	42	40	260	44	1420	88	97	75	24
19	119	179	28	65	47	370	43	401	83	90	65	88
20	115	125	27	77	48	250	40	295	75	79	57	97
21	66	98	27	86	45	190	39	238	69	71	54	55
22	52	90	28	90	43	165	37	202	86	66	49	120
23	57	80	32	78	37	145	36	175	68	61	45	511
24	84	72	31	62	35	130	34	157	60	58	41	170
25	59	64	25	58	34	120	32	143	56	69	40	142
26	48	62	24	36	37	140	30	911	53	56	211	124
27	40	56	26	32	38	99	29	796	50	49	70	102
28	32	52	24	31	39	93	32	402	47	46	51	86
29	29	45	24	31	---	85	32	470	47	44	45	228
30	26	55	24	30	---	76	756	305	2700	43	40	456
31	32	---	25	31	---	70	---	233	---	40	37	---
TOTAL	1334.2	3071	1480	1158	1835	6799	2259	10645	6768	5649	2417	2657
MEAN	43.0	102	47.7	37.4	65.5	219	75.3	343	226	182	78.0	88.6
MAX	119	297	218	90	492	750	756	2700	2700	717	436	511
MIN	6.0	45	24	20	33	50	29	52	47	40	33	19
CFSM	.44	1.04	.49	.38	.67	2.23	.77	3.50	2.30	1.86	.80	.90
IN.	.51	1.16	.56	.44	.70	2.58	.86	4.04	2.57	2.14	.92	1.01
AC-FT	2650	6090	2940	2300	3640	13490	4480	21110	13420	11200	4790	5270

CAL YR 1985	TOTAL	20915.3	MEAN	57.3	MAX	1380	MIN	2.4	CFSM	.58	IN.	7.93	AC-FT	41490
WTR YR 1986	TOTAL	46072.2	MEAN	126	MAX	2700	MIN	6.0	CFSM	1.28	IN.	17.47	AC-FT	91380

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 above 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.--Estimated daily discharges: Dec. 13-31, Jan. 26-29, Feb. 20-23, 27-28, and July 17 to Aug. 1. Records excellent except for periods of estimated daily discharge, which are fair. 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. U.S. Army Corps of Engineers Data Collection platform at station.

AVERAGE DISCHARGE.--83 years, 1,731 ft³/s, 7.19 in/yr, 1,254,000 acre-ft/yr; median of yearly mean discharges, 1,470 ft³/s, 6.1 in/yr, 1,060,000 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, 10,100 ft³/s June 30, gage-height, 21.22 ft; minimum daily discharge, 481 ft³/s Jan. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	843	1780	2140	639	787	1070	7840	4480	4580	3020	4500	4360
2	823	2320	1310	640	802	1670	7440	4590	4550	4650	4430	4330
3	826	1960	613	636	815	2240	7210	4510	4540	4600	4410	4300
4	1050	1530	608	635	1860	2560	8030	4050	4670	4730	4390	4270
5	1200	1320	891	636	2990	3890	8370	3400	4320	4880	4510	4310
6	1200	1320	878	630	2720	3340	8020	3380	2920	4930	4860	4370
7	1160	1320	885	571	2940	3080	6890	3370	4630	5090	4450	4330
8	1010	1310	886	495	3240	3700	5680	2760	4580	6150	4380	4280
9	1450	1310	1070	507	2850	4260	4600	2560	4550	4440	4350	4260
10	2070	1300	1070	496	2510	5890	2350	2580	4840	2210	4330	4240
11	1640	1180	1060	498	1830	6110	1270	2430	4770	3780	4290	4190
12	1400	1180	900	496	1270	5690	1200	2420	4650	4830	4270	4120
13	1370	1670	800	491	1690	7250	1220	2640	4560	4790	4480	4080
14	1320	1760	850	484	2170	8170	1210	3060	4680	4690	3860	3630
15	1300	1930	900	482	2200	8700	1140	3660	4590	4650	1780	3150
16	1290	1920	910	481	2100	8640	1880	4770	4540	4620	3270	2700
17	1140	1630	940	489	2030	8660	3130	7530	4500	4570	4230	2300
18	1060	1570	940	655	1880	9110	4110	3680	4480	4520	4370	2170
19	1340	1680	940	1040	1470	9180	5730	1610	4520	4490	4560	2030
20	1470	1580	940	1150	1320	8720	5590	1380	4560	4490	4540	2030
21	1470	1520	930	1300	1300	8400	5420	2670	4530	4480	4520	2200
22	1440	1570	780	1540	1300	5960	4790	4730	4590	4450	4500	3290
23	1540	1590	645	1410	1300	3700	3300	4680	4520	4420	4470	4620
24	1830	1560	645	1310	1240	3760	2260	4690	4500	4400	4440	3890
25	1890	1480	640	1280	930	3070	2380	4690	4500	4380	4420	4450
26	1860	1450	640	1110	806	2520	2370	6780	4490	4400	4670	4530
27	1840	1890	635	990	990	3000	2220	5100	4480	4420	4430	4550
28	1580	2010	635	945	1100	5820	2130	2670	4470	4480	4430	4570
29	1270	1990	630	940	---	8050	2030	4960	4470	4500	4460	4960
30	1070	2170	630	897	---	8010	3670	4750	7170	4500	4430	4740
31	1100	---	630	809	---	7930	---	4640	---	4490	4390	---
TOTAL	41852	48800	26971	24682	48440	172150	123480	119220	137750	139050	133420	115250
MEAN	1350	1627	870	796	1730	5553	4116	3846	4592	4485	4304	3842
MAX	2070	2320	2140	1540	3240	9180	8370	7530	7170	6150	4860	4960
MIN	823	1180	608	481	787	1070	1140	1380	2920	2210	1780	2030
AC-FT	83010	96790	53500	48960	96080	341500	244900	236500	273200	275800	264600	228600

CAL YR 1985 TOTAL 499511 MEAN 1369 MAX 9240 MIN 149 AC-FT 990800
WTR YR 1986 TOTAL 1131065 MEAN 3099 MAX 9180 MIN 481 AC-FT 2243000

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.--
CHEMICAL ANALYSIS: September 1906 to September 1907, October 1943 to September 1954.
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 microsiemens Jan. 4, 1984; minimum daily, 150 microsiemens 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, 740 microsiemens Jan. 10; minimum daily, 280 microsiemens Mar. 14.
WATER TEMPERATURES: Maximum daily, 26.0°C July 28, Aug. 1; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,270 mg/L Apr. 30 ; minimum daily mean, 5 mg/L Dec. 6-8, Jan. 11, 12, 15, 28.
SEDIMENT LOADS: Maximum daily, 48,400 tons June 30; minimum daily, 6.5 tons Jan. 15.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C.), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	480	580	---	---	---	---	430	560	---	300	388	---
2	480	590	---	610	---	---	---	495	450	420	380	---
3	460	---	600	680	580	550	440	420	460	420	---	---
4	460	625	620	720	560	---	450	---	480	---	---	---
5	460	600	600	---	480	360	---	520	450	---	395	430
6	---	620	560	680	540	380	---	540	475	430	370	420
7	475	620	---	660	---	330	500	575	---	---	375	---
8	480	630	---	720	---	---	500	580	---	360	390	420
9	480	---	590	720	---	---	520	570	500	340	395	420
10	480	---	---	740	410	320	510	580	480	390	---	435
11	500	620	630	720	360	330	510	---	430	380	405	430
12	---	620	600	---	360	340	510	560	420	---	410	455
13	---	550	580	---	360	310	---	540	420	---	415	---
14	520	570	650	720	360	280	520	540	430	420	410	---
15	520	600	---	710	---	---	---	---	---	415	400	460
16	525	600	640	710	---	---	520	520	430	410	---	465
17	560	---	680	730	450	310	530	---	440	400	---	480
18	560	600	540	---	520	310	---	---	430	390	425	480
19	---	530	640	---	560	310	---	460	465	---	435	480
20	---	580	640	660	560	330	---	480	440	---	440	---
21	580	590	---	680	560	---	520	480	---	370	450	---
22	605	600	---	660	---	350	540	400	---	375	455	---
23	---	590	640	660	---	---	540	400	440	370	450	440
24	560	---	680	700	620	370	540	---	440	380	---	---
25	600	600	---	670	630	370	540	375	440	375	470	535
26	605	590	650	---	630	380	540	---	450	---	440	480
27	---	580	660	660	640	380	---	350	440	---	445	420
28	600	---	---	660	---	380	540	---	---	385	460	---
29	600	590	---	620	---	---	520	400	---	385	---	360
30	---	590	600	600	---	---	440	420	300	370	---	370
31	560	---	600	580	---	410	---	---	---	385	---	---

05454500 IOWA RIVER AT IOWA CITY, IA --Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG C), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	13.0	---	---	---	---	13.0	14.0	---	---	26.0	---
2	13.0	9.0	---	2.0	---	---	---	15.0	14.0	---	22.0	---
3	14.0	---	1.0	.0	---	2.0	13.0	---	16.0	---	---	---
4	14.0	8.5	1.0	3.0	4.0	---	12.0	---	18.0	---	23.0	---
5	13.0	9.0	1.0	---	3.0	2.0	---	16.0	---	---	23.0	21.0
6	---	8.0	.0	.0	2.0	2.0	---	17.0	---	24.0	22.0	21.0
7	14.0	7.0	---	.0	---	.0	14.0	18.0	---	---	21.0	---
8	14.0	8.0	---	.0	---	---	12.0	18.0	---	24.0	23.0	18.0
9	13.0	---	---	---	---	---	11.0	18.5	---	23.0	23.0	18.0
10	11.0	---	---	---	1.0	3.0	10.0	18.0	---	22.0	---	20.0
11	13.0	6.0	2.0	3.0	.0	3.0	10.0	---	22.0	23.0	22.0	20.0
12	---	7.0	.0	---	.0	2.0	13.0	18.0	19.0	---	22.0	18.0
13	---	8.0	.0	---	1.0	5.0	---	18.0	21.0	---	22.0	---
14	12.0	6.0	.0	3.0	.0	2.0	11.0	22.0	21.0	24.0	22.0	---
15	11.0	5.0	---	1.0	---	---	---	---	---	24.0	22.0	18.0
16	11.0	5.0	1.0	3.0	---	---	---	17.0	22.0	24.0	---	18.0
17	12.0	---	.0	2.0	2.0	4.0	11.0	---	21.0	25.0	---	19.5
18	14.0	12.0	.0	---	2.0	4.0	---	---	22.0	25.0	23.0	20.5
19	---	7.0	.0	---	2.0	2.0	---	17.0	23.5	---	22.0	21.0
20	---	3.0	1.0	2.0	2.0	4.0	---	14.0	23.0	---	22.0	---
21	13.0	1.0	---	2.0	1.0	---	10.0	15.0	---	24.0	22.0	---
22	14.0	4.0	---	.0	---	3.0	11.0	15.0	---	24.0	21.0	---
23	---	3.0	3.0	2.0	---	---	10.0	15.0	22.0	25.0	21.0	---
24	14.0	---	.0	2.0	2.0	5.0	12.0	---	23.0	25.0	---	---
25	12.0	2.0	---	2.0	1.0	7.0	14.0	---	23.0	25.0	21.0	21.0
26	12.0	3.0	1.0	---	2.0	7.0	16.0	---	24.0	---	25.0	22.0
27	---	.0	1.0	.0	2.0	5.0	---	16.0	24.0	---	21.0	22.0
28	11.0	---	---	1.0	---	8.0	16.0	---	---	26.0	18.0	---
29	12.0	2.0	---	.0	---	---	14.0	17.0	---	25.0	---	21.0
30	---	.0	1.0	---	---	---	17.0	18.0	---	25.0	---	20.5
31	10.0	---	1.0	---	---	13.0	---	---	---	25.0	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	26	59	107	514	49	283	17	29	19	40	25	72
2	25	56	95	595	18	64	18	31	10	22	47	212
3	24	54	38	201	10	17	6	10	8	18	50	302
4	48	136	31	128	13	21	8	14	167	839	354	3040
5	29	94	30	107	12	29	8	14	279	2230	610	6420
6	25	81	22	78	5	12	7	12	90	661	113	1020
7	28	88	20	71	5	12	8	12	81	643	95	790
8	35	95	17	60	5	12	9	12	104	910	88	879
9	64	251	16	57	14	40	24	33	103	793	182	2090
10	82	458	15	53	16	46	12	16	112	759	849	13800
11	45	199	14	45	8	23	5	6.7	113	558	401	6780
12	35	132	27	86	17	41	5	6.7	94	322	168	2580
13	33	122	194	875	12	26	6	8.0	84	383	282	5520
14	30	107	103	489	9	21	7	9.1	69	404	293	6460
15	26	91	41	214	8	19	5	6.5	53	315	252	5920
16	25	87	29	150	9	22	8	10	37	210	213	4970
17	26	80	23	101	10	25	15	20	22	121	183	4280
18	27	77	102	432	23	58	38	67	17	86	236	5800
19	65	235	132	599	16	41	72	202	18	71	240	5950
20	47	187	48	205	14	36	43	134	23	82	192	4520
21	36	143	41	168	12	30	32	112	13	46	163	3700
22	29	113	49	208	10	21	45	187	11	39	124	2000
23	53	220	27	116	8	14	14	53	10	35	98	979
24	103	509	23	97	11	19	7	25	9	30	85	863
25	54	276	21	84	11	19	12	41	8	20	74	613
26	40	201	14	55	10	17	15	45	9	20	70	476
27	33	164	13	66	10	17	13	35	21	56	65	526
28	29	124	18	98	10	17	5	13	42	125	74	1160
29	27	93	15	81	13	22	8	20	---	---	113	2460
30	31	90	14	82	19	32	9	22	---	---	98	2120
31	36	107	---	---	17	29	26	57	---	---	73	1560
TOTAL	---	4729	---	6115	---	1085	---	1263.0	---	9838	---	97862

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	83	1760	485	5870	50	618	563	4520	38	462	32	377
2	84	1690	245	3040	43	528	190	2390	42	502	30	351
3	71	1380	235	2860	39	478	110	1370	42	500	29	337
4	99	2150	205	2240	65	820	76	971	42	498	26	300
5	107	2420	131	1200	373	4580	70	922	54	658	29	337
6	114	2470	137	1250	144	991	89	1180	223	3000	27	319
7	112	2080	145	1320	76	950	291	4270	48	577	20	234
8	126	1930	113	842	60	742	1090	18300	36	426	21	243
9	125	1550	121	836	45	553	795	11600	33	388	21	242
10	90	571	127	885	80	1050	438	3090	28	327	23	263
11	57	195	130	853	89	1150	668	6860	23	266	24	272
12	43	139	137	895	97	1220	300	3910	30	346	32	356
13	40	132	158	1130	47	579	105	1360	37	448	30	330
14	42	137	168	1390	38	480	85	1080	103	1070	39	382
15	38	117	186	1840	38	471	70	879	111	533	28	238
16	44	223	311	4010	36	441	66	823	82	724	26	190
17	60	507	1580	32800	33	401	58	716	59	674	29	180
18	57	633	686	8480	30	363	63	769	53	625	28	164
19	55	851	196	852	33	403	60	727	48	591	32	175
20	54	815	141	525	38	468	54	655	45	552	31	170
21	52	761	139	1000	33	404	50	605	39	476	43	255
22	64	828	183	2340	44	545	50	601	47	571	199	2170
23	90	802	124	1570	35	427	52	621	41	495	493	6350
24	80	488	108	1370	39	474	59	701	35	420	152	1600
25	80	514	103	1300	31	377	90	1060	31	370	55	661
26	46	294	598	11700	27	327	73	867	325	4200	82	1000
27	40	240	490	7340	31	375	56	668	48	574	51	627
28	62	357	168	1180	30	362	49	593	36	431	43	531
29	180	987	159	2130	32	386	49	595	36	434	103	1380
30	2270	22100	88	1130	2210	48400	42	510	34	407	217	2650
31	---	---	60	752	---	---	41	497	33	391	---	---
TOTAL	---	49121	---	104930	---	69363	---	73710	---	21936	---	22684

TOTAL LOAD FOR YEAR: 462636.0 TONS.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	TEMPER-ATURE (DEG C)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
03...	10:10	15.0	848	49	112	--	--	--	--	99
31...	13:00	11.5	1100	22	65	--	--	--	--	99
NOV										
22...	12:00	3.0	1660	21	94	--	--	--	--	97
APR										
08...	11:10	12.0	5860	116	1840	--	--	--	--	93
30...	12:30	17.0	3720	2790	28000	45	53	64	79	100
MAY										
09...	09:40	20.0	2340	122	771	--	--	--	--	98
JUN										
19...	09:30	23.5	4570	27	333	--	--	--	--	88
AUG										
01...	09:40	28.0	4510	38	463	--	--	--	--	95
SEP										
11...	12:30	20.0	4260	25	288	--	--	--	--	91

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	NUMBER OF SAM-PLING POINTS	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM
OCT							
03...	10:38	848	8	--	0	5	51
APR							
08...	12:15	5860	6	1	2	11	65
MAY							
09...	10:40	2340	7	--	0	3	56
AUG							
01...	12:30	4510	8	0	1	4	49
SEP							
11...	13:35	4260	6	1	3	8	34

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM
OCT						
03...	88	95	98	100	--	--
APR						
08...	87	92	95	100	--	--
MAY						
09...	86	95	98	99	100	--
AUG						
01...	90	98	99	100	--	--
SEP						
11...	47	56	67	81	94	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 above NGVD (University of Iowa bench mark).

REMARKS.--Estimated daily discharge: Nov. 25-28, Dec. 4-7, Dec. 11 to Jan. 11, Jan. 14, 15, Jan. 17 to Feb. 2, Feb. 8-18, Mar. 6, 21, and Apr. 14-18. Records good except those for periods of estimated daily discharge, which are poor. Retention dam upstream 1,500 feet since 1984.

AVERAGE DISCHARGE.--62 years, 1.77 ft³/s, 7.99 in/yr, 1,280 acre-ft/yr.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 223 ft³/s, June 30, gage height, 4.19 ft., minimum discharge, 0.06 ft³/s, Oct 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.25	18	28	.30	.50	7.7	1.8	4.3	3.4	9.4	1.3	.46
2	.12	5.9	8.1	.57	.68	4.6	1.4	2.3	2.4	4.6	1.3	.44
3	.16	2.7	3.4	.54	4.6	3.8	2.4	1.9	2.0	2.8	1.1	.58
4	.24	2.0	2.1	.49	72	11	2.1	1.7	4.0	1.9	1.1	.47
5	.19	1.7	1.5	.47	7.9	3.0	2.6	1.5	8.1	1.5	9.2	.44
6	.13	2.3	1.3	.42	2.7	2.6	1.8	1.3	3.1	7.5	9.6	.50
7	.09	2.3	1.5	.39	1.8	1.6	1.9	1.3	2.3	49	2.4	.47
8	.24	1.6	.82	.40	1.1	1.3	1.3	1.3	1.7	59	2.0	.53
9	8.0	1.6	.93	.45	.76	4.1	1.2	1.2	1.4	65	1.7	1.1
10	3.5	1.5	.87	.50	.64	19	1.6	1.0	14	17	1.6	.62
11	1.3	1.3	.80	.77	.59	4.3	1.1	1.1	3.8	12	1.3	.84
12	3.4	10	.68	.61	.54	15	1.0	1.0	2.0	9.4	1.3	.49
13	1.3	11	.60	.50	.49	25	1.1	1.5	1.6	4.8	6.5	.71
14	.75	4.8	.54	.46	.48	4.5	1.1	.99	1.8	3.6	4.9	.56
15	.59	3.3	.52	.48	.45	3.0	.93	5.1	1.5	3.2	2.4	.52
16	.45	3.7	.49	.92	.44	2.4	.74	14	1.1	3.0	2.0	.49
17	.39	2.6	.46	3.5	.45	2.9	.57	119	.82	2.6	2.2	1.1
18	1.9	18	.45	14	.74	10	1.1	17	.76	2.3	1.9	.71
19	8.9	8.1	.40	8.0	28	4.7	1.0	8.2	.72	2.4	1.5	4.2
20	4.4	4.2	.40	4.0	10	2.6	.95	5.6	.72	2.1	1.4	1.8
21	1.7	2.9	.39	9.0	2.5	2.1	.82	4.0	.71	2.0	1.4	1.1
22	1.5	2.7	.43	3.0	1.6	1.9	.80	3.1	2.9	1.8	1.3	3.0
23	3.4	2.2	.72	1.0	1.3	1.8	.78	2.4	.90	1.7	1.3	3.2
24	7.0	1.7	.65	.64	1.1	1.6	.75	2.1	.66	1.6	1.2	3.8
25	1.7	1.6	.45	.47	1.1	1.8	.75	1.9	.58	3.1	1.2	2.2
26	1.3	1.6	.60	.33	2.0	4.8	.66	74	.56	1.7	3.7	1.4
27	1.2	1.5	.55	.27	8.4	2.1	.65	29	.59	1.5	.72	1.2
28	1.1	1.4	.48	.26	3.6	2.0	1.1	12	.55	1.4	.61	.91
29	1.1	1.3	.40	.24	---	1.8	1.4	15	3.7	1.7	.57	12
30	.92	1.3	.39	.23	---	1.6	37	6.9	96	1.3	.51	14
31	4.6	---	.25	.26	---	1.5	---	4.7	---	1.3	.49	---
TOTAL	61.82	124.8	59.17	53.47	156.46	156.1	72.40	346.39	164.37	282.2	69.70	59.84
MEAN	1.99	4.16	1.91	1.72	5.59	5.04	2.41	11.2	5.48	9.10	2.25	1.99
MAX	8.9	18	28	14	72	25	37	119	96	65	9.6	14
MIN	.09	1.3	.25	.23	.44	1.3	.57	.99	.55	1.3	.49	.44
CFSM	.66	1.38	.63	.57	1.86	1.67	.80	3.72	1.82	3.02	.75	.66
IN.	.76	1.54	.73	.66	1.93	1.93	.89	4.28	2.03	3.49	.86	.74
AC-FT	123	248	117	106	310	310	144	687	326	560	138	119

CAL YR 1985	TOTAL	798.79	MEAN	2.19	MAX	116	MIN	.00	CFSM	.73	IN.	9.87	AC-FT 1580
WTR YR 1986	TOTAL	1606.72	MEAN	4.40	MAX	119	MIN	.09	CFSM	1.46	IN.	19.86	AC-FT 3190

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 microsiemens Dec. 24, 1973; minimum daily, 120 microsiemens May 19, 20, 1977.
WATER TEMPERATURES: Maximum daily, 31.0°C July 21, 1968; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 9,300 mg/L Aug. 20, 1975; minimum daily mean, 0 mg/L on many days in 1953-59, 1963-68, 1971, 1975-77, 1980-81, 1983, 1984, 1985.
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, 1200 microsiemens Feb. 17, 19; minimum daily, 231 microsiemens June 30.
WATER TEMPERATURES: Maximum daily, 25.0°C June 26, July 18, 19, 28; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,930 mg/L July 8; minimum daily mean, 10 mg/L Feb. 13.
SEDIMENT LOADS: Maximum daily, 737 tons Mar. 17; minimum daily, 0 ton Oct. 6,7.

SPECIFIC CONDUCTANCE (MICROSEIMENS/CM AT 25 DEG. C.), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	460	380	260	520	800	520	540	560	420	310	490	615
2	460	460	420	540	790	400	530	540	483	500	440	480
3	520	540	540	545	595	420	480	510	440	540	440	635
4	480	510	540	520	280	360	480	540	480	460	560	520
5	530	540	600	490	540	470	480	530	300	360	570	550
6	540	500	580	600	520	480	400	580	420	475	500	590
7	540	525	500	560	610	480	420	520	420	490	480	560
8	540	610	500	940	540	400	500	580	470	380	640	610
9	410	610	660	940	660	460	440	550	440	460	580	330
10	380	---	630	800	670	320	440	520	390	360	520	460
11	420	540	580	650	700	440	480	520	380	600	640	520
12	500	410	500	760	710	400	420	520	450	510	440	420
13	520	380	650	720	710	400	500	520	320	480	530	480
14	520	500	520	640	670	490	460	520	575	540	495	440
15	540	560	640	670	930	450	440	440	440	495	605	550
16	540	540	640	700	980	440	500	520	430	675	600	440
17	580	420	620	700	1200	480	440	340	465	560	480	480
18	580	420	650	320	---	420	420	475	500	580	600	450
19	420	420	700	480	1200	510	420	490	470	600	535	520
20	420	520	520	530	400	480	500	420	450	520	440	520
21	520	510	540	530	590	420	420	420	440	515	580	490
22	610	540	550	---	620	410	480	420	430	640	600	520
23	620	550	900	500	650	440	520	360	420	580	540	460
24	360	500	770	590	680	420	480	410	430	460	520	520
25	580	580	720	630	640	440	440	420	520	500	560	560
26	600	600	670	---	745	540	480	265	480	610	380	470
27	560	560	560	620	560	520	480	430	600	620	550	520
28	600	640	600	660	400	480	440	490	440	560	640	440
29	660	540	630	660	---	475	480	430	440	480	620	320
30	660	460	550	660	---	425	390	430	231	560	500	395
31	600	---	530	840	---	500	---	520	---	620	540	---

05455000 RALSTON CREEK AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C.), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	10.0	.0	1.5	1.5	1.5	16.0	11.0	15.0	17.0	20.0	17.5
2	12.0	10.0	.0	.5	1.0	1.5	14.0	12.0	14.5	18.0	21.0	16.0
3	10.0	8.0	.0	1.0	1.0	2.5	11.0	10.0	17.0	18.0	20.0	19.0
4	10.0	8.0	.0	.0	1.5	4.0	12.0	12.0	17.0	19.0	21.0	19.0
5	10.0	8.0	.0	.0	.5	1.5	13.0	13.0	18.0	20.0	19.5	18.0
6	10.0	8.0	.0	.5	1.0	2.5	12.0	15.0	17.0	20.0	19.0	16.0
7	11.0	7.0	1.0	.0	.0	1.5	12.0	17.0	18.0	20.5	20.0	13.0
8	12.0	6.5	1.0	.5	.0	1.5	10.0	19.0	22.0	22.0	21.0	12.0
9	10.0	6.0	1.5	1.5	.0	5.0	11.0	19.0	18.0	21.5	22.0	15.0
10	10.0	4.0	1.5	1.0	.0	2.0	14.0	16.0	22.0	19.5	21.0	20.0
11	10.0	4.0	.0	1.5	---	2.0	14.0	16.0	20.0	22.0	18.5	20.0
12	13.0	4.0	.0	---	.0	2.0	12.0	16.0	15.0	21.5	19.0	15.0
13	12.0	5.0	.0	.5	1.0	3.0	15.0	19.0	17.0	20.0	18.0	15.0
14	12.0	7.0	.0	1.5	.5	4.5	9.0	16.0	17.0	20.0	17.0	16.0
15	10.0	6.0	.0	1.0	1.0	5.0	10.0	16.0	20.0	22.0	19.0	18.5
16	10.0	6.0	.0	2.0	1.0	5.5	7.0	17.0	20.0	23.0	20.0	17.0
17	11.0	7.0	.0	2.5	1.5	6.5	12.0	15.0	20.5	24.0	23.0	17.0
18	14.0	8.0	.0	1.5	1.5	4.5	10.0	15.5	21.0	25.0	20.0	17.0
19	13.0	9.0	.0	1.5	1.0	4.5	9.0	15.0	21.0	25.0	21.0	17.0
20	12.0	4.0	.0	1.0	.0	4.0	10.0	13.0	21.0	22.0	18.0	18.0
21	12.0	3.0	.0	1.0	.5	5.0	7.0	17.0	21.0	20.0	20.0	18.0
22	12.0	4.0	1.5	1.0	.0	8.0	5.0	12.0	20.0	21.0	20.0	20.0
23	13.0	3.0	1.0	1.0	.5	10.0	7.0	13.0	23.0	20.0	20.0	20.0
24	14.0	2.0	.5	1.0	1.5	---	12.0	15.0	17.0	22.0	19.0	19.0
25	10.0	2.0	.0	.5	1.5	---	13.0	15.0	23.0	24.0	20.0	20.0
26	10.0	2.0	.0	1.0	1.0	---	22.5	15.0	25.0	22.0	22.0	21.0
27	11.0	2.0	.0	1.0	1.0	---	21.5	14.0	23.0	21.0	18.5	21.0
28	12.0	4.0	.0	1.0	.0	12.5	22.0	15.0	23.0	25.0	15.5	20.0
29	11.0	2.0	.0	.5	---	16.5	14.0	17.0	21.0	22.0	15.0	20.0
30	11.0	.0	.0	.5	---	13.0	14.0	19.0	19.5	23.0	17.0	18.0
31	10.0	---	1.0	1.0	---	17.0	---	15.0	---	23.0	17.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	.03	210	10	292	28	92	.07	32	.04	116	2.4
2	21	.01	94	1.5	115	2.5	57	.09	34	.06	72	.89
3	25	.01	40	.29	35	.32	47	.07	99	1.2	57	.58
4	30	.02	59	.32	47	.27	37	.05	583	113	121	3.6
5	27	.01	59	.27	38	.15	26	.03	128	2.7	70	.57
6	14	.00	72	.45	42	.15	18	.02	29	.21	39	.27
7	13	.00	65	.40	52	.21	33	.03	31	.15	33	.14
8	19	.01	25	.11	65	.14	42	.05	34	.10	50	.18
9	208	6.8	22	.10	44	.11	46	.06	34	.07	151	1.7
10	131	1.2	29	.12	40	.09	32	.04	17	.03	1050	54
11	70	.25	44	.15	40	.09	36	.07	12	.02	140	1.6
12	78	.72	332	16	36	.07	42	.07	11	.02	620	25
13	49	.17	265	9.8	28	.05	45	.06	10	.01	905	61
14	65	.13	106	1.4	28	.04	55	.07	12	.02	200	2.4
15	34	.05	35	.31	35	.05	26	.03	13	.02	125	1.0
16	25	.03	42	.42	24	.03	48	.12	12	.01	98	.64
17	17	.02	37	.26	24	.03	163	1.5	12	.01	147	1.2
18	110	.56	195	13	17	.02	188	7.1	31	.06	813	28
19	1320	45	167	3.7	38	.04	121	2.6	252	19	143	1.8
20	133	1.6	50	.57	88	.10	66	.71	64	1.7	105	.74
21	50	.23	34	.27	39	.04	61	1.5	31	.21	113	.64
22	25	.10	26	.19	34	.04	54	.44	22	.10	79	.41
23	140	2.6	36	.21	42	.08	35	.09	27	.09	80	.39
24	288	6.1	55	.25	43	.08	28	.05	18	.05	62	.27
25	79	.36	36	.16	70	.09	23	.03	55	.16	75	.36
26	58	.20	47	.20	95	.15	22	.02	147	.79	120	1.6
27	58	.19	64	.26	77	.11	22	.02	124	2.8	65	.37
28	40	.12	38	.14	62	.08	21	.01	75	.73	70	.38
29	19	.06	67	.24	52	.06	19	.01	---	---	55	.27
30	28	.07	55	.19	56	.06	18	.01	---	---	45	.19
31	65	.81	---	---	89	.06	26	.02	---	---	40	.16
TOTAL	---	67.46	---	61.28	---	33.31	---	15.04	---	143.36	---	192.75

05455000 RALSTON CREEK AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	32	.16	152	1.8	95	.87	720	18	78	.27	20	.02
2	48	.18	118	.73	95	.62	370	4.6	68	.24	41	.05
3	89	.58	109	.56	105	.57	128	.97	50	.15	42	.07
4	61	.35	118	.54	306	9.2	85	.44	31	.09	27	.03
5	49	.34	184	.75	913	26	75	.30	115	6.7	22	.03
6	76	.37	139	.49	120	1.0	635	49	143	6.3	23	.03
7	47	.24	48	.17	110	.68	1680	457	73	.47	18	.02
8	37	.13	13	.05	102	.47	2930	570	37	.20	14	.02
9	58	.20	17	.06	139	.53	2070	537	33	.15	81	.29
10	64	.28	56	.15	954	61	1050	66	52	.22	75	.13
11	27	.08	93	.28	57	.58	334	16	30	.11	50	.11
12	37	.10	54	.15	128	.69	289	8.4	28	.10	68	.09
13	41	.12	75	.30	94	.41	250	3.2	128	3.5	107	.21
14	53	.16	47	.13	72	.35	122	1.2	82	1.1	84	.13
15	67	.17	150	2.6	65	.26	98	.85	71	.46	43	.06
16	39	.08	231	42	58	.17	89	.72	65	.35	38	.05
17	36	.06	2180	737	92	.20	87	.61	80	.48	82	.24
18	118	.35	460	21	99	.20	88	.55	48	.25	69	.13
19	194	.52	162	3.6	98	.19	105	.68	30	.13	149	1.7
20	101	.26	111	1.7	112	.22	119	.71	27	.10	110	.56
21	80	.18	121	1.3	111	.21	94	.51	57	.22	80	.24
22	74	.16	107	.90	198	1.7	84	.43	42	.15	125	1.0
23	72	.15	95	.64	98	.24	80	.37	49	.17	233	2.0
24	71	.14	85	.48	84	.15	79	.34	32	.10	92	.94
25	67	.14	124	.64	83	.13	113	1.2	30	.10	45	.27
26	64	.11	1160	273	89	.13	65	.30	337	4.3	39	.15
27	64	.11	422	43	96	.15	66	.27	200	.39	38	.12
28	248	.80	184	6.0	102	.15	64	.24	43	.07	37	.09
29	178	.67	313	15	150	1.5	105	.48	38	.06	945	44
30	1240	246	144	2.7	1390	513	75	.26	45	.06	300	15
31	---	---	168	2.1	---	---	74	.26	19	.03	---	---
TOTAL	---	253.19	---	1159.82	---	621.57	---	1740.89	---	27.02	---	67.78

TOTAL LOAD FOR YEAR: 4383.47 TONS.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	TEMPER-ATURE (DEG C)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
JUN 30...	08:00	20.0	195	1960	1030	43	58
JUL 10...	13:00	19.5	9.9	2650	71	32	38

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
JUN 30...	--	78	91	92	96	100	--
JUL 10...	46	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 above NGVD.

REMARKS.--Estimated daily discharges: Dec. 2-7, 9, Dec. 11 to Jan. 18, 22-23, Jan. 26 to Feb. 4, 7-26, 28, and Mar. 6-8, 20, 21. Records good except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--23 years, 2.53 ft³/s, 11.69 in/yr, 1,830 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.-- Peak discharges greater than base discharge of 200 ft³/s, and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 19	0930	210	4.74	June 30	0335	452	7.13
Apr. 30	0045	303	5.78	July 7	1930	200	4.68
May 16	2340	298	5.70	July 8	0250	242	5.16
May 17	1425	293	5.65	July 8	2155	*689	*8.19
May 26	0520	231	4.99				

Minimum discharge, 0.12 ft³/s, Oct. 7,8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.29	17	20	.71	.70	3.5	2.0	4.5	3.4	5.7	.88	.54
2	.20	6.1	3.1	.87	.88	2.2	1.3	3.2	2.4	3.9	.71	.51
3	.52	4.2	1.7	.74	1.9	3.0	2.9	2.8	2.1	3.3	.63	1.1
4	.74	3.3	1.6	.68	16	7.5	2.4	2.5	4.8	2.7	.60	.48
5	.29	3.0	1.4	.58	4.6	2.2	2.1	2.5	11	2.5	16	.41
6	.15	4.6	1.2	.52	1.9	1.6	1.7	2.2	4.0	5.0	7.2	.40
7	.14	3.4	1.3	.46	1.3	1.1	1.5	2.2	3.0	36	2.2	.40
8	.70	2.8	1.2	.45	1.1	1.0	1.2	2.9	2.4	98	1.6	.37
9	14	2.9	1.0	.50	.96	2.8	1.1	2.6	2.1	52	1.2	1.9
10	4.2	2.6	1.1	1.0	.87	12	1.2	2.8	18	7.4	1.1	.55
11	2.0	2.4	.95	2.4	.79	2.7	1.2	3.0	4.6	5.8	.92	1.4
12	7.0	11	.85	1.1	.76	8.4	.95	2.6	2.7	5.5	.85	.50
13	2.2	9.5	.77	.68	.75	12	.83	3.5	2.2	3.2	6.5	1.2
14	1.6	5.2	.69	.60	.74	3.2	1.7	2.3	2.9	2.7	4.0	.50
15	1.3	4.5	.62	.62	.72	2.5	.88	7.1	2.2	2.4	2.0	.45
16	1.6	4.5	.56	.84	.72	2.2	.71	19	1.9	2.0	1.6	.60
17	1.6	3.5	.52	2.0	.78	2.6	.70	115	1.7	1.8	2.5	3.7
18	5.1	17	.50	12	1.4	6.3	.73	13	1.6	1.9	1.6	.96
19	22	7.7	.48	5.8	5.2	3.5	.66	7.4	1.6	3.7	1.2	7.0
20	5.9	4.6	.47	2.0	3.3	2.8	.70	5.9	1.3	2.0	.98	3.1
21	3.8	3.7	.46	4.3	1.7	2.3	.68	4.6	1.3	1.6	.91	1.6
22	3.0	3.3	.48	2.0	1.2	2.0	.75	3.6	4.2	1.4	.83	4.5
23	15	3.0	.90	1.3	1.0	1.8	.65	3.5	1.6	1.2	.74	2.5
24	6.4	2.5	.72	1.2	1.0	1.7	.90	3.0	1.2	1.0	.69	5.5
25	3.8	2.5	.54	1.1	1.0	1.8	.70	2.9	1.1	5.3	.70	2.4
26	3.0	2.4	.75	.92	2.5	3.5	.60	78	1.0	1.7	5.5	1.7
27	2.5	2.1	.60	.80	5.2	2.0	.63	19	1.1	1.6	.93	1.4
28	2.3	2.1	.54	.74	2.5	1.9	2.0	7.7	1.1	1.5	.75	1.3
29	2.1	1.9	.52	.70	---	1.8	1.8	14	2.5	2.1	.69	15
30	2.0	2.0	.50	.69	---	1.6	31	5.5	114	1.4	.62	14
31	6.0	---	.58	.68	---	1.4	---	4.3	---	1.4	.57	---
TOTAL	121.43	145.3	46.60	48.98	61.47	104.9	66.17	353.1	205.0	267.7	67.20	75.97
MEAN	3.92	4.84	1.50	1.58	2.20	3.38	2.21	11.4	6.83	8.64	2.17	2.53
MAX	22	17	20	12	16	12	31	115	114	98	16	15
MIN	.14	1.9	.46	.45	.70	1.0	.60	2.2	1.0	1.0	.57	.37
CFSM	1.33	1.65	.51	.54	.75	1.15	.75	3.88	2.32	2.94	.74	.86
IN.	1.54	1.84	.59	.62	.78	1.33	.84	4.47	2.59	3.39	.85	.96
AC-FT	241	288	92	97	122	208	131	700	407	531	133	151

CAL YR 1985	TOTAL	834.31	MEAN	2.29	MAX	76	MIN	.00	CFSM	.78	IN.	10.56	AC-FT	1650
WTR YR 1986	TOTAL	1563.82	MEAN	4.28	MAX	115	MIN	.14	CFSM	1.46	IN.	19.79	AC-FT	3100

05455100 OLD MANS CREEK NEAR IOWA CITY, IA

LOCATION.--Lat. 41°36'23", long. 91°36'56", in SE1/4 SW1/4 NW1/4 sec. 36, T.79 N., R.7 W., Johnson County, Hydrologic Unit 07080209, on left bank 10 ft downstream from bridge on county highway W62, 5 miles southwest of Iowa City, 5.9 miles upstream of Dirty Face Creek, and 8.6 miles upstream from mouth.

DRAINAGE AREA.--201 mi².

PERIOD OF RECORD.--October 1950 to September 1964, published in WSP 1914. Annual maximum, water years 1965-84. Occasional low-flow measurements, water years 1964-77, October 1984 to current year.

GAGE.--Water-stage recorder. Datum of gage is 639.49 ft. above NGVD. Prior to Nov. 16, 1984, nonrecording gage at same datum.

REMARKS.--Estimated daily discharges: Nov. 1-4, Dec. 4 to Feb. 4, Feb. 8 to Mar. 4, and July 23-26. Records good except those for estimated discharges, which are fair. U.S. Army Corps of Engineers Data Collection Platform at gage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,980 ft³/s May 18, 1986, gage height, 14.03 ft.; minimum discharge 2.6 ft³/s Sept. 20, Oct. 8, 1985.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 13,500 ft³, June 15, 1982, gage height, 15.25 ft.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 10	1915	1,830	9.09	June 5	0115	2,080	10.44
Mar. 13	0330	2,120	9.85	June 30	0800	3,430	12.49
Apr. 30	1415	1,600	9.21	July 9	0145	1,700	9.52
May 18	0315	*5,980	*14.03	Aug. 15	1830	1,620	9.29
May 26	1115	2,990	11.99				

Minimum daily discharge, 2.6 ft³/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	395	348	44	62	78	171	559	364	1030	56	62
2	11	325	265	46	75	140	154	321	301	393	51	58
3	6.1	250	157	48	99	250	156	252	268	286	46	54
4	5.8	190	130	46	280	460	159	220	403	232	42	54
5	4.5	164	110	43	1150	930	189	197	866	193	52	46
6	4.5	155	102	40	878	400	165	178	364	171	161	41
7	4.0	155	100	37	378	309	141	161	301	255	86	39
8	3.1	138	98	36	270	277	119	148	265	940	62	37
9	43	132	92	39	170	316	104	140	233	1370	56	36
10	228	127	88	42	110	1370	97	130	421	701	60	52
11	131	113	82	47	80	1080	93	130	362	675	40	43
12	113	182	71	51	69	907	90	125	288	596	33	39
13	182	648	64	49	66	1760	84	116	226	504	68	32
14	92	430	60	45	64	904	88	112	208	343	988	39
15	63	288	58	47	63	480	90	136	234	292	1490	29
16	47	251	56	50	62	401	80	594	198	251	650	25
17	37	216	54	70	66	357	74	3740	171	219	313	24
18	33	283	52	120	78	610	72	5010	155	188	236	42
19	225	384	49	330	87	822	69	2210	146	169	189	104
20	284	259	49	250	100	501	64	717	134	151	163	231
21	151	204	49	240	95	376	60	559	125	134	141	125
22	113	189	54	300	86	337	55	457	134	121	127	113
23	117	170	60	205	76	305	56	380	119	111	108	701
24	152	149	60	150	72	270	52	327	100	105	100	357
25	129	140	49	128	70	262	50	295	94	111	89	248
26	102	139	47	94	70	297	45	2000	90	108	247	225
27	87	128	45	64	74	266	42	1670	83	93	130	193
28	74	122	43	60	76	243	43	882	78	84	89	163
29	66	103	41	56	---	225	41	902	75	79	80	377
30	63	113	40	54	---	200	956	601	2460	71	75	849
31	60	---	41	54	---	182	---	452	---	63	68	---
TOTAL	2677.0	6542	2614	2885	4826	15315	3659	23721	9266	10039	6096	4438
MEAN	86.4	218	84.3	93.1	172	494	122	765	309	324	197	148
MAX	284	648	348	330	1150	1760	956	5010	2460	1370	1490	849
MIN	3.1	103	40	36	62	78	41	112	75	63	33	24
CFSM	.43	1.08	.42	.46	.86	2.46	.61	3.81	1.54	1.61	.98	.74
IN.	.50	1.21	.48	.53	.89	2.83	.68	4.39	1.71	1.86	1.13	.82
AC-FT	5310	12980	5180	5720	9570	30380	7260	47050	18380	19910	12090	8800

CAL YR 1985	TOTAL	38068.2	MEAN	104	MAX	2350	MIN	2.8	CFSM	.52	IN.	7.05	AC-FT	75510
WTR YR 1986	TOTAL	92078.0	MEAN	252	MAX	5010	MIN	3.1	CFSM	1.25	IN.	17.04	AC-FT	182600

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 above NGVD (levels by U.S. Army Corps of Engineers). Prior to Dec. 27, 1939, nonrecording gage 30 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 26 to Mar. 10. Records good except those for estimated daily discharges, which are poor. U. S. Army Corps of Engineers gage-height telemeter and data collection platform at station.

AVERAGE DISCHARGE.--47 years, 377 ft³/s, 8.93 in/yr, 273,100 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 discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 13	1345	4,190	13.72	June 5	0100	4,070	13.55
May 18	1245	*10,700	*18.11	Aug. 15	1845	8,820	17.30
May 27	0400	4,050	13.55				

Minimum discharge, 22 ft³/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163	1250	350	125	150	230	353	425	797	1750	150	115
2	125	1710	430	125	150	300	330	280	671	689	124	107
3	78	862	700	130	160	390	332	222	579	479	104	100
4	58	593	620	125	580	500	401	200	800	377	90	97
5	48	478	400	125	1900	660	467	188	2550	317	80	92
6	39	428	300	120	1400	740	438	179	1040	271	212	83
7	35	435	270	110	1000	800	380	168	684	279	187	78
8	27	397	250	100	560	850	338	155	566	1240	145	76
9	56	356	225	100	410	995	301	154	483	3600	122	74
10	528	353	210	100	370	2090	279	155	681	2510	106	81
11	579	333	200	110	350	3000	268	156	825	1810	97	113
12	418	454	195	115	340	1740	259	185	687	1820	93	117
13	760	1610	175	120	310	3790	246	158	490	1570	191	116
14	495	1600	170	120	285	2230	248	151	410	827	5440	109
15	327	929	170	115	270	1060	266	170	470	628	8030	115
16	246	756	170	120	260	807	255	1220	407	517	7200	96
17	201	656	160	130	250	702	238	6130	347	428	3140	83
18	181	704	160	350	250	1170	225	10100	308	357	948	100
19	508	1370	150	1100	260	1890	219	7190	288	306	614	155
20	1300	1100	150	880	290	1420	215	3130	269	264	474	589
21	798	676	145	660	270	831	199	1380	245	230	390	2340
22	681	564	150	560	240	693	182	1050	274	203	315	1700
23	691	506	150	445	210	623	174	857	424	185	269	2480
24	838	423	150	340	210	552	169	737	295	178	233	2540
25	867	382	140	285	200	518	166	656	242	175	216	1770
26	714	350	130	230	200	573	163	2450	218	174	243	1170
27	672	310	130	190	210	584	154	3020	202	171	231	880
28	621	270	135	170	210	504	150	1730	188	167	178	706
29	579	250	130	165	---	466	147	1720	186	163	152	1040
30	559	240	130	160	---	422	201	1270	1570	205	139	2590
31	545	---	125	150	---	379	---	961	---	171	127	---
TOTAL	13737	20345	6970	7675	11295	31509	7763	46547	17196	22061	30040	19712
MEAN	443	678	225	248	403	1016	259	1502	573	712	969	657
MAX	1300	1710	700	1100	1900	3790	467	10100	2550	3600	8030	2590
MIN	27	240	125	100	150	230	147	151	186	163	80	74
CFSM	.77	1.18	.39	.43	.70	1.77	.45	2.62	1.00	1.24	1.69	1.15
IN.	.89	1.32	.45	.50	.73	2.05	.50	3.02	1.12	1.43	1.95	1.28
AC-FT	27250	40350	13820	15220	22400	62500	15400	92330	34110	43760	59580	39100

CAL YR 1985	TOTAL	111857.5	MEAN	306	MAX	5900	MIN	6.2	CFSM	.53	IN.	7.26	AC-FT	221900
WTR YR 1986	TOTAL	234850	MEAN	643	MAX	10100	MIN	27	CFSM	1.12	IN.	15.25	AC-FT	465800

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 above NGVD. Prior to Dec. 28, 1956, nonrecording gage same site and datum.

REMARKS.--Estimated daily discharges: December 3 to March 6. Records fair except those for estimated daily discharges, which are poor. Flow regulated by Coralville Lake (station 05453510) 36.1 mi upstream since Sept. 17, 1958. U. S. Army Corps of Engineers gage-height telemeter and data collection platform at station.

AVERAGE DISCHARGE.--30 years, 2,907 ft³/s, 9.20 in/yr, 2,106,000 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 U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,800 ft³/s May 18, gage height, 16.96 ft; minimum daily discharge, 660 ft³/s Jan. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	674	2610	2740	780	1000	1300	9010	4400	6720	10600	5130	5050
2	805	5240	3100	770	980	1700	8860	4910	6280	6960	5100	5000
3	841	4300	2000	760	1050	2500	8320	5080	5960	6420	5060	4940
4	824	3100	1500	760	2000	3600	8430	5130	5920	6030	5020	4900
5	912	2420	1200	760	3800	4400	9130	4870	8970	5980	4990	4860
6	1040	2180	1000	750	4300	5000	9490	4440	5400	5930	5310	4840
7	1080	2180	1100	740	4400	4600	9230	4240	5810	6070	5560	4840
8	1060	2130	1250	700	4300	4140	7600	4110	6120	7660	5340	4820
9	1150	2030	1300	660	3700	4340	6620	3690	5880	11800	5180	4790
10	2400	2000	1400	680	2900	5240	4770	3420	6390	10100	5080	4770
11	2790	1950	1350	710	2200	8270	3030	3300	7100	7650	5020	4760
12	2070	1800	1300	720	1700	10400	2330	3190	6610	7530	4960	4740
13	2130	2350	1250	700	1600	11400	2180	3140	5940	8150	4920	4700
14	2110	4070	1150	700	2100	12000	2150	3140	5690	7490	6660	4670
15	1750	4090	1050	710	2400	12200	2120	3220	5560	6690	8490	4450
16	1590	3610	1100	740	2500	11400	2050	4000	5500	6330	9270	4150
17	1500	3360	1150	795	2400	11000	2820	11800	5460	6100	10300	3130
18	1320	2870	1150	1200	2200	10800	3660	20000	5430	5920	7350	2870
19	1980	3970	1100	2000	2000	11000	4850	18500	5410	5770	5960	2800
20	3460	3920	1100	2500	1700	11400	5860	10900	5370	5680	5660	2920
21	2860	2970	1100	2800	1600	11500	6060	5580	5360	5560	5480	3370
22	2300	2650	1050	3100	1550	10600	5960	6010	5410	5460	5460	4660
23	2130	2570	960	3000	1520	6050	5280	6510	5520	5370	5390	5810
24	3200	2450	880	2400	1500	5120	3710	6420	5490	5300	5310	7600
25	3140	2280	840	1900	1250	4910	2860	6270	5400	5260	5240	7300
26	2770	2210	820	1600	1100	3900	2930	6740	5320	5250	5220	6810
27	2540	2160	820	1440	1100	3910	2950	10500	5260	5210	5460	6310
28	2420	2170	820	1300	1200	5020	2830	10300	5230	5180	5330	5990
29	1910	2400	800	1200	---	7510	2740	7970	5190	5160	5220	6000
30	1650	2490	790	1100	---	8840	3010	8700	7350	5140	5160	8780
31	1530	---	780	1050	---	9050	---	7400	---	5140	5100	---
TOTAL	57936	84530	37950	39025	60050	223100	150840	207880	177050	202890	178730	150630
MEAN	1869	2818	1224	1259	2145	7197	5028	6706	5902	6545	5765	5021
MAX	3460	5240	3100	3100	4400	12200	9490	20000	8970	11800	10300	8780
MIN	674	1800	780	660	980	1300	2050	3140	5190	5140	4920	2800
AC-FT	114900	167700	75270	77410	119100	442500	299200	412300	351200	402400	354500	298800

CAL YR 1985 TOTAL 706782 MEAN 1936 MAX 14300 MIN 183 AC-FT 1402000
WTR YR 1986 TOTAL 1570611 MEAN 4303 MAX 20000 MIN 660 AC-FT 3115000

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 above NGVD.

REMARKS.--Estimated daily discharge: Nov. 24 to March 9. Records good except for estimated daily discharges, which are poor. Occasional minor regulation by dam 0.2 mi upstream from 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 or streamflow by power dam 0.2 mi upstream. U.S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--22 years, 740 ft³/s, 9.53 in/yr, 536,100 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 greater than base discharge of 3,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	2130	*11,500	*13.67	Sept. 29	1630	4,360	7.53
May 15	0645	6,170	9.30				

Minimum discharge, 210 ft³/s Jan. 24 to Feb. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1230	442	520	310	210	210	1490	2110	1170	653	400	449
2	1370	433	500	300	210	230	1620	1650	1040	616	387	396
3	1260	418	480	290	210	320	1700	1390	940	589	380	761
4	1060	405	460	290	210	380	1650	1230	882	543	354	453
5	997	395	440	290	210	380	2100	1140	874	524	336	381
6	1160	388	430	285	210	470	2570	1040	989	556	331	364
7	1380	382	410	285	210	495	2460	937	949	2030	322	351
8	1270	378	390	280	210	325	1960	850	864	2210	315	318
9	1050	409	380	275	210	240	1590	861	796	1700	302	304
10	904	402	375	275	210	290	1370	1030	751	1750	294	353
11	828	364	365	270	210	330	1230	1230	744	1850	283	430
12	789	364	360	270	210	431	1120	1550	734	1630	277	433
13	764	376	360	260	210	589	1020	2180	706	1290	282	402
14	739	397	360	260	220	736	1000	4350	666	1070	362	408
15	719	417	360	250	225	1000	1110	5950	633	967	572	389
16	692	463	360	250	230	1640	1280	4310	612	880	575	397
17	660	526	360	245	230	2490	1260	2840	673	859	441	463
18	649	643	360	240	240	5460	1180	2220	669	831	363	481
19	616	991	360	240	240	10500	1090	1850	729	743	321	456
20	588	1350	360	230	245	9630	1170	1580	853	653	298	520
21	565	1220	360	230	235	5540	1140	1390	766	583	291	1330
22	548	955	360	225	230	3810	1030	1270	702	530	280	3250
23	537	759	360	220	230	3150	928	1160	1870	498	278	3310
24	526	620	350	210	220	3100	855	1090	2060	530	269	2560
25	504	600	345	210	220	3010	812	1060	1580	628	268	1880
26	486	590	340	210	215	2530	793	1440	1220	603	317	2180
27	467	570	335	210	210	2330	800	2010	982	622	1110	2880
28	446	560	320	210	210	2010	1200	1930	852	583	1510	1990
29	430	540	315	210	---	1680	2540	1630	770	498	930	3510
30	420	530	310	210	---	1590	2790	1420	697	450	639	2580
31	412	---	310	210	---	1530	---	1280	---	428	523	---
TOTAL	24066	16887	11695	7750	6130	66426	42858	55978	27773	27897	13610	33979
MEAN	776	563	377	250	219	2143	1429	1806	926	900	439	1133
MAX	1380	1350	520	310	245	10500	2790	5950	2060	2210	1510	3510
MIN	412	364	310	210	210	210	793	850	612	428	268	304
CFSM	.74	.53	.36	.24	.21	2.03	1.36	1.71	.88	.85	.42	1.07
IN.	.85	.60	.41	.27	.22	2.34	1.51	1.98	.98	.98	.48	1.20
AC-FT	47730	33500	23200	15370	12160	131800	85010	111000	55090	55330	27000	67400

CAL YR 1985	TOTAL 171368.00	MEAN	470	MAX	2410	MIN	.00	CFSM	.45	IN.	6.05	AC-FT 339900
WTR YR 1986	TOTAL 335049	MEAN	918	MAX	10500	MIN	210	CFSM	.87	IN.	11.83	AC-FT 664600

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 above NGVD.

REMARKS.--Estimated daily discharges: Dec. 1-13. Records good except those for estimated daily discharges, which are poor. U.S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--32 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 greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
March 19	1830	*4,590	*11.30	Sept. 30	1800	3500	10.15
Sept. 28	0600	1,690	7.69				

Minimum discharge, 53 ft³/s Feb. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	510	123	150	86	65	57	333	468	269	91	143	126
2	361	159	145	86	64	55	362	377	240	88	125	109
3	284	154	145	80	64	56	417	321	218	83	113	102
4	246	143	145	76	67	61	502	288	204	79	102	97
5	267	133	150	74	75	69	723	268	198	75	96	90
6	309	127	150	75	83	74	706	246	196	99	89	83
7	270	124	150	75	86	69	594	221	195	90	83	78
8	240	119	150	76	87	71	449	201	179	89	77	74
9	221	117	155	77	85	70	366	211	167	94	73	72
10	200	107	160	74	84	104	322	321	162	169	70	89
11	185	112	160	74	82	155	293	500	169	242	65	134
12	185	125	165	74	78	219	271	589	157	237	62	160
13	208	141	170	73	73	313	250	656	153	231	62	163
14	209	173	177	74	69	462	259	843	144	185	84	144
15	196	180	179	73	66	599	283	982	138	159	163	129
16	179	211	173	73	65	890	290	802	131	145	174	122
17	168	267	168	73	63	1190	280	540	130	147	139	115
18	175	350	166	73	61	2560	274	441	137	135	107	108
19	174	550	163	74	61	4150	292	371	131	118	91	105
20	162	429	155	76	61	3430	281	324	126	106	82	102
21	155	307	147	81	61	1330	261	290	125	95	76	132
22	148	282	145	89	60	784	237	265	128	86	71	390
23	145	250	123	85	58	705	219	245	126	76	67	955
24	138	216	110	79	58	638	205	230	122	76	63	479
25	130	177	106	78	56	566	198	271	116	303	63	365
26	125	213	103	77	55	538	196	650	110	220	75	457
27	120	175	99	76	55	516	214	605	106	205	118	1030
28	115	147	96	68	57	418	488	461	95	535	270	1340
29	111	156	94	68	---	375	633	379	97	275	345	1340
30	109	149	94	67	---	361	608	331	93	209	209	2790
31	107	---	90	66	---	341	---	296	---	177	154	---
TOTAL	6152	5916	4383	2350	1899	21226	10806	12993	4562	4919	3511	11480
MEAN	198	197	141	75.8	67.8	685	360	419	152	159	113	383
MAX	510	550	179	89	87	4150	723	982	269	535	345	2790
MIN	107	107	90	66	55	55	196	201	93	75	62	72
CFSM	.65	.64	.46	.25	.22	2.24	1.18	1.37	.50	.52	.37	1.25
IN.	.75	.72	.53	.29	.23	2.58	1.31	1.58	.55	.60	.43	1.40
AC-FT	12200	11730	8690	4660	3770	42100	21430	25770	9050	9760	6960	22770

CAL YR 1985	TOTAL	51461	MEAN	141	MAX	1220	MIN	16	CFSM	.46	IN.	6.26	AC-FT	102100
WTR YR 1986	TOTAL	90197	MEAN	247	MAX	4150	MIN	55	CFSM	.81	IN.	10.97	AC-FT	178900

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 above 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.--Estimated daily discharges: Nov. 24 to Mar. 14. Records good except for estimated daily discharges, which are poor. Diurnal fluctuation during low water caused by powerplant at Waverly, 10 mi upstream. U.S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--66 years (water years 1905-06, 1915-27, 1933-42, 1946-86), 869 ft³/s, 7.10 in/yr, 629,600 acre-ft/yr; median of yearly mean discharges, 750 ft³/s, 6.1 in/yr, 543,000 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 greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 21	0900	*15,100	*11.03	Sept. 24	2330	4,270	4.79
May 17	0045	6,640	6.79				

Minimum daily discharge, 390 ft³/s Jan. 30, Feb. 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1180	677	970	560	395	440	2750	3700	2290	1100	859	893
2	1570	702	950	550	390	440	2650	3280	2030	1020	783	772
3	1690	709	930	550	390	430	2750	2680	1820	950	730	665
4	1640	692	890	550	400	430	3010	2320	1660	890	694	839
5	1450	661	860	550	400	430	3100	2040	1710	841	654	853
6	1320	648	830	540	405	430	3590	1870	1570	827	636	620
7	1440	628	800	540	405	430	3910	1720	1590	855	608	582
8	1610	608	780	540	440	600	3870	1560	1550	1780	588	557
9	1590	575	760	540	450	880	3330	1450	1410	3160	567	543
10	1400	632	740	540	430	860	2860	1440	1380	2610	552	550
11	1220	619	720	540	425	820	2530	1710	1390	2590	529	616
12	1160	583	710	530	420	780	2280	2060	1330	2680	506	640
13	1100	602	690	530	420	1100	2090	2340	1240	2450	502	693
14	1060	641	680	540	420	1580	1980	2860	1190	2070	591	666
15	1030	695	670	540	420	2120	1980	4010	1130	1740	596	658
16	988	751	660	520	420	2720	2020	6030	1090	1530	734	615
17	958	811	650	510	420	3670	2130	6200	1020	1410	866	611
18	1000	915	640	485	420	5770	2150	4580	1060	1330	759	630
19	1160	1100	620	470	420	10800	2100	3500	1130	1270	634	674
20	1080	1520	620	470	420	13200	2020	2930	1010	1170	580	685
21	978	1590	620	460	415	14500	1990	2550	1270	1050	544	665
22	907	1420	610	430	420	9820	1920	2230	1460	956	507	1200
23	862	1300	600	425	425	6430	1780	2000	1250	877	496	2630
24	831	1080	590	420	440	5240	1660	1850	1850	813	479	3770
25	786	920	590	415	440	4790	1580	1760	2480	859	485	3870
26	757	800	580	410	440	4670	1520	2380	2120	1090	565	2910
27	727	820	580	400	440	4100	1470	3530	1740	1050	554	2760
28	824	840	580	400	440	3770	1550	3810	1430	1120	915	3450
29	653	900	570	395	---	3460	2110	3480	1300	1330	1780	3740
30	653	970	570	390	---	3050	3070	2960	1210	1080	1530	3790
31	624	---	560	395	---	2810	---	2570	---	925	1070	---
TOTAL	34248	25409	21620	15135	11770	110570	71750	87400	44710	43423	21893	42147
MEAN	1105	847	697	488	420	3567	2392	2819	1490	1401	706	1405
MAX	1690	1590	970	560	450	14500	3910	6200	2480	3160	1780	3870
MIN	624	575	560	390	390	430	1470	1440	1010	813	479	543
CFSM	.67	.51	.42	.29	.25	2.15	1.44	1.70	.90	.84	.43	.85
IN.	.77	.57	.48	.34	.26	2.48	1.61	1.96	1.00	.97	.49	.94
AC-FT	67930	50400	42880	30020	23350	219300	142300	173400	88680	86130	43420	83600

CAL YR 1985	TOTAL	299617	MEAN	821	MAX	4500	MIN	218	CFSM	.49	IN.	6.71	AC-FT	594300
WTR YR 1986	TOTAL	530075	MEAN	1452	MAX	14500	MIN	390	CFSM	.87	IN.	11.87	AC-FT	1051000

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 above NGVD. Prior to June 10, 1955, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharge: Nov. 24 to March 15. Records good, except those for estimated daily discharges, 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. U. S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--41 years, 519 ft³/s, 8.33 in/yr, 376,000 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.--Mazimum 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 greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 20	0530	6,950	13.36	No other peak greater than base discharge.			

Minimum daily discharge, 150 ft³/s Dec. 27 to Jan. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	795	510	280	150	175	270	1250	1450	1590	621	605	308
2	1020	509	275	150	175	290	1240	1260	1340	638	533	285
3	990	495	270	150	180	325	1290	1070	1150	589	481	271
4	826	471	270	150	170	385	1400	944	1020	546	445	268
5	741	455	260	150	190	500	1580	871	942	506	421	264
6	708	445	255	150	195	660	1790	806	1050	484	406	226
7	676	439	245	150	200	800	1940	731	1240	572	390	209
8	633	427	240	150	210	900	1880	665	1160	855	373	198
9	589	420	230	155	210	910	1610	631	994	1210	357	197
10	566	418	225	155	210	940	1370	643	888	1400	342	198
11	522	404	220	160	210	1100	1200	783	833	1840	324	210
12	523	400	215	160	215	1380	1090	1150	828	2100	309	198
13	563	416	210	160	220	1800	999	1500	856	2190	301	187
14	582	449	200	165	220	2400	952	1700	781	2000	335	180
15	567	491	195	165	225	3150	948	1750	728	1530	383	181
16	538	523	190	170	225	4610	949	1870	688	1220	357	170
17	512	574	185	165	230	5920	909	2010	640	1010	328	168
18	526	644	180	170	235	5960	876	1940	609	861	303	166
19	738	708	175	170	240	6570	879	1650	592	739	289	174
20	1040	815	170	165	240	6810	896	1390	577	646	278	184
21	1100	762	165	170	250	6330	907	1210	602	571	271	195
22	961	706	160	170	250	4950	848	1070	851	514	263	207
23	852	703	160	170	260	3750	775	969	1050	475	256	210
24	783	560	160	170	265	2900	723	891	981	449	250	227
25	714	450	160	170	265	2330	691	853	830	461	250	347
26	656	405	155	170	265	1970	682	945	726	721	266	356
27	613	360	150	175	260	1750	729	1270	657	1230	310	340
28	569	330	150	175	260	1590	859	1520	609	1390	440	348
29	532	300	150	175	---	1460	1150	1670	577	996	439	425
30	509	290	150	180	---	1350	1470	1780	593	810	376	479
31	495	---	150	180	---	1270	---	1750	---	701	339	---
TOTAL	21439	14879	6200	5065	6250	75330	33882	38742	25982	29875	11020	7376
MEAN	692	496	200	163	223	2430	1129	1250	866	964	355	246
MAX	1100	815	280	180	265	6810	1940	2010	1590	2190	605	479
MIN	495	290	150	150	170	270	682	631	577	449	250	166
CFSM	.82	.59	.24	.19	.26	2.87	1.33	1.48	1.02	1.14	.42	.29
IN.	.94	.65	.27	.22	.27	3.31	1.49	1.70	1.14	1.31	.48	.32
AC-FT	42520	29510	12300	10050	12400	149400	67200	76840	51540	59260	21860	14630

CAL YR 1985	TOTAL	139722	MEAN	383	MAX	1650	MIN	62	CFSM	.45	IN.	6.14	AC-FT	277100
WTR YR 1986	TOTAL	276040	MEAN	756	MAX	6810	MIN	150	CFSM	.89	IN.	12.14	AC-FT	547500

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 Sept. 30, 1986 (discontinued). 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 above NGVD. Prior to May 17, 1956, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharge: November 21 to March 19. Records good except those for estimated discharges, which are poor.

AVERAGE DISCHARGE.--41 years, 162 ft³/s, 7.33 in/yr, 117,400 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 greater than base discharge of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	----	*1,800	*a9.67	May 14	1815	1,170	7.61
Mar. 20	2115	1,720	8.71				

(a) Ice jam.
Minimum daily discharge, 50 ft³/s Feb. 9-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	355	114	130	74	54	54	566	537	412	321	139	100
2	305	117	130	74	54	56	539	501	367	294	130	93
3	272	110	130	74	54	56	508	453	326	266	119	91
4	270	99	130	72	54	56	550	403	302	232	105	99
5	364	96	130	72	54	56	634	361	329	212	96	101
6	362	91	125	72	54	56	655	330	345	415	91	91
7	321	98	125	72	52	56	610	309	350	512	86	84
8	299	96	115	72	52	57	570	282	345	460	81	73
9	291	80	110	72	50	60	533	267	325	540	77	68
10	281	116	105	72	50	64	487	282	301	591	71	68
11	264	212	100	72	50	68	440	410	290	622	72	75
12	258	159	98	72	50	84	402	503	285	565	67	79
13	251	124	96	68	50	125	377	730	262	496	64	70
14	241	110	92	66	52	190	381	1110	238	431	185	69
15	228	107	90	64	52	280	401	1110	220	380	219	74
16	217	118	88	64	52	440	395	1010	239	360	155	77
17	204	129	86	64	52	660	362	942	278	335	119	71
18	192	168	86	62	52	970	352	880	289	304	101	71
19	189	300	84	62	52	1600	366	797	363	278	88	86
20	182	217	82	60	54	1410	369	710	370	254	81	124
21	172	250	82	60	54	1600	352	630	376	224	78	212
22	168	225	80	62	54	1340	326	559	439	199	76	285
23	155	235	80	60	54	1230	298	496	539	179	71	282
24	151	220	80	60	54	1100	266	442	541	160	67	276
25	150	220	80	60	54	1020	262	412	538	252	59	325
26	140	200	78	58	54	954	257	517	524	285	168	343
27	132	170	78	56	54	852	308	668	495	226	243	321
28	126	160	78	56	54	776	554	628	460	192	189	300
29	116	145	76	56	---	709	636	554	417	172	152	285
30	117	130	76	56	---	640	585	499	368	159	131	273
31	115	---	76	56	---	577	---	455	---	149	113	---
TOTAL	6888	4616	2996	2020	1476	17196	13341	17787	10933	10065	3493	4566
MEAN	222	154	96.6	65.2	52.7	555	445	574	364	325	113	152
MAX	364	300	130	74	54	1600	655	1110	541	622	243	343
MIN	115	80	76	56	50	54	257	267	220	149	59	68
CFSM	.74	.51	.32	.22	.18	1.85	1.48	1.91	1.21	1.08	.38	.51
IN.	.85	.57	.37	.25	.18	2.13	1.65	2.21	1.36	1.25	.43	.57
AC-FT	13660	9160	5940	4010	2930	34110	26460	35280	21690	19960	6930	9060

CAL YR 1985	TOTAL	47711	MEAN	131	MAX	660	MIN	14	CFSM	.44	IN.	5.92	AC-FT	94630
WTR YR 1986	TOTAL	95377	MEAN	261	MAX	1600	MIN	50	CFSM	.87	IN.	11.83	AC-FT	189200

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 upstream from 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 above 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.--Estimated daily discharge: Oct. 10-16, Nov. 24 to Mar. 17, Aug. 6 to Sept. 14, 20-22, 24, 28-30. Records good except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--54 years, 267 ft³/s, 6.89 in/yr, 193,400 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 greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 18	1200	*4,200	*9.40	May 14	0545	2260	7.10

Minimum discharge, 76 ft³/s Feb. 23-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	820	248	160	130	80	78	832	815	691	272	152	160
2	716	238	155	130	80	82	812	721	614	257	146	145
3	657	229	150	125	78	105	770	650	560	236	131	130
4	652	222	150	125	78	145	904	602	516	214	128	149
5	652	213	150	120	78	230	1210	560	490	207	119	155
6	643	214	150	120	78	280	1250	504	462	330	105	145
7	610	210	155	115	78	295	1160	452	451	367	100	132
8	580	205	155	115	78	270	1040	419	435	359	94	122
9	556	213	155	110	78	245	922	440	417	478	92	118
10	526	177	155	105	78	300	818	574	411	564	90	120
11	497	172	155	110	78	400	734	1020	489	695	92	130
12	474	221	155	110	78	540	666	1110	499	583	88	138
13	446	241	160	105	78	520	607	1510	442	516	86	118
14	424	242	160	100	78	580	636	2150	414	446	245	115
15	410	241	160	100	78	700	695	1790	386	402	290	117
16	393	269	160	98	78	1000	645	1580	353	363	230	119
17	379	313	160	94	78	1500	598	1450	319	322	185	111
18	365	445	165	92	78	3640	588	1350	324	283	160	106
19	353	695	160	90	78	3060	672	1250	330	257	140	120
20	335	603	160	88	78	2450	650	1150	309	232	115	190
21	323	502	155	88	78	2240	599	1040	321	211	110	290
22	314	448	150	86	78	1960	550	948	376	204	110	370
23	309	436	150	86	76	1720	509	862	399	184	105	359
24	302	500	150	84	76	1540	474	788	355	194	102	430
25	294	300	150	84	76	1400	444	732	359	268	100	526
26	287	270	150	84	76	1260	442	973	351	250	270	421
27	277	250	150	82	76	1110	535	1130	318	232	340	387
28	262	210	145	82	76	1010	957	996	295	214	300	347
29	254	200	145	80	---	929	974	908	279	194	250	320
30	249	175	140	80	---	848	895	846	272	174	215	310
31	244	---	135	80	---	790	---	770	---	158	175	---
TOTAL	13603	8902	4750	3098	2176	31227	22588	30090	12237	9666	4865	6400
MEAN	439	297	153	99.9	77.7	1007	753	971	408	312	157	213
MAX	820	695	165	130	80	3640	1250	2150	691	695	340	526
MIN	244	172	135	80	76	78	442	419	272	158	86	106
CFSM	.83	.56	.29	.19	.15	1.91	1.43	1.85	.78	.59	.30	.40
IN.	.96	.63	.34	.22	.15	2.21	1.60	2.13	.87	.68	.34	.45
AC-FT	26980	17660	9420	6140	4320	61940	44800	59680	24270	19170	9650	12690

CAL YR 1985	TOTAL	77226	MEAN	212	MAX	1050	MIN	21	CFSM	.40	IN.	5.46	AC-FT	153200
WTR YR 1986	TOTAL	149602	MEAN	410	MAX	3640	MIN	76	CFSM	.78	IN.	10.58	AC-FT	296700

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 above 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 above 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, 5.11 ft Apr. 5; minimum, 4.18 ft Nov. 8.

GAGE HEIGHT (FEET ABOVE GAGE DATUM) WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.19	4.23	4.50	4.60	4.62	4.68	5.07	4.94	4.94	4.60	4.78	4.50
2	4.20	4.22	4.52	---	4.62	4.68	5.03	4.90	4.91	4.59	4.73	4.49
3	4.19	4.21	4.52	---	4.62	4.68	5.02	4.90	4.89	4.58	4.70	4.50
4	4.26	4.20	4.53	---	4.64	4.68	5.04	4.91	4.87	4.58	4.68	4.53
5	4.24	4.19	4.54	---	4.66	4.68	5.11	4.90	4.83	4.60	4.66	4.50
6	4.24	4.20	4.54	---	4.66	4.68	5.09	4.87	4.83	4.71	4.65	4.48
7	4.22	4.20	4.55	4.61	4.68	4.68	5.07	4.81	4.83	4.70	4.64	4.46
8	4.26	4.18	4.55	4.61	4.68	4.68	5.05	4.77	4.80	4.72	4.63	4.44
9	4.25	4.22	4.55	4.60	4.68	4.68	5.02	4.81	4.75	4.77	4.61	4.43
10	4.25	4.25	4.56	4.61	4.68	4.68	5.00	4.94	4.78	4.80	4.60	4.51
11	4.24	4.26	4.56	4.61	4.68	4.68	4.99	5.03	4.76	4.84	4.57	4.56
12	4.28	4.28	4.57	4.62	4.68	4.69	4.99	5.03	4.74	4.83	4.55	4.55
13	4.27	4.28	4.57	4.60	4.68	4.76	4.93	5.07	4.72	4.81	4.55	4.53
14	4.28	4.29	4.57	4.60	4.68	4.77	5.00	5.10	4.71	4.79	4.63	4.53
15	4.27	4.27	4.57	4.60	4.68	4.78	4.98	5.09	4.70	4.79	4.63	4.57
16	4.24	4.33	4.57	4.60	4.68	4.80	4.96	5.09	4.67	4.80	4.62	4.55
17	4.26	4.32	4.58	4.60	4.68	4.85	4.95	5.06	4.64	4.80	4.60	4.56
18	4.25	4.35	4.58	4.61	4.68	4.99	4.96	5.04	4.68	4.77	4.58	4.55
19	4.26	4.40	4.58	4.61	4.68	5.03	5.03	5.02	4.69	4.75	4.57	4.58
20	4.25	4.40	4.58	4.61	4.68	5.05	4.96	5.00	4.65	4.73	4.56	4.59
21	4.26	4.37	4.58	4.61	4.68	5.06	4.93	4.99	4.70	4.70	4.54	4.60
22	4.25	4.40	4.58	4.61	4.68	5.08	4.93	4.96	4.71	4.70	4.54	4.62
23	4.28	4.40	4.59	4.61	4.68	5.08	4.92	4.94	4.70	4.68	4.51	4.62
24	4.28	4.40	4.59	4.61	4.68	5.07	4.89	4.95	4.65	4.70	4.49	4.63
25	4.27	4.40	4.59	4.62	4.68	5.07	4.90	4.93	4.64	4.90	4.51	4.67
26	4.25	4.41	4.60	4.62	4.68	5.06	4.91	4.96	4.64	4.88	4.57	4.67
27	4.23	4.41	4.60	4.62	4.68	5.05	4.96	4.98	4.62	4.87	4.58	4.70
28	4.22	4.41	4.59	4.62	4.68	5.04	5.01	4.98	4.61	4.85	4.57	4.68
29	4.21	4.41	4.60	4.62	---	5.04	4.97	4.98	4.60	4.85	4.55	4.70
30	4.20	4.43	4.60	4.62	---	5.03	4.98	4.97	4.60	4.82	4.53	4.70
31	4.20	---	4.60	4.62	---	5.05	---	4.96	---	4.80	4.51	---
MEAN	4.24	4.31	4.57	---	4.67	4.87	4.99	4.96	4.73	4.75	4.59	4.57
MAX	4.28	4.43	4.60	---	4.68	5.08	5.11	5.10	4.94	4.90	4.78	4.70
MIN	4.19	4.18	4.50	---	4.62	4.68	4.89	4.77	4.60	4.58	4.49	4.43

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 21, 23, 24, 25-30, Dec. 14, 15, 17-19, 21, 22, 24-26, 28, 29, 31, Jan. 1, 3-5, 7, 8, 10-12, 22-26, Feb. 17-21. Records good except those for estimated daily discharges, which are poor. Diurnal fluctuation at low stages caused by power plant upstream at Greene. U.S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--33 years, 1007 ft³/s, 7.83 in/yr, 729,600 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 provided by U.S. Army Corps of Engineers, discharge, about 45,000 ft³/s.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 20	0100	*11,500	*12.62	May 27	2230	5,140	10.22
May 15	1215	5,480	10.38				

Minimum discharge, 228 ft³/s Feb. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1840	703	446	475	409	354	2680	2980	2780	1230	758	529
2	1870	698	466	470	410	357	2730	2650	2460	1160	711	494
3	1630	644	571	466	416	368	2720	2390	2230	1080	673	475
4	1470	637	535	466	437	387	2760	2200	2060	1010	633	486
5	1410	612	594	462	452	452	3370	2050	2300	936	605	465
6	1540	606	685	454	464	573	3910	1890	2100	968	580	455
7	1530	588	738	442	448	714	3760	1730	1990	1330	561	445
8	1420	577	777	434	444	707	3400	1600	1860	1570	542	429
9	1340	600	785	426	416	741	3060	1530	1750	2340	520	424
10	1240	606	777	422	396	772	2780	1620	1690	2480	512	444
11	1170	520	761	434	388	1060	2550	2020	1650	3300	495	477
12	1150	501	730	454	392	1460	2360	2860	1660	3220	480	751
13	1130	651	700	450	376	1700	2190	3090	1640	2630	486	653
14	1120	722	658	444	368	2170	2100	4150	1540	2190	567	558
15	1100	730	644	442	360	2830	2140	5360	1460	1920	629	534
16	1060	761	658	440	352	3850	2170	4950	1390	1720	723	525
17	1010	844	651	444	355	4850	2080	4410	1290	1560	659	528
18	1070	977	631	455	358	6280	1990	4010	1290	1420	582	512
19	1180	1370	600	463	360	10100	2000	3670	1310	1280	526	504
20	1060	1850	571	472	360	10400	2110	3350	1330	1170	493	506
21	991	1590	565	485	365	7430	2050	3060	1410	1060	474	576
22	938	1180	565	470	364	6390	1920	2780	1510	979	457	1290
23	910	870	560	450	367	5710	1790	2550	1550	911	449	1310
24	883	794	550	430	357	4980	1690	2350	1640	863	433	1200
25	833	740	540	400	352	4470	1630	2240	1580	1000	440	1140
26	804	620	525	390	355	4100	1590	2510	1540	1550	504	1480
27	777	540	515	374	347	3750	1620	4490	1490	1340	562	1490
28	743	480	506	416	343	3430	2170	4910	1420	1140	780	1510
29	714	440	497	447	---	3180	3410	4120	1350	1000	711	1460
30	693	440	483	427	---	2960	3320	3520	1310	899	625	2190
31	675	---	479	414	---	2750	---	3120	---	824	571	---
TOTAL	35301	22891	18763	13718	10811	99275	74050	94160	50580	46080	17741	23840
MEAN	1139	763	605	443	386	3202	2468	3037	1686	1486	572	795
MAX	1870	1850	785	485	464	10400	3910	5360	2780	3300	780	2190
MIN	675	440	446	374	343	354	1590	1530	1290	824	433	424
CFSM	.65	.44	.35	.25	.22	1.83	1.41	1.74	.97	.85	.33	.46
IN.	.75	.49	.40	.29	.23	2.12	1.58	2.01	1.08	.98	.38	.51
AC-FT	70020	45400	37220	27210	21440	196900	146900	186800	100300	91400	35190	47290

CAL YR 1985	TOTAL	265833	MEAN	728	MAX	3170	MIN	187	CFSM	.42	IN.	5.66	AC-FT	527300
WTR YR 1986	TOTAL	507210	MEAN	1390	MAX	10400	MIN	343	CFSM	.80	IN.	10.81	AC-FT	1006000

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 above NGVD. Prior to July 14, 1959, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharge: November 23 to March 10. Records good except those for estimated discharges, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--41 years, 203 ft³/s, 7.94 in/yr, 147,100 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 greater than base of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
March 15	1430	4,460	10.36	Mar. 19	1030	*5,490	*10.88

Minimum discharge, 54 ft³/s Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	567	226	80	64	74	125	573	538	490	360	117	74
2	406	250	72	64	74	130	632	477	433	348	111	70
3	314	240	68	64	74	210	615	428	397	300	104	68
4	273	223	66	65	78	240	769	400	385	268	101	69
5	267	209	66	66	80	295	963	380	454	245	97	70
6	252	205	66	67	84	430	1210	348	407	234	99	66
7	228	200	66	68	86	420	873	320	381	228	98	64
8	213	189	66	70	90	360	721	304	351	226	90	63
9	193	187	66	72	92	390	626	297	328	466	88	63
10	179	189	66	74	94	800	565	323	317	405	89	68
11	172	180	65	78	96	1510	524	548	311	447	84	78
12	205	181	65	80	98	2020	489	594	302	443	81	73
13	313	200	64	84	100	2010	456	496	290	368	80	68
14	300	247	64	82	100	3150	453	508	286	306	98	75
15	268	270	64	82	102	4140	456	520	288	266	113	79
16	240	281	64	80	105	3370	436	658	277	241	104	88
17	220	301	64	80	105	2720	417	697	262	219	91	78
18	270	301	63	80	105	3250	411	624	259	201	78	78
19	599	305	62	80	110	5070	427	533	257	197	74	81
20	651	275	62	80	110	3170	411	472	249	182	71	95
21	541	294	62	80	110	1520	386	428	253	170	75	111
22	418	301	62	80	115	1080	362	395	364	164	75	112
23	386	280	62	80	115	952	345	369	368	157	65	103
24	346	220	62	80	120	829	335	350	286	149	67	132
25	305	185	62	78	120	773	330	342	255	152	71	585
26	280	160	62	76	120	724	320	402	273	158	82	728
27	262	130	62	74	125	646	322	582	244	145	104	417
28	240	110	62	74	125	604	405	690	236	143	99	334
29	227	98	63	74	---	575	540	652	223	144	85	289
30	218	87	63	74	---	539	517	619	226	147	77	297
31	209	---	64	74	---	511	---	556	---	131	78	---
TOTAL	9562	6524	2005	2324	2807	42563	15889	14850	9452	7610	2746	4576
MEAN	308	217	64.7	75.0	100	1373	530	479	315	245	88.6	153
MAX	651	305	80	84	125	5070	1210	697	490	466	117	728
MIN	172	87	62	64	74	125	320	297	223	131	65	63
CFSM	.89	.63	.19	.22	.29	3.96	1.53	1.38	.91	.71	.26	.44
IN.	1.03	.70	.21	.25	.30	4.56	1.70	1.59	1.01	.82	.29	.49
AC-FT	18970	12940	3980	4610	5570	84420	31520	29450	18750	15090	5450	9080

CAL YR 1985	TOTAL	56254	MEAN	154	MAX	3300	MIN	27	CFSM	.44	IN.	6.03	AC-FT	111600
WTR YR 1986	TOTAL	120908	MEAN	331	MAX	5070	MIN	62	CFSM	.95	IN.	12.96	AC-FT	239800

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 23 to March 10. Records good except those for estimated daily discharges which are poor. U.S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--34 years, 174 ft³/s, 7.80 in/yr, 126,100 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 greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 14	1630	*4,190	*15.33	May 28	0430	1,210	11.57
Mar. 19	1415	3,610	15.09				

Minimum discharge, 40 ft³/s Sept. 2, 3, 7-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	438	152	55	48	60	86	389	324	542	1060	106	43
2	291	169	50	49	60	88	457	290	478	625	100	41
3	209	162	47	50	61	90	422	255	439	500	94	44
4	171	150	46	51	62	96	453	236	466	430	88	53
5	158	141	46	51	64	180	500	231	580	371	95	45
6	152	139	45	52	65	260	505	213	487	342	139	42
7	137	134	45	53	66	240	440	190	441	319	125	41
8	125	127	45	54	67	230	387	180	396	305	103	41
9	113	123	44	56	68	300	345	175	359	649	91	41
10	110	124	44	58	69	800	321	178	350	588	87	49
11	110	118	44	60	70	1790	302	223	364	1070	80	59
12	174	116	44	62	72	1720	285	236	385	740	74	58
13	286	128	44	64	73	1970	263	216	307	605	76	51
14	229	158	44	66	74	3410	267	216	298	477	115	53
15	190	173	44	66	75	3200	267	228	311	417	108	54
16	167	175	44	64	76	1950	267	496	291	371	86	52
17	147	175	44	62	77	1900	259	555	258	327	76	51
18	170	172	44	63	78	1830	252	553	253	287	70	52
19	396	167	44	63	79	3200	263	469	243	256	66	61
20	483	138	45	63	80	2300	255	403	224	229	63	103
21	378	146	45	63	80	1100	239	358	248	209	61	99
22	304	178	45	63	82	784	219	325	558	193	57	84
23	263	170	45	64	84	701	209	294	391	179	55	77
24	228	140	45	64	84	622	203	272	317	167	53	75
25	197	125	45	64	84	580	196	281	272	169	54	136
26	184	110	45	63	84	540	190	471	246	154	58	254
27	170	95	46	63	84	482	184	954	224	143	54	166
28	155	82	46	62	84	451	197	1120	208	138	49	133
29	148	72	47	62	---	425	194	817	202	133	49	126
30	142	62	47	61	---	394	258	692	750	123	47	135
31	138	---	48	60	---	365	---	607	---	115	45	---
TOTAL	6563	4121	1412	1844	2062	32084	8988	12058	10888	11691	2424	2319
MEAN	212	137	45.5	59.5	73.6	1035	300	389	363	377	78.2	77.3
MAX	483	178	55	66	84	3410	505	1120	750	1070	139	254
MIN	110	62	44	48	60	86	184	175	202	115	45	41
CFSM	.70	.45	.15	.20	.24	3.42	.99	1.28	1.20	1.24	.26	.26
IN.	.81	.51	.17	.23	.25	3.94	1.10	1.48	1.34	1.44	.30	.28
AC-FT	13020	8170	2800	3660	4090	63640	17830	23920	21600	23190	4810	4600

CAL YR 1985	TOTAL	45347	MEAN	124	MAX	2250	MIN	17	CFSM	.41	IN.	5.57	AC-FT	89950
WTR YR 1986	TOTAL	96454	MEAN	264	MAX	3410	MIN	41	CFSM	.87	IN.	11.84	AC-FT	191300

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 upstream from 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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 24-25, 27-30, Dec. 2-4, 6-9, Dec. 11 to Jan. 2, Jan. 4-9, 12-15, 21-30, Feb. 7-16, 21, 28, Mar. 6-8. Records good except those for estimated daily discharges, which are poor. Slight diurnal fluctuation during low flow caused by powerplant upstream from station. National Weather Service gage-height telemeter and U. S. Army Corps of Engineers Data Collection Platform at station.

AVERAGE DISCHARGE--46 years, 3,074 ft³/s, 8.11 in/yr, 2,227,000 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 U. S. Army 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 greater than base discharge of 13,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 20	2030	*33,400	*15.27	May 17	1600	14,500	9.66

Minimum daily discharge, 1,200 ft³/s Jan. 17 to Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4330	2810	1850	2400	1770	1500	8570	9370	8960	5230	3350	2660
2	5420	2830	1850	2300	1720	1540	8520	9400	7920	4930	3090	2440
3	5470	2820	2100	2210	1650	1590	8520	7840	7170	4200	2900	2350
4	5160	2730	2350	2200	1830	1710	8810	7120	7040	3930	2740	2250
5	4750	2620	2280	2200	1880	1960	9320	6510	6940	3630	2710	2450
6	4520	2570	2280	2150	1950	2300	10500	6110	6680	3460	2620	2180
7	4510	2510	2280	2150	1950	2600	11400	5700	6590	3550	2580	1970
8	4550	2430	2280	2100	1900	3000	11200	5330	6400	4480	2460	1910
9	4510	2390	2400	2150	1900	3420	10400	4920	5840	7190	2340	1870
10	4250	2400	2430	2170	1900	3960	9290	4930	5680	8400	2260	1990
11	3900	2330	2500	2040	1850	4740	8270	5400	5530	8660	2160	2110
12	3910	2260	2450	2000	1850	6090	7620	6570	5260	9890	2090	2210
13	3870	2300	2400	1950	1850	7320	7100	7570	5200	9410	2080	2460
14	3910	2560	2450	1900	1850	8760	6840	8450	5140	8450	2430	2330
15	3790	2740	2550	1950	1800	11500	6710	10400	4930	7310	2480	2240
16	3760	2900	2550	1990	1800	13300	6680	13000	4690	6230	2570	2170
17	3480	3010	2500	1900	1760	15500	6680	14400	4400	5640	2750	2100
18	3440	3290	2500	1790	1720	18300	6580	13400	4200	5040	2630	2140
19	4100	3640	2450	1780	1700	23400	6480	11400	4030	4770	2390	2250
20	4860	4610	2450	1790	1690	32000	6440	9940	4230	4390	2190	2240
21	4920	4900	2450	1800	1650	32200	6420	8750	4330	4040	2090	2300
22	4450	4480	2550	1750	1580	27500	6270	7980	5290	3710	2000	2670
23	4080	3900	2650	1750	1560	20800	5960	7140	5530	3440	1920	4220
24	3710	3400	2700	1750	1510	16700	5610	6600	5500	3230	1870	5800
25	3530	3100	2700	1750	1470	14300	5420	6360	5930	3210	1900	6920
26	3350	3460	2750	1700	1470	13000	5300	7520	5810	3700	2040	6770
27	3190	3000	2700	1700	1500	12000	5230	9720	5160	4650	2170	6250
28	3020	2600	2600	1700	1500	10900	5390	12000	4810	4840	2420	6300
29	2930	2350	2600	1700	---	10200	6750	12100	4460	4710	3450	7120
30	2800	2000	2500	1800	---	9490	8520	11200	4810	4190	3670	7060
31	2700	---	2450	1910	---	8750	---	9970	---	3720	3070	---
TOTAL	125170	88940	75550	60430	48560	340330	226800	267100	168460	162230	77420	99730
MEAN	4038	2965	2437	1949	1734	10980	7560	8616	5615	5233	2497	3324
MAX	5470	4900	2750	2400	1950	32200	11400	14400	8960	9890	3670	7120
MIN	2700	2000	1850	1700	1470	1500	5230	4920	4030	3210	1870	1870
CFSM	.78	.58	.47	.38	.34	2.13	1.47	1.67	1.09	1.02	.49	.65
IN.	.90	.64	.55	.44	.35	2.46	1.64	1.93	1.22	1.17	.56	.72
AC-FT	248300	176400	149900	119900	96320	675000	449900	529800	334100	321800	153600	197800

CAL YR 1985	TOTAL	930369	MEAN	2549	MAX	10100	MIN	590	CFSM	.50	IN.	6.73	AC-FT	1845000
WTR YR 1986	TOTAL	1740720	MEAN	4769	MAX	32200	MIN	1470	CFSM	.93	IN.	12.58	AC-FT	3453000

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 above NGVD. Prior to Aug. 20, 1920, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 27, 29-30, Dec. 2-4, Dec. 11 to Jan. 19, Jan.26 to Feb. 2, 9-16, 21, 23-24, 28, Mar. 5-8. Records good except those for estimated discharge, which are fair. U. S. G. S. gage-height telemeter and U.S. Army Corps of Engineers data collection platform at station.

AVERAGE DISCHARGE.--84 years, 3,493 ft³/s, 7.29 in/yr, 2,531,000 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 greater than base discharge of 12,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 17	0245	28,300	10.31	Mar. 23	0730	*39,600	*12.89

Minimum discharge, 680 ft³/s Dec. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2880	3250	2200	2100	2100	1840	10900	8470	15100	8930	3980	3100
2	3230	3430	2000	2000	2000	1860	10100	9710	12900	8570	3620	2700
3	4360	3450	1700	1950	1910	1850	9850	10200	11200	8040	3350	2450
4	4850	3310	1400	1850	1960	1990	9790	9610	9870	6950	3160	2320
5	4780	3170	1090	1800	2780	2300	9950	8420	9700	5760	2980	2330
6	4510	3080	1660	1750	3190	2600	10400	7520	11000	5030	3160	2240
7	4200	3020	1930	1700	3080	2900	10900	6900	9680	4930	3070	2240
8	4150	2940	2050	1700	2940	3100	11900	6480	8590	4940	2880	2040
9	4420	2890	2250	1650	2850	3220	12600	5920	8190	8390	2690	2060
10	4410	2980	2360	1650	2800	6990	12400	5430	7950	9370	2570	2080
11	4180	2760	2400	1600	2650	9330	11200	5160	8840	10900	2430	2090
12	4230	2810	2300	1600	2500	8520	9910	5410	8820	11300	2310	2120
13	4040	2770	2200	1600	2500	11200	8810	6560	8390	11700	2260	2140
14	3890	2710	2100	1600	2450	12800	8100	7610	7710	12000	2650	2260
15	3870	2800	2000	1650	2500	12200	7750	8880	7540	11200	2760	2320
16	3650	3000	2000	1600	2450	13600	7230	10500	7180	9660	2880	2200
17	3640	3120	2100	1650	2280	19300	7170	14400	6540	8190	2790	2190
18	3670	3270	2200	1700	2190	24400	7130	16300	5890	6950	2770	2160
19	3580	3550	2200	1800	2140	22400	7060	17300	5630	5990	2760	2240
20	3670	3630	2000	1890	2100	24600	6910	16900	5330	5430	2570	2400
21	4460	3790	1800	1980	2050	28200	6770	14500	5160	4940	2370	2670
22	4720	4330	1750	2160	2030	36300	6730	11900	6150	4670	2230	2680
23	4720	4020	1700	2460	2000	38900	6540	10000	7330	4340	2050	2640
24	4300	2960	1800	2180	1950	34700	6200	8850	7340	3960	2010	3980
25	4010	2600	1900	2160	1920	26700	5810	7970	6880	4020	1970	6720
26	3680	2200	1950	2150	1870	22100	5480	9940	6960	3830	2090	6930
27	3500	2400	2000	2200	1890	18700	5260	14200	7270	3750	2100	6980
28	3180	2530	2000	2200	1900	16600	5280	15800	6440	4510	2150	6530
29	3190	2450	1900	2150	---	15000	5340	16100	5770	4720	2150	6960
30	3120	2300	2000	2200	---	13500	6530	17000	8480	4730	2680	8460
31	3040	---	2150	2150	---	11900	---	16900	---	4290	3180	---
TOTAL	122130	91520	61090	58830	64980	449600	250000	330840	243830	211990	82620	100230
MEAN	3940	3051	1971	1898	2321	14500	8333	10670	8128	6838	2665	3341
MAX	4850	4330	2400	2460	3190	38900	12600	17300	15100	12000	3980	8460
MIN	2880	2200	1090	1600	1870	1840	5260	5160	5160	3750	1970	2040
CFSM	.61	.47	.30	.29	.36	2.23	1.28	1.64	1.25	1.05	.41	.51
IN.	.70	.52	.35	.34	.37	2.57	1.43	1.89	1.39	1.21	.47	.57
AC-FT	242200	181500	121200	116700	128900	891800	495900	656200	483600	420500	163900	198800

CAL YR 1985	TOTAL	1146815	MEAN	3142	MAX	16000	MIN	770	CFSM	.48	IN.	6.55	AC-FT	2275000
WTR YR 1986	TOTAL	2067660	MEAN	5665	MAX	38900	MIN	1090	CFSM	.87	IN.	11.82	AC-FT	4101000

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 above 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.-- Estimated daily discharges: Nov. 28 to Mar. 9. Records good except those for estimated daily discharge, which are poor. U.S. Army Corps of Engineers data collection platform at gage.

AVERAGE DISCHARGE.--47 years, 4,794 ft³/s, 8.36 in/yr, 3,473,000 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 U.S. Army Corps of Engineers.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 25	0815	*36,000	*14.58	July 1	1045	17,800	12.32
May 18	1745	31,800	14.28	July 9	1730	19,300	12.58
May 27	1700	24,400	13.54	Sept. 26	1000	13,800	11.24

Minimum daily discharge, 2,050 ft³/s Dec. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2410	4350	4100	2500	3600	3000	14300	8850	19300	17300	5520	3480
2	2620	5680	5200	2500	3400	3100	13000	9760	18400	14900	5220	3690
3	2750	5410	3100	2550	3600	3150	12100	10500	16300	12500	4840	3470
4	3320	5040	2700	2600	4500	3200	11800	11100	14200	10600	4510	3210
5	4220	4650	2300	2550	5600	3200	12200	10700	14500	9450	4330	2960
6	4480	4440	2200	2500	5400	3250	12000	9680	13800	8160	4700	2890
7	4390	4520	2300	2300	5200	3350	12000	8810	13500	7580	4870	2860
8	4170	4350	2500	2250	5000	3700	12200	8170	12400	9760	5100	2810
9	4240	4160	2800	2200	4900	4700	12900	7930	10900	17200	4650	2740
10	4900	4050	2850	2300	4750	5640	13500	7670	10700	18200	4160	2780
11	5000	4050	2800	2400	4550	12800	13500	7120	11500	14800	4150	3120
12	4690	3930	2700	2500	4300	13600	12700	6560	12000	14100	4120	2920
13	4880	4540	2600	2500	4200	14200	11300	6510	11600	14000	4020	2870
14	4650	5140	2400	2400	4000	16700	10300	7200	10800	13600	3950	2810
15	4400	4670	2350	2350	3900	17100	9720	8230	10200	13700	4050	2810
16	4210	4420	2300	2300	3700	15200	9150	10200	9580	13100	4220	2880
17	4080	4420	2350	2400	3500	15200	8640	17400	9040	11700	4260	2870
18	4030	4860	2300	2700	3450	17800	8320	29700	8380	10200	4210	2860
19	4370	8140	2200	3000	3500	21500	8300	28000	7740	8870	3950	2980
20	5370	6890	2100	3100	3500	24900	8210	22200	7350	7980	3740	3100
21	5040	5940	2050	3300	3350	26000	8050	20500	6950	7250	3550	3190
22	5030	5640	2150	3600	3200	26200	7860	18900	7070	6660	3370	3310
23	5500	5960	2200	3750	3050	28600	7740	16000	7860	6270	3200	3720
24	6920	5960	2350	3900	2900	33100	7600	13500	8420	5870	3070	5120
25	6590	4970	2300	3850	2850	35500	7410	12200	8310	5550	2880	4680
26	5600	4300	2350	3800	2850	33400	7100	14700	7970	5520	2940	12800
27	4930	4080	2250	3700	2950	28600	6760	22800	7830	5270	3190	10100
28	4490	3900	2250	3650	3100	23600	6560	22800	8290	5070	3130	8520
29	4180	3800	2200	3400	---	20400	6500	21400	7770	5380	2970	8750
30	3970	3750	2300	3400	---	17900	7360	20400	11300	5780	2920	10800
31	3900	---	2400	3450	---	16000	---	19500	---	5810	3020	---
TOTAL	139330	146010	78950	89700	108800	494590	299080	438990	323980	312130	122810	131100
MEAN	4495	4867	2547	2894	3886	15950	9969	14160	10800	10070	3962	4370
MAX	6920	8140	5200	3900	5600	35500	14300	29700	19300	18200	5520	12800
MIN	2410	3750	2050	2200	2850	3000	6500	6510	6950	5070	2880	2740
CFSM	.58	.63	.33	.37	.50	2.05	1.28	1.82	1.39	1.29	.51	.56
IN.	.67	.70	.38	.43	.52	2.36	1.43	2.10	1.55	1.49	.59	.63
AC-FT	276400	289600	156600	177900	215800	981000	593200	870700	642600	619100	243600	260000

CAL YR 1985 TOTAL 1435710 MEAN 3933 MAX 27000 MIN 1040 CFSM .51 IN. 6.86 AC-FT 2848000
WTR YR 1986 TOTAL 2685470 MEAN 7357 MAX 35500 MIN 2050 CFSM .95 IN. 12.83 AC-FT 5327000

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 above 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.--Estimated daily discharge: Dec. 3 to March 10. Records good except those for estimated discharges, which are poor. Flow regulated by Coralville Lake (station 05453510) 67.3 mi upstream, since Sept. 17, 1958. U.S. Army Corps of Engineers data collection platform at gage.

AVERAGE DISCHARGE.--72 years, 7,064 ft³/s, 7.67 in/yr, 5,118,000 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, 57,600 ft³/s, May 19, gage height, 25.14 ft; minimum daily discharge, 3,030 ft³/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3030	6530	7410	3700	4650	4600	22900	12500	25900	23900	9880	7500
2	3460	9970	9530	3800	4700	4850	21100	13900	24800	23900	9450	7840
3	3640	10800	8000	3850	4900	5800	19900	14200	23100	19400	9160	7970
4	3800	8950	5200	3850	5800	7600	18900	14700	20600	16200	8810	7650
5	4510	7710	4200	3800	8000	9400	20400	14300	23200	14600	8590	7340
6	5360	6940	3800	3700	8800	11000	20500	13100	23100	13400	8930	7190
7	5500	7210	3500	3500	8400	10500	20100	12300	18300	12700	9820	7200
8	5360	6920	3800	3450	8300	11000	18900	11700	18300	13900	9260	7070
9	5350	6550	4300	3500	8000	14000	17800	10900	16600	24400	9380	7000
10	6540	6610	4800	3600	7600	17000	17100	10500	16400	29500	8660	6910
11	7860	6240	5000	3650	7300	19600	15400	10100	17400	24700	8200	7120
12	7430	6160	4800	3700	7000	23400	14100	9550	17500	20900	7930	7210
13	6810	7140	4400	3650	6600	23000	12900	9260	17200	20900	7750	6970
14	7070	10700	4100	3500	6500	25700	11900	9570	15800	19800	9990	6890
15	6480	9800	3900	3400	6750	27700	11300	10800	15600	18600	13200	6640
16	5940	8520	3800	3400	7200	26800	10700	12500	14700	18000	12300	6110
17	5690	8020	3900	3500	7200	24400	10800	21200	14000	16800	13300	5920
18	5520	8170	3900	4250	6800	25200	11500	36100	13300	15200	13100	5430
19	6140	12700	3800	4850	6400	28200	12200	54700	12600	13700	9790	5640
20	8210	12600	3600	5500	6200	31900	13400	48200	12100	12900	9030	6000
21	8840	9910	3400	6200	5600	36000	13200	33400	11800	11900	8690	5990
22	7630	8610	3300	6800	5400	36600	12900	25500	11500	11300	8380	7060
23	7550	8340	3400	7400	5300	34400	12300	23900	12200	10800	8070	8420
24	8520	8380	3600	7800	5000	34300	11000	20400	12600	10400	7830	11700
25	10100	7730	3650	7400	4700	39900	10100	18200	12800	10100	7620	11900
26	8830	6640	3650	6400	4400	42200	9870	24800	12600	9910	7460	14700
27	7850	6310	3600	5400	4300	37600	9550	32000	12200	9720	7820	15800
28	7180	6120	3500	4900	4300	32000	9240	38000	12200	9440	7960	13400
29	6610	6280	3400	4700	---	29000	8960	34600	12500	9380	7540	13100
30	5860	6280	3450	4500	---	27300	9250	31800	15000	9840	7440	16800
31	5520	---	3600	4400	---	24900	---	28300	---	9970	7340	---
TOTAL	198190	242840	134290	142050	176100	725850	428170	660980	485900	486160	282680	256470
MEAN	6393	8095	4332	4582	6289	23410	14270	21320	16200	15680	9119	8549
MAX	10100	12700	9530	7800	8800	42200	22900	54700	25900	29500	13300	16800
MIN	3030	6120	3300	3400	4300	4600	8960	9260	11500	9380	7340	5430
AC-FT	393100	481700	266400	281800	349300	1440000	849300	1311000	963800	964300	560700	508700

CAL YR 1985	TOTAL	2213270	MEAN	6064	MAX	42600	MIN	1490	AC-FT	4390000
WTR YR 1986	TOTAL	4219680	MEAN	11560	MAX	54700	MIN	3030	AC-FT	8370000

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 microsiemens Jan. 23, 1978-Jan. 20, 1981; minimum daily, 250 microsiemens 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.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,120 mg/L July 9; minimum daily mean, 6 mg/L Jan. 7.
SEDIMENT LOADS: Maximum daily, 141,000 tons July 9; minimum daily, 57 tons Jan.7.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C.) WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	560	---	660	620	340	430	450	---	300	420	420
2	---	500	---	660	---	---	---	500	460	320	420	415
3	520	520	---	660	600	---	460	---	475	---	415	410
4	---	560	---	---	---	---	450	---	480	---	400	410
5	---	590	---	---	340	---	---	500	---	---	400	400
6	---	---	---	690	---	---	---	520	400	---	400	390
7	---	560	630	680	400	---	470	540	---	480	400	390
8	---	600	620	680	---	---	480	---	450	460	400	380
9	---	---	640	680	---	---	490	540	480	320	---	380
10	---	580	610	680	520	---	460	---	460	280	410	390
11	---	600	660	---	500	290	480	---	450	370	410	430
12	---	590	---	---	480	280	---	520	440	---	420	---
13	---	560	---	650	480	280	---	430	440	---	415	430
14	---	480	660	640	510	260	490	500	460	420	360	435
15	---	500	---	650	---	---	475	---	450	450	300	420
16	---	560	---	630	---	---	490	---	460	---	---	---
17	---	---	650	650	480	300	480	---	---	---	280	420
18	---	580	600	---	520	360	440	---	480	480	340	460
19	---	---	660	---	500	300	---	260	---	475	400	420
20	---	480	660	440	500	320	---	310	480	---	400	---
21	---	520	660	430	480	300	480	380	460	440	410	460
22	---	560	680	480	480	310	440	---	440	460	---	430
23	600	570	660	490	560	300	490	440	430	---	420	420
24	---	---	660	540	---	300	440	---	440	---	440	400
25	---	590	660	---	500	320	460	---	---	420	435	400
26	---	600	680	---	---	370	---	---	---	415	440	480
27	---	610	680	610	535	330	---	300	475	---	420	440
28	---	---	---	600	440	---	440	---	---	400	---	430
29	---	---	---	600	---	---	440	380	---	380	430	410
30	---	620	660	400	---	390	440	---	400	---	430	---
31	---	---	660	620	---	410	---	420	---	400	430	---

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C.), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

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

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	111	908	202	3560	46	920	27	270	20	251	217	2700
2	103	962	481	12900	47	1210	21	215	26	330	159	2080
3	112	1100	344	10000	48	1040	16	166	44	582	210	3290
4	119	1220	194	4690	50	702	14	146	156	2440	367	7530
5	138	1680	138	2870	50	567	10	103	456	9850	467	11900
6	163	2360	109	2040	50	513	8	80	516	12300	334	9920
7	168	2490	117	2280	50	472	6	57	271	6150	236	6690
8	154	2230	88	1640	83	852	7	65	125	2800	200	5940
9	144	2080	68	1200	57	662	11	104	77	1660	210	7940
10	202	3570	91	1620	52	674	12	117	55	1130	235	10800
11	314	6660	71	1200	20	270	13	128	41	808	966	53400
12	291	5840	72	1200	24	311	13	130	47	888	1880	119000
13	214	3930	160	3080	38	451	13	128	45	802	1430	88800
14	203	3880	518	15000	37	410	15	142	26	456	1120	77700
15	178	3110	377	9980	33	347	12	110	20	364	990	74000
16	150	2410	172	3960	27	277	11	101	24	467	735	53200
17	128	1970	136	2940	24	253	10	94	30	583	380	25000
18	117	1740	160	3530	13	137	36	413	29	532	153	10400
19	152	2520	580	19900	8	82	93	1220	33	570	294	22400
20	225	4990	504	17100	20	194	144	2140	102	1710	431	37100
21	284	6780	194	5190	25	229	162	2710	85	1290	354	34400
22	162	3340	117	2720	12	107	119	2180	31	452	214	21100
23	137	2790	88	1980	11	101	88	1760	15	215	198	18400
24	231	5310	74	1670	14	136	41	863	15	202	239	22100
25	347	9460	68	1420	14	138	23	460	21	266	211	22700
26	238	5670	56	1000	11	108	16	276	25	297	203	23100
27	197	4180	39	664	25	243	15	219	33	383	199	20200
28	179	3470	42	694	31	293	15	198	94	1090	195	16800
29	163	2910	53	899	26	239	15	190	---	---	192	15000
30	149	2360	46	780	20	186	16	194	---	---	189	13900
31	135	2010	---	---	17	165	17	202	---	---	191	12800
TOTAL	---	103930	---	137707	---	12289	---	15181	---	48868	---	850290

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	168	10400	1480	51600	233	16300	2080	134000	142	3790	99	2000
2	161	9170	830	31100	205	13700	880	56800	139	3550	110	2330
3	182	9780	545	20900	200	12500	702	36800	155	3830	103	2220
4	190	9700	399	15800	180	10000	540	23600	146	3470	98	2020
5	214	11800	260	10000	1020	63900	398	15700	129	2990	94	1860
6	190	10500	200	7070	1540	96000	292	10600	142	3420	89	1730
7	170	9230	176	5840	948	46800	240	8230	223	5910	87	1690
8	183	9340	165	5210	415	20500	509	21000	162	4050	87	1660
9	171	8220	157	4620	290	13000	2120	141000	144	3650	84	1590
10	155	7160	194	5500	642	28400	1060	84400	142	3320	83	1550
11	137	5700	199	5430	585	27500	760	50700	128	2830	95	1830
12	122	4640	184	4740	755	35700	710	40100	113	2420	97	1890
13	116	4040	164	4100	678	31500	591	33400	113	2360	87	1640
14	109	3500	135	3490	360	15400	473	25300	849	26100	84	1560
15	98	2990	142	4140	542	22800	358	18000	1110	40200	83	1490
16	87	2510	219	7390	315	12500	270	13100	598	19900	82	1350
17	99	2890	324	18500	220	8320	233	10600	452	16200	81	1290
18	108	3350	715	69700	178	6390	219	8990	332	11700	80	1170
19	111	3660	782	115000	152	5170	225	8320	267	7060	348	5300
20	107	3870	425	55300	140	4570	223	7770	175	4270	307	4970
21	105	3740	320	28900	173	5510	183	5880	178	4180	181	2930
22	109	3800	275	18900	180	5590	182	5550	135	3050	520	9910
23	114	3790	255	16500	390	12800	184	5370	117	2550	517	11800
24	114	3390	240	13200	305	10400	182	5110	109	2300	955	30200
25	110	3000	230	11300	250	8640	189	5150	97	2000	650	20900
26	107	2850	470	31500	232	7890	205	5490	98	1970	630	25000
27	108	2780	1130	97600	213	7020	200	5250	113	2390	485	20700
28	108	2690	830	85200	183	6030	183	4660	109	2340	235	8500
29	107	2590	487	45500	159	5370	160	4050	105	2140	212	7500
30	109	2720	360	30900	1390	64600	147	3910	93	1870	182	8260
31	---	---	280	21400	---	---	143	3850	89	1760	---	---
TOTAL	---	163800	---	846330	---	624800	---	802680	---	197570	---	186840

TOTAL LOAD FOR YEAR: 3990285 TONS.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	TEMPER-ATURE (DEG C)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
OCT 23...	10:30	13.5	7530	137	2790	--	--
DEC 12...	14:15	0.0	4800	32	415	--	--
MAY 13...	11:15	21.0	9420	162	4120	--	--
JUL 02...	10:00	21.0	25600	881	60900	48	58
AUG 27...	12:00	23.0	7880	109	2320	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 23...	--	--	--	--	--	--	91
DEC 12...	--	--	--	--	--	--	73
MAY 13...	--	--	--	--	--	--	97
JUL 02...	69	80	97	98	99	100	--
AUG 27...	--	--	--	--	--	--	96

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	NUMBER OF SAM-PLING POINTS	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM
OCT											
23...	10:30	7530	7	0	7	48	91	99	100	--	--
MAY											
13...	11:15	9420	7	0	6	31	73	92	99	100	--
JUL											
02...	10:00	25600	8	0	4	37	79	91	96	98	100

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (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)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT											
23...	1030	7530	572	8.40	13.5	25	9.6	94	746	700	860
DEC											
12...	1415	4800	646	8.40	0.0	3.7	16.2	113	751	K100	K100
FEB											
27...	1100	4300	600	8.00	1.0	10	--	--	751	260	2300
MAY											
13...	1115	9420	502	8.80	21.0	22	9.7	112	743	--	--
JUL											
02...	1000	25600	343	8.30	21.0	250	6.2	71	750	20000	10000
AUG											
27...	1200	7880	460	8.80	23.0	25	9.4	111	753	--	K15

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	HARD-NESS (MG/L AS CACO3) (00900)	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 WH WAT TOTAL FIELD MG/L AS CACO3 (00410)	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CAC03) (99430)	BICAR-BONATE IT-FLD (MG/L AS HCO3) (99440)
OCT											
23...	83	290	76	24	13	9	0.3	3.6	205	206	239
DEC											
12...	79	320	85	27	16	10	0.4	2.3	236	244	297
FEB											
27...	68	270	70	22	17	12	0.5	3.3	199	198	242
MAY											
13...	78	260	67	23	10	8	0.3	2.1	184	184	203
JUL											
02...	40	160	42	13	6.4	8	0.2	3.7	124	118	144
AUG											
27...	55	230	56	22	11	9	0.3	3.0	174	176	190

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	CARBONATE IT-FLD (MG/L AS CO3) (99445)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)
OCT											
23...	6.0	39	29	0.2	14	368	330	0.5	7480	7.60	0.03
DEC											
12...	0	50	36	0.3	14	380	380	0.52	4920	9.10	0.02
FEB											
27...	0	45	30	0.2	12	350	320	0.48	4060	5.70	0.03
MAY											
13...	11	41	22	0.2	4.4	302	290	0.41	7680	6.20	0.03
JUL											
02...	0	26	11	0.2	10	210	180	0.29	14500	6.30	0.07
AUG											
27...	12	36	18	0.3	8.1	264	270	0.36	5620	4.30	0.09

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)
OCT										
23...	0.05	0.06	1.7	0.18	0.19	0.36	137	2790	91	--
DEC										
12...	0.20	0.21	1.2	0.12	0.12	0.17	32	415	73	--
FEB										
27...	0.38	0.40	1.2	0.22	0.25	0.25	--	--	--	--
MAY										
13...	0.06	0.15	1.9	0.04	0.06	0.26	162	4120	97	--
JUL										
02...	0.07	0.20	3.3	0.15	0.17	1.00	881	60900	--	97
AUG										
27...	0.09	0.06	1.8	0.03	0.03	0.20	109	2320	96	--

DATE	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)	LEAD, DISSOLVED (UG/L AS PB) (01049)
OCT										
23...	2	<10	130	<0.5	1	<1	<3	2	<3	<1
DEC										
12...	--	--	--	--	--	--	--	--	--	--
FEB										
27...	2	<10	100	<0.5	<1	<1	<3	2	8	2
MAY										
13...	--	--	--	--	--	--	--	--	--	--
JUL										
02...	--	--	--	--	--	--	--	--	--	--
AUG										
27...	2	10	89	<0.5	2	<1	<3	4	<3	<5

DATE	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										
23...	13	4	0.2	<10	2	2	<1	170	<6	4
DEC										
12...	--	--	--	--	--	--	--	--	--	--
FEB										
27...	9	34	0.3	<10	6	2	<1	180	<6	12
MAY										
13...	--	--	--	--	--	--	--	--	--	--
JUL										
02...	--	--	--	--	--	--	--	--	--	--
AUG										
27...	17	2	0.7	<10	1	1	<1	140	<6	9

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 above NGVD (Iowa Highway Commission benchmark). Prior to Aug. 25, 1921, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE--61 years (water years 1921-27, 1933-86), 162 ft³/s, 6.98 in/yr, 117,400 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 greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 14	0445	1,740	5.48	June 30	2045	*4,040	*8.11
Mar. 19	0330	2,140	5.95	Sept. 20	2000	1,840	5.58

Minimum discharge, 16 ft³/s Sept. 10, 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	554	201	56	54	71	267	351	467	389	2310	119	26
2	388	185	39	54	66	280	423	384	332	1300	95	24
3	307	172	49	53	64	1130	553	337	300	947	81	29
4	256	161	67	53	104	950	850	308	286	730	74	37
5	216	157	68	49	294	865	1180	287	1030	558	79	30
6	197	158	77	49	321	646	949	249	840	602	135	25
7	184	147	88	49	267	416	686	225	610	621	94	23
8	167	139	90	55	188	355	535	220	477	522	74	21
9	148	138	90	55	145	332	430	228	385	484	63	19
10	146	130	90	54	138	553	370	456	339	502	53	19
11	149	120	87	51	129	515	328	1150	308	578	47	20
12	454	126	83	49	121	430	296	998	338	533	45	20
13	457	128	84	46	114	1360	259	718	285	408	84	20
14	348	128	84	46	104	1520	307	813	322	334	275	38
15	291	128	83	46	95	906	370	856	415	291	200	49
16	244	141	77	48	87	727	341	1030	365	247	127	61
17	225	147	76	52	83	626	315	918	295	214	90	54
18	433	153	78	61	74	1570	309	756	275	181	74	45
19	1010	155	83	95	67	1970	350	608	251	157	66	84
20	779	132	83	116	61	1100	353	514	223	135	66	930
21	573	134	75	147	52	734	313	449	202	119	90	1500
22	465	154	73	133	49	585	268	400	399	107	76	834
23	403	156	70	128	52	495	244	357	363	95	58	548
24	346	114	65	135	51	426	229	330	273	88	47	465
25	300	120	59	140	49	395	214	308	220	116	40	969
26	279	135	60	119	59	360	215	322	190	86	46	899
27	248	66	59	85	294	320	245	379	170	88	55	987
28	224	103	58	107	317	303	352	570	168	79	51	797
29	213	83	56	97	---	286	419	580	399	299	40	680
30	200	88	56	78	---	263	493	509	3440	243	34	727
31	194	---	56	74	---	240	---	444	---	154	28	---
TOTAL	10398	4099	2219	2378	3516	20925	12547	16170	13889	13128	2506	9980
MEAN	335	137	71.6	76.7	126	675	418	522	463	423	80.8	333
MAX	1010	201	90	147	321	1970	1180	1150	3440	2310	275	1500
MIN	146	66	39	46	49	240	214	220	168	79	28	19
CFSM	1.06	.43	.23	.24	.40	2.14	1.33	1.66	1.47	1.34	.26	1.06
IN.	1.23	.48	.26	.28	.42	2.47	1.48	1.91	1.64	1.55	.30	1.18
AC-FT	20620	8130	4400	4720	6970	41500	24890	32070	27550	26040	4970	19800

CAL YR 1985	TOTAL	45554.3	MEAN	125	MAX	1760	MIN	1.3	CFSM	.40	IN.	5.38	AC-FT	90360
WTR YR 1986	TOTAL	111755	MEAN	306	MAX	3440	MIN	19	CFSM	.97	IN.	13.20	AC-FT	221700

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 above 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.--Estimated daily discharges: Oct. 1-7, Nov. 24 to Dec. 10, Jan. 9-18, 21, 22. Records good except for estimated daily discharges which are poor. Gage-height telemeter at station.

AVERAGE DISCHARGE.--29 years (water years 1920-27,1966-86), 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 greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 3	1145	1,680	5.96	June 30	1545	*3,750	*10.21

Minimum discharge, 4.9 ftE/s Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	659	125	59	34	51	243	212	332	215	1570	69	12
2	454	107	57	34	49	719	230	271	194	821	59	12
3	229	100	61	33	49	1180	368	240	184	572	52	43
4	175	94	63	32	119	553	567	225	201	436	44	24
5	160	92	59	32	556	393	648	210	545	358	59	15
6	133	96	61	33	291	247	481	190	457	411	150	13
7	89	86	57	45	167	184	388	175	354	410	83	11
8	85	83	55	58	149	185	316	177	288	338	63	11
9	89	83	53	43	113	152	271	384	247	309	51	11
10	94	78	52	39	142	177	243	357	222	314	46	11
11	123	73	55	55	113	164	222	471	226	413	38	13
12	348	76	54	32	70	204	206	404	261	375	36	11
13	332	79	61	23	65	851	183	379	210	283	134	21
14	243	78	73	20	63	886	218	459	282	232	166	12
15	193	78	79	23	64	466	208	535	374	208	112	18
16	158	87	79	20	61	367	194	749	289	183	82	17
17	150	89	79	24	58	341	191	644	226	158	67	18
18	379	90	79	59	51	1000	202	514	202	137	55	20
19	818	96	58	220	45	889	216	415	180	119	47	106
20	589	147	58	142	40	497	211	359	156	105	38	504
21	434	61	60	91	35	357	188	318	145	95	33	765
22	332	84	62	82	37	300	174	284	157	88	28	462
23	290	77	57	114	37	262	166	259	129	78	23	329
24	236	63	51	121	37	235	157	239	112	76	13	292
25	199	127	42	116	36	223	151	228	97	94	12	612
26	183	121	45	125	67	199	166	254	88	68	14	503
27	163	71	43	129	755	179	192	227	79	68	8.2	508
28	146	61	40	82	471	170	251	272	81	76	8.7	385
29	139	63	37	77	---	161	265	276	136	227	13	361
30	127	61	39	60	---	147	315	258	2850	134	13	381
31	123	---	35	55	---	148	---	235	---	89	12	---
TOTAL	7872	2626	1763	2053	3791	12079	7800	10340	9187	8845	1628.9	5501
MEAN	254	87.5	56.9	66.2	135	390	260	334	306	285	52.5	183
MAX	818	147	79	220	755	1180	648	749	2850	1570	166	765
MIN	85	61	35	20	35	147	151	175	79	68	8.2	11
CFSM	1.25	.43	.28	.32	.66	1.91	1.27	1.64	1.50	1.40	.26	.90
IN.	1.44	.48	.32	.37	.69	2.20	1.42	1.89	1.68	1.61	.30	1.00
AC-FT	15610	5210	3500	4070	7520	23960	15470	20510	18220	17540	3230	10910

CAL YR 1985	TOTAL	31630.30	MEAN	86.7	MAX	1480	MIN	.00	CFSM	.42	IN.	5.77	AC-FT	62740
WTR YR 1986	TOTAL	73485.9	MEAN	201	MAX	2850	MIN	8.2	CFSM	.99	IN.	13.40	AC-FT	145800

05471050 SOUTH SKUNK RIVER AT COLFAX, IA

LOCATION.--Lat 41°40'55", long 93°14'47", in NE1/4 NE1/4 SW1/4 sec.1, T.79 N., R.21 W., Jasper County, Hydrologic Unit 07080105, on left bank 15 ft downstream of bridge on State Highway 117 at north edge of Colfax, 1 mile downstream from Sugar Creek, 2.8 miles upstream from Indian Creek, and at mile 191 upstream from mouth of Skunk River.

DRAINAGE AREA.--803 mi².

PERIOD OF RECORD.--October 1, 1985 to Septmber 30, 1986.

GAGE.--Water-stage recorder. Datum of gage is 770.00 ft above NGVD.

REMARKS.--Estimated daily discharges: Nov 5-14, Nov. 23 to Mar. 20, July 7-15. Records good except those for estimated discharges, which are poor. National Weather Service gage-height telemeter at gage.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 6,530 ft³/s July 1, 1986, gage height, 17.15 ft; minimum discharge, 105 ft³/s Sept. 13, 1986.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood occurred in late June, 1975. Discharge and gage height not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	unknown	3,700	14.20	July 1	2300	*6,530	*17.15
May 17	0400	3,730	14.67	Sept. 21	1300	3,120	13.81

Minimum daily discharge, 105 ft³/s Sept 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	766	517	235	185	225	780	1010	1580	1050	5710	470	172
2	833	518	230	185	240	1000	1140	1360	980	5260	393	154
3	639	485	225	185	270	1150	1320	1220	906	2870	338	169
4	526	455	225	185	310	1000	1820	1140	865	2130	299	240
5	466	435	225	185	450	800	2270	1080	1110	1680	287	173
6	425	425	220	185	420	740	2290	1010	1820	1620	335	158
7	393	415	220	180	390	680	1840	938	1400	1560	448	138
8	377	385	215	180	370	620	1550	889	1180	1530	353	126
9	389	365	215	180	350	560	1350	924	1040	1500	313	128
10	385	355	210	180	340	680	1220	1560	947	1700	286	127
11	366	340	205	180	330	840	1140	1770	880	2100	267	132
12	549	325	205	175	320	1400	1080	1240	893	2000	239	117
13	786	310	200	175	310	2300	1010	1650	882	1700	1280	114
14	737	305	200	175	300	3000	1000	1790	904	1400	1770	127
15	604	303	195	175	290	3500	1060	2060	1080	1100	1510	122
16	526	310	195	180	290	2100	1050	2700	1090	890	1030	129
17	488	320	195	180	280	1500	1010	3290	945	731	856	149
18	503	331	190	185	280	2300	996	2540	855	656	661	151
19	953	336	190	195	280	3400	1010	2110	813	591	517	318
20	1490	341	190	200	275	2500	1030	1730	760	534	413	1520
21	1140	318	190	210	275	1930	1010	1470	737	484	368	2990
22	933	327	190	240	270	1590	933	1350	1170	441	331	2280
23	829	366	190	260	270	1410	879	1200	1150	407	300	1620
24	761	291	190	280	270	1280	852	1100	925	379	273	1350
25	698	206	190	270	275	1220	830	1530	797	495	255	1590
26	639	230	190	260	300	1160	809	1830	721	466	256	1950
27	615	270	190	240	380	1080	806	1320	671	385	248	1570
28	575	260	190	235	500	1030	867	1260	651	368	232	1730
29	548	250	190	230	---	1000	980	1370	920	645	223	2320
30	527	240	190	225	---	962	1570	1270	3460	806	206	1990
31	495	---	185	225	---	917	---	1160	---	611	191	---
TOTAL	19961	10334	6270	6325	8860	44429	35732	47441	31602	42749	14948	23854
MEAN	644	344	202	204	316	1433	1191	1530	1053	1379	482	795
MAX	1490	518	235	280	500	3500	2290	3290	3460	5710	1770	2990
MIN	366	206	185	175	225	560	806	889	651	368	191	114
CFSM	.80	.43	.25	.25	.39	1.78	1.48	1.91	1.31	1.72	.60	.99
IN.	.92	.48	.29	.29	.41	2.06	1.66	2.20	1.46	1.98	.69	1.11
AC-FT	39590	20500	12440	12550	17570	88120	70870	94100	62680	84790	29650	47310

WTR YR 1986 TOTAL 292505 MEAN 801 MAX 5710 MIN 114 CFSM 1.00 IN. 13.55 AC-FT 580200

05471200 INDIAN CREEK NEAR MINGO, IA

LOCATION.--Lat 41°48'17", long 93°18'36", near corner common to secs. 20, 21, 28, and 29, T.81 N., R.21, W., Hydrologic Unit 07080105, Jasper County, on right bank 30 ft downstream from bridge on State Highway 117, 0.7 mile downstream from Wolf Creek, 2.2 miles upstream from Byers Branch, 2.9 miles northwest of Mingo, and 11.3 upstream from S. Skunk River.

DRAINAGE AREA.--276 mi².

PERIOD OF RECORD.--May, 1958, to September 30, 1975; October 1, 1985 to September 30, 1986.

REVISED RECORDS.--WSP 1728: 1958 (M), 1959 (M).

GAGE.--Water-stage recorder. Datum of gage is 810.47 ft above NGVD.

REMARKS.--Estimated daily discharges: Oct. 1-3, 13-16, and Nov. 25 to Mar. 13. Records good except those for estimated discharges, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--18 years (1958-75, 1985-86) 190 ft³/s, 9.35 in/yr, 137,700 acre-ft/yr; median of yearly discharges, 170 ft³/s, 8.4 in/yr, 123,00 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,380 ft³/s June 12, 1966, gage height, 16.41 ft; minimum daily discharge, 0.14 ft³/s Jan. 11-12, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 20, 1944, reached a stage of 21.4 ft, from information by local resident, discharge not determined.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 13	0830	2,340	10.79	June 30	1045	*3,970	*13.22
Mar. 19	0300	1,520	9.10	July 12	1000	1,530	9.29
May 17	0145	2,870	11.68	Aug. 14	0115	3,020	11.92
June 5	0200	1,950	10.11	Sept. 21	1600	3,900	13.14
June 22	0930	2,590	11.23	Sept. 29	0445	2,700	11.41

Minimum daily discharge, 52 ft³/s Jan. 15-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	260	156	80	54	60	200	358	520	334	3610	168	73
2	280	158	77	55	64	310	483	433	282	1370	142	66
3	220	155	74	55	72	520	559	367	266	1170	117	79
4	182	143	71	55	90	380	816	337	294	990	99	130
5	154	136	69	55	120	320	940	316	1010	784	94	98
6	130	137	68	55	110	280	727	279	487	730	170	84
7	118	129	70	55	100	240	579	249	390	723	186	76
8	108	123	68	56	94	220	494	237	355	663	134	68
9	108	119	64	56	90	200	430	249	305	736	107	64
10	120	116	63	56	86	230	377	312	287	936	90	65
11	125	110	62	56	84	280	342	457	257	1090	77	66
12	218	101	62	55	82	340	317	450	225	1070	71	59
13	270	104	61	54	80	1800	283	606	204	791	604	74
14	240	104	60	53	79	1510	284	941	311	642	2120	76
15	205	103	59	52	78	885	273	921	330	494	1220	69
16	180	114	58	52	77	700	260	1320	303	307	603	64
17	167	118	58	54	76	599	259	1890	253	272	404	70
18	181	122	57	56	75	1110	266	1020	233	226	309	71
19	364	123	57	58	74	1370	274	746	218	195	254	297
20	459	102	56	60	73	877	272	598	198	168	205	1820
21	330	96	56	62	72	617	259	503	316	146	169	3810
22	312	134	56	64	71	519	235	433	2300	131	155	1970
23	275	107	56	67	70	455	224	381	1140	117	132	1290
24	244	90	56	70	70	410	219	346	785	106	117	1070
25	210	76	55	72	70	396	209	467	582	190	108	1170
26	196	92	54	70	72	363	208	391	464	135	121	927
27	180	100	54	68	88	333	209	365	383	109	127	728
28	160	96	54	66	130	322	246	411	353	199	102	635
29	152	90	54	64	---	308	267	417	459	325	88	1850
30	147	86	54	62	---	288	369	396	3390	368	87	1160
31	141	---	54	60	---	267	---	362	---	225	80	---
TOTAL	6436	3440	1897	1827	2307	16649	11038	16720	16714	19018	8460	18079
MEAN	208	115	61.2	58.9	82.4	537	368	539	557	613	273	603
MAX	459	158	80	72	130	1800	940	1890	3390	3610	2120	3810
MIN	108	76	54	52	60	200	208	237	198	106	71	59
CFSM	.75	.42	.22	.21	.30	1.95	1.33	1.95	2.02	2.22	.99	2.18
IN.	.87	.46	.26	.25	.31	2.24	1.49	2.25	2.25	2.56	1.14	2.44
AC-FT	12770	6820	3760	3620	4580	33020	21890	33160	33150	37720	16780	35860

WTR YR 1986 TOTAL 122585 MEAN 336 MAX 3810 MIN 52 CFSM 1.22 IN. 16.52 AC-FT 243100

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 above NGVD. Prior to Nov. 21, 1947, nonrecording gage at site 400 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 25 to Mar. 11, Mar. 13-14, and Aug. 18 to Sept. 20. Records good except those for estimated discharges, which are poor. U.S. Army Corps of Engineers Data Collection Platform at station.

AVERAGE DISCHARGE.--41 years, 963 ft³/s, 8.00 in/yr, 697,700 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 greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 14	2230	5,100	15.88	July 11	1545	5,570	16.18
Mar. 19	1045	6,200	17.06	Aug. 15	0200	8,160	18.52
May 18	0845	*9,460	19.56	Sept. 23	0245	8,930	*19.90
May 25	2200	5,280	16.00	Sept. 30	0945	6,450	17.86
July 3	1000	8,800	19.00				

Minimum daily discharge, 320 ft³/s Jan. 12-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	907	910	540	335	440	1400	1200	3400	2500	6920	1020	454
2	1300	872	520	335	440	1650	1330	2650	2200	8020	822	429
3	1100	826	500	335	460	1900	1730	2230	1970	8670	693	411
4	909	782	490	330	560	1700	2500	1960	1870	6330	614	394
5	787	749	480	330	800	1450	3470	1790	3310	4170	600	380
6	701	731	470	330	760	1350	4010	1640	2910	3070	662	376
7	639	723	460	330	700	1250	3470	1460	3090	3020	617	370
8	604	698	430	330	660	1150	2760	1320	2490	3050	740	362
9	706	674	410	330	640	1100	2320	1320	2120	2950	611	355
10	923	660	400	330	610	1250	2000	1590	1870	3270	548	350
11	813	640	385	325	590	1600	1830	2450	2770	4170	492	353
12	1060	770	375	320	570	1910	1690	2610	1900	3810	444	359
13	1350	897	365	320	560	3920	1540	2930	1710	3320	1620	359
14	1370	773	360	320	550	5050	1430	2810	1670	2910	7580	357
15	1240	729	355	325	540	4920	1390	3710	2040	2240	7260	359
16	1070	723	350	330	530	3520	1400	5590	1940	1900	4530	363
17	960	713	350	330	520	2760	1360	8480	1850	1670	2680	413
18	897	935	350	340	520	2750	1310	9220	1660	1470	1990	485
19	1480	982	345	355	520	5500	1320	6830	1510	1290	1600	507
20	1960	810	345	375	510	5760	1350	5000	1390	1130	1270	3560
21	2410	737	345	400	510	4230	1340	3990	1290	1000	1080	8750
22	1920	706	345	420	520	3070	1310	3270	1850	910	938	8780
23	1700	710	340	450	520	2530	1240	2840	4110	832	824	7900
24	1650	732	340	480	520	2180	1180	2540	2780	764	731	5110
25	1330	720	345	530	540	1970	1140	3330	2080	768	665	4770
26	1160	700	345	500	570	1870	1110	3910	1710	976	622	4260
27	1060	660	345	480	700	1700	1090	2830	1440	830	591	3900
28	983	620	345	460	1000	1510	1080	3940	1270	712	560	3110
29	914	580	345	455	---	1410	1150	3940	1180	922	530	4440
30	871	560	340	445	---	1320	1590	3290	4210	1200	504	6310
31	847	---	340	440	---	1240	---	2870	---	1350	482	---
TOTAL	35621	22322	12055	11715	16360	74920	51640	105740	64690	83644	43920	68326
MEAN	1149	744	389	378	584	2417	1721	3411	2156	2698	1417	2278
MAX	2410	982	540	530	1000	5760	4010	9220	4210	8670	7580	8780
MIN	604	560	340	320	440	1100	1080	1320	1180	712	444	350
CFSM	.70	.46	.24	.23	.36	1.48	1.05	2.09	1.32	1.65	.87	1.39
IN.	.81	.51	.27	.27	.37	1.70	1.17	2.41	1.47	1.90	.00	1.55
AC-FT	70650	44280	23910	23240	32450	148600	102400	209700	128300	165900	87120	135500

CAL YR 1985 TOTAL 258804 MEAN 709 MAX 11900 MIN 52 CFSM .43 IN. 5.89 AC-FT 513300
WTR YR 1986 TOTAL 590953 MEAN 1619 MAX 9220 MIN 320 CFSM .99 IN. 13.45 AC-FT 1172000

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 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 above NGVD. Prior to June 10, 1953, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 27 to March 15 and June 3 to Sept. 30. Records good except those for periods of estimated record, which were poor. U.S. Army Corps of Engineers Data Collection Platform and National Weather Service gage height telemeter at gage.

AVERAGE DISCHARGE.--41 years, 450 ft³/s, 8.37 in/yr, 326,000 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.--Peak discharges greater than base discharge of 3,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 19	1845	4,920	18.00	Sept. 25	----	*8,200	
Aug. 15	unknown	5,060	18.18				

Minimum discharge, 101 ft³/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	317	960	250	120	170	400	454	303	1300	1550	446	274
2	332	1140	245	120	170	610	488	583	1160	2020	376	262
3	293	738	240	120	200	780	655	505	1000	1040	262	240
4	241	538	240	120	240	680	729	407	859	763	233	244
5	191	438	245	120	300	570	815	373	1690	524	213	217
6	151	383	245	120	285	485	791	345	1510	510	367	209
7	128	365	245	120	260	430	743	319	1000	457	302	190
8	110	345	235	110	245	480	636	292	847	1090	278	185
9	264	320	225	110	230	600	523	275	739	1760	221	179
10	754	313	215	110	220	760	462	276	670	3100	179	175
11	781	299	205	110	200	940	429	340	708	1970	166	175
12	625	512	195	110	195	1100	408	606	827	1650	145	230
13	910	1330	190	110	190	1400	387	501	717	1770	148	270
14	775	1410	185	110	185	1800	370	422	620	1020	2420	259
15	517	908	170	115	180	1600	385	407	538	940	4900	314
16	368	709	160	120	180	1090	451	1320	907	727	4530	306
17	325	621	160	140	185	880	442	3850	650	630	4400	257
18	306	598	155	160	185	1090	361	4810	533	560	4200	234
19	963	1150	150	185	190	1800	348	4850	480	524	2000	800
20	1530	1220	150	195	185	2130	356	4620	471	500	1010	4000
21	1060	746	145	220	180	1350	353	3190	415	547	790	3610
22	733	566	145	230	170	996	330	1490	391	440	670	2170
23	618	501	145	225	165	873	338	1220	1520	340	580	4900
24	769	454	150	230	160	768	332	1070	879	259	500	6210
25	982	361	150	225	160	696	341	971	610	230	457	8160
26	633	327	145	215	175	716	321	1580	503	406	410	5060
27	452	310	140	205	215	684	268	2290	440	274	380	3620
28	350	290	135	200	280	610	243	1740	376	230	351	2240
29	296	270	130	190	---	570	238	2200	363	437	325	1230
30	266	260	130	180	---	533	263	2320	444	1040	310	2200
31	252	---	130	175	---	486	---	1640	---	571	302	---
TOTAL	16292	18382	5650	4820	5700	27907	13260	45115	23167	27879	31871	48420
MEAN	526	613	182	155	204	900	442	1455	772	899	1028	1614
MAX	1530	1410	250	230	300	2130	815	4850	1690	3100	4900	8160
MIN	110	260	130	110	160	400	238	275	363	230	145	175
CFSM	.72	.84	.25	.21	.28	123	.61	199	106	1.23	1.41	2.21
IN	.83	.94	.29	.25	.29	142	.68	230	118	1.42	1.62	2.47
ACFT	32320	36460	11210	9560	11310	55350	26300	89490	45950	55300	63220	96040

CAL YR 1985	TOTAL	121886.4	MEAN	334	MAX	3950	MIN	8.8	CFSM	.46	IN.	6.21	AC-FT	241800
WTR YR 1986	TOTAL	268463	MEAN	736	MAX	8160	MIN	110	CFSM	1.01	IN.	13.68	AC-FT	532500

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 ft above NGVD.

REMARKS.--Estimated daily discharges: November 26 to March 11. Records good except those for periods of estimated record, which are poor. Occasional high-water measurements were made by U.S. Army Corps of Engineers in 1965, 1966, 1970 and 1974 and by U.S. Geological Survey in 1966 and 1967.

AVERAGE DISCHARGE.--9 years, 414 ft³/s, 10.6 in/yr, 299,900 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 greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 11	0415	3,470	13.14	May 29	1645	3,620	13.50
Oct. 19	0200	3,060	12.32	July 10	1045	6,200	17.36
Nov. 2	0430	4,460	14.89	July 13	0300	5,980	17.10
Nov. 19	1530	3,900	13.91	Sept. 21	2000	3,240	12.73
May 18	1600	*7,690	*18.90	Sept. 25	0845	7,570	18.79

Minimum discharge, 5.4 ft³/s Sept. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	2740	330	105	120	415	119	76	440	126	34	9.2
2	118	4090	295	105	135	590	113	80	297	241	22	8.2
3	67	1300	265	105	160	740	126	63	207	103	17	8.0
4	45	622	250	110	175	580	697	49	156	53	14	8.1
5	31	417	230	110	190	475	927	42	906	32	14	8.0
6	26	465	225	105	185	400	542	42	1400	20	16	7.4
7	20	1330	220	100	175	330	288	74	450	27	206	7.0
8	16	641	220	94	165	290	207	135	263	472	96	7.0
9	217	380	220	95	155	480	169	94	174	5150	46	6.7
10	2470	644	215	96	145	780	138	64	134	6060	33	6.0
11	2980	704	215	98	140	1150	120	52	107	4610	25	7.7
12	1470	1030	205	100	130	1080	112	48	91	4620	21	8.2
13	1590	2030	185	110	125	2180	109	47	81	5400	20	11
14	634	2270	160	120	120	2040	105	43	69	1200	171	9.1
15	353	1730	150	135	120	911	116	59	69	596	1080	11
16	230	1160	135	150	115	633	122	178	63	409	442	8.2
17	162	773	135	160	120	478	114	3620	56	255	217	6.1
18	759	1270	120	165	125	757	101	7430	46	167	81	5.8
19	2800	3580	115	170	130	1330	91	7000	36	117	59	336
20	2640	1960	115	170	130	870	87	5610	32	87	66	2370
21	1270	690	110	180	125	480	86	1630	33	69	31	2780
22	651	444	110	180	120	334	82	1030	31	55	25	1480
23	467	374	110	170	120	290	77	878	32	48	20	2380
24	1230	292	110	160	115	259	68	555	55	42	17	5680
25	1020	225	115	150	110	194	66	338	33	40	15	7360
26	420	190	115	150	110	175	65	389	24	35	39	5680
27	284	170	110	140	125	168	69	474	22	31	116	1120
28	212	155	110	140	200	170	69	1010	22	27	41	975
29	162	145	110	130	---	155	65	2880	22	28	18	2290
30	140	140	110	130	---	152	70	2020	25	58	12	4770
31	159	---	110	130	---	135	---	716	---	42	10	---
TOTAL	22673	31961	5225	4063	3885	19021	5120	36726	5376	30220	3024	37363.7
MEAN	731	1065	169	131	139	614	171	1185	179	975	97.5	1245
MAX	2980	4090	330	180	200	2180	927	7430	1400	6060	1080	7360
MIN	16	140	110	94	110	135	65	42	22	20	10	5.8
CFSM	1.38	2.01	.32	.25	.26	1.16	.32	2.24	.34	1.84	.18	2.35
IN.	1.59	2.24	.37	.29	.27	1.34	.36	2.58	.38	2.12	.21	2.62
AC-FT	44970	63390	10360	8060	7710	37730	10160	72850	10660	59940	6000	74110

CAL YR 1985	TOTAL	126219.9	MEAN	346	MAX	7120	MIN	1.8	CFSM	.65	IN.	8.86	AC-FT	250400
WTR YR 1986	TOTAL	204657.7	MEAN	561	MAX	7430	MIN	5.8	CFSM	1.06	IN.	14.36	AC-FT	405900

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 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 above 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.--Estimated daily discharges: November 29 to March 13. Records good except those for periods of estimated record, which are poor. The U. S. Army Corps of Engineers has a data collection platform at station.

AVERAGE DISCHARGE.--72 years (water years 1915-86), 2,461 ft³/s, 7.77 in/yr, 1,783,000 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 greater than base discharge of 15,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 19	1100	*26,600	*18.29	July 12	1945	21,900	16.45
May 29	2100	17,300	14.42	Sept. 25	1000	24,100	17.59

Minimum discharge, 514 ft³/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	519	4680	1900	680	770	2100	2910	1950	8360	2900	2420	1190
2	661	11200	2000	680	770	3000	2760	1990	6460	4070	2250	1120
3	1090	8620	1950	670	860	4700	2710	2900	5380	5460	1940	1060
4	1210	4570	1850	670	1000	3900	3040	3240	4740	5100	1630	1020
5	1360	3170	1800	670	1200	3550	4810	2850	5630	4810	1460	937
6	1220	2660	1700	670	1500	3250	5020	2580	9040	5140	1400	903
7	1050	3840	1600	640	1600	3000	4920	4670	7380	6100	1940	865
8	930	3770	1550	630	1450	3200	4870	2530	5370	6660	2070	880
9	949	2740	1500	640	1300	3850	4800	2450	4850	15000	1560	861
10	3400	2900	1450	660	1220	4700	4430	2170	4550	17100	1420	813
11	6960	3230	1350	650	1180	6000	4080	2050	4350	16000	1360	837
12	5650	3380	1300	640	1120	8000	3990	2130	3990	18300	1220	814
13	4560	5770	1200	640	1080	10000	4050	2630	3950	17200	1140	805
14	3550	8680	1050	630	1050	11700	4180	3120	3780	11500	1300	938
15	2890	9660	960	650	1030	9300	4250	3310	3250	7500	5920	968
16	2520	6690	900	670	1030	8130	4070	3430	3000	5890	7840	897
17	2260	4670	850	690	1040	7140	3980	9410	3260	4580	7530	823
18	2110	5230	810	730	1050	6920	3890	22600	3190	3800	8000	931
19	6040	11600	780	800	1020	9280	3680	26300	2940	3330	8440	1420
20	6340	10400	750	890	1000	8280	3440	25100	2700	2990	8960	4740
21	7110	6100	730	970	1000	7290	3260	21500	2520	2610	6980	4560
22	5070	4110	740	1050	980	6870	3100	15000	2370	2340	3390	7300
23	4160	3050	760	1100	960	6290	2910	13700	2240	2070	2620	10500
24	4390	2620	740	1150	960	6160	2700	12300	2580	1880	2230	16300
25	4730	2200	720	1200	950	5590	2490	8190	4090	1740	1990	23600
26	3720	2050	710	1250	980	4540	2320	9570	3680	1620	1900	19900
27	3180	1900	700	1150	1250	4060	2260	9930	3030	1510	1850	14600
28	2610	1710	690	1000	1550	3880	2140	11600	2620	1520	1680	12800
29	2230	1650	670	930	---	3600	1960	14700	2340	1880	1500	16000
30	1960	1700	670	870	---	3340	1910	15400	2250	1840	1380	19700
31	1840	---	680	810	---	3090	---	10900	---	1890	1290	---
TOTAL	96269	144550	35060	25080	30900	174710	104930	270200	123890	184330	96610	168082
MEAN	3105	4818	1131	809	1104	5636	3498	8716	4130	5946	3116	5603
MAX	7110	11600	2000	1250	1600	11700	5020	26300	9040	18300	8960	23600
MIN	519	1650	670	630	770	2100	1910	1950	2240	1510	1140	805
CFSM	.72	1.12	.26	.19	.26	1.31	.81	2.03	.96	1.38	.72	1.30
IN.	.83	1.25	.30	.22	.27	1.51	.91	2.34	1.07	1.59	.84	1.45
AC-FT	190900	286700	69540	49750	61290	346500	208100	535900	245700	365600	191600	333400

CAL YR 1985 TOTAL 870909 MEAN 2386 MAX 26400 MIN 137 CFSM .55 IN. 7.53 AC-FT 1727000
WTR YR 1986 TOTAL 1454611 MEAN 3985 MAX 26300 MIN 519 CFSM .93 IN. 12.58 AC-FT 2885000

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 microsiemens Dec. 20, 1979, Feb. 12, 1980; minimum daily, 180 microsiemens Aug. 17, 1986.
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, 680 microsiemens Oct. 8, 9 and Jan. 6, 9-12; minimum daily, 180 mirosiemens Aug. 17.
TEMPERATURES: Maximum daily, 30.0°C July 28, 29; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,420 mg/L May 29; minimum daily mean, 3 mg/L Dec. 14, 18, 19.
SEDIMENT LOADS: Maximum daily, 149,000 tons May 18; minimum daily, 6.3 tons Dec. 19.

SPECIFIC CONDUCTANCE LABORATORY (MICROSIEMENS/CM AT 25 DEG. C.), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	450	460	340	600	590	210	500	510	435	445	460	410
2	440	340	380	650	610	220	500	520	480	480	440	380
3	505	360	350	640	610	280	500	520	520	340	420	390
4	570	420	360	660	520	280	500	420	510	290	450	380
5	560	480	320	660	387	280	370	470	530	360	460	390
6	580	540	360	680	360	260	430	510	330	400	510	400
7	660	460	320	660	330	300	440	460	400	420	530	400
8	680	425	520	660	300	300	470	510	400	450	440	400
9	680	500	510	680	300	300	500	510	440	280	450	400
10	480	520	520	680	280	350	510	520	480	240	480	410
11	340	460	550	680	340	280	510	530	480	260	500	400
12	360	450	610	680	360	300	510	520	480	250	530	400
13	400	400	600	650	400	300	520	520	500	280	540	380
14	400	340	600	660	410	280	520	505	505	305	510	400
15	460	330	620	640	480	320	530	530	460	390	300	415
16	450	350	640	640	480	340	530	560	510	460	200	415
17	400	410	640	580	520	370	510	480	540	460	180	420
18	485	400	630	420	530	360	520	240	480	515	220	460
19	320	285	640	300	540	340	500	240	490	520	260	500
20	360	300	640	280	450	360	500	280	520	520	315	300
21	380	380	600	260	445	380	510	338	540	540	350	330
22	400	400	640	300	410	360	520	400	520	550	400	340
23	480	460	640	340	410	390	520	440	540	540	440	240
24	540	500	640	360	440	420	520	500	490	540	470	220
25	480	520	630	380	460	450	520	520	450	540	490	200
26	520	540	620	400	475	450	520	420	340	550	512	240
27	540	540	640	440	350	460	520	420	405	570	520	310
28	540	560	640	500	240	460	520	320	480	560	520	350
29	580	560	640	530	---	480	500	320	500	540	440	360
30	590	560	660	580	---	480	500	360	510	570	450	330
31	600	---	640	580	---	490	---	385	---	440	460	---
MEAN	491	442	553	541	430	350	501	444	476	439	427	366
MAX	680	560	660	680	610	490	530	560	540	570	540	500
MIN	320	285	320	260	240	210	370	240	330	240	180	200

WTR YR 1986 MEAN 455 MAX 680 MIN 180

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C.) WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	10.0	.0	.0	3.0	---	18.0	18.0	23.0	23.5	27.0	23.0
2	14.0	10.0	.0	.0	2.0	---	16.0	18.0	23.0	25.0	26.0	25.0
3	13.5	10.0	.0	.0	2.0	---	16.0	19.0	24.0	24.0	26.0	25.0
4	14.0	9.0	.0	.0	1.0	---	18.0	19.0	23.0	27.0	25.0	25.0
5	13.0	9.0	.0	.5	1.0	---	17.0	20.0	22.0	28.0	25.0	24.0
6	13.0	9.0	.0	.0	1.0	---	15.0	20.0	22.0	27.0	23.0	24.0
7	14.0	9.0	.0	.0	1.0	---	16.0	20.0	22.0	27.0	23.0	20.0
8	14.0	9.0	.0	.0	1.0	---	15.0	21.0	24.0	28.0	25.0	20.0
9	13.0	9.0	.0	2.0	.0	---	14.0	22.0	24.0	24.0	25.0	21.0
10	11.0	7.0	.0	2.0	.0	---	15.0	21.0	24.0	24.0	25.0	24.0
11	11.0	7.0	.0	2.0	.0	---	15.0	22.0	23.0	25.0	25.0	22.0
12	14.0	7.0	.0	2.0	.0	---	15.0	22.0	22.0	25.0	23.0	22.0
13	15.0	8.0	.0	2.0	.0	---	15.0	23.0	23.0	25.0	23.0	23.0
14	14.0	7.0	.0	2.0	.0	---	9.0	21.0	23.0	25.0	23.0	23.0
15	15.0	6.0	.0	3.0	.0	---	9.0	20.0	24.0	27.0	21.0	23.0
16	15.0	6.0	.0	3.0	.0	---	11.0	20.0	24.0	27.0	22.0	23.0
17	15.0	6.0	.0	3.0	.0	---	13.0	17.0	25.0	28.0	23.0	20.0
18	15.0	10.0	.0	3.0	1.0	8.0	13.0	17.0	26.0	28.0	25.0	21.0
19	15.0	10.0	.0	3.0	1.0	7.0	15.0	17.0	26.0	29.0	24.0	21.0
20	15.0	6.0	.0	3.0	.0	6.0	14.0	17.0	28.0	28.0	24.0	20.0
21	15.0	4.0	.0	3.0	.0	6.0	11.0	17.0	29.0	29.0	25.0	22.0
22	14.0	4.0	.0	2.0	1.0	7.0	11.0	18.0	28.0	28.0	25.0	22.0
23	15.0	4.0	.0	2.0	1.0	8.0	11.0	19.0	26.0	29.0	25.0	21.0
24	15.0	1.0	.0	1.0	1.0	8.0	17.0	19.0	27.0	28.0	25.0	22.0
25	16.0	1.0	.0	2.0	1.0	11.0	21.0	19.0	26.0	28.0	26.0	22.0
26	16.0	1.0	.0	1.0	.0	10.0	21.0	17.0	27.0	28.0	25.0	23.0
27	15.0	1.0	.0	1.0	---	10.0	21.0	18.0	26.0	28.0	22.0	24.0
28	15.0	1.0	.0	1.0	---	13.0	17.0	17.0	26.0	30.0	22.0	24.0
29	12.0	1.0	.0	.0	---	15.0	20.0	17.0	26.0	30.0	22.0	23.0
30	12.0	1.0	.0	.0	---	18.0	18.0	19.0	28.0	29.0	23.0	20.0
31	10.0	---	.0	1.0	---	17.0	---	20.0	---	28.0	23.0	---
MEAN	14.0	6.0	.0	1.5	---	---	15.0	19.0	25.0	27.0	24.0	22.5
MAX	16.0	10.0	.0	3.0	---	---	21.0	23.0	29.0	30.0	27.0	25.0
MIN	10.0	1.0	.0	.0	---	---	9.0	17.0	22.0	23.5	21.0	20.0

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	123	449	7120	518	2660	34	62	19	40	355	2010
2	104	186	1180	35700	159	859	14	26	16	33	263	2130
3	160	471	738	18000	33	174	8	14	13	30	364	4620
4	198	647	325	4010	29	145	8	14	120	324	759	7990
5	204	749	205	1750	15	73	9	16	620	2010	339	3250
6	140	461	170	1220	24	110	9	16	338	1370	352	3090
7	102	289	317	3290	25	108	10	17	270	1170	401	3250
8	112	281	303	3080	51	213	7	12	302	1180	350	3020
9	125	320	158	1170	55	223	5	8.6	235	825	710	7380
10	944	10400	144	1130	23	90	5	8.9	157	517	1170	14800
11	1770	33300	143	1250	8	29	9	16	100	319	2920	47300
12	1020	16000	255	2330	23	81	13	22	58	175	2360	51000
13	532	6550	565	8800	15	49	9	16	43	125	2260	61000
14	464	4450	820	19200	3	8.5	6	10	38	108	2180	68900
15	355	2770	980	25600	25	65	6	11	33	92	1610	40400
16	352	2400	539	9740	33	80	7	13	25	70	1320	29000
17	383	2340	263	3320	12	28	34	63	26	73	970	18700
18	340	1940	507	7160	3	6.6	136	268	29	82	883	16500
19	1220	20300	1540	49000	3	6.3	248	536	28	77	1160	29100
20	640	11000	1130	32500	4	8.1	246	591	53	143	980	21900
21	1030	19800	500	8230	5	9.9	204	534	83	224	1000	19700
22	662	9060	294	3260	12	24	137	388	69	183	1810	33600
23	460	5170	244	2010	26	53	96	285	43	111	1080	18300
24	431	5110	118	835	13	26	79	245	32	83	655	10900
25	530	6770	76	451	10	19	61	198	25	64	549	8290
26	888	8920	60	332	14	27	60	202	43	114	486	5960
27	520	4460	48	246	11	21	39	121	213	719	418	4580
28	300	2110	55	254	12	22	29	78	323	1350	395	4140
29	230	1380	61	272	12	22	27	68	---	---	410	3990
30	180	953	48	220	4	7.2	24	56	---	---	365	3290
31	145	720	---	---	13	24	22	48	---	---	293	2440
TOTAL	---	179430	---	251480	---	5271.6	---	3963.5	---	11611	---	550530

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	247	1940	147	774	1070	24200	2080	16700	580	3790	58	186
2	218	1620	104	559	680	11900	1300	14300	389	2360	50	151
3	205	1500	245	1920	490	7120	2920	43000	360	1890	54	155
4	270	2220	1110	9710	690	8830	2190	30200	252	1110	54	149
5	3330	46000	620	4770	1070	15400	1010	13100	193	761	50	126
6	1680	22800	364	2540	2660	66600	745	10300	175	661	55	134
7	822	10900	2240	33800	2040	40600	715	11800	222	1160	52	121
8	727	9560	580	3960	1910	27700	725	13000	257	1440	45	107
9	640	8290	465	3080	1380	18100	2640	112000	168	708	42	98
10	529	6330	276	1620	910	11200	2160	99700	150	575	42	92
11	414	4560	197	1090	868	10200	1230	53100	116	426	80	181
12	330	3560	174	1000	719	7750	1700	89000	89	293	57	125
13	273	2990	290	2060	592	6310	1290	59900	72	222	53	115
14	225	2540	664	5590	865	8830	1340	41600	127	446	65	165
15	160	1840	821	7340	1170	10300	1070	21700	3110	57300	76	199
16	135	1480	775	7180	774	6270	700	11100	3270	69200	71	172
17	126	1350	2700	78500	400	3520	648	8010	1540	31300	87	193
18	123	1290	2450	149000	1080	9300	580	5950	1160	25100	102	256
19	124	1230	1120	79500	960	7620	512	4600	748	17000	320	1230
20	112	1040	760	51500	480	3500	460	3710	624	15100	1720	22000
21	96	845	470	27300	335	2280	340	2400	498	9390	1230	15100
22	80	670	438	17700	247	1580	282	1780	409	3740	2080	41000
23	87	684	409	15100	185	1120	248	1390	335	2370	2140	60700
24	94	685	435	14400	275	1920	228	1160	199	1200	2080	91500
25	89	598	450	9950	2290	25300	222	1040	141	758	1210	77100
26	97	608	1680	45500	1780	17700	212	927	172	882	638	34300
27	97	592	860	23100	1100	9000	192	783	230	1150	580	22900
28	101	584	1660	52000	555	3930	197	808	90	408	420	14500
29	115	609	3420	139000	360	2270	290	1470	92	373	521	23600
30	168	866	2120	90500	485	2950	290	1440	70	261	867	46100
31	---	---	1340	39400	---	---	535	2730	57	199	---	---
TOTAL	---	139781	---	919443	---	373300	---	678698	---	251573	---	452755

TOTAL LOAD FOR YEAR: 3817836.1 TONS.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	TEMPER-ATURE (DEG C) (DEG C)	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 23...	16:00	14.5	4090	424	4800	43	51
NOV 19...	16:00	10.0	12900	1760	61300	40	48
DEC 16...	10:45	0.0	866	35	82	--	--
FEB 26...	10:30	0.0	980	18	48	--	--
MAR 22...	17:00	7.0	6750	1800	32800	41	49
APR 05...	18:30	17.0	5410	4270	62400	37	46
MAY 14...	09:30	20.0	3120	613	5160	47	55
19...	18:00	17.0	26400	1010	72000	--	--
JUL 01...	14:00	24.0	3510	3040	28800	31	39
AUG 26...	16:30	25.0	1910	106	547	--	--

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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							
23...	62	76	97	98	100	--	--
NOV							
19...	56	70	91	93	99	100	--
DEC							
16...	--	--	--	--	--	--	95
FEB							
26...	--	--	--	--	--	--	91
MAR							
22...	--	71	93	94	98	100	--
APR							
05...	57	74	--	--	--	--	99
MAY							
14...	66	79	97	99	100	--	--
19...	--	--	66	69	85	100	--
JUL							
01...	49	68	--	--	--	--	99
AUG							
26...	--	--	--	--	--	--	98

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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							
23...	16:00	4090	4	--	0	9	64
MAY							
14...	09:30	3120	5	1	2	11	73
JUL							
01...	15:00	3510	3	1	2	15	67

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM
OCT						
23...	--	--	--	--	--	--
	96	100				
MAY						
04...	92	96	97	97	99	100
JUL						
01...	92	95	96	97	100	--

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (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)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT											
23...	1600	4090	469	8.20	14.5	2400	8.7	88	744	1900	1700
DEC											
16...	1045	866	616	7.40	0.0	1.3	--	--	756	82	550
FEB											
26...	1030	980	487	7.80	0.0	5.5	11.5	80	751	70	2600
MAY											
14...	0930	3120	563	8.20	20.0	82	7.8	88	746	620	--
JUL											
01...	1400	3510	448	8.30	24.0	1.0	7.7	93	750	K590000	K30000
AUG											
26...	1630	1910	531	8.48	25.0	25	10.8	133	750	290	--

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	HARD-NESS (MG/L AS CACO3) (00900)	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 WH WAT TOTAL FIELD MG/L AS CACO3 (00410)	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3) (99430)	BICAR-BONATE IT-FLD (MG/L AS HCO3) (99440)
OCT											
23...	67	220	56	19	9.9	9	0.3	5.4	--	--	--
DEC											
16...	84	310	81	26	16	10	0.4	2.4	217	225	274
FEB											
26...	45	220	57	18	12	10	0.4	5.7	176	172	210
MAY											
14...	86	300	79	25	10	7	0.3	2.5	216	214	261
JUL											
01...	57	240	65	20	8.0	7	0.2	2.6	185	188	229
AUG											
26...	48	280	73	23	9.2	7	0.2	3.1	229	229	250

DATE	CAR-BONATE IT-FLD (MG/L AS CO3) (99445)	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)	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, NITRITE DIS-SOLVED (MG/L AS N) (00613)
OCT											
23...	--	36	19	0.2	15	299	250	0.41	3300	0.92	0.01
DEC											
16...	0	61	22	0.3	16	364	360	0.5	851	7.50	0.03
FEB											
26...	0	50	17	0.2	13	296	280	0.4	608	3.60	0.04
MAY											
14...	0	46	18	0.4	13	361	320	0.49	2960	7.20	0.06
JUL											
01...	0	33	13	0.3	14	291	270	0.4	2740	8.10	0.03
AUG											
26...	14	42	13	0.3	16	323	330	0.44	1670	3.50	0.02

K Results based on colony count outside ideal range.

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)
OCT										
23...	0.04	0.11	0.2	0.17	0.18	0.58	424	4680	--	97
DEC										
16...	0.29	0.32	0.8	0.07	0.08	0.13	35	82	95	--
FEB										
26...	0.99	1.00	2.5	0.14	0.17	0.27	18	37	91	--
MAY										
14...	0.05	0.05	1.7	0.17	0.19	0.27	613	5030	--	97
JUL										
01...	0.12	0.17	1.6	0.15	0.17	0.27	3040	28600	99	--
AUG										
26...	0.03	0.05	1.2	0.14	0.15	0.31	106	547	98	--

DATE	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)	LEAD, DISSOLVED (UG/L AS PB) (01049)
OCT										
23...	2	10	200	<0.5	<1	<1	<3	4	13	<1
DEC										
16...	--	--	--	--	--	--	--	--	--	--
FEB										
26...	1	30	120	<0.5	<1	<1	<3	4	65	2
MAY										
14...	--	--	--	--	--	--	--	--	--	--
JUL										
01...	--	--	--	--	--	--	--	--	--	--
AUG										
26...	2	<10	120	0.7	<1	<1	<3	2	5	<5

DATE	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										
23...	10	<1	<0.1	<10	5	2	<1	160	<6	10
DEC										
16...	--	--	--	--	--	--	--	--	--	--
FEB										
26...	8	67	<0.1	<10	4	1	<1	160	<6	17
MAY										
14...	--	--	--	--	--	--	--	--	--	--
JUL										
01...	--	--	--	--	--	--	--	--	--	--
AUG										
26...	19	2	0.9	<10	<1	<1	<1	180	<6	<3

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 above NGVD (levels by U.S. Army 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 above 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 provided by Union Electric Co.

AVERAGE DISCHARGE.--108 years, 64,220 ft³/s, 7.33 in/yr, 46,530,000 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, 241,000 ft³/s May 21; minimum daily, 51,300 ft³/s Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72800	102000	62500	61000	55200	63800	166000	153000	197000	114000	93500	69500
2	77600	110000	58500	61300	56600	64900	164000	152000	187000	121000	93600	70100
3	84400	115000	52900	61400	53400	66800	163000	151000	173000	123000	92400	71600
4	86600	112000	54800	59700	60200	70300	166000	148000	160000	120000	90600	72900
5	92400	110000	60500	59000	73100	73600	169000	144000	155000	116000	92600	71800
6	96100	105000	60200	58500	86300	80300	175000	146000	155000	113000	94500	67900
7	95800	105000	61900	57200	85300	77000	180000	152000	152000	113000	99400	65200
8	95200	106000	67200	57000	89000	76100	186000	144000	138000	116000	100000	62200
9	98100	106000	71700	55900	85100	77400	191000	143000	125000	146000	94200	60800
10	108000	109000	72800	55600	79800	86100	198000	144000	111000	161000	86900	57300
11	119000	108000	75800	56500	73500	90000	205000	146000	105000	166000	82800	62200
12	119000	113000	74400	57500	67000	106000	211000	149000	106000	175000	76600	66900
13	119000	125000	71900	54800	64200	122000	220000	150000	105000	177000	76000	74300
14	121000	134000	62500	55100	62000	123000	225000	153000	106000	159000	75400	66900
15	121000	139000	55500	55000	60800	125000	232000	153000	103000	137000	81700	74600
16	126000	129000	56700	57100	60400	127000	231000	156000	96400	119000	92400	77700
17	129000	117000	59700	55400	60000	127000	228000	172000	91200	107000	89600	90100
18	134000	113000	64600	60000	59400	124000	225000	197000	89600	95600	91100	88500
19	139000	122000	66600	65100	61400	129000	217000	212000	91500	94500	92000	93000
20	143000	124000	62700	71100	66500	143000	213000	232000	90700	92000	88300	101000
21	143000	123000	62200	73300	68500	149000	208000	241000	88000	89800	88000	106000
22	139000	118000	62200	73700	68300	157000	202000	234000	85100	87200	80900	108000
23	131000	108000	65200	72400	64800	167000	195000	215000	83100	86500	79500	118000
24	128000	107000	65500	71100	62200	169000	188000	205000	84000	86700	77200	138000
25	125000	103000	62300	70300	59600	169000	181000	198000	91300	89800	75900	155000
26	123000	99400	62700	66700	58300	175000	174000	198000	93000	92000	78000	152000
27	122000	94100	63200	55000	62000	176000	168000	199000	91800	92700	76900	151000
28	115000	90900	62700	51600	63400	176000	160000	203000	92600	95400	73900	158000
29	110000	82900	62300	51300	---	174000	160000	213000	93500	95600	76500	177000
30	104000	73700	62200	53800	---	169000	155000	221000	100000	91800	70900	188000
31	99100	---	61700	54200	---	166000	---	209000	---	91700	71200	---
TOTAL	3516100	3304000	1965600	1867600	1866300	3799300	5756000	5533000	3439800	3564300	2632500	2915500
MEAN	113400	110100	63410	60250	66650	122600	191900	178500	114700	115000	84920	97180
MAX	143000	139000	75800	73700	89000	176000	232000	241000	197000	177000	100000	188000
MIN	72800	73700	52900	51300	53400	63800	155000	143000	83100	86500	70900	57300
CFSM	.95	.93	.53	.51	.56	1.03	1.61	1.50	.96	.97	.71	.82
IN.	1.10	1.03	.61	.58	.58	1.19	1.80	1.73	1.08	1.11	.82	.91
AC-FT	6974000	6553000	3899000	3704000	3702000	7536000	11417000	10975000	6823000	7070000	5222000	5783000

CAL YR 1985 TOTAL 31816900 MEAN 87170 MAX 207000 MIN 32800 CFSM .73 IN. 9.95 AC-FT 63109000
WTR YR 1986 TOTAL 40160000 MEAN 110000 MAX 241000 MIN 51300 CFSM .92 IN. 12.55 AC-FT 79656992

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 microsiemens Jan. 21, 1980; minimum daily, 310 microsiemens 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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (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)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV											
26...	1130	99400	449	8.40	1.5	30	14.6	106	749	430	1100
FEB											
25...	1515	59300	448	8.10	1.0	14	11.9	85	750	180	2300
MAY											
27...	1000	200000	423	8.90	17.5	53	7.8	83	750	--	1200
AUG											
26...	1230	78000	411	8.70	25.0	13	7.8	96	750	K25	--

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	HARD-NESS (MG/L AS CACO3) (00900)	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 WH WAT TOTAL FIELD MG/L AS CACO3 (00410)	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3) (99430)	BICAR-BONATE IT-FLD (MG/L AS HCO3) (99440)
NOV											
26...	58	220	53	22	8.3	7	0.2	2.7	162	165	201
FEB											
25...	32	200	47	21	12	11	0.4	3.4	173	172	209
MAY											
27...	34	210	51	19	7.4	7	0.2	3.3	168	172	209
AUG											
26...	29	190	45	20	8.5	9	0.3	2.7	164	166	183

05474500 MISSISSIPPI RIVER AT KEOKUK, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	CARBONATE IT-FLD (MG/L AS CO3) (99445)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, 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)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
NOV										
26...	0	34	14	0.2	10	256	260	0.35	68700	4.10
FEB										
25...	0	23	18	0.2	11	243	240	0.33	38900	2.50
MAY										
27...	0	47	13	0.2	6.9	257	250	0.35	139000	4.10
AUG										
26...	10	35	12	0.2	9.0	226	240	0.31	4760	1.60

DATE	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOSPHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	SEDIMENT, SUS-PENDED (MG/L) (80154)	SEDIMENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV										
26...	0.02	0.11	0.14	1.4	0.08	0.10	0.28	98	26300	95
FEB										
25...	0.03	0.43	0.53	1.2	0.11	0.13	0.20	22	3520	95
MAY										
27...	0.04	0.11	0.12	1.8	0.07	0.08	0.26	--	--	--
AUG										
26...	0.04	0.14	0.16	1.1	0.11	0.11	0.16	31	6530	99

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ALUMINUM, DIS-SOLVED (UG/L AS AL) (01106)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYLLIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHROMIUM, 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)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
NOV										
26...	<1	<10	52	<0.5	<1	<1	<3	3	31	<1
FEB										
25...	1	20	66	<0.5	<1	<1	<3	6	91	2
MAY										
27...	--	--	--	--	--	--	--	--	--	--
AUG										
26...	2	<10	51	0.7	<1	--	<3	5	<3	<5

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELENIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRONTIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANADIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV										
26...	8	5	<0.1	<10	2	<1	<1	100	<6	5
FEB										
25...	6	44	0.2	<10	6	<1	<1	90	<6	19
MAY										
27...	--	--	--	--	--	--	--	--	--	--
AUG										
26...	18	8	<0.1	<10	1	<1	<1	100	<6	19

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 above NGVD.

REMARKS.--Estimated daily discharges: Dec. 1 to Mar. 14. Records good except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--35 years, 392 ft³/s, 3.88 in/yr, 284,000 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 greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 27	1245	4,330	11.01	June 23	0315	1,580	5.92
May 1	0130	3,790	10.28	July 7	0630	2,200	7.33
June 5	1015	2,450	7.87	Sept. 28	1915	*4,570	*11.27

Minimum daily discharge, 64 ft³/s Feb. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	455	433	330	115	88	94	3600	3710	1550	1720	590	286
2	483	426	300	110	84	110	3480	3420	1450	1790	599	275
3	497	408	230	110	80	230	3360	3260	1330	1850	601	258
4	520	398	205	105	80	360	3360	3200	1420	1930	584	255
5	571	385	220	100	82	500	3890	3170	2270	2030	551	243
6	635	374	220	100	84	690	3980	3070	1790	2130	521	232
7	633	360	220	98	86	610	3980	2910	1600	2200	492	209
8	635	368	220	94	88	580	3780	2690	1470	2160	462	198
9	623	369	220	94	88	510	3550	2510	1340	2030	429	230
10	613	302	215	94	90	540	3430	2520	1250	1860	410	198
11	581	257	210	92	90	560	3350	2640	1210	1820	393	208
12	586	314	210	92	92	590	3200	2590	1150	1800	358	187
13	607	368	200	92	96	600	2990	2700	1080	1680	350	238
14	630	388	190	92	96	640	2870	2770	1060	1570	335	289
15	630	345	185	90	94	660	2710	2640	1060	1530	323	387
16	649	371	175	90	86	765	2580	2600	1020	1500	300	441
17	648	390	170	92	80	880	2450	2580	964	1410	289	459
18	649	409	165	92	74	1760	2330	2540	884	1300	276	574
19	647	389	160	94	70	2620	2340	2460	833	1220	265	846
20	613	173	155	96	68	2680	2380	2350	790	1170	287	1220
21	595	238	150	94	68	2720	2390	2270	929	1130	351	1600
22	582	297	150	94	68	2780	2290	2160	1300	1080	334	1900
23	584	442	145	92	66	2710	2180	2030	1480	1030	305	2290
24	573	435	140	90	64	2750	2150	1880	1310	965	280	2830
25	554	424	130	90	66	3480	2150	1790	1150	939	257	3520
26	530	424	125	90	72	4130	2060	1730	1070	854	298	4130
27	520	393	115	90	76	4280	2010	1700	1050	783	361	4400
28	436	371	125	90	86	4110	2330	1730	1290	741	393	4510
29	472	344	120	90	---	3900	2730	1730	1670	695	330	4510
30	465	341	120	90	---	3770	3430	1690	1680	655	303	4370
31	447	---	115	88	---	3690	---	1630	---	625	293	---
TOTAL	17713	10936	5635	2940	2262	54299	87330	76670	38450	44197	11920	41293
MEAN	571	365	182	94.8	80.8	1752	2911	2473	1282	1426	385	1376
MAX	649	442	330	115	96	4280	3980	3710	2270	2200	601	4510
MIN	447	173	115	88	64	94	2010	1630	790	625	257	187
CFSM	.42	.27	.13	.07	.06	1.28	2.12	1.80	.93	1.04	.28	1.00
IN.	.48	.30	.15	.08	.06	1.47	2.37	2.08	1.04	1.20	.32	1.12
AC-FT	35130	21690	11180	5830	4490	107700	173200	152100	76270	87660	23640	81900

CAL YR 1985	TOTAL	223830	MEAN	613	MAX	2910	MIN	23	CFSM	.45	IN.	6.07	AC-FT	444000
WTR YR 1986	TOTAL	393645	MEAN	1078	MAX	4510	MIN	64	CFSM	.79	IN.	10.67	AC-FT	780800

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 above NGVD. Prior to Oct. 3, 1966, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 29 to March 1. Records good except those for estimated daily discharges, 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. U.S. Army Corp of Engineers data collection platform at site.

AVERAGE DISCHARGE.--22 years, 970 ft³/s, 5.84 in/yr, 702,800 acre-ft/yr; median of yearly mean discharges, 820 ft³/s, 5.0 in/yr, 594,000 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 greater than base discharge of 2,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 20	2200	5,650	8.85	May 14	1615	6,550	9.47
Apr. 7	2015	*6,820	*9.65	July 6	1030	3,110	6.85

Minimum daily discharge, 200 ft³/s Feb. 21-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1240	888	860	270	270	420	5130	4630	3120	2860	1630	779
2	1270	902	690	260	270	561	5000	4570	2900	3070	1380	714
3	1210	827	510	260	260	827	4940	4630	2710	2850	1220	682
4	1160	788	520	260	280	1310	5010	4770	2580	2720	1130	648
5	1130	775	500	250	310	1480	5480	4790	2490	2710	1060	604
6	1190	759	530	250	310	1570	6140	4600	2520	3060	1020	574
7	1220	756	480	240	300	1430	6680	4370	2840	2960	953	538
8	1220	734	500	240	300	1350	6770	4240	2820	2850	887	514
9	1180	724	520	240	290	1430	6600	4180	2560	2930	825	487
10	1130	705	520	230	290	1420	6380	4350	2360	2990	782	482
11	1130	690	510	230	290	1390	6030	5080	2220	2990	722	542
12	1130	658	500	230	290	1410	5580	5630	2160	2870	684	555
13	1170	643	490	230	280	1390	5140	5870	2070	2780	728	550
14	1240	660	470	240	270	1330	4970	6430	1960	2780	1520	513
15	1250	707	450	240	260	1380	5000	6300	1870	2650	1590	603
16	1240	754	440	240	230	1830	4960	5750	1820	2410	1240	763
17	1220	761	430	250	230	2180	4730	5300	1750	2240	1020	829
18	1250	827	420	250	220	3120	4440	4940	1710	2100	876	856
19	1230	1030	410	260	210	4450	4220	4630	1610	1960	791	956
20	1210	1310	410	270	210	5430	4080	4360	1510	1790	725	1310
21	1180	975	380	280	200	5490	3890	4100	2070	1670	729	1740
22	1140	993	350	300	200	5250	3720	3870	1770	1620	848	2080
23	1130	996	330	300	200	5020	3580	3650	1840	1540	823	2300
24	1120	795	320	300	200	4780	3460	3460	2010	1550	750	2470
25	1080	777	320	290	200	4650	3300	3290	2030	1600	695	2750
26	1060	871	310	280	220	4440	3190	3140	1880	1830	698	3060
27	1020	1010	310	280	250	4260	3220	3120	1760	1650	1210	3390
28	990	743	300	280	350	4330	3860	3200	1750	1510	1380	3610
29	957	920	290	280	---	4570	4410	3330	2010	2460	1180	3840
30	953	870	290	280	---	4850	4640	3420	2550	2690	1020	4100
31	907	---	280	280	---	5060	---	3300	---	2100	877	---
TOTAL	35557	24848	13640	8090	7190	88408	144550	137300	65250	73790	30993	42839
MEAN	1147	828	440	261	257	2852	4818	4429	2175	2380	1000	1428
MAX	1270	1310	860	300	350	5490	6770	6430	3120	3070	1630	4100
MIN	907	643	280	230	200	420	3190	3120	1510	1510	684	482
CFSM	.51	.37	.20	.12	.11	1.26	2.14	1.96	.96	1.05	.44	.63
IN.	.59	.41	.22	.13	.12	1.46	2.38	2.26	1.08	1.22	.51	.71
AC-FT	70530	49290	27050	16050	14260	175400	286700	272300	129400	146400	61470	84970

CAL YR 1985	TOTAL	368021	MEAN	1008	MAX	4240	MIN	125	CFSM	.45	IN.	6.07	AC-FT	730000
WTR YR 1986	TOTAL	672455	MEAN	1842	MAX	6770	MIN	200	CFSM	.82	IN.	11.09	AC-FT	1334000

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 above NGVD. Prior to Oct. 1, 1954, nonrecording gage at site 8 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Nov. 24 to Mar. 14. Records good except those for estimated daily discharges, which are poor. U. S. Army Corps of Engineers data collection platform at site.

AVERAGE DISCHARGE.--46 years, 560 ft³/s, 5.81 in/yr, 405,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,800 ft³/s June 21, 1954, gage height, 16.95 ft, from floodmark, 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 greater than base discharge of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 13	--	2,300	ice jam	May 17	2230	3,030	12.69
Mar. 21	1715	*5,070	*14.96	June 1	0130	2,020	11.36
Apr. 8	1745	4,360	14.21	July 9	0915	1,790	11.04
May 3	0915	2,090	11.46				

Minimum discharge, 102 ft³/s Sept. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1630	627	590	290	250	290	1970	2010	2010	1230	533	183
2	1720	595	1000	280	260	460	1940	2050	1950	1250	454	162
3	1710	568	1200	280	260	960	1930	2080	1830	1210	392	149
4	1710	539	1100	270	260	1050	2030	2060	1700	1130	348	140
5	1680	518	1000	270	260	1270	2680	1980	1580	1050	315	128
6	1640	505	990	260	250	1300	3350	1870	1420	1540	287	119
7	1550	490	870	260	240	1270	3830	1740	1310	1530	263	113
8	1470	479	820	250	230	1300	4280	1630	1210	1300	236	109
9	1380	473	780	250	220	1480	4210	1520	1130	1730	216	104
10	1300	472	720	240	210	1560	3850	1520	1090	1520	209	103
11	1210	429	680	240	200	1600	3430	1910	1050	1510	193	117
12	1150	411	640	240	200	1790	3020	2120	1010	1560	178	163
13	1150	437	590	250	190	1950	2670	2170	981	1640	177	154
14	1160	460	560	250	180	1500	2440	2390	962	1420	173	133
15	1160	478	530	250	170	1410	2320	2680	956	1280	178	153
16	1130	511	490	250	160	1430	2240	2870	933	1100	172	160
17	1100	565	470	240	150	1550	2150	2990	886	928	170	173
18	1120	668	430	240	150	2650	2120	3010	855	780	155	171
19	1110	878	400	250	140	3600	2080	2890	812	675	144	200
20	1070	1120	380	250	140	4250	2060	2700	753	574	137	231
21	1010	1290	360	250	140	4820	2000	2440	1080	498	134	277
22	957	1300	350	250	130	4870	1930	2170	1080	467	128	302
23	927	1370	350	250	130	4680	1860	1940	872	486	124	318
24	892	1210	340	250	130	4280	1780	1760	747	448	117	325
25	843	1130	330	250	130	3770	1680	1620	714	592	115	358
26	805	1050	320	250	140	3290	1600	1520	719	957	134	452
27	760	980	300	250	300	2860	1580	1490	719	1010	168	552
28	716	940	300	250	300	2530	1780	1530	793	872	220	564
29	686	830	300	250	---	2300	1950	1700	1030	1100	209	542
30	655	730	300	250	---	2140	1980	1970	1150	948	215	506
31	640	---	290	250	---	2020	---	2010	---	671	210	---
TOTAL	36041	22053	17780	7860	5520	70230	72740	64340	33332	33006	6704	7161
MEAN	1163	735	574	254	197	2265	2425	2075	1111	1065	216	239
MAX	1720	1370	1200	290	300	4870	4280	3010	2010	1730	533	564
MIN	640	411	290	240	130	290	1580	1490	714	448	115	103
CFSM	.89	.56	.44	.19	.15	1.73	1.85	1.59	.85	.81	.17	.18
IN.	1.03	.63	.51	.22	.16	2.00	2.07	1.83	.95	.94	.19	.20
AC-FT	71490	43740	35270	15590	10950	139300	144300	127600	66110	65470	13300	14200

CAL YR 1985	TOTAL	232891	MEAN	638	MAX	2540	MIN	27	CFSM	.49	IN.	6.62	AC-FT	461900
WTR YR 1986	TOTAL	376767	MEAN	1032	MAX	4870	MIN	103	CFSM	.79	IN.	10.72	AC-FT	747300

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 above NGVD. See WSP 1728 for history of changes prior to Dec. 8, 1949.

REMARKS.--Estimated daily discharges: Nov. 27 to Mar. 9. Records good except those for estimated daily discharges, which are poor. Occasional minor regulation caused by dam 0.8 mi upstream from gage. U. S. Army Corps of Engineers rain-gage and data collection platform and City of Fort Dodge gage-height telemeter at station.

AVERAGE DISCHARGE.--54 years (water years 1914-27, 1947-86), 1,574 ft³/s, 5.10 in/yr, 1,140,000 acre-ft/yr; median of yearly mean discharges, 1,270 ft³/s, 4.1 in/yr, 920,000 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 greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 5	--	8,800	ice jam	May 30	1045	6,730	6.72
Mar. 20	0845	*13,600	*9.48	June 4	2100	7,060	6.90
Apr. 8	1200	12,200	8.86	July 7	0030	6,660	6.69
May 14	2015	11,200	8.56	Sept. 29	0945	6,970	6.82

Minimum daily discharge, 420 ft³/s Feb. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3070	1640	2800	660	480	1900	7320	7190	5750	5020	2600	1100
2	3250	1620	2000	640	480	2400	7200	7000	5380	4950	2200	976
3	3160	1490	2500	580	480	3000	7130	6950	4980	4670	1920	921
4	3090	1420	2600	570	480	4500	7350	7010	5290	4320	1730	853
5	2970	1350	2300	560	470	6000	9530	7000	6160	4030	1600	791
6	2970	1310	2200	560	470	8000	11000	6670	5080	5970	1490	735
7	2940	1290	2200	560	470	7400	11700	6260	4870	6250	1360	690
8	2850	1260	2100	550	470	6600	12100	5990	4710	5260	1230	654
9	2740	1260	2000	540	480	6200	11700	5880	4280	5580	1140	623
10	2600	1230	1900	540	490	5440	10900	6550	3910	5370	1080	601
11	2500	1160	1900	540	500	4630	9930	9260	3720	5880	995	632
12	2460	1110	1800	540	500	3950	8990	9860	3550	5880	925	694
13	2450	1120	1800	570	500	3520	8120	9550	3400	5360	940	737
14	2540	1180	1700	560	490	3430	7670	10700	3270	4880	1810	727
15	2550	1230	1600	580	460	3510	7640	11100	3160	4490	2610	805
16	2500	1340	1500	590	450	3950	7550	10500	3080	4040	2050	1150
17	2450	1420	1400	580	440	4560	7220	9820	2860	3620	1590	1310
18	2580	1630	1400	560	440	9630	6910	9190	3090	3290	1290	1280
19	2650	2080	1300	550	420	12200	6610	8430	2830	3030	1120	1430
20	2570	2680	1200	540	430	13200	6490	7790	2590	2760	1010	2890
21	2460	2620	1100	540	440	12600	6220	7160	4050	2510	984	3860
22	2350	2760	1100	530	430	12200	5910	6550	4610	2370	1180	3890
23	2290	3110	1000	530	430	11200	5670	6060	3640	2350	1240	3690
24	2220	2720	940	520	440	10300	5440	5590	3380	2180	1090	3610
25	2110	2690	920	520	440	9350	5170	5280	3260	2370	968	4070
26	2040	2480	880	520	440	8470	4990	4980	3040	2870	997	4480
27	1970	3300	840	520	600	7700	4990	4940	2910	2980	1230	5910
28	1870	3100	780	500	1300	7290	6030	5230	2930	2610	1890	5790
29	1800	3400	750	500	---	7140	7180	5730	3620	3680	1670	5940
30	1710	3100	720	490	---	7170	7360	6230	4600	4080	1460	5660
31	1700	---	680	480	---	7280	---	6090	---	3350	1260	---
TOTAL	77410	58100	47910	17020	13920	214720	232020	226540	118000	126000	44659	66499
MEAN	2497	1937	1545	549	497	6926	7734	7308	3933	4065	1441	2217
MAX	3250	3400	2800	660	1300	13200	12100	11100	6160	6250	2610	5940
MIN	1700	1110	680	480	420	1900	4990	4940	2590	2180	925	601
CFSM	.60	.46	.37	.13	.12	1.65	1.85	1.74	.94	.97	.34	.53
IN.	.69	.52	.43	.15	.12	1.91	2.06	2.01	1.05	1.12	.40	.59
AC-FT	153500	115200	95030	33760	27610	425900	460200	449300	234100	249900	88580	131900

CAL YR 1985	TOTAL	690049	MEAN	1891	MAX	7950	MIN	210	CFSM	.45	IN.	6.13	AC-FT	1369000
WTR YR 1986	TOTAL	1242798	MEAN	3405	MAX	13200	MIN	420	CFSM	.81	IN.	11.03	AC-FT	2465000

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 above NGVD. Prior to June 26, 1940, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 22 to Mar. 8. Records good except those for estimated daily discharges, which are poor. U. S. Army Corps of Engineers rain-gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--46 years, 420 ft³/s, 6.76 in/yr, 304,300 acre-ft/yr; median of yearly mean discharges, 360 ft³/s, 5.7 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 10, 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 greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 4	----	4,000	ice jam	May 30	1645	2,380	5.92
Mar. 19	0800	*5,370	*8.91	July 11	2400	3,820	7.34
Apr. 6	0630	2,860	6.50	Sept. 28	0600	2,800	6.30
May 16	1330	2,630	6.21				

Minimum daily discharge, 53 ft³/s Sept. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1710	465	240	170	140	400	830	1120	1810	1450	585	87
2	1830	442	230	170	140	700	953	978	1490	1180	477	78
3	1770	406	230	170	150	1300	1130	851	1260	963	396	78
4	1580	368	220	170	130	2500	1360	780	1130	799	335	75
5	1320	348	215	170	240	2000	2260	734	1270	672	291	73
6	1170	344	210	160	300	1700	2830	674	1150	1320	279	71
7	1100	338	210	160	350	1400	2740	603	1010	2630	257	61
8	1010	320	210	160	350	1200	2480	555	895	2450	224	59
9	909	309	210	160	330	1110	1960	549	804	2660	199	56
10	796	285	210	160	300	1320	1560	661	743	2770	178	54
11	723	271	205	160	270	1340	1290	1140	1010	3530	161	53
12	727	269	205	160	240	1190	1120	1590	862	3450	150	53
13	718	291	200	165	210	1320	977	1750	723	2490	167	80
14	757	296	195	170	190	1480	943	2250	665	1970	225	89
15	754	305	190	170	180	1440	942	2440	616	1650	205	98
16	700	349	185	170	170	1550	924	2600	569	1330	181	109
17	660	411	180	170	160	1490	883	2470	511	1100	146	122
18	949	478	175	170	155	4010	855	2070	490	904	123	113
19	1260	561	170	170	155	5180	847	1690	466	743	111	175
20	1260	603	170	165	160	4690	868	1430	438	618	103	663
21	1110	612	170	165	160	4100	860	1240	424	523	99	617
22	991	500	165	160	160	2790	776	1120	1340	462	93	505
23	897	450	165	160	160	1920	694	1020	1350	489	92	401
24	811	400	165	160	160	1520	645	926	1000	447	94	443
25	720	350	165	160	160	1300	609	945	768	570	89	807
26	651	310	165	155	170	1150	634	1720	623	1770	113	887
27	607	290	165	155	200	1030	693	1890	567	1550	216	1820
28	553	270	170	150	250	940	847	2110	593	1070	173	2650
29	516	250	170	150	---	872	1040	2000	924	1410	134	2280
30	490	250	170	150	---	816	1190	2280	1520	937	116	1910
31	474	---	170	145	---	774	---	2180	---	744	99	---
TOTAL	29523	11141	5900	5030	5740	54532	35740	44366	27021	44651	6111	14567
MEAN	952	371	190	162	205	1759	1191	1431	901	1440	197	486
MAX	1830	612	240	170	350	5180	2830	2600	1810	3530	585	2650
MIN	474	250	165	145	130	400	609	549	424	447	89	53
CFSM	1.13	.44	.23	.19	.24	2.08	1.41	1.70	1.07	1.71	.23	.58
IN.	1.30	.49	.26	.22	.25	2.40	1.58	1.96	1.19	1.97	.27	.64
AC-FT	58560	22100	11700	9980	11390	108200	70890	88000	53600	88570	12120	28890

CAL YR 1985	TOTAL	140226	MEAN	384	MAX	3770	MIN	16	CFSM	.45	IN.	6.18	AC-FT 278100
WTR YR 1986	TOTAL	284322	MEAN	779	MAX	5180	MIN	53	CFSM	.92	IN.	12.53	AC-FT 564000

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 above 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, nonrecording 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.--Estimated daily discharges: Nov. 21 to Mar. 10. Records good, except those for estimated daily discharges, which are poor. Occasional minor regulation caused by dam at Fort Dodge. U. S. Army Corps of Engineers rain-gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--66 years, 1,990 ft³/s, 4.96 in/yr, 1,442,000 acre-ft/yr; median of yearly mean discharges, 1,680 ft³/s, 4.2 in/yr, 1,220,000 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 greater than base discharge of 7,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 6	----	8,300	ice jam	May 31	0245	9,530	12.89
Mar. 20	1400	*18,700	*17.84	June 5	1045	10,700	13.62
Apr. 8	0115	15,200	16.16	July 1	0930	7,550	11.55
Apr. 30	2100	9,360	12.78	July 12	1115	10,700	13.64
May 16	0230	14,600	15.86	Sept. 28	1245	9,500	13.09

Minimum discharge, 656 ft³/s Sept. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4900	2360	2090	1100	1080	1150	8760	9210	8760	7480	3990	1380
2	5560	2270	2050	1100	1100	1600	8760	8840	8020	7090	3270	1230
3	5430	2200	2000	1100	1100	2400	9160	8580	7360	6570	2810	1140
4	5160	2050	1950	1090	1180	4500	9690	8520	7480	6060	2490	1070
5	4780	1950	1920	1090	1180	6000	11900	8500	9930	5600	2300	969
6	4440	1910	1900	1090	1150	8000	14300	8230	8740	6000	2130	895
7	4330	1860	1880	1090	1150	7800	14900	7780	7360	9150	1990	840
8	4170	1820	1820	1090	1150	7000	15000	7410	6950	8900	1830	783
9	3930	1780	1800	1100	1120	6800	14500	7290	6230	8340	1680	733
10	3680	1760	1750	1100	1100	6200	13500	7360	5820	8910	1570	696
11	3480	1670	1720	1100	1100	5600	12300	9760	6490	9600	1470	669
12	3480	1610	1700	1100	1100	5670	11200	12000	5950	10500	1370	710
13	3390	1590	1680	1100	1090	5770	10200	12200	5370	9210	1360	806
14	3450	1630	1600	1100	1080	6490	9510	12800	5330	8040	1580	860
15	3520	1680	1500	1100	1050	5950	9220	14300	5040	7160	2740	871
16	3440	1820	1400	1090	1050	6810	9190	14500	4710	6370	2760	1020
17	3350	1930	1350	1090	1050	6790	8890	13900	4370	5610	2180	1330
18	4000	2100	1300	1090	1050	12100	8610	12900	4510	4960	1810	1380
19	5020	2400	1250	1080	1050	17500	8320	11700	4490	4440	1550	1430
20	4760	2800	1200	1050	1080	18500	8120	10600	4010	4010	1380	2620
21	4320	2950	1180	1050	1080	17500	7960	9720	3820	3610	1330	5040
22	3950	2650	1150	1050	1090	16100	7590	8930	6490	3300	1280	4740
23	3690	2500	1120	1020	1090	14100	7230	8250	6240	3170	1530	4470
24	3480	2250	1120	1020	1090	12700	6950	7660	5300	3060	1440	4330
25	3250	2100	1120	1000	1090	11500	6680	7240	4820	3070	1280	5220
26	3060	2050	1100	1000	1090	10600	6540	7380	4460	3900	1220	5620
27	2910	1950	1100	1000	1090	9610	6470	7620	4160	5060	1330	6790
28	2740	1920	1100	1000	1090	8980	7010	8190	3990	4330	1800	9270
29	2590	2000	1100	1000	---	8660	8530	8560	4740	4610	2000	9190
30	2490	2100	1100	1020	---	8560	9260	9050	7010	5510	1750	8780
31	2430	---	1100	1020	---	8560	---	9390	---	5130	1570	---
TOTAL	119180	61660	46150	33030	30720	269500	290250	298370	177950	188750	58790	84882
MEAN	3845	2055	1489	1065	1097	8694	9675	9625	5932	6089	1896	2829
MAX	5560	2950	2090	1100	1180	18500	15000	14500	9930	10500	3990	9270
MIN	2430	1590	1100	1000	1050	1150	6470	7240	3820	3060	1220	669
CFSM	.71	.38	.27	.20	.20	1.59	1.77	1.77	1.09	1.12	.35	.52
IN.	.81	.42	.31	.23	.21	1.84	1.98	2.04	1.21	1.29	.40	.58
AC-FT	236400	122300	91540	65520	60930	534600	575700	591800	353000	374400	116600	168400

CAL YR 1985	TOTAL	882949	MEAN	2419	MAX	9470	MIN	298	CFSM	.44	IN.	6.02	AC-FT	1751000
WTR YR 1986	TOTAL	1659232	MEAN	4546	MAX	18500	MIN	669	CFSM	.83	IN.	11.32	AC-FT	3291000

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 U.S. Army 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 area, 16,700 acres. Reservoir is used for flood control, low-flow augmentation, conservation and recreation.

COOPERATION.--Records provided by U.S. Army 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, 45,000 acre-ft May 15, 1985; minimum elevation, 832.61 ft Jan. 19, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 134,000 acre-ft May 23; maximum elevation, 858.93 ft May 24; minimum daily contents, 45,300 acre-ft Dec. 10, Mar. 9 and Aug. 12; minimum elevation, 836.00 ft Dec. 11.

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 1985 TO SEPTEMBER 1986
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52000	52300	47000	45500	46200	46700	46400	57000	131000	90900	70900	46500
2	52200	52300	46300	45600	46100	47100	46400	60500	128000	95600	67300	46300
3	52500	52200	46200	45600	46100	47300	46600	63600	125000	102000	63400	46800
4	52200	52200	46200	45600	46100	47300	46600	63700	122000	103000	58400	46100
5	51500	52400	46500	45800	46300	48400	46700	64400	121000	102000	54200	46000
6	51400	53100	46900	45900	46700	48000	48800	66500	120000	100000	50100	45700
7	51600	52900	47200	46000	46900	47300	51400	68000	117000	101000	47800	45600
8	51700	52600	47100	46100	47000	46100	53900	69200	113000	101000	46600	45700
9	51600	52400	45700	46100	47000	45300	56200	69200	110000	98600	46200	45800
10	51400	52200	45300	46100	46700	45700	57500	67200	108000	98500	46000	45900
11	51600	52300	45700	47200	46500	47200	58900	67900	107000	100000	45500	45800
12	51000	52700	46100	46100	46500	47500	62400	72200	106000	103000	45300	45700
13	52200	52900	46400	46100	46400	46200	66200	77600	104000	107000	47000	45600
14	52600	52900	46400	46000	46200	46200	70300	83200	103000	109000	47900	46000
15	52600	52900	46300	46000	46000	47500	72900	89800	101000	110000	48900	46600
16	52500	52900	48000	45900	45800	47600	75300	96200	100000	111000	49900	47300
17	52500	52900	47800	45900	45400	47300	77000	103000	98800	112000	49900	48400
18	52800	52900	47100	46000	45400	47000	77500	112000	97700	110000	49500	49900
19	52900	52900	46700	46100	45600	50000	77400	122000	96600	108000	48600	51900
20	52600	52700	46300	46200	45800	51600	77000	129000	94200	105000	47100	53100
21	52400	51600	46300	46200	45900	63100	76300	133000	91900	102000	46600	55700
22	52100	51500	46400	46200	46100	67400	74500	133000	90700	98600	46300	56000
23	52000	51800	46500	46300	48000	69600	72100	134000	90100	94600	46100	53800
24	51900	51800	46500	46500	46200	69300	69500	133000	87500	91800	46400	52800
25	51900	51700	46400	46600	46400	67600	66500	132000	83800	88200	46700	52700
26	51200	51600	46300	46800	46500	64700	63300	131000	79800	83800	46500	52600
27	52100	51400	46100	46900	46700	60500	59800	131000	75900	82000	46500	51700
28	52000	50400	46000	46000	46400	56200	56400	131000	72100	79300	46600	52800
29	51700	49400	45800	46600	---	51400	53900	131000	75500	77700	46600	52900
30	51800	48700	45500	46300	---	47600	55000	131000	84200	75900	46700	54100
31	52100	---	45400	46200	---	46700	---	132000	---	73300	46700	---
MEAN	52000	52100	46400	46100	46300	52000	62100	98500	101000	97300	49700	49200
MAX	52900	53100	48000	47200	48000	69600	77500	134000	131000	112000	70900	56000
MIN	51000	48700	45300	45500	45400	45300	46400	57000	72100	73300	45300	45600

CAL YR 1985 MEAN 48100 MAX 55600 MIN 45000
WTR YR 1986 MEAN 62800 MAX 134000 MIN 45300

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 above NGVD (levels by U. S. Army Corps of Engineers). Prior to Aug. 6, 1970, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Saylorville Lake (Station 05481630) 2.3 mi upstream since Apr. 12, 1977. U. S. Army Corps of Engineers satellite telemeter at station.

COOPERATION.--Three discharge measurements provided by U. S. Army Corps of Engineers.

AVERAGE DISCHARGE.--25 years, 2,941 ft³/s, 6.84 in/yr, 2,131,000 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, 14,800 ft³/s Mar. 24, gage height, 15.48 ft; minimum discharge, 240 ft³/s Sept. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4350	2690	2810	1000	1030	1710	8700	8240	9750	7560	6870	1860
2	4920	2690	2630	990	1030	1910	8680	6740	10900	6490	6780	1740
3	5320	2680	1720	977	1040	2850	9080	5960	10700	5490	6700	1650
4	5640	2490	1080	945	1050	3930	9770	8140	10700	5720	6600	1630
5	5640	2060	707	864	1050	4870	10700	8490	10700	7670	6520	1550
6	4920	1420	958	791	1110	5830	11200	6510	10700	8480	6090	1470
7	4300	2360	1780	789	1440	6250	12500	6500	10600	8360	4710	1180
8	4280	2350	2200	780	1570	6290	13500	6510	10500	9800	3190	942
9	4290	2350	2480	764	1670	5680	13700	7980	9390	11400	2470	936
10	4280	2220	2350	742	1730	4660	13900	10500	7670	10700	2280	945
11	3790	1890	1720	737	1490	4190	13100	9190	6980	8730	2010	969
12	3470	1700	1340	726	1310	5340	10000	7510	6950	8230	1800	988
13	3460	1780	1370	736	1320	7150	7070	7440	6960	7560	1970	784
14	3450	1850	1430	739	1320	6840	6680	7510	6960	6840	2190	615
15	3600	1850	1360	737	1330	6600	6680	8270	7080	6550	2290	427
16	3690	1960	1460	724	1330	6770	6730	10100	6570	6020	2540	265
17	3690	2070	2110	716	1350	7400	7090	10000	5750	5730	2900	264
18	3690	2090	2350	719	1000	8890	8220	6860	5490	6220	2870	250
19	4510	2350	2290	720	719	11600	8540	4040	5670	6760	2820	322
20	5180	2770	2000	835	713	13100	8580	3350	6290	6690	2800	1440
21	4920	3000	1470	922	729	13700	8560	6520	6300	6640	2350	2590
22	4740	2730	1440	934	731	14500	9160	8070	6310	6590	1760	4480
23	4290	2450	1440	971	735	14700	9640	8070	6800	6530	1540	6880
24	3990	2450	1490	983	749	14700	9590	8050	7630	6470	1390	5940
25	3710	2450	1840	980	758	14600	9470	8100	7980	6940	1290	5370
26	3300	2440	1540	989	780	14400	9590	8010	7870	7240	1600	5810
27	3140	2570	1430	1020	1240	14100	9600	7950	7760	7090	1410	6300
28	3150	3250	1420	1150	1750	13800	9570	7940	7670	7020	1200	7430
29	3150	3010	1410	1240	---	13500	9570	7940	8310	7360	1850	9790
30	2880	2800	1400	1260	---	11900	9930	8280	9040	7160	1860	9060
31	2690	---	1180	1120	---	10000	---	8620	---	7000	1860	---
TOTAL	126430	70770	52205	27600	32074	271760	289100	237390	241980	227040	94510	83877
MEAN	4078	2359	1684	890	1146	8766	9637	7658	8066	7324	3049	2796
MAX	5640	3250	2810	1260	1750	14700	13900	10500	10900	11400	6870	9790
MIN	2690	1420	707	716	713	1710	6680	3350	5490	5490	1200	250
AC-FT	250800	140400	103500	54740	63620	539000	573400	470900	480000	450300	187500	166400

CAL YR 1985 TOTAL 872164 MEAN 2389 MAX 9180 MIN 205 AC-FT 1730000
WTR YR 1986 TOTAL 1754736 MEAN 4807 MAX 14700 MIN 250 AC-FT 3481000

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 ot 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 microsiemens Feb. 18, 1977; minimum daily, 90 microsiemens 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:
SEDIMENT CONCENTRATIONS: Maximum daily mean, 174 mg/L May 9; minimum daily mean, 3 mg/L Mar. 5, 7, Sept. 5, 6.
SEDIMENT LOADS: Maximum daily, 3,750 tons May 9; minimum daily, 8.3 tons Sept. 14.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C.), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	580	---	770	---	---	520	500	500	520	---	---
2	---	550	---	---	600	---	520	---	470	540	580	550
3	660	540	---	---	---	---	---	600	---	550	510	560
4	680	660	---	720	---	720	500	---	---	---	---	---
5	---	---	---	690	---	740	500	500	510	---	430	---
6	---	700	640	---	---	760	550	---	500	560	560	---
7	590	590	---	630	680	740	560	---	550	580	560	570
8	680	---	---	---	---	---	---	500	570	560	---	560
9	620	---	640	640	700	740	560	530	540	500	---	---
10	710	600	---	---	---	620	550	560	500	590	---	---
11	---	600	620	720	---	---	---	490	---	---	---	---
12	640	560	---	---	620	710	---	540	520	---	---	560
13	---	580	---	770	---	720	560	---	540	570	---	560
14	600	---	---	---	600	540	550	540	540	530	---	560
15	---	640	---	650	---	500	570	590	610	600	---	540
16	---	---	---	---	---	540	540	---	---	---	540	560
17	---	620	---	770	600	410	---	---	550	530	560	560
18	720	---	---	---	---	410	540	500	530	---	560	530
19	690	---	580	830	720	---	---	520	560	520	540	---
20	610	640	---	760	---	450	500	---	---	---	570	500
21	660	---	---	---	600	450	---	---	540	---	---	---
22	620	---	650	---	---	450	617	---	520	545	---	560
23	680	660	---	620	610	450	530	---	550	545	565	---
24	---	600	590	---	660	480	540	---	---	485	---	550
25	---	640	---	---	---	---	480	540	480	---	550	570
26	720	580	---	620	---	460	540	---	520	600	---	560
27	620	---	630	---	---	430	540	---	---	575	540	---
28	800	---	---	---	---	440	620	590	---	595	---	550
29	760	550	---	640	---	---	---	500	---	550	555	600
30	600	560	---	---	---	---	600	---	575	570	555	590
31	570	---	---	---	---	---	---	---	---	---	570	---

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C.), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

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

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	37	435	49	356	23	175	12	32	65	181	26	120
2	44	584	20	145	45	320	10	27	65	181	17	88
3	34	488	39	282	40	186	8	21	65	183	20	154
4	22	335	39	262	35	102	7	18	65	184	18	191
5	23	350	37	206	37	71	8	19	64	181	3	39
6	36	478	37	142	38	98	9	19	63	189	4	63
7	105	1220	54	344	47	226	17	36	44	171	3	51
8	41	474	45	286	49	291	20	42	35	148	4	68
9	45	521	30	190	43	288	20	41	21	95	7	107
10	38	439	27	162	51	324	17	34	12	56	30	377
11	26	266	31	158	55	255	17	34	11	44	53	600
12	35	328	33	151	39	141	18	35	14	50	50	721
13	52	486	23	111	30	111	18	36	13	46	41	792
14	72	671	9	45	24	93	20	40	15	53	24	443
15	51	496	11	55	23	84	21	42	17	61	9	160
16	26	259	24	127	26	102	26	51	17	61	11	201
17	22	219	36	201	45	256	31	60	15	55	43	859
18	11	110	36	203	53	336	25	49	10	27	111	2660
19	12	146	23	146	54	334	16	31	5	9.7	163	5110
20	40	559	12	90	57	308	12	27	6	12	79	2790
21	36	478	12	97	57	226	15	37	15	30	62	2290
22	40	512	15	111	54	210	15	38	17	34	58	2270
23	34	394	14	93	54	210	27	71	19	38	51	2020
24	20	215	10	66	40	161	34	90	13	26	24	953
25	17	170	8	53	37	184	64	169	10	20	18	710
26	41	365	19	125	48	200	98	262	10	21	40	1560
27	61	517	36	250	48	185	102	281	15	50	92	3500
28	18	153	57	500	47	180	94	292	28	132	60	2240
29	18	153	33	268	48	183	85	285	---	---	45	1640
30	29	226	17	129	47	178	86	293	---	---	40	1290
31	42	305	---	---	34	108	80	242	---	---	34	918
TOTAL	---	12352	---	5354	---	6126	---	2754	---	2338.7	---	34985

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	28	658	109	2430	34	895	81	1650	29	538	33	166
2	44	1030	114	2070	41	1210	91	1590	26	476	27	127
3	48	1180	79	1270	40	1160	44	652	23	416	6	27
4	25	659	69	1520	52	1500	45	695	26	463	4	18
5	12	347	68	1560	36	1040	64	1330	64	1130	3	13
6	31	937	55	967	34	982	25	572	67	1100	3	12
7	33	1110	54	948	63	1800	17	384	55	699	8	25
8	30	1090	93	1630	41	1160	15	397	39	336	26	66
9	34	1260	174	3750	35	887	33	1020	29	193	8	20
10	54	2030	69	1960	59	1220	45	1300	25	154	25	64
11	60	2120	82	2030	67	1260	27	636	22	119	59	154
12	52	1400	87	1760	65	1220	42	933	17	83	28	75
13	52	993	85	1710	44	827	26	531	67	356	8	17
14	49	884	75	1520	32	601	42	776	138	816	5	8.3
15	39	703	82	1830	29	554	34	601	67	414	10	12
16	29	527	117	3190	33	585	47	764	41	281	16	11
17	26	498	127	3430	51	792	63	975	36	282	16	11
18	32	710	103	1910	54	800	66	1110	46	356	20	13
19	30	692	82	894	47	720	45	821	33	251	34	30
20	19	440	79	715	48	815	38	686	25	189	23	89
21	15	347	62	1090	40	680	37	663	23	146	90	629
22	18	445	37	806	37	630	37	658	31	147	57	689
23	38	989	35	763	36	661	49	864	30	125	39	724
24	43	1110	34	739	43	886	55	961	30	113	24	385
25	14	358	35	765	91	1960	72	1350	34	118	23	333
26	23	596	25	541	60	1270	34	665	75	324	26	408
27	57	1480	19	408	24	503	26	498	54	206	32	544
28	57	1470	14	300	43	890	35	663	51	165	40	802
29	53	1370	23	493	77	1730	45	894	36	180	22	582
30	102	2880	43	961	139	3390	37	715	36	181	27	660
31	---	---	36	838	---	---	29	548	35	176	---	---
TOTAL	---	30313	---	44798	---	32628	---	25902	---	10533	---	6714.3

TOTAL LOAD FOR YEAR: 214798.0 TONS.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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						
29...	13:00	12.0	790	17	36	76
JUN						
04...	10:32	19.5	10700	26	751	59
JUL						
09...	13:45	27.0	10600	29	830	72
SEP						
18...	13:50	22.0	240	20	13	90

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)
JUN							
04...	11:17	10700	5	0	1	8	25
JUL							
09...	14:15	10600	3	1	6	36	51
SEP							
18...	13:50	240	4	0	1	4	22

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 (80173)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80174)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80175)
JUN							
04...	38	51	65	80	96	100	--
JUL							
09...	56	64	75	81	87	87	100
SEP							
18...	55	70	83	92	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 above NGVD. Prior to Aug. 31, 1966, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 21 to Mar. 8. Records good except those for estimated daily discharges, which are poor. U. S. Army Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--26 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, 7,980 ft³/s June 30, 1986, gage height, 14.73 ft; no flow for several days in 1970 and 1971 and many days in 1977.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 30	1200	1,770	9.78	June 6	1200	1,620	9.48
May 10	2400	2,840	11.60	June 30	1345	*7,980	*14.73
May 16	2330	2,000	10.35	Aug. 13	1715	1,750	9.55

Minimum daily discharge, 2.2 ft³/s Dec. 25 to Jan. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	14	3.2	2.2	20	35	203	1120	284	6880	269	53
2	4.2	13	3.1	2.2	20	80	205	738	262	6470	225	51
3	4.8	12	2.9	2.3	20	150	284	492	246	4480	191	75
4	5.4	12	2.8	2.3	20	270	494	410	238	2810	164	75
5	5.2	12	2.8	2.3	23	250	638	360	636	1770	158	51
6	6.6	11	2.7	2.4	30	220	645	316	1520	1330	181	48
7	5.6	11	2.7	2.4	40	200	515	284	1440	1240	191	47
8	5.6	10	2.6	2.5	52	170	408	267	1320	1000	166	48
9	7.7	10	2.5	2.5	45	154	340	751	1230	777	139	51
10	8.2	10	2.5	2.7	37	161	301	2310	1200	900	126	47
11	6.9	12	2.5	2.9	30	167	277	2140	1160	1100	111	45
12	12	12	2.4	3.2	25	191	256	1140	1250	1160	99	42
13	16	11	2.3	3.5	20	297	240	852	995	845	675	42
14	8.5	12	2.3	4.0	16	604	232	680	964	613	1080	44
15	9.1	11	2.3	4.5	14	559	220	736	787	509	1030	47
16	8.8	12	2.3	5.2	13	327	201	1260	635	439	580	62
17	9.1	12	2.3	6.4	12	265	190	1760	524	384	377	55
18	15	8.5	2.3	7.6	12	306	198	1380	473	343	298	38
19	26	8.9	2.3	8.0	11	731	206	986	447	308	245	221
20	28	8.3	2.3	11	11	701	221	795	423	281	207	278
21	32	5.8	2.3	12	11	431	213	623	388	251	176	272
22	28	5.3	2.3	15	11	326	192	519	549	229	153	240
23	24	4.8	2.3	18	11	276	180	473	390	204	138	206
24	21	4.6	2.3	22	11	241	175	445	337	188	119	186
25	13	4.3	2.2	27	12	219	170	412	297	410	108	215
26	12	4.0	2.2	35	12	204	162	381	277	355	98	286
27	10	3.8	2.2	32	12	178	173	350	257	264	83	277
28	10	3.6	2.2	28	15	172	230	330	250	231	71	222
29	13	3.4	2.2	25	---	165	293	301	1720	827	64	570
30	12	3.3	2.2	23	---	155	1120	305	6410	515	57	444
31	12	---	2.2	21	---	143	---	295	---	345	50	---
TOTAL	384.1	265.6	75.7	338.1	566	8348	9182	23211	26909	37458	7629	4338
MEAN	12.4	8.85	2.44	10.9	20.2	269	306	749	897	1208	246	145
MAX	32	14	3.2	35	52	731	1120	2310	6410	6880	1080	570
MIN	4.2	3.3	2.2	2.2	11	35	162	267	238	188	50	38
CFSM	.03	.02	.01	.03	.06	.75	.85	2.09	2.51	3.37	.69	.41
IN.	.04	.03	.01	.04	.06	.87	.95	2.41	2.80	3.89	.79	.45
AC-FT	762	527	150	671	1120	16560	18210	46040	53370	74300	15130	8600

CAL YR 1985	TOTAL	22970.92	MEAN	62.9	MAX	570	MIN	.04	CFSM	.18	IN.	2.39	AC-FT	45560
WTR YR 1986	TOTAL	118704.5	MEAN	325	MAX	6880	MIN	2.2	CFSM	.91	IN.	12.33	AC-FT	235500

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 1235.50 ft above NGVD.

REMARKS.--Estimated daily discharges: Nov. 18 to Mar. 10, and June 8, 9. Records good except for estimated daily discharges, which are poor. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,850 ft³/s June 17, 1984, gage height, 16.73 ft, from flood mark, site and datum then in use; minimum daily 3.9 ft³/s Sept. 25, 26, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 20	0300	1,410	14.76	May 13	1515	*1,880	*15.61
Apr. 5	1545	1,060	13.86	June 5	0430	805	13.00
Apr. 28	1445	1,780	15.45				

Minimum discharge, 16 ft³/s Sept. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	41	43	29	28	390	210	795	352	218	63	28
2	72	39	39	29	29	400	209	557	305	176	53	24
3	62	39	37	29	29	440	226	456	281	149	43	23
4	56	39	35	29	30	360	426	400	448	133	36	28
5	48	39	34	29	30	335	992	354	743	114	34	26
6	44	39	33	29	98	330	793	301	545	121	31	24
7	43	38	32	29	88	270	546	269	439	103	28	23
8	45	38	30	29	80	220	415	254	413	95	25	21
9	39	38	30	29	70	205	342	338	368	87	22	20
10	37	37	30	29	64	115	301	593	316	83	22	19
11	37	37	29	29	62	70	274	834	285	85	20	17
12	48	37	29	29	60	71	253	726	252	77	19	17
13	57	37	29	29	58	117	232	1630	229	66	45	36
14	55	37	29	29	56	96	311	1680	221	60	91	57
15	53	38	29	29	54	152	350	1260	212	56	52	223
16	49	46	29	30	54	346	305	885	200	52	36	197
17	48	48	29	31	53	249	283	700	180	47	29	145
18	56	54	30	33	52	956	283	558	172	40	24	117
19	76	68	30	34	52	1280	344	467	163	42	21	261
20	73	84	29	36	52	1150	319	409	149	38	21	581
21	68	98	29	37	52	695	280	362	160	33	204	587
22	72	110	29	37	52	522	249	325	153	31	125	411
23	68	110	29	37	52	421	238	295	135	28	80	345
24	59	92	29	36	52	362	219	273	123	29	60	364
25	58	82	29	36	70	326	207	268	115	116	50	626
26	48	72	29	35	150	286	208	264	109	78	56	430
27	42	64	29	34	540	256	690	313	103	51	73	338
28	41	58	29	32	430	240	1620	539	94	40	57	286
29	41	52	29	30	---	231	1590	486	206	173	45	255
30	41	47	29	29	---	217	1180	474	290	132	39	227
31	41	---	29	28	---	213	---	410	---	81	33	---
TOTAL	1660	1658	954	970	2497	11321	13895	17475	7761	2634	1537	5756
MEAN	53.5	55.3	30.8	31.3	89.2	365	463	564	259	85.0	49.6	192
MAX	83	110	43	37	540	1280	1620	1680	743	218	204	626
MIN	37	37	29	28	28	70	207	254	94	28	19	17
CFSM	.23	.24	.13	.13	.38	1.56	1.98	2.42	1.11	.36	.21	.82
IN.	.26	.26	.15	.15	.40	1.80	2.21	2.79	1.24	.42	.24	.92
AC-FT	3290	3290	1890	1920	4950	22460	27560	34660	15390	5220	3050	11420

CAL YR 1985	TOTAL	27079.6	MEAN	74.2	MAX	727	MIN	3.6	CFSM	.32	IN.	4.32	AC-FT	53710
WTR YR 1986	TOTAL	68118	MEAN	187	MAX	1680	MIN	17	CFSM	.80	IN.	10.86	AC-FT	135100

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 20 to Mar. 8. Records good, except for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--27 years, 43.3 ft³/s, 7.35 in/yr, 31,370 acre-ft/yr; median of yearly mean discharges, 34 ft³/s, 5.8 in/yr, 24,600 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 greater than base of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 3	----	550	ice jam	May 11	0600	456	7.07
Mar. 18	1530	1,010	10.05	May 13	0315	*1,430	*11.80
Apr. 5	0630	659	8.21	Aug. 13	1430	467	7.13
Apr. 28	0915	533	7.58				

Minimum daily discharge, 6.0 ft³/s Feb. 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	21	13	10	9.6	195	47	179	137	74	29	21
2	32	18	12	10	9.6	275	45	136	113	59	24	20
3	26	16	12	10	9.3	350	51	113	102	50	20	20
4	24	16	12	10	9.3	160	163	98	99	46	16	18
5	26	16	12	10	9.0	85	567	89	113	41	15	16
6	22	17	12	10	8.8	60	367	76	98	56	14	14
7	19	16	12	10	8.6	90	257	65	91	43	12	13
8	19	14	12	10	8.4	130	184	60	81	39	10	12
9	15	15	12	10	8.2	64	136	66	73	35	9.4	14
10	15	9.8	12	10	8.0	48	107	265	76	34	9.8	15
11	15	15	12	9.8	7.6	41	91	421	72	33	8.2	13
12	23	15	12	9.8	7.4	41	83	339	65	32	8.0	13
13	25	14	12	9.8	7.2	46	72	1070	60	30	307	56
14	24	14	12	9.8	7.0	46	127	622	58	28	286	51
15	23	14	12	9.8	6.8	112	128	442	56	38	145	197
16	20	21	12	9.8	6.6	189	102	367	52	29	86	120
17	20	23	12	9.9	6.4	132	88	313	48	23	57	84
18	31	37	11	9.9	6.2	769	91	253	48	20	43	65
19	33	74	11	9.9	6.0	544	111	205	48	19	34	220
20	29	54	10	9.9	6.0	343	96	173	45	16	49	281
21	28	40	10	9.9	6.6	266	78	151	70	14	301	228
22	26	36	10	9.9	8.4	217	68	133	61	13	168	170
23	26	31	10	9.9	11	180	61	118	53	11	101	146
24	24	25	10	9.9	12	147	54	107	46	15	69	162
25	23	23	10	9.8	13	122	49	99	43	60	53	288
26	23	21	10	9.7	45	96	48	93	39	29	50	193
27	20	19	10	9.7	215	77	343	124	39	22	49	145
28	20	17	10	9.7	200	69	493	193	44	21	39	117
29	19	16	10	9.7	---	63	345	187	82	114	34	98
30	20	15	10	9.7	---	55	246	209	87	65	30	85
31	19	---	10	9.6	---	51	---	164	---	38	25	---
TOTAL	730	682.8	347	305.9	667.0	5063	4698	6930	2099	1147	2101.4	2895
MEAN	23.5	22.8	11.2	9.87	23.8	163	157	224	70.0	37.0	67.8	96.5
MAX	41	74	13	10	215	769	567	1070	137	114	307	288
MIN	15	9.8	10	9.6	6.0	41	45	60	39	11	8.0	12
CFSM	.29	.28	.14	.12	.30	2.04	1.96	2.80	.87	.46	.85	1.21
IN.	.34	.32	.16	.14	.31	2.35	2.18	3.22	.98	.53	.98	1.35
AC-FT	1450	1350	688	607	1320	10040	9320	13750	4160	2280	4170	5740

CAL YR 1985	TOTAL	9343.11	MEAN	25.6	MAX	210	MIN	.00	CFSM	.32	IN.	4.34	AC-FT	18530
WTR YR 1986	TOTAL	27666.1	MEAN	75.8	MAX	1070	MIN	6.0	CFSM	.95	IN.	12.86	AC-FT	54880

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 above NGVD (levels by Iowa Natural Resources Council).

REMARKS.--Estimated daily discharges: Oct. 1, Nov. 19 to Mar. 9, July 19-22. Records good except estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--28 years, 362 ft³/s, 6.90 in/yr, 262,300 acre-ft/yr; median of yearly mean discharges, 284 ft³/s, 5.4 in/yr, 206,000 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 greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	0545	*5,430	*14.82	May 13	2345	4,790	14.12
Apr. 5	1800	3,690	12.69	Sept. 21	0345	3,290	12.29
Apr. 28	2115	4,160	13.35	Sept. 25	1830	2,370	10.45
May 11	1330	3,580	12.52				

Minimum discharge, 80 ft³/s Dec. 26 to Jan. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	256	131	110	80	92	1100	606	2710	1130	919	278	224
2	211	131	100	80	96	980	585	1930	966	701	231	187
3	186	126	96	80	98	1180	586	1480	853	573	206	155
4	163	121	94	80	150	1320	1070	1270	795	498	192	144
5	147	118	92	80	260	1050	3350	1110	1320	435	194	136
6	137	114	91	80	310	800	3240	958	1520	826	173	128
7	132	115	90	80	260	620	2390	833	1190	779	149	119
8	128	112	90	81	230	620	1720	769	995	592	134	113
9	125	110	90	83	210	680	1320	969	848	503	123	109
10	114	91	90	84	195	714	1080	2170	790	456	116	110
11	112	91	90	84	190	419	931	3470	800	865	110	108
12	122	121	90	84	180	422	828	3060	722	834	107	101
13	137	119	90	84	180	687	751	3750	641	596	501	105
14	150	107	90	84	175	693	840	4570	644	468	1070	211
15	146	104	90	84	170	912	1110	4130	640	403	727	459
16	141	112	89	85	170	1350	986	3260	601	364	457	765
17	132	128	88	85	170	1330	876	2600	544	310	324	549
18	151	140	86	85	170	3080	822	2130	507	267	247	432
19	225	170	85	86	170	5110	894	1730	487	234	203	501
20	225	200	84	86	165	4010	928	1440	457	211	213	1900
21	202	230	82	87	160	3000	825	1240	454	192	662	3060
22	187	270	82	88	160	2120	729	1090	581	173	1030	2190
23	185	340	82	88	165	1670	664	959	498	157	525	1660
24	178	280	82	88	170	1370	621	870	440	157	376	1380
25	156	240	82	88	170	1180	583	811	398	358	314	2000
26	148	200	80	88	380	1000	589	802	376	419	330	1940
27	146	170	80	88	1300	872	1330	807	359	273	325	1410
28	135	150	80	88	1280	791	3760	1140	343	215	299	1130
29	131	130	80	88	---	726	4030	1570	430	373	262	987
30	130	120	80	89	---	664	3590	1420	1080	642	268	879
31	129	---	80	90	---	614	---	1320	---	377	258	---
TOTAL	4867	4591	2715	2625	7426	41084	41634	56368	21409	14170	10404	23192
MEAN	157	153	87.6	84.7	265	1325	1388	1818	714	457	336	773
MAX	256	340	110	90	1300	5110	4030	4570	1520	919	1070	3060
MIN	112	91	80	80	92	419	583	769	343	157	107	101
CFSM	.22	.21	.12	.12	.37	1.86	1.95	2.55	1.00	.64	.47	1.08
IN.	.25	.24	.14	.14	.39	2.14	2.17	2.94	1.12	.74	.54	1.21
AC-FT	9650	9110	5390	5210	14730	81490	82580	111800	42460	28110	20640	46000

CAL YR 1985	TOTAL	74909	MEAN	205	MAX	1810	MIN	22	CFSM	.29	IN.	3.91	AC-FT	148600
WTR YR 1986	TOTAL	230485	MEAN	631	MAX	5110	MIN	80	CFSM	.88	IN.	12.03	AC-FT	457200

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 recorder. Datum of gage is 1,218.50 ft above NGVD and 2.00 ft below crest of 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 above 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, 2.97 ft May 12; minimum, 1.69 ft Oct. 4, 8, 10.

GAGE HEIGHT (FEET), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.72	---	1.80	1.86	1.93	2.31	2.38	2.64	2.48	2.59	2.27	2.23
2	1.72	---	1.79	1.86	1.93	2.32	2.39	2.62	2.46	2.58	2.25	2.22
3	1.72	---	1.80	1.85	1.94	2.33	2.40	2.60	2.43	2.57	2.23	2.21
4	1.69	---	1.80	1.86	1.96	2.34	2.52	2.56	2.42	2.53	2.22	2.19
5	1.70	---	1.80	1.86	2.01	2.33	2.72	2.51	2.43	2.51	2.23	2.19
6	1.71	---	1.80	1.86	2.02	2.32	2.78	2.47	2.43	2.62	2.22	2.17
7	1.73	---	1.80	1.86	2.05	2.31	2.76	2.46	2.43	2.69	2.20	2.15
8	1.69	---	1.81	1.86	2.06	2.29	2.69	2.47	2.42	2.73	2.19	2.14
9	1.70	---	1.82	1.85	2.06	2.28	2.64	2.51	2.36	2.73	2.18	2.14
10	1.69	---	1.82	1.85	2.07	2.28	2.60	2.68	2.25	2.72	2.17	2.14
11	1.71	---	1.83	1.85	2.07	2.28	2.56	2.87	2.24	2.74	2.16	2.12
12	1.72	---	1.83	1.85	2.07	2.34	2.51	2.97	2.24	2.72	2.16	2.12
13	1.72	---	1.83	1.85	2.07	2.41	2.52	2.93	2.23	2.68	2.30	2.13
14	1.72	1.73	1.83	1.85	2.07	2.44	2.50	2.88	2.31	2.66	2.31	2.14
15	1.70	1.74	1.83	1.85	2.07	2.45	2.48	2.81	2.33	2.62	2.33	2.20
16	1.72	1.74	1.84	1.86	2.07	2.46	2.49	2.77	2.33	2.58	2.33	2.22
17	1.72	1.75	1.86	1.86	2.07	2.51	2.52	2.73	2.31	2.53	2.32	2.21
18	1.74	1.74	1.86	1.86	2.07	2.73	2.52	2.69	2.31	2.49	2.31	2.22
19	1.75	1.73	1.86	1.87	2.07	2.92	2.47	2.67	2.32	2.45	2.30	2.31
20	1.75	1.76	1.86	1.87	2.07	2.90	2.47	2.65	2.43	2.41	2.29	2.37
21	1.77	1.76	1.86	1.88	2.07	2.82	2.45	2.61	2.41	2.39	2.33	2.38
22	1.78	1.76	1.86	1.89	2.06	2.73	2.45	2.58	2.40	2.37	2.31	2.38
23	1.75	1.76	1.86	1.89	2.06	2.67	2.45	2.55	2.37	2.36	2.29	2.38
24	1.75	1.76	1.86	1.90	2.06	2.64	2.41	2.53	2.36	2.34	2.28	2.40
25	1.74	1.76	1.86	1.91	2.07	2.56	2.40	2.51	2.35	2.40	2.26	2.41
26	1.73	1.76	1.86	1.92	2.08	2.50	2.44	2.50	2.32	2.39	2.32	2.40
27	---	1.76	1.86	1.93	2.17	2.47	2.49	2.52	2.31	2.36	2.32	2.41
28	---	1.76	1.86	1.93	2.27	2.44	2.61	2.54	2.31	2.34	2.30	2.42
29	---	1.75	1.86	1.93	---	2.41	2.69	2.52	2.34	2.35	2.29	2.44
30	---	1.76	1.86	1.93	---	2.40	2.69	2.52	2.57	2.33	2.27	2.47
31	---	---	1.86	1.93	---	2.38	---	2.51	---	2.29	2.25	---
MEAN	---	---	1.84	1.88	2.06	2.47	2.53	2.63	2.36	2.52	2.26	2.26
MAX	---	---	1.86	1.93	2.27	2.92	2.78	2.97	2.57	2.74	2.33	2.47
MIN	---	---	1.79	1.85	1.93	2.28	2.38	2.46	2.23	2.29	2.16	2.12

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 above 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.--Estimated daily discharge: Nov. 21 to March 5, 10. Records good except for estimated daily discharges, which are poor. U.S. Army Corps of Engineers data collection platform at station.

AVERAGE DISCHARGE.--46 years, 742 ft³/s, 6.22 in/yr, 537,600 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 greater than base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 21	unknown	*8,260	*14.01	June 30	1900	8,230	13.95
Apr. 7	unknown	4,840	11.17	Sept. 22	2245	4,390	10.86
May 1	0600	4,990	11.31	Sept. 28	1200	4,010	10.47
May 13	1200	7,520	13.44				

Minimum discharge, 130 ft³/s Dec. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149	201	390	140	160	1380	1190	4850	2030	4660	793	495
2	180	196	420	140	170	1650	1160	3760	1770	2970	633	447
3	237	195	410	140	190	1580	1170	2800	1560	2230	547	414
4	236	194	370	145	220	1600	1330	2260	1470	1660	492	402
5	223	191	310	145	260	1700	2290	1940	1340	1470	486	375
6	208	185	250	145	280	2060	4190	1730	1990	1380	464	363
7	194	181	210	145	290	1680	4620	1560	2550	2190	467	347
8	183	178	180	145	320	1320	3580	1410	2050	2280	433	327
9	175	178	160	145	340	1270	2560	1380	1730	1790	403	313
10	168	177	150	140	330	990	2150	2570	1610	1550	379	306
11	166	175	145	145	310	1150	1800	5900	1710	1550	358	300
12	167	169	140	150	290	943	1590	7210	1580	2240	337	292
13	162	162	140	150	270	978	1470	7520	1420	2160	452	284
14	159	173	140	150	260	1510	1440	6390	1660	1860	1350	281
15	167	181	140	150	250	1840	1510	6360	1950	1470	1630	288
16	177	178	140	150	245	1680	1730	7070	1670	1220	1430	387
17	179	175	140	155	240	2120	1720	6950	1470	1070	1070	707
18	196	181	140	155	240	3350	1630	5380	1320	906	839	799
19	199	188	135	155	240	5530	1570	3890	1220	820	690	722
20	220	159	130	155	235	7210	1580	3060	1150	720	597	760
21	277	150	135	155	230	7950	1520	2620	1120	648	548	1890
22	288	160	140	155	225	6750	1490	2280	1190	599	570	3800
23	277	170	140	155	220	3950	1370	1960	1170	550	1210	3800
24	267	190	140	155	220	2840	1240	1840	1100	521	1000	3020
25	259	210	140	155	220	2380	1190	1720	990	532	788	2620
26	252	240	140	155	250	2050	1190	1560	928	518	670	2950
27	235	265	140	155	840	1820	1180	1540	869	652	636	3460
28	225	290	140	155	1400	1570	1600	1580	806	623	720	4010
29	218	350	135	160	---	1430	3330	1770	1690	616	692	3390
30	209	370	140	160	---	1330	4690	2270	7770	566	609	3230
31	203	---	140	160	---	1240	---	2180	---	813	545	---
TOTAL	6455	6012	5770	4665	8745	74851	59080	105310	50883	42834	21838	40779
MEAN	208	200	186	150	312	2415	1969	3397	1696	1382	704	1359
MAX	288	370	420	160	1400	7950	4690	7520	7770	4660	1630	4010
MIN	149	150	130	140	160	943	1160	1380	806	518	337	281
CFSM	.13	.12	.11	.09	.19	1.49	1.22	2.10	1.05	.85	.43	.84
IN.	.15	.14	.13	.11	.20	1.72	1.36	2.42	1.17	.98	.50	.94
AC-FT	12800	11920	11440	9250	17350	148500	117200	208900	100900	84960	43320	80890

CAL YR 1985	TOTAL	141069	MEAN	386	MAX	2530	MIN	71	CFSM	.24	IN.	3.24	AC-FT	279800
WTR YR 1986	TOTAL	427222	MEAN	1170	MAX	7950	MIN	130	CFSM	.72	IN.	9.82	AC-FT	847400

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 22 to Mar. 11, May 11, and June 30. Records good except for estimated daily discharges, which are poor. Small diversion for irrigation upstream from station.

AVERAGE DISCHARGE.--34 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, 870 ft³/s June 30, 1986 gage height, 10.78 ft, from flood mark, No flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 11	0800	197	5.73	June 30	unknown	*870	a*10.78

a from flood mark.

No flow Oct. 2, 5-11, 13-17, 28, Dec. 18 to Jan. 9, Jan. 27 to Feb. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	.09	.01	.00	.00	22	7.2	18	18	269	3.3	.72
2	.00	.05	.01	.00	.00	31	8.2	16	16	214	3.0	.65
3	.08	.05	.01	.00	.31	18	13	16	16	174	2.7	.67
4	.09	.24	.01	.00	7.0	7.2	17	16	17	133	2.6	.62
5	.00	.20	.01	.00	16	6.2	17	14	20	91	12	.55
6	.00	.09	.01	.00	14	3.7	17	12	19	82	11	.52
7	.00	.04	.01	.00	17	3.3	17	11	17	65	6.2	.42
8	.00	.60	.01	.00	11	3.0	17	11	15	51	4.7	.33
9	.00	1.4	.01	.00	4.8	2.1	18	11	14	41	4.0	.19
10	.00	.45	.01	.01	1.9	2.7	18	54	15	43	3.6	.23
11	.00	.26	.01	.02	1.2	13	17	67	143	65	2.9	.47
12	.01	.24	.01	.02	.92	21	15	48	69	63	2.7	.36
13	.00	.26	.01	.03	.76	50	14	41	45	43	3.9	.26
14	.00	.22	.01	.03	.62	64	15	36	52	34	4.8	.16
15	.00	.18	.01	.03	.56	45	13	48	56	28	3.7	.08
16	.00	.27	.01	.03	.50	31	12	65	52	22	3.1	.03
17	.00	.17	.01	.03	.45	33	13	69	41	17	2.6	.07
18	.43	.26	.00	.03	.36	80	15	50	36	14	2.2	.27
19	.37	.43	.00	.03	.30	72	18	40	32	12	2.0	.40
20	.13	.86	.00	.02	.25	37	18	35	27	11	1.9	.42
21	.09	.32	.00	.02	.23	27	15	33	23	9.3	2.0	1.3
22	.10	.24	.00	.02	.25	22	14	30	23	7.9	1.7	.94
23	.08	.15	.00	.02	.25	17	13	27	24	6.2	1.7	.76
24	.34	.10	.00	.01	.23	15	12	24	25	5.6	1.5	.65
25	1.2	.07	.00	.01	.23	14	12	23	24	5.2	1.4	.69
26	.13	.05	.00	.01	5.2	11	13	21	20	4.6	1.3	.53
27	.02	.03	.00	.00	24	10	16	20	17	4.2	1.2	.50
28	.00	.02	.00	.00	29	9.8	21	20	14	4.0	1.0	.44
29	.01	.01	.00	.00	---	8.9	21	20	25	6.2	1.0	.47
30	.01	.01	.00	.00	---	7.6	21	20	460	4.7	.88	.43
31	.03	---	.00	.00	---	7.6	---	19	---	3.8	.81	---
TOTAL	3.23	7.36	.17	.37	137.32	695.1	457.4	935	1375	1533.7	97.39	14.13
MEAN	.10	.25	.00	.01	4.90	22.4	15.2	30.2	45.8	49.5	3.14	.47
MAX	1.2	1.4	.01	.03	29	80	21	69	460	269	12	1.3
MIN	.00	.01	.00	.00	.00	2.1	7.2	11	14	3.8	.81	.03
CFSM	.00	.01	.00	.00	.20	.93	.63	1.26	1.91	2.06	.13	.02
IN.	.01	.01	.00	.00	.21	1.08	.71	1.45	2.13	2.38	.15	.02
AC-FT	6.4	15	.3	.7	272	1380	907	1850	2730	3040	193	28

CAL YR 1985	TOTAL	1329.29	MEAN	3.64	MAX	80	MIN	.00	CFSM	.15	IN.	2.06	AC-FT	2640
WTR YR 1986	TOTAL	5256.17	MEAN	14.4	MAX	460	MIN	.00	CFSM	.60	IN.	8.15	AC-FT	10430

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.

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 above NGVD. Prior to June 23, 1979, nonrecording gage on downstream side of State Highway 25 bridge.

REMARKS.--Estimated daily discharges: Nov. 20 to Mar. 3, Sept. 25, and Sept. 29. Records good, except for estimated daily discharges, which are poor. Gage-height telemeter at station.

AVERAGE DISCHARGE.--7 years, 240 ft³/s, 8.69 in/yr 173,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,300 ft³/S June 30, 1986, gage height, 24.70 ft, 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 greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 27	----	1,500	ice jam	June 14	1445	1,800	15.64
Mar. 16	1215	1,210	13.08	June 30	1400	*12,300	*24.70
Mar. 19	0045	3,630	18.49	July 6	1830	2,060	16.43
May 11	1015	4,400	19.25	July 12	0345	1,290	14.20
May 17	0015	1,600	14.88	Aug. 5	2000	2,010	16.22
				Aug. 14	0900	5,200	20.24

Minimum discharge, 30 ft³/s Oct. 8, 9, 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	43	33	142	50	580	230	499	328	7840	158	129
2	49	42	33	143	48	520	219	403	305	2120	150	123
3	41	41	33	38	48	550	271	361	289	1600	140	121
4	37	41	33	38	50	434	487	343	324	1180	133	129
5	35	41	33	38	56	343	966	329	468	847	779	116
6	33	41	33	38	80	255	690	303	352	1760	630	113
7	32	42	33	38	78	180	519	278	324	1170	255	110
8	32	42	33	38	72	185	422	287	293	700	198	107
9	33	42	34	38	68	209	362	704	268	595	171	104
10	35	41	34	37	64	213	332	2180	257	757	164	104
11	34	44	34	37	60	185	309	3910	742	1080	146	108
12	38	46	35	37	58	209	284	1910	598	899	136	97
13	44	47	35	38	54	652	260	1390	405	581	2140	95
14	36	48	35	39	53	522	284	1040	1240	484	4270	97
15	32	46	36	45	52	517	358	907	1380	436	1330	103
16	31	46	36	56	52	894	310	1090	862	384	760	107
17	31	50	35	80	51	550	294	1460	573	339	518	103
18	72	51	36	120	50	2370	305	1060	502	301	404	120
19	121	49	36	170	50	1860	316	786	444	272	341	148
20	82	48	36	150	50	802	294	655	396	245	296	267
21	64	46	36	125	50	561	278	576	361	226	272	204
22	55	43	36	118	50	467	255	527	363	211	266	180
23	53	42	37	108	50	411	245	487	326	197	232	164
24	49	40	37	96	51	352	242	459	300	186	208	156
25	43	39	37	90	56	329	231	435	280	248	197	183
26	39	38	37	82	250	301	249	406	264	207	184	178
27	39	37	37	76	1100	267	290	390	259	178	203	182
28	39	36	37	70	800	258	487	392	240	167	168	207
29	39	35	37	64	---	248	626	373	535	260	156	289
30	40	34	37	60	---	229	573	355	10400	238	148	291
31	41	---	37	56	---	214	---	342	---	180	137	---
TOTAL	1413	1281	1091	2305	3551	15667	10988	24637	23678	25888	15290	4435
MEAN	45.6	42.7	35.2	74.4	127	505	366	795	789	835	493	148
MAX	121	51	37	170	1100	2370	966	3910	10400	7840	4270	291
MIN	31	34	33	37	48	180	219	278	240	167	133	95
CFSM	.12	.11	.09	.20	.34	1.35	.98	2.12	2.10	2.23	1.31	.39
IN.	.14	.13	.11	.23	.35	1.55	1.09	2.44	2.35	2.57	1.52	.44
AC-FT	2800	2540	2160	4570	7040	31080	21790	48870	46970	51350	30330	8800

CAL YR 1985	TOTAL	40370	MEAN	111	MAX	1100	MIN	23	CFSM	.30	IN.	4.00	AC-FT	80070
WTR YR 1986	TOTAL	130224	MEAN	357	MAX	10400	MIN	31	CFSM	.95	IN.	12.92	AC-FT	258300

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 above 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, 2,900 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, 50.10 ft June 30, 1986; minimum, 43.96 ft July 22, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 50.10 ft June 30; minimum recorded, 43.96 ft July 22.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	44.97	44.83	44.83	44.99	45.05	45.28	45.68	49.10	45.39	45.21
2	---	---	44.96	44.83	44.83	44.80	45.03	45.06	45.42	46.00	45.43	45.19
3	---	---	44.95	44.79	44.84	44.78	45.26	45.52	45.48	45.58	45.44	45.31
4	---	---	44.95	44.79	44.90	44.66	45.56	45.77	45.36	45.33	45.45	45.40
5	---	---	44.95	44.78	45.14	44.56	45.89	45.82	45.54	45.19	45.75	45.46
6	---	---	44.93	44.78	45.31	44.54	45.74	45.68	45.35	45.58	45.56	45.47
7	---	---	44.93	44.78	45.46	44.53	45.45	45.50	45.25	45.14	45.38	45.45
8	---	44.72	44.94	44.76	45.52	44.49	45.42	45.41	45.29	45.28	45.40	45.43
9	---	44.78	44.94	44.69	45.48	44.46	45.35	45.32	45.30	45.32	45.35	45.42
10	---	44.78	44.93	44.70	45.44	44.44	45.42	46.01	45.30	45.66	45.29	45.41
11	---	44.73	44.95	44.70	45.42	44.44	45.42	46.86	45.41	45.68	45.25	45.43
12	---	44.76	44.95	44.69	45.34	44.55	45.39	45.99	45.54	45.39	45.34	45.40
13	---	44.77	44.95	44.70	45.34	44.92	45.32	45.91	45.26	45.18	45.77	45.38
14	---	44.79	44.95	44.71	45.33	45.19	45.30	45.53	45.40	45.31	46.02	45.37
15	45.15	44.78	44.93	44.69	45.29	45.16	45.35	45.48	45.49	45.25	45.32	45.42
16	---	44.79	44.92	44.70	45.28	45.30	45.35	45.49	45.29	45.38	45.32	45.38
17	---	44.79	44.95	44.74	45.28	45.39	45.30	45.78	45.27	45.40	45.36	45.39
18	---	44.87	44.93	44.86	45.27	45.72	45.32	45.42	45.33	45.41	45.50	45.41
19	---	44.92	44.92	45.03	45.26	45.51	45.34	45.18	45.40	45.43	45.48	45.50
20	---	44.89	44.91	45.13	45.27	44.47	45.31	45.25	45.40	45.36	45.39	45.48
21	---	44.89	44.91	45.17	45.24	45.02	45.27	45.25	45.42	45.02	45.34	45.45
22	---	44.91	44.91	45.14	45.24	45.44	45.23	45.11	45.39	44.15	45.49	45.38
23	---	44.92	44.91	45.07	45.23	45.53	45.40	45.05	44.85	44.39	45.54	45.31
24	---	44.92	44.92	45.03	45.21	45.50	45.54	45.55	44.54	44.72	45.49	45.26
25	---	44.92	44.89	45.02	45.21	45.42	45.62	45.46	44.86	45.24	45.47	45.31
26	---	44.95	44.87	45.03	45.33	45.41	45.60	44.79	45.25	45.48	45.45	45.34
27	---	44.95	44.87	45.02	46.26	45.28	45.38	45.26	45.49	45.52	45.42	45.32
28	44.51	44.95	44.87	44.94	46.45	45.19	45.39	45.52	45.54	45.52	45.38	45.48
29	---	44.94	44.87	44.94	---	45.12	45.60	45.63	45.71	45.55	45.31	45.67
30	---	44.94	44.86	44.87	---	45.09	45.83	45.67	49.70	45.63	45.26	45.73
31	---	---	44.83	44.84	---	45.02	---	45.68	---	45.51	45.23	---
MEAN	---	---	44.92	44.86	45.32	45.00	45.41	45.52	45.48	45.44	45.44	45.41
MAX	---	---	44.97	45.17	46.45	45.72	45.89	46.86	49.70	49.10	46.02	45.73
MIN	---	---	44.83	44.69	44.83	44.44	45.03	44.79	44.54	44.15	45.23	45.19

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.

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 above 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.--28 years, 223 ft³/s, 6.88 in/yr 161,600 acre-ft/yr; median of yearly mean discharges, 168 ft³/s, 5.2 in/yr, 123,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 ft³/s June 30, 1986, gage height, 15.50 ft, 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 greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 28	1100	3,200	8.18	June 30	2230	*15,300	*15.50
Mar. 19	0345	3,090	8.09	Aug. 5	2315	3,450	8.55
May 11	0730	4,330	9.08	Aug. 14	1330	4,970	9.88
May 25	1300	3,140	8.13				

Minimum discharge, 29 ft³/s Oct. 16, 28, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	31	32	38	58	643	222	954	310	11000	184	155
2	63	30	32	39	57	382	145	250	350	4120	122	145
3	43	30	32	38	59	475	188	177	347	1550	137	63
4	33	32	33	40	62	450	376	281	349	1370	145	94
5	33	33	33	39	38	257	894	397	508	764	907	115
6	32	36	33	39	49	167	912	374	464	1580	1510	121
7	33	34	33	39	76	162	600	318	334	1310	305	121
8	36	35	33	39	89	140	450	383	276	764	253	118
9	41	37	34	38	87	147	305	652	284	501	235	115
10	42	38	34	38	83	159	284	1460	276	979	224	115
11	44	37	35	38	78	157	297	4030	511	1590	148	118
12	53	39	35	38	74	184	294	2360	877	1370	104	115
13	52	42	35	38	70	323	269	1620	654	623	2280	112
14	52	43	36	39	65	452	285	1230	1290	840	4530	107
15	42	44	35	39	62	431	312	978	1810	428	1620	123
16	29	46	35	40	60	535	318	1160	970	374	913	118
17	34	39	38	45	58	599	304	1620	565	346	472	121
18	55	31	37	59	57	1850	323	1390	392	318	391	126
19	80	32	37	89	57	2510	332	811	445	302	390	274
20	91	32	38	113	59	903	325	649	414	314	355	291
21	88	32	38	126	56	196	311	623	426	629	241	284
22	84	32	38	117	55	329	174	562	488	449	218	261
23	309	32	39	104	55	372	131	359	509	40	240	239
24	245	32	40	99	54	348	186	113	255	41	229	219
25	102	32	39	95	59	329	209	1200	39	127	222	248
26	30	32	40	91	106	307	417	62	61	175	213	219
27	30	31	39	76	599	282	409	180	178	200	210	261
28	29	31	39	71	2050	259	422	276	282	205	197	346
29	29	32	39	66	---	240	563	326	777	230	183	475
30	29	31	39	61	---	221	1140	318	11100	306	178	392
31	30	---	39	58	---	211	---	324	---	272	166	---
TOTAL	1959	1038	1119	1889	4332	14020	11397	25437	25541	33117	17522	5611
MEAN	63.2	34.6	36.1	60.9	155	452	380	821	851	1068	565	187
MAX	309	46	40	126	2050	2510	1140	4030	11100	11000	4530	475
MIN	29	30	32	38	38	140	131	62	39	40	104	63
CFSM	.14	.08	.08	.14	.35	1.03	.86	1.87	1.93	2.43	1.28	.42
IN.	.17	.09	.09	.16	.37	1.19	.96	2.15	2.16	2.80	1.48	.47
AC-FT	3890	2060	2220	3750	8590	27810	22610	50450	50660	65690	34750	11130

CAL YR 1985 TOTAL 36832 MEAN 101 MAX 781 MIN 19 CFSM .23 IN. 3.11 AC-FT 73060
WTR YR 1986 TOTAL 142982 MEAN 392 MAX 11100 MIN 29 CFSM .89 IN. 12.09 AC-FT 283600

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 above 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.--Estimated daily discharges: Nov. 21 to March 5. Records good except those for periods of estimated discharges, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--46 years, 467 ft³/s, 6.42 in/yr, 338,300 acre-ft/yr; median of yearly mean discharges 400 ft³/s, 5.5 in/yr, 290,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s July 2, 1958, gage height, 29.04 ft, from floodmark; minimum daily, 17 ft³/s Aug. 4, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than 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. 26	----	5,800	ice jam	July 1	0045	*26,300	*25.15
Mar. 18	2400	5,030	9.67	July 10	1000	5,100	10.47
Apr. 30	1515	5,640	10.17	July 14	0930	5,140	10.51
May 11	0100	11,400	15.29	Aug. 6	0200	5,070	10.46
May 16	2400	7,080	11.99	Aug. 14	0730	13,000	17.54

Minimum discharge, 21 ft³/s Nov. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	175	97	135	84	160	760	570	2960	699	18500	456	385
2	147	100	140	84	160	660	506	1580	690	9370	345	368
3	140	99	135	84	165	780	839	958	712	3920	270	334
4	102	99	125	86	300	530	1440	1020	678	2840	318	324
5	97	96	115	86	640	450	2030	1070	1870	1910	716	334
6	92	98	100	86	500	372	1960	1060	1100	2790	3020	342
7	96	99	94	88	400	352	1500	936	886	2820	967	354
8	101	103	92	88	300	320	1060	879	684	1530	590	345
9	123	105	89	88	250	338	893	1480	658	1250	505	340
10	128	105	88	88	220	401	714	7650	633	3330	465	351
11	105	108	86	88	195	357	718	8380	841	3720	414	362
12	223	112	86	89	180	513	692	4990	1390	2880	298	356
13	141	122	86	89	165	1130	657	3680	920	1830	5210	340
14	126	126	85	100	160	1120	648	2920	1920	3360	9600	339
15	99	129	84	140	155	955	688	2280	2940	1520	3890	435
16	106	131	84	180	150	1250	693	3590	1950	1050	1940	411
17	100	132	84	230	150	1160	666	4780	1310	926	1220	381
18	137	127	84	300	150	3720	706	2960	966	793	891	400
19	300	120	84	390	150	4130	800	2110	933	697	829	907
20	256	70	84	360	150	2040	742	1580	846	668	763	1010
21	216	100	84	340	150	728	724	1440	914	780	694	743
22	198	118	84	320	150	754	633	1290	1180	981	583	656
23	297	120	84	290	150	796	430	1140	871	370	592	647
24	427	140	84	265	150	737	486	694	732	325	562	607
25	300	150	84	245	200	688	522	1260	348	586	542	727
26	128	135	84	220	400	643	683	903	310	560	522	738
27	107	120	84	200	1050	586	924	560	365	502	501	650
28	94	115	84	190	860	556	1110	687	503	483	487	701
29	90	115	84	180	---	532	1290	745	928	564	460	1890
30	90	125	84	170	---	506	3330	731	15400	576	438	1480
31	92	---	84	165	---	478	---	722	---	539	407	---
TOTAL	4833	3416	2884	5413	7810	28342	28654	67035	44177	71970	38495	17257
MEAN	156	114	93.0	175	279	914	955	2162	1473	2322	1242	575
MAX	427	150	140	390	1050	4130	3330	8380	15400	18500	9600	1890
MIN	90	70	84	84	150	320	430	560	310	325	270	324
CFSM	.16	.12	.09	.18	.28	.93	.97	2.19	1.49	2.35	1.26	.58
IN.	.18	.13	.11	.20	.29	1.07	1.08	2.52	1.66	2.71	1.45	.65
AC-FT	9590	6780	5720	10740	15490	56220	56840	133000	87630	142800	76350	34230

CAL YR 1985 TOTAL 97160 MEAN 266 MAX 2500 MIN 58 CFSM .27 IN. 3.66 AC-FT 192700
WTR YR 1986 TOTAL 320286 MEAN 877 MAX 18500 MIN 70 CFSM .89 IN. 12.06 AC-FT 635300

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 above NGVD. See WSP 1308 for history of changes prior to Aug. 8, 1934.

REMARKS.--Estimated daily discharges: Nov. 22 to March 2. Records good except for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain-gage and gage-height telemeters and data collection platform at station.

AVERAGE DISCHARGE.--71 years, 1,411 ft³/s, 5.57 in/yr, 1,022,300 acre-ft/yr; median of yearly mean discharges, 1,120 ft³/s, 4.4 in/yr, 811,000 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, 22.69 ft July 1, 1986; minimum daily discharge, 10 ft³/s Jan. 22-31, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base of 8,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 30	1945	11,100	12.15	July 10	1445	9,880	11.28
May 11	0515	14,300	13.92	July 11	1915	9,520	11.07
May 17	0600	17,000	15.20	July 14	1400	9,990	11.39
July 1	1215	*40,200	*22.69	Aug. 14	1630	14,400	14.14

Minimum discharge, 90 ft³/s Nov. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	405	337	450	195	245	3500	2010	9210	4170	36400	1890	1280
2	380	318	400	200	250	3200	1810	7580	3910	31100	1840	1180
3	350	309	370	205	330	2990	2350	5890	3680	16800	1560	1170
4	380	303	340	190	500	3060	2910	4780	3570	8720	1420	1040
5	424	280	320	190	720	2340	3650	4190	4520	6500	1440	988
6	405	285	300	185	640	2500	4470	3880	4130	6350	4420	977
7	356	284	280	190	560	2350	5160	3470	4690	7270	2550	963
8	374	269	260	190	500	1990	5040	3270	4650	6080	1800	934
9	386	266	250	195	450	1840	4090	3850	4000	5690	1510	894
10	368	266	240	200	400	2000	2870	9110	3570	7630	1360	884
11	380	264	230	205	380	2170	3200	14000	3360	8100	1250	880
12	482	273	225	220	360	2130	3290	12000	4840	7700	1070	849
13	469	276	220	230	340	2660	3010	12000	4520	6750	4250	821
14	380	271	220	250	330	2810	2820	12000	4470	8190	12400	816
15	331	259	220	270	320	3410	2730	11800	7230	5530	7270	915
16	309	284	220	290	320	3670	2790	12400	6330	4300	4700	899
17	321	304	220	320	310	3670	2990	15300	5060	3670	3780	903
18	358	303	215	350	310	4880	2990	12500	4170	3140	2810	1080
19	497	284	210	400	310	7520	3020	10700	3680	2820	2350	1970
20	607	245	210	430	310	7020	2950	8410	3280	2570	2110	2410
21	551	130	210	450	310	6580	2940	6230	3230	2420	1890	1930
22	538	135	210	480	310	7030	2890	5570	3780	2740	1620	2760
23	537	160	210	470	320	7330	2590	4920	3400	1960	1560	4660
24	857	200	210	420	320	5000	2420	4190	3130	1710	1950	4820
25	728	250	210	350	330	3650	2340	4040	2640	1970	2080	4400
26	508	350	200	300	500	3110	2340	4330	2280	2180	1810	4210
27	386	300	200	270	800	2720	2700	3590	2140	1840	1610	4410
28	387	270	200	250	2500	2410	2940	3580	2160	1800	1490	4730
29	369	240	200	245	---	2170	3670	3630	2470	2360	1480	6310
30	351	310	200	240	---	1980	7860	3820	20900	2380	1490	5850
31	337	---	200	240	---	1820	---	4330	---	2020	1380	---
TOTAL	13511	8025	7650	8620	13275	109510	96840	224570	133960	208690	80140	65933
MEAN	436	268	247	278	474	3533	3228	7244	4465	6732	2585	2198
MAX	857	350	450	480	2500	7520	7860	15300	20900	36400	12400	6310
MIN	309	130	200	185	245	1820	1810	3270	2140	1710	1070	816
CFSM	.13	.08	.07	.08	.14	1.03	.94	2.11	1.30	1.96	.75	.64
IN.	.15	.09	.08	.09	.14	1.18	1.05	2.43	1.45	2.26	.87	.71
AC-FT	26800	15920	15170	17100	26330	217200	192100	445400	265700	413900	159000	130800

CAL YR 1985	TOTAL	322050	MEAN	882	MAX	8200	MIN	130	CFSM	.26	IN.	3.48	AC-FT	638800
WTR YR 1986	TOTAL	970724	MEAN	2660	MAX	36400	MIN	130	CFSM	.77	IN.	10.49	AC-FT	1925000

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 above NGVD (levels by Iowa Natural Resources Council).

REMARKS.--Estimated daily discharges: Nov. 20-25, Nov. 27 to Mar. 12, and Sept. 29-30. Records good except those for estimated discharges, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--15 years, 64.1 ft³/s, 10.8 in/yr, 46,440 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft³/s, May 10, 1986, gage height, 18.32 ft; no flow for many days in 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 30	1300	3,160	14.37	June 4	2045	1,340	10.12
May 8	1900	669	8.21	June 30	1030	3,450	14.88
May 10	0400	*12,500	*18.32	July 10	1245	1,220	9.75
May 13	1430	687	7.88	July 29	0015	625	7.63
May 17	0100	1,450	10.43	Aug. 13	1400	2,090	12.18
May 25	0430	1,820	11.46				

Minimum daily discharge, 1.7 ft³/s, Dec. 19-21, Dec. 30 to Jan. 1, Jan. 7-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	9.7	2.4	1.7	6.2	15	113	509	93	389	41	18
2	5.0	4.1	2.3	1.8	6.8	13	81	237	84	270	38	17
3	3.9	3.4	2.2	1.9	7.8	12	214	170	82	186	34	24
4	3.7	3.6	2.1	2.0	14	11	210	143	229	144	37	28
5	3.0	3.2	2.0	1.9	60	10	167	134	162	116	56	23
6	2.3	5.3	2.0	1.8	46	9.4	118	101	95	272	42	21
7	2.2	3.4	2.0	1.7	30	9.0	96	88	89	186	36	20
8	2.4	3.3	1.9	1.7	18	8.8	79	170	84	149	31	19
9	63	4.0	1.9	1.7	12	8.6	66	364	78	129	28	19
10	13	4.2	1.9	1.8	9.0	9.0	60	2390	72	569	28	20
11	19	3.3	1.9	1.9	8.2	15	55	517	64	384	26	25
12	45	13	1.9	2.0	7.6	60	50	336	55	352	26	22
13	9.9	6.6	1.9	2.1	7.2	182	45	337	49	203	748	20
14	7.4	5.2	1.9	2.2	7.0	89	76	264	71	305	351	19
15	5.9	6.6	1.8	2.5	6.8	57	44	320	59	164	158	23
16	4.5	7.0	1.8	3.5	6.6	43	38	577	54	122	101	21
17	4.1	4.6	1.8	5.0	6.3	66	36	908	45	95	72	21
18	19	6.0	1.8	8.0	6.4	116	62	342	95	80	58	22
19	11	5.6	1.7	10	6.6	108	43	255	56	69	49	259
20	5.5	7.0	1.7	14	6.9	68	46	217	48	59	42	179
21	4.9	8.0	1.7	12	7.0	54	41	193	125	53	37	90
22	4.8	7.2	1.9	10	6.4	47	35	172	80	47	34	82
23	4.9	6.4	2.7	9.0	6.2	40	36	155	52	41	33	68
24	4.3	7.4	2.2	8.0	6.4	35	33	144	44	38	29	127
25	3.7	6.0	2.0	7.0	7.0	34	31	377	41	141	28	98
26	3.5	5.1	1.9	6.0	10	30	42	138	38	49	31	66
27	3.1	4.0	1.8	4.7	25	27	50	134	37	72	24	60
28	3.0	3.2	1.8	4.0	18	27	49	123	35	59	21	65
29	3.0	2.8	1.8	4.5	---	25	38	114	1130	196	20	430
30	3.0	2.5	1.7	5.2	---	24	1270	106	2240	65	20	300
31	6.6	---	1.7	5.6	---	31	---	99	---	52	19	---
TOTAL	283.1	161.7	60.1	145.2	365.4	1283.8	3324	10134	5486	5056	2298	2206
MEAN	9.13	5.39	1.94	4.68	13.1	41.4	111	327	183	163	74.1	73.5
MAX	63	13	2.7	14	60	182	1270	2390	2240	569	748	430
MIN	2.2	2.5	1.7	1.7	6.2	8.6	31	88	35	38	19	17
CFSM	.12	.07	.02	.06	.17	.53	1.42	4.17	2.33	2.08	.95	.94
IN.	.13	.08	.03	.07	.17	.61	1.58	4.81	2.60	2.40	1.09	1.05
AC-FT	562	321	119	288	725	2550	6590	20100	10880	10030	4560	4380

CAL YR 1985	TOTAL	6826.85	MEAN	18.7	MAX	320	MIN	.14	CFSM	.24	IN.	3.24	AC-FT	13540
WTR YR 1986	TOTAL	30803.3	MEAN	84.4	MAX	2390	MIN	1.7	CFSM	1.08	IN.	14.62	AC-FT	61100

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 above NGVD. Prior to Oct. 1, 1951, and Oct. 1, 1953, to Sept. 30, 1959, water-stage recorder upstream of 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.--Estimated daily discharges: Dec. 1 to Mar. 1. Records good except those for estimated discharges, which are poor. Des Moines municipal water supply is taken from infiltration galleries on Raccoon River, 3.5 mi upstream from 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 downstream from station. Net effect diversions not known. Flow regulated by Saylorville Lake (station 05481630) 13.0 mi upstream, since Apr. 12, 1977. U.S. Army Corps of Engineers Data Collection Platform at station.

COOPERATION.--Average monthly pumpage from galleries provided by Des Moines Water Works.

AVERAGE DISCHARGE.--46 years, 4,502 ft³/s, 6.19 in/yr, 3,262,000 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, 47,900 ft³/s July 2, gage height, 27.31 ft; minimum daily discharge, 640 ft³/s Feb. 20, 23-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4280	2900	3100	1200	1200	4500	12400	21600	14400	32900	9710	3220
2	4900	2830	2300	1100	1200	5020	12000	17200	15500	44800	9710	3010
3	5190	2820	1700	1100	1200	6080	12900	13600	15300	38800	9500	2930
4	5640	2670	1000	1050	1400	7130	14500	13800	15100	21300	9320	2800
5	5650	2550	700	1000	1550	8150	15900	14300	16100	16700	9460	2570
6	5200	1530	900	880	1650	8620	17700	11200	15900	17100	10700	2440
7	4340	2520	1900	860	1700	8950	20100	10700	15900	18300	9900	2210
8	4320	2540	2200	840	1750	8660	21800	10500	16300	17600	6740	1860
9	4550	2510	2600	830	1800	7780	21300	11700	15000	19000	5500	1850
10	4410	2420	2300	820	1900	6740	19700	21400	12700	19900	5360	1860
11	4040	2120	1500	800	1500	6300	18500	26600	11400	20000	4940	1870
12	3750	1900	1300	800	1400	7480	15500	23400	11700	19800	4500	1720
13	3680	1940	1350	800	1350	10500	11400	21200	12700	18200	5640	1600
14	3580	2060	1400	800	1350	10600	10400	22100	12000	16400	14300	1360
15	3610	2060	1300	800	1300	10600	10100	22600	14800	15200	12800	1370
16	3720	2120	1500	800	1300	11100	10100	24000	15200	11900	8340	1190
17	3710	2270	2200	800	1300	11800	10400	29400	12400	10500	7520	1180
18	3810	2280	2500	800	900	13800	11800	25200	10900	10200	6430	1210
19	4390	2420	2300	800	660	21000	12200	19300	10300	10600	5650	2500
20	5450	2840	2000	980	640	23200	12200	14100	11100	10200	5310	4050
21	5260	3000	1700	1100	680	22900	12100	14600	11200	9970	4800	4840
22	5000	2820	1600	1150	660	23600	12400	15500	11500	9860	3970	6180
23	4710	2470	1550	1150	640	24500	12900	14700	11700	9680	3580	11400
24	4340	2420	1500	1200	640	23200	12500	14000	12500	8980	3390	11800
25	4270	2430	1500	1200	640	20400	12300	14100	12600	9820	3430	10500
26	3780	2550	1500	1250	820	19400	12300	14000	11900	11000	3430	10600
27	3450	2600	1500	1250	1500	18600	12600	12700	11600	11800	3440	11100
28	3380	3400	1500	1300	3500	17900	12800	12400	11500	11800	2270	12300
29	3350	3370	1450	1350	---	17200	13200	12400	14600	11500	3300	16700
30	3150	3240	1400	1400	---	15900	19200	12700	23300	10900	3360	17700
31	2870	---	1300	1300	---	13700	---	13600	---	10200	3310	---
TOTAL	131780	75600	52550	31510	36130	415310	423200	524600	407100	504910	199610	155920
MEAN	4251	2520	1695	1016	1290	13400	14110	16920	13570	16290	6439	5197
MAX	5650	3400	3100	1400	3500	24500	21800	29400	23300	44800	14300	17700
MIN	2870	1530	700	800	640	4500	10100	10500	10300	8980	2270	1180
AC-FT	261400	150000	104200	62500	71660	823800	839400	1041000	807500	1001000	395900	309300

CAL YR 1985	TOTAL	1164239	MEAN	3190	MAX	13800	MIN	340	AC-FT	2309000
WTR YR 1986	TOTAL	2958220	MEAN	8105	MAX	44800	MIN	640	AC-FT	5868000

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 above NGVD.

REMARKS.--Estimated daily discharges: November 19 to March 13. Records good except those for estimated discharge, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--15 years, 76.0 ft³/s, 11.1 in/yr, 55,060 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 greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 30	1445	*3,420	*13.55	July 11	0630	889	8.38
May 10	0415	1,040	8.89	July 29	0145	1,420	10.08
May 13	1830	523	6.97	Aug. 13	1930	1,710	10.70
May 15	1530	845	8.22	Aug. 15	1015	686	7.62
May 17	0615	1,340	9.87	Sept. 20	1645	597	7.22
May 25	0645	825	8.15	Sept. 29	1430	966	8.58
June 30	1745	2,310	11.85				

Minimum daily discharge, 2.3 ft³/s Dec. 18-24, Dec. 30 to Jan. 1, and Jan. 7-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	11	3.0	2.3	8.4	23	60	385	91	639	71	31
2	9.3	7.4	2.9	2.4	10	18	56	230	81	363	60	29
3	5.4	6.5	2.8	2.6	12	17	161	174	82	264	52	36
4	4.3	5.3	2.7	2.7	130	16	217	147	87	200	48	35
5	4.2	5.3	2.6	2.5	150	15	203	131	103	155	52	26
6	3.9	6.0	2.6	2.4	70	14	135	108	84	171	49	24
7	3.6	5.7	2.5	2.3	37	13	106	93	82	147	44	22
8	3.3	5.2	2.5	2.3	23	12	89	108	70	126	39	21
9	18	5.1	2.5	2.3	16	12	70	236	63	108	36	21
10	12	5.7	2.5	2.4	12	13	66	728	66	204	37	28
11	13	5.2	2.5	2.5	11	15	61	381	62	366	33	46
12	24	6.1	2.5	2.6	10	50	52	264	49	246	33	36
13	14	6.5	2.5	2.8	9.4	250	45	346	48	168	697	37
14	8.8	5.9	2.5	3.0	9.2	165	50	279	98	150	600	37
15	7.0	6.2	2.4	3.3	9.0	105	47	545	155	105	497	41
16	5.8	7.1	2.4	4.6	8.8	83	42	692	114	83	328	31
17	5.3	6.5	2.4	6.0	8.6	81	42	989	86	71	217	28
18	12	6.7	2.3	10	8.8	147	48	481	96	66	157	23
19	19	6.8	2.3	13	9.0	190	45	341	72	54	124	187
20	16	7.2	2.3	19	9.4	107	46	260	56	52	99	393
21	14	7.0	2.3	14	9.8	76	44	193	93	45	85	422
22	12	6.6	2.3	13	9.2	65	37	156	213	38	76	262
23	12	7.2	2.3	12	8.8	55	34	129	155	39	65	205
24	10	6.0	2.3	11	9.0	47	33	112	92	40	57	221
25	9.0	5.2	2.4	10	9.6	46	32	316	70	132	52	291
26	7.6	4.7	2.5	8.0	13	38	36	161	59	68	57	207
27	7.2	4.2	2.4	6.8	35	33	43	138	56	63	49	160
28	6.5	3.8	2.4	5.8	29	33	45	128	63	66	44	137
29	6.4	3.5	2.4	6.0	---	31	39	120	766	542	43	706
30	6.3	3.2	2.3	6.8	---	28	1320	110	2050	153	40	469
31	6.6	---	2.3	7.7	---	28	---	100	---	99	37	---
TOTAL	301.5	178.8	76.6	192.1	685.0	1826	3304	8581	5262	5023	3878	4212
MEAN	9.73	5.96	2.47	6.20	24.5	58.9	110	277	175	162	125	140
MAX	24	11	3.0	19	150	250	1320	989	2050	639	697	706
MIN	3.3	3.2	2.3	2.3	8.4	12	32	93	48	38	33	21
CFSM	.10	.06	.03	.07	.26	.64	1.19	2.99	1.89	1.75	1.35	1.51
IN.	.12	.07	.03	.08	.27	.73	1.33	3.44	2.11	2.02	1.56	1.69
AC-FT	598	355	152	381	1360	3620	6550	17020	10440	9960	7690	8350

CAL YR 1985	TOTAL	8638.56	MEAN	23.7	MAX	682	MIN	.27	CFSM	.26	IN.	3.47	AC-FT	17130
WTR YR 1986	TOTAL	33520.0	MEAN	91.8	MAX	2050	MIN	2.3	CFSM	.99	IN.	13.45	AC-FT	66490

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 above NGVD (levels by U.S. Army 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.--Estimated daily discharges: Nov. 20 to Mar. 12, May 12-20, and July 11-12, 15. Records good except those for estimated discharges, which are poor. U.S. Army Corps of Engineers Data Collection Platform at station.

AVERAGE DISCHARGE.--46 years, 185 ft³/s, 7.20 in/yr, 134,000 acre-ft/yr; median of yearly mean discharges, 160 ft³/s, 6.2 in/yr, 116,000 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 greater than base discharge of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 4	1700	*1,400	*17.83				

Minimum discharge, 2.3 ft³/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	24	12	13	31	300	199	543	182	181	64	25
2	59	23	11	13	33	250	365	386	165	174	56	23
3	47	23	11	13	39	180	627	290	147	116	51	22
4	31	22	11	13	50	150	1270	255	155	90	49	21
5	21	20	11	13	90	130	1120	236	188	74	67	32
6	14	19	11	12	150	120	640	215	225	103	151	36
7	6.7	19	11	12	120	110	470	190	185	404	119	27
8	4.8	19	11	12	90	100	387	179	169	349	89	24
9	12	19	11	12	70	96	330	211	149	240	64	24
10	29	17	11	12	54	110	293	361	136	301	52	26
11	56	17	12	12	40	120	273	635	177	950	45	31
12	168	17	12	12	32	140	255	560	237	730	40	110
13	232	19	12	12	25	681	239	480	147	561	233	72
14	181	23	12	12	22	720	233	590	129	588	644	41
15	94	26	12	12	19	396	240	550	127	1000	394	35
16	60	28	12	13	17	297	225	490	130	421	195	69
17	45	28	13	25	16	248	205	1200	114	281	136	98
18	44	28	13	50	15	297	204	840	100	221	105	70
19	58	27	13	120	14	571	224	600	94	180	87	366
20	45	26	13	100	14	632	236	460	87	151	74	727
21	45	22	13	81	14	348	218	380	78	130	65	517
22	55	19	13	64	13	290	205	343	76	114	60	291
23	57	17	14	52	13	258	186	306	77	104	54	243
24	52	16	15	44	13	231	174	279	77	95	50	190
25	43	15	14	39	14	210	165	288	67	90	45	177
26	38	14	14	36	25	198	161	263	59	85	42	201
27	34	13	14	34	71	181	161	242	55	82	40	154
28	30	12	14	33	500	164	177	239	51	73	37	127
29	27	12	14	32	---	157	211	244	50	80	32	199
30	23	12	14	31	---	149	281	218	82	98	30	394
31	22	---	13	30	---	139	---	199	---	77	27	---
TOTAL	1701.5	596	387	969	1604	7973	9974	12272	3715	8143	3197	4372
MEAN	54.9	19.9	12.5	31.3	57.3	257	332	396	124	263	103	146
MAX	232	28	15	120	500	720	1270	1200	237	1000	644	727
MIN	4.8	12	11	12	13	96	161	179	50	73	27	21
CFSM	.16	.06	.04	.09	.16	.74	.95	1.13	.36	.75	.30	.42
IN.	.18	.06	.04	.10	.17	.85	1.06	1.31	.40	.87	.34	.47
AC-FT	3370	1180	768	1920	3180	15810	19780	24340	7370	16150	6340	8670

CAL YR 1985	TOTAL	23614.60	MEAN	64.7	MAX	1930	MIN	.25	CFSM	.19	IN.	2.52	AC-FT	46840
WTR YR 1986	TOTAL	54903.5	MEAN	150	MAX	1270	MIN	4.8	CFSM	.43	IN.	5.85	AC-FT	108900

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 above NGVD (U.S. Army 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, water-stage recorder at site 1.6 mi downstream at datum 2.81 ft lower.

REMARKS.--Estimated daily discharges: Nov. 21 to Mar. 12. Records good except those for estimated discharges, which are poor. U.S. Army Corps of Engineers Data Collection Platform at station.

AVERAGE DISCHARGE.--46 years, 262 ft³/s, 7.07 in/yr, 189,800 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 greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 3	2115	*5,400	*17.74	July 12	1830	4,600	16.61
May 17	0130	4,560	16.48				

Minimum discharge, 2.6 ft³/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166	73	28	28	50	1200	327	1630	289	194	96	76
2	102	74	27	29	50	1000	580	803	252	357	86	72
3	79	70	27	30	52	800	3190	540	222	175	75	68
4	59	63	27	30	120	640	3200	432	215	127	73	67
5	46	61	27	31	900	540	2070	381	246	103	93	77
6	38	61	27	31	500	470	1210	328	467	135	112	78
7	32	60	27	30	330	430	866	283	349	375	316	78
8	28	59	27	29	220	380	685	257	263	494	259	69
9	63	58	27	29	170	350	566	515	223	286	142	69
10	457	57	27	29	150	320	492	1410	195	378	101	68
11	224	57	28	29	130	300	433	2310	203	916	82	66
12	758	62	28	29	120	410	398	1860	314	2780	74	127
13	491	114	28	29	100	1500	366	1020	181	1730	722	102
14	240	120	28	29	92	913	359	1400	162	1960	2940	70
15	145	103	28	29	84	609	362	1080	149	2340	1410	70
16	105	96	28	35	78	433	336	1910	185	914	592	74
17	86	96	29	50	72	378	304	3700	185	583	413	137
18	141	90	29	80	68	746	301	2010	144	428	321	112
19	218	85	29	350	65	1460	329	1200	119	341	260	1370
20	157	71	29	200	63	1050	371	906	107	289	218	1940
21	158	62	29	80	60	529	324	745	101	236	191	891
22	141	54	29	65	57	414	288	638	112	202	170	476
23	143	50	30	60	54	367	265	555	92	179	151	838
24	215	45	29	56	52	320	248	497	114	161	139	416
25	121	41	29	54	51	291	299	652	95	148	126	353
26	98	38	29	52	150	275	274	498	82	132	116	312
27	86	34	28	50	1000	251	244	428	76	138	109	259
28	77	32	28	50	1500	229	309	443	72	122	102	226
29	73	30	28	50	---	216	377	423	70	132	93	414
30	69	29	28	50	---	204	1260	377	96	104	86	825
31	68	---	28	50	---	188	---	322	---	99	80	---
TOTAL	4884	1945	870	1773	6338	17213	20633	29553	5380	16558	9748	9800
MEAN	158	64.8	28.1	57.2	226	555	688	953	179	534	314	327
MAX	758	120	30	350	1500	1500	3200	3700	467	2780	2940	1940
MIN	28	29	27	28	50	188	244	257	70	99	73	66
CFSM	.31	.13	.06	.11	.45	1.10	1.37	1.89	.36	1.06	.62	.65
IN.	.36	.14	.06	.13	.47	1.27	1.53	2.19	.40	1.22	.72	.72
AC-FT	9690	3860	1730	3520	12570	34140	40930	58620	10670	32840	19340	19440

CAL YR 1985	TOTAL	40607.5	MEAN	111	MAX	1930	MIN	6.6	CFSM	.22	IN.	3.00	AC-FT	80540
WTR YR 1986	TOTAL	124695	MEAN	342	MAX	3700	MIN	27	CFSM	.68	IN.	9.22	AC-FT	247300

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 above 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, nonrecording gage, all at site 4.0 mi downstream at datum 8.06 ft lower.

REMARKS.--Estimated daily discharges: Nov. 22 to Feb. 27, Mar. 2-11. Records good except those for estimated discharges, which are poor. U.S. Army Corps of Engineers Data Collection Platform at station.

AVERAGE DISCHARGE.--46 years, 248 ft³/s, 7.32 in/yr, 179,700 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 greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 3	1815	5,150	16.80	July 12	1515	*8,630	*21.42
Apr. 30	1930	5,050	16.65	Sept. 23	1000	8,350	21.08
May 16	2245	5,870	17.85				

Minimum discharge, 9.5 ft³/s Sept. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	387	88	66	47	78	224	239	2330	202	59	23	16
2	144	90	64	47	76	200	249	653	143	42	21	11
3	77	70	61	47	74	180	2850	406	113	25	19	12
4	49	60	59	47	100	160	2900	320	138	21	19	11
5	32	58	57	47	800	145	1620	270	395	16	86	9.7
6	23	58	56	47	500	135	754	216	216	219	78	11
7	19	59	55	47	270	125	497	183	159	910	40	15
8	17	54	54	48	180	120	373	171	173	370	26	14
9	670	50	53	48	150	170	286	500	118	183	20	13
10	2220	56	52	48	130	300	244	1490	158	1720	18	18
11	696	57	51	52	110	500	218	1840	300	941	15	23
12	1000	135	50	56	100	1020	195	629	192	5430	14	24
13	567	749	49	60	92	2520	177	414	115	3520	210	17
14	254	387	49	80	84	926	186	372	97	1990	702	15
15	168	239	48	100	78	549	194	655	94	1270	204	16
16	117	199	48	170	76	413	164	2280	82	465	99	17
17	91	183	48	290	74	410	146	4280	62	277	64	15
18	92	335	49	900	72	1280	155	1780	52	175	42	18
19	280	1080	49	660	70	1300	188	703	44	121	35	1410
20	439	295	50	420	69	583	159	461	37	85	31	1270
21	208	184	50	350	68	381	147	353	32	67	30	371
22	153	150	50	230	68	351	130	288	60	60	29	758
23	199	130	49	170	68	310	116	242	34	54	29	6930
24	669	110	49	140	68	271	104	230	26	48	29	1480
25	246	98	48	120	68	252	174	245	21	48	33	524
26	149	90	48	110	250	238	128	259	19	39	27	314
27	117	84	48	100	700	213	118	195	18	35	22	222
28	95	78	48	94	350	195	123	226	18	32	19	208
29	82	74	48	88	---	185	127	679	18	60	18	1060
30	77	70	48	84	---	165	2210	1050	68	32	22	1840
31	74	---	48	80	---	157	---	436	---	27	16	---
TOTAL	9411	5370	1602	4827	4823	13978	15171	24156	3204	18341	2040	16662.7
MEAN	304	179	51.7	156	172	451	506	779	107	592	65.8	555
MAX	2220	1080	66	900	800	2520	2900	4280	395	5430	702	6930
MIN	17	50	48	47	68	120	104	171	18	16	14	9.7
CFSM	.66	.39	.11	.34	.37	.98	1.10	1.69	.23	1.29	.14	1.21
IN.	.76	.43	.13	.39	.39	1.13	1.23	1.95	.26	1.48	.16	1.35
AC-FT	18670	10650	3180	9570	9570	27730	30090	47910	6360	36380	4050	33050

CAL YR 1985	TOTAL	49007.5	MEAN	134	MAX	2930	MIN	2.7	CFSM	.29	IN.	3.96	AC-FT	97210
WTR YR 1986	TOTAL	119585.7	MEAN	328	MAX	6930	MIN	9.7	CFSM	.71	IN.	9.67	AC-FT	237200

05487500 DES MOINES RIVER NEAR RUNNELLS, IA

LOCATION.--Lat 41°29'19", long 93°20'17", in SE1/4 NW1/4 sec.12, T.77 N., R.22 W., Polk County, Hydrologic Unit 07100008, on left bank 10 ft downstream from bridge on State Highway 316, 0.2 miles downstream from South River, 0.5 mile upstream from Camp Creek, 2.2 miles southeast of Runnells, 37.2 miles upstream from Red Rock Dam and at mile 179.5.

DRAINAGE AREA.--11,655 mi².

PERIOD OF RECORD.--October 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 700.00 ft above NGVD (U.S. Army Corps of Engineers bench mark).

REMARKS.--Estimated daily discharges: Oct. 1-23, Nov. 25 to Mar. 2, Apr. 8-23, May 2-9, May 18 to June 23, June 29 to July 30, Aug. 9-13, Aug. 16 to Sept. 4, and Sept 21-30. Records good except those for estimated discharges, which are poor. Flow regulated by Saylorville Lake (station 05481630) 34.2 mi upstream. U.S. Army Corps of Engineers Data Collection Platform at station. Stage-discharge relation is affected at times by backwater from Lake Red Rock (05488100).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft³/s July 2, 1986; maximum gage height, 56.26 ft May 18, 1986, backwater from Red Rock Reservoir; minimum daily discharge, 1,050 ft³/s, Jan. 11-15, 1986.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods occurred on May 31, 1903; June 14, 1947; June 26, 1947; and June 24, 1954. No gage height or discharge was determined for this site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 48,000 ft³/s July 2; maximum gage height, 56.26 ft May 18; minimum daily discharge, 1,050 ft³/s, Jan 11-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4700	3210	3700	1800	2600	4500	14400	32200	15500	40000	10500	3300
2	5200	3180	3400	1700	2600	5800	14100	25000	16500	48000	10000	3200
3	5400	3130	2700	1600	2650	6770	19700	19000	16500	40000	9730	3200
4	5800	3060	2200	1500	2800	7610	26100	18000	16000	25000	9200	3150
5	5900	2820	1300	1400	4000	8010	23800	19000	17000	17500	9140	3320
6	5600	2500	1900	1300	4700	9000	21600	16000	17000	18000	9610	3230
7	5000	2180	2600	1200	4100	9560	21900	13000	17000	19000	11200	3210
8	4600	2710	3200	1150	3800	9360	23400	13000	17000	18500	7860	2960
9	4700	2710	3650	1100	3500	9000	22000	17500	16000	20000	6200	2870
10	4700	2700	3600	1100	3200	8010	21100	21300	13500	21000	5600	2880
11	4300	2550	3200	1050	3000	7710	20000	29100	13000	21000	5200	3000
12	4000	2270	2500	1050	2800	8120	18000	29800	13000	21000	4900	2850
13	3900	2730	2000	1050	2600	15800	14000	26100	13500	19000	6000	2820
14	3800	2730	1900	1050	2400	15000	12000	25300	14000	17000	18300	2550
15	3800	2540	2200	1050	2200	12900	11000	26400	16000	16000	20600	2530
16	3900	2470	2900	1100	2000	12700	11000	29000	16000	13000	13000	2280
17	3900	2570	3200	1100	1900	13000	11500	35700	13500	11500	9400	2070
18	4200	2610	3400	1200	1800	15700	12500	30000	12000	11000	7400	2010
19	5000	3550	3500	1300	1700	22800	13000	22000	11000	11500	6400	3480
20	6200	3190	3100	1400	1600	26100	13000	15000	11500	11000	5700	6080
21	5900	3200	2800	1500	1550	25500	13400	15500	11500	10500	5400	7000
22	5700	3330	2600	1500	1500	25300	13200	16000	12000	10500	4500	9000
23	5550	3010	2400	1550	1500	25800	13800	15500	12500	10300	3800	11000
24	5540	2890	2300	1600	1500	25800	13500	14500	13400	10000	3500	12000
25	5090	2850	2200	1650	1500	23400	13300	14500	13200	10500	3600	11500
26	4420	3050	2100	1700	1600	21600	13100	14500	12500	11500	3500	11000
27	3890	3100	2100	1800	1800	20600	13200	13500	11900	12500	3600	12000
28	3670	4000	2050	1900	2500	19700	13400	13000	11500	12500	2600	13000
29	3620	3800	2000	2100	---	18800	13900	13000	16000	12000	3400	14500
30	3580	3750	1950	2300	---	18000	21300	13500	29000	11500	3500	16000
31	3260	---	1900	2500	---	15700	---	14500	---	11300	3400	---
TOTAL	144820	88390	80550	45300	69400	467650	486200	620400	439000	542100	226740	177990
MEAN	4672	2946	2598	1461	2479	15090	16210	20010	14630	17490	7314	5933
MAX	6200	4000	3700	2500	4700	26100	26100	35700	29000	48000	20600	16000
MIN	3260	2180	1300	1050	1500	4500	11000	13000	11000	10000	2600	2010
AC-FT	287300	175300	159800	89850	137700	927600	964400	1231000	870800	1075000	449700	353000

WTR YR 1986 TOTAL 3388540 MEAN 9284 MAX 48000 MIN 1050 AC-FT 6721000

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 above NGVD.

REMARKS.--Estimated daily discharges: Oct. 26-31, Nov. 22 to Mar. 11, Apr. 3-9, and July 12-18. Records good except those for estimated discharges, which are poor. U.S. Army Corps of Engineers Data Collection Platform at station.

AVERAGE DISCHARGE.--24 years, 206 ft³/s, 8.18 in/yr, 149,200 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 greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 10	0300	3,270	16.68	Sept. 25	0015	3,150	16.02
May 17	0515	*6,180	*21.34				

Minimum discharge, 5.0 ft³/s Sept. 4-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1070	164	59	45	61	210	125	1690	158	30	13	7.8
2	245	165	57	45	60	160	120	525	106	25	12	7.2
3	147	154	55	45	60	120	1800	255	82	21	11	5.9
4	111	141	54	45	100	100	2000	190	72	13	9.8	5.3
5	90	135	53	45	400	90	1100	156	71	9.4	29	5.6
6	74	135	52	45	200	82	500	129	109	50	30	9.8
7	66	136	51	45	140	76	330	110	92	386	21	9.0
8	59	137	50	46	110	74	250	107	81	378	16	11
9	1130	138	49	46	94	110	190	230	70	232	13	17
10	2790	140	49	46	84	350	156	454	62	459	11	23
11	2270	141	48	48	76	600	142	1560	163	511	9.1	43
12	2180	329	48	51	72	866	130	649	133	450	8.0	32
13	1030	1230	48	54	68	1700	120	291	77	310	121	20
14	347	631	48	60	66	877	134	210	58	210	646	11
15	214	333	48	72	62	449	131	1190	56	165	615	7.6
16	161	260	48	120	60	318	117	2200	54	135	302	7.0
17	144	234	48	250	59	328	105	5380	44	115	143	5.6
18	122	760	48	1200	58	754	144	3900	36	98	86	7.9
19	668	1700	48	700	57	907	190	1150	32	76	59	1050
20	823	832	48	350	56	429	146	407	27	55	42	1900
21	366	250	47	210	55	253	132	270	23	42	33	1840
22	231	180	47	150	54	224	127	203	23	34	27	651
23	284	140	47	110	53	200	105	160	23	29	23	2640
24	341	100	47	92	52	172	94	139	19	25	19	3060
25	261	88	46	76	52	159	225	135	15	23	17	1890
26	210	78	46	72	170	173	108	164	12	21	14	491
27	190	72	46	68	600	180	87	158	12	20	13	282
28	168	68	46	66	290	150	83	146	12	19	11	228
29	150	64	46	64	---	135	76	336	10	38	10	347
30	140	61	45	63	---	120	1130	632	32	22	9.3	956
31	140	---	45	62	---	108	---	441	---	16	8.5	---
TOTAL	16222	8996	1517	4391	3269	10474	10097	23567	1764	4017.4	2381.7	15570.7
MEAN	523	300	48.9	142	117	338	337	760	58.8	130	76.8	519
MAX	2790	1700	59	1200	600	1700	2000	5380	163	511	646	3060
MIN	59	61	45	45	52	74	76	107	10	9.4	8.0	5.3
CFSM	1.53	.88	.14	.42	.34	.99	.99	2.22	.17	.38	.22	1.52
IN.	1.76	.98	.17	.48	.36	1.14	1.10	2.56	.19	.44	.26	1.69
AC-FT	32180	17840	3010	8710	6480	20780	20030	46750	3500	7970	4720	30880

CAL YR 1985	TOTAL	59492.1	MEAN	163	MAX	3280	MIN	1.2	CFSM	.48	IN.	6.47	AC-FT	118000
WTR YR 1986	TOTAL	102266.8	MEAN	280	MAX	5380	MIN	5.3	CFSM	.82	IN.	11.12	AC-FT	202800

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 U.S. Army 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 above 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 for 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 provided by U.S. Army 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, 43,900 acre-ft May 24, 1985, minimum elevation, 719.68 ft Feb. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 321,000 acre-ft May 20-21; maximum elevation, 755.38 ft May 22, minimum daily contents, 36,600 acre-ft Aug. 24; minimum elevation, 727.86 ft Aug. 25.

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 1985 TO SEPTEMBER 1986
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60600	58200	48000	46800	48100	49400	44400	138000	297000	137000	120000	39300
2	59400	57600	46100	46700	47400	49400	46100	149000	294000	151000	110000	38800
3	58900	57200	46700	46400	47000	48700	50100	149000	291000	174000	98900	38900
4	58200	57500	47900	46500	47900	49600	61300	147000	289000	191000	87900	38800
5	57300	57600	47600	46500	50400	51000	65000	145000	287000	193000	83000	38600
6	57400	57600	46400	46700	50100	49500	60200	140000	286000	193000	81800	38300
7	58100	56600	46100	46500	47200	48400	55100	133000	284000	194000	79800	37700
8	58800	56700	47000	46400	46900	48000	56000	126000	281000	194000	74100	37400
9	60300	57900	47700	46700	46500	47500	70600	121000	277000	196000	66600	37900
10	65700	58700	47900	46800	46200	46900	89200	124000	273000	202000	55300	39400
11	67200	59400	47600	47200	46400	45700	106000	136000	269000	212000	45800	38400
12	66700	60200	47200	47400	46800	46600	119000	151000	259000	232000	37700	37600
13	64800	60500	46400	47700	46800	56000	131000	162000	252000	248000	42300	38600
14	59600	61000	46200	47700	46600	59500	143000	168000	246000	256000	58900	39300
15	56900	60400	47300	47700	46400	54900	149000	180000	240000	263000	72100	40200
16	56300	59600	47600	47900	46300	52000	155000	205000	237000	260000	69300	41400
17	56800	58600	46800	48100	46200	50100	159000	249000	231000	254000	59700	43000
18	57700	59500	46000	50100	46700	49900	161000	291000	225000	247000	51500	44200
19	59100	62100	45900	53100	47100	49900	157000	315000	216000	238000	46300	49300
20	60300	61100	46000	52400	46800	52900	153000	321000	207000	228000	42800	68000
21	60400	59200	46600	49800	46600	55700	146000	321000	200000	218000	41200	75000
22	60000	57700	46800	47400	47200	56000	139000	320000	193000	211000	39800	70800
23	59200	57100	46800	47100	48000	54500	133000	320000	185000	200000	37500	80200
24	58000	56900	46600	47500	48300	53200	128000	317000	177000	191000	36600	92400
25	57100	56900	46500	47100	48100	51700	123000	317000	169000	180000	37700	95700
26	57000	58100	46800	46300	48400	47600	117000	316000	162000	170000	38600	91700
27	56900	58100	47800	45700	49900	47700	111000	313000	154000	163000	38700	85400
28	56700	57900	48100	46000	49600	48700	106000	309000	146000	154000	38400	79800
29	57000	56200	47400	46700	---	48200	101000	307000	142000	148000	37800	84000
30	57500	52400	46900	47500	---	46200	112000	305000	144000	139000	38500	104000
31	58100	---	46800	48000	---	44400	---	302000	---	131000	39300	---
MEAN	59300	58300	47000	47600	47500	50300	108000	226000	230000	199000	58300	56100
MAX	67200	62100	48100	53100	50400	59500	161000	321000	297000	263000	120000	104000
MIN	56300	52400	45900	45700	46200	44400	44400	121000	142000	131000	36600	37400

CAL YR 1985 MEAN 51300 MAX 82600 MIN 43900
WTR YR 1986 MEAN 99200 MAX 321000 MIN 36600

05488200 ENGLISH CREEK NEAR KNOXVILLE, IA

LOCATION.--Lat 41°16'00", long 93°05'00", in NE1/4 NE1/4 SE1/4 SEC.16, T.75 N., R.19 W., Marion County, Hydrologic Unit 07100009, on left bank 30 ft from left upstream abutment of bridge on State Highway 92, 3 miles east of Knoxville, and 11.4 miles upstream from mouth at Des Moines River.

DRAINAGE AREA.--90.1 mi².

PERIOD OF RECORD.--July 1, 1985 to September 30, 1985.

GAGE.--Water-stage recorder. Datum of gage is 721.79 ft NVGD.

REMARKS.--Estimated daily discharges, July 19-24, 28-29, Aug. 3-9, Aug. 26 to Sept. 21. Records good except those for estimated discharges, which are poor. U.S. Army Corps of Engineers Data Collection Platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 515 ft³/s Sept. 30, 1985, gage height, 16.52 ft; minimum discharge, 0.24 ft³/s Sept. 16-18, 1985.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 16, 1982 reached a stage of 30.28 ft, gage datum, discharge 28,000 ft³/s, from contracted opening indirect computations.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period July to September, 515 ft³/s, Sept. 30, gage-height, 16.52 ft; minimum 0.24 ft³/s, Sept. 16-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										2.0	29	.49
2										1.8	22	.45
3										1.5	6.0	.42
4										1.4	3.0	.39
5										1.0	1.9	.37
6										.58	1.5	.35
7										.58	1.2	.33
8										.35	1.0	.31
9										.25	.90	.29
10										.25	41	.28
11										.25	20	.27
12										.25	13	.26
13										.25	26	.25
14										.25	32	.25
15										6.2	26	.25
16										3.8	5.1	.24
17										1.8	2.3	.24
18										1.1	.76	.24
19										.60	.34	.30
20										.44	1.0	.43
21										.48	1.9	.66
22										.45	6.3	41
23										.43	32	77
24										.37	6.9	72
25										13	2.7	18
26										21	1.7	18
27										2.6	1.2	9.6
28										1.4	.90	4.1
29										.90	.70	35
30										17	.60	320
31										21	.54	---
TOTAL										103.28	289.44	601.77
MEAN										3.33	9.34	20.1
MAX										21	41	320
MIN										.25	.34	.24
CFSM										.04	.10	.22
IN.										.04	.12	.25
AC-FT										205	574	1190

05488200 ENGLISH CREEK NEAR KNOXVILLE, IA

LOCATION.--Lat 41°16'00", long 93°05'00", in NE1/4 NE1/4 SE1/4 SEC.16, T.75 N., R.19 W., Marion County, Hydrologic Unit 07100009, on left bank 30 ft from left upstream abutment of bridge on State Highway 92, 3 miles east of Knoxville, and 11.4 miles upstream from mouth at Des Moines River.

DRAINAGE AREA.--90.1 mi².

PERIOD OF RECORD.--July 1, 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 721.79 ft NVGD.

REMARKS.--Estimated daily discharges, Nov. 22 to Mar. 10 and Apr. 18-28. Records good except those for estimated discharges, which are poor. U.S. Army Corps of Engineers Data Collection Platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,270 ft³/s May 17, 1986, gage height, 21.76 ft; minimum discharge, 0.29 ft³/s Sept. 3, 4, 5, 6, 1986.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 16, 1982 reached a stage of 30.28 ft, gage datum, discharge 28,000 ft³/s, from contracted opening indirect computations.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft³/s and maximum (*);

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 10	1200	615	17.37	Aug. 14	0200	922	16.54
Mar. 13	0015	681	15.17	Sept. 20	1630	1,050	17.21
Apr. 30	1345	1,320	18.50	Sept. 23	1630	1,250	18.17
May 16	0345	1,050	17.20	Sept. 30	2345	922	16.54
May 17	2115	*2,270	*21.76				

Minimum discharge, 0.29 ft³/s Aug. 12 and Sept. 3, 4, 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	36	17	12	21	90	20	308	35	21	2.0	.40
2	35	34	17	12	20	66	22	79	27	20	1.5	.40
3	24	23	17	12	20	45	167	47	21	16	1.1	.36
4	18	20	17	12	40	38	338	36	20	15	.79	.35
5	13	18	17	12	110	36	286	28	21	11	5.2	.32
6	10	18	16	12	70	34	109	20	21	13	13	.31
7	7.0	20	16	12	45	32	74	14	20	26	7.8	.42
8	7.2	18	16	12	35	31	55	12	16	39	3.3	.48
9	172	15	16	12	30	31	42	22	13	92	2.1	.73
10	475	18	15	12	25	150	36	69	11	143	1.7	1.2
11	145	18	15	12	22	262	33	95	22	118	1.4	58
12	422	89	15	13	20	301	30	46	26	182	.51	18
13	158	242	15	14	18	476	28	64	14	146	329	4.7
14	72	103	15	15	17	184	34	33	11	46	766	1.6
15	57	64	14	23	16	106	36	399	11	32	110	.90
16	47	61	14	40	15	76	31	945	11	21	32	1.4
17	39	52	14	80	15	78	28	1870	7.7	12	17	.83
18	39	242	13	270	15	264	25	1610	7.2	7.3	11	1.9
19	217	367	13	230	14	261	32	216	6.1	4.6	6.4	323
20	129	82	13	120	14	108	30	117	4.9	2.8	4.7	636
21	74	52	13	80	14	60	27	79	4.0	1.8	3.1	199
22	59	45	13	58	13	56	25	60	3.9	1.5	2.5	253
23	59	38	12	46	13	48	24	48	3.3	1.3	2.1	1060
24	66	33	12	38	13	37	23	44	2.9	.82	1.7	246
25	44	28	12	34	13	34	30	44	2.0	.58	1.3	238
26	35	24	12	30	30	38	28	58	1.6	.72	1.5	68
27	31	21	12	27	160	37	26	43	3.1	.46	1.1	38
28	24	20	12	25	120	29	24	77	8.6	.48	1.1	30
29	22	19	12	23	---	26	20	179	10	6.4	1.0	257
30	21	18	12	22	---	20	586	119	22	7.9	.60	636
31	21	---	12	21	---	17	---	48	---	4.7	.43	---
TOTAL	2615.2	1838	439	1341	958	3071	2269	6829	387.3	994.36	1332.93	4076.30
MEAN	84.4	61.3	14.2	43.3	34.2	99.1	75.6	220	12.9	32.1	43.0	136
MAX	475	367	17	270	160	476	586	1870	35	182	766	1060
MIN	7.0	15	12	12	13	17	20	12	1.6	.46	.43	.31
CFSM	.94	.68	.16	.48	.38	1.10	.84	2.44	.14	.36	.48	1.51
IN.	1.08	.76	.18	.55	.40	1.27	.94	2.82	.16	.41	.55	1.68
AC-FT	5190	3650	871	2660	1900	6090	4500	13550	768	1970	2640	8090

WTR YR 1986 TOTAL 26151.09 MEAN 71.6 MAX 1870 MIN .31 CFSM .79 IN. 10.80 AC-FT 51870

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 above 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.--Estimated daily discharges: Dec. 3-7, Dec. 11 to Jan. 28, Jan. 30, Feb. 10-22. Records good except those for estimated discharges, which are fair. Flow regulated by Lake Red Rock (station 05488100) 11.9 mi upstream, since March 12, 1969. U.S. Army Corps of Engineers gage-height telemeter and Data Collection Platform at station.

COOPERATION.--Three discharge measurements provided by U.S. Army Corps of Engineers.

AVERAGE DISCHARGE.--66 years, 5,082 ft³/s, 5.53 in/yr, 3,682,000 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 ot 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, 26,300 ft³/s Apr. 5, gage height, 13.69 ft; minimum daily discharge, 365 ft³/s Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6280	3530	5310	1800	2130	6310	15500	13500	18600	18400	19000	3580
2	6560	3940	4600	1800	2470	6490	12300	15400	18800	18600	18800	4130
3	5760	3580	1500	1800	2530	6900	13300	18000	18800	18900	18500	3370
4	5790	2900	1700	1650	2550	7650	17100	18000	18900	19200	18700	3330
5	6160	2890	2000	1550	4220	8210	23600	18000	18900	19400	17700	3320
6	5490	2890	2300	1550	6680	9670	26200	18200	18800	19400	11100	3320
7	4390	2820	1900	1550	7080	9700	25800	18100	18800	19500	11100	3300
8	4630	2450	1330	1400	5080	9510	23000	17900	19100	19500	13000	2980
9	5230	2230	1780	1350	3610	9530	15100	17800	19400	18400	12800	2100
10	6470	2230	2700	1350	3000	9830	8010	17700	19400	18400	12600	1590
11	7480	2230	3100	1350	2500	10200	5810	17900	19400	16000	12300	2870
12	8470	2440	2850	1350	2100	9420	5850	18100	19200	15700	10900	3450
13	9090	3370	2400	1350	1900	9610	5890	18400	19100	14500	7780	1590
14	8660	3250	2000	1500	1900	12600	5940	18500	19000	15100	9450	1570
15	7690	3540	1350	1600	1900	16500	5910	18700	18900	16800	7020	1270
16	5120	3500	1800	1500	1900	15600	5910	16300	18800	17500	15600	376
17	3930	3480	2400	1600	1900	14100	6460	13900	18700	17700	18200	369
18	3940	3630	2650	2200	1800	15000	9080	11200	18700	18500	16300	365
19	4460	4380	2700	3000	1700	18600	15500	6670	18700	18700	11600	761
20	5790	4860	2700	4000	2000	20300	18100	11500	18400	18900	9980	2180
21	6720	4910	2300	5000	1800	21700	18200	16100	18400	19100	8120	4460
22	6690	4570	2100	4500	1550	23800	18500	17600	18300	19000	6960	12200
23	6680	4110	2100	2900	1140	24800	18400	17700	18200	18900	6540	16700
24	6680	2910	2100	2200	1340	25200	18300	18000	18700	18700	5320	12900
25	6330	2600	2100	2400	1840	25300	18400	18100	18800	18600	3680	11500
26	5340	2550	1900	2500	2160	24900	18400	18000	18700	18400	3450	15300
27	4430	2740	1650	2200	3120	21400	18500	18000	18500	18300	4120	16800
28	4110	2990	2050	1500	5640	18900	18400	18100	18600	18300	4110	17400
29	3810	3540	2200	1280	---	18900	18200	18200	18500	18800	3790	16600
30	3280	5850	2200	1800	---	18800	17900	18200	18600	18900	3220	9270
31	3300	---	1900	2010	---	18000	---	18200	---	19200	3210	---
TOTAL	178760	100910	71670	63540	77540	467430	447560	519970	563700	565300	324950	178951
MEAN	5766	3364	2312	2050	2769	15080	14920	16770	18790	18240	10480	5965
MAX	9090	5850	5310	5000	7080	25300	26200	18700	19400	19500	19000	17400
MIN	3280	2230	1330	1280	1140	6310	5810	6670	18200	14500	3210	365
AC-FT	354600	200200	142200	126000	153800	927100	887700	1031000	1118000	1121000	644500	354900

CAL YR 1985	TOTAL	1537379	MEAN	4212	MAX	19300	MIN	351	AC-FT	3049000
WTR YR 1986	TOTAL	3560281	MEAN	9754	MAX	26200	MIN	365	AC-FT	7062000

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 above NGVD (levels by U.S. Army Corps of Engineers). Prior to Feb. 21, 1949, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 22 to Mar. 10, and Sept. 19-30. Records good except those for periods of estimated discharge, which are poor. U.S. Army Corps of Engineers Data Collection Platform at station.

AVERAGE DISCHARGE.--39 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 U.S. Army Corps of Engineers, discharge, 31,500 ft³/s.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 10	0730	4,960	18.21	Aug. 14	1330	4,390	17.34
May 1	0415	5,500	18.91	Sept. 23	----	unknown	unknown
May 17	1315	*13,100	*24.83				

Minimum discharge, 9.6 ft³/s Aug. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	351	303	75	63	90	350	137	4180	153	46	17	16
2	140	336	74	63	90	260	125	567	119	33	13	15
3	92	176	73	63	90	210	602	300	97	32	11	13
4	72	136	72	63	180	170	1180	228	90	23	9.9	14
5	57	119	72	63	500	160	658	189	88	18	19	18
6	46	113	72	63	300	150	325	159	92	15	45	16
7	39	129	70	62	200	140	229	139	88	19	54	15
8	35	127	70	62	160	140	186	137	82	45	31	14
9	1160	115	69	62	130	150	150	151	73	134	18	13
10	4410	161	68	63	110	900	135	157	63	195	15	14
11	1450	178	68	64	98	1290	127	169	92	124	15	32
12	950	555	68	66	86	1020	119	134	105	896	18	60
13	548	1270	67	70	80	1780	110	120	65	949	884	39
14	258	737	66	76	76	705	129	109	53	238	3770	24
15	187	361	66	90	74	413	139	1030	57	254	815	17
16	151	283	66	150	72	302	122	2560	57	117	253	14
17	130	243	66	350	70	276	107	10800	47	71	137	13
18	123	765	66	1200	68	719	103	8250	39	51	92	12
19	938	1630	65	860	67	1300	130	1070	37	38	69	900
20	1280	398	65	430	66	483	115	520	33	31	56	2550
21	335	220	65	310	65	262	103	356	29	25	48	800
22	234	190	65	240	64	241	97	275	29	20	41	1300
23	196	160	65	190	63	212	88	227	32	19	36	4500
24	196	140	65	160	62	181	83	201	28	17	32	1100
25	184	120	64	140	62	170	119	181	22	16	29	840
26	143	100	64	125	100	219	96	169	20	16	29	540
27	130	90	64	115	680	222	84	159	22	15	30	400
28	114	82	64	105	500	179	83	309	29	15	23	300
29	107	78	64	98	---	165	77	866	33	31	20	670
30	102	76	64	94	---	148	1910	418	58	52	18	1500
31	103	---	63	92	---	134	---	218	---	29	17	---
TOTAL	14261	9391	2085	5652	4203	13051	7668	34348	1832	3584	6664.9	15759
MEAN	460	313	67.3	182	150	421	256	1108	61.1	116	215	525
MAX	4410	1630	75	1200	680	1780	1910	10800	153	949	3770	4500
MIN	35	76	63	62	62	134	77	109	20	15	9.9	12
CFSM	1.23	.84	.18	.49	.40	1.13	.68	2.96	.16	.31	.57	1.40
IN.	1.42	.93	.21	.56	.42	1.30	.76	3.42	.18	.36	.66	1.57
AC-FT	28290	18630	4140	11210	8340	25890	15210	68130	3630	7110	13220	31260

CAL YR 1985	TOTAL	56660.8	MEAN	155	MAX	4500	MIN	4.3	CFSM	.41	IN.	5.64	AC-FT 112400
WTR YR 1986	TOTAL	118498.9	MEAN	325	MAX	10800	MIN	9.9	CFSM	.87	IN.	11.79	AC-FT 235000

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 above 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, 1963, water-stage recorder at site 1,100 ft downstream at Vine Street Bridge at datum 0.77 ft higher.

REMARKS.--Estimated daily discharge: Oct. 1-8, Dec. 3, Dec. 6 to Feb. 23 and Aug. 7-11. Records good except those for periods of estimated record, which are poor. 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. U.S. Army Corps of Engineers gage-height telemeter and data collection platform at station.

COOPERATION.--One discharge measurements provided by U.S. Army Corps of Engineers.

AVERAGE DISCHARGE.--69 years, 5,503 ft³/s, 5.59/yr, 3,987,000 acre-ft/yr; median of yearly mean discharges, 4,690 ft³/s, 4.8 in/yr, 3,396,000 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 U.S. Army Corps of Engineers and National Weather Service, discharge, about 140,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,300 ft³/s May 17, gage height, 12.30 ft; minimum daily discharge 503 ft³/s Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6600	4580	5390	2150	2200	7740	17200	18900	18600	18600	18900	3110
2	7200	4710	5200	1900	2500	7680	13200	15000	18800	18500	18600	3800
3	6800	4430	3500	1900	2750	7890	13000	17100	18800	18700	18400	3720
4	6400	3430	2220	1900	3150	8410	16600	17700	18800	19000	18200	3280
5	6700	2990	1560	1750	3950	8940	21500	17600	19100	19200	19000	3130
6	6300	2950	2200	1650	5900	11000	25300	17800	18900	19300	14400	3230
7	5700	3050	2500	1650	6800	11200	25200	17700	18800	19600	11500	3260
8	4800	2810	2300	1650	5200	10700	24500	17700	18800	20200	11500	3060
9	5210	2170	1500	1550	4150	10700	18300	17600	19300	21600	13000	2480
10	6310	2480	1800	1400	3350	12000	11100	17400	19300	19200	13500	1940
11	7860	2160	2600	1250	2750	14400	6290	17600	19400	17400	12500	1570
12	8780	2830	3350	1250	2400	12700	5900	17700	19300	20100	11600	3890
13	9840	6320	2900	1500	2200	13600	5950	18000	19100	17300	10800	2460
14	10500	5840	2500	1350	2100	14200	6130	18100	19000	15200	17500	1480
15	10800	4920	1950	1800	2050	17500	6130	21200	19000	16800	11200	1540
16	6410	4500	1600	1450	2050	18000	6050	24800	18900	17600	11900	2160
17	4630	4230	1400	1800	2050	15400	6040	31600	18800	17600	17900	583
18	4380	4660	2100	2600	2000	16400	7940	26400	18700	18100	17700	503
19	6230	7850	2900	4400	1900	20500	12700	12900	18700	18600	13900	5010
20	8450	7120	2950	5600	2100	21900	17500	8470	18700	18500	10900	6560
21	8570	6170	2950	7000	2300	22200	17800	15200	18500	19000	9450	7580
22	8150	5700	2450	5700	1800	23700	18300	17200	19100	18900	7180	10500
23	7990	5460	2200	3800	1450	24700	18200	17500	18400	18800	6880	21900
24	8000	4000	2200	2900	1040	25200	18100	17800	18500	18600	6220	21100
25	7840	3220	2200	2350	1050	25200	18300	18000	18700	18500	4520	15000
26	6710	2960	2150	2500	2150	25200	18200	18400	18700	18400	3220	15700
27	5220	2850	1900	2700	4930	23600	18200	18000	18500	18200	3480	17400
28	4450	2600	1700	1800	6550	19300	18100	18800	18700	18100	4000	18800
29	4330	2500	2100	1400	---	19100	17900	19900	18900	19000	3920	20600
30	3450	4990	2300	1350	---	18900	20100	19600	19100	18500	3460	19500
31	3370	---	2350	1950	---	18600	---	18400	---	19000	2960	---
TOTAL	207980	124480	76920	73950	82820	506560	449730	570070	565900	576100	348190	224846
MEAN	6709	4149	2481	2385	2958	16340	14990	18390	18860	18580	11230	7495
MAX	10800	7850	5390	7000	6800	25200	25300	31600	19400	21600	19000	21900
MIN	3370	2160	1400	1250	1040	7680	5900	8470	18400	15200	2960	503

CAL YR 1985	TOTAL	1700458	MEAN	4659	MAX	19400	MIN	250
WTR YR 1986	TOTAL	3807546	MEAN	10430	MAX	31600	MIN	503

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 above 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.--Estimated daily discharges: Oct. 22-30, Nov. 19-23, Dec. 7-9, Dec. 13 to March 4, March 7-17, March 19, 21, 23, 24, June 22 to July 9, and July 13 to Aug. 14. Records good except those for periods of estimated record, which are poor. Prior to Dec. 21, 1958, and since Nov. 30, 1960, some diurnal fluctuation at medium and low stages caused by power plant at Ottumwa. Flow regulated by Lake Red Rock (station 05488100) 91.0 mi upstream, since March 12, 1969. U.S. Army Corps of Engineers data collection platform at station.

COOPERATION.--One discharge measurement provided by U.S. Army Corps of Engineers.

AVERAGE DISCHARGE.--77 years (water years 1904-05, 1912-86), 5,888 ft³/s, 5.70 in/yr, 4,266,000 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 floodmark, 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, 63,900 ft³/s, May 17, gage height, 26.39 ft; minimum daily discharge, 812 ft³/s, Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5380	4220	6960	2550	1850	7900	17800	25800	18800	19500	20000	3060
2	6770	4260	4680	2250	2350	8000	15300	17300	19000	19000	20000	3230
3	6790	4290	3670	2050	2800	8400	12500	16500	19000	19000	19500	4040
4	5970	4300	3170	2000	3350	8800	15100	18100	19200	19500	19500	3640
5	5900	3720	1910	1950	4250	9230	19900	18000	19500	19500	20500	3380
6	6160	3730	1580	1900	5200	10900	24200	18100	19400	20000	18000	3320
7	5810	4400	2750	1800	6600	11500	25400	19000	19100	20000	14000	3460
8	4620	3670	3000	1800	7700	11500	24900	18300	19000	20000	13000	3400
9	6740	3300	2300	1800	6100	11000	21300	18100	19200	22000	14000	3280
10	16600	2930	1810	1650	4600	12500	14500	18100	19400	20500	14500	2560
11	13600	3140	2190	1500	3500	15000	8310	17900	19400	20100	14000	2190
12	11600	3600	2920	1350	2800	13100	6010	18000	19400	20400	13000	1990
13	11200	6060	3650	1350	2600	14000	6010	18600	19200	20000	11000	4230
14	10200	7340	3000	1500	2400	15000	6060	18600	19100	20000	18000	2280
15	9210	5940	2500	1500	2300	16500	6200	19500	19100	17500	15200	1700
16	8200	5320	2000	1800	2300	19000	6210	30600	18900	16000	9570	2720
17	5820	4820	1700	1700	2300	20500	6110	50000	18900	17500	16100	1670
18	5040	4400	1550	3000	2300	19200	6540	44600	18700	18500	18100	812
19	7560	6100	2150	4800	2250	21000	9420	21000	18700	19000	16100	7580
20	10000	8300	2800	6100	2200	21500	15500	9920	18700	19000	11900	24500
21	8260	7300	3000	7200	2400	21300	17600	13300	18600	19500	10000	17600
22	8200	6600	3050	8200	2350	22800	17800	17200	18600	19500	8320	8040
23	8100	6100	2600	5700	1900	24100	18000	18100	19000	19000	6880	20800
24	8100	4360	2400	3500	1400	25100	17900	18100	19000	19000	6530	33700
25	7900	3670	2350	2700	1500	25500	18000	18300	19000	19500	5540	26500
26	7100	3270	2350	2950	2500	25400	18200	19200	19000	19000	4100	18300
27	6100	3170	2250	3200	5000	24600	18100	18600	19000	19000	3230	16600
28	5200	2690	2050	2400	7400	20600	18200	19500	19000	19000	3890	18300
29	4500	2480	1800	1850	---	18800	18000	21100	19000	19000	3980	26100
30	4100	2470	2200	1600	---	18700	19200	21200	19500	20000	3920	30200
31	3850	---	2500	1500	---	18500	---	19300	---	20000	3410	---
TOTAL	234580	135950	82840	85150	94200	519930	448270	639920	571400	599500	375770	299182
MEAN	7567	4532	2672	2747	3364	16770	14940	20640	19050	19340	12120	9973
MAX	16600	8300	6960	8200	7700	25500	25400	50000	19500	22000	20500	33700
MIN	3850	2470	1550	1350	1400	7900	6010	9920	18600	16000	3230	812
AC-FT	465300	269700	164300	168900	186800	1031000	889100	1269000	1133000	1189000	745300	593400

CAL YR 1985 TOTAL 1824063 MEAN 4997 MAX 22000 MIN 382 AC-FT 3618000
WTR YR 1986 TOTAL 4086692 MEAN 11200 MAX 50000 MIN 812 AC-FT 8106000

MISSOURI RIVER BASIN

BIG SIOUX RIVER BASIN

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 above 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.--Estimated daily discharges: Nov. 20 to Mar. 4. Records good except those estimated daily discharge which which are poor. U.S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--38 years, 420 ft³/s, 3.58 in/yr, 304,300 acre-ft/yr; median of yearly mean discharges, 320 ft³/s, 2.7 in/yr, 232,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,400 ft³/s Apr. 7, 1969, gage height, 17.32 ft; site and datum then in use, 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 greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	1230	*11,500	*16.88	June 23	1630	4,270	12.48
Apr. 6	1000	4,620	12.90	Sept. 21	1900	8,610	15.61
Apr. 30	0015	7,540	15.06	Sept. 24	0600	8,450	15.53
May 11	0400	4,190	12.43				

Minimum daily discharge, 140 ft³/s Feb. 13-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	785	310	230	200	310	1420	3690	1200	2110	762	318
2	1260	771	300	230	200	450	1310	2820	1110	2190	730	281
3	1220	749	290	230	200	1000	1370	2300	1040	1880	639	254
4	1160	733	290	230	200	2100	1890	2020	1040	1590	566	234
5	1110	721	290	220	200	2080	3600	1810	1320	1410	512	219
6	1070	728	290	210	200	1980	4470	1620	1520	1260	471	207
7	1040	728	290	200	200	1470	3110	1460	1340	1210	437	190
8	1030	717	290	200	190	1130	2230	1390	1270	1100	403	175
9	999	612	290	200	180	1220	1810	1700	1200	1020	368	166
10	961	466	280	210	170	1310	1550	3510	1120	1130	353	164
11	945	492	280	210	160	1310	1400	3890	1130	1210	332	194
12	1020	659	280	210	150	1370	1310	2790	1250	1300	321	324
13	1180	755	270	210	140	1400	1230	2240	1220	1300	305	432
14	1270	758	270	210	140	1320	1550	2120	1080	1140	305	383
15	1250	759	270	210	140	1460	2170	2060	1020	1200	287	513
16	1190	771	270	210	140	2090	2260	2120	952	1120	268	805
17	1140	752	270	210	140	1980	1860	2130	883	1100	355	1610
18	1100	790	270	210	140	6420	1840	2000	827	947	315	2920
19	1050	761	270	220	140	10900	2460	1770	783	858	292	5000
20	1010	730	270	220	140	8880	2520	1610	744	1000	277	7340
21	987	620	260	220	140	3900	2070	1500	791	1130	271	8230
22	975	540	270	220	140	3010	1730	1410	1790	885	265	6660
23	971	500	270	220	140	2950	1520	1330	3880	763	263	6110
24	943	450	260	220	140	3260	1390	1300	3370	680	248	7560
25	901	420	260	220	140	3380	1300	1300	2350	630	236	3710
26	876	400	260	220	200	2910	1250	1340	1880	589	353	2600
27	856	380	250	220	350	2550	2340	1400	1630	554	438	2190
28	828	360	250	210	300	1950	4180	1430	1460	536	631	1920
29	810	340	250	200	---	1710	6880	1400	1540	602	546	1730
30	794	320	230	200	---	1610	6400	1340	1910	812	437	1620
31	783	---	230	200	---	1520	---	1280	---	861	368	---
TOTAL	31939	18567	8430	6630	4920	78930	70420	60080	42650	34117	12354	64059
MEAN	1030	619	272	214	176	2546	2347	1938	1422	1101	399	2135
MAX	1270	790	310	230	350	10900	6880	3890	3880	2190	762	8230
MIN	783	320	230	200	140	310	1230	1280	744	536	236	164
CFSM	.65	.39	.17	.13	.11	1.60	1.47	1.22	.89	.69	.25	1.34
IN.	.75	.43	.20	.15	.11	1.84	1.65	1.40	.00	.80	.29	1.50
AC-FT	63350	36830	16720	13150	9760	156600	139700	119200	84600	67670	24500	127100

CAL YR 1985	TOTAL	306020	MEAN	838	MAX	11700	MIN	50	CFSM	.53	IN.	7.15	AC-FT	607000
WTR YR 1986	TOTAL	433096	MEAN	1187	MAX	10900	MIN	140	CFSM	.75	IN.	10.12	AC-FT	859000

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 W1/4 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. On Nov. 1, 1985, gage was relocated at the following site: Lat 42°50'14", long 96°33'41", in SW1/4 SE1/4 SW1/4 sec.30, T.93 N., R.48 W., Plymouth County, on left bank 15 ft downstream from Iowa Highway 403 bridge, 0.5 mi northwest of Akron, and 2.9 mi upstream from Union Creek.

DRAINAGE AREA.--8,424 mi², approximately, of which about 1,487 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

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. WDR SD-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,118.90 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 3, 1934, nonrecording gage at bridge 300 ft upstream at same datum.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 21 to Mar. 13. U.S. Army Corps of Engineers satellite data-collection platform at station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--58 years, 1,030 ft³/s, 746,200 acre-ft/yr; median of yearly mean discharges, 770 ft³/s, 558,000 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 greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 21	1200	22,600	21.21	June 14	1045	4,520	13.38
Apr. 8	0045	14,000	19.05	June 25	2045	12,200	18.33
Apr. 17	1630	13,200	18.80	July 2	2145	5,340	14.06
May 1	1000	15,800	19.57	July 14	0545	4,480	13.02
May 18	1545	9,760	17.55	Sept. 25	1700	*23,100	*21.98
June 7	0600	5,970	15.09				

Minimum daily discharge, 470 ft³/s, Feb. 20-22.

CORRECTIONS.--Published acre-feet for October of 1984 and 1985 water years is in error. Correct figures are as follows: October 1983, 35,380; October 1984, 106,500.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2080	1540	780	660	560	1020	8710	15300	5190	4920	2190	1710
2	2200	1520	770	660	560	1250	8480	12500	4870	5180	2050	1610
3	2270	1500	760	660	560	1600	8150	10600	4530	5280	2010	1500
4	2230	1460	760	650	540	2200	8010	9580	4350	4810	1930	1410
5	2150	1440	750	650	510	3000	8590	8830	4500	4280	1850	1320
6	2080	1430	740	650	500	2800	10600	8000	5330	3890	1770	1230
7	2030	1420	720	640	500	2400	13100	7280	5750	3560	1720	1160
8	1990	1420	720	645	500	2100	13400	6870	5070	3300	1660	1110
9	1940	1430	720	640	490	1800	11500	6680	4690	3030	1600	1090
10	1920	1340	710	640	490	1700	10300	6920	4330	2820	1520	1070
11	1910	1220	700	650	490	2000	9520	8410	4100	2860	1440	1050
12	1890	1230	700	660	490	2400	9060	9470	4040	2910	1390	1480
13	1920	1320	700	670	480	3300	8710	9260	4330	3490	1380	1580
14	2060	1390	700	690	480	3200	8710	8820	4510	4290	1360	1520
15	2180	1420	700	700	480	3300	8880	8540	4330	3420	1320	1610
16	2200	1430	690	700	480	4080	10700	8580	4040	3280	1260	1880
17	2180	1440	690	710	480	5110	12700	8960	3790	3130	1270	2600
18	2160	1450	690	720	480	7750	12500	9550	3500	3000	1300	4700
19	2160	1160	690	730	480	10500	11400	9430	3150	2840	1330	6630
20	2110	1060	680	740	470	17000	11300	8410	2910	2720	1280	9040
21	2040	930	680	710	470	21400	11800	7340	2860	2850	1350	12400
22	2000	900	680	690	470	16600	11600	6780	3120	2810	1310	17000
23	1950	870	670	650	480	10300	10900	6270	5140	2440	1330	19900
24	1910	850	670	630	485	9530	10200	5900	8350	2200	1330	20900
25	1860	820	670	610	490	10400	9580	5580	11400	2060	1300	22400
26	1820	800	670	600	700	10600	9100	5370	11200	1950	1450	22000
27	1770	780	660	590	1250	9820	8750	5320	7610	1890	1570	18800
28	1740	780	660	580	1180	9810	9850	5420	5540	1930	1630	15800
29	1700	780	660	580	---	9380	12300	5470	4750	2020	1790	13500
30	1670	780	660	570	---	9000	14300	5480	4780	2110	1840	11400
31	1640	---	660	560	---	8870	---	5410	---	2210	1800	---
TOTAL	61760	35910	21710	20235	15545	204220	312700	246330	152060	97480	48330	219400
MEAN	1992	1197	700	653	555	6588	10420	7946	5069	3145	1559	7313
MAX	2270	1540	780	740	1250	21400	14300	15300	11400	5280	2190	22400
MIN	1640	780	660	560	470	1020	8010	5320	2860	1890	1260	1050
AC-FT	122500	71230	43060	40140	30830	405100	620200	488600	301600	193400	95860	435200

CAL YR 1985 TOTAL 783237 MEAN 2146 MAX 18800 MIN 290 AC-FT 1554000
WTR YR 1986 TOTAL 1435680 MEAN 3933 MAX 22400 MIN 470 AC-FT 2848000

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 prinicipal 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 above 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.--Estimated daily discharges: Nov. 25 to Dec. 4, and Dec. 13. Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. U.S. National Weather Service gage-height telemeter at station. U. S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--89 years, 32,070 ft³/s, 23,230,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft³/s Apr. 14, 1952, gage height, 24.28 ft, datum then 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, 57,400 ft³/s Sept. 30, gage height, 23.23 ft; maximum gage-height unaffected by backwater, 23.91 ft, May 17; minimum daily discharge, 12,900 ft³/S Dec. 25; minimum gage height, 10.28 ft, Jan. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32100	31900	33700	18300	17500	21100	33500	43800	45900	44200	37100	44800
2	32200	31600	34000	18500	17500	20900	33300	44600	45200	42700	36500	44700
3	32400	31400	34800	18300	17400	21200	33900	43900	45100	42200	37000	44500
4	32400	31200	34300	18200	17600	21500	35300	42300	45100	42100	37600	43900
5	31800	31100	31300	17200	20100	22500	36300	41100	45500	41600	38000	43600
6	31400	31600	28600	16300	19300	23300	36800	40000	45800	40800	37900	43600
7	31600	31900	25100	13600	19100	23500	38000	39200	46400	39900	38200	42200
8	32000	32100	23700	16400	18000	22100	40300	38200	46800	39500	38200	40900
9	31500	32100	21100	18500	17600	23300	39700	36800	46000	39200	37700	40900
10	31200	31500	19400	19100	17500	23100	38500	36900	45200	38700	37400	41100
11	30500	30900	18500	18700	17700	23100	37000	39600	45600	38600	36600	40700
12	30800	30800	18000	18400	18100	25400	35500	43700	44100	38500	36600	40400
13	30500	31500	18600	18700	18300	28000	33700	46700	43400	38200	36700	41000
14	30700	32100	18700	18600	18500	26100	35200	48300	44600	39000	38100	41600
15	30700	32500	19400	18700	18400	25900	34900	49600	43900	39800	39200	42800
16	31000	32800	19500	18500	18200	26000	33400	51600	42700	38900	39300	42400
17	31500	32500	18600	18500	19300	26700	35600	55000	39900	38300	40100	43700
18	32000	32600	17800	18800	19600	39900	38800	55300	40700	37800	39900	44500
19	31800	32700	17900	18900	19000	38600	40600	55900	39600	38000	39600	47400
20	31600	31200	18100	18800	18700	33600	40400	55600	40000	38000	39900	50800
21	31300	30900	17400	18200	18000	33800	41500	54000	41800	37800	39900	47000
22	31100	32200	19100	16800	19600	36800	43300	51800	42000	38100	39700	46200
23	30900	33500	20500	17100	19800	37200	43100	50100	42300	37900	39700	47800
24	30700	32500	16600	17800	19400	35100	42800	48300	44100	38100	40500	46800
25	30800	32000	12900	17600	19800	34300	41900	47300	43500	39100	41400	48500
26	30900	32300	13400	17100	20600	34800	40800	46000	44300	37600	42800	49700
27	31000	32800	18800	15600	21100	34900	40100	45700	45800	37300	43300	51200
28	31000	33200	17300	17500	21300	34300	40600	46100	44300	37300	43500	53400
29	31100	33000	16600	18400	---	34200	41300	45500	42900	37500	43500	55100
30	31700	33500	17000	17100	---	34000	42700	45800	45600	37200	45000	56600
31	31600	---	18300	17400	---	33800	---	45200	---	37100	45200	---
TOTAL	971800	961900	659000	551600	527000	899000	1148800	1433900	1318100	1211000	1226100	1367800
MEAN	31350	32060	21260	17790	18820	29000	38290	46250	43940	39060	39550	45590
MAX	32400	33500	34800	19100	21300	39900	43300	55900	46800	44200	45200	56600
MIN	30500	30800	12900	13600	17400	20900	33300	36800	39600	37100	36500	40400
AC-FT	1928000	1908000	1307000	1094000	1045000	1783000	2279000	2844000	2614000	2402000	2432000	2713000

CAL YR 1985	TOTAL	10754200	MEAN	29460	MAX	49500	MIN	12900	AC-FT	21331000
WTR YR 1986	TOTAL	12276000	MEAN	33630	MAX	56600	MIN	12900	AC-FT	24349000

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 microsiemens June 17, 19, 1981; minimum daily, 410 microsiemens 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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (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)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT											
15...	1230	30900	791	8.35	12.0	15	10.2	99	730	K13	21
JAN											
08...	1400	16200	798	8.10	0.0	4.9	13.6	96	743	17	26
FEB											
25...	1300	19600	772	8.30	0.5	5.2	13.6	99	726	31	23
APR											
22...	1200	43500	770	8.42	8.5	62	10.7	95	732	340	420
JUN											
24...	1130	44300	759	8.24	24.5	43	8.1	101	735	230	K28
SEP											
05...	1100	43900	758	8.03	22.0	14	7.8	93	735	110	110

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	HARD-NESS (MG/L AS CACO3) (00900)	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 WH WAT TOTAL FIELD MG/L AS CACO3 (00410)	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CAC03) (99430)	BICAR-BONATE IT-FLD (MG/L AS HCO3) (99440)
OCT											
15...	43	260	62	26	67	35	2	4.5	211	220	227
JAN											
08...	93	290	70	27	65	33	2	5.7	189	193	235
FEB											
25...	85	270	65	25	65	34	2	5.2	180	181	221
APR											
22...	150	320	75	32	40	21	1	7.3	172	173	211
JUN											
24...	110	280	71	26	60	31	2	6.8	174	176	215
SEP											
05...	92	260	66	23	71	37	2	5.4	164	168	205

K Results based on colony count outside ideal range.

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

DATE	CARBONATE IT-FLD (MG/L AS CO3) (99445)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, 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)	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)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
OCT										
15...	20	220	14	0.5	8.2	507	560	0.69	42300	0.50
JAN										
08...	0	220	12	0.5	12	519	530	0.71	22700	0.73
FEB										
25...	0	220	11	0.5	9.5	523	510	0.71	27700	0.37
APR										
22...	0	210	12	0.3	10	522	490	0.71	61300	1.20
JUN										
24...	0	210	12	0.4	11	526	500	0.72	62900	0.50
SEP										
05...	0	230	12	0.5	8.5	536	520	0.73	63500	<0.10

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOSPHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	SEDIMENT, SUS-PENDED (MG/L) (80154)	SEDIMENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
15...	<0.01	0.03	0.05	0.5	0.01	<0.01	0.05	271	22600	39
JAN										
08...	<0.01	0.07	0.07	0.4	0.02	0.02	0.05	--	--	--
FEB										
25...	<0.01	0.04	0.05	0.3	0.03	0.02	0.07	278	14700	29
APR										
22...	0.02	0.08	0.13	1.2	0.06	0.08	0.30	417	49000	63
JUN										
24...	<0.01	0.05	0.04	1.2	0.05	0.07	0.19	341	40800	59
SEP										
05...	<0.01	<0.01	<0.01	0.4	<0.01	0.02	0.09	223	26400	22

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ALUMINUM, DIS-SOLVED (UG/L AS AL) (01106)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYLLIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHROMIUM, 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)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
OCT										
15...	2	110	53	<0.5	<1	<1	<3	3	<3	<1
JAN										
08...	--	--	--	--	--	--	--	--	--	--
FEB										
25...	2	<10	46	<0.5	<1	<1	<3	3	<3	2
APR										
22...	--	--	--	--	--	--	--	--	--	--
JUN										
24...	--	--	--	--	--	--	--	--	--	--
SEP										
05...	2	20	49	0.9	4	<1	<3	4	6	<5

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELENIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRONTIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANADIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT										
15...	51	10	<0.1	<10	3	2	<1	560	<6	4
JAN										
08...	--	--	--	--	--	--	--	--	--	--
FEB										
25...	49	18	<0.1	<10	4	2	<1	620	<6	9
APR										
22...	--	--	--	--	--	--	--	--	--	--
JUN										
24...	--	--	--	--	--	--	--	--	--	--
SEP										
05...	59	2	<0.1	<10	2	2	<1	580	<6	9

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK)	DEPTH AT SAMPLE LOCATION, TOTAL (FEET) (00009)	SAMPLING DEPTH (FEET) (81903)	STREAM VELOCITY, POINT (FPS) (00003)	SEDIMENT, SUSPENDED (MG/L) (81904)	% FINER THAN .004 MM (80154)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70345)
OCT												
10...	WATER TEMPERATURE, 9.0 ° C (1005-1330 HOURS); DISCHARGE, 31,100 ft³/s.											
10...	1005	105	15.4	4.00	4.48	164	--	63	79	99	100	--
10...	1010	105	--	8.70	4.26	178	--	59	73	98	100	--
10...	1015	105	--	12.4	3.83	248	--	47	58	94	100	--
10...	1020	105	--	14.5	3.50	378	--	23	31	78	100	--
10...	1025	105	--	15.7	3.07	397	--	24	30	75	100	--
10...	1030	105	--	16.4	3.07	665	--	26	30	61	100	--
10...	1045	195	15.6	3.60	4.30	205	--	44	61	99	100	--
10...	1050	195	--	7.80	4.11	269	--	37	60	98	100	--
10...	1055	195	--	11.1	3.61	343	--	39	56	97	100	--
10...	1100	195	--	13.0	3.44	395	--	27	42	90	100	--
10...	1105	195	--	14.0	3.28	489	--	21	36	88	100	--
10...	1110	195	--	14.7	2.59	967	--	14	20	68	99	100
10...	1120	285	--	--	--	403	8	15	--	--	--	--
10...	1125	285	15.4	3.60	4.37	--	--	--	--	--	--	--
10...	1130	285	--	7.70	4.04	--	--	--	--	--	--	--
10...	1135	285	--	11.0	3.72	--	--	--	--	--	--	--
10...	1140	285	--	12.8	3.35	--	--	--	--	--	--	--
10...	1145	285	--	13.9	3.72	--	--	--	--	--	--	--
10...	1150	285	--	14.5	3.18	--	--	--	--	--	--	--
10...	1203	395	16.6	3.80	4.41	255	--	29	44	96	100	--
10...	1206	395	--	8.30	3.89	337	--	27	41	95	100	--
10...	1209	395	--	11.9	3.28	493	--	21	34	93	100	--
10...	1212	395	--	13.8	3.24	452	--	17	30	94	100	--
10...	1215	395	--	14.9	2.92	570	--	14	27	84	100	--
10...	1218	395	--	15.6	2.76	722	--	13	22	80	99	100
10...	1225	485	15.8	3.70	4.91	158	--	56	70	95	100	--
10...	1230	485	--	7.90	4.15	225	--	43	53	83	100	--
10...	1235	485	--	11.3	4.04	216	--	40	51	76	100	--
10...	1240	485	--	13.2	3.94	340	--	23	31	59	100	--
10...	1245	485	--	14.2	3.78	316	--	28	38	65	100	--
10...	1250	485	--	14.9	3.68	438	--	23	29	63	100	--
APR												
29...	WATER TEMPERATURE, 13.5 ° C (1405-1730 HOURS); DISCHARGE, 41,300 ft³/s.											
29...	1405	160	19.0	4.40	4.28	230	--	95	97	100	--	--
29...	1410	160	--	9.50	3.83	244	--	92	95	100	--	--
29...	1415	160	--	13.6	3.68	254	--	91	94	99	100	--
29...	1420	160	--	15.8	3.44	288	--	84	88	98	100	--
29...	1425	160	--	17.1	2.94	359	--	68	72	82	100	--
29...	1430	160	--	17.9	1.81	383	--	61	64	72	100	--
29...	1445	275	19.4	4.50	4.74	281	--	83	89	98	100	--
29...	1450	275	--	9.70	4.61	294	--	74	80	98	100	--
29...	1455	275	--	13.9	3.85	371	--	60	66	90	100	--
29...	1500	275	--	16.2	3.42	487	--	50	55	78	100	--
29...	1505	275	--	17.5	3.07	499	--	48	52	78	100	--
29...	1510	275	--	18.3	2.83	570	--	40	48	71	100	--
29...	1520	375	19.6	4.50	4.96	--	--	--	--	--	--	--
29...	1525	375	--	9.80	4.37	--	--	--	--	--	--	--
29...	1530	375	--	14.0	3.28	--	--	--	--	--	--	--
29...	1535	375	--	16.3	3.22	--	--	--	--	--	--	--
29...	1540	375	--	17.6	2.74	--	--	--	--	--	--	--
29...	1545	375	--	18.4	2.40	--	--	--	--	--	--	--
29...	1550	375	--	--	--	433	25	41	--	--	--	--
29...	1600	475	19.2	4.40	5.06	264	--	78	87	100	--	--
29...	1605	475	--	9.60	4.35	324	--	62	73	96	100	--
29...	1610	475	--	13.7	4.00	482	--	44	57	86	100	--
29...	1615	475	--	16.0	3.94	504	--	42	56	85	100	--
29...	1620	475	--	17.3	3.72	498	--	40	52	78	100	--
29...	1625	475	--	18.1	3.65	619	--	33	44	69	100	--
29...	1640	570	20.2	4.70	4.98	252	--	79	89	99	100	--
29...	1645	570	--	10.1	4.76	282	--	71	80	98	100	--
29...	1650	570	--	14.4	4.70	314	--	65	71	93	100	--
29...	1655	570	--	16.8	4.07	397	--	50	58	80	100	--
29...	1658	570	--	18.2	4.04	451	--	43	51	72	100	--
29...	1700	570	--	19.0	3.78	449	--	44	53	72	100	--

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)
JUN												
12...	WATER TEMPERATURE, 20.5 ° C (1030-1330 HOURS); DISCHARGE, 43,800 ft³/s.											
12...	1025	180	21.2	4.90	4.28	561	--	96	99	100	--	--
12...	1030	180	--	10.6	3.94	567	--	94	97	100	--	--
12...	1035	180	--	15.1	3.61	573	--	91	94	100	--	--
12...	1040	180	--	17.7	3.00	593	--	92	94	100	--	--
12...	1045	180	--	19.1	2.98	615	--	89	93	100	--	--
12...	1050	180	--	20.0	2.81	670	--	82	86	99	100	--
12...	1055	180	--	20.4	2.31	635	--	84	87	97	100	--
12...	1100	260	21.2	4.90	4.80	345	--	89	96	100	--	--
12...	1105	260	--	10.6	4.41	415	--	81	88	100	--	--
12...	1110	260	--	15.1	3.78	537	--	65	74	97	100	--
12...	1115	260	--	17.7	3.55	479	--	65	73	97	100	--
12...	1120	260	--	19.1	3.09	556	--	62	70	98	100	--
12...	1125	260	--	20.0	2.81	573	--	62	69	96	100	--
12...	1130	260	--	20.4	2.76	574	--	60	68	94	100	--
12...	1140	375	18.0	4.20	4.91	--	--	--	--	--	--	--
12...	1145	375	--	9.00	4.52	--	--	--	--	--	--	--
12...	1150	375	--	12.9	4.00	--	--	--	--	--	--	--
12...	1155	375	--	15.0	3.59	--	--	--	--	--	--	--
12...	1200	375	--	16.2	3.13	--	--	--	--	--	--	--
12...	1205	375	--	17.0	3.07	--	--	--	--	--	--	--
12...	1208	375	--	--	--	2430	33	90	--	--	--	--
12...	1210	475	19.6	4.50	5.35	201	--	57	70	96	100	--
12...	1215	475	--	9.80	4.87	298	--	42	55	98	100	--
12...	1220	475	--	14.0	4.09	394	--	33	46	95	100	--
12...	1225	475	--	16.3	3.05	558	--	26	37	83	100	--
12...	1230	475	--	17.6	2.42	688	--	19	30	75	100	--
12...	1235	475	--	18.4	1.96	1160	--	12	17	65	100	--
12...	1250	570	19.4	4.50	5.24	185	--	71	79	100	--	--
12...	1255	570	--	9.70	5.13	173	--	69	77	98	100	--
12...	1300	570	--	13.9	4.11	222	--	55	65	97	100	--
12...	1305	570	--	16.2	4.33	298	--	47	55	88	100	--
12...	1310	570	--	17.5	3.76	370	--	35	44	72	100	--
12...	1315	570	--	18.3	3.39	384	--	34	41	66	99	100
JUL												
24...	WATER TEMPERATURE, 26.0 ° C (0930-1300 HOURS); DISCHARGE, 37,800 ft³/s.											
24...	0935	75.0	20.2	4.70	3.83	166	--	80	93	100	--	--
24...	0939	75.0	--	10.1	3.48	162	--	89	100	--	--	--
24...	0943	75.0	--	14.4	3.28	199	--	76	87	100	--	--
24...	0947	75.0	--	16.8	2.98	169	--	86	95	100	--	--
24...	0951	75.0	--	18.2	2.63	183	--	72	79	100	--	--
24...	0955	75.0	--	19.0	2.63	235	--	69	79	100	--	--
24...	1010	175	19.2	4.40	4.07	139	--	69	83	100	--	--
24...	1014	175	--	9.60	3.94	216	--	49	99	100	--	--
24...	1018	175	--	13.7	3.50	206	--	43	56	99	100	--
24...	1022	175	--	16.0	3.07	268	--	45	56	99	100	--
24...	1026	175	--	17.3	2.89	386	--	34	89	100	--	--
24...	1030	175	--	18.1	2.53	338	--	34	46	98	100	--
24...	1045	275	17.8	4.10	4.65	--	--	--	--	--	--	--
24...	1047	275	--	--	--	264	11	20	--	--	--	--
24...	1050	275	--	8.90	4.59	--	--	--	--	--	--	--
24...	1055	275	--	12.7	4.04	--	--	--	--	--	--	--
24...	1100	275	--	14.8	3.74	--	--	--	--	--	--	--
24...	1105	275	--	16.0	3.61	--	--	--	--	--	--	--
24...	1110	275	--	16.8	3.37	--	--	--	--	--	--	--
24...	1125	355	19.2	4.40	5.02	148	--	61	82	100	--	--
24...	1129	355	--	9.60	4.59	270	--	38	55	99	100	--
24...	1133	355	--	13.7	3.72	277	--	35	52	96	100	--
24...	1137	355	--	16.0	3.28	433	--	24	39	92	100	--
24...	1141	355	--	17.3	2.24	657	--	16	29	89	100	--
24...	1145	355	--	18.1	1.98	646	--	13	23	76	91	100
24...	1200	435	17.6	4.10	5.09	200	--	54	67	99	100	--
24...	1204	435	--	8.80	4.59	246	--	34	48	94	100	--
24...	1208	435	--	12.6	4.54	372	--	31	44	89	100	--
24...	1212	435	--	14.7	4.17	266	--	36	53	95	100	--
24...	1216	435	--	15.8	3.85	470	--	25	36	84	100	--
24...	1220	435	--	16.6	3.13	454	--	23	33	80	100	--

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK)	DEPTH AT SAMPLE LOCATION, TOTAL (FEET)	SAMPLING DEPTH (FEET)	STREAM VELOCITY, POINT (FPS)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. FALL DIAM % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM
AUG												
28...	WATER TEMPERATURE, 21.0 ° C (1000-1415 HOURS); DISCHARGE, 43,900 ft³/s.											
28...	1010	175	20.2	4.70	4.07	170	--	69	84	100	--	--
28...	1015	175	--	10.1	3.72	148	--	65	82	100	--	--
28...	1020	175	--	14.4	3.18	221	--	58	73	100	--	--
28...	1025	175	--	16.8	3.18	196	--	50	67	100	--	--
28...	1030	175	--	18.2	2.59	219	--	52	65	100	--	--
28...	1035	175	--	19.0	2.46	273	--	39	54	99	100	--
28...	1045	275	19.4	4.50	4.41	223	--	47	65	98	100	--
28...	1050	275	--	9.70	4.11	282	--	37	53	100	--	--
28...	1055	275	--	13.9	3.18	286	--	34	48	98	100	--
28...	1100	275	--	16.2	2.98	314	--	31	46	98	100	--
28...	1105	275	--	17.5	2.98	448	--	26	41	96	100	--
28...	1110	275	--	18.3	2.68	431	--	24	42	97	100	--
28...	1119	375	19.2	--	--	374	9	16	--	--	--	
28...	1122	375	--	4.40	5.02	--	--	--	--	--	--	--
28...	1125	375	--	9.60	4.70	--	--	--	--	--	--	--
28...	1130	375	--	13.7	3.83	--	--	--	--	--	--	--
28...	1135	375	--	16.0	3.65	--	--	--	--	--	--	--
28...	1140	375	--	17.3	3.46	--	--	--	--	--	--	--
28...	1145	375	--	18.1	3.31	--	--	--	--	--	--	--
28...	1155	455	19.6	4.50	5.59	167	--	57	72	100	--	--
28...	1200	455	--	9.80	5.13	251	--	40	57	100	--	--
28...	1205	455	--	14.0	4.28	382	--	24	41	96	100	--
28...	1210	455	--	16.3	3.96	397	--	25	39	95	100	--
28...	1215	455	--	17.6	3.57	534	--	24	38	94	100	--
28...	1220	455	--	18.4	3.50	898	--	14	24	85	100	--
28...	1230	545	19.4	4.50	5.35	140	--	64	78	100	--	--
28...	1235	545	--	9.70	4.91	256	--	37	49	97	100	--
28...	1240	545	--	13.9	4.59	379	--	25	39	95	100	--
28...	1245	545	--	16.2	4.15	414	--	22	32	91	100	--
28...	1250	545	--	17.5	4.63	498	--	28	40	89	100	--
28...	1255	545	--	18.3	4.00	698	--	16	21	66	99	100

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)
OCT										
10...	1330	5	0	1	24	87	97	99	100	--
APR										
29...	1715	5	--	0	9	78	97	99	99	100
JUN										
12...	1400	5	--	0	11	76	94	98	99	100
JUL										
24...	1230	5	0	1	16	81	95	98	99	100
AUG										
28...	1330	5	0	1	28	85	99	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 above 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.--Estimated daily discharge: Nov. 19 to Jan. 19, Jan. 26 to Feb. 2, Feb. 7 to Mar. 11, and Aug. 5-12. Records good except those for estimated daily discharges, which are poor. U. S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--29 years (water years 1946-69, 1982-86), 17.2 ft³/s, 3.59 in/yr, 12,460 acre-ft/yr; median of yearly mean discharges, 13 ft³/s, 2.7 in/yr, 9,400 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 U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 12	1900	1,370	12.96	June 29	2400	1,540	13.49
Mar. 17	2330	*2,440	*15.96	Sept. 20	1200	2,000	14.82

Minimum daily discharge 11 ft³/s Nov. 2-4 and Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	13	19	18	22	30	29	46	24	39	22	12
2	20	11	19	19	24	25	32	41	22	33	19	12
3	19	11	19	19	27	23	42	40	21	29	18	13
4	19	11	19	16	115	20	109	39	85	27	20	11
5	19	13	19	14	80	20	70	37	57	24	18	12
6	19	14	19	13	33	20	50	33	44	22	17	12
7	18	13	19	13	24	20	44	30	88	22	16	13
8	19	15	19	14	21	19	39	33	43	24	15	12
9	17	14	19	17	18	19	35	45	37	24	14	12
10	17	16	19	19	16	18	34	42	44	28	14	13
11	17	17	18	24	14	17	33	38	57	32	13	13
12	19	19	18	45	13	598	34	34	38	26	15	12
13	17	19	17	24	13	152	36	31	34	22	16	12
14	18	19	17	22	13	90	98	30	47	21	27	21
15	18	20	18	28	13	84	45	54	37	21	15	45
16	19	20	17	40	14	37	62	45	34	20	14	20
17	21	19	17	90	15	423	66	45	30	19	34	27
18	22	25	17	54	14	1310	97	36	29	18	16	21
19	20	35	16	42	14	102	59	31	27	34	15	151
20	19	26	16	41	13	59	50	29	26	20	15	494
21	20	24	16	66	13	47	47	28	47	19	18	69
22	20	23	17	37	14	41	40	27	29	27	14	47
23	19	22	17	35	15	36	38	26	25	31	13	38
24	17	21	16	37	19	34	35	25	24	22	12	33
25	14	21	15	31	20	36	33	25	23	20	13	31
26	18	21	16	26	50	34	37	26	25	24	22	27
27	15	20	17	23	39	31	84	30	28	32	20	25
28	15	20	16	21	32	32	112	42	23	20	14	24
29	15	19	16	20	---	32	71	32	100	18	13	25
30	14	19	17	20	---	31	57	30	222	19	13	43
31	15	---	17	20	---	31	---	27	---	20	12	---
TOTAL	559	560	541	908	718	3471	1618	1077	1370	757	517	1300
MEAN	18.0	18.7	17.5	29.3	25.6	112	53.9	34.7	45.7	24.4	16.7	43.3
MAX	22	35	19	90	115	1310	112	54	222	39	34	494
MIN	14	11	15	13	13	17	29	25	21	18	12	11
CFSM	.28	.29	.27	.45	.39	1.72	.83	.53	.70	.37	.26	.67
IN.	.32	.32	.31	.52	.41	1.98	.92	.62	.78	.43	.30	.74
AC-FT	1110	1110	1070	1800	1420	6880	3210	2140	2720	1500	1030	2580

CAL YR 1985	TOTAL	11570.6	MEAN	31.7	MAX	1820	MIN	7.0	CFSM	.49	IN.	6.61	AC-FT	22950
WTR YR 1986	TOTAL	13396	MEAN	36.7	MAX	1310	MIN	11	CFSM	.56	IN.	7.65	AC-FT	26570

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. downstream 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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 19 to Mar. 8, Mar. 18-19, Apr. 14, and July 28 to Aug. 13. Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--31 years, 71.2 ft³/s, 3.61 in/yr, 51,580 acre-ft/yr; median of yearly mean discharges, 54 ft³/s, 2.7 in/yr, 39,100 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 U. S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	1345	*2,320	*14.38	Apr. 29	1730	1,210	11.06

Minimum daily discharge, 21 ft³/s Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	207	107	76	44	40	300	169	462	183	126	63	48
2	204	102	73	44	40	300	166	378	172	116	57	41
3	186	99	73	44	35	600	186	332	165	107	53	37
4	173	96	73	44	35	560	299	303	177	99	51	33
5	160	94	73	44	30	290	704	280	253	91	50	28
6	149	96	70	42	30	220	559	254	213	83	50	25
7	144	93	66	42	25	160	405	236	206	77	48	23
8	142	90	66	42	25	170	332	233	196	73	46	22
9	135	57	66	45	25	158	285	394	180	75	43	21
10	130	67	60	45	24	154	257	491	177	74	41	23
11	131	94	60	45	24	170	241	368	184	77	39	22
12	149	113	60	45	24	172	231	318	189	73	37	22
13	172	110	50	46	24	201	222	281	174	75	35	23
14	173	102	50	46	24	199	300	259	168	76	33	41
15	165	99	50	46	24	270	478	263	160	110	41	70
16	155	100	50	46	25	348	372	271	152	115	37	68
17	146	98	40	46	25	397	324	308	141	93	34	62
18	144	102	38	46	25	1900	357	297	134	77	29	61
19	137	100	38	46	26	2230	450	261	129	69	25	81
20	132	70	38	46	26	617	383	238	136	62	26	156
21	129	80	38	46	26	295	329	221	165	56	34	148
22	129	80	38	46	26	242	286	210	169	53	28	133
23	129	80	40	46	26	219	261	199	168	63	28	123
24	123	78	40	44	26	201	243	195	158	60	23	120
25	116	78	40	44	50	198	228	194	144	70	22	114
26	115	78	40	44	100	198	228	190	133	69	55	112
27	112	78	42	40	500	183	227	191	122	59	146	101
28	108	76	42	40	350	175	478	192	113	55	119	93
29	107	76	42	40	---	174	1080	191	111	54	86	295
30	105	76	42	40	---	174	672	195	122	51	70	324
31	106	---	44	40	---	171	---	191	---	68	58	---
TOTAL	4413	2669	1618	1364	1660	11646	10752	8396	4894	2406	1507	2470
MEAN	142	89.0	52.2	44.0	59.3	376	358	271	163	77.6	48.6	82.3
MAX	207	113	76	46	500	2230	1080	491	253	126	146	324
MIN	105	57	38	40	24	154	166	190	111	51	22	21
CFSM	.53	.33	.19	.16	.22	1.40	1.34	1.01	.61	.29	.18	.31
IN.	.61	.37	.22	.19	.23	1.62	1.49	1.17	.68	.33	.21	.34
AC-FT	8750	5290	3210	2710	3290	23100	21330	16650	9710	4770	2990	4900

CAL YR 1985	TOTAL	45776	MEAN	125	MAX	3620	MIN	10	CFSM	.47	IN.	6.35	AC-FT	90800
WTR YR 1986	TOTAL	53795	MEAN	147	MAX	2230	MIN	21	CFSM	.55	IN.	7.47	AC-FT	106700

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, upstream from 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 above NGVD (State Highway Commission bench mark). Prior to Jan. 5, 1978, at site 721 ft right at old channel at same datum.

REMARKS.--Estimated daily discharges: Oct. 22 to Feb. 26, Mar. 1-9, and Apr. 3-11. Records good except those for estimated daily discharge, which are poor. U.S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--31 years, 46.7 ft³/s, 3.52 in/yr, 33,830 acre-ft/yr; median of yearly mean discharges, 33 ft³/yr, 2.5 in/yr, 23,900 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 greater than base discharge of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 26	---	714	"ICE JAM"	Mar. 18	1200	*3,780	*13.89
Mar. 12	2045	520	7.83	Apr. 28	1815	554	7.87

Minimum discharge, 14.0 ft³/s Mar. 7. Result of freeze up.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	UL	AUG	SEP
1	89	66	46	38	38	130	101	248	111	86	34	25
2	86	65	46	38	38	100	99	225	105	82	33	25
3	84	63	46	38	38	200	100	214	103	77	32	25
4	78	61	46	38	38	120	150	207	153	75	32	23
5	75	60	44	38	38	100	200	196	151	70	31	23
6	76	60	44	37	34	80	260	175	142	66	30	22
7	76	60	42	37	34	40	200	167	153	63	30	22
8	76	59	42	37	30	70	180	180	142	63	27	22
9	73	58	40	39	27	60	160	250	134	61	27	24
10	72	54	40	42	25	54	155	212	136	60	26	23
11	73	51	40	42	24	47	151	206	135	62	24	22
12	84	58	40	42	23	183	146	189	126	57	24	22
13	85	63	37	42	23	198	138	174	119	55	27	24
14	84	62	37	42	23	167	240	167	120	54	28	35
15	82	60	37	42	23	172	211	171	115	53	27	54
16	78	60	37	42	23	185	201	192	108	51	25	41
17	77	60	37	42	23	417	199	202	103	49	27	40
18	78	62	36	42	23	3090	251	186	100	46	24	37
19	76	60	36	42	23	752	249	174	97	47	25	50
20	74	42	36	42	23	237	220	162	120	45	25	65
21	74	45	36	42	23	202	199	153	157	43	26	61
22	74	50	36	42	23	187	179	145	130	43	25	57
23	72	48	36	42	23	152	171	133	127	42	24	54
24	72	47	36	42	23	140	161	133	115	40	24	52
25	72	47	36	40	30	139	154	130	109	48	24	50
26	72	45	38	40	100	125	151	126	103	43	40	46
27	72	45	38	38	504	122	158	126	96	40	41	43
28	70	46	38	38	205	123	388	127	92	38	33	41
29	68	46	38	38	---	118	410	122	91	40	30	59
30	67	46	38	38	---	111	292	122	89	39	28	53
31	66	---	38	38	---	106	---	117	---	35	26	---
TOTAL	2355	1649	1217	1240	1502	7927	5874	5331	3582	1673	879	1140
MEAN	76.0	55.0	39.3	40.0	53.6	256	196	172	119	54.0	28.4	38.0
MAX	89	66	46	42	504	3090	410	250	157	86	41	65
MIN	66	42	36	37	23	40	99	117	89	35	24	22
CFSM	.42	.31	.22	.22	.30	1.42	1.09	.96	.66	.30	.16	.21
IN.	.49	.34	.25	.26	.31	1.64	1.21	1.10	.74	.35	.18	.24
AC-FT	4670	3270	2410	2460	2980	15720	11650	10570	7100	3320	1740	2260

CAL YR 1985	TOTAL	28535.0	MEAN	78.2	MAX	2300	MIN	9.0	CFSM	.43	IN.	5.90	AC-FT	56600
WTR YR 1986	TOTAL	34369	MEAN	94.2	MAX	3090	MIN	22	CFSM	.52	IN.	7.10	AC-FT	68170

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 7.5.

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 above 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.--Estimated daily discharges: Nov. 19 to Feb. 27, Mar. 8, 9, and Aug. 6-12. Records good except those for estimated daily discharges, which are poor. U. S. Army Corps of Engineers rain-gage and gage-height satellite telemeter at station.

AVERAGE DISCHARGE.--51 years (water years 1936-86), 222 ft³/s, 3.40 in/yr, 160,800 acre-ft/yr; median of yearly mean discharges, 160 ft³/s, 2.4 in/yr, 116,000 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 U. S. Army Corps of Engineers.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 27	1400	2,750	15.38	Mar. 18	2115	*8,040	*21.34

Minimum discharge, 100 ft³/s Nov. 20, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	546	332	230	190	190	745	484	1420	580	470	273	176
2	589	324	230	190	190	718	477	1220	550	456	244	165
3	573	311	230	190	190	867	509	1110	522	427	231	161
4	536	306	230	190	190	1020	744	1050	531	396	221	154
5	497	305	220	190	190	968	1110	987	812	372	222	148
6	465	304	220	180	170	717	1270	909	741	350	220	145
7	448	298	210	180	170	528	1090	835	718	334	210	138
8	440	292	210	190	170	400	945	794	687	322	200	136
9	418	288	200	200	170	460	837	924	631	351	190	133
10	405	257	200	200	170	586	768	1030	603	332	180	137
11	396	253	200	200	170	487	723	1050	775	351	175	137
12	439	299	200	200	170	1030	692	937	673	334	170	131
13	463	318	190	200	170	1980	655	867	620	307	176	131
14	483	309	190	200	170	1400	878	813	611	292	185	150
15	480	301	190	200	170	1310	993	802	576	294	172	290
16	462	305	190	210	170	1250	1050	826	539	297	166	277
17	440	298	190	210	175	1370	970	881	501	315	173	236
18	441	311	180	220	175	6920	1050	869	475	283	165	216
19	439	300	180	220	175	5740	1150	829	456	276	158	305
20	419	170	180	220	175	2600	1130	760	438	259	156	595
21	408	230	180	220	175	1180	1050	717	945	249	182	605
22	409	250	180	220	175	921	954	680	779	238	179	456
23	408	240	180	210	180	780	876	649	649	230	162	405
24	398	240	180	210	180	696	815	630	597	257	154	373
25	375	240	180	200	200	654	774	618	553	324	151	353
26	359	230	190	200	350	615	742	609	520	283	182	325
27	359	230	190	190	1400	575	813	614	514	252	243	307
28	351	230	190	190	1060	542	1150	656	463	242	254	288
29	339	230	190	190	---	525	1930	626	502	244	258	275
30	335	230	190	190	---	513	1910	621	589	224	216	446
31	328	---	190	190	---	501	---	608	---	301	194	---
TOTAL	13448	8231	6110	6190	7240	38598	28539	25941	18150	9662	6062	7794
MEAN	434	274	197	200	259	1245	951	837	605	312	196	260
MAX	589	332	230	220	1400	6920	1930	1420	945	470	273	605
MIN	328	170	180	180	170	400	477	608	438	224	151	131
CFSM	.49	.31	.22	.23	.29	1.41	1.07	.94	.68	.35	.22	.29
IN.	.56	.35	.26	.26	.30	1.62	1.20	1.09	.76	.41	.25	.33
AC-FT	26670	16330	12120	12280	14360	76560	56610	51450	36000	19160	12020	15460

CAL YR 1985	TOTAL	183443	MEAN	503	MAX	9860	MIN	75	CFSM	.57	IN.	7.70	AC-FT	363900
WTR YR 1986	TOTAL	175965	MEAN	482	MAX	6920	MIN	131	CFSM	.54	IN.	7.39	AC-FT	349000

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 above 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.--Estimated daily discharge: Nov. 20 to Feb. 25, and Mar. 8. Records good except those for estimated daily discharge, 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, then 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 is known as Monona-Harrison ditch. U.S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--42 years (water years 1940-69, 1975-86), 110 ft³/s, 3.71 in/yr, 79,700 acre-ft/yr; median of yearly mean discharges 91 ft³/s, 3.1 in/yr, 65,900 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 greater than base discharge of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 13	0400	2,340	15.45	June 21	1530	2,690	16.21
Mar. 18	1730	*8,910	*22.23	June 29	2315	1,990	14.51

Minimum discharge, 61 ft³/s, Mar. 7, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	113	70	88	105	130	196	600	222	283	103	68
2	149	112	70	90	105	141	199	493	212	251	101	68
3	141	111	70	92	105	141	220	447	200	221	99	69
4	135	110	70	88	150	134	345	419	202	205	97	68
5	132	109	70	83	500	115	526	382	343	192	97	67
6	128	109	70	80	250	107	414	338	300	180	99	67
7	125	110	70	80	200	88	329	308	255	172	95	67
8	129	107	70	83	170	86	293	305	249	168	91	66
9	123	108	70	87	150	98	271	323	227	190	91	66
10	119	107	70	93	130	114	258	326	219	212	90	67
11	118	106	70	100	120	94	251	312	217	210	88	66
12	129	115	70	105	115	663	247	293	210	208	87	65
13	135	113	70	110	110	1550	243	279	199	185	90	65
14	128	112	70	110	105	844	313	272	231	171	90	67
15	125	110	74	110	100	601	405	260	228	165	95	94
16	122	112	74	120	100	317	324	264	207	157	85	112
17	120	112	74	130	100	328	310	279	193	149	83	86
18	126	121	74	130	100	6690	365	269	183	139	81	81
19	136	159	74	130	100	2840	476	254	177	136	79	94
20	130	100	74	130	100	451	391	245	172	138	78	211
21	127	90	74	130	105	293	360	238	1800	128	317	515
22	127	86	74	130	105	264	319	231	975	127	159	235
23	130	82	78	130	105	248	301	225	442	123	97	205
24	128	78	78	130	110	235	282	222	328	121	86	161
25	122	76	78	130	120	229	270	222	286	169	80	147
26	120	73	82	120	341	225	281	223	264	154	79	134
27	117	70	82	110	761	213	451	225	282	125	80	123
28	116	70	82	107	286	206	910	261	246	122	77	118
29	114	70	82	105	---	207	1230	266	383	132	74	117
30	113	70	82	105	---	202	785	250	863	111	72	114
31	112	---	84	105	---	199	---	235	---	106	70	---
TOTAL	3935	3021	2300	3341	4848	18053	11565	9266	10315	5150	3010	3483
MEAN	127	101	74.2	108	173	582	386	299	344	166	97.1	116
MAX	159	159	84	130	761	6690	1230	600	1800	283	317	515
MIN	112	70	70	80	100	86	196	222	172	106	70	65
CFSM	.32	.25	.18	.27	.43	1.44	.96	.74	.85	.41	.24	.29
IN.	.36	.28	.21	.31	.45	1.67	1.07	.86	.95	.48	.28	.32
AC-FT	7810	5990	4560	6630	9620	35810	22940	18380	20460	10220	5970	6910

CAL YR 1985	TOTAL	65480	MEAN	179	MAX	3730	MIN	60	CFSM	.44	IN.	6.04	AC-FT	129900
WTR YR 1986	TOTAL	78287	MEAN	214	MAX	6690	MIN	65	CFSM	.53	IN.	7.23	AC-FT	155300

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 above NGVD (U. S. Army 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.--Estimated daily discharges: Nov. 19 to Feb. 25, and Mar. 13, 14, 20-22. Records good except those for estimated discharges, which are poor. Monona-Harrison ditch is a dug channel 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. U. S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--28 years (water years 1959-86), 251 ft³/s, 3.79 in/yr, 181,800 acre-ft/yr; median of yearly mean discharge 200 ft³/s, 3.0 in/yr, 145,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,900 ft³/s Feb. 19, 1971, gage height, 28.03 ft, present datum; minimum daily, 8.5 ft³/s Jan. 3-11, 1959.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 13	----	unknown	unknown	Apr. 28	1345	4,430	15.91
Mar. 18	1515	*12,000	*22.94	Jun. 21	2345	2,960	13.58
Mar. 19	1345	7,640	19.38	Jun. 30	1245	2,980	13.62
Mar. 20	1015	2,750	13.20				

Minimum daily discharge, 95 ft³/s Feb. 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	282	189	130	150	170	372	343	1110	390	1530	168	131
2	250	181	130	140	180	357	351	906	356	824	162	126
3	228	181	130	140	180	350	386	857	327	580	158	129
4	212	180	130	140	190	345	872	827	315	458	153	133
5	201	181	130	140	800	301	1190	763	489	396	156	126
6	192	180	120	130	450	273	852	693	551	347	160	123
7	192	180	120	130	250	217	647	639	433	318	153	125
8	198	177	120	140	210	208	543	605	434	312	142	121
9	222	178	120	140	200	248	477	656	386	340	139	122
10	186	174	120	150	190	315	442	772	374	413	147	127
11	186	178	120	150	180	318	424	659	372	654	138	121
12	205	191	120	150	180	1090	417	594	363	534	135	116
13	230	195	120	150	180	4400	419	538	339	394	144	116
14	213	194	120	140	180	5700	535	522	1020	332	152	123
15	202	189	120	140	170	2090	711	489	1050	305	152	173
16	194	194	120	140	160	1040	660	544	614	287	136	241
17	192	201	120	150	130	789	638	622	441	270	133	183
18	209	207	120	160	110	6620	789	568	373	254	131	170
19	248	310	120	170	110	4390	909	510	344	231	123	188
20	229	170	120	180	100	1800	733	474	325	236	119	351
21	218	160	120	180	95	1100	646	448	1270	221	192	1270
22	221	150	130	180	95	700	590	425	1920	214	388	728
23	218	150	140	180	95	562	548	403	751	210	182	551
24	218	150	140	170	98	485	503	388	553	199	157	381
25	202	150	140	170	110	449	477	376	489	243	149	416
26	196	140	150	170	291	424	506	376	452	362	154	326
27	192	130	150	170	920	401	2180	379	426	222	157	268
28	187	130	150	170	722	379	3990	427	444	198	151	250
29	181	130	150	170	---	369	3090	512	384	267	143	250
30	181	130	150	170	---	359	1600	485	2260	242	142	241
31	186	---	150	170	---	357	---	445	---	185	136	---
TOTAL	6471	5250	4020	4830	6746	36808	26468	18012	18245	11578	4852	7726
MEAN	209	175	130	156	241	1187	882	581	608	373	157	258
MAX	282	310	150	180	920	6620	3990	1110	2260	1530	388	1270
MIN	181	130	120	130	95	208	343	376	315	185	119	116
CFSM	.23	.19	.14	.17	.27	1.32	.98	.65	.68	.41	.17	.29
IN.	.27	.22	.17	.20	.28	1.52	1.09	.74	.75	.48	.20	.32
AC-FT	12840	10410	7970	9580	13380	73010	52500	35730	36190	22960	9620	15320

CAL YR 1985	TOTAL	138043	MEAN	378	MAX	8160	MIN	100	CFSM	.42	IN.	5.71	AC-FT	273800
WTR YR 1986	TOTAL	151006	MEAN	414	MAX	6620	MIN	95	CFSM	.46	IN.	6.24	AC-FT	299500

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 above 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 above NGVD. Lake is used for conservation and recreation. Area of lake is approximately 3,900 acres.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 6.28 ft June 22, 1984; minimum observed, 0.20 ft Sept. 20, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.30 ft July 2; minimum, 4.07 ft Nov. 5, 7, and 14.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.10	4.10	4.15		---	4.15	4.80	5.00	5.15	5.29	4.73	4.38
2	4.09	4.09	4.16		---	4.17	4.79	4.98	5.10	5.30	4.70	4.36
3	4.09	4.09	4.16		4.13	4.20	4.86	4.96	5.05	5.29	4.66	4.35
4	4.10	4.08	4.17		4.13	4.23	4.91	4.93	5.05	5.28	4.63	4.33
5	4.10	4.07	4.18		4.13	4.27	4.97	4.92	5.04	5.27	4.60	4.31
6	4.09	4.08	4.18		4.12	4.28	4.99	4.88	5.01	5.26	4.57	4.28
7	4.10	4.07	4.18		4.12	4.28	5.00	4.87	4.99	5.24	4.54	4.24
8	4.10	4.10	4.18		4.13	4.28	4.98	4.89	4.96	5.22	4.51	4.22
9	4.10	4.14	4.18		4.13	4.28	4.96	4.98	4.93	5.21	4.47	4.19
10	4.10	4.14	4.18		4.13	4.28	4.95	5.07	4.94	5.19	4.45	4.19
11	4.10	4.12	4.17		4.13	4.29	4.92	5.12	4.96	5.17	4.42	4.18
12	4.13	4.10	4.17		4.13	4.29	4.91	5.15	4.93	5.14	4.38	4.17
13	4.14	4.08	4.18		4.13	4.33	4.91	5.26	4.90	5.11	4.38	4.16
14	4.14	4.07	4.18		4.13	4.34	4.93	5.27	4.88	5.08	4.40	4.17
15	4.14	4.09	4.17		4.13	4.35	4.92	5.27	4.86	5.06	4.39	4.22
16	4.14	4.10	4.17		4.13	4.36	4.89	5.28	4.83	5.04	4.37	4.22
17	4.13	4.10	4.17		4.13	4.41	4.88	5.27	4.79	5.01	4.40	4.21
18	4.15	4.11	4.17		4.13	4.59	4.88	5.23	4.77	4.98	4.38	4.21
19	4.15	4.12	4.17		4.14	4.71	4.87	5.20	4.75	4.97	4.36	4.25
20	4.15	4.11	4.16		4.14	4.72	4.88	5.17	4.76	4.93	4.36	4.31
21	4.14	4.11	4.16		4.13	4.73	4.86	5.14	4.89	4.88	4.37	4.32
22	4.15	4.13	4.16		4.13	4.74	4.82	5.10	4.99	4.85	4.35	4.33
23	4.16	4.13	4.16		4.13	4.75	4.80	5.06	5.01	4.80	4.33	4.34
24	4.15	4.13	4.15		4.13	4.77	4.81	5.04	4.99	4.79	4.31	4.35
25	4.15	4.13	4.15		4.13	4.78	4.78	5.11	4.97	4.82	4.30	4.36
26	4.15	4.12	4.15		4.13	4.79	4.79	5.16	4.95	4.78	4.50	4.36
27	4.14	4.12	4.15		4.14	4.79	4.84	5.18	4.93	4.75	4.49	4.35
28	4.12	4.11	4.15		4.14	4.79	4.97	5.17	5.04	4.78	4.46	4.35
29	4.12	4.12	4.15		---	4.79	5.01	5.18	5.18	4.85	4.43	4.36
30	4.11	4.13	4.15		---	4.78	5.03	5.18	5.28	4.83	4.41	4.35
31	4.10	---	4.14		---	4.79	---	5.16	---	4.77	4.39	---
MEAN	4.12	4.11	4.16		---	4.49	4.90	5.10	4.96	5.03	4.45	4.28
MAX	4.16	4.14	4.18		---	4.79	5.03	5.28	5.28	5.30	4.73	4.38
MIN	4.09	4.07	4.14		---	4.15	4.78	4.87	4.75	4.75	4.30	4.16

CAL YR 1985 MEAN 4.23 MAX 4.89 MIN 3.80

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 or 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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 8-11, Nov. 18 to Mar. 10, and June 28 to July 7. Records good except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--9 years, 264 ft³/s, 8.42 in/yr, 191,300 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 greater than base discharge of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	1730	*4,710	*9.73	Apr. 29	0730	2,280	8.73
Apr. 5	2215	1,770	8.12	May 13	1945	1,810	8.17

Minimum daily discharge, 66 ft³/s Feb. 3-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	378	174	140	79	68	300	407	972	419	682	336	154
2	340	162	130	79	67	400	392	786	383	605	288	149
3	307	157	130	79	66	720	456	667	362	532	249	137
4	290	151	125	78	66	960	693	599	351	464	217	134
5	272	149	120	76	66	900	1500	545	411	416	198	118
6	262	153	120	78	66	900	1450	480	394	369	180	105
7	254	144	115	78	66	760	967	439	372	326	168	94
8	249	152	110	76	67	660	773	425	342	306	152	87
9	229	150	110	76	67	600	643	527	318	344	141	83
10	225	269	105	76	68	570	575	777	310	329	137	84
11	223	370	100	76	68	549	530	826	379	309	129	83
12	257	211	98	76	68	505	502	740	352	300	124	80
13	296	165	96	78	68	460	468	1390	321	297	129	75
14	292	157	94	78	69	425	520	1160	301	320	146	78
15	279	153	94	76	69	404	599	844	287	350	153	126
16	260	158	92	76	70	475	541	812	270	297	131	141
17	252	151	92	74	70	441	501	826	247	259	122	139
18	246	170	92	74	70	1480	519	717	236	230	126	150
19	238	190	90	72	70	4080	681	610	228	209	130	214
20	232	210	90	71	70	2410	608	548	219	191	134	452
21	228	250	89	70	71	912	533	511	440	176	153	428
22	225	230	88	68	72	709	482	480	580	181	154	379
23	231	210	86	68	73	643	451	451	785	184	146	357
24	218	200	84	68	74	566	427	434	587	165	135	340
25	202	190	80	68	80	547	403	425	471	195	129	343
26	202	180	80	68	160	535	396	434	412	176	321	328
27	190	170	80	68	240	468	465	454	366	162	400	301
28	183	160	80	68	290	450	1440	482	365	173	288	281
29	183	150	80	68	---	447	2160	474	712	816	229	389
30	178	145	79	68	---	433	1490	476	761	678	200	372
31	176	---	79	68	---	419	---	451	---	425	171	---
TOTAL	7597	5481	3048	2276	2419	24128	21572	19762	11981	10466	5716	6201
MEAN	245	183	98.3	73.4	86.4	778	719	637	399	338	184	207
MAX	378	370	140	79	290	4080	2160	1390	785	816	400	452
MIN	176	144	79	68	66	300	392	425	219	162	122	75
CFSM	.58	.43	.23	.17	.20	1.83	1.69	1.50	.94	.79	.43	.49
IN.	.66	.48	.27	.20	.21	2.11	1.88	1.73	1.05	.91	.50	.54
AC-FT	15070	10870	6050	4510	4800	47860	42790	39200	23760	20760	11340	12300

CAL YR 1985	TOTAL	85683	MEAN	235	MAX	3050	MIN	17	CFSM	.55	IN.	7.48	AC-FT	170000
WTR YR 1986	TOTAL	120647	MEAN	331	MAX	4080	MIN	66	CFSM	.78	IN.	10.54	AC-FT	239300

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 20 to Mar. 10, May 4-7, Aug. 6-14. Records good except those for estimated daily discharges which are poor. U.S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--14 years, 752 ft³/s, 6.60 in/yr, 544,800 acre-ft/yr; median of yearly mean discharges, 690 ft³/s, 6.1 in/yr, 500,000 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 greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 8	----	1,910	ice jam	May 15	2200	5,180	15.84
Mar. 22	0230	*5,460	*16.04	June 25	1930	1,780	10.12
Apr. 8	0500	4,180	15.03	July 3	1130	2,280	11.57
May 1	1715	4,380	15.20	Aug. 1	0945	2,320	11.65

Minimum daily discharge, 210 ft³/s Feb. 5-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	941	544	380	240	210	625	1940	4100	2000	1950	2290	605
2	1070	527	375	240	205	740	1790	3920	1890	2140	1720	542
3	1070	503	370	240	205	950	1700	3370	1730	2250	1360	505
4	1010	483	360	235	215	1360	1820	2910	1650	2210	1280	487
5	955	467	355	230	210	1480	2240	2570	1640	2050	1240	459
6	925	455	350	230	210	1620	2990	2300	1530	1950	1180	419
7	892	451	350	230	210	1790	3820	2100	1520	1990	1110	383
8	856	440	350	235	210	1900	4110	1850	1470	1820	1050	354
9	812	430	345	230	210	1880	3640	1760	1400	1680	980	330
10	760	364	340	225	210	1700	3130	1850	1360	1550	928	321
11	738	336	340	220	210	1620	2820	2350	1330	1480	853	344
12	755	423	335	220	210	1640	2610	3070	1360	1310	792	317
13	856	489	330	220	210	1680	2380	4010	1350	1180	732	321
14	943	447	330	225	210	1610	2210	4970	1250	1150	673	318
15	962	435	340	230	210	1570	2100	5120	1150	1140	624	392
16	945	471	340	230	210	1570	2090	5020	1080	1120	637	478
17	891	441	335	235	210	2090	2080	4360	991	1110	538	517
18	855	486	330	240	210	2510	2000	3950	921	928	503	527
19	825	501	315	240	210	3020	1940	3830	870	847	422	599
20	799	520	300	240	210	3790	1970	3630	820	757	413	877
21	767	470	295	240	210	4640	2030	3300	815	748	411	1130
22	745	450	290	240	210	5120	1990	2940	1130	709	438	1320
23	731	430	285	240	215	4010	1870	2610	1440	697	434	1360
24	760	420	280	240	215	3260	1720	2320	1600	702	406	1360
25	735	415	275	240	220	3020	1580	2080	1740	654	395	1370
26	691	410	270	240	310	3020	1480	1910	1680	1060	255	1400
27	663	400	265	240	600	2950	1530	1920	1470	958	901	1380
28	625	395	260	230	610	2780	2140	1920	1330	851	893	1260
29	592	390	255	225	---	2500	2820	1970	1440	1270	1040	1140
30	572	385	250	220	---	2280	3480	2060	1700	1810	849	1100
31	550	---	245	215	---	2090	---	2050	---	2180	713	---
TOTAL	25291	13378	9840	7205	6785	70815	70020	92120	41657	42151	26060	21915
MEAN	816	446	317	232	242	2284	2334	2972	1389	1360	841	731
MAX	1070	544	380	240	610	5120	4110	5120	2000	2250	2290	1400
MIN	550	336	245	215	205	625	1480	1760	815	654	255	317
CFSM	.53	.29	.20	.15	.16	1.48	1.51	1.92	.90	.88	.54	.47
IN.	.61	.32	.24	.17	.16	1.70	1.68	2.21	1.00	1.01	.63	.53
AC-FT	50160	26540	19520	14290	13460	140500	138900	182700	82630	83610	51690	43470

CAL YR 1985 TOTAL 274884 MEAN 753 MAX 5880 MIN 67 CFSM .49 IN. 6.61 AC-FT 545200
WTR YR 1986 TOTAL 427237 MEAN 1171 MAX 5120 MIN 205 CFSM .76 IN. 10.27 AC-FT 847400

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 above 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.--Estimated daily discharges: Nov. 20 to Mar. 4. Records good except those for estimated discharges, which are poor. U. S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--59 years (water years 1919-24, 1927-31, 1937-86), 825 ft³/s, 4.48 in/yr, 597,700 acre-ft/yr; median of yearly mean discharge, 640 ft³/s, 3.5 in/yr, 464,000 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 U. S. Soil Conservation Service (discharge not determined).

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 20	0400	*8,910	*18.10	May 18	1300	6,650	15.72
Apr. 10	1315	5,450	14.31	June 5	2330	4,200	12.73
Apr. 30	0115	6,180	15.18				

Minimum daily discharge, 320 ft³/s Feb. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1290	907	650	480	440	2000	3200	5630	3290	2420	2070	1120
2	1450	880	640	480	430	1850	2970	5670	3150	2620	2290	997
3	1580	863	640	470	440	2000	2860	6030	2980	2810	2130	910
4	1590	837	630	470	580	2300	2980	6110	2850	2960	1590	842
5	1520	812	620	470	1100	2050	3470	5350	3450	2970	1360	780
6	1440	790	610	470	700	1850	4260	4540	3610	2830	1220	739
7	1380	776	600	470	580	1710	4400	4030	2950	2660	1120	696
8	1390	768	590	470	520	1710	4670	3690	2770	2580	1030	657
9	1330	762	590	470	480	1790	5120	3600	2600	2570	952	625
10	1280	740	580	470	450	1920	5420	4340	2480	2490	889	604
11	1230	712	580	470	430	1760	5100	4550	2400	2330	827	586
12	1240	678	570	460	410	2200	4420	4220	2570	2210	785	577
13	1230	710	560	460	400	2820	4010	4470	2500	2030	762	580
14	1270	765	560	460	390	2180	3940	4900	2510	1860	748	632
15	1350	798	550	460	380	2410	3860	5470	2330	1770	770	762
16	1390	818	540	460	370	2500	3640	6060	2140	1740	865	838
17	1360	808	540	470	360	2970	3450	6480	1990	1700	812	831
18	1370	839	530	480	350	6650	3540	6640	1860	1600	764	838
19	1320	898	530	490	340	8150	3480	6370	1750	1460	705	936
20	1260	800	520	500	340	8520	3400	5680	1680	1350	706	1240
21	1220	760	520	560	330	5570	3280	5390	1750	1260	826	1500
22	1190	740	510	540	330	5440	3210	5080	2240	1180	768	1640
23	1170	720	510	540	330	5860	3130	4620	2130	1110	744	1760
24	1150	710	500	540	320	6280	2950	4170	2340	1050	728	1800
25	1110	700	500	530	340	5610	2760	3780	2410	1180	714	1820
26	1120	690	500	490	500	4640	2620	3450	2510	1250	708	1810
27	1070	680	490	480	2200	4340	2950	3260	2570	1290	820	1780
28	1030	670	490	480	2100	4230	4950	3420	2370	1270	1030	1770
29	993	660	490	460	---	4070	6030	3320	2160	1150	1380	1740
30	957	650	490	460	---	3770	6080	3340	2280	1310	1460	1670
31	928	---	480	450	---	3440	---	3380	---	1840	1290	---
TOTAL	39208	22941	17110	14960	15940	112590	116150	147040	74620	58850	32863	33080
MEAN	1265	765	552	483	569	3632	3872	4743	2487	1898	1060	1103
MAX	1590	907	650	560	2200	8520	6080	6640	3610	2970	2290	1820
MIN	928	650	480	450	320	1710	2620	3260	1680	1050	705	577
CFSM	.51	.31	.22	.19	.23	1.45	1.55	1.90	.99	.76	.42	.44
IN.	.58	.34	.25	.22	.24	1.68	1.73	2.19	1.11	.88	.49	.49
AC-FT	77770	45500	33940	29670	31620	223300	230400	291700	148000	116700	65180	65610

CAL YR 1985	TOTAL	490076	MEAN	1343	MAX	9240	MIN	220	CFSM	.54	IN.	7.29	AC-FT	972100
WTR YR 1986	TOTAL	685352	MEAN	1878	MAX	8520	MIN	320	CFSM	.75	IN.	10.20	AC-FT	1359000

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 above NGVD. See WSP 1730 for history of changes prior to Sept. 20, 1956.

REMARKS.--Estimated daily discharges: Nov. 20 to Feb. 26, and Mar. 13-20. Records good except those for estimated discharges, which are poor. U. S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--45 years, 266 ft³/s, 5.40 in/yr, 192,700 acre-ft/yr; median of yearly mean discharges, 230 ft³/s, 4.7 in/yr, 167,000 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 greater than base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 18	unknown	*7,960	*10.85	Apr. 28	1215	4,410	7.82
Apr. 27	1130	4,550	7.96				

Minimum daily discharge, 120 ft³/s, Nov. 24 to Dec. 15 and Jan. 6-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	295	202	120	140	160	793	507	1470	721	642	279	169
2	281	199	120	140	160	656	500	1260	665	543	271	165
3	269	189	120	140	190	745	537	1150	631	467	264	165
4	258	184	120	130	290	608	744	1080	672	434	262	165
5	242	178	120	130	800	533	1130	1010	648	410	264	163
6	231	178	120	120	500	484	1060	930	685	670	263	164
7	220	177	120	120	400	385	899	867	680	453	261	164
8	219	177	120	120	350	307	795	834	649	405	252	163
9	206	178	120	130	310	426	720	954	596	413	244	164
10	200	171	120	140	280	434	674	1470	632	454	241	171
11	204	166	120	150	260	389	643	1630	603	866	231	169
12	232	184	120	170	250	954	621	1350	571	663	225	160
13	244	197	120	170	240	1740	603	1630	547	472	233	160
14	227	189	120	160	230	940	674	1350	727	796	240	171
15	222	183	120	160	220	960	695	1070	716	608	230	271
16	210	189	130	180	210	790	647	1050	600	448	215	270
17	206	189	130	200	200	1050	618	1010	547	397	207	231
18	250	191	130	220	190	4960	703	918	517	363	194	211
19	313	201	130	220	180	3530	726	850	501	339	185	252
20	284	160	130	210	170	1850	732	811	483	320	183	330
21	266	140	130	210	170	934	700	777	497	312	429	660
22	252	130	130	220	170	790	648	747	518	310	291	490
23	246	130	130	210	170	696	615	716	498	303	235	387
24	241	120	130	210	160	641	588	700	467	300	209	345
25	226	120	130	200	300	614	571	686	451	566	199	500
26	221	120	130	200	700	586	678	680	438	549	209	435
27	221	120	140	200	2080	563	3120	706	432	399	240	344
28	218	120	140	190	1020	539	3810	752	421	351	224	310
29	208	120	140	180	---	531	2450	884	495	339	202	297
30	203	120	140	170	---	510	1870	833	1130	312	189	275
31	202	---	140	170	---	500	---	773	---	295	178	---
TOTAL	7317	4922	3930	5310	10360	29438	29278	30948	17738	14199	7349	7921
MEAN	236	164	127	171	370	950	976	998	591	458	237	264
MAX	313	202	140	220	2080	4960	3810	1630	1130	866	429	660
MIN	200	120	120	120	160	307	500	680	421	295	178	160
CFSM	.35	.25	.19	.26	.55	1.42	1.46	1.49	.88	.68	.35	.39
IN.	.41	.27	.22	.30	.58	1.64	1.63	1.72	.99	.79	.41	.44
AC-FT	14510	9760	7800	10530	20550	58390	58070	61390	35180	28160	14580	15710

CAL YR 1985	TOTAL	119975	MEAN	329	MAX	1730	MIN	120	CFSM	.49	IN.	6.67	AC-FT 238000
WTR YR 1986	TOTAL	168710	MEAN	462	MAX	4960	MIN	120	CFSM	.69	IN.	9.38	AC-FT 334600

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 above NGVD (U. S. Army 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.--Estimated daily discharges: Nov. 20 to Mar. 9, Apr. 21-27, Aug. 19-21 and 24-27. Records good except those for estimated daily discharges, which are poor. U. S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--28 years (water years 1959-86), 1,418 ft³/s, 5.46 in/yr, 1,027,000 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 greater than base discharge of 5,500 ft³/s (revised) and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 28	--	12,300	"ICE JAM"	May 18	1815	11,500	15.86
Mar. 13	1100	6,840	13.31	June 6	1645	5,810	13.00
Mar. 18	2100	*25,700	*21.01	June 30	0715	5,750	12.80
Apr. 28	1430	14,400	17.06				

Minimum daily discharge, 700 ft³/s Jan. 27 to Feb. 3 and Feb. 18-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1520	1200	880	760	700	6000	4910	10800	4500	3370	2310	1600
2	1610	1170	880	760	700	4500	4390	9950	4140	3290	2500	1430
3	1790	1150	880	740	700	4000	4040	10300	3900	3500	2630	1320
4	1890	1130	880	740	720	3900	4340	10800	3680	3690	2350	1220
5	1870	1120	860	740	900	3500	5400	10100	3880	3820	1990	1120
6	1800	1090	860	740	1600	2800	6610	8290	5210	4100	1820	1050
7	1720	1090	860	740	1200	2500	7200	6830	4440	3670	1690	1010
8	1670	1070	840	740	1100	2300	6960	5960	3770	3400	1560	951
9	1670	1070	840	740	1000	3000	7380	5500	3450	3370	1470	923
10	1590	1090	840	740	960	2640	8090	7570	3320	3420	1370	900
11	1550	1070	840	740	940	2470	7930	9320	3180	3770	1270	851
12	1550	1060	820	760	860	2800	6740	8020	3050	3530	1200	824
13	1570	1040	820	760	820	5870	5790	7980	3260	2900	1160	808
14	1540	1050	820	780	780	3890	5560	9060	3710	2720	1160	867
15	1600	1090	820	800	760	3470	5270	9000	3590	2850	1120	1090
16	1660	1090	800	800	740	3460	5030	10200	3040	2420	1130	1180
17	1660	1120	800	820	720	3810	4800	11200	2700	2340	1260	1210
18	1700	1150	800	840	700	15000	4810	11300	2510	2250	1140	1190
19	1740	1150	800	860	700	18800	4870	11000	2380	2090	1060	1280
20	1660	1100	800	880	700	15900	4650	9740	2270	1970	1050	1500
21	1560	1050	780	900	700	12200	4400	8740	2210	1860	1400	2070
22	1480	1000	780	920	700	9280	4100	8160	2410	1770	1280	2220
23	1470	970	780	900	700	9520	3900	7370	2800	1680	1100	2270
24	1450	940	780	860	700	10500	3600	6400	2690	1600	1050	2340
25	1410	940	780	800	740	10600	3500	5520	2900	1640	1000	2530
26	1380	920	780	760	1600	8510	3500	4810	2990	2040	980	2530
27	1380	920	780	700	3700	7560	9500	4280	3140	1880	1050	2390
28	1320	900	760	700	11000	7200	13000	4280	3110	1870	1120	2340
29	1280	900	760	700	---	7140	13400	4730	2820	1860	1390	2330
30	1240	900	760	700	---	6600	12300	4380	4290	1700	1720	2210
31	1210	---	760	700	---	5840	---	4480	---	1930	1760	---
TOTAL	48540	31540	25240	24120	37140	205560	185970	246070	99340	82300	45090	45554
MEAN	1566	1051	814	778	1326	6631	6199	7938	3311	2655	1455	1518
MAX	1890	1200	880	920	11000	18800	13400	11300	5210	4100	2630	2530
MIN	1210	900	760	700	700	2300	3500	4280	2210	1600	980	808
CFSM	.44	.30	.23	.22	.38	1.88	1.76	2.25	.94	.75	.41	.43
IN.	.51	.33	.27	.25	.39	2.17	1.96	2.60	1.05	.87	.48	.48
AC-FT	96280	62560	50060	47840	73670	407700	368900	488100	197000	163200	89440	90360

CAL YR 1985	TOTAL	663157	MEAN	1817	MAX	14300	MIN	461	CFSM	.52	IN.	7.00	AC-FT	1315000
WTR YR 1986	TOTAL	1076464	MEAN	2949	MAX	18800	MIN	700	CFSM	.84	IN.	11.36	AC-FT	2135000

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 above 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.--Estimated daily discharges: Nov. 20 to Feb. 26. Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--46 years, 133 ft³/s, 4.44 in/yr, 96,360 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.--Peak discharges greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 27	0730	*9,900	*19.69	Apr. 28	0430	5,150	14.53

Minimum daily discharge, 70 ft³/s Nov. 25 to Dec. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	92	70	78	92	170	173	610	253	315	145	120
2	100	89	70	80	96	188	153	525	239	235	144	118
3	83	90	70	82	100	192	188	545	231	225	135	119
4	91	90	70	82	110	158	369	468	229	205	137	144
5	84	91	70	79	120	154	339	429	258	195	141	125
6	84	92	70	76	150	131	230	387	230	300	140	123
7	84	90	74	74	130	104	201	362	248	219	137	125
8	83	90	74	74	110	117	186	353	251	426	127	117
9	80	91	74	78	100	143	174	461	213	629	127	117
10	82	91	74	84	90	145	168	837	757	380	136	115
11	86	91	74	90	85	125	167	521	339	531	125	116
12	105	94	74	90	84	747	162	416	239	322	127	111
13	101	98	74	90	82	775	158	494	226	217	172	110
14	87	99	74	92	82	349	218	357	1310	980	155	114
15	85	98	74	95	80	270	214	334	451	410	136	202
16	86	112	74	100	80	219	201	574	312	260	131	148
17	86	110	74	105	80	200	194	502	271	230	164	153
18	140	111	74	110	84	2550	234	354	259	205	140	132
19	149	117	74	110	82	622	226	330	249	198	132	242
20	107	100	74	100	80	297	192	315	241	185	129	233
21	98	90	74	96	78	263	199	308	249	179	414	148
22	95	80	74	92	78	241	177	295	260	177	208	136
23	93	74	74	87	82	223	162	294	234	174	147	137
24	93	72	74	84	90	204	158	291	221	167	133	150
25	90	70	74	82	110	199	162	281	214	167	127	168
26	91	70	78	74	1700	195	452	284	208	165	156	133
27	90	70	78	72	928	183	6220	285	202	156	189	120
28	89	70	78	82	209	178	3060	307	198	152	128	120
29	89	70	78	86	---	171	896	303	203	185	123	152
30	91	70	78	88	---	163	804	285	1090	158	124	149
31	92	---	78	90	---	165	---	263	---	147	122	---
TOTAL	2925	2672	2294	2702	5192	9841	16437	12370	9885	8494	4651	4197
MEAN	94.4	89.1	74.0	87.2	185	317	548	399	330	274	150	140
MAX	149	117	78	110	1700	2550	6220	837	1310	980	414	242
MIN	80	70	70	72	78	104	153	263	198	147	122	110
CFSM	.23	.22	.18	.21	.45	.78	1.35	.98	.81	.67	.37	.34
IN.	.27	.24	.21	.25	.47	.90	1.50	1.13	.90	.78	.43	.38
AC-FT	5800	5300	4550	5360	10300	19520	32600	24540	19610	16850	9230	8320

CAL YR 1985	TOTAL	51142	MEAN	140	MAX	536	MIN	70	CFSM	.34	IN.	4.67	AC-FT	101400
WTR YR 1986	TOTAL	81660	MEAN	224	MAX	6220	MIN	70	CFSM	.55	IN.	7.46	AC-FT	162000

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 above NGVD (Chicago and Northwestern Railway Company bench mark). See WSP 1918 for history of changes prior to Oct. 18, 1960.

REMARKS.--Estimated daily discharges: Nov. 20 to Feb. 26 and Mar. 7, 8. Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--54 years (water years 1919-24, 1939-86), 328 ft³/s, 5.11 in/yr, 237,600 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 greater than 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. 26	2330	9,740	14.90	Mar. 18	0900	*11,900	*16.37

Minimum daily discharge, 110 ft³/s Dec. 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	252	164	115	130	150	929	358	1220	658	1140	297	231
2	230	160	110	130	160	775	345	965	606	768	294	223
3	213	153	110	140	160	850	386	907	568	637	286	221
4	199	152	115	140	180	671	901	802	560	553	290	238
5	185	153	120	140	180	574	1420	735	577	620	375	231
6	179	154	120	140	190	512	1240	671	593	2680	342	208
7	175	151	120	130	210	265	904	608	595	1030	318	209
8	170	153	120	130	190	280	740	572	590	869	294	200
9	164	153	120	130	160	338	636	756	537	1490	284	195
10	166	146	120	130	160	344	583	2160	644	1370	289	195
11	166	147	130	140	160	313	554	1980	836	1490	276	197
12	180	154	130	150	160	913	522	1420	637	1300	264	190
13	181	166	130	150	160	1920	499	2600	568	746	298	187
14	168	163	130	150	160	1080	560	1550	2680	1940	499	198
15	159	160	130	150	160	787	654	1180	1420	1080	365	305
16	157	171	130	150	150	817	550	1320	928	674	304	294
17	162	180	130	160	150	629	519	1670	751	576	325	292
18	220	173	130	170	150	7860	586	1090	660	508	274	303
19	242	167	130	190	150	3340	639	956	609	463	266	371
20	222	160	130	210	150	1620	582	884	571	425	344	532
21	210	150	130	200	150	982	579	839	579	401	1970	354
22	206	140	130	180	150	774	532	784	567	387	794	459
23	198	140	130	170	150	601	505	742	522	373	459	396
24	190	130	130	170	150	520	491	730	474	358	368	353
25	181	130	130	150	160	484	481	697	450	357	325	385
26	173	130	130	140	1000	452	536	673	440	381	482	395
27	171	120	130	140	4050	407	656	666	443	367	606	1060
28	173	120	130	140	1480	383	2960	720	426	343	338	855
29	164	120	130	150	---	363	2880	723	638	342	287	720
30	164	120	130	150	---	340	1630	796	2450	327	259	504
31	164	---	130	150	---	323	---	707	---	311	244	---
TOTAL	5784	4480	3900	4700	10580	30446	24428	32123	22577	24306	12416	10501
MEAN	187	149	126	152	378	982	814	1036	753	784	401	350
MAX	252	180	130	210	4050	7860	2960	2600	2680	2680	1970	1060
MIN	157	120	110	130	150	265	345	572	426	311	244	187
CFSM	.21	.17	.14	.17	.43	1.13	.93	1.19	.86	.90	.46	.40
IN.	.25	.19	.17	.20	.45	1.30	1.04	1.37	.96	1.04	.53	.45
AC-FT	11470	8890	7740	9320	20990	60390	48450	63720	44780	48210	24630	20830

CAL YR 1985	TOTAL	106258	MEAN	291	MAX	1950	MIN	110	CFSM	.33	IN.	4.54	AC-FT	210800
WTR YR 1986	TOTAL	186241	MEAN	510	MAX	7860	MIN	110	CFSM	.59	IN.	7.95	AC-FT	369400

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 above 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.--Estimated daily discharges: Dec. 18, 19, and Mar. 10-14. Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. U. S. National Weather Service gage-height telemeter at station. U. S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--58 years, 30,730 ft³/s, 22,264,000 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, 81,100 ft³/s Mar. 19, gage-height, 22.63 ft; maximum gage-height 23.71 ft, April 29; minimum daily discharge, 14,900 ft³/s Dec. 27; minimum daily gage height 11.75 ft Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38500	37200	33900	20500	20000	29000	41500	57900	55400	61600	42800	49100
2	38000	36400	34500	21600	20100	27400	41000	56500	56300	57500	44200	48800
3	37600	35700	35800	21600	20600	26800	41000	57000	55400	51600	44900	49100
4	37300	35300	36600	21800	21100	26600	42800	57200	55200	49300	44900	49500
5	36900	35400	33700	21700	21500	27400	45800	55800	55500	50000	45100	48800
6	35600	35200	31500	21100	26200	28800	47900	53100	55600	53800	44500	48300
7	35000	35400	30900	19300	25300	30000	47600	52500	55100	52800	44700	48400
8	34100	35900	29800	19500	21700	29500	46700	51800	53800	49000	43800	48000
9	34300	35800	29400	18600	20100	28300	47600	50700	52600	50400	43800	45600
10	34600	35900	27600	19400	18200	28600	48000	52800	52000	51600	43400	45300
11	34200	36200	25200	21900	18700	28800	47900	55000	53500	50900	42800	45500
12	33800	35900	24300	22100	18800	29700	47400	55400	51900	53000	41900	45100
13	34000	35600	23300	21500	19700	49000	45900	59600	50400	49500	40900	44700
14	34400	35700	23000	21000	20600	46000	45000	62600	57200	49100	40900	45100
15	34900	36000	22400	20200	20900	40300	47100	64000	62200	49900	41200	46500
16	35600	35700	22300	19900	21400	37300	48800	65100	57800	47200	42500	47400
17	36200	35700	23600	20000	21100	35200	45300	71400	53300	45500	42800	46800
18	36700	35500	23300	20800	21100	53000	45200	72900	49300	45100	43600	47300
19	37200	35900	21800	21600	22800	76300	48900	73800	49300	44400	43700	50900
20	37300	35500	21300	21500	22700	62600	51300	72600	48500	43600	42800	51700
21	36800	34400	21400	21200	21000	50500	50900	71500	47600	43300	45900	56000
22	36600	32800	21500	21400	20300	45600	51500	70100	50300	42300	45100	56400
23	36600	34000	21300	21000	19600	46600	53200	67700	51100	41900	42900	52800
24	36700	35000	24200	19000	21900	46600	53400	64900	50300	41900	41900	54100
25	36700	33300	24800	20300	21900	46300	51100	62200	51800	42200	42700	53700
26	37100	32500	20600	21200	22700	45700	50800	59000	53000	44600	44100	54100
27	37100	33000	14900	20400	33500	45000	60100	56600	53300	44400	46000	55000
28	36800	33400	17800	17800	29800	44400	71600	55800	55400	43500	45900	56800
29	36800	33900	22200	17000	---	43500	72400	55900	54800	43100	45900	60300
30	37100	33500	20100	19500	---	42500	61900	56000	55400	43000	46400	61100
31	37600	---	19500	21500	---	42300	---	55800	---	42000	47600	---
TOTAL	1122100	1051700	782500	635900	613300	1239600	1499600	1873200	1603300	1478000	1359600	1512200
MEAN	36200	35060	25240	20510	21900	39990	49990	60430	53440	47680	43860	50410
MAX	38500	37200	36600	22100	33500	76300	72400	73800	62200	61600	47600	61100
MIN	33800	32500	14900	17000	18200	26600	41000	50700	47600	41900	40900	44700
AC-FT	2226000	2086000	1552000	1261000	1216000	2459000	2974000	3715000	3180000	2932000	2697000	2999000

CAL YR 1985 TOTAL 12655200 MEAN 34670 MAX 68800 MIN 14900 AC-FT 25102000
WTR YR 1986 TOTAL 14771000 MEAN 40470 MAX 76300 MIN 14900 AC-FT 29298000

06610000 MISSOURI RIVER AT OMAHA, NE--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 microsiemens Dec. 4,5, 1980; minimum daily, 335 microsiemens 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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (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)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)
OCT												
17...	1030	36400	790	8.20	12.0	18	10.0	96	736	64	82	74
JAN												
10...	1045	19900	810	7.80	0.0	11	13.3	93	746	170	150	91
FEB												
26...	1200	22400	779	8.50	2.0	15	12.9	98	726	100	1200	75
APR												
21...	1200	50000	772	8.38	9.0	60	9.7	87	738	1200	K11000	140
JUN												
23...	0930	50600	730	7.85	24.0	150	6.6	81	737	K2900	4000	87
SEP												
04...	1100	49600	752	8.03	22.5	15	7.7	92	738	3300	650	86

DATE	HARD-NESS (MG/L AS CACO3) (00900)	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 WH WAT TOTAL FIELD MG/L AS CACO3 (00410)	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3) (99430)	BICAR-BONATE IT-FLD (MG/L AS HCO3) (99440)	CAR-BONATE IT-FLD (MG/L AS CO3) (99445)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT												
17...	270	65	27	62	33	2	4.6	197	200	243	0	210
JAN												
10...	310	77	28	62	30	2	5.3	212	217	264	0	200
FEB												
26...	270	66	25	59	32	2	5.4	192	193	235	0	210
APR												
21...	320	79	31	37	19	0.9	6.6	189	189	231	0	200
JUN												
23...	260	68	23	52	29	1	6.3	173	178	217	0	200
SEP												
04...	260	67	23	70	36	2	5.5	172	177	216	0	230

K Results based on colony count outside ideal range.

06610000 MISSOURI RIVER AT OMAHA, NE--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT												
17...	14	<0.1	8.7	514	510	0.7	50500	1.10	<0.01	0.03	0.06	0.7
JAN												
10...	13	0.5	13	534	530	0.73	28700	1.10	0.01	0.15	0.16	0.7
FEB												
26...	12	0.5	11	518	510	0.7	31300	0.86	0.01	0.08	0.08	0.5
APR												
21...	13	0.4	11	514	490	0.7	69400	2.50	0.02	0.12	0.17	1.6
JUN												
23...	13	0.4	11	483	480	0.66	66000	1.30	0.02	0.07	0.08	1.4
SEP												
04...	17	0.4	8.9	584	530	0.79	78200	0.39	0.01	<0.01	<0.01	0.6

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	SEDIMENT, SUSPENDED (MG/L) (80154)	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)
OCT												
17...	0.02	0.02	0.11	371	36500	34	2	<10	55	<0.5	<1	<1
JAN												
10...	0.04	0.04	0.08	--	--	--	--	--	--	--	--	--
FEB												
26...	0.04	0.04	0.10	308	18600	41	2	<10	58	<0.5	<1	<1
APR												
21...	0.08	0.09	0.38	691	93300	51	--	--	--	--	--	--
JUN												
23...	0.06	0.08	0.21	691	94400	75	--	--	--	--	--	--
SEP												
04...	0.03	0.03	0.10	308	41200	26	2	<10	58	1	2	<1

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	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)
OCT											
17...	<3	2	5	<1	47	3	0.2	<10	42	2	<1
JAN											
10...	--	--	--	--	--	--	--	--	--	--	--
FEB											
26...	<3	4	<3	2	47	14	<0.1	<10	5	2	<1
APR											
21...	--	--	--	--	--	--	--	--	--	--	--
JUN											
23...	--	--	--	--	--	--	--	--	--	--	--
SEP											
04...	<3	2	6	<5	59	1	0.1	<10	2	2	<1

DATE	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, DISSOLVED (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, DISSOLVED, RADON METHOD (PCI/L) (09511)	URANIUM DISSOLVED, EXTRACTION (UG/L) (80020)
OCT											
17...	540	<6	10	--	--	--	--	--	--	--	--
JAN											
10...	--	--	--	8.7	<0.8	8.3	5.9	0.5	0.5	0.05	5.1
FEB											
26...	600	<6	12	--	--	--	--	--	--	--	--
APR											
21...	--	--	--	--	--	--	--	--	--	--	--
JUN											
23...	--	--	--	--	--	--	--	--	--	--	--
SEP											
04...	560	<6	35	--	--	--	--	--	--	--	--

06610000 MISSOURI RIVER AT OMAHA, NE--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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												
09...	WATER TEMPERATURE, 12.0 ° C (1100-1430 HOURS); DISCHARGE, 34,200 ft³/s.											
09...	1118	200	11.6	2.90	4.26	198	--	65	80	99	100	--
09...	1121	200	--	6.30	4.04	255	--	47	61	99	100	--
09...	1124	200	--	9.00	3.39	335	--	40	54	98	100	--
09...	1127	200	--	10.5	3.50	421	--	34	46	90	100	--
09...	1130	200	--	11.3	3.30	456	--	31	44	93	100	--
09...	1148	310	13.6	3.10	3.76	478	--	29	43	98	100	--
09...	1151	310	--	6.80	3.50	550	--	27	37	90	100	--
09...	1154	310	--	9.70	3.39	652	--	24	35	95	100	--
09...	1157	310	--	11.3	2.85	770	--	22	32	92	100	--
09...	1200	310	--	12.2	2.47	790	--	17	26	99	100	--
09...	1203	310	--	12.8	2.63	1020	--	16	25	94	100	--
09...	1215	410	--	--	--	4090	1	3	--	--	--	--
09...	1218	410	13.6	3.10	5.02	--	--	--	--	--	--	--
09...	1221	410	--	6.80	4.71	--	--	--	--	--	--	--
09...	1224	410	--	9.70	4.67	--	--	--	--	--	--	--
09...	1227	410	--	11.3	4.37	--	--	--	--	--	--	--
09...	1230	410	--	12.2	4.04	--	--	--	--	--	--	--
09...	1233	410	--	12.8	3.94	--	--	--	--	--	--	--
09...	1248	510	19.0	4.40	5.13	331	--	43	60	99	100	--
09...	1251	510	--	9.50	4.37	396	--	37	54	99	100	--
09...	1254	510	--	13.6	4.37	584	--	27	42	98	100	--
09...	1257	510	--	15.8	3.94	617	--	26	40	98	100	--
09...	1300	510	--	17.1	3.39	865	--	19	31	98	100	--
09...	1303	510	--	17.9	3.28	1280	--	15	25	97	100	--
09...	1318	610	19.6	4.50	4.80	201	--	70	85	99	100	--
09...	1321	610	--	9.80	4.37	255	--	56	70	100	--	--
09...	1324	610	--	14.0	4.15	264	--	61	73	100	--	--
09...	1327	610	--	16.3	3.46	337	--	50	61	98	100	--
09...	1330	610	--	17.6	2.96	375	--	39	52	98	100	--
09...	1333	610	--	18.4	2.96	473	--	36	46	--	100	96
APR												
30...	WATER TEMPERATURE, 13.0 ° C (1230-1615 HOURS); DISCHARGE, 60,200 ft³/s.											
30...	1240	200	16.8	3.90	5.13	1530	--	91	95	100	--	--
30...	1245	200	--	8.40	4.85	1560	--	87	91	99	100	--
30...	1250	200	--	12.0	4.46	1720	--	83	89	98	100	--
30...	1255	200	--	14.0	4.07	2030	--	71	77	94	100	--
30...	1300	200	--	15.1	3.20	2170	--	64	70	87	100	--
30...	1305	200	--	15.8	3.50	2180	--	66	72	88	100	--
30...	1320	320	18.4	4.30	5.28	1500	--	87	91	98	100	--
30...	1325	320	--	9.20	5.22	1600	--	82	87	99	100	--
30...	1330	320	--	13.1	4.54	1760	--	76	81	94	100	--
30...	1335	320	--	15.3	4.22	1980	--	69	74	95	100	--
30...	1338	320	--	16.6	4.22	2260	--	64	68	88	100	--
30...	1340	320	--	17.3	4.09	2240	--	61	66	88	100	--
30...	1415	660	27.8	6.40	5.17	1440	--	94	97	100	--	--
30...	1420	660	--	13.9	4.65	1440	--	93	97	100	--	--
30...	1425	660	--	19.9	4.39	1390	--	93	98	100	--	--
30...	1430	660	--	23.2	3.83	1440	--	92	96	100	--	--
30...	1435	660	--	25.0	2.96	1480	--	91	96	100	--	--
30...	1440	660	--	26.2	1.83	1530	--	88	94	99	100	--
30...	1445	660	--	26.8	1.18	1730	--	79	84	91	100	--
30...	1455	570	25.0	5.80	6.43	1380	--	92	97	100	--	--
30...	1500	570	--	12.5	5.76	1550	--	85	92	100	--	--
30...	1505	570	--	17.9	5.02	1590	--	83	90	100	--	--
30...	1510	570	--	20.8	4.24	1880	--	76	84	100	--	--
30...	1515	570	--	22.5	4.04	1820	--	73	80	98	100	--
30...	1518	570	--	23.5	3.57	2280	--	62	71	98	100	--
30...	1520	570	--	24.1	3.35	2530	--	58	66	97	100	--
30...	1540	455	20.0	4.60	5.93	--	--	--	--	--	--	--
30...	1545	445	--	10.0	5.89	--	--	--	--	--	--	--
30...	1550	455	--	14.3	5.52	--	--	--	--	--	--	--
30...	1553	455	--	16.7	5.13	--	--	--	--	--	--	--
30...	1556	455	--	18.0	4.91	--	--	--	--	--	--	--
30...	1558	455	--	--	--	1690	26	73	--	--	--	--
30...	1600	455	--	18.8	4.98	--	--	--	--	--	--	--

06610000 MISSOURI RIVER AT OMAHA, NE--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)	% FINER SED. SUSP. FALL DIAM. THAN .004 MM (70338)	% FINER SED. SUSP. FALL DIAM. THAN .062 MM (70342)	% FINER SED. SUSP. FALL DIAM. THAN .125 MM (70343)	% FINER SED. SUSP. FALL DIAM. THAN .250 MM (70344)	% FINER SED. SUSP. FALL DIAM. THAN .500 MM (70345)	% FINER SED. SUSP. FALL DIAM. THAN 1.00 MM (70346)
JUN												
11...	WATER TEMPERATURE, 22.5 ° C (1030-1430 HOURS); DISCHARGE, 53,700 ft³/s.											
11...	1030	150	15.4	3.60	4.59	2190	--	97	98	100	--	--
11...	1035	150	--	7.70	4.50	2280	--	92	94	96	100	--
11...	1040	150	--	11.0	3.74	2260	--	95	96	100	--	--
11...	1045	150	--	12.8	3.94	2360	--	90	91	99	100	--
11...	1050	150	--	13.9	3.72	2490	--	87	89	98	100	--
11...	1055	150	--	14.5	3.44	2410	--	88	90	98	100	--
11...	1115	300	13.8	3.20	5.45	2210	--	99	99	100	--	--
11...	1120	300	--	6.90	5.28	2270	--	97	98	100	--	--
11...	1125	300	--	9.90	5.02	2390	--	90	92	99	100	--
11...	1130	300	--	11.5	4.59	2380	--	93	93	99	100	--
11...	1135	300	--	12.4	4.59	3170	--	69	71	89	100	--
11...	1140	300	--	13.0	4.04	4630	--	48	49	74	99	100
11...	1200	425	19.0	4.40	5.98	--	--	--	--	--	--	--
11...	1210	425	--	9.50	5.22	--	--	--	--	--	--	--
11...	1220	425	--	13.6	5.24	--	--	--	--	--	--	--
11...	1230	425	--	15.8	4.96	--	--	--	--	--	--	--
11...	1240	425	--	17.1	4.96	--	--	--	--	--	--	--
11...	1245	425	--	17.9	3.07	--	--	--	--	--	--	--
11...	1250	425	--	--	--	886	6	11	--	--	--	--
11...	1300	540	19.4	4.50	6.47	1740	--	93	95	100	--	--
11...	1304	540	--	9.70	6.39	1710	--	94	96	100	--	--
11...	1308	540	--	13.9	5.85	1810	--	92	94	100	--	--
11...	1312	540	--	16.2	5.91	1930	--	87	90	99	100	--
11...	1316	540	--	17.5	5.24	2050	--	84	87	99	100	--
11...	1320	540	--	18.3	4.83	2040	--	83	86	99	100	--
11...	1330	625	24.4	5.60	5.61	1610	--	97	98	100	--	--
11...	1334	625	--	12.2	4.96	1700	--	94	96	100	--	--
11...	1338	625	--	17.4	4.76	1700	--	92	94	99	100	--
11...	1342	625	--	20.3	3.94	1830	--	88	90	99	100	--
11...	1346	625	--	22.0	3.46	1920	--	83	85	98	100	--
11...	1350	625	--	23.0	2.16	2220	--	73	75	96	100	--
11...	1355	625	--	23.5	2.09	2310	--	70	72	97	100	--
JUL												
23...	WATER TEMPERATURE, 26.0 ° C (1000-1345 HOURS); DISCHARGE, 41,800 ft³/s.											
23...	1010	160	14.2	3.30	4.48	194	--	86	95	100	--	--
23...	1015	160	--	7.10	4.00	232	--	75	83	100	--	--
23...	1020	160	--	10.1	3.50	293	--	64	73	99	100	--
23...	1025	160	--	11.8	3.18	367	--	52	62	96	100	--
23...	1030	160	--	12.8	2.05	529	--	40	49	93	100	--
23...	1035	160	--	13.4	1.22	512	--	39	47	89	100	--
23...	1105	310	13.2	3.10	4.46	287	--	62	70	100	--	--
23...	1110	310	--	6.60	4.54	346	--	54	64	98	100	--
23...	1115	310	--	9.40	3.98	542	--	36	45	94	100	--
23...	1120	310	--	11.0	3.68	704	--	27	32	88	100	--
23...	1125	310	--	11.9	3.61	612	--	29	36	89	100	--
23...	1130	310	--	12.4	3.33	589	--	30	35	87	100	--
23...	1200	435	18.0	4.20	5.35	69	--	--	--	--	--	--
23...	1205	435	--	9.00	5.13	--	--	--	--	--	--	--
23...	1210	435	--	12.9	4.91	--	--	--	--	--	--	--
23...	1215	435	--	15.0	5.06	--	--	--	--	--	--	--
23...	1220	435	--	16.2	4.91	--	--	--	--	--	--	--
23...	1225	435	--	17.0	4.76	--	--	--	--	--	--	--
23...	1227	435	--	--	--	375	16	38	--	--	--	--
23...	1230	515	18.6	4.30	5.24	224	--	74	81	100	--	--
23...	1235	515	--	9.30	4.91	284	--	60	70	100	--	--
23...	1240	515	--	13.3	4.85	341	--	51	62	100	--	--
23...	1245	515	--	15.5	3.96	449	--	40	50	98	100	--
23...	1250	515	--	16.7	3.61	561	--	35	44	94	100	--
23...	1255	515	--	17.5	3.05	488	--	37	47	95	100	--
23...	1300	595	22.0	5.10	4.70	234	--	80	91	100	--	--
23...	1304	595	--	11.0	4.15	246	--	71	82	100	--	--
23...	1308	595	--	15.7	3.35	273	--	68	78	100	--	--
23...	1312	595	--	18.3	2.89	280	--	68	76	100	--	--
23...	1316	595	--	19.8	2.70	291	--	61	71	98	100	--
23...	1320	595	--	20.7	2.42	312	--	60	68	95	100	--
23...	1324	595	--	21.2	2.53	333	--	54	61	94	100	--

06610000 MISSOURI RIVER AT OMAHA, NE--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)
AUG												
27...	WATER TEMPERATURE 24.0 ° C (1100-1430 HOURS); DISCHARGE, 46,000 ft³/s.											
27...	1110	180	14.2	3.30	4.20	311	--	72	80	100	--	--
27...	1115	180	--	7.10	3.85	334	--	68	76	94	100	--
27...	1120	180	--	10.1	3.72	361	--	61	68	98	100	--
27...	1125	180	--	11.8	3.28	399	--	54	62	96	100	--
27...	1130	180	--	12.8	3.11	485	--	45	52	94	100	--
27...	1135	180	--	13.4	2.44	469	--	47	55	95	100	--
27...	1155	325	13.8	3.20	5.24	304	--	66	76	100	--	--
27...	1200	325	--	6.90	5.04	376	--	55	65	100	--	--
27...	1205	325	--	9.90	4.78	373	--	56	65	98	100	--
27...	1210	325	--	11.5	4.22	410	--	55	64	92	100	--
27...	1215	325	--	12.4	4.11	548	--	40	50	97	100	--
27...	1220	325	--	13.0	3.50	666	--	32	42	95	100	--
27...	1228	425	20.2	4.70	5.13	--	--	--	--	--	--	--
27...	1230	425	--	10.1	5.02	--	--	--	--	--	--	--
27...	1235	425	--	14.4	4.48	--	--	--	--	--	--	--
27...	1240	425	--	16.8	4.11	--	--	--	--	--	--	--
27...	1245	425	--	18.2	3.98	--	--	--	--	--	--	--
27...	1250	425	--	19.0	3.39	--	--	--	--	--	--	--
27...	1252	425	--	--	--	461	15	36	--	--	--	--
27...	1305	510	20.6	4.80	5.45	285	--	65	77	100	--	--
27...	1310	510	--	10.3	5.15	368	--	59	71	100	--	--
27...	1315	510	--	14.7	4.91	384	--	58	68	100	--	--
27...	1320	510	--	17.2	4.07	515	--	38	51	98	100	--
27...	1325	510	--	18.5	3.98	565	--	35	46	96	100	--
27...	1330	510	--	19.4	3.94	548	--	34	45	97	100	--
27...	1340	620	23.0	5.30	4.74	230	--	81	92	100	--	--
27...	1345	620	--	11.5	4.44	254	--	78	88	100	--	--
27...	1350	620	--	16.4	4.13	299	--	75	99	100	--	--
27...	1355	620	--	19.2	3.42	337	--	77	86	100	--	--
27...	1400	620	--	20.7	2.72	298	--	68	77	98	100	--
27...	1405	620	--	21.6	2.20	402	--	49	56	91	100	--
27...	1410	620	--	22.2	1.68	278	--	70	81	99	100	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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)
OCT										
09...	1430	5	0	1	25	94	98	100	--	--
APR										
30...	1615	5	0	1	20	87	98	99	100	--
JUN										
11...	1430	5	0	1	22	93	99	100	--	--
JUL										
23...	1335	5	0	1	27	92	98	100	--	--
AUG										
27...	1430	5	0	1	23	91	97	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.

WATER DISCHARGE RECORDS

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 above NGVD, supplementary adjustment of 1954. See WSP 1918 or 1919 for history of changes prior to Apr. 1, 1963.

REMARKS.--Estimated daily discharges: Nov. 30, Dec. 2, 3, and 13-15. Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. U. S. National Weather Service gage-height telemeter at station. U.S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--57 years, 36,880 ft³/s, 26,720,000 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, 99,800 ft³/s Mar. 19, gage height, 18.62 ft; minimum daily, 20,700 ft³/s Dec. 28; minimum gage height, 4.87 ft Dec. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42200	40100	36500	22800	25600	41800	49300	75800	62500	71300	44500	51600
2	42100	39900	36800	23800	25600	38200	49400	72200	62300	80900	44800	50900
3	41600	40200	37000	25000	27700	39100	51600	70400	61500	71500	46200	50500
4	41300	40500	37700	25600	29600	37400	55300	70000	61400	65400	46000	51800
5	41400	40600	36900	25500	29800	35900	57800	66200	61900	62800	47200	51500
6	41100	41200	34300	25500	31300	36000	59100	64200	62600	67900	47500	52500
7	40700	41200	32000	24300	34200	36700	58900	61100	62900	66600	49100	53400
8	40900	41600	30900	23800	31900	36000	57900	59400	62800	62000	49500	54000
9	41300	41700	30000	23800	30300	35500	58600	60600	62500	63700	49400	54200
10	41700	41800	29200	23500	28500	35100	58500	63800	62200	69800	51700	52100
11	41600	41800	27200	24800	26300	37000	58600	65200	66100	66700	50000	49100
12	41300	41400	26500	25700	25200	37500	57400	64300	65500	72400	49700	48300
13	41300	40200	26200	25900	25000	50100	56500	67400	61500	70900	49200	48100
14	41600	40700	26000	26200	24800	64800	55200	70300	62100	64300	49300	48400
15	41800	40900	25700	26100	25200	56700	56200	71300	73500	63000	51900	49300
16	41800	41500	25300	26200	25200	50300	58600	72400	71800	58800	52000	50700
17	42400	41100	25300	26600	24800	47100	56200	79500	63200	55800	50800	51600
18	43100	41300	25400	27300	24800	54600	56200	85700	56200	53900	52500	54100
19	44900	41900	25300	28100	25800	94900	60000	84500	53300	52700	51200	61700
20	44200	41200	24300	28500	26700	92900	62600	80800	53400	51100	50200	68200
21	43600	38000	24000	29100	27000	74300	62600	77300	53300	50200	55500	71800
22	42800	35800	23900	28500	27700	62400	61500	73500	55300	49200	58700	74200
23	42800	36800	24000	28600	28800	60000	61100	70400	57900	48100	53300	75200
24	41900	38100	24900	28400	29500	58500	60800	68000	57500	47500	50700	72500
25	40900	37400	25800	28600	30100	56600	59600	65600	57100	46500	50000	71900
26	40100	36900	24500	28500	31600	54000	59100	64000	57000	46900	50600	68500
27	40800	37200	21700	26400	44800	51900	63500	62500	58000	46700	51900	67800
28	40500	37700	20700	25800	48500	52800	84900	62400	59800	47100	51900	68200
29	40300	37700	23700	25000	---	53100	93700	62400	61300	46500	51600	72200
30	40300	36600	23900	24300	---	51200	83000	62800	62500	45900	50900	75300
31	40300	---	22900	25800	---	50000	---	62400	---	45100	50700	---
TOTAL	1292600	1193000	858500	808000	816300	1582400	1823700	2136400	1828900	181120	1558500	1769600
MEAN	41700	39770	27690	26060	29150	51050	60790	68920	60960	5843	50270	58990
MAX	44900	41900	37700	29100	48500	94900	93700	85700	73500	8090	58700	75300
MIN	40100	35800	20700	22800	24800	35100	49300	59400	53300	4510	44500	48100
AC-FT	2564000	2366000	1703000	1603000	1619000	3139000	3617000	4238000	3628000	359300	3091000	3510000

CAL YR 1985 TOTAL 14833700 MEAN 40640 MAX 79100 MIN 20700 AC-FT 29423000
WTR YR 1986 TOTAL 17479100 MEAN 47890 MAX 94900 MIN 20700 AC-FT 34670000

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 microsiemens Dec. 17, 1962; minimum daily, 273 microsiemens 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 1985 TO SEPTEMBER 1986

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)	% FINER SED. SUSP. FALL DIAM. THAN .004 MM (70338)	% FINER SED. SUSP. FALL DIAM. THAN .062 MM (70342)	% FINER SED. SUSP. FALL DIAM. THAN .125 MM (70343)	% FINER SED. SUSP. FALL DIAM. THAN .250 MM (70344)	% FINER SED. SUSP. FALL DIAM. THAN .500 MM (70345)	% FINER SED. SUSP. FALL DIAM. THAN 1.00 MM (70346)
OCT												
08...	WATER TEMPERATURE, 12.0 ° C (1015-1430 HOURS); DISCHARGE, 40,800 ft³/s.											
08...	1025	110	16.2	3.70	5.45	333	--	46	57	95	100	--
08...	1030	110	--	8.00	5.13	377	--	41	55	94	99	100
08...	1035	110	--	11.4	4.76	559	--	27	38	86	100	--
08...	1040	110	--	13.3	4.15	643	--	25	35	86	100	--
08...	1045	110	--	14.4	4.33	679	--	23	32	82	100	--
08...	1050	110	--	15.1	3.68	944	--	17	25	84	100	--
08...	1140	190	12.8	3.00	6.11	395	--	40	54	98	100	--
08...	1145	190	--	6.40	6.11	747	--	23	34	90	100	--
08...	1150	190	--	9.10	5.67	931	--	19	29	95	100	--
08...	1155	190	--	10.7	5.45	1090	--	15	24	83	100	--
08...	1200	190	--	11.5	5.02	873	--	20	30	90	100	--
08...	1205	190	--	12.0	5.13	1120	--	15	24	88	100	--
08...	1210	300	--	--	--	733	8	19	--	--	--	--
08...	1213	300	12.4	2.90	6.21	--	--	--	--	--	--	--
08...	1216	300	--	6.20	5.52	--	--	--	--	--	--	--
08...	1219	300	--	8.90	5.24	--	--	--	--	--	--	--
08...	1222	300	--	10.3	5.28	--	--	--	--	--	--	--
08...	1225	300	--	11.2	4.67	--	--	--	--	--	--	--
08...	1238	420	13.8	3.20	4.91	276	--	56	66	100	--	--
08...	1241	420	--	6.90	4.59	526	--	35	43	97	100	--
08...	1244	420	--	9.90	4.04	375	--	44	57	98	100	--
08...	1247	420	--	11.5	3.50	504	--	31	43	96	100	--
08...	1250	420	--	12.4	3.39	600	--	28	40	96	99	100
08...	1253	420	--	13.0	3.24	755	--	23	33	95	100	--
08...	1305	540	19.0	4.40	4.15	192	--	88	97	100	--	--
08...	1310	540	--	9.50	3.65	212	--	88	99	100	--	--
08...	1315	540	--	13.6	3.33	223	--	90	99	100	--	--
08...	1320	540	--	15.8	3.02	188	--	85	97	100	--	--
08...	1325	540	--	17.1	2.92	213	--	79	88	100	--	--
08...	1330	540	--	17.9	2.31	259	--	80	88	95	100	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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												
02...	WATER TEMPERATURE, 15.5 ° C (1030-1415 HOURS); DISCHARGE 72,200 ft³/s.											
02...	1030	150	24.4	5.60	5.52	1290	--	93	96	100	--	--
02...	1035	150	--	12.2	5.52	1230	--	88	92	100	--	--
02...	1040	150	--	17.4	4.93	1460	--	86	90	100	--	--
02...	1045	150	--	20.3	4.80	1470	--	84	89	100	--	--
02...	1050	150	--	22.0	3.57	1510	--	83	87	97	99	100
02...	1055	150	--	23.0	3.59	1700	--	76	82	98	100	--
02...	1100	150	--	23.5	3.13	1760	--	70	76	92	99	100
02...	1130	250	25.4	5.80	6.66	1490	--	85	90	99	100	--
02...	1135	250	--	12.7	6.41	1790	--	70	76	91	100	--
02...	1140	250	--	18.1	5.37	1730	--	74	80	94	100	--
02...	1145	250	--	21.2	4.48	1950	--	66	72	88	99	100
02...	1150	250	--	22.9	4.22	2050	--	63	69	89	99	100
02...	1153	250	--	23.9	3.50	2380	--	54	59	80	96	100
02...	1155	250	--	23.9	2.74	--	--	--	--	--	--	--
02...	1210	350	21.3	4.90	7.11	--	--	--	--	--	--	--
02...	1215	350	--	10.6	6.65	--	--	--	--	--	--	--
02...	1220	350	--	15.1	6.11	--	--	--	--	--	--	--
02...	1225	350	--	17.7	5.78	--	--	--	--	--	--	--
02...	1230	350	--	19.1	5.72	--	--	--	--	--	--	--
02...	1235	350	--	20.0	5.63	--	--	--	--	--	--	--
02...	1240	350	--	20.4	5.45	--	--	--	--	--	--	--
02...	1250	350	--	--	--	2150	28	60	--	--	--	--
02...	1300	460	18.8	4.30	7.29	1420	--	90	94	100	--	--
02...	1305	460	--	9.40	6.76	1560	--	85	91	100	--	--
02...	1310	460	--	13.4	6.21	1740	--	76	82	100	--	--
02...	1315	460	--	15.7	6.21	1800	--	75	82	100	--	--
02...	1318	460	--	16.9	5.72	2010	--	66	74	99	100	--
02...	1320	460	--	17.7	5.56	2460	--	56	64	100	--	--
02...	1340	595	18.6	4.30	4.98	1390	--	92	96	100	--	--
02...	1345	595	--	9.30	4.76	1520	--	87	92	100	--	--
02...	1350	595	--	13.3	4.44	1560	--	85	92	100	--	--
02...	1355	595	--	15.5	3.91	1650	--	82	89	100	--	--
02...	1358	595	--	16.7	3.87	1680	--	82	89	100	--	--
02...	1400	595	--	17.5	3.50	1930	--	72	83	100	--	--
JUN												
10...	WATER TEMPERATURE, 22.5 ° C (1030-1430 HOURS); DISCHARGE, 61,800 ft³/s.											
10...	1040	70.0	22.4	5.20	5.28	400	--	88	92	100	--	--
10...	1045	70.0	--	11.2	4.85	434	--	82	87	98	100	--
10...	1050	70.0	--	16.0	4.80	487	--	74	80	97	100	--
10...	1055	70.0	--	18.7	4.37	486	--	74	79	96	100	--
10...	1100	70.0	--	20.2	4.37	646	--	56	61	79	98	100
10...	1105	70.0	--	21.1	3.15	585	--	65	70	90	99	100
10...	1110	70.0	--	21.6	2.94	--	--	--	--	--	--	--
10...	1145	200	20.4	4.70	7.16	503	--	78	83	99	100	--
10...	1150	200	--	10.2	6.74	572	--	69	76	99	100	--
10...	1155	200	--	14.6	5.82	771	--	51	58	96	100	--
10...	1200	200	--	17.0	5.50	891	--	43	50	96	100	--
10...	1203	200	--	18.4	4.87	1300	--	31	38	86	100	--
10...	1205	200	--	19.2	4.59	2390	--	17	19	74	98	100
10...	1220	295	18.2	4.20	7.05	--	--	--	--	--	--	--
10...	1225	295	--	9.10	6.61	--	--	--	--	--	--	--
10...	1230	295	--	13.0	5.89	--	--	--	--	--	--	--
10...	1235	295	--	15.2	5.24	--	--	--	--	--	--	--
10...	1240	295	--	16.4	5.13	--	--	--	--	--	--	--
10...	1245	295	--	17.1	4.41	--	--	--	--	--	--	--
10...	1250	295	--	--	--	854	27	46	--	--	--	--
10...	1255	400	17.2	4.00	6.76	519	--	84	93	100	--	--
10...	1300	400	--	8.60	6.50	534	--	79	85	100	--	--
10...	1304	400	--	12.3	5.78	785	--	58	67	99	100	--
10...	1308	400	--	14.3	5.35	952	--	43	52	96	100	--
10...	1312	400	--	15.5	5.15	985	--	43	50	96	100	--
10...	1315	400	--	16.2	4.35	1110	--	38	44	93	100	--
10...	1330	550	18.6	4.30	4.87	460	--	93	96	100	--	--
10...	1335	550	--	9.30	4.37	455	--	90	94	100	--	--
10...	1340	550	--	13.3	4.20	478	--	88	92	99	100	--
10...	1343	550	--	15.5	3.61	496	--	86	89	98	100	--
10...	1346	550	--	16.7	3.07	518	--	82	86	97	100	--
10...	1350	550	--	17.5	2.87	587	--	74	78	93	100	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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												
22...	WATER TEMPERATURE, 27.5 ° C (1030-1345 HOURS); DISCHARGE, 49,400 ft³/s.											
22...	1030	70.0	19.0	4.40	6.54	280	--	90	100	--	--	--
22...	1034	70.0	--	9.50	5.35	341	--	81	86	100	--	--
22...	1038	70.0	--	13.6	5.17	391	--	68	73	99	100	--
22...	1042	70.0	--	15.8	4.37	328	--	77	82	100	--	--
22...	1046	70.0	--	17.1	3.70	456	--	59	63	96	100	--
22...	1050	70.0	--	17.9	3.07	495	--	51	57	88	100	--
22...	1110	170	18.6	4.30	5.89	444	--	60	66	100	--	--
22...	1114	170	--	9.30	5.56	531	--	47	56	98	100	--
22...	1118	170	--	13.3	4.74	627	--	41	49	94	100	--
22...	1122	170	--	15.5	4.91	798	--	36	44	94	100	--
22...	1126	170	--	16.7	3.94	950	--	27	32	83	100	--
22...	1130	170	--	17.2	3.78	1910	--	14	16	76	100	--
22...	1145	275	16.0	3.70	6.00	--	--	--	--	--	--	--
22...	1147	275	--	--	--	674	12	36	--	--	--	--
22...	1150	275	--	8.00	5.89	--	--	--	--	--	--	--
22...	1155	275	--	11.4	4.96	--	--	--	--	--	--	--
22...	1200	275	--	13.3	4.91	--	--	--	--	--	--	--
22...	1205	275	--	14.4	4.72	--	--	--	--	--	--	--
22...	1210	275	--	15.1	4.04	--	--	--	--	--	--	--
22...	1225	400	17.4	4.00	5.17	286	--	84	91	100	--	--
22...	1230	400	--	8.70	4.87	372	--	69	76	93	100	--
22...	1235	400	--	12.4	4.04	421	--	62	69	94	100	--
22...	1240	400	--	14.5	4.04	447	--	58	65	92	100	--
22...	1245	400	--	15.7	3.28	716	--	37	44	76	100	--
22...	1250	400	--	16.4	2.59	2720	--	11	12	34	97	100
22...	1310	515	17.8	4.10	4.48	348	--	68	73	96	100	--
22...	1315	515	--	8.90	3.72	274	--	86	93	100	--	--
22...	1320	515	--	12.7	3.94	316	--	87	95	100	--	--
22...	1325	515	--	14.8	3.18	283	--	87	92	100	--	--
22...	1330	515	--	16.0	3.07	350	--	76	84	98	100	--
22...	1335	515	--	16.8	--	--	--	--	--	--	--	--
AUG												
26...	WATER TEMPERATURE, 24.5 ° C (1100-1500 HOURS); DISCHARGE, 50,600 ft³/s.											
26...	1100	75.0	18.4	4.30	5.35	230	--	75	88	100	--	--
26...	1105	75.0	--	9.20	4.76	259	--	70	81	99	100	--
26...	1110	75.0	--	13.1	4.11	262	--	70	80	99	100	--
26...	1115	75.0	--	15.3	3.81	319	--	60	69	94	100	--
26...	1120	75.0	--	16.6	1.65	383	--	51	58	83	100	--
26...	1125	75.0	--	17.3	1.31	366	--	50	59	80	98	100
26...	1145	175	17.4	4.00	6.26	382	--	52	59	96	100	--
26...	1150	175	--	8.70	5.78	438	--	43	53	93	100	--
26...	1155	175	--	12.4	5.41	636	--	33	43	90	99	100
26...	1200	175	--	14.5	4.70	784	--	26	32	80	99	100
26...	1205	175	--	15.7	4.35	900	--	22	28	67	99	100
26...	1210	175	--	16.4	4.11	875	--	22	27	69	98	100
26...	1305	275	18.8	4.30	5.56	--	--	--	--	--	--	--
26...	1308	275	--	--	--	575	13	28	--	--	--	--
26...	1310	275	--	9.40	5.32	--	--	--	--	--	--	--
26...	1315	275	--	13.4	5.02	--	--	--	--	--	--	--
26...	1320	275	--	15.7	4.44	--	--	--	--	--	--	--
26...	1325	275	--	16.9	3.50	--	--	--	--	--	--	--
26...	1330	275	--	17.7	3.52	--	--	--	--	--	--	--
26...	1340	375	18.0	4.20	5.54	397	--	51	59	98	100	--
26...	1345	375	--	9.00	5.00	434	--	45	54	91	100	--
26...	1350	375	--	12.9	4.13	545	--	38	50	96	100	--
26...	1355	375	--	15.0	2.16	1430	--	14	20	78	100	--
26...	1400	375	--	16.2	1.39	3080	--	7	10	67	98	100
26...	1405	375	--	17.0	1.22	--	--	--	--	--	--	--
26...	1425	515	18.8	4.30	4.30	219	--	91	97	99	100	--
26...	1430	515	--	9.40	4.33	260	--	87	95	99	100	--
26...	1435	515	--	13.4	4.04	261	--	86	93	99	100	--
26...	1440	515	--	15.7	3.37	258	--	89	96	100	--	--
26...	1445	515	--	16.9	2.96	237	--	84	92	98	100	--
26...	1450	515	--	17.7	2.92	290	--	84	90	100	--	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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											
08...	1430	5	--	0	9	47	68	86	97	100	--
MAY											
02...	1415	5	0	2	29	51	76	93	97	98	100
JUN											
10...	1430	5	--	0	15	50	74	91	97	99	100
JUL											
22...	1345	5	--	0	13	42	67	86	95	100	--
AUG											
26...	1500	5	--	0	14	61	81	92	98	100	--

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 upstream from 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 above NGVD. Prior to Sept. 15, 1980, on downstream end of right pier at same datum.

REMARKS.--Estimated daily discharge: Nov. 20 to Feb. 28, Mar. 3, 4, 13, May 1, 11, and 17. Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--27 years, 296 ft³/s, 6.60 in/yr, 214,500 acre-ft/yr; median of yearly mean discharges, 242 ft³/s, 5.4 in/yr, 175,000 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 greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 26	2400	9,100	12.37	July 9	0615	4,140	8.11
Mar. 18	1145	8,020	11.55	July 10	1345	4,290	8.26
May 10	1545	*13,000	*15.19	July 14	0845	4,910	8.83
June 14	1245	8,800	12.15				

Minimum daily discharge, 66 ft³/s Dec. 23-30, Jan. 6-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	112	80	70	95	437	303	1380	687	1570	335	225
2	125	103	80	70	100	850	290	1060	633	855	331	220
3	116	101	75	70	110	890	516	1060	594	707	312	226
4	106	99	75	70	130	370	2090	943	605	596	321	291
5	99	102	75	68	150	241	1720	882	612	568	386	254
6	98	103	72	66	150	205	1420	831	556	2180	389	231
7	97	99	72	66	130	158	1090	746	546	1020	335	227
8	99	100	70	66	120	131	945	711	518	900	302	216
9	98	102	70	66	100	189	842	853	478	2350	289	213
10	105	101	70	66	90	192	762	7850	473	2510	305	216
11	105	102	70	68	80	165	704	3900	1960	1900	283	219
12	118	106	70	68	100	492	656	2260	883	1980	269	209
13	117	109	70	70	120	1350	606	2310	709	1140	939	201
14	108	109	70	74	110	634	940	1830	4610	2490	1750	205
15	102	107	70	80	110	486	943	1500	1770	1090	656	346
16	100	112	70	95	105	671	756	1710	1180	888	434	324
17	102	114	70	110	105	462	724	2700	951	788	382	264
18	183	114	68	120	105	5400	841	1740	844	715	344	399
19	279	107	68	130	105	1610	831	1370	776	660	323	856
20	198	90	68	130	105	930	722	1250	705	601	301	847
21	159	75	68	120	100	720	710	1170	665	564	438	461
22	149	70	68	110	100	612	640	1100	637	534	583	418
23	148	110	66	110	100	525	621	1020	561	507	347	392
24	139	105	66	105	105	451	605	972	503	478	306	380
25	128	100	66	100	150	415	600	911	505	605	291	423
26	124	100	66	90	600	378	698	875	476	492	291	371
27	120	95	66	80	4680	331	816	852	468	441	324	329
28	115	90	66	100	840	319	2040	849	466	413	289	362
29	114	85	66	100	---	306	1560	789	950	394	260	723
30	114	80	66	95	---	286	1460	751	2540	387	257	500
31	114	---	68	95	---	270	---	717	---	363	229	---
TOTAL	3927	3002	2165	2728	8895	20476	27451	46892	27861	30686	12601	10548
MEAN	127	100	69.8	88.0	318	661	915	1513	929	990	406	352
MAX	279	114	80	130	4680	5400	2090	7850	4610	2510	1750	856
MIN	97	70	66	66	80	131	290	711	466	363	229	201
CFSM	.21	.16	.11	.14	.52	1.09	1.50	2.48	1.53	1.63	.67	.58
IN.	.24	.18	.13	.17	.54	1.25	1.68	2.86	1.70	1.87	.77	.64
AC-FT	7790	5950	4290	5410	17640	40610	54450	93010	55260	60870	24990	20920

CAL YR 1985	TOTAL	80104	MEAN	219	MAX	1720	MIN	66	CFSM	.36	IN.	4.89	AC-FT	158900
WTR YR 1986	TOTAL	197232	MEAN	540	MAX	7850	MIN	66	CFSM	.89	IN.	12.05	AC-FT	391200

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 upstream from 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 above NGVD, unadjusted. Prior to Aug. 26, 1955, non-recording gage with supplementary water-stage recorder operating above 8.4 ft June 30, 1949 to Aug. 25, 1955 at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 25 to Feb. 4, Feb. 9-26, and July 8. Records good except those for estimated daily discharges, which are poor. U. S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--38 years, 580 ft³/s, 5.94 in/yr, 420,200 acre-ft/yr; median of yearly mean discharges, 520 ft³/s, 5.3 in/yr, 377,000 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 greater than base discharge of 6,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 27	1015	8,320	17.01	July 10	0945	9,920	17.97
May 11	0200	10,400	18.21	July 12	0930	*10,400	*18.23
May 12	2300	7,190	16.18	Aug. 13	0815	8,750	17.28
June 14	2345	7,250	16.22				

Minimum discharge, 135 ft³/s Nov. 21, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	330	245	220	180	235	864	576	2140	1330	2510	742	455
2	305	246	210	180	240	747	569	1750	1250	1340	701	444
3	272	242	210	180	260	1040	872	1660	1200	1130	684	448
4	255	237	210	180	600	908	2950	1680	1180	1020	676	457
5	239	235	220	180	1810	574	2470	1520	1910	942	857	501
6	222	235	220	175	622	495	1920	1410	1300	1680	865	538
7	226	235	220	160	469	433	1510	1320	1220	2300	799	487
8	222	233	220	150	374	368	1320	1260	1170	1250	709	456
9	259	232	210	150	300	408	1190	1330	1120	4210	649	437
10	290	232	210	160	250	449	1100	5480	1090	6020	637	437
11	270	232	210	160	200	433	1050	6430	1640	3340	628	459
12	293	239	200	160	195	521	995	3690	2190	5130	601	428
13	287	244	200	160	200	2220	947	3540	1320	2440	3570	403
14	275	245	190	165	205	1370	1400	2580	2970	2450	1570	389
15	259	246	190	175	210	828	1330	2180	4030	2300	1230	398
16	237	248	185	180	220	730	1190	2540	1830	1480	854	575
17	236	249	180	200	235	908	1100	3340	1480	1310	729	576
18	312	252	180	240	250	2480	1230	2690	1320	1210	677	483
19	409	252	180	300	250	3490	1280	2120	1240	1130	649	3400
20	434	194	180	350	250	1290	1170	1950	1190	1060	622	1900
21	367	175	180	400	230	929	1100	1840	1150	1010	614	990
22	323	213	175	350	250	824	1060	1740	1120	978	720	1000
23	302	260	170	290	280	756	1000	1650	1080	950	843	1830
24	294	258	170	250	310	699	978	1600	1010	922	633	825
25	280	255	170	230	350	654	956	1540	958	939	589	918
26	264	250	170	210	800	628	1870	1500	931	1010	564	757
27	258	250	170	190	5350	593	1540	1470	921	882	543	673
28	252	240	170	230	2080	570	2870	1630	900	834	552	624
29	247	240	170	250	---	560	2810	1990	887	797	519	999
30	245	230	170	230	---	543	2050	1590	1520	766	490	1390
31	245	---	175	230	---	528	---	1400	---	761	472	---
TOTAL	8709	7144	5935	6645	17025	27840	42403	68560	42457	54101	24988	23677
MEAN	281	238	191	214	608	898	1413	2212	1415	1745	806	789
MAX	434	260	220	400	5350	3490	2950	6430	4030	6020	3570	3400
MIN	222	175	170	150	195	368	569	1260	887	761	472	389
CFSM	.21	.18	.14	.16	.46	.68	1.07	1.67	1.07	1.32	.61	.60
IN.	.24	.20	.17	.19	.48	.78	1.19	1.92	1.19	1.52	.70	.66
AC-FT	17270	14170	11770	13180	33770	55220	84110	136000	84210	107300	49560	46960

CAL YR 1985	TOTAL	157731	MEAN	432	MAX	3500	MIN	170	CFSM	.33	IN.	4.43	AC-FT	312900
WTR YR 1986	TOTAL	329484	MEAN	903	MAX	6430	MIN	150	CFSM	.68	IN.	9.24	AC-FT	653500

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 above NGVD. Prior to Oct. 1, 1970, at site 2.2 mi upstream at datum 5.00 ft higher.

REMARKS.--Estimated daily discharges: Nov. 21 to Feb. 26. Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--26 years, 225 ft³/s, 7.01 in/yr, 163,000 acre-ft/yr; median of yearly mean discharges, 220 ft³/s, 6.8 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 floodmark, discharge, 34,200 ft ³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 26	2130	7,850	12.76	July 9	0530	3,090	8.65
May 10	1415	*7,920	*12.81	July 10	1300	3,640	9.26
May 11	0300	6,310	11.68	July 14	0415	6,240	11.63
May 15	1645	3,160	8.74	Aug. 13	1615	7,530	12.55
May 16	2400	5,050	10.62	Sept. 19	1445	4,010	9.63
June 14	1615	3,150	8.72	Sept. 29	0315	3,130	8.70
June 30	1200	4,320	9.94				

Minimum discharge, 25 ft³/s Nov. 20, result of freeze up.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	78	57	47	58	307	309	1130	485	828	297	184
2	80	75	56	50	60	506	272	722	449	548	292	177
3	71	71	57	50	70	395	715	693	439	427	274	204
4	66	67	59	49	100	149	2050	646	507	371	282	250
5	59	67	60	46	200	133	1290	603	1110	335	410	193
6	53	62	58	43	170	89	826	557	565	1380	545	187
7	54	64	56	41	140	87	663	506	509	616	297	190
8	50	65	52	40	110	110	561	489	468	499	243	169
9	65	62	52	40	80	185	492	586	443	1610	225	162
10	67	62	52	40	60	207	462	3910	453	2130	232	170
11	66	63	51	42	56	169	440	4060	871	1780	219	167
12	95	67	48	42	56	378	417	1900	580	1520	212	146
13	87	67	45	42	57	773	390	1500	456	960	3530	135
14	71	66	45	42	60	532	511	1170	1820	3440	1730	131
15	65	65	45	45	62	456	455	2070	1020	1160	874	330
16	61	71	45	50	65	742	411	2730	701	801	566	214
17	72	67	45	55	70	404	407	2870	569	651	460	168
18	193	68	46	65	70	1650	493	1500	501	575	404	188
19	320	68	47	75	70	1060	533	1200	471	518	368	1860
20	198	57	47	90	70	533	464	1010	473	474	337	828
21	152	50	47	85	65	454	454	915	471	441	321	418
22	130	70	48	75	70	385	418	852	445	422	327	403
23	121	65	50	65	80	364	402	807	417	412	291	466
24	115	60	50	60	85	337	388	774	395	403	269	374
25	104	70	47	55	95	335	383	726	383	442	262	580
26	93	68	45	50	600	308	643	669	375	413	249	423
27	85	66	45	50	2040	291	717	636	363	369	234	364
28	81	62	45	55	368	280	1820	612	362	348	221	327
29	78	60	45	60	---	250	1140	561	674	359	214	1930
30	76	58	47	58	---	242	1040	535	2850	334	206	1220
31	76	---	47	56	---	269	---	506	---	315	194	---
TOTAL	3018	1961	1539	1663	5087	12380	19566	37445	19625	24881	14585	12558
MEAN	97.4	65.4	49.6	53.6	182	399	652	1208	654	803	470	419
MAX	320	78	60	90	2040	1650	2050	4060	2850	3440	3530	1930
MIN	50	50	45	40	56	87	272	489	362	315	194	131
CFSM	.22	.15	.11	.12	.42	.92	1.50	2.77	1.50	1.84	1.08	.96
IN.	.26	.17	.13	.14	.43	1.06	1.67	3.19	1.67	2.12	1.24	1.07
AC-FT	5990	3890	3050	3300	10090	24560	38810	74270	38930	49350	28930	24910

CAL YR 1985	TOTAL	41330	MEAN	113	MAX	2820	MIN	30	CFSM	.26	IN.	3.53	AC-FT	81980
WTR YR 1986	TOTAL	154308	MEAN	423	MAX	4060	MIN	40	CFSM	.97	IN.	13.17	AC-FT	306100

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 upstream from 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 above 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--Estimated daily discharges: Nov. 28 to Feb. 8, Feb. 10-25, May 13-17, June 11-30 and July 7-10. Records fair except those for estimated daily discharges, which are poor. U.S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--56 years (water years 1919-24, 1937-86), 393 ft³/s, 5.97 in/yr, 284,700 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 greater than base of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 27	0430	8,050	15.71	July 10	----	5,030	12.92
Apr. 4	1500	4,770	12.65	July 14	1400	5,260	13.15
May 10	2045	*10,200	*17.36	Aug. 13	----	7,200	unknown
May 17	----	6,700	unknown	Sept. 19	1700	4,730	12.60
June 30	----	4,800	unknown				

Minimum discharge, 91 ft³/s Feb. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	302	203	140	130	155	550	492	2250	889	2050	497	340
2	198	201	140	135	160	927	519	1570	814	1140	477	331
3	160	193	140	140	250	1120	852	1500	748	936	462	342
4	148	188	145	140	500	593	3880	1370	745	781	459	374
5	141	184	150	130	1480	388	2860	1210	1520	708	748	429
6	130	186	150	120	785	342	2000	1070	1200	1140	904	367
7	126	181	145	110	420	264	1560	965	969	1700	769	368
8	125	179	140	110	300	198	1330	891	873	1200	545	362
9	139	177	135	110	148	257	1130	1140	777	2000	477	341
10	157	177	130	120	130	307	999	4930	756	3200	455	341
11	163	175	130	120	130	297	912	6230	1500	2720	443	356
12	166	178	125	120	130	358	833	3000	1200	3700	421	343
13	208	186	120	125	130	1920	764	2500	950	2260	1660	318
14	177	185	115	130	140	1080	1090	2000	2500	4250	3980	303
15	153	180	115	130	150	798	1200	2500	1900	2730	1500	420
16	151	182	115	140	150	872	896	3500	1400	1750	1130	662
17	146	189	115	150	150	840	828	5600	1200	1390	836	429
18	230	182	120	170	150	2360	909	2940	1000	1190	706	411
19	569	182	120	200	150	2450	1130	2250	960	1060	632	2510
20	483	132	120	250	155	1280	927	1940	930	954	578	2320
21	414	122	120	230	165	918	891	1720	920	864	545	1140
22	345	180	125	200	185	785	798	1540	860	804	532	974
23	292	175	130	180	205	716	737	1400	790	755	529	1060
24	292	154	130	165	230	630	699	1340	760	711	478	803
25	257	187	120	145	270	589	652	1260	710	695	452	935
26	237	204	120	135	1100	561	1120	1200	680	751	435	1000
27	227	177	120	125	4740	500	1530	1130	660	643	413	717
28	210	150	125	165	1320	470	3890	1170	600	606	392	641
29	208	145	130	160	---	464	2780	1080	570	567	373	2120
30	207	140	130	155	---	444	2120	1020	2900	573	364	2140
31	205	---	130	150	---	427	---	956	---	541	352	---
TOTAL	6966	5274	3990	4590	13978	23705	40328	63172	32281	44369	22544	23197
MEAN	225	176	129	148	499	765	1344	2038	1076	1431	727	773
MAX	569	204	150	250	4740	2450	3890	6230	2900	4250	3980	2510
MIN	125	122	115	110	130	198	492	891	570	541	352	303
CFSM	.25	.20	.14	.17	.56	.86	1.50	2.28	1.20	1.60	.81	.86
IN.	.29	.22	.17	.19	.58	.99	1.68	2.63	1.34	1.85	.94	.97
AC-FT	13820	10460	7910	9100	27730	47020	79990	125300	64030	88010	44720	46010

CAL YR 1985	TOTAL	95365	MEAN	261	MAX	3690	MIN	88	CFSM	.29	IN.	3.97	AC-FT	189200
WTR YR 1986	TOTAL	284394	MEAN	779	MAX	6230	MIN	110	CFSM	.87	IN.	11.83	AC-FT	564100

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 above NGVD. See WSP 1730 for history of changes prior to Nov. 16, 1950.

REMARKS.--Estimated daily discharges: Nov. 23 to Feb. 3, Feb. 8-26, and July 12-16. Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain-gage and gage-height satellite data collection platform at station.

AVERAGE DISCHARGE--59 years (water years 1923, 1929-86), 1,096 ft³/s, 5.30 in/yr, 794,000 acre-ft/yr; median of yearly mean discharges, 950 ft³/s, 4.6 in/yr, 688,000 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 greater than base discharge of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 27	1415	*18,300	*23.87	July 10	1045	16,500	23.18
May 11	0345	*18,300	*23.87	July 12	----	unknown	unknown
May 17	2030	13,000	21.71	July 14	----	unknown	unknown
June 15	1030	9,150	19.76	Aug. 14	1045	9,400	19.90
July 6	1030	9,260	19.82	Sept. 20	0445	11,600	21.08

Minimum daily discharge, 280 ft³/s Jan. 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	665	540	390	330	410	2210	1260	4190	2520	5560	1660	1010
2	650	527	390	330	450	1540	1290	3930	2380	3050	1570	964
3	532	531	390	340	520	2060	1530	3260	2250	2330	1520	939
4	478	515	390	340	1470	2100	4630	3320	2180	2110	1490	966
5	442	546	400	330	3440	1380	7080	3020	2910	1920	1580	1000
6	421	558	400	320	2130	1160	4550	2780	3410	6200	2050	1260
7	411	539	400	295	1380	1040	3630	2570	2490	5140	2070	1080
8	387	539	390	280	900	905	3100	2430	2320	3270	1770	1000
9	454	526	380	280	600	870	2740	2450	2190	6110	1540	961
10	594	517	370	300	470	932	2490	5210	2090	11500	1470	940
11	548	520	360	300	470	967	2340	16100	2160	8170	1430	1030
12	578	533	350	300	500	1060	2240	8970	3350	10000	1400	948
13	567	549	350	310	560	2410	2130	8010	2630	7000	4310	898
14	561	559	340	320	520	3250	2400	5110	2720	9000	6960	860
15	517	566	330	330	480	1970	2970	4480	7480	7000	3800	849
16	455	562	330	360	460	1610	2680	5800	3690	4400	2520	1130
17	467	564	330	420	450	1750	2350	11000	2840	3470	2060	1390
18	517	577	330	470	450	2280	2400	8420	2490	3020	1790	1180
19	746	560	330	570	450	5830	2630	5080	2310	2710	1640	6440
20	1130	464	330	700	450	3380	2620	4380	2190	2510	1520	8750
21	1010	396	330	800	430	2180	2380	4000	2110	2350	1440	3410
22	884	438	330	750	450	1830	2290	3730	2150	2230	1410	2270
23	778	430	330	700	480	1670	2140	3500	2040	2140	1590	4260
24	726	400	330	560	520	1550	2070	3340	1930	2070	1390	2440
25	697	375	320	460	700	1450	2020	3240	1830	2010	1270	2160
26	650	450	310	410	1500	1390	2470	3110	1770	2050	1230	2220
27	624	500	310	370	10100	1330	3400	3040	1750	2030	1180	2030
28	592	450	310	450	4030	1270	5580	3080	1720	1860	1140	1740
29	566	410	320	430	---	1230	7260	3860	1690	1780	1130	2280
30	546	390	320	415	---	1200	4700	3440	2160	1710	1090	4680
31	543	---	320	400	---	1170	---	2670	---	1700	1040	---
TOTAL	18736	15031	10810	12970	34770	54974	91370	147520	75750	126400	58060	61085
MEAN	604	501	349	418	1242	1773	3046	4759	2525	4077	1873	2036
MAX	1130	577	400	800	10100	5830	7260	16100	7480	11500	6960	8750
MIN	387	375	310	280	410	870	1260	2430	1690	1700	1040	849
CFSM	.22	.18	.12	.15	.44	.63	1.09	1.70	.90	1.45	.67	.73
IN.	.25	.20	.14	.17	.46	.73	1.21	1.96	1.00	1.68	.77	.81
AC-FT	37160	29810	21440	25730	68970	109000	181200	292600	150300	250700	115200	121200

CAL YR 1985	TOTAL	287398	MEAN	787	MAX	7000	MIN	258	CFSM	.28	IN.	3.81	AC-FT	570100
WTR YR 1986	TOTAL	707476	MEAN	1938	MAX	16100	MIN	280	CFSM	.69	IN.	9.38	AC-FT	1403000

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 microsiemens Sept. 16,18, 19, 28,30, 1979; minimum daily, 155 microsiemens, July 20, 1981.
WATER TEMPERATURES: Maximum daily, 32.0°C July 14, 1980; minimum daily 0.0°C, on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (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)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
DEC											
20...	1500	329	638	7.70	0.0	3.5	6.7	47	747	1000	390
FEB											
24...	1200	488	538	8.19	0.0	19	12.9	91	740	280	850
APR											
23...	1200	2120	531	8.25	11.0	8.0	10.0	94	734	3100	2600
SEP											
03...	1110	1050	541	7.92	22.5	45	7.8	94	736	1700	1200

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	HARD-NESS (MG/L AS CACO3) (00900)	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 WH WAT TOTAL FIELD MG/L AS CACO3 (00410)	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3) (99430)	BICAR-BONATE IT-FLD (MG/L AS HCO3) (99440)
DEC											
20...	47	330	88	26	14	8	0.3	2.8	277	280	341
FEB											
24...	25	250	65	20	12	9	0.3	4.6	219	220	269
APR											
23...	46	260	69	21	10	8	0.3	2.5	213	213	260
SEP											
03...	47	290	79	23	11	8	0.3	2.4	236	245	299

06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IA--Continued

WATER-QUALTIY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	CARBONATE IT-FLD (MG/L AS CO3) (99445)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, 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)	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)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
DEC										
20...	0	43	17	0.4	18	381	380	0.52	338	4.30
FEB										
24...	0	34	12	0.3	14	314	300	0.43	414	3.60
APR										
23...	0	35	12	0.3	13	319	290	0.43	1830	7.60
SEP										
03...	0	41	11	0.3	17	385	330	0.52	1090	6.20

DATE	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOSPHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	SEDIMENT, SUS-PENDED (MG/L) (80154)	SEDIMENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
DEC										
20...	--	0.31	--	0.9	0.12	0.15	0.14	134	119	53
FEB										
24...	0.03	0.29	0.30	0.8	0.10	0.11	0.20	89	117	99
APR										
23...	0.02	0.09	0.13	1.3	0.13	0.15	0.57	856	4900	87
SEP										
03...	0.01	<0.01	<0.01	0.6	0.19	0.21	0.31	219	621	94

DATE	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ALUMINUM, DIS-SOLVED (UG/L AS AL) (01106)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYLLIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHROMIUM, 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)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
DEC										
20...	1	<10	170	<0.5	<1	1	<3	4	12	<1
FEB										
24...	2	<10	140	<0.5	5	1	<3	3	4	3
APR										
23...	--	--	--	--	--	--	--	--	--	--
SEP										
03...	4	<10	150	1	1	<1	<3	2	4	<5

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELENIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRONTIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANADIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC										
20...	15	270	<0.1	<10	3	4	<1	300	<6	18
FEB										
24...	11	120	<0.1	<10	7	4	<1	240	<6	13
APR										
23...	--	--	--	--	--	--	--	--	--	--
SEP										
03...	17	7	0.1	<10	4	3	<1	270	<6	<3

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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 20 to Jan. 16, Jan. 22 to Feb. 2, Feb. 8-23, Mar. 7, Apr. 6-15 and May 6-8. Records fair except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--29 years, 28.4 ft³/s, 7.82 in/yr, 20,580 acre-ft/yr; median of yearly mean discharges, 25 ft³/s, 6.9 in/yr, 18,100 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 greater than base discharge of 1,500 ft³/s, and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 30	0315	1,860	13.43	Sept. 19	0830	*3,860	*15.81
July 10	0530	1,860	13.40	Sept. 22	1645	2,660	14.45
July 14	0230	3,240	15.13				

Minimum discharge, 2.1 ft³/s Oct. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	4.9	3.1	3.1	4.5	6.6	48	115	36	11	32	4.7
2	2.6	4.8	3.0	3.1	5.0	6.8	34	86	31	9.3	32	4.5
3	2.2	5.0	2.9	3.3	8.0	6.0	178	104	33	7.7	26	5.1
4	2.3	5.0	2.8	3.4	102	5.7	202	84	44	7.0	22	4.6
5	2.3	4.8	3.0	3.3	62	5.6	100	74	36	8.6	28	4.2
6	2.3	4.9	2.8	3.2	11	5.5	70	52	28	410	24	5.9
7	2.5	4.9	3.0	3.2	7.1	5.4	54	45	25	56	22	6.1
8	2.7	4.8	3.1	3.2	6.0	5.3	41	40	21	59	17	5.3
9	3.5	4.9	3.0	3.2	5.4	5.6	37	230	20	160	16	5.7
10	4.3	4.9	2.9	3.3	4.9	5.6	35	109	22	465	18	6.1
11	4.2	5.0	2.8	3.3	4.5	5.6	33	105	39	79	13	5.3
12	4.7	5.1	2.7	3.3	4.2	71	31	114	19	245	12	4.7
13	4.6	5.2	2.6	3.6	4.0	72	30	116	16	70	56	4.8
14	4.6	5.2	2.6	3.8	4.0	32	40	78	213	536	21	5.1
15	4.4	5.1	2.6	3.5	4.0	25	33	78	30	103	14	5.5
16	4.4	5.2	2.6	4.5	4.0	23	34	270	24	76	10	5.7
17	4.5	5.1	2.6	6.3	4.2	50	34	140	19	63	11	7.5
18	4.7	5.0	2.6	13	4.2	117	59	103	18	53	10	7.3
19	5.2	5.0	2.6	9.3	4.2	81	45	85	17	47	11	973
20	6.1	4.5	2.6	7.5	4.2	47	41	73	13	43	8.9	59
21	5.7	4.2	2.6	7.7	4.0	41	37	65	12	40	10	28
22	5.4	4.0	2.8	6.0	4.0	37	35	57	13	38	11	315
23	5.2	3.8	3.0	5.0	4.5	33	33	51	10	36	14	91
24	5.1	3.6	3.1	5.4	6.6	29	31	48	8.5	34	9.4	49
25	5.0	3.5	2.9	4.0	127	27	30	42	8.2	31	7.5	45
26	5.0	3.3	3.0	3.5	212	23	46	39	7.8	31	6.5	32
27	4.9	3.2	3.0	3.3	54	21	124	41	7.8	31	6.3	26
28	4.8	3.2	3.0	3.2	19	20	151	44	7.5	32	6.0	25
29	4.8	3.1	3.0	3.3	---	18	89	41	8.4	28	6.0	41
30	4.9	3.1	3.1	3.5	---	16	418	44	27	34	5.5	166
31	5.0	---	3.1	4.0	---	17	---	40	---	37	4.9	---
TOTAL	130.7	134.3	88.5	139.3	688.5	863.7	2173	2613	814.2	2880.6	491.0	1948.1
MEAN	4.22	4.48	2.85	4.49	24.6	27.9	72.4	84.3	27.1	92.9	15.8	64.9
MAX	6.1	5.2	3.1	13	212	117	418	270	213	536	56	973
MIN	2.2	3.1	2.6	3.1	4.0	5.3	30	39	7.5	7.0	4.9	4.2
CFSM	.09	.09	.06	.09	.50	.57	1.47	1.71	.55	1.88	.32	1.32
IN.	.10	.10	.07	.11	.52	.65	1.64	1.97	.61	2.17	.37	1.47
AC-FT	259	266	176	276	1370	1710	4310	5180	1610	5710	974	3860

CAL YR 1985	TOTAL	1879.99	MEAN	5.15	MAX	231	MIN	.00	CFSM	.10	IN.	1.42	AC-FT	3730
WTR YR 1986	TOTAL	12964.9	MEAN	35.5	MAX	973	MIN	2.2	CFSM	.72	IN.	9.78	AC-FT	25720

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 U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 837.23 ft above 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.--Estimated daily discharges: Oct. 9-13, Nov. 28 to Dec. 3, Dec. 6-9, Dec. 15 to Jan. 15, Jan. 18, 19, Jan. 28 to Feb. 3, Feb. 11-15, Apr. 4, 5, Aug. 13, 14, and Sept. 27, 28. Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. U. S. Army Corps of Engineers gage-height satellite data collection platform at station.

AVERAGE DISCHARGE.--37 years, 41,350 ft³/s, 29,960,000 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, 113,000 ft³/s July 7, gage height, 20.00 ft; maximum gage height 20.25 ft. Jan.12, (ice jam); minimum daily, 21,900 ft³/s Dec. 28; minimum gage height not determined, occurred during period of no gage-height record Jan. 17-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46200	40800	37200	23500	26200	43500	50000	84900	64200	73500	46600	52700
2	44100	40900	37000	24500	26200	39100	50000	79400	63500	89300	46700	53900
3	43500	41000	37500	25700	28500	38400	56400	75300	63100	80300	47300	53100
4	43000	41300	39200	26300	32100	40400	64000	74100	62700	68900	47600	53600
5	42500	41300	39000	26200	37900	37900	67000	71100	66900	62900	48400	53800
6	42400	41800	37500	26200	36100	36700	64900	67900	66300	82100	49300	54400
7	41700	41700	34000	25000	37000	36600	62200	66900	65800	99900	50300	55000
8	41900	41300	32500	24500	34400	36800	59500	63300	64800	73000	51500	55400
9	43000	41900	31500	24500	31400	36000	58900	66000	65000	76900	50300	54900
10	44000	41700	30500	24200	29700	34700	59300	70200	63400	86200	51700	56200
11	44000	42100	29600	25500	28100	35100	59700	81900	65100	89800	52000	54300
12	43000	42200	27900	26500	27000	36800	58800	75500	70500	87400	50800	53200
13	43000	41200	26700	26600	26000	41500	57900	74100	66300	101000	52000	52200
14	43300	40700	25900	27000	25500	64900	57200	73700	62100	78500	56000	52300
15	42700	41300	27500	27000	25600	55900	58200	73600	75800	76300	56900	53200
16	42000	42100	26400	27100	25300	48900	61100	83500	84200	67800	56700	54800
17	42300	42100	26400	27500	25600	46200	60200	105000	71700	61900	52300	56700
18	42800	42300	26400	28000	25700	48600	56900	99500	63300	58200	52900	58900
19	45600	42500	26500	29000	26100	84000	58500	91400	58500	55200	54000	71600
20	46800	43300	26000	29100	27300	98200	61900	86600	57400	53600	51500	84900
21	44500	41900	25200	28700	28000	85300	63100	83000	56900	52300	51800	72100
22	42700	38000	24800	29200	28000	70000	62500	80100	57700	51200	62000	72700
23	42500	37300	25000	28400	28700	63600	61200	76800	60700	50200	58100	80300
24	43500	38200	25800	28700	29400	62500	61300	73700	61100	49100	53400	73200
25	41900	38400	26800	27900	29800	60300	60000	70400	60100	48100	51200	72400
26	41100	37400	25500	28600	31700	58300	59000	68600	59700	47600	50700	69400
27	41200	37300	23000	28500	43600	56100	62700	66700	59800	48600	51300	68500
28	41800	38400	21900	26300	58800	55100	78600	65800	60300	48200	52600	70000
29	41100	38500	24500	25500	---	54400	99300	66700	61200	48400	52500	79600
30	40600	37500	25000	25000	---	53000	96200	66900	62900	47600	52500	77200
31	41000	---	24000	26400	---	50800	---	65100	---	47300	52400	---
TOTAL	1329700	1216400	896700	827100	859700	1609600	1886500	2347700	1921000	2061300	1613300	1870500
MEAN	42890	40550	28930	26680	30700	51920	62880	75730	64030	66490	52040	62350
MAX	46800	43300	39200	29200	58800	98200	99300	105000	84200	101000	62000	84900
MIN	40600	37300	21900	23500	25300	34700	50000	63300	56900	47300	46600	52200
ACFT	2637000	2413000	1779000	1641000	1705000	3193000	3742000	4657000	3810000	4089000	3200000	3710000

CAL YR 1985	TOTAL	15382900	MEAN	42140	MAX	85600	MIN	21900	AC-FT	30512000
WTR YR 1986	TOTAL	18439500	MEAN	50520	MAX	105000	MIN	21900	AC-FT	36575000

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 above NVGD. Prior to July 5, 1925, and May 28, 1936, to Mar. 26, 1957 nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 23, 24, Nov.26 to Feb. 5, Feb.10-26 and Sept. 20. Records good except those for estimated daily discharges, which are poor. Clarinda municipal water supply is taken from Nodaway River, 500 ft above station. Average daily pumpage was 1.91 ft³/s. U.S. National Weather Service gage-height telemeter at station.

COOPERATION.--Average pumpage provided by City of Clarinda water works.

AVERAGE DISCHARGE.--56 years (1918-24, 1936-86), 347 ft³/s, 6.18 in/yr, 251,400 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, 14, 1918, Dec. 9, 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 greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 4	1245	6,210	8.60	July 12	1230	9,930	9.01
Apr. 30	0900	17,400	12.68	July 14	0515	12,400	10.35
May 10	2345	14,700	11.39	Sept. 19	1200	*21,100	*14.45
May 17	0015	9,170	8.68	Sept. 22	1930	9,530	9.08
July 10	1345	6,770	7.86				

Minimum discharge, 53 ft³/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	214	124	80	66	120	279	534	3350	477	246	286	170
2	142	124	80	66	120	270	715	1630	428	199	265	163
3	106	122	80	66	130	278	2700	1340	397	168	252	167
4	88	116	80	66	400	254	5270	1220	411	156	244	175
5	77	114	80	66	1500	216	2890	979	563	148	289	197
6	71	114	78	64	781	203	1880	806	700	1760	1070	190
7	62	112	76	62	257	173	1360	682	473	2410	677	181
8	58	111	76	62	160	161	1100	616	400	777	393	189
9	116	107	74	62	126	171	877	680	335	1120	310	173
10	230	105	74	62	110	198	764	7230	310	4130	278	169
11	197	104	74	62	120	194	692	9910	331	2080	261	168
12	518	103	74	62	120	254	636	3000	293	5300	240	192
13	504	105	74	62	120	1510	581	1990	266	2960	876	174
14	215	112	74	64	110	967	620	1570	747	8240	3330	157
15	164	114	74	68	110	514	648	1250	355	3580	937	152
16	146	114	72	72	110	357	543	3080	296	1690	578	444
17	130	115	70	78	110	333	509	5080	252	1160	467	275
18	122	118	70	100	110	1360	646	2810	225	901	374	333
19	143	109	70	140	110	2470	1090	1690	212	752	329	12900
20	228	89	70	200	100	1030	742	1340	202	644	299	4000
21	349	92	68	250	90	610	647	1130	192	567	277	1520
22	241	103	68	200	100	510	572	976	191	515	260	2150
23	197	85	66	170	110	459	521	848	192	479	259	2000
24	180	80	66	150	120	406	504	770	185	447	240	911
25	164	101	66	140	150	374	497	711	172	413	223	764
26	153	90	66	120	1000	356	509	647	163	391	218	654
27	145	80	66	110	3440	314	663	614	160	369	209	571
28	137	90	66	140	577	292	1980	743	156	349	199	559
29	129	90	66	130	---	290	1690	630	151	323	191	558
30	126	85	66	125	---	276	10600	574	237	315	185	1360
31	124	---	65	120	---	258	---	540	---	306	178	---
TOTAL	5476	3128	2230	3205	10411	15337	42980	58436	9472	42895	14194	31616
MEAN	177	104	71.9	103	372	495	1433	1885	316	1384	458	1054
MAX	518	124	80	250	3440	2470	10600	9910	747	8240	3330	12900
MIN	58	80	66	62	90	161	497	540	151	148	178	152
CFSM	.23	.14	.09	.14	.49	.65	1.88	2.47	.41	1.82	.60	1.38
IN.	.27	.15	.11	.16	.51	.75	2.10	2.85	.46	2.09	.69	1.54
AC-FT	10860	6200	4420	6360	20650	30420	85250	115900	18790	85080	28150	62710

CAL YR 1985	TOTAL	58356	MEAN	160	MAX	4400	MIN	20	CFSM	.21	IN.	2.85	AC-FT	115700
WTR YR 1986	TOTAL	239380	MEAN	656	MAX	12900	MIN	58	CFSM	.86	IN.	11.69	AC-FT	474800

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.

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 microsiemens Aug. 22, 1982; minimum daily, 130 microsiemens 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, 3 mg/L Dec. 1, 1986.
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, 500 microsiemens Nov. 29; minimum daily, 140 microsiemens Sept. 19.
WATER TEMPERATURE: Maximum daily, 27.0°C June 29; minimum daily, 0.0°C on many winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 22,200 mg/L April 30; minimum daily mean, 3 mg/L Dec. 1.
SEDIMENT LOADS: Maximum daily, 750,000 tons Apr. 3; minimum daily, .65 ton Dec. 1.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C.), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	340	400	380	420	---	220	320	200	360	355	375	400
2	360	380	480	420	400	280	300	290	370	340	400	400
3	400	380	460	400	380	300	300	320	380	370	390	380
4	410	380	480	400	360	300	250	320	360	380	380	380
5	410	380	450	400	320	310	250	340	340	390	370	365
6	430	380	450	420	---	330	290	350	280	260	340	340
7	430	375	440	440	300	350	300	360	330	240	220	360
8	430	380	440	440	350	---	310	360	360	280	285	380
9	380	380	440	440	380	370	320	360	360	290	340	380
10	380	380	440	420	420	370	330	320	360	250	355	380
11	340	380	420	420	440	360	320	190	340	220	370	370
12	300	370	---	400	450	310	320	240	360	250	370	380
13	330	370	420	400	470	270	330	290	370	190	305	340
14	330	360	400	380	480	260	320	320	160	160	175	360
15	380	370	390	380	480	290	320	320	375	165	220	380
16	400	370	340	370	460	300	320	310	380	280	300	380
17	420	380	340	370	450	320	330	220	370	320	---	290
18	420	380	370	350	430	280	360	280	380	340	330	320
19	410	380	410	320	420	270	340	320	380	350	350	140
20	410	390	350	380	410	280	340	340	380	355	360	160
21	360	440	370	280	440	300	360	340	390	360	360	220
22	360	440	360	300	440	---	370	350	380	370	380	300
23	390	440	370	320	400	320	360	350	380	370	360	210
24	410	460	400	340	360	320	370	360	385	360	360	300
25	420	460	420	340	350	320	360	360	390	370	380	320
26	430	460	420	360	220	330	360	360	390	370	380	330
27	430	460	420	400	200	340	340	360	390	375	380	340
28	430	480	420	420	210	330	320	280	380	380	385	360
29	430	500	440	420	---	340	300	375	380	375	395	360
30	430	490	360	420	---	340	240	360	340	380	400	360
31	430	---	410	420	---	340	---	360	---	375	390	---
MEAN	395	407	---	387	---	---	322	320	360	318	---	333
MAX	430	500	---	440	---	---	370	375	390	390	---	400
MIN	300	360	---	280	---	---	240	190	160	160	---	140

06817000 NODAWAY RIVER AT CLARINDA, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C.), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	---	---	---	---	4.0	13.0	17.0	21.0	25.0	23.0	21.0
2	10.0	---	---	---	---	4.0	12.0	15.0	22.0	22.0	22.0	20.0
3	9.0	---	---	---	---	---	10.0	15.0	23.0	23.0	21.0	22.0
4	9.0	---	---	---	---	5.0	10.0	16.0	22.0	23.0	24.0	22.0
5	9.0	---	---	---	---	---	12.0	---	23.0	23.0	---	21.0
6	9.0	---	---	---	---	---	11.0	17.0	22.0	24.0	25.0	20.0
7	9.0	---	---	---	---	4.0	---	18.0	22.0	22.0	25.0	15.0
8	10.0	---	---	---	---	---	14.0	17.0	22.0	25.0	25.0	15.0
9	10.0	8.0	---	---	---	---	12.0	---	22.0	25.5	26.0	16.0
10	10.0	5.0	---	---	---	---	11.0	19.0	23.0	25.0	25.0	16.0
11	10.0	---	.0	---	2.0	7.0	12.0	17.0	22.0	24.0	21.0	16.0
12	10.0	---	---	---	---	---	12.0	20.0	22.0	23.0	21.0	17.0
13	9.0	6.0	---	---	---	---	14.0	20.0	22.0	22.0	22.0	19.0
14	10.0	6.0	---	---	---	5.0	12.0	18.0	21.0	25.5	24.0	21.0
15	12.0	6.0	---	---	---	---	9.0	19.0	21.0	24.0	24.0	21.0
16	12.0	7.0	---	---	---	---	11.0	18.0	22.0	25.0	25.0	20.0
17	13.0	7.0	---	---	---	---	11.0	15.0	23.0	26.0	---	19.0
18	16.0	6.0	---	---	---	---	---	16.0	24.0	26.0	24.0	19.0
19	15.0	6.0	---	---	---	---	14.0	14.0	23.0	26.0	22.0	20.0
20	14.0	5.0	---	---	---	9.0	13.0	17.0	24.0	25.0	24.0	20.0
21	16.0	---	---	1.0	---	10.0	12.0	---	25.0	24.0	24.0	20.0
22	16.0	---	---	---	---	---	13.0	18.0	23.0	24.0	23.0	23.0
23	18.0	---	---	---	---	10.0	13.0	18.0	22.0	25.0	22.0	20.0
24	16.0	---	---	---	---	10.0	14.0	19.0	23.0	26.0	21.0	---
25	13.0	---	---	---	---	9.0	17.0	19.0	22.0	25.0	24.0	---
26	13.0	---	---	---	---	12.0	17.0	19.0	24.0	25.0	24.0	23.0
27	---	---	---	---	---	11.0	16.0	20.0	25.0	25.0	24.0	22.0
28	---	---	---	---	3.0	11.0	16.0	19.0	25.0	22.0	18.0	21.0
29	---	---	---	---	---	11.0	---	19.5	27.0	22.0	19.0	21.0
30	---	---	---	---	---	11.0	16.0	19.0	24.0	26.0	20.0	21.0
31	9.0	---	---	---	---	13.0	---	20.0	---	25.0	20.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	460	266	75	25	3	.65	11	2.0	8	2.6	365	275
2	201	77	46	15	14	3.0	17	3.0	8	2.6	325	237
3	111	32	58	19	12	2.6	39	6.9	51	18	344	258
4	89	21	35	11	7	1.5	12	2.1	1200	1300	345	237
5	52	11	30	9.2	7	1.5	16	2.9	3540	14300	261	152
6	79	15	47	14	8	1.7	11	1.9	1950	4110	195	107
7	89	15	24	7.3	8	1.6	11	1.8	850	590	162	76
8	86	13	24	7.2	8	1.6	16	2.7	119	51	154	67
9	170	53	21	6.1	10	2.0	45	7.5	58	20	170	78
10	370	230	18	5.1	10	2.0	14	2.3	80	24	266	142
11	349	186	20	5.6	13	2.6	23	3.9	70	23	232	122
12	1130	1750	20	5.6	12	2.4	42	7.0	30	9.7	262	180
13	548	746	18	5.1	10	2.0	13	2.2	20	6.5	4260	19300
14	460	267	18	5.4	17	3.4	55	9.5	15	4.5	2800	7310
15	232	103	15	4.6	27	5.4	17	3.1	13	3.9	1000	1390
16	120	47	15	4.6	36	7.0	14	2.7	15	4.5	500	482
17	98	34	16	5.0	44	8.3	28	5.9	19	5.6	450	405
18	94	31	26	8.3	35	6.6	90	24	18	5.3	2760	12400
19	161	62	19	5.6	64	12	205	77	16	4.8	6650	45100
20	395	243	10	2.4	47	8.9	130	70	18	4.9	2380	6620
21	584	550	8	2.0	25	4.6	60	40	19	4.6	1100	1810
22	422	275	12	3.3	22	4.0	51	28	18	4.9	780	1070
23	249	132	17	3.9	18	3.2	42	19	25	7.4	543	673
24	180	87	11	2.4	24	4.3	49	20	55	18	452	495
25	146	65	9	2.5	61	11	40	15	48	19	408	412
26	140	58	14	3.4	20	3.6	19	6.2	3260	8800	382	367
27	116	45	10	2.2	48	8.6	16	4.8	4480	39400	319	270
28	100	37	10	2.4	37	6.6	10	3.8	750	1170	244	192
29	84	29	11	2.7	20	3.6	12	4.2	---	---	244	191
30	85	29	7	1.6	86	15	10	3.4	---	---	218	162
31	80	27	---	---	24	4.3	8	2.6	---	---	182	127
TOTAL	---	5536	---	197.5	---	145.55	---	385.4	---	69914.8	---	100707

NODAWAY RIVER BASIN

06817000 NODAWAY RIVER AT CLARINDA, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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	1900	2740	7500	67800	289	372	276	183	71	55	45	21
2	1810	3490	2600	11400	192	222	241	129	30	21	50	22
3	7040	59600	1590	5750	165	177	134	61	32	22	41	18
4	8420	122000	1310	4320	175	194	106	45	30	20	36	17
5	5120	42600	825	2180	1280	1950	83	33	41	32	42	22
6	2080	10600	610	1330	2050	3870	4980	33600	2420	8520	31	16
7	1200	4410	518	954	592	756	3990	26800	1890	3880	18	8.8
8	900	2670	418	695	311	336	1140	2390	495	525	32	16
9	680	1610	522	958	235	213	2910	9880	255	213	25	12
10	520	1070	10200	264000	225	188	5750	78300	189	142	28	13
11	420	785	12300	346000	258	231	3900	21900	162	114	35	16
12	367	630	5500	44600	230	182	7080	126000	115	75	56	29
13	342	536	4100	22000	199	143	4420	35300	3180	11800	55	26
14	472	790	2700	11400	5270	16700	8830	223000	6530	66600	50	21
15	515	901	1500	5060	576	564	5380	52000	1780	4500	53	22
16	278	408	5750	47800	315	252	1730	7890	650	1010	331	442
17	221	304	7750	106000	232	158	910	2850	500	630	281	209
18	354	617	4000	30300	170	103	661	1610	318	321	232	209
19	1500	4410	1600	7300	140	80	460	934	236	210	9540	417000
20	675	1350	1100	3980	116	63	378	657	210	170	5000	54000
21	374	653	800	2440	96	50	309	473	160	120	1750	7180
22	270	417	672	1770	95	49	289	402	133	93	2520	32700
23	219	308	553	1270	102	53	228	295	160	112	3000	16200
24	210	286	451	938	95	47	200	241	140	91	730	1800
25	170	228	402	772	91	42	133	148	100	60	525	1080
26	154	212	360	629	78	34	102	108	73	43	565	998
27	1050	1880	341	565	51	22	84	84	61	34	312	481
28	4490	24000	1770	3980	41	17	81	76	49	26	251	379
29	2700	12300	371	631	35	14	73	64	49	25	265	399
30	22200	750000	315	488	278	178	55	47	40	20	1880	6900
31	---	---	379	553	---	---	60	50	37	18	---	---
TOTAL	---	1051805	---	997863	---	27260	---	625550	---	99502	---	540256.8

TOTAL LOAD FOR YEAR: 3519123.05 TONS.

NODAWAY RIVER AT CLARINDA, IA--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (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								
31...	11:00	9.0	126	73	25	--	--	--
JAN								
21...	14:00	1.0	249	58	38	--	--	--
FEB								
05...	07:30	6.0	2310	3960	24700	33	38	46
27...	07:30	4.0	3630	5550	54400	29	32	40
MAR								
11...	12:15	7.0	192	241	125	--	--	--
APR								
03...	07:30	10.0	1230	7620	25300	40	46	53
04...	07:30	10.0	4640	7400	92700	32	37	44
18...	10:25	11.0	535	224	324	--	--	--
30...	07:30	16.0	10400	30000	842000	30	33	42
MAY								
11...	07:30	17.0	11800	13800	440000	32	34	43
29...	15:45	19.5	619	350	584	--	--	--
JUL								
09...	11:30	25.5	1120	2040	6170	35	40	49
AUG								
21...	08:45	24.0	263	172	122	--	--	--
SEP								
19...	19:30	20.0	16300	10400	458000	27	31	36
29...	16:15	21.0	561	277	420	45	52	60

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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							
31...	--	--	--	--	--	--	98
JAN							
21...	--	--	--	--	--	--	96
FEB							
05...	61	94	96	100	--	--	--
27...	55	94	97	100	--	--	--
MAR							
11...	--	--	--	--	--	--	99
APR							
03...	68	--	--	--	--	--	99
04...	58	94	95	99	100	--	--
18...	--	--	--	--	--	--	92
30...	54	93	94	95	98	100	--
MAY							
11...	56	97	99	100	--	--	--
29...	--	--	--	--	--	--	95
JUL							
09...	62	94	96	99	100	--	--
AUG							
21...	--	--	--	--	--	--	98
SEP							
19...	48	81	84	93	100	--	--
29...	75	95	95	98	100	--	--

06817000 NODAWAY RIVER AT CLARINDA, IA--Continued

WATER-QUALITY RECORDS

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

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 31...	11:00		3	0	1	4	31
DEC 11...	12:50	74	3	1	1	7	34
JAN 21...	14:00	249	3	1	1	10	48
MAR 11...	12:15	192	3	--	0	2	38
APR 18...	10:50	535	2	4	4	5	17
MAY 29...	15:45	619	3	0	1	11	19
JUL 09...	11:15	1120	3	--	0	2	15
AUG 21...	08:30	263	3	1	4	18	57
SEP 29...	16:00	561	3	--	0	6	67

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)
DEC 11...	53	63	71	80	89	100
JAN 21...	71	84	91	95	100	--
MAR 11...	64	75	83	93	100	--
APR 18...	99	100	--	--	--	--
MAY 29...	91	96	98	100	--	--
JUL 09...	77	96	99	100	--	--
AUG 21...	78	86	91	94	98	100
SEP 29...	94	99	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 above NGVD.

REMARKS.--Estimated daily discharges: Nov. 24 to Feb. 4, Feb. 8-26, May 3-7, and July 9-16. Records good except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--18 years, 135 ft³/s, 8.45 in/yr, 97,810 acre-ft/yr; median of yearly mean discharges, 120 ft³/s, 7.5 in/yr, 86,900 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 greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 3	1815	3,390	16.55	July 14	unknown	4,600	a19.28
Apr. 30	1745	5,780	21.64	Sept. 19	1200	*5,820	*21.73
May 16	2245	3,230	16.18	Sept. 23	0815	4,450	18.96

(a) from floodmark.
Minimum discharge, 5.9 ft³/s Sept. 15, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	45	23	31	47	76	433	1000	102	129	20	7.0
2	65	50	23	32	50	68	300	423	87	84	18	6.8
3	40	31	23	34	80	66	2180	390	76	52	16	6.9
4	29	28	23	35	430	45	2550	320	71	43	16	7.1
5	20	27	26	36	536	43	825	260	177	37	24	7.6
6	17	27	30	33	177	35	460	220	109	692	23	7.6
7	17	31	33	29	88	29	341	185	91	872	24	7.7
8	14	23	31	25	50	30	272	159	81	277	19	7.5
9	574	25	28	26	45	36	228	197	64	390	16	6.5
10	855	27	27	28	42	71	189	754	62	2000	15	7.3
11	323	24	25	32	40	58	175	849	65	350	13	12
12	949	31	23	40	40	324	162	337	67	1500	17	9.8
13	316	80	22	45	38	786	155	918	51	300	513	7.9
14	179	68	23	50	36	230	197	726	81	3000	97	6.5
15	130	58	25	45	36	149	168	330	80	450	32	6.3
16	106	53	26	55	36	118	153	1490	57	200	22	6.0
17	92	48	25	75	40	130	128	1970	45	179	19	7.7
18	80	44	24	100	46	459	197	742	39	153	15	8.2
19	112	46	23	85	40	535	219	389	38	135	13	4750
20	165	36	23	75	35	222	163	277	37	120	13	684
21	125	29	24	65	35	152	157	219	88	89	12	145
22	106	32	25	60	40	141	129	180	114	76	12	767
23	133	27	27	55	45	131	107	152	48	69	19	3140
24	100	25	28	55	70	120	100	137	35	100	12	405
25	74	25	22	55	120	117	98	125	30	72	11	252
26	64	28	25	50	280	111	96	115	30	55	9.6	159
27	59	25	27	35	235	101	121	110	28	39	9.5	115
28	54	27	27	43	86	90	393	128	29	32	8.0	101
29	47	26	28	45	---	95	212	108	28	28	7.5	569
30	44	24	28	45	---	90	4030	274	365	25	7.4	959
31	43	---	29	45	---	83	---	122	---	23	7.4	---
TOTAL	5071	1070	796	1464	2843	4741	14938	13606	2275	11571	1060.4	12182.4
MEAN	164	35.7	25.7	47.2	102	153	498	439	75.8	373	34.2	406
MAX	949	80	33	100	536	786	4030	1970	365	3000	513	4750
MIN	14	23	22	25	35	29	96	108	28	23	7.4	6.0
CFSM	.76	.16	.12	.22	.47	.71	2.29	2.02	.35	1.72	.16	1.87
IN.	.87	.18	.14	.25	.49	.81	2.56	2.33	.39	1.98	.18	2.09
AC-FT	10060	2120	1580	2900	5640	9400	29630	26990	4510	22950	2100	24160

CAL YR 1985	TOTAL	20403.0	MEAN	55.9	MAX	2400	MIN	2.0	CFSM	.26	IN.	3.50	AC-FT	40470
WTR YR 1986	TOTAL	71617.8	MEAN	196	MAX	4750	MIN	6.0	CFSM	.90	IN.	12.28	AC-FT	142100

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 current year.

GAGE.--Water-stage recorder. Datum of gage is 1,069.16 ft above NGVD.

REMARKS.--Estimated daily discharges: Nov. 28 to Dec. 2, Dec. 19, 20, Dec. 25 to Jan. 21, April 4 to July 8, and July 12, 14. Records good except those for estimated daily discharges, which are poor. Slight regulation at low flow by low dam used for water supply in Bedford. U.S.National Weather Service gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,570 ft³/s July 14, 1986, gage height 23.47 ft.; minimum daily, 0.29 ft³/s Oct. 17, 1984.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 9	1245	3,130	17.71	July 8	2330	4,700	19.41
Apr. 3	1415	2,090	16.39	July 10	0930	5,590	20.27
Apr. 4	----	2,700	17.36	July 12	----	unknown	unknown
May 10	----	2,100	16.74	July 14	----	*9,570	*23.47
May 13	----	3,200	17.93	Sept. 19	0415	6,620	21.18
May 16	----	4,600	19.26	Sept. 22	2045	2,440	16.77
June 14	----	4,100	18.88	Sept. 29	0200	2,040	16.23
June 30	----	2,400	17.06	Sept. 30	1245	2,050	16.40

Minimum discharge, 2.3 ft³/s Feb. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	23	3.3	7.0	5.4	12	149	45	13	87	5.6	4.1
2	43	15	3.5	8.0	5.8	12	81	31	8.5	47	5.1	3.8
3	26	13	3.9	9.0	36	10	963	38	7.2	29	5.0	3.9
4	14	9.4	4.8	10	397	6.5	1140	33	11	21	4.9	3.5
5	8.3	8.8	5.6	9.0	204	11	123	24	285	14	6.2	4.0
6	6.0	13	5.9	8.0	103	11	67	17	37	759	10	5.6
7	5.9	9.2	6.3	7.0	25	6.6	51	13	28	293	9.4	5.5
8	6.0	6.5	7.1	6.0	16	5.0	40	12	18	384	7.5	4.8
9	1150	5.7	7.5	6.5	8.7	9.9	30	48	12	1270	6.1	4.6
10	849	7.4	7.1	7.5	7.2	39	26	752	12	2780	6.1	6.3
11	707	6.6	6.5	8.5	5.6	26	23	603	17	440	5.7	81
12	709	17	6.1	9.5	4.6	250	20	81	9.6	1820	19	26
13	140	38	5.2	12	3.2	298	16	1450	7.1	352	394	11
14	79	24	4.0	11	3.2	87	62	325	1070	4240	124	6.9
15	57	15	4.4	10	3.3	60	39	85	77	208	42	5.9
16	44	18	5.1	12	3.5	49	33	1640	42	97	22	5.2
17	36	16	5.3	15	3.6	96	29	1430	23	58	14	11
18	35	17	4.2	25	4.4	257	180	413	15	40	9.7	8.0
19	93	17	3.0	20	5.6	170	67	155	11	30	8.3	3820
20	109	8.4	3.3	15	5.9	68	48	76	8.5	21	6.8	469
21	69	7.7	3.4	17	4.3	54	43	53	45	15	6.4	92
22	54	7.7	3.9	15	3.9	53	33	45	152	13	6.4	473
23	52	8.1	5.0	10	7.5	47	29	36	32	11	9.0	408
24	44	5.9	5.9	12	36	40	27	33	17	76	6.4	123
25	29	7.2	5.0	15	29	40	22	27	11	32	6.4	85
26	25	7.1	5.5	9.7	62	42	20	22	8.5	12	5.8	54
27	22	5.0	5.6	3.4	53	34	358	20	7.4	23	5.4	45
28	17	4.5	5.6	3.1	14	27	401	70	6.7	14	4.8	65
29	16	2.8	6.0	4.0	---	26	71	31	5.8	7.3	4.9	988
30	13	3.0	6.0	6.3	---	22	67	24	744	6.3	4.7	915
31	11	---	6.5	5.8	---	20	---	17	---	6.1	4.3	---
TOTAL	4552.2	347.0	160.5	317.3	1060.7	1889.0	4258	7649	2741.3	13205.7	775.9	7738.1
MEAN	147	11.6	5.18	10.2	37.9	60.9	142	247	91.4	426	25.0	258
MAX	1150	38	7.5	25	397	298	1140	1640	1070	4240	394	3820
MIN	5.9	2.8	3.0	3.1	3.2	5.0	16	12	5.8	6.1	4.3	3.5
CFSM	1.72	.14	.06	.12	.44	.71	1.66	2.89	1.07	4.99	.29	3.02
IN.	1.98	.15	.07	.14	.46	.82	1.85	3.33	1.19	5.75	.34	3.37
AC-FT	9030	688	318	629	2100	3750	8450	15170	5440	26190	1540	15350

CAL YR 1985	TOTAL	9332.03	MEAN	25.6	MAX	1150	MIN	.58	CFSM	.30	IN.	4.07	AC-FT	18510
WTR YR 1986	TOTAL	44694.7	MEAN	122	MAX	4240	MIN	2.8	CFSM	1.43	IN.	19.47	AC-FT	88650

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 above NGVD. Oct. 1, 1967, to Sept. 30, 1974, at datum 10.00 ft higher.

REMARKS.--Estimated daily discharges: Nov. 2-9, Nov. 26 to March 2, July 15-19, Aug. 6-13, Aug. 28 to Sept. 9, and Sept. 15-18. Records good except those for periods of estimated daily discharge, which are poor.

AVERAGE DISCHARGE.--19 years, 31.1 ft³/s, 8.04 in/yr, 22,530 acre-ft/yr; median of yearly mean 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 greater than base of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 9	1615	4,510	20.16	July 14	0730	692	14.15
Oct. 12	0730	762	14.37	Aug. 13	----	*9,800	*24.40
Nov. 18	1530	1,960	16.66	Sept. 19	1215	4,450	21.93
Apr. 3	0615	3,410	18.99	Sept. 22	2045	3,730	19.49
May 16	1445	4,330	20.02	Sept. 24	1330	664	14.23
July 10	1000	664	14.06	Sept. 30	0745	2,810	17.76
July 12	0645	1,560	16.20				

Minimum daily discharge, 0.11 ft ³/s, June 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	16	12	6.1	8.4	20	5.0	37	7.3	14	3.6	1.4
2	30	13	14	6.5	14	17	29	18	6.2	8.6	3.1	1.2
3	26	10	13	6.9	21	15	972	16	5.6	3.8	2.9	1.8
4	24	8.7	14	7.4	33	15	532	14	6.1	3.6	3.5	1.4
5	22	8.1	14	6.9	42	15	86	11	25	1.6	18	1.1
6	19	7.8	12	6.0	33	12	47	8.2	8.5	64	30	2.3
7	17	9.8	12	5.4	22	9.1	34	7.7	6.6	81	24	1.8
8	16	8.5	11	4.8	17	9.7	26	22	5.6	63	11	1.2
9	1070	15	11	4.5	12	13	21	130	4.6	122	5.0	2.0
10	503	27	10	8.0	9.0	111	19	392	6.5	225	34	3.5
11	86	25	9.2	12	7.8	47	17	104	7.2	53	20	16
12	213	109	8.8	18	6.8	193	15	30	3.9	446	11	5.3
13	49	64	8.1	16	6.3	140	14	22	2.2	47	1500	3.9
14	21	30	7.6	25	5.9	49	16	17	13	198	190	3.5
15	14	20	7.2	37	5.6	32	14	21	6.3	29	53	2.3
16	9.5	20	6.9	56	5.4	23	13	1120	4.4	17	31	1.4
17	7.8	15	6.6	85	5.2	48	12	918	2.7	12	18	1.6
18	8.5	496	6.1	135	5.0	159	21	103	2.7	9.3	12	1.4
19	64	91	5.4	76	5.0	68	15	55	2.5	8.2	8.5	1190
20	57	35	4.9	40	4.9	27	14	41	1.1	7.9	7.8	72
21	29	32	4.7	19	5.2	20	12	32	1.5	7.5	6.8	24
22	20	25	4.8	14	6.0	17	12	29	4.7	7.4	5.9	614
23	16	20	5.0	11	8.0	13	11	22	1.7	5.6	5.7	165
24	17	17	5.1	9.5	45	11	9.4	19	.77	7.3	4.8	214
25	11	17	5.2	8.5	130	8.4	8.7	23	.69	6.2	5.0	57
26	11	14	5.2	7.4	75	10	7.7	16	.29	5.3	5.7	14
27	8.9	12	5.2	6.2	37	6.7	11	14	.29	6.1	5.3	7.7
28	7.3	11	5.1	5.5	26	6.3	20	15	.15	4.5	4.3	6.9
29	9.2	10	5.2	5.0	---	5.3	13	12	.11	3.4	3.5	616
30	11	9.4	5.5	4.6	---	3.9	88	11	23	3.9	2.1	716
31	13	---	5.7	6.0	---	3.5	---	8.3	---	4.5	1.7	---
TOTAL	2461.2	1196.3	250.5	659.2	601.5	1127.9	2114.8	3288.2	161.20	1475.7	2037.2	3749.7
MEAN	79.4	39.9	8.08	21.3	21.5	36.4	70.5	106	5.37	47.6	65.7	125
MAX	1070	496	14	135	130	193	972	1120	25	446	1500	1190
MIN	7.3	7.8	4.7	4.5	4.9	3.5	5.0	7.7	.11	1.6	1.7	1.1
CFSM	1.51	.76	.15	.41	.41	.69	1.34	2.02	.10	.91	1.25	2.38
IN.	1.74	.85	.18	.47	.43	.80	1.50	2.33	.11	1.05	1.44	2.66
AC-FT	4880	2370	497	1310	1190	2240	4190	6520	320	2930	4040	7440

CAL YR 1985	TOTAL	7976.68	MEAN	21.9	MAX	1070	MIN	.00	CFSM	.42	IN.	5.65	AC-FT	15820
WTR YR 1986	TOTAL	19123.40	MEAN	52.4	MAX	1500	MIN	.11	CFSM	1.00	IN.	13.55	AC-FT	37930

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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (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)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)
OCT												
29...	1530	9.6	501	8.20	12.5	3.6	12.0	116	741	--	2600	31
MAR												
06...	0900	8.9	457	7.90	1.0	16	13.6	99	741	K70	150	40
MAY												
28...	1530	15	446	--	22.0	--	10.0	118	739	--	--	--
AUG												
13...	1800	520	194	8.80	20.5	740	8.0	92	741	--	--	5

DATE	HARD-NESS (MG/L AS CACO3) (00900)	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 WH WAT TOTAL FIELD MG/L AS CACO3 (00410)	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3) (99430)	BICAR-BONATE IT-FLD (MG/L AS HCO3) (99440)	CAR-BONATE IT-FLD (MG/L AS CO3) (99445)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT												
29...	260	76	17	11	8	0.3	3.5	226	229	279	0	55
MAR												
06...	220	66	14	10	9	0.3	3.6	--	183	223	0	52
MAY												
28...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
13...	85	26	4.9	5.0	11	0.2	4.1	--	--	--	--	17

06897950 ELK CREEK NEAR DECATUR CITY, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT												
29...	9.1	0.2	13	326	320	0.44	8.4	0.28	<0.01	0.05	0.07	0.5
MAR												
06...	11	0.2	11	284	280	0.39	6.8	0.77	0.01	0.22	0.21	0.6
MAY												
28...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
13...	4.0	0.2	9.7	135	120	0.18	190	0.92	0.03	0.15	0.18	1.6

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	SEDIMENT, SUSPENDED (MG/L) (80154)	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)
OCT												
29...	0.02	0.03	0.05	12	0.31	100	1	<10	260	<0.5	<1	<1
MAR												
06...	0.02	0.03	0.09	33	0.79	96	1	<10	160	<0.5	<1	<1
MAY												
28...	--	--	--	50	2.0	98	--	--	--	--	--	--
AUG												
13...	0.05	0.07	0.35	2630	3690	90	2	200	82	<0.5	<1	<1

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	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)
OCT											
29...	<3	3	9	2	10	570	0.2	<10	3	1	<1
MAR											
06...	<3	1	19	<1	8	360	0.3	<10	2	1	<1
MAY											
28...	--	--	--	--	--	--	--	--	--	--	--
AUG											
13...	<3	7	230	<5	7	75	--	<10	4	<1	<1

DATE	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, DISSOLVED (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, DISSOLVED, RADON METHOD (PCI/L) (09511)	URANIUM DISSOLVED, EXTRACTION (UG/L) (80020)
OCT											
29...	270	<6	47	<2.6	<0.5	4.8	3.6	0.7	0.7	0.04	3.5
MAR											
06...	240	<6	23	--	--	--	--	--	--	--	--
MAY											
28...	--	--	--	--	--	--	--	--	--	--	--
AUG											
13...	93	<6	15	--	--	--	--	--	--	--	--

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 above 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.--Estimated daily discharges: Nov. 25 to March 1. Records good except those for periods of estimated discharges, which are poor. U.S. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--51 years (water years 1919-24,1942-86), 374 ft³/s, 7.25 in/yr, 271,000 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 on basis 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 greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 9	2245	5,930	8.24	Aug. 13	1700	7,910	9.78
Apr. 4	1200	7,550	9.52	Sept. 19	1700	7,800	9.70
May 1	1130	5,100	7.58	Sept. 24	0500	6,030	8.35
May 17	0600	*8,990	*10.55				

Minimum discharge, 41 ft³/s Sept. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	945	115	94	82	88	450	151	4730	221	101	82	49
2	404	115	96	83	88	372	295	1630	176	112	78	47
3	239	110	96	86	97	347	4430	799	153	113	70	46
4	176	102	94	88	1100	305	6730	574	133	87	66	45
5	152	97	91	90	1500	275	5380	464	153	65	117	42
6	142	94	90	90	700	228	2360	375	414	89	142	42
7	134	94	88	86	300	193	1170	323	232	583	103	57
8	128	91	86	84	190	155	830	268	175	705	157	54
9	2800	91	86	87	155	182	623	679	152	1050	123	49
10	4840	92	86	88	130	510	492	2730	134	997	96	52
11	1580	89	85	90	115	797	415	2850	193	2420	70	75
12	1620	343	82	95	105	800	376	1120	249	2260	61	78
13	1360	773	82	95	95	2510	326	647	167	2880	3780	65
14	773	382	82	97	89	1710	295	571	155	2540	1700	101
15	379	240	82	108	94	810	308	842	151	2740	940	65
16	228	192	80	160	81	525	304	2920	136	2900	554	52
17	185	170	79	300	78	435	278	7610	117	1680	285	55
18	186	1660	78	600	76	1420	257	4090	103	552	183	142
19	512	1590	76	900	73	2130	290	1590	92	340	134	4300
20	433	359	75	730	71	1760	322	997	81	245	111	5880
21	327	186	75	550	73	1340	386	703	74	197	98	2180
22	264	168	78	425	78	1040	335	559	74	164	90	1430
23	216	159	80	290	88	837	275	459	76	148	80	5300
24	441	118	79	230	115	689	241	392	69	139	75	4820
25	331	105	78	190	150	520	233	381	63	154	71	1930
26	185	100	78	160	350	381	216	425	62	128	68	739
27	158	96	76	140	770	286	205	315	58	117	63	525
28	143	93	76	120	600	241	239	331	56	107	59	405
29	127	90	75	110	---	211	341	301	55	100	56	2600
30	120	88	76	96	---	183	1760	316	79	89	54	3190
31	113	---	80	91	---	161	---	288	---	89	52	---
TOTAL	19641	8002	2559	6441	7449	21803	29863	40279	4053	23891	9618	34415
MEAN	634	267	82.5	208	266	703	995	1299	135	771	310	1147
MAX	4840	1660	96	900	1500	2510	6730	7610	414	2900	3780	5880
MIN	113	88	75	82	71	155	151	268	55	65	52	42
CFSM	.90	.38	.12	.30	.38	1.00	1.42	1.85	.19	1.10	.44	1.64
IN.	1.04	.42	.14	.34	.40	1.16	1.58	2.14	.22	1.27	.51	1.83
AC-FT	38960	15870	5080	12780	14780	43250	59230	79890	8040	47390	19080	68260

CAL YR 1985	TOTAL	73328.2	MEAN	201	MAX	4840	MIN	4.0	CFSM	.29	IN.	3.89	AC-FT	145400
WTR YR 1986	TOTAL	208014	MEAN	570	MAX	7610	MIN	42	CFSM	.81	IN.	11.04	AC-FT	412600

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 above NGVD.

REMARKS.--Estimated daily discharge: Oct. 17-29, Nov. 26 to Mar. 4, Apr. 30 to May 27, June 18 to July 7, July 10 to Aug. 12, Aug. 20 to Sept. 18, and Sept. 24-30. Records fair except those for periods of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--28 years, 71.6 ft³/s, 9.35 in/yr, 50,870 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.--Peak discharges gtreater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	
Sept. 19	----	*6,040	*16.36	No other peak greater than base discharge.

Minimum daily discharge, 1.0 cfs Sept. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	13	13	11	12	90	24	250	38	25	3.8	1.8
2	36	14	14	12	20	70	35	50	32	17	3.5	1.6
3	26	13	15	13	35	57	1150	33	28	9.0	3.2	2.1
4	22	11	16	13	55	49	419	20	34	4.7	3.0	1.5
5	18	8.7	17	12	105	42	149	16	130	3.1	10	1.1
6	18	6.9	18	11	65	38	65	13	28	2.4	30	1.9
7	16	6.3	19	9.4	41	33	51	50	21	17	16	1.4
8	16	6.0	19	8.9	29	29	40	160	28	115	10	1.0
9	2020	5.7	18	9.8	20	26	34	100	23	132	5.0	1.2
10	1230	7.5	17	12	17	125	34	1000	20	60	33	1.5
11	200	7.9	16	18	15	75	31	300	29	25	17	3.5
12	981	25	16	26	13	415	29	90	25	150	8.6	10
13	124	297	14	29	12	516	28	50	22	60	2220	5.4
14	64	85	13	26	12	95	31	38	25	900	550	3.0
15	50	34	13	39	11	61	23	200	28	200	90	1.9
16	42	31	12	66	11	49	21	800	21	45	32	1.3
17	45	32	11	130	10	71	20	3500	20	20	16	1.5
18	78	967	9.5	270	10	304	25	650	18	12	11	1.4
19	150	85	8.9	190	10	147	29	95	15	9.2	9.0	3270
20	93	34	8.4	150	10	56	27	47	11	7.9	5.6	663
21	54	32	8.2	115	10	45	43	32	14	7.0	5.1	115
22	35	29	8.6	72	13	45	27	26	18	6.4	4.5	1920
23	28	22	9.2	40	25	41	22	22	13	5.9	4.1	1690
24	94	18	9.5	27	56	39	19	19	10	5.4	3.8	600
25	58	16	9.4	18	130	35	18	17	8.5	5.2	3.5	190
26	33	15	9.6	14	270	42	17	15	19	5.0	4.1	60
27	21	14	10	12	190	36	16	14	9.0	4.9	5.0	25
28	17	13	9.7	11	125	32	18	62	7.0	5.4	3.4	15
29	13	12	9.6	11	---	30	16	170	6.4	5.0	2.8	200
30	13	12	10	9.8	---	25	900	190	13	4.6	2.3	68
31	13	---	11	10	---	23	---	43	---	4.2	2.0	---
TOTAL	5674	1873.0	392.6	1395.9	1332	2741	3361	8072	713.9	1873.3	3117.3	8859.1
MEAN	183	62.4	12.7	45.0	47.6	88.4	112	260	23.8	60.4	101	295
MAX	2020	967	19	270	270	516	1150	3500	130	900	2220	3270
MIN	13	5.7	8.2	8.9	10	23	16	13	6.4	2.4	2.0	1.0
CFSM	1.76	.60	.12	.43	.46	.85	1.08	2.50	.23	.58	.97	2.84
IN.	2.03	.67	.14	.50	.48	.98	1.20	2.89	.26	.67	1.12	3.17
AC-FT	11250	3720	779	2770	2640	5440	6670	16010	1420	3720	6180	17570

CAL YR 1985	TOTAL	14606.98	MEAN	40.0	MAX	2020	MIN	.07	CFSM	.38	IN.	5.22	AC-FT	28970
WTR YR 1986	TOTAL	39405.1	MEAN	108	MAX	3500	MIN	1.0	CFSM	1.04	IN.	14.09	AC-FT	78160

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 above NGVD (U.S. Army Corps of Engineers bench mark).

REMARKS.--Estimated daily discharges: Nov. 25 to March 8. Records good except those for estimated daily discharge, which are poor. U.S. Army Corps of Engineers data collection platform at the station.

AVERAGE DISCHARGE.--21 years, 118 ft³/s, 8.80 in/yr, 85,490 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 greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 10	1130	2,030	17.40	Aug. 16	0515	1,610	16.38
May 11	0745	1,720	16.71	Sept. 19	1545	2,590	18.23
May 17	0700	*3,460	*19.04	Sept. 29	2245	1,720	16.70

Minimum discharge, 0.42 ft³/s Sept. 5, 6, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	937	28	19	17	15	210	26	952	157	4.4	2.3	.82
2	1030	29	22	17	17	120	26	735	44	4.4	2.0	.62
3	304	23	21	18	20	80	355	228	25	3.8	1.9	.61
4	56	20	20	18	57	50	981	64	17	3.9	1.8	.57
5	33	18	21	19	300	37	916	40	16	3.7	3.1	.49
6	24	17	21	19	175	30	501	29	44	3.5	7.4	.50
7	18	19	25	19	95	27	136	24	35	6.9	4.3	.83
8	13	18	27	19	45	24	77	64	25	63	2.6	.96
9	809	19	27	19	29	53	50	132	26	144	2.2	.84
10	1970	29	26	20	20	607	37	683	21	133	2.5	.61
11	1750	32	24	23	17	469	31	1540	22	208	2.1	7.7
12	1710	155	23	25	15	666	26	800	84	978	2.3	9.2
13	1330	459	22	29	15	1000	23	487	36	853	627	5.6
14	893	484	20	30	14	729	29	106	21	1030	1490	3.3
15	228	242	19	37	14	510	32	569	13	777	1100	2.3
16	80	138	18	58	13	154	27	1650	9.5	729	1410	2.3
17	52	99	17	170	13	126	23	3020	7.6	661	343	2.0
18	58	451	17	300	13	440	25	2400	6.6	76	60	1.3
19	732	1210	16	440	14	642	33	1690	4.8	32	33	1850
20	755	790	16	280	15	304	33	1050	3.7	20	22	2240
21	440	704	15	120	17	122	54	181	2.9	12	15	2020
22	175	136	15	62	19	76	42	74	3.5	7.6	11	1570
23	104	74	15	37	23	62	32	48	2.9	5.6	7.9	1770
24	77	53	15	27	26	51	26	36	2.1	4.3	5.4	1350
25	59	38	16	22	38	45	20	29	2.0	4.0	4.1	1260
26	45	29	16	19	80	67	16	25	1.9	3.4	3.2	838
27	36	24	16	18	185	65	13	23	2.0	3.5	2.3	266
28	29	20	16	17	380	56	12	49	1.9	3.9	2.0	84
29	25	18	16	16	---	44	11	64	2.1	4.7	1.6	1230
30	22	16	16	15	---	34	718	477	3.7	3.2	1.1	1490
31	19	---	16	15	---	28	---	403	---	2.6	.95	---
TOTAL	13813	5392	593	1945	1684	6928	4331	17672	643.2	5789.4	5174.05	16008.55
MEAN	446	180	19.1	62.7	60.1	223	144	570	21.4	187	167	534
MAX	1970	1210	27	440	380	1000	981	3020	157	1030	1490	2240
MIN	13	16	15	15	13	24	11	23	1.9	2.6	.95	.49
CFSM	2.45	.99	.10	.34	.33	1.23	.79	3.13	.12	1.03	.92	2.93
IN.	2.82	1.10	.12	.40	.34	1.42	.89	3.61	.13	1.18	1.06	3.27
AC-FT	27400	10700	1180	3860	3340	13740	8590	35050	1280	11480	10260	31750

CAL YR 1985	TOTAL	44899.12	MEAN	123	MAX	3090	MIN	.51	CFSM	.68	IN.	9.18	AC-FT	89060
WTR YR 1986	TOTAL	79973.20	MEAN	219	MAX	3020	MIN	.49	CFSM	1.20	IN.	16.35	AC-FT	158600

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 above NGVD (U.S. Army Corps of Engineers bench mark).

REMARKS.--Estimated daily discharges: Nov. 27 to Mar. 4 and March 7, 8. Records good except those for estimated daily discharge, which are poor. U.S. Army Corps of Engineers data collection platform at station.

AVERAGE DISCHARGE.--19 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 greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 10	0500	6,850	20.36	July 14	1200	2,630	15.25
Oct. 19	1200	3,640	17.48	Aug. 13	1730	2,320	14.21
Apr. 30	1300	2,010	13.24	Sept. 23	0345	2,320	14.21
May 10	1945	3,370	17.03	Sept. 29	1400	4,420	18.32
May 17	1330	*7,710	*20.95				

Minimum daily discharge, 0.71 ft³/s Sept. 5, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	79	30	18	20	165	26	286	26	8.3	5.0	1.7
2	81	64	34	18	25	150	25	76	17	16	4.2	1.4
3	54	41	32	19	40	100	732	51	13	6.5	3.9	2.2
4	36	33	31	20	93	80	865	38	11	3.5	3.6	1.6
5	28	30	29	20	470	60	351	30	50	3.1	11	1.1
6	25	30	30	21	250	46	119	24	24	2.2	32	2.1
7	23	39	30	21	130	39	71	115	16	3.7	18	1.9
8	19	35	29	20	70	36	51	216	17	21	10	1.1
9	2650	42	28	20	44	49	39	197	14	25	7.3	1.2
10	5240	74	27	20	32	646	33	1340	13	46	37	1.4
11	826	67	25	21	27	322	27	1180	14	35	31	9.7
12	748	518	24	31	24	697	26	178	10	333	15	12
13	272	681	23	35	22	684	24	79	7.3	107	942	5.7
14	122	458	22	39	20	220	34	58	6.7	1470	1220	2.8
15	79	166	21	51	18	123	37	721	6.6	236	236	2.1
16	54	163	21	125	17	86	31	2780	5.7	62	91	1.6
17	43	99	20	335	16	91	26	7250	3.9	32	44	1.8
18	44	596	20	400	16	532	29	2500	3.0	21	26	1.7
19	2230	787	19	220	18	640	45	285	2.7	16	16	794
20	760	154	19	135	22	138	44	147	2.2	12	11	282
21	202	88	18	95	27	77	71	95	2.7	9.5	8.7	53
22	116	74	18	67	35	67	44	67	4.4	8.1	7.2	200
23	222	65	18	50	46	58	31	48	3.1	7.0	5.3	1510
24	344	72	18	38	60	45	24	39	2.8	6.6	4.6	541
25	89	52	17	32	95	42	21	33	2.0	6.4	4.1	332
26	55	40	17	26	580	111	18	29	5.8	5.9	4.3	89
27	43	36	17	24	380	76	19	26	1.7	5.7	4.7	50
28	36	31	17	22	225	51	19	61	1.7	6.3	3.5	41
29	30	28	17	20	---	42	18	73	2.6	5.4	3.2	3100
30	32	27	17	19	---	34	1080	277	3.7	5.4	2.1	1700
31	32	---	17	18	---	28	---	52	---	5.6	1.9	---
TOTAL	14728	4669	705	2000	2822	5535	3980	18351	293.6	2531.2	2813.6	8745.1
MEAN	475	156	22.7	64.5	101	179	133	592	9.79	81.7	90.8	292
MAX	5240	787	34	400	580	697	1080	7250	50	1470	1220	3100
MIN	19	27	17	18	16	28	18	24	1.7	2.2	1.9	1.1
CFSM	2.83	.93	.14	.38	.60	1.07	.79	3.52	.06	.49	.54	1.74
IN.	3.26	1.03	.16	.44	.62	1.23	.88	4.06	.07	.56	.62	1.94
AC-FT	29210	9260	1400	3970	5600	10980	7890	36400	582	5020	5580	17350

CAL YR 1985	TOTAL	37631.23	MEAN	103	MAX	5240	MIN	.72	CFSM	.61	IN.	8.33	AC-FT	74640
WTR YR 1986	TOTAL	67173.5	MEAN	184	MAX	7250	MIN	1.1	CFSM	1.10	IN.	14.87	AC-FT	133200

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 provided by U.S. Army 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, 314,000 acre-ft May 21-24; maximum elevation 912.97 ft May 22; minimum daily contents, 188,000 acre-ft Feb. 19-20; minimum elevation, 902.95 ft Feb. 19-20.

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 1985 TO SEPTEMBER 1986
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	216000	288000	287000	244000	214000	197000	204000	213000	312000	278000	240000	203000
2	219000	287000	285000	243000	213000	198000	202000	217000	311000	277000	238000	200000
3	222000	286000	284000	242000	211000	199000	201000	219000	309000	274000	235000	200000
4	224000	285000	282000	241000	211000	200000	204000	220000	308000	270000	232000	200000
5	224000	283000	281000	240000	212000	200000	208000	220000	307000	268000	230000	200000
6	224000	283000	279000	239000	214000	201000	211000	220000	307000	266000	230000	200000
7	224000	282000	278000	237000	214000	201000	212000	219000	306000	264000	227000	200000
8	223000	280000	276000	235000	213000	201000	212000	218000	305000	262000	225000	199000
9	225000	279000	275000	234000	211000	201000	211000	219000	303000	262000	222000	199000
10	238000	278000	273000	232000	209000	203000	209000	221000	302000	261000	223000	199000
11	254000	277000	272000	231000	207000	205000	208000	224000	300000	259000	223000	200000
12	264000	276000	270000	229000	204000	209000	206000	230000	299000	261000	222000	200000
13	271000	279000	268000	228000	202000	214000	205000	233000	297000	265000	221000	199000
14	276000	282000	265000	227000	200000	218000	205000	233000	295000	269000	228000	199000
15	279000	284000	264000	225000	197000	220000	203000	232000	294000	271000	233000	199000
16	280000	285000	263000	224000	195000	221000	201000	235000	293000	272000	235000	199000
17	279000	285000	262000	224000	193000	220000	200000	256000	292000	272000	235000	199000
18	278000	285000	261000	225000	191000	220000	200000	287000	292000	271000	234000	199000
19	280000	288000	261000	226000	188000	223000	200000	304000	291000	269000	232000	202000
20	287000	291000	259000	227000	188000	225000	200000	310000	289000	266000	230000	211000
21	292000	293000	257000	228000	188000	224000	201000	314000	287000	264000	228000	219000
22	293000	294000	256000	228000	189000	222000	201000	314000	286000	261000	227000	225000
23	293000	293000	255000	227000	189000	221000	200000	314000	284000	259000	224000	234000
24	294000	292000	254000	226000	189000	218000	200000	314000	283000	258000	222000	242000
25	295000	290000	253000	225000	189000	216000	200000	313000	282000	256000	219000	248000
26	294000	290000	252000	224000	190000	215000	201000	312000	282000	254000	217000	252000
27	293000	289000	250000	222000	193000	213000	200000	312000	281000	251000	216000	255000
28	292000	288000	249000	220000	195000	211000	201000	312000	279000	249000	213000	256000
29	291000	287000	248000	219000	---	209000	201000	312000	279000	248000	210000	257000
30	290000	286000	247000	217000	---	207000	203000	312000	279000	245000	208000	269000
31	288000	---	246000	216000	---	205000	---	312000	---	243000	205000	---
MEAN	265000	286000	265000	229000	200000	211000	204000	264000	294000	263000	225000	215000
MAX	295000	294000	287000	244000	214000	225000	212000	314000	312000	278000	240000	269000
MIN	216000	276000	246000	216000	188000	197000	200000	213000	279000	243000	205000	199000

CAL YR 1985 MEAN 203000 MAX 295000 MIN 156000
WTR YR 1986 MEAN 244000 MAX 314000 MIN 188000

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 above 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.--Estimated daily discharges: Dec. 13-14, Apr. 21-22. Records good except those for estimated daily discharges, which are fair. U.S. Army Corps of Engineers gage-height telemeter at station. Flow regulated by Rathbun Reservoir (station 06903880) since Nov. 21, 1969. Records of discharge include diversion of:

Date	Discharge	Date	Discharge
Oct. 1 - Nov. 7	13	Nov. 28 - July 21	11
Nov. 8 - 27	8	July 22 - Sept. 30	14

The diversion goes from the reservoir through fish ponds on left bank downstream from dam. Diverted flow returns to stream 0.1 mi downstream from gage. 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.--30 years, 346 ft³/s, 8.56 in/yr, (unadjusted) 250,700 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 floodmark, site and datum then in use; no flow Oct. 26, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,290 ft³/s July 14, gage height, 11.57 ft; minimum daily discharge, 11 ft³/s May 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	591	515	607	775	26	920	26	693	853	1240	1260
2	29	587	409	606	773	26	603	26	776	1230	1240	672
3	30	583	530	605	772	26	194	134	775	1230	1230	27
4	29	582	534	603	783	27	195	208	767	1220	1230	27
5	30	580	787	603	790	26	194	209	176	1220	1050	26
6	30	580	785	684	780	25	195	441	392	1220	1010	27
7	28	580	785	778	924	26	439	606	601	1220	1230	26
8	28	573	784	782	1120	26	758	607	769	976	1220	26
9	28	571	863	784	1110	27	759	276	767	300	623	26
10	28	571	994	785	1110	29	758	25	769	1010	70	26
11	28	569	983	785	1120	28	758	24	700	1230	68	27
12	29	453	978	784	1160	31	758	336	764	294	407	26
13	29	264	1190	783	1150	30	758	611	766	30	739	26
14	30	267	810	782	1150	321	756	696	765	606	207	26
15	30	259	431	781	1150	599	756	516	763	1080	782	26
16	347	257	497	786	1150	598	516	22	407	1080	1240	26
17	658	424	612	799	1150	840	61	22	24	1230	1240	27
18	661	502	614	814	1140	624	52	16	264	1230	1240	26
19	411	264	613	800	646	603	61	11	751	1230	1230	26
20	36	249	611	786	27	885	61	101	753	1220	1020	27
21	240	401	611	785	27	1120	60	215	753	1220	873	247
22	433	517	611	781	27	1120	60	206	753	1080	1050	405
23	423	516	611	779	27	1120	62	289	515	486	1230	65
24	206	514	614	780	27	1120	61	364	26	785	1230	32
25	401	514	613	779	27	1130	61	367	72	1200	1020	31
26	584	514	611	775	28	1120	61	369	420	1200	870	27
27	581	513	608	772	28	1120	61	446	752	1250	961	231
28	578	515	606	775	27	1120	61	123	456	1230	1220	616
29	578	514	605	775	---	1120	62	215	95	808	1220	170
30	576	515	607	775	---	1120	47	395	402	1240	1220	27
31	582	---	605	776	---	1110	---	584	---	1240	1260	---
TOTAL	7731	14339	21027	23289	18998	17143	10148	8486	16686	31448	30470	4257
MEAN	249	478	678	751	679	553	338	274	556	1014	983	142
MAX	661	591	1190	814	1160	1130	920	696	776	1250	1260	1260
MIN	28	249	409	603	27	25	47	11	24	30	68	26
AC-FT	15330	28440	41710	46190	37680	34000	20130	16830	33100	62380	60440	8440

CAL YR 1985	TOTAL	83063	MEAN	228	MAX	1190	MIN	19	AC-FT	164800
WTR YR 1986	TOTAL	204022	MEAN	559	MAX	1260	MIN	11	AC-FT	404700

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 above NGVD (U.S. Army Corps of Engineers bench mark).

REMARKS.--Estimated daily discharges: Oct. 19-23, Dec. 5-10, and Dec. 18-27. Records good except those for periods of estimated record, which are poor. Flow regulated by Rathbun Reservoir (station 06903880) 20.8 mi upstream. U. S. Army Corps of Engineers rain-gage, gage-height telemeters and data collection platform at station.

AVERAGE DISCHARGE.--7 years, 663 ft³/s, 12.8 in/yr, 480,300 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 U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,900 ft³/s May 17, gage height, 34.16 ft; minimum daily discharge, 30 ft³/s Sept. 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	413	1100	738	612	815	187	1170	4490	685	565	1230	1230
2	146	881	1140	614	820	158	845	1210	860	1120	1220	1150
3	76	740	1500	615	834	160	438	285	869	1250	1210	196
4	61	694	1270	617	996	139	387	299	869	1250	1210	42
5	50	676	1000	617	1280	133	384	294	615	1250	1220	35
6	45	686	830	620	1060	117	318	302	707	1250	894	33
7	42	718	820	797	909	103	278	797	505	1350	1150	33
8	39	687	820	805	1200	90	723	716	843	1500	1210	33
9	1270	678	850	796	1230	100	796	1060	861	679	1100	31
10	4420	676	950	798	1220	206	785	264	856	822	278	31
11	2740	676	1010	817	1200	377	783	124	840	1310	130	39
12	1260	1070	1070	887	1240	451	781	104	782	1950	83	42
13	546	1010	1360	887	1250	1100	777	574	845	772	1040	34
14	206	932	1630	871	1250	518	779	641	839	539	796	32
15	147	622	785	849	1240	758	773	2200	833	1810	769	31
16	114	477	456	985	1240	737	765	3120	792	1100	1240	30
17	570	451	609	1410	1250	742	268	5480	193	1250	1350	30
18	735	939	610	1700	1250	1120	96	4200	61	1250	1280	36
19	370	1500	630	1500	1240	979	85	1080	580	1240	1260	270
20	210	629	620	1030	341	870	88	467	797	1230	1190	593
21	150	426	620	993	135	1260	89	366	800	1220	822	147
22	320	622	620	913	120	1280	92	367	818	1210	811	448
23	640	629	620	863	148	1280	90	342	807	699	1170	1070
24	382	606	640	863	128	1270	85	459	265	411	1220	1080
25	330	601	660	856	137	1270	81	478	58	1020	1170	1050
26	653	601	660	836	466	1260	78	662	146	1170	806	217
27	692	590	640	817	814	1260	76	483	675	1210	772	74
28	677	587	638	810	320	1250	76	565	770	1240	1060	539
29	669	579	622	809	---	1240	76	439	226	803	1180	2020
30	665	579	618	806	---	1230	3160	463	195	1160	1180	2480
31	687	---	614	807	---	1220	---	655	---	1230	1210	---
TOTAL	19325	21662	25650	27200	24133	22865	15222	32986	18992	34860	31261	13076
MEAN	623	722	827	877	862	738	507	1064	633	1125	1008	436
MAX	4420	1500	1630	1700	1280	1280	3160	5480	869	1950	1350	2480
MIN	39	426	456	612	120	90	76	104	58	411	83	30
AC-FT	38330	42970	50880	53950	47870	45350	30190	65430	37670	69140	62010	25940

CAL YR 1985	TOTAL	135867	MEAN	372	MAX	4660	MIN	21	AC-FT	269500
WTR YR 1986	TOTAL	287232	MEAN	787	MAX	5480	MIN	30	AC-FT	569700

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 1986

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Annual maximum Gage height (feet)	Annual maximum Discharge (ft³/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-	9-20-86	9.50	6,430
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-	9-17-86	697.13	140
		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-	1986	(a)	<480
		Paint Creek Basin					
05388600	Paint Creek near Waterville, Ia. (Discontinued)	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-	1986	(a)	(+)
05388700	Little Paint Creek tributary near Waterville, Ia. (Discontinued)	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-	1986	(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-	3-19-86	90.21	620
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-	3-19-86	11.25	3,400
		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-	1986	(a)	<1,150
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-	3-18-86	13.90	400
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-	3-18-86	6.15	570
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-	3-19-86	16.11	8,400
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-	9-21-86	13.72	670

Annual maximum discharge at crest-stage partial-record stations during water year 1986--Continued

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft^3/s)
		Maquoketa River Basin					
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-	7-9-86	87.42	3,000
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-	7-8-86	88.68	2,100
		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-	5-14-86	3.42	42
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-	3-19-86	5.47	400
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-	3-19-86	9.28	1,200
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-	3-19-86	87.07	2,250
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-	3-19-86	84.94	1,850
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-	3-11-86	88.70	(+)
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-	3-11-86	88.35	880
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-	6-21-86	3.81	30
05421200	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-	3-10-86	11.66	460
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-	7-8-86	6.91	300
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-	3-10-86	16.96	2,200
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-	3-10-86	88.68	2,400
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-	7-8-86	89.90	1,640

Annual maximum discharge at crest-stage partial-record stations during water year 1986--Continued

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft³/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-	5-14-86	81.95	125
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-	3-18-86	4.63	(+)
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-	5-14-86	7.59	63
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-	5-14-86	7.97	215
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-	5-14-86	4.88	88
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-	3-10-86	74.72	2,500
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-	6-30-86	86.18	(+)
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-	5-17-86	23.99	1,900
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-	5-17-86	27.51	2,100
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-	5-17-86	21.85	340
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-	6-30-86	16.37	500
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-	5-17-86	22.98	375
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-	9-19-86	23.44	1,350
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-	8-14-86	11.03	2,300
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-	8-14-86	84.49	2,650

Annual maximum discharge at crest-stage partial-record stations during water year 1986--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--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-	9-19-86	79.38	620
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-	8-14-86	12.06	710
05455350	South English River tributary No. 2 near Montezuma, Ia.(Discontinued)	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-	1986	(a)	(+)
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-	5-17-86	87.07	960
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-	3-20-86	82.12	(+)
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-	3-18-86	57.34	3,700
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-	3-20-86	91.91	1,450
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-	3-18-86	87.25	1,400
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-	3-18-86	90.42	700
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-	3-19-86	92.99	650
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-	3-19-86	86.63	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-	3-10-86	87.12	1,350
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-	5-27-86	87.71	750
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-	6-30-86	81.27	1,400
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-	6-30-86	83.12	2,800
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-	5-17-86	86.84	1,200
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-	5-17-86	89.42	1,200

Annual maximum discharge at crest-stage partial-record stations during water year 1986--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-	5-10-86	87.12	910
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-	6-30-86	89.72	890
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-	9-21-86	79.80	(+)
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-	9-21-86	91.95	2,250
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-	8-14-86	88.46	2,150
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-	8-14-86	89.77	960
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-	9-24-86	80.91	4,450
		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-	3-18-86	89.11	240
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-	6-30-86	87.10	710
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-	6-30-86	89.56	1,500
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-	6-30-86	89.01	880
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-	5-10-86	9.09	430
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-	5-10-86	5.52	58
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-	5-10-86	9.64	900
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-	6-30-86	88.60	(+)
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-	6-29-86	24.81	3,350
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-	1986	*	(+)

Annual maximum discharge at crest-stage partial-record stations during water year 1986--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)
		Des Moines River Basin--Continued					
05487800	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-	7-14-86	14.52	2,800
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-	9-19-86	83.50	3,300
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-	8-14-86	86.29	330
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-	9-19-86	83.91	4,300
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-	9-19-86	87.13	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-	5-17-86	85.64	(+)
		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-	4-27-86	6.64	250
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-	3-18-86	8.10	540
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-	3-18-86	6.07	2,700
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-	3-18-86	9.86	2,300
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-	3-17-86	86.04	(+)
		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-	3-17-86	8.06	(+)
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-	3-17-86	32.81	(+)
		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-	1986	(a)	(+)
		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-	3-18-86	91.39	230

Annual maximum discharge at crest-stage partial-record stations during water year 1986--Continued

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Gage height (feet)	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-	1986	(a)	<1,300
		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-	3-18-86	82.74	(+)
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-	4-27-86	89.52	810
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-	4-29-86	88.23	1,100
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-	3-18-86	85.70	275
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-	5-9-86	87.45	590
		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-	1986	(a)	(+)
		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-	6-14-86	73.13	(+)
		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-	6-14-86	75.72	(+)
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-	6-14-86	20.48	4,500
		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-	1986	(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-	4-4-86	86.73	1,080
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-	6-14-86	8.24	510

Annual maximum discharge at crest-stage partial-record stations during water year 1986--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)
		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-	6-14-86	10.51	(+)
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-	6-14-86	5.58	970
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-	1986	(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-	9-19-86	8.67	640
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-	9-19-86	8.74	560
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-	1986	(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-	7-12-86	92.92	1,230
		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-	9-19-86	77.22	1,120
		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-	9-19-86	91.32	1,790
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-	7-14-86	82.30	(+)
		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-	5-17-86	855.26	3,600
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-	5-17-86	75.08	2,750

\+ Discharge not determined.
a Peak stage did not reach bottom of gage.
b Ice affected.
c Revised.
* Not determined.

Discharge measurements in the following table were made at special study and miscellaneous sites throughout the state.

Stream	Tributary	Location	Drainage area (mi^2)	Measurements Date	Measurements Discharge (ft^3/s)
		DES MOINES RIVER BASIN			
Little Beaver Creek	Des Moines River	NW1/4 Sec.14, T.81N., R.27W., Dallas County, at bridge on State Highway 141, 2 miles southwest of Woodburn.	38.3	6/30/86	7,960
Willow Creek	Middle Raccoon River	NE1/4 Sec. 10, T.81N., R.32W., Guthrie County at bridge on County Road N70, 0.25 miles south of Bayard.	100	6/29/86	6,200
Mosquito Creek	Middle Raccoon River	SE1/4 Sec.01, T.81N., R.31W., Guthrie County, at bridge on County Road, 1 mile northeast of Bagley.	33	6/29/86	7,880
Walnut Creek	Raccoon River	SW1/4 Sec.11, T.79N., R.26W., Dallas County, at bridge on County Road, 3 miles southwest of Grimes.	12.2	5/10/86	3,770
Walnut Creek	Raccoon River	NW1/4 Sec.24, T.79N., R.26W., Dallas County, at bridge on Meredith Road, 4 miles west of Urbandale.	30	5/10/86	7,840
Little Walnut Creek	Walnut Creek	SW1/4 Sec.24, T.79N., R.26W., Dallas County, at bridge on County Road, 5 miles west of Urbandale.	11.8	5/10/86	5,840

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05388250 UPPER IOWA R NR DORCHESTER IA (LAT 43 25 16N LONG 091 30 31W)									
OCT 1985					MAY 1986				
22...	0815	348	12.0	550	14...	0915	1030	17.0	515
DEC					JUN				
04...	1150	299	0.0	638	25...	1330	518	22.5	535
JAN 1986					AUG				
07...	1155	285	0.0	570	06...	1705	338	23.5	570
FEB					SEP				
20...	1040	290	0.0	570	18...	1550	404	17.0	530
APR					22...	1400	4230	18.0	325
03...	0815	1300	10.5	545					
05389500 MISSISSIPPI RIVER AT MCGREGOR, IOWA (LAT 43 01 29N LONG 091 10 21W)									
OCT 1985					JUN 1986				
22...	1230	76100	12.0	590	26...	1230	37600	24.5	460
APR 1986					AUG				
02...	1230	98300	11.0	395	06...	1145	52200	19.0	400
MAY									
13...	1200	120000	18.0	450					
05411600 TURKEY RIVER AT SPILLVILLE, IOWA (LAT 43 12 28N LONG 091 56 56W)									
OCT 1985					MAY 1986				
21...	1500	110	12.5	540	12...	1330	190	18.5	505
DEC					JUN				
03...	1445	88	6.0	565	27...	0845	82	22.5	540
JAN 1986					AUG				
07...	0900	57	0.0	525	08...	0810	53	19.0	520
FEB					SEP				
20...	1500	50	0.0	540	19...	0900	95	11.0	582
MAR									
31...	1430	249	16.0	500					
05412500 TURKEY RIVER AT GARBER, IOWA (LAT 42 44 24N LONG 091 15 42W)									
OCT 1985					MAY 1986				
23...	0930	1030	13.5	565	14...	1420	3210	18.0	470
JAN 1986					JUN				
06...	1613	473	0.0	535	24...	1447	1040	22.5	555
FEB					AUG				
19...	1340	686	0.0	600	07...	1035	516	20.0	520
APR					SEP				
01...	1350	2240	15.0	570	17...	1400	578	15.0	505
05418450 NF MAQUOKETA R AT FULTON IA (LAT 42 08 42N LONG 090 40 55W)									
OCT 1985					MAY 1986				
24...	0800	596	14.0	325	16...	0740	407	16.0	590
DEC					JUN				
09...	1600	341	0.0	640	23...	1545	1560	23.5	300
JAN 1986					AUG				
08...	1515	189	0.0	680	05...	1120	259	20.0	625
FEB					SEP				
18...	1445	251	0.0	615	16...	0900	384	19.0	630
APR									
04...	0715	569	10.0	600					

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05418500	MAQUOKETA RIVER NEAR MAQUOKETA, IOWA (LAT 42 05 05N LONG 090 38 04W)			
OCT 1985				
23...	1510	901	14.0	575
DEC				
10...	0840	916	5.0	625
JAN 1986				
08...	1215	541	0.0	655
MAR				
27...	1110	2260	11.0	525
MAY 1986				
15...	1335	1140	20.0	555
JUN				
24...	0800	4410	22.5	315
AUG				
05...	0850	836	21.0	655
SEP				
16...	1345	907	19.0	510
05420500	MISSISSIPPI RIVER AT CLINTON, IOWA (LAT 41 46 53N LONG 090 15 04W)			
NOV 1985				
05...	1200	65500	7.0	430
19...	1130	4080	5.0	339
MAR 1986				
04...	1330	34000	1.0	379
APR				
16...	1200	184000	10.0	319
MAY 1986				
28...	1000	152000	18.0	358
SEP				
02...	1230	59400	21.0	360
05420560	WAPSIPINICON RIVER NEAR ELMA, IOWA (LAT 43 14 34N LONG 092 31 48W)			
OCT 1985				
16...	1550	57	9.0	410
NOV				
26...	1100	75	1.0	420
JAN 1986				
08...	1500	21	0.0	440
MAY 1986				
21...	1415	75	20.0	540
AUG				
05...	1210	25	21.5	420
SEP				
16...	1215	39	16.0	580
05421000	WAPSIPINICON R AT INDEPENDENCE, IOWA (LAT 42 27 49N LONG 091 53 42W)			
OCT 1985				
21...	0930	1140	12.5	520
JAN 1986				
06...	1005	230	0.0	525
FEB				
21...	1013	383	0.0	530
MAR				
31...	1030	1650	16.0	420
MAY 1986				
12...	1000	588	18.0	455
JUN				
27...	1200	472	25.0	480
AUG				
08...	1215	224	25.0	410
SEP				
19...	1440	265	19.0	370
05422000	WAPSIPINICON RIVER NEAR DE WITT, IOWA (LAT 41 46 01N LONG 090 32 05W)			
OCT 1985				
24...	1055	1550	15.0	500
DEC				
10...	1043	1550	1.0	565
JAN 1986				
09...	0950	612	0.0	570
FEB				
18...	1140	1130	0.0	490
APR				
04...	1010	3370	12.0	440
MAY 1986				
16...	1050	1470	22.0	435
JUN				
23...	1220	2150	21.0	405
AUG				
04...	1440	937	25.0	305
SEP				
15...	1550	692	21.0	390
05422470	CROW C AT BETTENDORF IA (LAT 41 33 03N LONG 090 27 15W)			
OCT 1985				
24...	1357	38	16.0	420
DEC				
10...	1227	18	4.0	770
JAN 1986				
09...	1415	2.0	0.0	760
FEB				
18...	0917	8.0	0.0	790
APR				
14...	1245	12	12.0	650
MAY 1986				
16...	1335	7.3	19.0	520
JUN				
23...	0915	10	20.5	510
AUG				
04...	0945	4.0	20.0	655
SEP				
15...	1125	2.4	20.0	690

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05449000 EAST BRANCH IOWA RIVER NEAR KLEMME, IOWA (LAT 43 00 31N LONG 093 37 42W)									
OCT 1985					APR 1986				
16...	1330	110	10.5	700	10...	1205	178	9.0	750
NOV					MAY				
25...	1230	98	1.0	700	09...	1240	105	11.0	780
JAN 1986					AUG				
07...	1250	20	0.0	800	04...	1340	26	22.0	740
FEB					SEP				
18...	1155	21	0.0	790	15...	1230	36	19.0	720
05449500 IOWA RIVER NEAR ROWAN, IOWA (LAT 42 45 36N LONG 093 37 23W)									
OCT 1985					APR 1986				
16...	1045	401	10.0	660	10...	0915	729	9.0	690
30...	1145	320	9.5	740	MAY				
NOV					09...	1430	312	11.0	660
21...	1125	555	0.0	780	AUG				
DEC					04...	1010	154	21.0	690
05...	1330	143	0.0	690	SEP				
JAN 1986					15...	1010	73	16.0	630
07...	1015	68	0.0	765					
FEB									
18...	0950	84	0.0	640					
05451500 IOWA RIVER AT MARSHALLTOWN, IOWA (LAT 42 03 57N LONG 092 54 27W)									
OCT 1985					MAR 1986				
02...	1300	1020	11.0	690	18...	0800	5150	--	485
30...	1515	970	11.5	725	APR				
NOV					29...	1515	1750	16.0	606
12...	1430	549	2.5	678	JUN				
21...	1600	1040	0.0	715	18...	1045	1200	21.5	676
DEC					JUL				
19...	1400	340	0.0	732	21...	1445	1050	24.0	678
FEB 1986					SEP				
05...	1500	479	0.0	526	02...	1530	424	23.0	590
05451700 TIMBER CREEK NEAR MARSHALLTOWN, IOWA (LAT 42 00 25N LONG 092 51 15W)									
OCT 1985					FEB 1986				
02...	0940	19	7.0	615	06...	0940	211	0.5	356
NOV					APR				
12...	1715	23	2.5	600	30...	0855	167	14.5	433
DEC					JUL				
19...	1620	20	0.0	511	21...	1650	85	24.0	606
05451900 RICHLAND CREEK NEAR HAVEN, IOWA (LAT 41 53 58N LONG 092 28 27W)									
OCT 1985					MAR 1986				
03...	1030	1.6	10.5	499	18...	1345	87	6.0	390
NOV					APR				
15...	1215	11	3.0	520	30...	1130	113	13.0	360
DEC					JUN				
24...	1525	8.2	0.0	503	19...	1310	54	24.0	513
FEB 1986									
06...	1200	70	0.0	364					
05452000 SALT CREEK NR ELBERON, IOWA (LAT 41 57 51N LONG 092 18 47W)									
OCT 1985					APR 1986				
03...	1225	16	11.0	576	29...	1120	62	13.0	539
NOV					JUN				
12...	1040	54	3.0	599	19...	1050	173	22.0	584
JAN 1986					JUL				
03...	1130	29	--	597	23...	1300	106	24.0	590
MAR					SEP				
17...	1100	332	4.0	456	02...	1200	37	19.5	560

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05452200 WALNUT CREEK NEAR HARTWICK, IOWA (LAT 41 50 06N LONG 092 23 10W)									
OCT 1985					MAR 1986				
03...	1435	2.0	17.0	524	19...	1605	209	4.0	392
NOV					APR				
15...	1035	22	3.0	503	30...	1355	121	13.0	401
DEC					JUN				
24...	1225	13	0.0	459	19...	1530	69	25.5	503
FEB 1986					JUL				
06...	1340	92	0.5	337	22...	1010	36	21.5	507
05453000 BIG BEAR CREEK AT LADORA, IOWA (LAT 41 44 58N LONG 092 10 55W)									
OCT 1985					MAY 1986				
01...	1030	29	6.5	676	01...	1025	347	11.5	467
NOV					JUN				
14...	1040	105	1.0	496	20...	1130	196	23.0	501
DEC					JUL				
20...	1520	42	0.0	580	22...	1415	131	24.5	541
MAR 1986									
19...	1330	894	4.0	325					
05453100 IOWA RIVER NEAR MARENGO, IOWA (LAT 41 48 41N LONG 092 03 42W)									
OCT 1985					MAR 1986				
01...	1200	991	10.0	625	19...	1105	10300	5.0	398
31...	1000	1080	9.5	730	MAY				
NOV					01...	1315	3450	14.0	525
14...	1430	960	4.0	649	JUN				
22...	0930	1180	0.5	620	20...	1405	2310	26.0	625
JAN 1986					JUL				
03...	1345	465	0.0	713	22...	1340	2090	27.0	645
FEB					SEP				
04...	1100	691	0.5	624	03...	1000	1070	21.5	508
05454000 RAPID CREEK NEAR IOWA CITY, IOWA (LAT 41 41 19N LONG 091 29 15W)									
OCT 1985					APR 1986				
02...	1030	0.45	8.5	520	07...	1030	16	10.0	550
NOV					MAY				
01...	1100	91	10.5	410	04...	1200	33	12.5	520
DEC					JUN				
02...	1440	49	0.0	505	02...	1200	34	15.0	560
JAN 1986					JUL				
02...	1330	9.3	0.0	605	03...	1200	38	18.0	560
FEB					AUG				
03...	1330	16	0.0	505	01...	1130	10	21.5	550
MAR					20...	1300	10	22.0	580
11...	1045	46	2.5	410					
05454300 CLEAR CREEK NR CORALVILLE, IOWA (LAT 41 40 36N LONG 091 35 55W)									
OCT 1985					MAR 1986				
02...	0913	6.6	7.5	660	11...	0825	362	2.0	335
NOV					APR				
04...	1420	77	8.5	560	08...	0705	66	10.0	540
DEC					30...	0757	1160	15.0	275
05...	1430	61	0.0	595	MAY				
19...	1310	28	0.0	680	02...	0950	166	11.0	510
JAN 1986					JUN				
03...	0838	27	0.0	595	03...	0845	140	14.5	550
17...	1500	30	0.0	655	JUL				
31...	0830	31	0.0	610	03...	1340	160	21.0	510
FEB					SEP				
12...	0845	36	0.0	660	04...	0800	30	19.0	550

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05454500 IOWA RIVER AT IOWA CITY, IOWA (LAT 41 39 24N LONG 091 32 27W)				
OCT 1985				
03...	0825	848	15.0	465
31...	1300	1100	11.5	630
NOV				
04...	0805	1650	9.0	630
22...	1200	1660	3.0	620
MAR 1986				
03...	1520	2420	2.0	635
APR 1986				
08...	0918	5860	12.0	590
MAY				
09...	0810	2340	20.0	625
AUG				
01...	0830	4510	28.0	440
SEP				
11...	0953	4260	20.0	480
05455000 RALSTON CREEK AT IOWA CITY, IOWA (LAT 41 39 50N LONG 091 30 48W)				
OCT 1985				
01...	1130	0.18	9.0	505
DEC				
02...	1315	3.4	0.0	460
JAN 1986				
02...	1050	0.57	0.0	760
FEB				
03...	1115	1.5	0.0	604
MAR				
05...	0915	3.2	1.5	470
APR				
07...	0810	1.6	10.0	690
MAY 1986				
01...	1005	4.6	11.0	750
JUN				
02...	0955	2.7	15.0	670
JUL				
03...	0900	3.1	17.0	645
AUG				
04...	1330	1.2	21.0	480
14...	1045	4.6	19.0	520
SEP				
05...	1500	0.41	19.5	660
05455010 SOUTH BRANCH RALSTON CREEK AT IOWA CITY, IOWA (LAT 41 39 05N LONG 091 30 27W				
OCT 1985				
01...	1323	0.3	10.0	725
NOV				
01...	1405	25	11.0	410
DEC				
02...	1110	4.3	0.0	580
JAN 1986				
02...	0847	0.87	0.0	760
FEB				
03...	1430	1.9	0.0	748
MAR 1986				
05...	0740	2.3	1.5	645
APR				
07...	0845	1.5	9.0	665
30...	1045	11	14.0	420
JUN				
03...	1005	2.3	13.5	610
30...	1545	76	20.0	240
SEP				
05...	0840	0.44	16.0	625
05455100 OLD MANS CR NR IOWA CITY, IOWA (LAT 41 36 25N LONG 091 36 40W)				
OCT 1985				
01...	1438	35	10.0	465
NOV				
04...	1030	192	8.0	500
JAN 1986				
03...	1030	48	0.0	505
MAR				
05...	1510	804	1.5	235
APR 1986				
08...	1353	117	14.0	480
MAY				
02...	0820	329	12.0	460
JUN				
03...	1337	264	17.5	505
SEP				
04...	0940	55	20.0	530
05455500 ENGLISH RIVER AT KALONA, IOWA (LAT 41 27 59N LONG 091 42 56W)				
NOV 1985				
08...	1045	392	7.0	439
DEC				
12...	1615	197	0.0	444
JAN 1986				
15...	1300	114	0.0	480
MAR				
13...	1515	4230	2.5	206
APR				
24...	1545	159	16.0	444
MAY 1986				
30...	1445	1140	19.0	425
JUL				
16...	1600	2190	24.0	249
AUG				
21...	1400	377	23.0	404
SEP				
30...	1030	2370	18.0	333

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05455700 IOWA RIVER NEAR LONE TREE, IOWA (LAT 41 25 15N LONG 091 28 25W)									
OCT 1985					APR 1986				
31...	1500	1630	10.5	615	25...	1300	2800	16.5	600
NOV					JUL				
07...	1530	2200	9.5	563	11...	1230	7450	24.0	367
22...	1400	2700	3.0	475	AUG				
JAN 1986					21...	1245	5370	24.0	350
17...	1030	794	0.0	644	SEP				
MAR					30...	1300	8690	18.0	308
13...	1215	11900	2.0	289					
05457700 CEDAR RIVER AT CHARLES CITY, IOWA (LAT 43 03 45N LONG 092 40 23W)									
OCT 1985					APR 1986				
17...	0900	655	9.0	720	04...	0750	1640	8.5	540
NOV					AUG				
27...	0915	568	1.0	490	05...	1710	336	22.5	550
JAN 1986					SEP				
09...	0900	276	0.0	580	16...	1620	395	16.0	560
FEB									
20...	0825	246	0.0	410					
05458000 LITTLE CEDAR RIVER NEAR IONIA, IOWA (LAT 43 02 05N LONG 092 30 05W)									
OCT 1985					APR 1986				
17...	1035	156	9.0	690	08...	1320	443	12.0	480
NOV					MAY				
26...	1300	224	1.0	500	21...	1645	283	20.0	500
JAN 1986					AUG				
09...	1105	76	0.0	510	05...	1400	96	23.5	495
FEB					SEP				
19...	1445	62	0.0	500	16...	1420	120	17.0	600
05458500 CEDAR RIVER AT JANESVILLE, IOWA (LAT 42 38 54N LONG 092 27 54W)									
OCT 1985					MAY 1986				
22...	1635	926	14.0	540	22...	1600	2200	19.0	640
JAN 1986					JUN				
13...	1555	528	0.0	515	02...	1745	1020	22.0	580
FEB					AUG				
24...	1630	441	0.0	580	06...	1330	684	22.0	540
APR					SEP				
07...	1910	3960	11.5	520	17...	1335	652	16.0	510
05458900 WEST FORK CEDAR RIVER AT FINCHFORD, IOWA (LAT 42 37 50N LONG 092 32 24W)									
OCT 1985					MAY 1986				
23...	0950	863	14.0	570	22...	1315	1080	19.0	625
DEC					JUL				
04...	1120	271	0.0	660	02...	1400	636	21.0	600
JAN 1986					AUG				
13...	1410	162	0.0	580	06...	1130	381	22.0	600
FEB					SEP				
24...	1420	265	0.0	670	17...	1130	165	16.5	630
05459000 SHELL ROCK RIVER NEAR NORTHWOOD, IOWA (LAT 43 24 51N LONG 093 13 14W)									
OCT 1985					FEB 1986				
16...	1225	218	9.0	740	19...	0940	53	0.0	950
28...	1200	144	9.0	690	APR				
NOV					03...	1320	507	8.0	580
18...	1200	170	6.0	690	AUG				
26...	0845	198	0.0	610	05...	0920	95	23.0	690
JAN 1986					SEP				
08...	1215	70	0.0	800	16...	0920	80	15.5	540

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05459500 WINNEBAGO RIVER AT MASON CITY, IOWA (LAT 43 09 54N LONG 093 11 33W)				
OCT 1985				
16...	1045	404	9.0	850
NOV				
25...	1545	301	0.5	750
JAN 1986				
08...	1000	114	0.0	675
FEB				
18...	1500	78	0.0	850
APR 1986				
03...	1025	766	9.5	630
MAY 1986				
09...	1020	430	10.0	650
AUG				
04...	1810	122	22.5	700
SEP				
15...	1640	120	16.0	660
05462000 SHELL ROCK RIVER AT SHELL ROCK, IOWA (LAT 42 39 10N LONG 092 35 46W)				
OCT 1985				
22...	1320	930	14.0	590
DEC				
04...	1535	567	0.0	570
JAN 1986				
14...	0940	444	0.0	675
FEB				
20...	1140	360	0.0	720
APR				
08...	1155	3420	11.0	580
MAY 1986				
22...	1900	2700	20.0	630
JUL				
02...	1140	1160	20.0	520
AUG				
06...	1000	585	21.0	500
SEP				
17...	0945	530	15.0	590
05463000 BEAVER CREEK AT NEW HARTFORD, IOWA (LAT 42 30 50N LONG 092 37 55W)				
OCT 1985				
21...	1240	510	12.5	610
JAN 1986				
13...	1230	83	0.0	610
FEB				
24...	1225	118	0.5	650
APR				
07...	1345	861	9.0	650
MAY 1986				
22...	1000	397	17.0	580
JUL				
03...	1530	349	22.0	625
AUG				
07...	1015	100	22.0	610
SEP				
17...	1530	82	16.5	620
05463500 BLACK HAWK CREEK AT HUDSON, IOWA (LAT 42 24 28N LONG 092 27 47W)				
OCT 1985				
23...	1515	26	15.0	580
DEC				
04...	1630	45	0.0	560
JAN 1986				
14...	1455	66	0.0	590
FEB				
25...	1400	83	0.0	640
APR				
07...	1115	448	10.0	580
MAY 1986				
23...	1235	295	18.0	530
JUL				
03...	1100	500	20.0	600
AUG				
07...	0840	132	21.0	540
SEP				
18...	1130	55	17.0	640
05464000 CEDAR RIVER AT WATERLOO, IOWA (LAT 42 29 44N LONG 092 20 03W)				
OCT 1985				
23...	1310	4070	13.5	580
FEB 1986				
25...	1205	1460	0.0	610
APR				
07...	1635	11400	9.0	625
MAY				
23...	1020	7210	18.0	580
JUL 1986				
03...	0830	4310	21.0	570
AUG				
06...	1700	2610	22.0	610
SEP				
18...	0930	2120	17.0	590

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05464500 CEDAR RIVER AT CEDAR RAPIDS, IOWA (LAT 41 58 14N LONG 091 40 01W)									
OCT 1985					APR 1986				
22...	0940	4710	12.0	585	24...	0945	6140	13.0	555
NOV					MAY				
25...	1220	2830	0.5	632	23...	0835	10000	17.0	554
DEC					JUN				
20...	1015	4550	0.0	647	26...	1230	6880	24.0	556
JAN 1986					JUL				
24...	0900	2200	0.5	613	23...	1015	4570	27.5	539
FEB					SEP				
24...	1245	2080	0.5	672	25...	1300	6060	21.0	499
MAR									
25...	0900	27600	5.5	405					
05465000 CEDAR RIVER NEAR CONESVILLE, IOWA (LAT 41 24 36N LONG 091 17 06W)									
NOV 1985					AUG 1986				
07...	1245	4540	8.5	567	21...	1030	3620	25.0	381
APR 1986					SEP				
25...	1200	7040	16.5	520	30...	1630	11400	19.0	441
05465500 IOWA RIVER AT WAPELLO, IOWA (LAT 41 10 48N LONG 091 10 57W)									
OCT 1985					MAY 1986				
03...	1415	3550	15.0	511	13...	1115	9420	21.0	502
23...	1030	7530	13.5	572	JUL				
DEC					02...	1000	25600	21.0	343
12...	1415	4800	0.0	646	29...	1630	9710	28.5	417
FEB 1986					AUG				
27...	1100	4300	1.0	600	27...	1200	7880	23.0	460
MAR									
31...	1530	24000	14.0	467					
05470000 SOUTH SKUNK RIVER NEAR AMES, IOWA (LAT 42 04 05N LONG 093 37 02W)									
OCT 1985					APR 1986				
30...	0950	208	10.5	760	16...	0750	345	6.0	725
DEC					MAY				
11...	1100	89	0.0	740	30...	1005	500	17.0	790
JAN 1986					AUG				
23...	1040	130	1.0	755	25...	1030	45	21.0	540
05470500 SQUAW CREEK AT AMES, IOWA (LAT 42 01 21N LONG 093 37 45W)									
OCT 1985					APR 1986				
28...	0840	136	10.0	550	15...	1400	204	6.0	700
DEC					MAY				
11...	0900	52	0.0	700	30...	0830	255	16.0	560
JAN 1986					JUL				
23...	0900	105	1.0	700	10...	0815	300	21.0	675
MAR					SEP				
05...	0925	380	3.0	520	02...	1450	13	24.0	460
05471050 S SKUNK R AT COLFAX, IOWA (LAT 41 40 55N LONG 093 14 47W)									
OCT 1985					MAY 1986				
04...	0830	527	11.0	690	01...	0945	1580	13.0	600
NOV					JUN				
14...	1440	306	4.5	670	12...	0800	848	18.5	680
DEC					JUL				
12...	1410	205	0.0	360	24...	0820	380	24.5	650
FEB 1986					SEP				
13...	1125	304	0.0	770	05...	0820	173	17.5	560
MAR									
20...	1000	2940	2.5	510					

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05471200 INDIAN CREEK NEAR MINGO, IOWA (LAT 41 48 17N LONG 093 18 26W)									
OCT 1985					JUN 1986				
04...	1025	185	11.0	690	12...	1020	221	18.0	670
NOV					JUL				
14...	1555	103	3.5	670	24...	0940	104	24.5	660
MAR 1986					SEP				
20...	1225	882	2.0	580	05...	0955	102	18.0	630
MAY									
01...	1135	539	12.5	650					
05471500 SOUTH SKUNK RIVER NEAR OSKALOOSA, IOWA (LAT 41 21 19N LONG 092 39 31W)									
OCT 1985					APR 1986				
01...	1145	845	9.0	480	28...	1100	1080	17.0	570
NOV					JUN				
15...	0950	719	3.0	600	09...	1125	2130	20.0	600
DEC					JUL				
16...	1105	350	0.0	670	21...	1050	1010	25.0	600
MAR 1986					SEP				
17...	1040	2740	4.0	480	02...	1040	434	20.5	560
05472500 NORTH SKUNK RIVER NEAR SIGOURNEY, IOWA (LAT 41 18 03N LONG 092 12 16W)									
DEC 1985					APR 1986				
09...	1130	222	0.0	496	21...	1115	360	11.5	457
JAN 1986					AUG				
16...	1430	120	0.0	522	18...	1115	4270	--	273
MAR					SEP				
17...	1130	864	5.0	380	29...	1125	1440	20.5	399
05473400 CEDAR CR NR OAKLAND MILLS, IOWA (LAT 40 55 00N LONG 091 40 00W)									
DEC 1985					AUG 1986				
12...	1315	206	0.0	512	20...	1450	65	26.0	446
JAN 1986					SEP				
16...	1100	151	0.0	536	25...	1030	7420	21.0	125
MAR									
12...	1615	1020	3.0	297					
05474000 SKUNK RIVER AT AUGUSTA, IOWA (LAT 40 45 13N LONG 091 16 40W)									
OCT 1985					MAY 1986				
03...	1045	1090	13.0	485	14...	0930	3120	20.0	563
23...	1600	4090	14.5	469	21...	1330	20600	18.0	350
DEC					JUL				
16...	1045	866	0.0	616	01...	1400	3510	24.0	448
FEB 1986					AUG				
26...	1030	980	0.0	487	26...	1630	1910	25.0	531
05476500 DES MOINES RIVER AT ESTHERVILLE, IOWA (LAT 43 23 51N LONG 094 50 38W)									
OCT 1985					APR 1986				
08...	1230	655	11.0	790	29...	1300	2840	11.0	960
NOV					JUL				
12...	1205	330	0.5	850	22...	1500	1120	25.0	560
DEC					SEP				
16...	1300	176	0.0	650	03...	1400	258	24.0	680
FEB 1986									
03...	1230	80	0.0	1190					
05476750 DES MOINES RIVER AT HUMBOLDT, IOWA (LAT 42 43 12N LONG 094 13 06W)									
NOV 1985					FEB 1986				
18...	1105	802	6.0	850	05...	1240	306	0.0	850
DEC					SEP				
20...	1125	406	0.0	790	02...	1300	721	23.0	680

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05479000		EAST FORK DES MOINES RIVER AT DAKOTA CITY, IOWA (LAT 42 43 26N LONG 094 11 30							
OCT 1985					APR 1986				
10...	0915	1300	11.0	650	29...	1445	1960	14.0	680
NOV					JUN				
18...	1245	649	6.5	750	11...	1230	1050	21.0	700
DEC					JUL				
20...	1355	374	0.0	600	28...	1110	836	26.0	650
MAR 1986					SEP				
17...	1540	1430	2.0	600	02...	1615	158	23.0	735
05480500		DES MOINES RIVER AT FORT DODGE, IOWA (LAT 42 30 22N LONG 094 12 04W)							
NOV 1985					FEB 1986				
18...	1115	1600	4.5	775	13...	1500	501	0.0	700
DEC					APR				
30...	1330	714	0.0	560	08...	1315	12200	4.5	720
JAN 1986									
16...	1430	582	0.0	910					
05481000		BOONE RIVER NEAR WEBSTER CITY, IOWA (LAT 42 26 01N LONG 093 48 12W)							
OCT 1985					JUN 1986				
30...	1235	464	11.0	790	02...	1205	1490	19.0	750
JAN 1986					JUL				
23...	1220	160	1.0	800	14...	1205	2070	23.0	725
MAR					AUG				
28...	0905	960	10.0	675	22...	1210	91	25.0	570
APR									
16...	1305	934	9.0	740					
05481300		DES MOINES RIVER NR STRATFORD, IOWA (LAT 42 15 04N LONG 093 59 52W)							
OCT 1985					JUN 1986				
30...	1015	2500	11.0	700	03...	0920	7300	19.5	750
JAN 1986					AUG				
25...	0930	1010	0.0	975	25...	1230	1070	26.0	690
APR									
16...	1000	9280	9.0	725					
05481650		DES MOINES RIVER NEAR SAYLORVILLE, IOWA (LAT 41 40 50N LONG 093 40 07W)							
OCT 1985					MAR 1986				
29...	1040	3200	12.0	790	04...	1005	3830	2.0	940
JAN 1986					JUN				
22...	0955	958	2.0	660	09...	1120	11400	24.0	480
05481950		BEAVER CREEK NEAR GRIMES, IOWA (LAT 41 41 18N LONG 093 44 08W)							
OCT 1985					MAY 1986				
29...	1345	128	13.0	720	29...	1150	311	20.0	740
APR 1986					AUG				
15...	1015	221	5.0	700	20...	1200	212	23.0	750
05482135		NORTH RACCOON RIVER NR NEWELL, IOWA (LAT 42 36 16N LONG 095 02 42W)							
OCT 1985					APR 1986				
02...	1310	69	13.0	725	30...	1715	1120	13.0	650
NOV					JUL				
13...	1350	37	0.0	680	23...	1300	28	29.0	500
DEC					SEP				
18...	1230	30	0.0	610	04...	1905	29	23.5	480
FEB 1986									
04...	1510	30	0.0	270					

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05482170 BIG CEDAR CREEK NEAR VARINA, IOWA (LAT 42 41 16N LONG 094 47 52W)									
OCT 1985					APR 1986				
07...	0945	20	11.0	780	29...	1110	350	10.0	680
NOV					JUL				
13...	1615	14	0.0	750	22...	0900	13	27.0	650
DEC					SEP				
17...	1615	12	0.0	360	03...	1000	20	24.0	640
FEB 1986									
03...	1020	9.3	0.0	700					
05482300 N RACCOON R NR SAC CITY IOWA (LAT 42 20 28N LONG 094 59 05W)									
OCT 1985					MAR 1986				
02...	1430	203	17.0	630	20...	1230	4070	0.0	650
NOV					APR				
14...	0830	109	0.0	690	30...	1743	3410	12.0	670
DEC					JUL				
18...	1340	86	0.0	420	23...	1400	148	28.0	650
FEB 1986					SEP				
06...	0930	308	0.0	510	05...	1635	134	22.5	660
05482500 NORTH RACCOON RIVER NEAR JEFFERSON, IOWA (LAT 41 59 17N LONG 094 22 36W)									
OCT 1985					DEC 1985				
01...	1415	153	10.0	620	12...	0955	134	0.0	590
NOV					FEB 1986				
14...	1545	177	0.0	680	10...	1215	332	0.0	300
05483000 EAST FORK HARDIN CREEK NR. CHURDAN, IOWA (LAT 42 06 27N LONG 094 22 12W)									
OCT 1985					MAY 1986				
01...	1030	0.1	1.0	580	01...	1315	17	12.0	800
FEB 1986					JUL				
10...	1400	2.2	0.0	700	24...	1445	5.2	28.0	800
MAR									
26...	1545	10	4.0	873					
05483450 M RACCOON R NR BAYARD, IOWA (LAT 41 47 00N LONG 094 30 00W)									
OCT 1985					MAY 1986				
28...	0940	39	10.0	700	11...	1055	4310	18.0	560
DEC					28...	0915	393	16.0	650
09...	1000	33	0.0	700	JUL				
JAN 1986					02...	1510	2240	24.0	370
21...	0950	124	2.0	510	AUG				
APR					19...	0945	338	23.0	610
14...	0850	282	8.0	650					
05483600 MIDDLE RACCOON RIVER AT PANORA, IOWA (LAT 41 41 14N LONG 094 22 15W)									
OCT 1985					APR 1986				
28...	1200	30	17.0	495	14...	1145	300	9.0	625
DEC					MAY				
09...	1230	34	1.0	575	28...	1140	270	19.0	590
JAN 1986					JUN				
21...	1310	133	4.0	610	30...	1100	9940	24.0	500

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05484000	SOUTH RACCOON RIVER AT REDFIELD, IOWA (LAT 41 34 48N LONG 094 10 58W)								
OCT 1985					MAY 1986				
28...	1330	93	10.0	610	11...	1340	8260	18.0	640
DEC					28...	1330	695	20.0	420
09...	1408	88	0.0	540	JUN				
JAN 1986					30...	1910	22800	24.0	290
21...	1430	336	2.0	540	JUL				
APR					01...	1040	17800	23.0	200
14...	1350	663	7.0	520	AUG				
					20...	0735	763	23.0	430
05484500	RACCOON RIVER AT VAN METER, IOWA (LAT 41 32 02N LONG 093 56 59W)								
OCT 1985					JUL 1986				
29...	0800	363	10.0	660	01...	0720	38300	23.0	290
JAN 1986					09...	0810	5830	25.0	540
22...	0750	486	0.0	600	AUG				
APR					19...	1835	2190	24.0	590
15...	0700	2700	6.0	650					
05484800	WALNUT CREEK AT DES MOINES, IOWA (LAT 41 35 14N LONG 093 42 11W)								
OCT 1985					APR 1986				
03...	1025	4.1	11.0	690	30...	1250	2700	15.5	150
NOV					JUN				
14...	0820	5.5	3.0	640	11...	0835	68	20.0	570
DEC					JUL				
13...	1210	1.9	0.0	830	23...	0805	45	22.0	700
JAN 1986					SEP				
30...	1140	5.2	0.0	800	04...	0845	26	20.0	590
MAR									
19...	0840	111	3.5	600					
05485500	DES MOINES R. BL RACCOON R. AT DES MOINES, IOWA (LAT 41 34 30N LONG 093 35 48								
APR 1986									
01...	1345	12500	10.5	520					
05485640	FOURMILE CREEK AT DES MOINES, IOWA (LAT 41 36 50N LONG 093 32 43W)								
OCT 1985					MAR 1986				
03...	1150	5.2	14.0	1100	19...	1220	189	4.0	600
NOV					JUN				
14...	0930	5.7	3.0	1080	11...	1015	59	21.0	740
DEC					JUL				
13...	0935	2.5	0.0	850	23...	1000	36	23.0	780
FEB 1986					SEP				
04...	1430	113	0.0	640	04...	1110	38	20.5	730
05486000	NORTH RIVER NEAR NORWALK, IOWA (LAT 41 27 25N LONG 093 39 10W)								
OCT 1985					APR 1986				
02...	1550	56	11.0	350	29...	1435	216	15.5	440
NOV					JUN				
13...	1440	18	4.0	470	10...	1400	129	26.0	460
DEC					JUL				
20...	1300	13	0.0	180	22...	1435	117	27.0	470
MAR 1986					SEP				
18...	1535	313	6.0	280	03...	1420	21	24.0	480

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05486490 MIDDLE RIVER NEAR INDIANOLA, IOWA (LAT 41 25 27N LONG 093 35 09W)									
OCT 1985					APR 1986				
02...	1410	105	10.0	340	29...	1240	362	15.5	440
NOV					JUL				
13...	1315	130	4.5	430	22...	1250	199	27.0	475
DEC					SEP				
20...	1150	29	0.0	340	03...	1240	69	23.0	490
MAR 1986									
18...	1345	836	6.0	370					
05487470 SOUTH RIVER NEAR ACKWORTH, IOWA (LAT 41 20 14N LONG 093 29 10W)									
OCT 1985					JUN 1986				
02...	1055	140	10.0	310	10...	1010	104	24.0	410
DEC					JUL				
19...	1630	48	0.0	280	22...	1005	64	25.0	450
MAR 1986					SEP				
18...	1100	1390	10.5	320	03...	1055	11	22.0	500
APR									
29...	1045	133	15.0	470					
05487980 WHITE BREAST CREEK NEAR DALLAS, IOWA (LAT 41 14 41N LONG 093 16 08W)									
OCT 1985					JUN 1986				
02...	0900	259	7.0	285	10...	0820	56	24.0	430
DEC					JUL				
19...	1425	49	0.0	590	22...	0810	34	23.0	440
MAR 1986					SEP				
17...	1700	279	5.0	420	03...	0905	5.8	22.0	490
APR									
29...	0845	71	13.5	500					
05488200 ENGLISH CR NR KNOXVILLE, IOWA (LAT 41 16 00N LONG 093 05 00W)									
OCT 1985					APR 1986				
01...	1725	55	10.0	280	28...	1730	24	14.0	540
NOV					JUN				
12...	1105	26	4.5	500	09...	1625	12	22.5	540
DEC					JUL				
19...	1215	13	0.0	470	21...	1610	1.9	26.0	500
MAR 1986					SEP				
18...	0810	297	6.0	370	02...	1615	0.41	23.0	610
05488500 DES MOINES RIVER NEAR TRACY, IOWA (LAT 41 16 53N LONG 092 51 34W)									
OCT 1985					APR 1986				
01...	1405	6590	13.0	550	28...	1345	18600	14.5	610
NOV					JUN				
13...	1510	2520	7.0	570	09...	1330	19000	20.0	580
FEB 1986					JUL				
03...	1145	2760	1.0	670	21...	1315	19500	28.0	480
MAR					SEP				
17...	1250	14500	3.0	420	02...	1320	4060	22.0	600
05489000 CEDAR CREEK NEAR BUSSEY, IOWA (LAT 41 13 09N LONG 092 54 38W)									
OCT 1985					APR 1986				
01...	1540	247	10.0	235	28...	1525	81	14.0	610
NOV					JUN				
12...	1300	334	5.0	450	09...	1455	70	24.0	620
DEC					JUL				
16...	1415	67	0.0	660	21...	1445	24	27.5	560
FEB 1986					SEP				
03...	1435	91	0.0	640	02...	1500	14	23.0	680
MAR									
17...	1430	254	5.0	490					

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05489500	DES MOINES RIVER AT OTTUMWA, IOWA (LAT 41 00 39N LONG 092 24 40W)			
JAN 1986				
21...	1300	7040	0.5	642
MAR 1986				
10...	1300	11300	3.0	538
05490500	DES MOINES RIVER AT KEOSAUQUA, IOWA (LAT 40 43 40N LONG 091 57 34W)			
JAN 1986				
23...	1245	5720	0.5	682
MAR				
12...	1415	13100	4.0	454
AUG 1986				
20...	1205	12000	25.0	428
SEP				
25...	1345	24400	22.5	269
06483500	ROCK RIVER NEAR ROCK VALLEY, IOWA (LAT 43 12 52N LONG 096 17 39W)			
OCT 1985				
23...	1050	964	13.0	800
DEC				
05...	1130	294	0.0	920
JAN 1986				
15...	1150	219	0.0	925
FEB				
19...	1730	144	0.0	900
MAR				
18...	1530	7770	1.5	430
19...	1130	11300	0.5	335
25...	1730	3270	8.0	540
26...	1145	2810	6.0	750
APR 1986				
10...	1900	1510	14.0	850
MAY				
22...	1730	1390	19.0	852
JUL				
01...	1620	2260	22.5	500
AUG				
12...	1830	322	24.0	690
SEP				
24...	1740	7300	18.0	560
06486000	MISSOURI RIVER AT SIOUX CITY, IOWA (LAT 42 29 10N LONG 096 24 47W)			
OCT 1985				
03...	1030	32300	12.0	755
07...	1400	31400	12.5	720
10...	1120	31100	9.0	745
15...	1230	30900	12.0	791
18...	1330	32100	12.0	810
21...	1300	31300	13.0	800
24...	1150	30600	14.5	755
29...	1300	31100	12.5	550
NOV				
01...	1300	32100	10.0	830
05...	1150	31100	9.5	800
08...	1200	32100	9.5	795
12...	1030	30800	5.0	750
15...	1015	32500	4.0	750
19...	1200	33000	1.5	470
DEC				
23...	1205	20600	0.0	850
JAN 1986				
02...	1330	18400	0.0	850
08...	1400	16200	0.0	798
09...	0945	18300	0.0	752
13...	1250	18600	0.0	805
23...	1435	17400	0.0	750
FEB				
18...	1315	19500	0.0	710
25...	1300	19600	0.5	772
MAR				
04...	1415	21400	3.0	755
14...	1005	26800	2.0	648
20...	1225	33100	1.5	700
25...	1300	34200	9.0	660
APR				
02...	1245	33200	12.0	690
08...	1330	40600	14.0	710
11...	1115	37000	14.0	675
14...	1415	35200	7.5	600
17...	1430	35800	7.0	675
22...	1200	43500	8.5	770
25...	1215	41900	15.0	750
28...	1300	40600	11.0	900
29...	1750	41300	13.5	825
MAY				
08...	1400	39400	16.5	750
MAY 1986				
09...	1105	36500	19.0	750
13...	1210	46500	18.0	800
20...	1320	55400	18.0	750
27...	1215	45800	12.0	600
30...	1130	45800	19.0	625
JUN				
03...	1300	45300	19.5	580
06...	1150	45700	22.0	600
09...	1155	46000	22.0	700
12...	1030	43800	20.5	835
18...	1145	40800	23.0	750
20...	1320	39900	25.0	775
24...	1130	44300	24.5	759
27...	1345	46000	24.0	760
30...	1410	45300	24.5	740
JUL				
03...	1050	42000	24.5	750
08...	1030	39500	25.0	760
11...	1130	38900	25.0	780
15...	1410	39900	26.0	760
18...	1100	37900	29.5	750
21...	1230	37600	25.5	770
24...	0935	37800	26.0	790
28...	1240	37500	27.0	795
AUG				
01...	1200	37400	25.5	800
05...	1310	38200	23.0	790
08...	1415	38400	20.0	700
11...	1245	36600	23.5	800
14...	1105	36600	24.0	790
19...	1240	39800	24.0	780
22...	1215	39800	21.0	700
25...	1400	41500	24.5	800
28...	1130	43900	21.0	775
SEP				
02...	1230	44900	22.0	750
05...	1100	43900	22.0	758
10...	1145	41300	20.0	700
12...	1145	40500	19.0	800
16...	1020	42300	17.0	775
19...	1110	48000	18.0	780
22...	1300	44200	19.0	800
25...	1340	46200	18.5	750
30...	1150	56900	18.0	745

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06600000 PERRY CREEK AT 38TH STREET, SIOUX CITY, IOWA (LAT 42 32 05N LONG 096 24 35W)				
OCT 1985				
21...	1510	19	12.0	705
DEC				
03...	1700	18	0.0	800
JAN 1986				
13...	1600	22	0.0	760
FEB				
18...	1645	14	0.0	805
APR				
14...	1715	88	4.0	585
MAY 1986				
20...	1910	28	18.5	800
JUN				
30...	1720	57	25.5	450
AUG				
11...	1615	14	23.0	475
SEP				
22...	1700	46	18.5	500
06600100 FLOYD RIVER AT ALTON, IOWA (LAT 42 58 55N LONG 096 00 03W)				
OCT 1985				
22...	1235	128	14.0	900
DEC				
05...	1400	73	0.0	950
JAN 1986				
14...	1650	46	0.0	280
FEB				
20...	1130	26	0.0	890
MAR				
19...	1615	2280	1.0	340
APR 1986				
11...	1545	249	14.5	850
MAY				
21...	1615	219	18.0	895
JUL				
02...	1530	115	25.0	850
AUG				
13...	1850	34	21.5	750
SEP				
25...	1015	112	18.5	880
06600300 WEST BRANCH FLOYD RIVER NEAR STRUBLE, IOWA (LAT 42 55 15N LONG 096 10 30W)				
JAN 1986				
14...	1445	42	0.0	1050
FEB				
19...	1430	23	0.0	1090
MAR				
19...	1800	360	2.0	600
26...	1445	128	6.0	590
APR				
10...	1520	156	14.5	1000
MAY 1986				
22...	1930	142	18.0	1030
JUL				
01...	1400	87	24.0	925
AUG				
12...	1415	24	21.5	920
SEP				
23...	1410	55	--	1000
06600500 FLOYD RIVER AT JAMES, IOWA (LAT 42 34 36N LONG 096 18 43W)				
OCT 1985				
22...	1015	410	13.0	940
DEC				
04...	1450	233	0.0	1100
JAN 1986				
14...	1045	202	0.0	900
FEB				
19...	1020	175	0.0	945
APR				
15...	1130	1010	3.0	850
MAY 1986				
23...	1550	647	18.0	925
JUL				
01...	1020	457	22.0	800
AUG				
12...	1000	172	19.0	850
SEP				
23...	1030	399	17.5	875
06601200 MISSOURI RIVER AT DECATUR, NEBRASKA (LAT 42 00 26N LONG 096 14 29W)				
OCT 1985				
01...	1150	31700	12.0	740
08...	1440	32100	13.0	720
17...	1335	31100	13.0	750
22...	1235	31100	15.0	760
29...	1200	31500	13.0	775
NOV				
05...	1125	32400	10.0	805
14...	1250	31700	6.0	725
19...	1210	32000	0.5	675
APR 1986				
03...	1315	33700	14.0	540
09...	1140	38600	15.0	675
16...	1415	36300	7.0	790
23...	1315	44200	11.0	800
30...	1325	43300	15.0	875
MAY				
07...	1420	40300	17.0	650
21...	1000	56200	18.5	775
28...	1125	48200	19.0	680
JUN 1986				
04...	1300	46000	21.5	675
11...	1215	44300	22.5	700
18...	1615	41500	23.5	710
JUL				
02...	1300	44100	24.0	760
10...	1200	39200	25.5	710
15...	1045	39200	26.0	750
23...	1400	38700	27.0	700
30...	1240	37600	27.5	760
AUG				
07...	1220	38200	19.0	750
12...	1650	37800	23.0	800
26...	1240	42800	24.0	790
SEP				
03...	1415	43600	22.0	800
10...	1240	40600	19.5	780
18...	1210	42600	18.0	760
23...	1220	47900	19.5	690
30...	1445	54400	19.0	700

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06602020 WEST FORK DITCH AT HORNICK, IOWA (LAT 42 13 37N LONG 096 04 40W)									
OCT 1985					APR 1986				
02...	1115	149	9.0	800	22...	1215	313	9.0	800
NOV					JUN				
14...	1100	113	3.0	800	03...	1730	195	23.5	790
JAN 1986					JUL				
03...	1345	93	0.0	775	21...	1250	129	24.0	750
28...	1255	107	0.0	852	AUG				
MAR					25...	1820	82	28.0	730
14...	1430	847	2.0	390					
06602400 MONONA-HARRISON DITCH NEAR TURIN, IOWA (LAT 41 57 52N LONG 095 59 30W)									
NOV 1985					APR 1986				
12...	1400	196	3.0	725	21...	1545	634	9.0	725
DEC					JUN				
31...	1050	151	0.0	790	03...	1125	328	21.0	790
JAN 1986					JUL				
27...	1230	166	0.0	795	17...	1730	265	27.5	760
MAR					AUG				
10...	1030	326	--	730	26...	1655	156	24.0	720
06605000 OCHEYEDAN R NR SPENCER, IOWA (LAT 43 07 44N LONG 095 12 37W)									
OCT 1985					APR 1986				
07...	1130	259	11.0	650	29...	2000	2150	12.5	680
NOV					JUL				
12...	1630	155	0.0	725	22...	1645	194	27.5	670
DEC					SEP				
17...	0925	93	0.0	380	04...	1100	129	21.0	660
FEB 1986									
04...	0920	66	0.0	400					
06605850 L SIOUX R AT LINN GROVE, IOWA (LAT 42 53 24N LONG 095 14 30W)									
OCT 1985					FEB 1986				
07...	1545	919	10.5	650	04...	1215	215	0.0	800
NOV					MAR				
12...	1800	460	0.0	680	18...	1745	2700	0.5	610
DEC					APR				
17...	1400	312	0.0	580	30...	1215	3580	12.5	650
06606600 LITTLE SIOUX RIVER AT CORRECTIONVILLE, IOWA (LAT 42 28 20N LONG 095 47 49W)									
OCT 1985					APR 1986				
23...	1505	1210	15.0	770	15...	1840	3840	3.5	775
DEC					MAY				
03...	1350	638	0.0	1000	20...	1510	5790	16.5	630
JAN 1986					JUL				
15...	1620	463	0.0	875	03...	1630	2860	25.5	775
FEB					AUG				
20...	1610	338	0.0	750	14...	1815	762	24.0	700
06607200 MAPLE RIVER AT MAPLETON, IOWA (LAT 42 09 28N LONG 095 48 27W)									
OCT 1985					APR 1986				
02...	1330	275	13.0	750	22...	1500	636	9.0	625
NOV					JUN				
14...	1310	193	4.0	750	04...	0945	626	23.0	740
JAN 1986					JUL				
03...	1545	144	0.0	760	21...	1735	321	27.5	690
28...	1030	190	0.0	675	AUG				
MAR					28...	1215	218	18.0	650
13...	1315	1830	1.5	345					
06607500 LITTLE SIOUX RIVER NR. TURIN, IOWA (LAT 41 57 52N LONG 095 58 21W)									
OCT 1985					MAR 1986				
07...	1225	1780	12.0	755	10...	1330	2680	3.0	560
15...	1410	1590	12.5	800	APR				
22...	1630	1450	16.5	725	21...	1340	4400	9.0	700
NOV					JUN				
12...	1225	1050	4.0	770	03...	1530	3810	22.5	700
DEC					JUL				
30...	1435	769	0.0	800	18...	2015	2200	29.5	670
JAN 1986					AUG				
27...	1630	696	0.0	795	27...	1655	1050	21.5	600

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06608500		SOLDIER RIVER AT PISGAH, IOWA (LAT 41 49 52N LONG 095 55 50W)		
OCT 1985				
01...	1110	122	6.0	700
NOV				
13...	1050	100	3.5	700
DEC				
31...	1315	77	0.0	680
JAN 1986				
28...	1315	82	0.0	700
MAR				
10...	1345	149	8.0	695
APR 1986				
25...	1140	163	17.0	780
JUN				
04...	1250	222	24.0	690
JUL				
18...	1435	202	29.5	650
AUG				
28...	1830	125	20.0	750
06609500		BOYER RIVER AT LOGAN, IOWA (LAT 41 38 33N LONG 095 46 57W)		
OCT 1985				
01...	1445	255	11.0	695
NOV				
13...	1340	167	3.5	700
DEC				
17...	1200	128	0.0	680
JAN 1986				
30...	1130	149	0.0	900
MAR 1986				
10...	1725	345	8.0	670
APR				
25...	1450	481	18.0	760
JUN				
05...	1145	572	21.5	650
06610000		MISSOURI RIVER AT OMAHA, NEBRASKA (LAT 41 15 32N LONG 095 55 20W)		
OCT 1985				
03...	1325	37600	11.0	760
09...	1125	34200	--	750
15...	1120	34700	13.0	780
17...	1030	36400	12.0	790
21...	1410	36800	16.0	740
24...	1320	36600	15.5	750
28...	1430	36700	14.0	490
NOV				
01...	1340	36900	12.0	790
04...	1315	35100	12.0	780
07...	1345	35300	10.5	800
12...	1630	35500	4.0	750
14...	1310	35500	5.0	770
21...	1310	34700	0.0	775
JAN 1986				
02...	1530	21500	0.0	750
10...	1045	19900	0.0	810
16...	1250	19800	3.0	805
23...	1015	21300	0.0	750
FEB				
03...	1625	20500	0.5	775
19...	1445	23100	1.5	760
26...	1200	22400	2.0	779
MAR				
03...	1200	26800	3.0	730
11...	1100	28200	3.0	750
17...	1215	34800	4.0	600
26...	1200	45600	8.0	700
APR				
04...	1140	42400	14.0	610
07...	1330	47500	14.0	660
10...	1445	48100	14.0	750
14...	1215	44700	10.0	730
17...	1245	45400	6.5	780
21...	1200	50000	9.0	772
24...	1400	50600	11.0	750
30...	1545	60200	13.0	725
MAY				
05...	1200	55900	16.0	700
09...	1300	49800	19.5	750
15...	1245	60900	19.0	750
20...	1315	73000	19.0	740
23...	1200	68200	20.0	720
27...	1235	58000	18.0	775
JUN				
02...	1225	55800	19.0	760
05...	1245	56000	20.0	750
11...	1030	53700	22.5	740
16...	1200	56800	22.0	750
19...	1200	48700	24.0	750
23...	0930	50600	24.0	730
26...	1200	52500	25.0	750
30...	1230	53200	26.0	750
JUL				
03...	1315	51300	26.0	760
07...	1200	52900	25.5	700
10...	1145	51200	26.0	690
14...	1240	47800	26.5	750
18...	1230	44800	27.0	760
28...	1245	43200	28.0	760
31...	1200	41600	26.0	750
AUG				
04...	1130	44700	24.0	750
07...	1110	44700	24.0	725
11...	1055	42600	24.0	760
14...	1130	40600	23.0	800
18...	1145	43200	22.0	800
21...	1210	46800	23.0	780
27...	1235	46000	24.0	760
SEP				
02...	1340	48500	28.0	790
04...	1100	49600	22.5	752
05...	1150	48500	22.0	775
08...	1245	47600	22.5	780
11...	1100	45500	19.5	780
15...	1215	46600	19.0	740
18...	1300	47800	18.5	750
22...	1225	55300	18.0	750
26...	1130	53100	19.0	790
29...	1140	60500	19.0	780

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06807000	MISSOURI RIVER AT NEBRASKA CITY, NEBR. (LAT 40 40 55N LONG 095 50 48W)			
OCT 1985				
02...	1130	43400	12.0	720
08...	1020	40800	12.0	790
10...	1235	41700	8.5	760
16...	1300	41900	13.5	760
21...	1250	44600	14.0	700
24...	1145	42000	12.0	700
31...	1030	42100	11.0	775
NOV				
04...	1100	40400	10.5	790
07...	1230	41400	10.0	780
13...	1340	40600	6.0	715
18...	1100	41000	7.0	800
JAN 1986				
13...	1345	25900	0.0	775
FEB				
25...	1320	30000	2.0	700
MAR				
05...	1600	35900	4.5	725
14...	1300	66300	4.0	650
21...	1400	75300	4.5	540
27...	1340	52700	14.0	600
31...	1420	49200	15.0	1000
APR				
07...	1215	58700	15.0	800
10...	1345	58300	14.0	850
21...	1215	62400	11.0	870
24...	1245	61200	15.0	800
MAY				
02...	1400	72200	15.5	650
05...	1400	67000	12.0	875
MAY 1986				
08...	1220	58800	18.0	800
14...	1240	69300	19.0	750
22...	1300	73300	19.0	800
29...	1425	62100	18.5	770
JUN				
02...	1330	62200	22.0	720
05...	1145	61700	22.0	750
10...	1300	61800	22.5	800
19...	1250	52700	26.0	775
26...	1420	56200	26.5	790
30...	1230	63100	20.0	800
JUL				
03...	1130	72000	25.0	850
09...	1150	63600	25.0	820
14...	1155	64200	26.0	800
17...	1145	50800	26.0	790
22...	1130	49400	27.5	705
28...	1210	47400	26.5	800
AUG				
06...	1415	47600	19.0	850
15...	1220	50200	24.0	800
20...	1315	50400	26.0	790
26...	1445	50600	24.5	775
29...	1330	51300	22.0	775
SEP				
03...	1150	50600	26.0	750
09...	1150	53700	20.0	750
11...	1300	48700	21.0	775
17...	1300	51100	18.5	775
22...	1200	73100	26.0	760
25...	1100	72800	20.0	625
06807410	WEST NISHNABOTNA RIVER AT HANCOCK, IOWA (LAT 41 23 24N LONG 095 22 17W)			
OCT 1985				
28...	1110	118	12.0	610
DEC				
09...	1410	69	0.0	660
JAN 1986				
16...	1415	97	0.0	610
MAR				
07...	1135	166	0.0	580
APR				
18...	1240	844	11.0	600
MAY 1986				
27...	1210	868	15.5	800
JUL				
07...	1520	855	24.0	445
AUG				
18...	1155	344	22.5	625
SEP				
29...	1245	753	18.5	380
06808500	WEST NISHNABOTNA RIVER AT RANDOLPH, IOWA (LAT 40 52 23N LONG 095 34 48W)			
OCT 1985				
29...	1120	249	11.0	650
DEC				
16...	1515	181	0.0	600
JAN 1986				
23...	1520	278	0.0	545
MAR				
11...	1145	429	6.0	580
APR				
14...	1230	1340	10.0	600
MAY 1986				
29...	1155	1630	16.5	555
JUL				
09...	1725	4150	24.5	315
AUG				
13...	1435	3660	20.0	260
21...	1300	613	23.0	600
SEP				
29...	1040	770	19.5	595

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06809210 EAST NISHNABOTNA RIVER NEAR ATLANTIC, IOWA (LAT 41 20 47N LONG 095 04 31W)				
OCT 1985				
27...	1330	78	12.0	700
DEC				
09...	1215	52	0.0	600
JAN 1986				
16...	1245	50	0.0	570
MAR				
07...	1500	113	2.5	500
APR				
18...	1515	502	11.0	530
MAY 1986				
27...	1600	614	16.0	500
JUL				
07...	1315	596	21.0	450
AUG				
18...	1415	402	22.5	495
SEP				
29...	1615	1810	20.0	260
06809500 EAST NISHNABOTNA RIVER NEAR RED OAK, IOWA (LAT 41 00 41N LONG 095 14 07W)				
OCT 1985				
28...	1640	206	14.0	480
DEC				
09...	1500	133	0.0	490
JAN 1986				
22...	1000	202	0.0	230
FEB				
28...	1450	1210	2.0	400
MAY 1986				
12...	1530	2860	20.0	380
28...	1155	1240	16.5	495
JUL				
11...	1115	2520	22.0	242
AUG				
20...	1615	567	25.0	510
06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IOWA (LAT 40 37 57N LONG 095 37 32W)				
OCT 1985				
23...	1230	773	17.0	450
NOV				
25...	1350	371	0.5	610
DEC				
20...	1500	329	0.0	638
JAN 1986				
23...	1145	678	0.0	405
FEB				
24...	1200	488	0.0	538
MAR				
24...	1430	1500	10.0	510
APR 1986				
23...	1200	2120	11.0	531
JUN				
26...	1600	1730	27.5	525
JUL				
10...	1320	16000	23.5	205
25...	1115	2000	28.0	530
AUG				
25...	1245	1270	24.0	500
SEP				
03...	1110	939	22.5	541
25...	1445	2110	21.0	445
06811840 TARKIO RIVER AT STANTON, IOWA (LAT 40 58 52N LONG 095 06 32W)				
OCT 1985				
28...	1220	4.8	13.0	440
DEC				
09...	1215	3.0	0.0	480
JAN 1986				
21...	1650	7.6	0.0	445
MAR				
12...	1250	43	3.5	425
APR 1986				
15...	1540	33	8.0	450
MAY				
28...	1400	42	16.5	445
JUL				
10...	1600	19	23.5	300
AUG				
20...	1335	8.3	24.5	495

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06813500 MISSOURI RIVER AT RULO, NEBRASKA (LAT 40 03 14N LONG 095 25 12W)				
OCT 1985				
02...	1235	44200	12.0	740
09...	1415	40700	9.5	540
16...	1310	42100	14.0	750
22...	1130	42500	16.0	725
30...	1250	40800	13.0	800
NOV				
06...	1030	41900	10.0	800
13...	1135	41400	5.0	750
20...	1100	43500	3.0	640
JAN 1986				
06...	1240	30400	0.0	880
14...	1350	28800	2.0	810
21...	1415	29200	3.0	750
FEB				
06...	1445	35900	2.0	700
18...	1400	25700	2.0	850
27...	1440	39700	2.5	775
MAR				
06...	1115	36400	5.0	725
18...	1130	48400	4.0	720
27...	1500	56400	10.5	700
APR				
01...	1400	50700	15.0	750
08...	1220	59300	14.0	700
16...	1430	61800	7.5	720
22...	1100	62300	11.5	750
29...	1430	101000	16.0	780
MAY 1986				
06...	1220	68300	17.0	790
13...	1445	75100	20.0	675
20...	1200	86900	19.0	700
28...	1335	65600	18.5	720
JUN				
02...	1245	63700	19.0	740
10...	1120	63300	22.5	700
17...	1530	69600	24.0	700
23...	1400	60900	26.0	690
JUL				
01...	1130	69900	26.0	750
08...	1220	72400	25.0	700
15...	1145	77400	26.0	790
22...	1330	50800	26.0	775
29...	1400	48200	29.0	750
AUG				
05...	1120	48300	23.5	700
13...	1220	64900	22.0	475
19...	1155	51300	23.0	720
25...	1140	50800	24.5	780
SEP				
03...	1310	52900	23.0	790
09...	1415	52100	21.0	750
17...	1350	57000	19.5	740
23...	1415	81800	20.0	650
30...	1340	74900	19.5	580
06817000 NODAWAY RIVER AT CLARINDA, IOWA (LAT 40 44 19N LONG 095 00 47W)				
OCT 1985				
31...	1100	126	9.0	420
DEC				
11...	1300	74	0.0	480
JAN 1986				
21...	1400	249	1.0	305
MAR				
11...	1115	192	7.0	385
APR				
17...	1215	535	11.0	400
30...	1745	10400	16.0	500
MAY 1986				
01...	1030	3220	12.5	485
29...	1545	619	19.5	405
JUL				
09...	1130	1120	25.5	300
14...	1845	10800	23.5	160
AUG				
21...	0830	263	24.0	405
SEP				
19...	1930	16300	20.0	140
29...	1450	561	21.0	405
06818750 PLATTE RIVER NEAR DIAGONAL, IOWA (LAT 40 46 02N LONG 094 24 46W)				
OCT 1985				
30...	1415	43	11.0	400
DEC				
10...	1345	26	0.0	520
JAN 1986				
22...	1320	60	0.0	335
MAR				
12...	0930	74	4.0	400
APR				
17...	1245	151	10.0	425
MAY 1986				
01...	1420	742	16.0	270
30...	1515	202	20.0	262
JUL				
08...	1355	257	24.5	375
AUG				
19...	1810	13	25.5	440
SEP				
30...	1445	1620	17.0	205
06819185 EAST FORK 102 RIVER AT BEDFORD, IOWA (LAT 40 39 40N LONG 094 42 58W)				
OCT 1985				
30...	1630	13	11.5	380
DEC				
10...	1650	8.0	0.0	355
JAN 1986				
22...	1730	14	0.0	330
MAR				
11...	1620	20	7.0	395
APR				
17...	1530	32	10.0	400
MAY 1986				
13...	1400	199	16.5	265
30...	1145	24	20.5	390
JUL				
08...	1705	82	26.5	360
15...	0810	267	23.5	240
AUG				
20...	1005	6.3	24.0	360
SEP				
30...	1030	1250	16.5	200
06897950 ELK CREEK NEAR DECATUR CITY, IOWA (LAT 40 43 18N LONG 093 56 19W)				
OCT 1985				
29...	1530	9.6	12.5	501
MAR 1986				
06...	0900	8.9	1.0	457
MAY 1986				
28...	1530	15	22.0	446
AUG				
13...	1800	520	20.5	194

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06903400 CHARITON RIVER NEAR CHARITON, IOWA (LAT 40 57 12N LONG 093 15 37W)									
DEC 1985					AUG 1986				
09...	1545	27	6.0	513	18...	1630	49	25.0	283
MAR 1986					SEP				
10...	1700	944	2.5	236	26...	1450	791	23.0	135
06903700 SOUTH FORK CHARITON RIVER NEAR PROMISE CITY, IOW (LAT 40 48 02N LONG 093 11 32									
DEC 1985					AUG 1986				
10...	1015	27	0.0	509	19...	1545	15	24.5	372
JAN 1986					SEP				
22...	1400	67	6.0	367	26...	1010	87	23.0	322
MAR									
05...	0945	60	1.0	358					
06903900 CHARITON RIVER NEAR RATHBUN, IOWA (LAT 40 49 22N LONG 092 53 22W)									
DEC 1985					AUG 1986				
11...	1630	970	1.0	237	19...	1815	1230	24.5	232
JAN 1986					SEP				
22...	1630	793	3.0	242	26...	0820	13	21.0	236
MAR									
11...	1015	16	4.5	244					
06904010 CHARITON R NR MOULTON, IOWA (LAT 40 41 30N LONG 092 46 15W)									
DEC 1985					AUG 1986				
11...	1345	1020	0.0	249	20...	0900	1240	23.5	287
JAN 1986					SEP				
23...	0915	862	2.0	262	25...	1650	871	23.0	222
MAR									
12...	1030	283	5.0	353					

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	TEMPER-ATURE (DEG C)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. THAN .062 MM
05412500 - TURKEY RIVER AT GARBER, IOWA						
MAR 1986						
19...	1535	2.5	18300	1500	74100	--
05453100 - IOWA RIVER NEAR MARENGO, IOWA						
JUL 1986						
02...	1100	--	10300	517	14400	80
03...	1000	--	10800	640	18700	38
05483450 - MIDDLE RACCOON RIVER NEAR BAYARD, IOWA						
JUL 1986						
01...	1050	--	7520	932	18900	96
02...	1650	24.0	2240	1040	6290	96
05483600 - MIDDLE RACCOON RIVER AT PANORA, IOWA						
JUN 1986						
30...	1535	--	9940	713	19100	95
05484000 - SOUTH RACCOON RIVER AT REDFIELD, IOWA						
JUN 1986						
30...	2025	24.0	22800	4290	264000	99
05484500 - RACCOON RIVER AT VAN METER, IOWA						
JUL 1986						
01...	0935	23.0	38300	2940	304000	99

BENTON COUNTY

415211092164101. Local number, 82-12-31 DAAD1.
LOCATION.--Lat 41°52'11", long 92°16'41", Hydrologic Unit 07080208, approximately 0.6 mi north of the Iowa River, west side of Iowa Highways 21 and 212, approximately 1.2 mi south of the Town of Belle Plaine. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Iowa River Alluvial Aquifer: in sand and gravel of Holocene age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 2 in., depth 26 ft, cased to 23 ft, screen 23 to 26 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 770 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3 ft above land-surface datum.
REMARKS.--Well IRA-16A.
PERIOD OF RECORD.--October 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.52 ft below land-surface datum, May 28, 1986; lowest measured, 6.97 ft below land-surface datum, Sep. 2, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	3.92	FEB 12	4.63	MAY 6	4.07	AUG 1	6.25
DEC 10	4.09	MAR 12	2.28	JUN 6	4.98	SEP 2	6.97
JAN 10	3.46	APR 9	2.82	JUL 9	5.58		

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	6.53	FEB 25	3.78	APR 22	2.98	JUL 28	3.55
NOV 6	4.07	MAR 26	0.86	MAY 28	0.52	AUG 27	3.60
DEC 26	4.14	APR 1	2.39	JUN 25	2.75	SEP 26	1.67
JAN 29	3.80						

415211092164102. Local number, 82-12-31 DAAD2.
LOCATION.--Lat 41°52'11", long 92°16'41", Hydrologic Unit 07080208, approximately 0.6 mi north of the Iowa River, west side of Iowa Highways 21 and 212, approximately 1.2 mi south of the Town ot Belle Plaine. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Iowa River Alluvial Aquifer: in sand and gravel of Holocene age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 2 in., depth 15 ft, cased to 12 ft, slotted 12 to 15 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 770 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.92 ft above land-surface datum.
REMARKS.--Well IRA-16B.
PERIOD OF RECORD.--October 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.48 ft below land-surface datum, May 28, 1986; lowest measured, 6.97 ft below land-surface datum, Sep. 2, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	3.94	FEB 12	4.56	MAY 6	3.98	AUG 1	6.25
DEC 10	4.08	MAR 12	2.28	JUN 6	4.98	SEP 2	6.97
JAN 10	3.47	APR 9	2.84	JUL 9	5.57		

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	6.57	JAN 29	3.78	APR 22	2.96	JUL 28	3.55
NOV 6	4.07	MAR 26	0.88	MAY 28	0.48	AUG 27	3.61
DEC 26	4.15	APR 1	2.40	JUN 25	0.78	SEP 26	1.68

BENTON COUNTY

420319091540102. Local number, 84-9-28 DBCC2.
LOCATION.--Lat 42°03'19", long 91°54'01", Hydrologic Unit 07080205, approximately 3 mi south and 1.5 mi west of the Town of Shellsburg. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Silurian-Devonian: in limestone of Devonian age and dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled observation artersian water well, diameter 6 in., to 171.7 ft, 4 in. to 260 ft, depth 590 ft, cased to 260 ft, open hole 265 to 590 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 915 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of 4 in. casing, 1.10 ft above land-surface datum.
REMARKS.--Parker's Grove Cemetery well. Cement plug 260 to 265 ft. 59.7 ft of open Devonian rock reported to yield little, if any, water.
PERIOD OF RECORD.--April 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 150.73 ft below land-surface datum, Apr. 14, 1975; lowest measured, 166.92 ft below land-surfae datum, Aug. 9, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	162.42	MAR 28	162.94	JUN 18	158.49	AUG 25	157.86

420731092083801. Local number, 85-11-33 CCBC1.
LOCATION.--Lat 42°07'31", long 92°08'38", Hydrologic Unit 07080205, approximately 1 mi south of the of Garrison, just east of County Road V-56. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Cedar Valley: in limestone of Devonian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 0.75 in., depth 237 ft, cased 170 ft, slotted below cement plug, open hole 170 to 237 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 912 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of 6 in. casing, 2.20 ft above land-surface datum.
REMARKS.--Garrison 170 well. 3 ft cement plugs from 97 to 100 ft and 237 to 240 ft.
PERIOD OF RECORD.--June 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 60.18 ft below land-surface datum, Apr. 19, 1983; lowest measured, 64.80 ft below land-surface datum, Jan. 29, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	62.99	MAR 28	61.38	JUN 18	61.75	AUG 25	62.44

420731092083802. Local number, 85-11-33 CCBC2.
LOCATION.--Lat 42°07'31", long 92°08'38", Hydrologic Unit 07080205, approximately 1 mi south of the Town of Garrison, just east of County Road V-56. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Silurian-Devonian: in limestone of Devonian age and dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 0.75 in., depth 538 ft, cased to 340 ft, open hole 340 to 538 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 912 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of 6 in. casing, 2.20 ft above land-surface datum.
REMARKS.--Garrison 340 well. 106 ft of open Devonian rock reported to yield little, if any, water. 3 ft cement plug 237 to 240 ft.
PERIOD OF RECORD.--October 1975, June 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, e88.00 ft below land-surface datum, Oct. 17, 1975; lowest measured, 104.94 ft below land-surface datum, Aug. 21, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	104.27	MAR 28	103.12	JUN 18	97.08	AUG 25	98.70

e Estimated.

BENTON COUNTY

420731092083803. Local number, 85-11-33 CCBC3.
LOCATION.--Lat 42°07'31", long 92°08'38", Hydrologic Unit 07080205, approximately 1 mi south of the Town of Garrison, just east of County Road V-56. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Cedar Valley: in limestone of Devonian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 6 in., depth 97 ft, cased to 90 ft, open hole 90 to 97 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 912 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of 6 in. casing, 2.20 ft above land-surface datum.
REMARKS.--Garrison 109 well. 3 ft cement plug 97 to 100 ft.
PERIOD OF RECORD.--June 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 60.63 ft below land-surface datum, Mar. 23, 1979; lowest measured, 64.86 ft below land-surface datum, Jun. 29, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	63.23	MAR 28	62.05	JUN 18	62.53	AUG 25	62.60

421326091522701. Local number, 86-9-34 AAAD1.
LOCATION.--Lat 42°13'29", long 91°52'19", Hydrologic Unit 07080205, next to the water tower in the Town of Urbana. Owner: Town of Urbana.
AQUIFER.--Silurian-Devonian and Ordovician: open from limestone of Devonian age into limestone and dolomite of the Platteville formation of Ordovician age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 8 in., depth 1,033 ft, cased to 142 ft, open hole 142 to 1,033 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 940 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Nipple on plate welded to casing, 3.15 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--September 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 142.00 ft below land-surface datum, Dec. 11, 1984; lowest measured, 148.25 ft below land-surface datum, Sep. 23, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	143.95	JAN 21	144.14	APR 21	142.78	JUL 21	142.67
NOV 26	144.11	FEB 21	144.79	MAY 21	143.90	AUG 21	142.79
DEC 20	143.81	MAR 20	144.21	JUN 18	144.14.	SEP 22	145.04

BUENA VISTA COUNTY

423646095020101. 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 0.5 mi north of the Town of Newell. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Mississippian: in limestone of Mississippian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 338 ft, cased to 338 ft, perforated 323 to 338 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,281 ft above National Geodetic Vertical Datum of 1929, from topographic map. 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.
PERIOD OF RECORD.--May 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 96.93 ft below land-surface datum, Aug. 6, 1985; lowest measured, 101.82 ft below land-surface datum, Aug. 5, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 18	98.50	MAR 20	98.76	JUN 9	98.25	SEP 4	99.44

BUENA VISTA COUNTY

423618095194511. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 497 ft, cased to 497 ft, perforated 346.5 to 349.5 ft.
INSTRUMENTATION.--Quarterly measurement with electric line by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,365 ft above National Geodetic Vetical Datum ot 1929, from topographic map. Measuring point: Top of casing, 3.50 ft above land-surface datum.
REMARKS.--Well D-25.
PERIOD OF RECORD.--April 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 187.33 ft below land-surface datum, Jun. 9, 1986; lowest measured, 189.53 ft below land-surface datum, Dec. 6, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 17	187.72	MAR 20	187.42	JUN 9	187.33	SEP 4	187.36

424023095571401. Local number, 91-35-26 BCCC1.
LOCATION.--Lat 42°40'23", long 95°57'14", Hydrologic Unit 07100006, approximately 2.7 mi west and 0.5 mi north of the Village of Varina. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 357 ft, cased to 357 ft, perforated 338 to 347 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,291 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.00 ft above land-surface datum.
REMARKS.--Well D-24. Paleozoic rock at 347 ft.
PERIOD OF RECORD.--December 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.40 ft below land-surface datum, Jan. 7, 1980; lowest measured, 47.73 ft below land-surface datum, Jun. 8, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 19	44.18	MAR 18	47.15	JUN 8	47.73	SEP 3	47.65

425233094545001. 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 0.75 mi north of the Town of Marathon. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 1.50 in., depth 381 ft, cased to 381 ft, perforated 350 to 360 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,330 ft above National Geodetic Vetrical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.00 ft above land-surface datum.
REMARKS.--Well D-36.
PERIOD OF RECORD.--February 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 131.65 ft below land-surface datum, May 6, 1985; lowest measured, 133.67 ft below land-surface datum, Sept. 11, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL
JUN 8	132.28	SEP 4	132.38

CALHOUN COUNTY

422846094375601. 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: in material of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in., depth 53 ft, lined with tile.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,222 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Hole in concrete platform, 0.50 ft above land-surface datum.
REMARKS.--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 measured, 3.82 ft below land-surface datum, May 9, 1984; lowest measured, 32.12 ft below land-surface datum, Aug. 8, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 18	21.90	JUN 8	18.29	SEP 3	21.98

CARROLL COUNTY

420335094521501. 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: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 8 in., depth 120 ft, cased to 100 ft, open hole 100 to 120 ft.
INSTRUMENTATION.--Intermittent measurement reported by personnel from the City of Carroll.
DATUM.--Elevation of land-surface datum is 1,275 ft above National Geodetic Vetrical Datum of 1929, from topographic map. Measuring point: Top of casing, 4.00 ft above land-surface datum.
REMARKS.--City test No. 1.
PERIOD OF RECORD.--September 1939 to December 1949, May 1952 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.55 ft below land-surface datum, Sep. 8, 1945; lowest measured, 85.50 ft below land-surface datum, Jul. 15, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	65.16	JAN 30	61.65	MAY 11	59.61	JUL 21	66.32
22	59.81	FEB 12	61.64	JUN 11	64.21	30	62.14
NOV 6	62.32	MAR 3	62.14	24	62.95	AUG 4	61.30
DEC 11	62.70	18	62.51	JUL 7	59.81	14	62.72
JAN 3	62.26	31	60.27	15	60.78	SEP 2	60.02
14	63.19	APR 9	62.71	16	64.82	10	57.77
17	63.08	22	60.23	17	65.57	25	57.65
21	62.87	MAY 8	62.79	18	66.88		

421058094582701. 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 maintenance building, Breda. Owner: Town of Breda.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled municipal artesian water well, diameter 10 in., depth 340 ft, cased to 320 ft, screen 320 to 340 ft.
INSTRUMENTATION.--Quarterly measurement with chalked taped by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,362 ft above National Geodetic Vertical Datum of 1929, from topographic map. 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. 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 measured, 187.70 ft below land-surface datum, Mar. 25, 1948; lowest measured, 250.40 ft below land-surface datum, May 24, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 18	203.22	MAR 20	201.48	JUN 6	203.44	SEP 5	205.87

CERRO GORDO COUNTY

430806093164501. 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.--Cedar Valley: in limestone of Devonian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 5 in., depth 198 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,165 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of well curb, 1.30 ft above land-surface datum.
REMARKS.--Casing information not available.
PERIOD OF RECORD.--November 1940 to August 1971, March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.73 ft below land-surface datum, Jan. 28, 1951; lowest measured, 17.26 ft below land-surface datum, Nov. 18, 1955.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 16	6.09	FEB 19	6.74	MAY 9	6.55	AUG 4	6.17
DEC 5	6.05						

430658093281001. 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: in material of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 5 in., depth 126 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,249 ft above National Geodetic Vertical Datum of 1929, from topgraphic map. Measuring point: Hole in side of casing, 0.87 ft above land-surface datum.
REMARKS.--Casing information not available. Formerly Boy Scouts of America.
PERIOD OF RECORD.--July 1940 to August 1971, March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.65 ft below land-surface datum, Mar. 25, 1942; lowest measured, 51.37 ft below land-surface datum, Aug. 4, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 16	44.36	FEB 18	42.95	MAY 9	42.74	AUG 4	49.39
DEC 5	42.90						

CHEROKEE COUNTY

423833095365701. 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 0.55 mi north of Iowa Highway 31 along the Illinois Central Railroad track. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 1.25 in., depth 253 ft, cased to 252 ft, sandpoint 252 to 253 ft.
INSTRUMENTATION.--Quarterly measurements with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,182 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.93 ft above land-surface datum.
REMARKS.--Well D-6.
PERIOD OF RECORD.--December 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.38 ft below land-surface datum, Aug. 27, 1983; lowest measured, 37.22 ft below land-surface datum, Sept. 10, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	33.15	JAN 7	32.63	APR 8	31.74	JUL 9	30.72

CHEROKEE COUNTY

424348095231601. Local number, 91-39-1 ADAD1.
LOCATION.--Lat 42°43'48", long 95°23'16", Hydrologic Unit 10230005, approximately 2 mi east and 0.5 mi north of the Town of Aurelia at the Larson Lake County Park. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Cambrian-Ordovician: in dolomite of Ordovician age and sandstone of Cambrian age.
WELL CHARACTERISITICS.--Drilled observation artesian water 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 hole 1,126 to 1,545 ft.
INSTRUMENTATION.--Quarterly measurement with electric line by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,370 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.20 ft above land-surface datum.
REMARKS.--Well D-28.
PERIOD OF RECORD.--September 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 189.65 ft below land-surface datum, Dec. 19, 1984; lowest measured, 194.47 ft below land-surface datum, May 5, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 18	192.71	MAR 19	192.32	JUN 9	191.73	SEP 4	192.03

424348095231602. Local number, 91-39-1 ADAD2.
LOCATION.--Lat 42°43'48", long 95°23'16", Hydrologic Unit 10230005, approximately 2 mi east and 0.5 mi north of the Town of Aurelia at the Larson Lake County Park. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 4 in., depth 340 ft, cased to 340 ft, perforated 235 to 240 ft.
INSTRUMENTATION.--Quarterly measurement with electric line by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,370 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.30 ft above land-surface datum.
REMARKS.--Well D-29.
PERIOD OF RECORD.--September 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 188.84 ft below land-surface datum, Jun. 9, 1986; lowest measured, 194.15 ft below land-surface datum, Aug. 24, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 8	190.20	MAR 19	189.58	JUN 9	188.84	SEP 4	191.93

424132095480211. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 390 ft, cased to 390 perforated 386 to 390 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,320 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.50 ft above land-surface datum.
REMARKS.--Well D-11.
PERIOD OF RECORD.--March 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 152.75 ft below land-surface datum, June 27, 1984; lowest measured, 155.50 ft below land-surface datum, Dec. 15, 1980.

WATER LEVEL IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	153.60	JAN 7	153.75	APR 8	153.41	JUL 9	153.08

CHEROKEE COUNTY

424802095331201. Local number, 92-40-10 BDDD1.
LOCATION.--Lat 42°48'02", long 95°33'12", Hydrologic Unit 10230003, west of U.S. Highway 59, approximately 2.5 mi north of the City of Cherokee. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2.50 in., depth 300 ft, cased to 300 ft, perforated 114 to 118 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,210 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.30 ft above land-surface datum.
REMARKS.--Well D-5.
PERIOD OF RECORD.--April 1980 to October 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.05 ft below land-surface datum, Jun. 27, 1984; lowest measured, 29.19 ft below land-surface datum, May 5, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	27.40	JAN 7	27.63	JUL 9	26.83

CLAYTON COUNTY

424023091291201. 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: in material of Pleistocene age.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 36 in., depth 36 ft.
INSTRUMENTATION.--Intermittent measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,233 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Hole in pump base at land-surface datum.
REMARKS.--Casing information not available.
PERIOD OF RECORD.--June 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.06 ft below land-surface datum, Mar. 26, 1986; lowest measured, 30.68 ft below land-surface datum, Jan. 12, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	19.10	FEB 21	22.66	MAY 8	19.87	AUG 5	19.82
DEC 5	18.46	MAR 26	14.06	JUN 24	16.03	SEP 17	20.07
JAN 6	22.35						

424057091320001. 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.--Silurian and Ordovician: in dolomite of Silurian age and Upper Ordovician age.
WELL CHARACTERISTICS.--Drilled unused artesian water 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 hole 161 to 229 ft and 370 to 492 ft.
INSTRUMENTATION.--Water-level recorder.
DATUM.--Elevation of land-surface datum is 1,219 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder platform, 2.10 ft above land-surface datum.
REMARKS.--City well No. 2.
PERIOD OF RECORD.--March 1963 to current year.
REVISED RECORDS.--WDR IA-84-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 114.38 ft below land-surface datum, May 9, 1973; lowest recorded, 133.18 ft below land-surface datum, Feb. 4, 1968.

WATER LEVEL, IN FEET, BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	127.65	127.05	126.42	126.74	127.11	126.52	120.84	123.19	120.92	123.20	124.35	125.33
10	127.77	127.13	126.55	127.15	127.05	126.42	121.25	123.17	121.44	123.40	124.58	125.15
15	127.57	126.87	126.48	127.06	126.72	125.42	121.59	123.40	121.73	123.40	124.72	125.50
20	127.64	126.75	126.64	126.95	126.83	123.36	121.64	122.72	122.38	124.08	124.92	125.55
25	127.55	125.95	126.80	127.05	126.93	120.69	122.23	121.58	122.37	124.15	124.82	124.70
EOM	127.07	126.20	126.79	127.18	127.10	120.46	122.30	120.77	123.20	124.29	125.40	124.84

WTR YEAR 1986 HIGHEST 120.15 MAR 29, 1986 LOWEST 128.14 OCT 9, 1985

CLAYTON COUNTY

430156091182901. 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.--St. Peter: in sandstone of Middle Ordovician age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 6 in., depth 49 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 940 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.00 ft above land-surface datum.
REMARKS.--Casing information not available. Water level for Mar. 7, 1984, 22.51 ft.
PERIOD OF RECORD.--October 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.98 ft below land-surface datum, Dec. 7, 1983; lowest measured, 27.88 ft below land-surface datum, Mar. 4, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	22.20	APR 2	21.14	JUN 26	23.63	SEP 18	21.50
JAN 7	23.28						

425940091194701. 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 Town of Farmersburg. Owner: Milton and Willis Meier.
AQUIFER.--St. Peter: in sandstone of Middle Ordovician age.
WELL CHARACTERISTICS.--Drilled stock artesian water well, diameter 6 in., depth 380 ft (reported).
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,090 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Plug in pump base, 1.00 ft above land-surface datum.
REMARKS.--Casing information not available. Water level form Mar. 7, 1984, 78.10 ft.
PERIOD OF RECORD.--October 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 74.08 ft below land-surface datum, July 10, 1984; lowest measured, 126.56 ft below land-surface datum, Jan. 13, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	87.65	APR 2	85.42	JUN 26	84.08	SEP 18	93.22
JAN 7	88.62						

CRAWFORD COUNTY

421031095225611. Local number, 85-39-16 ADDD11.
LOCATION.--Lat 42°10'31", long 95°22'56", Hydrologic Unit 10230007, approximately 2.5 mi east and 0.5 mi north of the Town of Schleswig. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Mississippian: in limestone of Mississippian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 561 ft, cased to 561 ft, perforated 543 to 561 ft.
INSTRUMENTATION.--Quarterly measurement with electric line by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,370 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.14 ft above land-surface datum.
REMARKS.--Well WC-7B. Water level for Jan. 8, 1985, 307.26 ft.
PERIOD OF RECORD.--June 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 305.58 ft below land-surface datum, Feb. 8, 1983; lowest measured, 307.64 ft below land-surface datum, Oct. 4, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	306.68	JAN 7	307.20	APR 9	306.98	JUL 8	307.21

DELAWARE COUNTY

422029091144302. Local number, 87-3-18 CBCD2.
LOCATION.--Lat 42°20'37", long 91°14'47", Hydrologic Unit 07060006, behind the municipal utilities building in downtown Hopkinton. Owner: Town of Hopkinton.
AQUIFER.--Silurian: in dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 8 in., depth 86 ft.
INSTRUMENTATION.--Weekly measurement with chalked tape by observer.
DATUM.--Elevation of land-surface datum is 863 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder platform, 2.25 ft above land-surface datum.
REMARKS.--Casing information not available. Water levels affected by pumping of a nearby well.
PERIOD OF RECORD.--December 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.20 ft below land-surface datum, Jul. 19 and 26, 1986; lowest measured, 23.87 ft below land-surface datum, Mar. 1, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	23.49	JAN 4	23.17	APR 5	21.00	JUL 5	18.57
12	23.74	11	23.44	12	20.79	12	18.40
20	23.58	18	23.51	19	20.57	19	18.20
25	22.69	25	23.33	24	20.25	26	18.20
NOV 1	22.11	FEB 1	23.40	MAY 3	20.45	AUG 2	18.25
9	23.60	8	23.65	10	20.55	9	18.45
15	23.65	15	23.52	17	20.42	16	18.49
23	23.44	22	23.59	24	20.17	23	18.59
30	23.53	MAR 1	23.87	30	19.81	28	18.59
DEC 7	23.17	8	23.80	JUN 7	19.57	SEP 6	18.88
14	23.08	15	23.73	14	19.30	13	19.10
21	23.29	22	22.22	21	18.80	20	19.27
28	23.03	29	21.23	28	18.98	25	19.15

DES MOINES COUNTY

404844091142701. 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: in sandstone of Middle Ordovician age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 16 in., depth 1,209 ft, cased to 855 ft, open hole 855 to 1,209 ft.
INSTRUMENTATION.--Intermittent measurement with chalked tape by observer.
DATUM.--Elevation of land-surface datum is 717 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of platform, 1.61 ft above land-surface datum.
REMARKS.--Plant well No. 3.
PERIOD OF RECORD.--March 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 106.79 ft below land-surface datum, Jun. 13, 1986; lowest measured, 201.75 ft below land-surface datum, Aug. 15, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 5	112.27	MAR 1	114.79	MAY 5	113.70	JUL 12	110.20
FEB 1	113.99	APR 11	113.05	JUN 13	106.79	AUG 10	112.89

404753091142501. 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.--Cedar Valley and Mississippian: in limestone of Devonian and Mississippian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 19 in., depth 675 ft, cased to 75 ft, open hole 75 to 675 ft.
INSTRUMENTATION.--Intermittent measurement with chalked tape by observer.
DATUM.--Elevation of land-surface datum is 699 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of platform, 1.91 ft above land-surface datum.
REMARKS.--Plant well No. 2.
PERIOD OF RECORD.--March 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 74.46 ft below land-surface datum, Apr. 18, 1975; lowest measured, 83.19 ft below land-surface datum, Apr. 26, 1950.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 5	80.19	MAR 1	80.09	MAY 5	80.44	JUL 12	79.92
FEB 1	79.97	APR 11	79.94	JUN 13	80.09	AUG 10	80.04

EMMET COUNTY

432927094345501. 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: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled public-supply artesian water well, diameter 6 in., depth 277 ft.
INSTRUMENTATION.--Quarterly mesurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,233 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Plug in pump base, 0.61 ft above land-surface datum.
REMARKS.--Casing information not available.
PERIOD OF RECORD.--November 1939 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 59.60 ft below land-surface datum, Dec. 19, 1946; lowest measured, 77.86 ft below land-surface datum, Aug. 27, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	69.43	MAR 19	70.53	JUN 9	72.50	SEP 3	71.77

GREENE COUNTY

415449094161501. Local number, 82-29-18 CAAA1.
LOCATION.--Lat 41°54'49", long 94°16'15", Hydrologic Unit 07100006, approximately 0.5 mi south and 4 mi east of the Village of Cooper and just south of County Road E-57. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Pennsylvanian: in sandstone of Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 101 ft, cased to 100 ft, perforated 89 to 100 ft, open hole 100 to 101 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 960 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.00 ft above land-surface datum.
REMARKS.--Well WC-116.
PERIOD OF RECORD.--September 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.41 ft above land-surface datum, Jul. 5, 1983; lowest measured, 5.57 ft below land-surface datum, Jan. 7, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTMEBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	5.34	JAN 7	5.57	APR 9	2.88	JUL 8	1.48

415449094173201. Local number, 82-30-13 CABA1.
LOCATION.--Lat 41°54'49", long 94°17'32", Hydrologic Unit 07100006, approximately 0.5 mi south and 3 mi east of the Village of Cooper and just south of County Road E-57. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Pennsylvanian and Mississippian: in sandstone of Pennsylvanian age and limestone of Mississippian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 230 ft, cased to 230 ft, perforated 209 to 230 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape or electric line by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,035 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.45 ft above land-surface datum.
REMARKS.--Well WC-118. Original depth 245 ft, casing plugged at 230 ft. Water level for Jan. 8, 1985, 70.61 ft.
PERIOD OF RECORD.--September 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 66.79 ft below land-surface datum, Jul. 5, 1983; lowest measured, 72.59 below land-surface datum, Jan. 7, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER WATER	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	72.07	JAN 7	72.59	APR 9	70.53	JUL 8	69.41

GRUNDY COUNTY

422605092560001. 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.--Yellow Springs Group: in limestone and dolomite of Upper Devonian age.
WELL CHARACTERISTICS.--Drilled public-emergency-supply artesian water well, diameter 12 in., depth 280 ft, cased to 128 ft, open hole 128 to 280 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,060 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Edge of vent pipe, 1.25 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--September 1960 to August 1971, May 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 33.99 ft below land-surface datum, Aug. 7, 1986; lowest measured, 96.81 ft below land-surface datum, Sep. 27, 1960.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	34.87	FEB 25	34.06	MAY 23	34.57	AUG 7	33.99
DEC 4	34.75						

HARRISON COUNTY

413838095462001. Local number, 79-42-19 AADB1.
LOCATION.--Lat 41°38'38", long 95°46'20", Hydrologic Unit 10230007, approximately 0.5 mi east of the Town of Logan, north of U.S. Highway 30. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Mississippian: in dolomite of Mississippian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 628 ft, cased to 628 ft, perforated 588 to 628 ft.
INSTRUMENTATION.--Intermittent measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,045 ft above National Geodetic Vertical Datum of 1929, from topogarphic map. Measuring point: Top of casing, 4.40 ft above land-surface datum.
REMARKS.--Well WC-22.
PERIOD OF RECORD.--November 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.18 ft below land-surface datum, Jun. 13, 1986; lowest measured, 16.37 ft below land-surface datum, Jun. 3, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 16	5.48	JAN 9	5.16	MAR 19	4.19	JUN 13	4.18
NOV 26	5.16	FEB 21	4.69	MAY 1	4.56		

414955096000601. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Pennsylvanian: in sandstone of Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 126 ft, cased to 126 ft, perforated 108 to 126 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,075 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.80 ft above land-surface datum.
REMARKS.--Well WC-23. Original depth 209 ft, casing plugged at 126 ft.
PERIOD OF RECORD.--January 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.33 ft below land-surface datum, Jul. 12, 1984; lowest measured, 64.07 ft below land-surface datum, Jan. 15, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	62.10	JAN 6	62.71	APR 7	60.54	JUL 7	56.76

HENRY COUNTY

405741091334501. Local number, 71-6-9 CBCA1.
LOCATION.--Lat 40°57'41", long 91°33'45", Hydrologic Unit 07080107, at Saunders Park in the southwest part of Mount Pleasant. Owner: City of Mount Pleasant.
AQUIFER.--Jordan: in strata of Cambrian and Ordovician age.
WELL CHARACTERISTICS.--Drilled municipal artesian water well, diameter 16 to 6 in., depth 1,896 ft, cased to 1,689 ft, open hole 1,689 to 1,896 ft.
INSTRUMENTATION.--Quarterly measurement with electric line or airline by USGS personnel.
DATUM.--Elevation of land-surface datum is 670 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.32 ft below land-surface datum.
REMARKS.--City well No. 3. Water levels affected by pumping. Well deepened from 1,802 to 1,896 ft in 1955. Records for 1945 to 1958, and 1961 to September 1985 are available in the files of the Iowa District Office.
PERIOD OF RECORD.--September 1945 to February 1958 and November 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 71.60 ft below land-surface datum, Dec. 31, 1945; lowest measured (pumping), 259.32 ft below land-surface datum, Jan. 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	p204.10	MAR 21	p230.32	JUN 12	p232.32	AUG 20	p226.32

p Well being pumped.

405810091330502. 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: in strata of Cambrian and Ordovician age.
WELL CHARACTERISTICS.--Drilled municipal artesian water well, diameter 20 to 19 in., depth 1,860 ft, cased to 623 ft, open hole 623 to 1,860 ft.
INSTRUMENTATION.--Quarterly measurement with airline by USGS personnel.
DATUM.--Elevation of land-surface datum is 725 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Hole in pump base, 2.25 ft above land-surface datum.
REMARKS.--City well No. 4. Water levels affected by pumping.
PERIOD OF RECORD.--April 1946 to December 1950, January 1953 to March 1957 and May 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.00 ft below land-surface datum, May 5, 1946; lowest measured, nonpumping, 198.75 ft below land-surface datum, Jan. 7, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	192.25	MAR 21	p196.25	JUN 12	p194.25	AUG 20	p191.25

p Well being pumped.

410852091394301. 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: in material of Pleistocene age.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 4 ft, depth 52 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 735 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of cement cover, 0.21 ft above land-surface datum.
REMARKS.--Casing information not available.
PERIOD OF RECORD.--September 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.30 ft below land-surface datum, Sep. 1, 1965; lowest measured, 14.69 ft below land-surface datum, Feb. 15, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTMEBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	7.94	MAR 24	8.86	JUN 12	8.22	AUG 20	8.84

IDA COUNTY

422215095390811. Local number, 87-41-5 CCCC11.
LOCATION.--Lat 42°22'15", long 95°39'08", Hydrologic Unit 10230005, approximately 0.75 mi east and 6.5 mi south of the Village of Cushing. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 490 ft, cased to 490 ft, perforated 301 to 305 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,344 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.72 ft above land-surface datum.
REMARKS.--Well D-10. Original depth, 510 ft, cemented back to 490 ft.
PERIOD OF RECORD.--June 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 202.55 ft below land-surface datum, Jun. 4, 1980; lowest measured, 206.50 ft below land-surface datum, May 7, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	204.38	JAN 7	204.42	APR 8	204.20	JUL 9	203.54

423107095383201. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Mississippian: in limestone of Mississippian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 469 ft, cased to 465 ft, sand point 465 to 468 ft, open hole 468 to 469 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,320 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.50 ft above land-surface datum.
REMARKS.--Well D-9.
PERIOD OF RECORD.--December 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 186.45 ft below land-surface datum, Jul. 27, 1983; lowest measured, 207.14 ft below land-surface datum, Apr. 8, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	189.29	JAN 7	189.23	APR 8	190.39	JUL 9	188.56

IOWA COUNTY

414709091515801. Local number, 81-9-35 BCAA1.
LOCATION.--Lat 41°47'09", long 91°51'58", Hydrologic Unit 07080208, approximately 400 ft northwest of the Iowa River, east of Iowa Highway 149, and approximately 1.1 mi south of the Village of Amana. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Iowa River Alluvial Aquifer: in sand and gravel of Holocene age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 10 in, depth 27 ft, cased to 18 ft, screen 18 to 27 ft.
INSTRUMENTATION.--Water-level recorder.
DATUM.--Elevation of land-surface datum is 710 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 4 ft above land-surface datum.
REMARKS.--Well IRA-24.
PERIOD OF RECORD.--December 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.90 ft below land-surface datum, Feb. 24, 1985; lowest recorded, 11.28 ft below land-surface datum, Sep. 12, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	----	----	----	7.55	8.57	3.73	7.00	8.32	9.06	9.85	10.52	11.14
10	----	----	----	----	----	5.33	----	8.53	9.20	10.00	10.65	11.25
15	----	----	8.29	8.00	8.78	6.55	7.50	8.43	9.27	10.14	10.75	11.14
20	----	----	8.14	8.18	8.77	7.08	7.80	8.62	9.39	10.28	10.87	11.10
25	----	----	8.26	8.35	3.11	7.33	7.95	8.74	9.55	10.44	10.95	11.01
EOM	----	----	----	8.40	4.10	----	8.15	----	9.67	10.48	11.06	10.94

WTR YEAR 1985 HIGHEST 2.90 FEB 24, 1985 LOWEST 11.28 SEP 12, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.97	9.65	8.77	9.00	8.59	6.53	6.05	6.50	----	4.59	6.57	7.85
10	10.76	9.58	8.85	9.17	6.85	5.60	6.33	7.00	----	----	6.64	7.92
15	10.53	9.14	8.91	9.18	7.41	3.85	6.61	6.95	----	----	4.87	8.03
20	10.38	8.87	8.97	8.82	7.70	3.05	6.80	3.68	----	----	6.00	7.69
25	10.15	8.73	8.84	8.78	7.88	3.57	7.05	5.16	----	4.87	6.87	4.59
EOM	10.03	8.84	8.99	8.95	7.95	5.74	6.25	----	5.00	5.94	7.47	4.78

WTR YEAR 1986 HIGHEST 3.03 MAR 20, 1986 LOWEST 10.98 OCT 4, 1985

IOWA COUNTY

415104092131101. Local number, 81-12-2 CCBB1.
LOCATION.--Lat 41°51'04", long 92°13'11", Hydrological Unit 07080208, approximately 0.6 mi north of the Iowa River, approximately 1.7 mi north and 1 mi west of the Village of Koszta. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Iowa River Alluvial Aquifer: in sand and gravel of Holocene age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 2 in, depth 34 ft, cased to 34 ft, screen 31 to 34 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 755 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.80 ft above land-surface datum.
REMARKS.--Well IRA-10A.
PERIOD OF RECORD.--October 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.48 ft below land-surface datum, May 28, 1986; lowest measured, 9.65 ft below land-surface datum, Oct. 4, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	5.83	FEB 12	6.71	MAY 6	5.90	AUG 1	8.50
DEC 10	6.40	MAR 12	5.12	JUN 6	6.80	SEP 2	9.60
JAN 10	5.64	APR 9	5.06	JUL 9	7.40		

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	9.65	FEB 25	5.00	APR 22	5.70	JUL 28	5.88
NOV 6	6.73	MAR 26	3.92	MAY 28	3.48	AUG 27	5.72
DEC 26	6.60	APR 1	4.60	JUN 25	5.24	SEP 26	3.60
JAN 29	6.96						

415104092131102. Local number, 81-12-2 CCBB2.
LOCATION.--Lat 41°51'04", long 92°13'11", Hydrologic Unit 07080208, approximately 0.6 mi north of the Iowa River, approximately 1.7 mi north and 1 mi west of the Village of Koszta. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Iowa River Alluvial Aquifer: in sand and gravel of Holocene age.
WELL CHARACTERISTICS.--Drilled observation water-table well diameter 2 in, depth 17.5 ft, cased to 15.2 ft, slotted 15.2 to 17.5 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 755 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.31 ft above land-surface datum.
REMARKS.--Well IRA-10B.
PERIOD OF RECORD.--October 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.42 ft below land-surface datum, May 28, 1986; lowest measured, 9.69 ft below land-surface datum, Sep. 2, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	5.83	FEB 12	6.70	MAY 6	5.90	AUG 1	8.50
DEC 10	6.40	MAR 12	4.39	JUN 6	6.75	SEP 2	9.69
JAN 10	5.64	APR 9	5.06	JUL 9	7.30		

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	9.59	FEB 25	5.00	APR 22	5.64	JUL 28	5.82
NOV 6	6.73	MAR 26	3.90	MAY 28	3.42	AUG 27	5.67
DEC 26	6.60	APR 1	4.57	JUN 25	5.19	SEP 26	3.54
JAN 29	6.95						

IOWA COUNTY

415125092164201. Local number, 81-12-6 ADDA1.
LOCATION.--Lat 41°51'25", long 92°16'42", Hydrologic Unit 07080208, approximately 800 ft south of the Iowa River, west side of Iowa Highways 21 and 212, approximately 2 mi south of the Town of Belle Plaine. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Iowa River Alluvial Aquifer: in sand and gravel of Holocene age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 2 in, depth 36 ft, cased to 33 ft, screen 33 to 36 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 765 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.60 ft above land-surface datum.
REMARKS.--Well IRA-14.
PERIOD OF RECORD.--October 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.35 ft below land-surface datum, May 28, 1986; lowest measured, 12.68 ft below land-surface datum, Sep. 2, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	11.05	JAN 10	9.79	APR 9	8.10	JUL 9	11.84
OCT 31	11.27	FEB 12	10.99	MAY 6	10.03	AUG 1	12.54
DEC 10	11.31	MAR 12	7.10	JUN 6	11.49	SEP 2	12.68

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	11.04	JAN 29	10.70	APR 22	8.12	JUL 28	8.53
NOV 6	10.77	FEB 25	10.03	MAY 28	3.35	AUG 27	9.49
DEC 26	10.76	MAR 26	3.72	JUN 25	6.33	SEP 26	4.95

JACKSON COUNTY

420842090165701. 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: in sandstone of Early Cambrian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in. depth 1,804 ft, cased to 1,705 ft, screened 1,705 to 1,725 ft, open hole 1,725 to 1,804 ft.
INSTRUMENTATION.--Monthly measurement with engineers rule by USGS personnel.
DATUM.--Elevation of land-surface datum is 610 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Mark on angle iron attached to well house, 6.05 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--May 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.75 ft above land-surface datum, May 15, 1986; lowest measured, 7.67 ft above land-surface datum, Sep. 6, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	+9.08	JAN 8	+8.36	MAY 15	+9.75	AUG 4	+9.22
NOV 15	+8.73	FEB 19	+9.27	JUN 24	+9.18	SEP 15	+9.18
DEC 5	+8.87	APR 3	+9.52	JUL 15	+9.29		

420842090165703. 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 and Prairie du Chien: in sandstone and dolomite of Middle and Early Ordovician age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 910 ft, cased to 604.2 ft, screened 604.2 to 624.2 ft, open hole 624.2 to 910 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 610 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.00 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.19 ft below land-surface datum, Jan. 8, 1986; lowest measured 9.90 ft below land-surface datum, Aug. 31, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	7.00	JAN 8	5.19	MAY 15	5.33	AUG 4	6.97
NOV 15	7.14	FEB 19	6.47	JUN 24	6.38	SEP 15	6.91
DEC 5	7.03	APR 3	5.92	JUL 15	6.47		

JACKSON COUNTY

420842090165704. 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: in dolomite of Ordovician age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 400 ft, cased to 299.6 ft, screened 299.6 to 319.6 ft, open hole 319.6 to 400 ft.
INSTRUMENTATION.--Monthly measurements with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 610 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.00 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.40 ft below land-surface datum May 15, 1986; lowest measured, 17.30 ft below land-surface datum, Sep. 6, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	14.17	JAN 8	14.98	MAY 15	11.40	AUG 4	14.87
NOV 15	14.55	FEB 19	15.36	JUN 24	15.08	SEP 15	15.72
DEC 5	15.28	APR 3	13.01	JUL 15	14.87		

JASPER COUNTY

414205092592001. 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 just south of U.S. Highway 6. Owner: P.W. Beukema.
AQUIFER.--Glacial drift: in material of Pleistocene age.
WELL CHARACTERISTICS.--Dug stock water-table well, diameter 36 in., depth 37 ft, cribbed with brick.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 940 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of cement platform, 0.70 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--February 1940 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.67 ft below land-surface datum, Jun. 10, 1947; lowest measured, 27.15 ft below land-surface datum, Dec. 18, 1948.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	9.23	FEB 5	11.15	APR 23	6.75	JUL 24	5.09
DEC 5	9.84						

414147093035401. Local number, 80-19-33 ACAC1.
LOCATION.--Lat 41°41'47", long 93°03'54", Hydrologic Unit 07080105, 231 West 10th Street, Newton. Owner: John Coppess.
AQUIFER.--Jordan: in strata of Cambrian and Ordovician age.
WELL CHARACTERISTICS.--Drilled unused private artesian water well, diameter 12 to 6 in., depth 2,567 ft, cased to 1,750 ft, open hole 1,750 to 2,567 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 915 ft above National Geodetic Vertical Datum of 1929, from topographic map. 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.
PERIOD OF RECORD.--September 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 98.43 ft below land-surface datum, Jun. 14, 1966; lowest measured, 266.10 ft below land-surface datum, Jan. 27, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	245.38	FEB 5	255.60	APR 23	256.38	JUL 24	258.33
DEC 5	254.94						

JOHNSON COUNTY

414107091322901. 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.--Silurian: in limestone of Silurian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 6 in., depth 280 ft, cased to 96 ft, open hole 96 to 280 ft.
INSTRUMENTATION.--Water-level recorder.
DATUM.--Elevation of land-surface datum is 735 ft above National Geodetic Vertical Datum of 1929, from topographic map. 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.
PERIOD OF RECORD.--May 1971 to current year.
REVISED RECORDS.--WDR IA-84-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 96.93 ft below land-surface datum, Mar. 23, 1979; lowest recorded, 146.01 ft below land-surface datum, Jul. 17, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	e127.25	121.43	106.28	102.55	101.22	99.75	----	----	e120.50	----	125.16	----
10	126.36	117.67	105.42	102.22	101.44	99.51	99.85	114.92	----	----	----	125.45
15	124.40	113.04	104.70	101.76	101.03	99.57	99.63	116.87	----	----	----	125.74
20	124.65	e112.70	104.13	101.60	100.89	99.81	99.65	e118.10	----	124.03	----	125.84
25	124.95	109.77	103.66	101.07	100.67	99.37	100.17	119.38	----	e124.10	----	----
EOM	124.07	107.90	102.66	----	100.61	99.37	106.92	e119.70	----	124.81	----	----

WTR YEAR 1986 HIGHEST 98.82 MAR 18, 1986 LOWEST 129.50 OCT 1, 1985

e Estimated.

413925091324001. 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.--Silurian: in dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 12 in., depth 430.5 ft, cased to 225 ft, open hole 225 to 430.5 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 714 ft above National Geodetic Vertical Datum of 1929, from topographic map. 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.
PERIOD OF RECORD.--April 1975 to current year.
REVISED RECORDS.--WDR IA-84-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 75.02 ft below land-surface datum, Mar. 15, 1979; lowest measured, 165.93 ft below land-surface datum, Jul. 13, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	140.74	JAN 6	80.77	APR 7	77.40	JUL 7	141.04
NOV 7	122.42	FEB 6	78.85	MAY 6	114.77	AUG 6	144.03
DEC 6	88.29	MAR 6	77.67	JUN 6	136.14	SEP 5	149.57

413955091320303. 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.--Silurian-Devonian: in dolomite of Devonian age and Silurian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 12 in., depth 425 ft, cased to 160 ft, open hole 160 to 425 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 707 ft above National Geodetic Vertical Datum of 1929, from topographic map. 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.
PERIOD OF RECORD.--October 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 62.12 ft below land-surface datum, Apr. 23, 1973; lowest measured, 163.16 ft below land-surface datum, Jul. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	143.94	JAN 6	70.58	APR 7	67.41	JUL 7	151.59
NOV 7	99.32	FEB 6	68.92	MAY 6	136.03	AUG 6	154.79
DEC 6	73.83	MAR 6	68.27	JUN 6	145.87	SEP 5	156.42

JOHNSON COUNTY

413844091323201. 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.--Silurian-Devonian: in limestone and dolomite of Devonian age and dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 6 in., depth 363 ft, cased to 66.5 ft, open hole 66.5 to 363 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 652 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Nipple welded to plate on top of casing, 2.12 ft above land-surface datum.
REMARKS.--Warehouse well. Water levels affected by wells in the area pumping in late spring, summer, and early fall. Main water, 214 to 215 ft, in the Silurian.
PERIOD OF RECORD.--April 1974 to current year.
REVISED RECORDS.--WDR IA-84-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.96 ft below land-surface datum, Apr. 11, 1979; lowest measured, 32.94 ft below land-surface datum, Jul. 15, 1977.

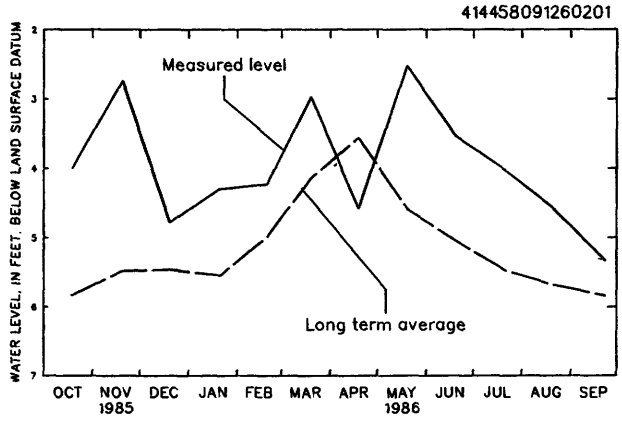
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	29.01	JAN 6	13.51	APR 7	11.13	JUL 7	23.58
NOV 27	25.24	FEB 6	12.39	MAY 6	14.04	AUG 6	24.18
DEC 6	17.08	MAR 6	11.88	JUN 6	21.36	SEP 5	24.15

414458091260201. Local number, 80-5-9 DBBC1.
LOCATION.--Lat 41°44'58", long 91°26'02", Hydrologic Unit 07080209, in the southeast corner of the T junction of County Roads F8W and F36 in the Village of Morse. Owner: Mrs. Frank Miller.
AQUIFER.--Glacial drift: in material of Pleistocene age.
WELL CHARACTERISTICS.--Bored observation water-table well, diameter 1.25 in., depth 15 ft, cased to 13 ft, sand point 13 to 15 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 762 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.30 ft above land-surface datum.
REMARKS.--Records for 1950 to September 1985 are available in the files of the Iowa District Office.
PERIOD OF RECORD.--August 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.60 ft above land-surface datum, Mar. 14, 1953; lowest measured, 9.22 ft below land-surface datum, Sep. 8, 1955.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	4.00	JAN 21	4.30	APR 21	4.58	JUL 21	4.04
NOV 20	2.74	FEB 21	4.23	MAY 21	2.53	AUG 21	4.56
DEC 20	4.78	MAR 20	2.97	JUN 20	3.54	SEP 22	5.33



JOHNSON COUNTY

414315091252001. 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 5.5 mi northeast of the junction of Interstate 80 and Iowa Highway 1. Owner: Chicago, Rock Island and Pacific Railroad Co.
AQUIFER.--Glacial drift: in material of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 2.25 in., depth 20 ft, cased to 18 ft, screened 18 to 20 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 753 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 4.20 ft above land-surface datum.
REMARKS.--At the site of the former Elmira depot.
PERIOD OF RECORD.--October 1941 to September 1956, January 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.78 ft below land-surface datum, Sep. 20, 1977; lowest measured, dry, Dec. 2-31, 1955 and Nov. 8 - Dec. 31, 1964.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	14.00	JAN 21	11.03	APR 21	10.65	JUL 21	9.42
NOV 20	11.81	FEB 21	11.22	MAY 21	10.48	AUG 21	9.57
DEC 20	10.55	MAR 20	11.06	JUN 20	9.70	SEP 22	9.98

414315091252002. 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 5.5 mi northeast of the junction of Interstate 80 and Iowa Highway 1. Owner: Chicago, Rock Island and Pacific Railroad Co.
AQUIFER.--Cedar Valley: in limestone of Devonian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 5 in., depth 82 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 753 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.50 ft above land-surface datum.
REMARKS.--Casing information not available. At the site of the former Elmira depot.
PERIOD OF RECORD.--December 1941 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.15 ft below land-surface datum, Apr. 21, 1952; lowest measured, 21.05 ft below land-surface datum, Sep. 26, 1957.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	15.83	JAN 21	16.29	APR 21	16.07	JUL 21	14.70
NOV 20	14.24	FEB 21	16.03	MAY 21	13.48	AUG 21	15.74
DEC 20	16.22	MAR 20	14.87	JUN 20	15.30	SEP 22	16.21

414853091425101. Local number, 81-7-19 BCBB1.
LOCATION.--Lat 41°48'53", long 91°42'51", Hydrologic Unit 07080208, approximately 0.75 mi west and 2.25 mi south of the Town of Swisher. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Silurian-Devonian: in dolomite of Silurian age and limestone of Devonian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 6 in., depth 535 ft, cased to 130 ft, open hole 130 to 535 ft.
INSTRUMENTATION.--Water-level recorder.
DATUM.--Elevation of land-surface datum is 745 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.50 ft above land-surface datum.
REMARKS.--Plum Creek well.
PERIOD OF RECORD.--November 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 64.46 ft below land-surface datum, May 31, 1983; lowest recorded, 74.85 ft below land-surface datum, Oct. 9, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	74.57	74.18	e72.85	-----	70.74	e70.33	69.99	70.02	-----	68.36	67.61	67.87
10	74.84	74.16	72.64	-----	71.03	e70.12	70.27	e70.34	-----	67.91	67.50	67.72
15	74.56	73.86	72.38	-----	70.72	70.16	70.17	70.08	-----	67.68	67.48	68.13
20	74.68	73.86	72.38	-----	70.45	70.62	70.01	e70.29	-----	e67.70	67.52	68.17
25	74.56	73.25	-----	71.15	70.63	70.11	e70.08	-----	69.27	67.41	67.45	67.74
EOM	74.09	e73.00	-----	71.22	70.68	69.84	70.09	-----	68.79	67.56	67.75	67.70

WTR YEAR 1986 HIGHEST 67.38 AUG 26, 1986 LOWEST 74.85 OCT 9, 1985

e Estimated.

JONES COUNTY

415808091160501. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Silurian: in dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 6 in. to 41 ft, 5 in. to 517 ft, depth 517 ft, cased to 41 ft, open hole 41 to 517 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 807 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.00 ft above land-surface datum.
REMARKS.--White Oak Creek well.
PERIOD OF RECORD.--July 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.24 ft below land-surface datum, Apr. 3, 1979; lowest measured, 5.49 ft below land-surface datum, Jun. 29, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 20	2.53	MAR 27	1.99	JUN 18	1.82	AUG 25	2.88

LEE COUNTY

403630091240801. Local number, 67-5-14 BAAD1.
LOCATION.--Lat 40°36'30", long 91°24'08", Hydrologic Unit 07080104, approximately 1 mi east of U.S. Highway 61 and 0.5 mi north of the Atchison, Topeka, and Santa Fe railroad tracks, approximately 1.4 mi west and 1.1 mi south of the City of Fort Madison. Owner: U.S. Geological Survey.
AQUIFER.--Alluvial: in sand and gravel of Holocene age.
WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1.25 in., depth 12 ft, cased to 10 ft, sand point 10 to 12 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 530 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3 ft above land-surface datum.
REMARKS.--Records for 1950 to 1981 and September 1985 are available in the files of the Iowa District Office.
PERIOD OF RECORD.--June 1950 to September 1981, September 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.64 ft below land-surface datum, Oct. 6, 1970; lowest measured, 9.70 ft below land-surface datum, Jan. 29, 1953.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	2.42	FEB 26	2.48	MAY 21	2.16	AUG 26	2.22

LINN COUNTY

415422091422601. 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: in material of Pleistocene age.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 4 ft, depth 14 ft, cribbed with brick.
INSTRUMENTATION.--Water-level recorder.
DATUM.--Elevation of land-surface datum is 835 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Base of recorder shelter, 0.25 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--July 1959 to current year.
REVISED RECORDS.--WDR IA-84-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.09 ft below land-surface datum, Aug. 4, 1968; lowest recorded, e11.75 ft below land-surface datum, Feb. 8, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.11	4.64	4.50	----	4.16	4.50	4.85	4.74	4.90	4.90	5.88	6.01
10	8.73	5.02	4.70	----	e4.60	4.44	4.91	5.03	5.07	4.47	5.77	5.69
15	7.50	4.15	4.84	----	4.74	3.95	4.96	5.10	5.08	4.92	5.47	5.77
20	7.00	4.10	e5.00	----	4.83	3.77	5.03	e4.05	5.30	e5.35	5.52	5.46
25	5.93	4.40	----	4.45	4.93	4.49	5.15	4.87	5.30	5.49	5.73	e3.50
EOM	6.00	4.67	----	4.81	4.99	4.75	4.99	4.42	2.84	5.67	5.72	e3.55

WTR YEAR 1986 HIGHEST 3.35 SEP 25, 1986 LOWEST 9.45 OCT 1, 1985

e Estimated.

LINN COUNTY

415509091461801. Local number, 82-8-20 ACBB1.
LOCATION.--Lat 41°55'09", long 91°46'18", Hydrologic Unit 07080205, approximately 1.5 mi southwest of the Town of Fairfax, just northwest of Iowa Highway 149. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Silurian-Devonian: in limestone of Devonian age and dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 5 in., depth 569 ft, cased to 100.5 ft, open hole 100.5 to 569 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 842 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.88 ft above land-surface datum.
REMARKS.--Rock Pile well.
PERIOD OF RECORD.--March 1974 to current year.
REVISED RECORDS.--WDR IA-84-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 96.70 ft below land-surface datum, Jun. 21, 1974; lowest measured, 108.37 ft below land-surface datum, Jul. 22 and 23, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	103.86	MAR 21	102.73	JUN 18	100.92	AUG 25	101.18

415834091351601. Local number, 83-6-30 ABBA1.
LOCATION.--Lat 41°58'34", long 91°35'16", Hydrologic Unit 07080206, approximately 200 ft west of 5201 Mount Vernon Road SE, Cedar Rapids. Owner: B.L. Anderson.
AQUIFER.--Silurian-Devonian: in limestone of Devonian age and dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 6 in., depth 76.5 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 755 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Hole in pump base, 0.50 ft above land-surface datum.
REMARKS.--Katz well. Casing information not available. Devonian rock reported to yield little, if any, water. Records for 1940 to September 1985 are available in the files of the Iowa District Office.
PERIOD OF RECORD.--May 1940 to current year.
EXTREMES OF PERIOD OF RECORD.--Highest water level measured, 41.93 ft below land-surface datum, Apr. 25, 1973; lowest measured, 53.90 ft below land-surface datum, Dec. 21, 1970.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	50.82	JAN 21	50.69	APR 21	49.07	JUL 21	47.17
NOV 20	50.56	FEB 21	50.63	MAY 21	48.40	AUG 21	48.40
DEC 20	50.55	MAR 21	49.48	JUN 20	46.40	SEP 22	48.93

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.--Silurian: in limestone of Silurian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 10 in., depth 420 ft, cased to 75 ft, open hole 75 to 420 ft.
INSTRUMENTATION.--Water-level recorder.
DATUM.--Elevation of land-surface datum is 735 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder platform, 2.95 ft below land-surface datum.
REMARKS.--Formerly The Kacena Co., Inc.
PERIOD OF RECORD.--January 1962 to current year.
REVISED RECORDS.--WDR IA-84-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 51.10 ft below land-surface datum, Feb. 25, 1963; lowest recorded, 101.40 ft below land-surface datum, Jul. 27, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FE	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	-----	96.45	e95.20	93.53	92.70	91.13	90.15	89.75	92.55	93.96	95.16	95.58
10	-----	e96.00	95.10	93.77	92.79	90.70	90.03	91.08	92.65	94.07	95.20	-----
15	-----	-----	94.80	93.41	92.38	91.06	90.02	91.22	93.03	94.32	95.28	-----
20	-----	-----	94.88	93.05	92.01	91.40	89.67	92.18	93.58	94.60	95.60	-----
25	-----	e95.40	94.49	92.24	91.82	90.49	89.82	92.32	93.82	94.75	95.39	e95.10
EOM	96.34	-----	93.98	93.23	91.99	90.22	89.90	92.22	93.87	94.98	95.62	95.52

WTR YEAR 1986 HIGHEST 89.40 APR 14, 1985 LOWEST e97.00 OCT 1985

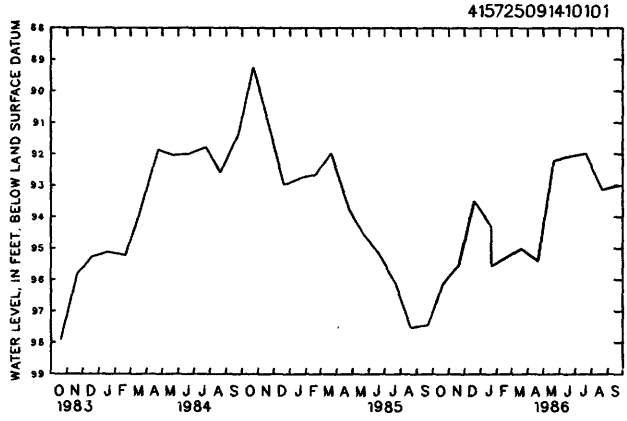
e Estimated.

LINN COUNTY

415725091410101. 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.--Silurian: in limestone of Silurian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 5 in., depth 282 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 805 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Plug in well cover at land-surface datum.
REMARKS.--Casing information not available.
PERIOD OF RECORD.--July 1940 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 75.80 ft below land-surface datum, Jan. 26, 1942; lowest measured, 107.00 ft below land-surface datum, Sept. 16, 1976.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

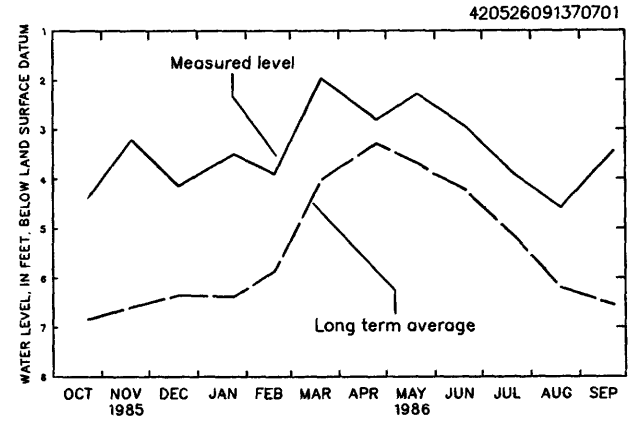
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	96.13	JAN 21	94.30	APR 21	95.41	JUL 21	91.98
NOV 20	95.54	FEB 21	95.56	MAY 21	92.22	AUG 21	93.13
DEC 20	93.49	MAR 20	95.01	JUN 20	92.07	SEP 22	93.00



420526091370701. 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, on the east side of the road, or approximately 3.75 mi north of the City of Marion. Owner: U.S. Geological Survey.
AQUIFER.--Glacial drift: in material 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.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 882 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.75 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--September 1948 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.93 ft below land-surface datum, May 18, 1982; lowest measured, 15.19 ft below land-surface datum, Jan. 20, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	4.39	JAN 21	3.50	APR 21	2.80	JUL 21	3.92
NOV 20	3.21	FEB 21	3.90	MAY 21	2.28	AUG 21	4.58
DEC 20	4.14	MAR 21	1.96	JUN 20	2.93	SEP 22	3.43



LINN COUNTY

421149091403301. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Silurian-Devonian: in dolomite of Silurian age and limestone of Devonian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 6 in., depth 435 ft, cased to 41 ft, 5 in. liner 129 to 147 ft, open hole 41 to 129 ft and 147 to 435 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 912 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing at land-surface datum.
REMARKS.--Alice well.
PERIOD OF RECORD.--July 1973 to current year.
REVISED RECORDS.--WDR IA-84-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.06 ft below land-surface datum, Jun. 10, 1974; lowest measured, 32.87 ft below land-surface datum, Mar. 23, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	28.74	MAR 21	26.54	JUN 18	23.95	AUG 25	25.76

LYON COUNTY

431812096302701. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 358 ft, cased to 358 ft, perforated 335 to 355 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,268 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.00 ft above land-surface datum.
REMARKS.--Well D-20. Sioux quartzite from 353 to 358 ft.
PERIOD OF RECORD.--December 1978 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 91.89 ft below land-surface datum, Jul. 8, 1986; lowest measured, 97.56 ft below land-surface datum, Dec. 9, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	96.69	JAN 7	93.47	APR 8	92.07	JUL 8	91.89

432140095595301. 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: in material of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in., depth 38 ft, lined with tile.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,400 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Plug in well cover, 2.01 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--October 1940 to June 1943, May 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.41 ft above land-surface datum, May 9, 1979; lowest measured, 9.74 ft below land-surface datum, Oct. 24, 1940.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

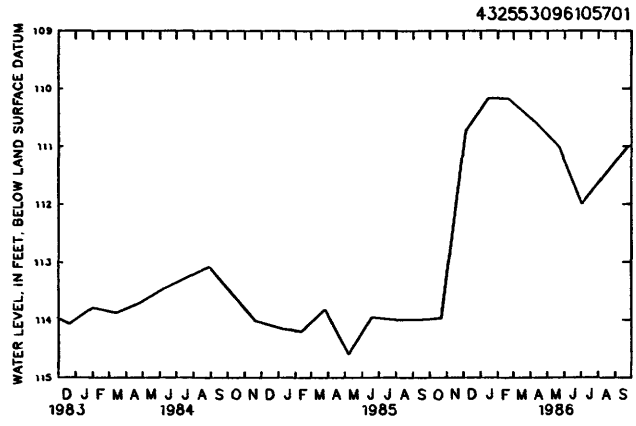
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	0.48	JAN 7	1.46	APR 8	0.09	JUL 8	1.16

LYON COUNTY

432553096105701. Local number, 99-45-5 ABAC1.
LOCATION.--Lat 43°25'53", long 96°10'55", Hydrologic Unit 10170204, 0.05 mi south of Iowa Highway 9 on 2nd Street, Rock Rapids. Owner: City of Rock Rapids.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 10 in., depth 375 ft, cased to 296 ft, open hole 296 to 375 ft.
INSTRUMENTATION.--Intermittent measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,368 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Plug in cover over casing, 1.00 ft above land-surface datum.
REMARKS.--City test well No. 3.
PERIOD OF RECORD.--August 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 100.08 ft below land-surface datum, Jul. 27, 1964; lowest measured, 114.60 ft below land-surface datum, May 7, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	113.97	FEB 19	110.17	MAY 22	111.01	AUG 13	112.00
DEC 5	110.74	APR 11	110.60	JUL 2	111.55	SEP 24	111.00
JAN 15	110.17						



432601096335511. Local number, 100-48-31 CCCC11.
LOCATION.--Lat 43°26'01", long 96°33'55", Hydrologic Unit 10170203, 0.5 mi west and 2.5 mi south of the Village of Granite. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 657 ft, cased to 657 ft, perforated 450 to 455 ft and 630 to 650 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,417 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing at land-surface datum.
REMARKS.--Well D-19.
PERIOD OF RECORD.--December 1978 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 152.20 ft below land-surface datum, Jul. 8, 1986; lowest measured, 157.53 ft below land-surface datum, Aug. 12, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	154.47	JAN 15	154.43	APR 8	153.44	JUL 8	152.20

MADISON COUNTY

411727093483001. Local number, 75-26-23 AAACl.
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.--Mississippian: in limestone of Mississippian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 10 in., depth 1,058 ft, cased to 657 ft, open hole 657 to 1,058 ft.
INSTRUMENTATION.--Intermittent measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,067 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Plug in well cover, 1.20 ft above land-surface datum.
REMARKS.--City well No. 1.
PERIOD OF RECORD.--November 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 261.62 ft below land-surface datum, Nov. 20, 1962; lowest measured, 272.90 ft below land-surface datum, Jul. 22, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

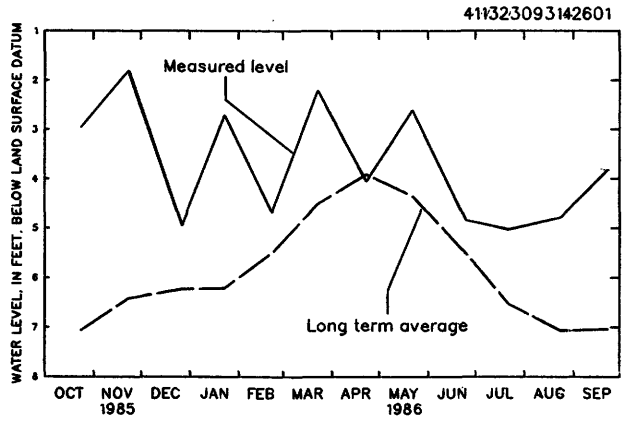
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	272.39	MAR 6	272.45	JUL 22	272.90

MARION COUNTY

411323093142601. 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: in material of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 18 in., depth 12.2 ft, lined with tile.
INSTRUMENTATION.--Twice a month measurement with chalked tape by observer.
DATUM.--Elevation of land-surface datum is 948 ft above Naitonal Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of well cover, 0.75 ft above land-surface datum.
REMARKS.--Town well No. 2. Depth formerly 25 ft, re-measured in 1981.
PERIOD OF RECORD.--March 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.30 ft below land-surface datum, May 23, 1966; lowest measured, 16.27 ft below land-surface datum, Oct. 22, 1953.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	3.25	JAN 9	5.15	APR 11	3.33	JUL 14	4.15
23	2.95	20	2.71	24	4.05	21	5.03
NOV 8	4.00	FEB 10	4.15	MAY 9	3.81	AUG 6	4.25
19	1.80	19	4.68	21	2.61	22	4.79
DEC 6	4.37	MAR 10	2.75	JUN 10	4.45	SEP 10	4.41
20	4.95	18	2.21	20	4.85	22	3.82



MARION COUNTY

411329093142902. Local number, 74-21-11 DBBB2.
LOCATION.--Lat 41°13'29", long 93°14'29", Hydrologic Unit 07100008, southeast corner of the T junction of North B Street and Main Street, Melcher. Owner: Town of Melcher.
AQUIFER.--Glacial drift: in sand and gravel of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 6 in., depth 119 ft, cased to 76 ft, open hole 76 to 119 ft.
INSTRUMENTATION.--Twice a month measurement with chalked tape by observer.
DATUM.--Elevation of land-surface datum is 943 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.27 ft above land-surface datum.
REMARKS.--Sand and gravel 103 to 117 ft. Pennsylvanian shale 117 to 119 ft. Records for 1945 to 1955 and 1976 to September 1985 are available in the files of the Iowa District Office. Town well No. 3. Well 11K1.
PERIOD OF RECORD.--July 1945 to December 1955, October 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.43 ft below land-surface datum, May 21, 1986; lowest measured (nearby well pumping), 108.85 ft below land-surface datum, Dec. 4, 6-7, 1949.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	16.53	JAN 9	20.60	APR 11	16.38	JUL 14	16.28
23	15.73	20	18.31	24	18.03	21	18.93
NOV 8	18.41	FEB 10	19.59	MAY 9	16.11	AUG 16	18.53
19	14.62	19	19.96	21	13.43	22	20.23
DEC 6	19.03	MAR 10	18.41	JUN 10	19.03	SEP 10	17.23
20	20.09	18	14.41	20	19.37	22	16.43

411328093143503. Local number, 74-21-11 CAAD3.
LOCATION.--Lat 41°13'28", long 93°14'35", Hydrologic Unit 07100008, northeast corner of the junction of West 1st Street and North A Street, Melcher. Owner: Town of Melcher.
AQUIFER.--Glacial drift: in sand of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 1.25 in., depth 96.5 ft, cased to 80 ft, screen 80 to 82 ft, open hole 82 to 96.5 ft.
INSTRUMENTATION.--Twice a month measurement with chalked tape by observer.
DATUM.--Elevation of land-surface datum is 944 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.35 ft above land-surface datum.
REMARKS.--Town well No. 5. Well 11L1. Records for 1956 to September 1985 are available in the files of the Iowa District Office.
PERIOD OF RECORD.--January 1956 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.55 ft below land-surface datum, May 21, 1986; lowest measured (nearby well pumping), 55.22 ft below land-surface datum, Jan. 26, 1956.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	11.95	JAN 9	11.55	APR 11	10.77	JUL 14	11.31
23	11.44	20	11.51	24	10.85	21	11.42
NOV 8	10.69	FEB 10	11.40	MAY 9	10.81	AUG 16	11.61
19	11.21	19	11.25	21	10.55	22	11.71
DEC 6	11.45	MAR 10	11.20	JUN 10	10.85	SEP 10	11.75
20	11.27	18	11.01	20	11.00	22	11.80

MARSHALL COUNTY

420355092534701. 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 the sewage treatment plant, Marshalltown. Owner: City of Marshalltown.
AQUIFER.--Glacial drift: in sand and gravel of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 8 in., depth 200 ft, cased to 190 ft, screened 190 to 200 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 871 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing at land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--May 1949 to August 1971, March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.92 ft below land-surface datum, Jul. 13, 1951; lowest measured, 54.95 ft below land-surface datum, May 8, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

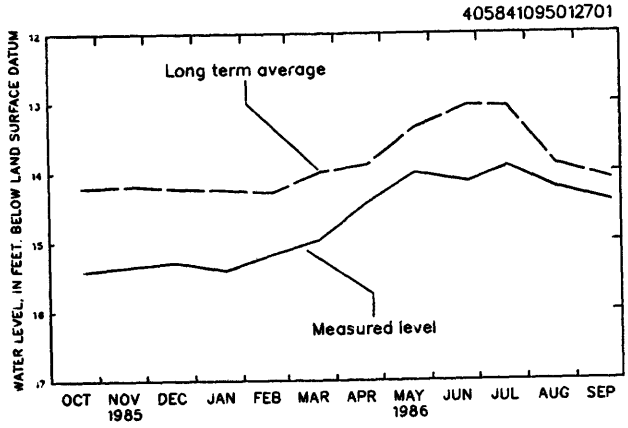
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	38.48	MAR 18	38.25	JUN 18	27.84	SEP 2	31.64

MONTGOMERY COUNTY

405841095012701. 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, or approximately 4 mi east of the town of Stanton and 0.25 mi south of U.S. Highway 34, Owner: State of Iowa.
AQUIFER.--Glacial drift: in material 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.
INSTRUMENTATION.--Intermittent measurement with chalked tape by USGS personnel or observer.
DATUM.--Elevation of land-surface datum is 1,081 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.95 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--April 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.52 ft below land-surface datum, May 31, 1951; lowest measured (pumping), 30.99 ft below land-surface datum, Apr. 26, 1950.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	15.42	JAN 21	15.50	MAY 21	14.01	AUG 20	14.39
NOV 22	15.35	FEB 24	15.18	28	14.04	21	14.23
DEC 9	15.33	MAR 12	15.29	JUN 23	14.14	SEP 22	14.43
20	15.29	20	14.97	JUL 8	14.35		
JAN 20	15.41	APR 21	14.43	23	13.92		



410057095075101. Local number, 72-37-29 BABA1.
LOCATION.--Lat 41°00'57", long 95°07'51", Hydrologic Unit 10240005, approximately 4.35 mi east of the City of Red Oak, just south of County Road H-34. Owner: John Ogden.
AQUIFER.--Glacial drift: in material of Pleistocene age.
WELL CHARACTERISTICS.--Bored observation water-table well, diameter 3 in., depth 40 ft, cased to 40 ft, perforated.
INSTRUMENTATION.--Intermittent measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,275 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.30 ft above land-surface datum.
REMARKS.--Interval of perforation not available. Records for 1937 to September 1985 are available in the files of the Iowa District Office.
PERIOD OF RECORD.--June 1937 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.94 ft below land-surface datum, Jun. 20, 1984; lowest measured, dry, Jul. 8, 1963 and Feb. 3, 1964.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 9	24.13	MAR 12	19.85	MAY 28	11.46	AUG 20	13.95
JAN 22	25.40	APR 15	15.78	JUL 8	12.33		

MUSCATINE COUNTY

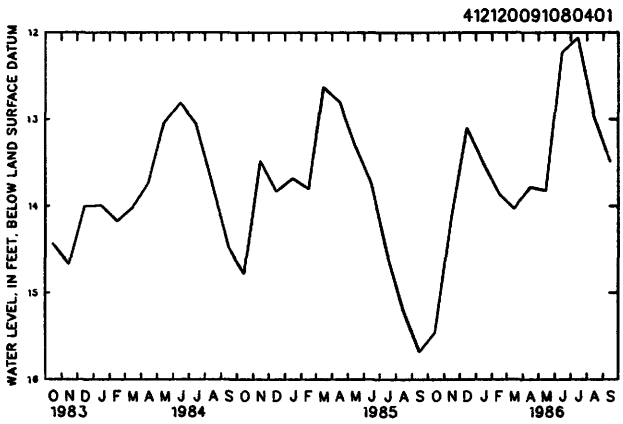
412120091080401. Local number, 76-2-30 CBAA1.
LOCATION.--Lat 41°21'20", long 91°08'04", Hydrologic Unit 07080101, west of the Town of Fruitland on an Iowa State University Agricultural Experiment Farm. Owner: U.S. Geological Survey.
AQUIFER.--Alluvial: in sand and gravel of Holocene age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in., depth 27 ft, cased to 24 ft, screened 24 to 27 ft.
INSTRUMENTATION.--Water-level recorder.
DATUM.--Elevation of land-surface datum is 546 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Base of recorder shelter, 3.70 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--May 1966 to current year.
REVISED RECORDS.--WDR IA-84-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.51 ft below land-surface datum, May 16, 1973; lowest recorded, 15.80 ft below land-surface datum, Sep. 9, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.78	14.46	13.24	13.35	13.77	13.91	13.70	13.93	12.33	12.38	12.86	13.31
10	15.79	14.29	13.16	13.42	13.80	13.96	13.72	13.87	12.25	12.36	12.92	13.40
15	15.46	14.14	e13.10	13.50	13.86	14.03	13.78	13.82	12.23	12.06	12.97	13.49
20	15.26	13.84	-----	13.56	13.90	13.87	13.85	e13.70	12.42	12.30	13.00	13.56
25	14.94	13.53	-----	13.62	13.92	13.78	13.92	13.54	12.52	12.48	e13.10	13.58
EOM	14.62	13.34	13.27	13.72	13.93	13.72	13.98	12.46	12.57	12.67	13.21	13.43

WTR YEAR 1986 HIGHEST 12.06 JUL 15, 1986 LOWEST 15.80 SEP 9, 1986

e Estimated.



O'BRIEN COUNTY

425610095250611. 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, 0.9 mi north of Iowa Highway 10, approximately 5 mi southeast of the Town of Sutherland. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2.50 in., depth 329 ft, cased to 329 ft, perforated 291 to 295 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,212 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing at land-surface datum.
REMARKS.--Well D-3.
PERIOD OF RECORD.--April 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.25 ft below land-surface datum, Jun. 8, 1986; lowest measured, 36.85 ft below land-surface datum, Dec. 15, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 17	35.87	MAR 19	35.69	JUN 8	35.25	SEP 4	35.69

O'BRIEN COUNTY

425808095480311. Local number, 94-42-9 DDDD11.
LOCATION.--Lat 42°58'08", long 95°48'03", Hydrologic Unit 10230003, west of Iowa Highway 143, 1 mi west and 1 mi north of the Village of Germantown. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 638 ft, cased to 638 ft, perforated 516 to 536 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,440 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 4.00 ft above land-surface datum.
REMARKS.--Well D-42.
PERIOD OF RECORD.--July 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 215.09 ft below land-surface datum, May 6, 1982; lowest measured, 260.64 ft below land-surface datum, July 10, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTMEBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	231.73	JAN 7	232.90	APR 8	233.19	JUL 8	233.79

430930095350401. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota and Ordovician: in sandstone of Early Cretaceous age and sandy shale of Ordovician age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 701 ft, cased to 701 ft, perforated 661 to 701 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,560 ft above National Geodetic Vertical Datum of 1929, from topogarphic map. Measuring point: Top of casing, 4.00 ft above land-surface datum.
REMARKS.--Well D-41.
PERIOD OF RECORD.--June 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 358.39 ft below land-surface datum, Jul. 8, 1986; lowest measured, 361.40 ft below land-surface datum, Jul. 16, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	359.65	APR 8	359.25	JUL 8	358.39

OSCEOLA COUNTY

431620095250501. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--St. Peter: in sandstone of Middle Ordovician age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 662 ft, cased to 662 ft, perforated 622 to 662 ft.
INSTRUMENTATION.--Intermittent measurement with chalked tape or electric line by USGS personnel or observer.
DATUM.--Elevation of land-surface datum is 1,402 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of low pipe, 1.47 ft above land-surface datum.
REMARKS.--Well D-38 Deep Hibbing.
PERIOD OF RECORD.--June 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 197.68 ft below land-surface datum, May 8, 1984; lowest measured, 199.52 ft below land-surface datum, Aug. 5, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL
JUL 22	197.97	SEP 3	198.86

OSCEOLA COUNTY

431620095250511. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 345 ft, cased to 345 ft, perforated 335 to 345 ft.
INSTRUMENTATION.--Intermittent measurement with chalked tape or electric line by USGS personnel or observer.
DATUM.--Elevation of land-surface datum is 1,402 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of high pipe, 2.60 ft above land-surface datum.
REMARKS.--Well D-38 Shallow Hibbing.
PERIOD OF RECORD.--June 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 192.20 ft below land-surface datum, Sep. 10, 1981; lowest measured, 194.11 ft below land-surface datum, Jul. 25, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL
JUL 22	193.76	SEP 3	193.35

431613095251801. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 500 ft, cased to 500 ft, perforated 490 to 500 ft.
INSTRUMENTATION.--Intermittent measurement with chalked tape or electric line by USGS personnel or observer.
DATUM.--Elevation of land-surface datum is 1,398 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.70 ft above land-surface datum.
REMARKS.--Well D-39.
PERIOD OF RECORD.--June 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 189.99 ft below land-surface datum, Jun. 17, 1980; lowest measured, 196.85 ft (nearby well pumping) below land-surface datum, Sep. 6, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL
JUL 22	191.32	SEP 3	191.22

431620095482402. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 400 ft, cased to 400 ft, perforated 385 to 395 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,440 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.80 ft above land-surface datum.
REMARKS.--Well D-40.
PERIOD OF RECORD.--May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 195.87 ft below land-surface datum, June 1, 1983; lowest measured, 210.46 ft below land-surface datum, Apr. 8, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	209.75	JAN 7	210.26	APR 8	210.46	JUL 8	209.37

432828095283611. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 5 in. to 461 ft, 4 in. to 760 ft, depth 760 ft, cased to 760 ft, perforated 680 to 700 ft.
INSTRUMENTATION.--Quarterly measurement with electric line by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,560 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.00 ft above land-surface datum.
REMARKS.--Well D-13.
PERIOD OF RECORD.--July 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 341.80 ft below land-surface datum, Aug. 5, 1980; lowest measured, 343.70 ft below land-surface datum, Aug. 21, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	343.53	MAR 19	343.47	JUN 9	343.38	SEP 3	343.63

PAGE COUNTY

404257095150801. 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: in material of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in., depth 44 ft, lined with tile.
INSTRUMENTATION.--Intermittent measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,087 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of pipe inserted through board cover, 1.00 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--May 1934 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.09 ft below land-surface datum, Mar. 26, 1946; lowest measured, 22.76 ft below land-surface datum, Jun. 23, 1947.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	12.98	MAR 11	13.36	MAY 29	10.78	AUG 21	10.74
DEC 11	14.61	APR 14	11.30	JUL 9	8.52	SEP 29	11.15
JAN 21	14.16						

PLYMOUTH COUNTY

424850096074801. Local number, 92-45-2 CBCB1.
LOCATION.--Lat 42°48'50", long 96°07'48", Hydrologic Unit 10230002, approximately 3.8 mi west and 0.6 mi south of the Village of Oyens. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Cambrian-Ordovician: in dolomite of Cambrian and Ordovician age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 5 in. to 161 ft, 4 in. to 598 2 in. to 1,340 ft, depth 1,340 ft, cased to 598 ft, open hole 598 to 1,340 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,245 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.80 ft above land-surface datum.
REMARKS.--Well D-21. Well deepened from 1,089 to 1,340 ft, May 1984. Penetrates the Precambrian.
PERIOD OF RECORD.--May 1979 to January 1981, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 87.97 ft below land-surface datum, Mar. 13, 1984; lowest measured, 102.10 ft below land-surface datum, Aug. 6, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	94.62	JAN 7	94.74	APR 7	94.44	JUL 8	96.08

424850096074802. Local number, 92-45-2 CBCB2.
LOCATION.--Lat 42°48'50", long 96°07'48", Hydrologic Unit 10230002, approximately 3.8 mi west and 0.6 mi south of the Village of Oyens. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 4 in. to 155 ft, 2 in. to 365 ft, depth 365 ft, cased to 365 ft, perforated 347 to 365 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,245 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Wood cover over well, 2.80 ft above land-surface datum.
REMARKS.--Well D-22. The published water level for Apr. 2, 1985, 85.75 ft is probably not correct and should not be used.
PERIOD OF RECORD.--April 1979 to January 1981, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 93.59 ft below land-surface datum, Jan. 8, 1985; lowest measured, 106.56 ft below land-surface datum, Sept. 4, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	96.43	JAN 7	95.70	APR 7	94.54

PLYMOUTH COUNTY

424833096324701. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water 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 hole 576 to 581 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,282 ft above National Geodetic Vertical Datum of 1929, from topographic map. 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.
PERIOD OF RECORD.--December 1979 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 137.80 ft below land-surface datum, Apr. 23, 1986; lowest measured, 159.82 ft below land-surface datum, Aug. 6, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	138.24	JAN 8	138.26	APR 23	137.80	JUL 28	137.87

425249096125001. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2.50 in., depth 570 ft, cased to 570 ft, perforated 356 to 360 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,280 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of coupling, 4.80 ft above land-surface datum.
REMARKS.--Well D-2.
PERIOD OF RECORD.--March 1980 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 117.78 ft below land-surface datum, Apr. 9, 1980; lowest measured, 122.00 ft below land-surface datum, Mar. 27, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

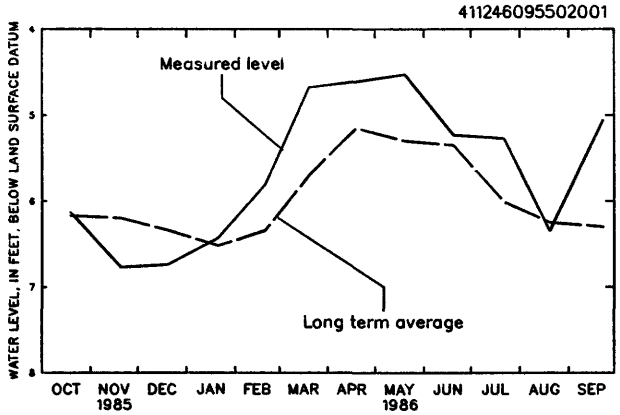
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	118.95	JAN 7	118.94	APR 8	118.58	JUL 8	119.01

POTTAWATTAMIE COUNTY

411246095502001. Local number, 74-43-18 BCCC1.
LOCATION.--Lat 41°12'46", long 95°50'20", Hydrologic Unit 10230006, approximately 0.4 mi east of Lake Manawa in Manawa State Park, 1.4 mi south of Interstate 80, south of the City of Council Bluffs. Owner: U.S. Geological Survey.
AQUIFER.--Alluvial: in sand and gravel of Holocene age.
WELL CHARACTERISTICS.--Bored observation water-table well, diameter 1.25 in., depth 16 ft, cased to 14 ft, sand point 14 to 16 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 975 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.25 ft above land-surface datum.
REMARKS.--Records from 1950 to September 1985 are available in the files of the Iowa District Office.
PERIOD OF RECORD.--November 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.45 ft below land-surface datum, May 2, 1951; lowest measured, 11.86 ft below land-surface datum, Jun. 26, 1956.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	6.13	JAN 24	6.43	APR 25	4.61	JUL 25	5.27
NOV 25	6.77	FEB 25	5.81	MAY 28	4.53	AUG 25	6.35
DEC 23	6.74	MAR 24	4.68	JUN 26	5.23	SEP 25	5.06



SAC COUNTY

422500095084801. 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 0.5 mi south of the junction of U.S. Highways 20 and 71. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota and Pennsylvanian: in sandstone of Early Cretaceous age and limestone of Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 435 ft, cased to 435 ft, perforated 417 to 435 ft.
INSTRUMENTATION.--Quarterly measurement with electric line by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,320 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.50 ft above land-surface datum.
REMARKS.--Well D-16.
PERIOD OF RECORD.--December 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 163.93 ft below land-surface datum, May 12, 1984; lowest measured, 165.40 ft below land-surface datum, Dec. 16, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 18	164.90	MAR 20	164.70	JUN 9	164.21	SEP 5	164.61

423013095175301. 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: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled public-emergency-supply artesian water well, diameter 10 to 8 in., depth 352 ft, cased to 352 ft, perforated 304 to 352 ft.
INSTRUMENTATION.--Quarterly measuerment with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,376 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Edge of pump breather pipe, 1.80 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--October 1940 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 210.04 ft below land-surface datum, Mar. 25, 1948; lowest non-pumping measured, 240.10 ft below land-surface datum, May 24, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 18	232.02	MAR 20	230.79	JUN 9	231.48	SEP 5	231.85

422850095171501. Local number, 89-38-36 CBCC1.
LOCATION.--Lat 42°28'50", long 95°17'15", Hydrologic Unit 10230005, just east of Iowa Highway 110, 0.75 mi south of the Town of Schaller and 0 .25 mi north of U.S. Highway 20. Owner: Geologcial Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 521 ft, cased to 512 ft, perforated 410 to 430 ft, open hole 512 to 521 ft.
INSTRUMENTATION.--Quarterly measurement with electric line by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,445 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 4.00 ft above land-surface datum.
REMARKS.--Well D-17. 9 ft of Paleozoic rock open.
PERIOD OF RECORD.--December 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 288.05 ft below land-surface datum, Jun. 2, 1980; lowest measured, 291.88 ft below land-surface datum, Mar. 20, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 18	291.74	MAR 20	291.88	JUN 9	291.16	SEP 5	291.41

SIOUX COUNTY

430140095573101. Local number, 95-43-7 AAAA1.
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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 681 ft, cased to 681 ft, perforated 641 to 681 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,390 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.70 ft above land-surface datum.
REMARKS.--Well D-43. Paleozoic rock from 674 to 681 ft.
PERIOD OF RECORD.--July 1980 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 214.77 ft below land-surface datum, Apr. 8, 1986; lowest measured, 217.23 ft below land-surface datum, July 9, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	216.05	JAN 7	216.24	APR 8	214.77	JUL 8	215.76

430913096033201. Local number, 96-44-8 ADAA1.
LOCATION.--Lat 43°09'13", long 96°03'32", Hydrologic Unit 10230002, west side of County Road K-64, approximately 2.5 mi west of the Town of Boyden and approximately 2.2 mi south of U.S. Highway 18. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 682 ft, cased to 682 ft, perforated 647 to 667 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,373 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.70 ft above land-surface datum.
REMARKS.--Well D-44. One ft of Paleozoic rock penetrated.
PERIOD OF RECORD.--August 1980 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 187.85 ft below land-surface datum, Oct. 16, 1984; lowest measured, 193.95 ft below land-surface datum, Dec. 8, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	193.77	JAN 14	193.49	APR 8	193.37	JUL 9	193.26

STORY COUNTY

420130093362201. Local number, 83-24-2 DCAA1.
LOCATION.--Lat 42°01'30", long 93°36'22", Hydrologic Unit 07080105, just east of the water plant in Ames or southeast of the T junction of East 5th Street and Crawford Avenue. Owner: City of Ames.
AQUIFER.--Glacial drift: in sand and gravel of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 20 in., depth 110 ft.
INSTRUMENTATION.--Quarterly measurement with electric line by USGS personnel.
DATUM.--Elevation of land-surface datum is 925 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder platform, 4.10 ft above land-surface datum.
REMARKS.--Caing information not available. Water levels affected by pumping of nearby wells. Records from 1947 to September 1985 are available in the files of the Iowa District Office.
PERIOD OF RECORD.--November 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.84 ft below land-surface datum, Jun. 3, 1951; lowest measured, 62.92 ft below land-surface datum, May 7, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 11	51.47	MAY 29	54.42	AUG 25	51.37

WASHINGTON COUNTY

421829091304701. Local number, 75-6-14 ABBB1.
LOCATION.--Lat 42°18'29", long 91°30'47", Hydrologic Unit 07080209, 1 mi north and 1.5 mi east of the junction of U.S. Highway 218 and Iowa Highway 92. Owner: Mrs. David Armstrong.
AQUIFER.--Glacial drift: in material of Pleistocene age.
WELL CHARACTERISTICS.--Bored unused water-table well, diameter 12 in., depth 45 ft, lined with tile.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 745 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Nipple welded to barrel, 3.33 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--December 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.53 ft below land-surface datum, May 23, 1984; lowest measured, 9.77 ft below land-surface datum, Oct. 7, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	9.77	JAN 6	4.47	APR 7	3.08	JUL 7	4.39
NOV 7	2.09	FEB 6	3.17	MAY 6	4.58	AUG 7	4.54
DEC 6	2.96	MAR 6	3.25	JUN 6	1.99	SEP 5	5.56

412037091564701. Local number, 76-9-31 CBBC1.
LOCATION.--Lat 41°20'37", long 91°56'47", Hydrologic Unit 07080107, at Pepper Quarry on County Road V-15, 1 mi south of the City of Keota. Owner: River Products Co.
AQUIFER.--Mississippian: in limestone of Mississippian age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 5 in., depth 136 ft, cased to 19 ft, open hole 19 to 136 ft.
INSTRUMENTATION.--Water-level recorder.
DATUM.--Elevation of land-surface datum is 745 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.88 ft above land-surface datum.
REMARKS.--Water levels affected by quarrying operations.
PERIOD OF RECORD.--August 1979 to current year.
REVISED RECORDS.--WDR IA-84-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.38 ft below land-surface datum, Mar. 4, 1985; lowest recorded, 24.06 ft below land-surface datum, Sept. 18, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	17.32	11.29	12.28	-----	12.05	12.97	12.97	15.20	-----	14.10	16.63	17.13
10	12.17	11.98	12.99	15.30	-----	11.50	13.65	15.72	10.83	10.47	15.54	17.43
15	12.97	9.93	13.45	15.40	-----	11.95	13.98	15.53	12.15	12.46	12.30	17.94
20	11.55	10.38	-----	12.60	14.61	12.27	14.43	-----	13.29	13.95	14.21	16.50
25	11.85	11.47	-----	13.23	15.12	12.84	14.92	-----	13.98	14.93	15.36	14.27
EOM	12.26	12.57	-----	14.50	13.93	13.36	14.82	-----	e12.60	15.76	16.45	11.00

WTR YEAR 1986 HIGHEST 9.41 NOV 19, 1985 LOWEST 18.11 SEP 16, 1986

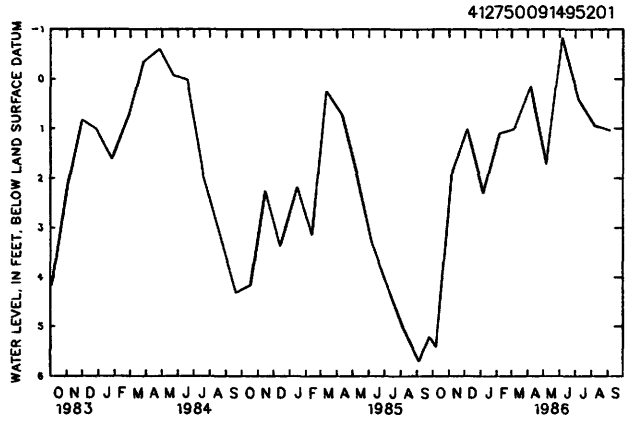
e Estimated.

WASHINGTON COUNTY

412750091495201. 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.--Mississippian: in dolomite of Mississippian age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 8 in., depth 110 ft, cased to 47 ft, open hole 47 to 110 ft.
INSTRUMENTATION.--Monthly mesurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 695 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.35 ft above land-surface datum.
REMARKS.--City test well No. 1.
PERIOD OF RECORD.--May 1963 to October 1971, May 1973 to current year.
REVISED RECORDS.--WDR IA-84-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.35 ft above land-surface datum, Nov. 3, 1977, Mar. 28, 1979, and Apr. 13, 1983; lowest measured, 6.92 ft below land-surface datum, Nov. 1, 1964.

WATER LEVEL, IN FEET BELOW LAND SURFACE-DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	5.41	JAN 6	2.29	APR 7	0.15	JUL 7	0.41
NOV 7	1.88	FEB 6	1.10	MAY 6	1.72	AUG 7	0.94
DEC 6	1.01	MAR 6	1.01	JUN 6	+0.84	SEP 5	1.04



WEBSTER COUNTY

421550094041001. 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.--Devonian and Mississippian: in limestone of Devonian and Mississippian age.
WELL CHARACTERISTICS.--Drilled municipal artesian water well, diameter 13 to 10 in., depth 1,240 ft, cased to 505 ft, 8 in. liner 770 to 966 ft, open hole 505 to 770 ft and 966 to 1,240 ft.
INSTRUMENTATION.--Quarterly measurement with airline by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,121 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Pump base, 1.30 ft above land-surface datum.
REMARKS.--Town well No. 2. Water levels affected by pumping.
PERIOD OF RECORD.--September 1942 to December 1948, January 1952 to November 1971, March 1974 to current year.
REVISIONS.--WRD IA-85-1.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 69.93 ft below land-surface datum, Nov. 17, 1942; lowest measured, 147.20 ft below land-surface datum, Jun. 3, 1986.

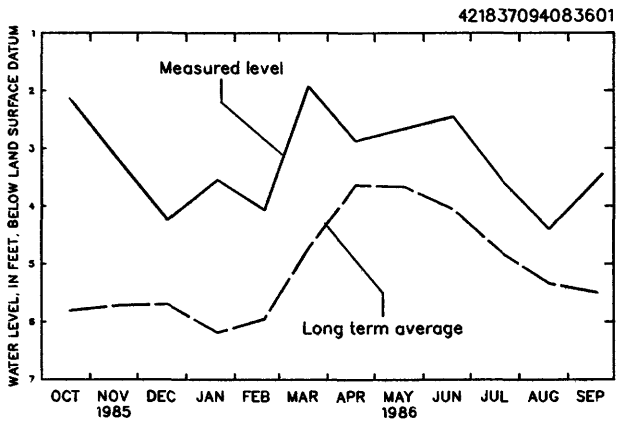
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 12	135.20	JUN 3	147.20

421837094083601. 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 Harcourt. Owner: Ransom Helms.
AQUIFER.--Glacial drift: in material of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in., depth 42 ft, lined with tile.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,165 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.75 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--October 1942 to June 1956, March 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.05 ft below land-surface datum, Aug. 1, 1972; lowest measured, 13.62 ft below land-surface datum, Mar. 12, 1956.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	2.14	JAN 21	3.55	APR 21	2.87	JUL 21	3.59
NOV 20	3.24	FEB 20	4.07	MAY 20	2.66	AUG 20	4.40
DEC 20	4.24	MAR 21	1.93	JUN 20	2.45	SEP 24	3.45



423018094214701. 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.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused artesian water well, diameter 4 in., reported depth 208 ft, cased to 208 ft, perforated 203-208 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,174 ft above National Geodetic Vertical Datum of 1929, from topogarphic map. Measuring point: Top of casing at land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--October 1942 to September 1945, May 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.86 ft below land-surface datum, Jul. 2, 1945; lowest measured, 52.60 ft below land-surface datum, Feb. 26, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 19	42.97	MAR 18	42.32	JUN 9	42.36	SEP 3	41.88

WOODBURY COUNTY

422058095573701. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 197 ft, cased to 197 ft, perforated 185 to 189 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,165 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.50 ft above land-surface datum.
REMARKS.--Well D-34.
PERIOD OF RECORD.--April 1980 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.40 ft below land-surface datum, Oct. 7, 1985; lowest measured, 63.56 ft below land-surface datum, Nov. 2, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	54.40	JAN 6	55.76	APR 7	55.42	JUL 7	55.78

422830096000511. Local number, 88-44-6 BAAB11.
LOCATION.--Lat 42°28'30", long 96°00'05", Hydrologic Unit 10230004, approximately 3 mi east and 0.5 mi south of the Town of Moville. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 337 ft, cased to 337 ft, perforated 332 to 337 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,340 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.50 ft above land-surface datum.
REMARKS.--Well D-33.
PERIOD OF RECORD.--October 1979 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 199.20 ft below land-surface datum, Oct. 7, 1985; lowest measured, 202.90 ft below land-surface datum, Oct. 17, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	199.20	JAN 6	199.91	APR 7	199.55	JUL 7	199.55

423015096034601. 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: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 221 ft, cased to 221 ft, perforated 206 to 221 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,160 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 4.00 ft above land-surface datum.
REMARKS.--Well D-32.
PERIOD OF RECORD.--October 1979 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.64 ft below land-surface datum, Aug. 8, 1984; lowest measured, 26.65 ft below land-surface datum, Dec. 11, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	24.30	JAN 6	24.78	APR 7	23.74	JUL 7	23.87

WOODBURY COUNTY

422910096135811. Local number, 89-46-36 BBDC11.
LOCATION.--Lat 42°29'10", long 96°13'58", Hydrologic Unit 10230004, approximately 0.75 mi northeast of the Eberly Cemetery or 2.5 mi west and 0.75 mi north of the Village of Lawton. Owner: Geological Survey Bureau, DNR and U.S. Geological Survey.
AQUIFER.--Dakota: in sandstone of Early Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation artesian water well, diameter 2 in., depth 500 ft, cased to 500 ft, perforated 358 to 362 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 1,268 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.00 ft above land-surface datum.
REMARKS.--Well D-30.
PERIOD OF RECORD.--April 1980 to December 1980, May 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 128.50 ft below land-surface datum, Aug. 8, 1984; lowest measured, 135.35 ft below land-surface datum, Nov. 2, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	129.68	JAN 6	129.87	APR 7	129.72	JUL 7	129.09

MAP STATION NUMBER	STATION NUMBER	LOCAL WELL NUMBER	DATE	LOCAL WELL NAME	COUNTY	SAMPLE DATE	SAMPLE TIME	GEO-LOGIC UNIT	DEPTH OF WELL (FEET)
1	411246094402401	07533W32CDDB	1943	BRIDGEWATER NO 2	ADAIR	08-15-86	1100	111HLCN	45.00
2	411950094361201	07533W13CCCB	1975	FONTANELLE NO 5	ADAIR	08-15-86	1400	110QRNR	38.00
3	412852094275101	07731W07CAAB	1977	MENLO NO 3	ADAIR	08-18-86	1700	111ALVM	27.00
4	412854094275301	07731W07BDCD	1977	MENLO NO 2	ADAIR	11-19-85	1045	111ALVM	20.00
5	410115094362201	07233W23DBAA	1981	PRESCOTT NO 2	ADAMS	07-17-86	1400	112PLSC	40.00
6	432139091125801	09903W29DAB	1943	LANSING	ALLAMAKEE	11-14-85	0845	371MSMN	721.00
7	432953091172001	10004W11BB	1925	NEW ALBIN NO 1	ALLAMAKEE	11-13-85	1405	371MSMN	586.00
8	415944091573501	08310W13CDA		NEWHALL NO 2	BENTON	09-24-86	1400	355NIGR	478.00
9	423351092092801	09011W33BCB		DUNKERTON NO 1	BLACK HAWK	09-23-86	1130	355NIGR	272.00
10	415212093520701	08226W34BDCC	1974	MADRID NO 9	BOONE	09-24-86	1310	111ALVM	91.00
11	420156093562401	08327W01ABCC	1956	OGDEN NO 3	BOONE	09-24-86	1455	111ALVM	67.00
12	420959094001901	08527W16CCDC	1967	PILOT MOUND NO 1	BOONE	09-17-86	1100	112PLSC	30.00
13	423902092272502	09114W35DA	1983	JANESVILLE 3	BREMER	09-23-86	1000	350SLRN	120.00
14	424224092133901	09112W11DBB	1960	READLYN 2	BREMER	09-17-86	1550	350SLRN	154.00
15	424855092152701	09212W04AADD	1950	TRIPOLI NO 2	BREMER	09-22-86	0830	344WPPC	129.00
16	424319092283401	09114W03CABB		WAVERLY 5	BREMER	09-17-86	1500	340DVSL	157.00
17	422742091534801	08809W04DBA	1964	INDEPENDENCE	BUCHANAN	09-23-86	1340	350SLRN	265.00
18	423600091381501	09007W23ABB		LAMONT	BUCHANAN	09-16-86	1430	358KNKK	160.00
19	425336095144202	09337W08BBAD	1948	LINN GROVE NO 2	BUENA VISTA	11-14-85	1230	110QRNR	35.00
20	425144094590401	09335W21BADC	1959	MARTHON NO 3	BUENA VISTA	11-13-85	1430	110QRNR	170.00
21	425344095090401	09337W01DDDD	1977	SIOUX RAPIDS NO 2	BUENA VISTA	11-14-85	0930	110QRNR	36.00
22	424704092400803	09215W18BCAA	1981	CLARKSVILLE 3	BUTLER	05-28-86	1515	344CDVL	240.00
23	423401092373601	09015W33BCA	1956	NEW HARTFORD NO 2	BUTLER	05-29-86	0915	344CDVL	165.00
24	423437092471001	09016W30CBD	1955	PARKERSBURG 2	BUTLER	05-29-86	1045	344CDVL	300.00
25	423145094320301	08931W17BAB	1928	MANSON NO 2	CALHOUN	09-18-86	1330	400PCMB	1211.00
26	423255094410303	08933W01DCAB	1953	POMEROY NO 2	CALHOUN	09-18-86	1500	112PLSC	151.00
27	415435094492801	08234W17DDBA	1969	DEDHAM NO 4	CARROLL	11-19-85	1500	111SRRV	45.00
28	421114094412501	08533W09DAC	1941	LANESBORO	CARROLL	11-20-85	1045	217DKOT	1941.00
29	415808094491801	08334W28CBCC	1961	WILLEY	CARROLL	11-20-85	0900	112PLSC	43.00
30	411818095045801	07537W10DDBD	1916	LEWIS NO 1	CASS	07-31-86	1330	112PLSC	50.00
31	412706095065501	07737W21CBDB	1959	MARNE NO 3	CASS	06-19-86	1145	111HLCN	40.00
32	411502094471401	07534W32CAAA	1979	MASSENA NO 4	CASS	06-20-86	1000	111ALVM	35.00
33	412400094532001	07635W09BB	1940	WIOTA NO 1	CASS	06-19-86	1330	217DKOT	156.00
34	413605090542901	07901W36DCCB	1974	DURANT NO 3	CEDAR	09-18-86	1600	112PLSC	78.00
35	414558091074801	08002W06BC	1966	TIPTON NO 6	CEDAR	09-18-86	1430	350SLRN	455.00
36	425455093282601	09422W32CBAA	1957	MESERVEY	CERRO GORDO	05-28-86	0945	344CDVL	573.00
37	425714092320801	09414W18DDAA	1942	NASHUA NO 1	CHICKASAW	09-17-86	1200	340DVNN	160.00
38	410038093361901	07224W27BDAC	1973	WOODBURN NO 1	CLARKE	10-21-86	1545	112PLSC	33.00
39	430105095022101	09536W25ACDD	1975	GILLETT GROVE NO 1	CLAY	11-14-85	1045	112PLSC	40.00
40	425507095203902	09438W33BCDA	1967	PETERSON 2	CLAY	11-14-85	1320	112PLSC	110.00
41	423842091242501	09105W35CCC	1946	EDGEWOOD NO 2	CLAYTON	05-28-86	1345	350SLRN	269.00
42	425730091215411	09404W18BDBC	1939	FARMERSBURG NO 1	CLAYTON	05-28-86	1315	371JRDN	705.00
43	425208091135801	09303W18DAAD	1976	GARNAVILLO NO 4	CLAYTON	05-28-86	1010	364ODVCM	840.00
44	430330091264301	09505W09CBCB	1958	LUANA	CLAYTON	05-29-86	0830	364ODVCM	347.00
45	430240091110001	09503W15BD	1950	MARQUETTE	CLAYTON	05-28-86	0815	371CMBRU	452.00
46	430130091103001	09503W22DD	1952	MC GREGOR NO 6	CLAYTON	05-27-86	1630	371SLRC	116.00
47	425550091233001	09405W26ADDC	1951	ST OALF	CLAYTON	05-28-86	1130	364STPR	378.00
48	424820091324002	09206W03CC	1985	VOLGA 2	CLAYTON	05-28-86	1450	364GLEN	232.00
49	415754090230201	08305E28CA		GOOSELAKE 1	CLINTON	03-05-86	0825	364STPR	748.00
50	413723094002401	07927W28BC	1966	ADEL NO 1	DALLAS	09-25-86	1600	112PLSC	45.00
51	414130094021501	08027W31CDAA		DALLAS CENTER NO 4	DALLAS	09-25-86	1440	111ALVM	50.00
52	415055094131202	08129W10BBBA	1969	DAWSON NO 2	DALLAS	09-25-86	1100	111ALVM	33.00
53	413517094112801	07829W04ACDC	1975	DEXTER NO 1	DALLAS	09-25-86	1350	112PLSC	60.00
54	413833094161601	07929W19BAA	1954	LINDEN NO 2	DALLAS	09-25-86	1215	338KKUK	700.00
55	422834091281601	08905W31DAAB	1972	MANCHESTER NO 6	DELAWARE	05-27-86	1200	350SLRN	140.00
56	410015091093401	07203W25CBCC	1976	MEDIAPOLIS NO 4	DES MOINES	05-21-86	1655	330MDVU	146.00
57	423305091064901	08902W05CBBB	1898	NEW VIENNA NO 1	DUBUQUE	05-27-86	1000	350SLRN	180.00
58	432351094285002	09931W14BBCA	1953	ARMSTRONG NO 3	EMMET	09-23-86	1120	112PLSC	135.00
59	432801094364601	10032W22BDCD	1975	DOLLIVER NO 3	EMMET	09-23-86	1300	112PLSC	200.00
60	431750094302701	09831W21ABA	1945	RINGSTED	EMMET	09-23-86	1000	364GLEN	505.00
61	425713091373101	09407W13CBCC	1962	ELGIN NO 3	FAYETTE	09-16-86	1100	364GLEN	150.00
62	425719091483301	09408W17DABC		WEST UNION	FAYETTE	09-16-86	1220	355NIGR	45.00
63	424606091594201	09210W23BDBD	1906	WESTGATE NO 1	FAYETTE	09-16-86	1700	344CDVL	98.00
64	424044093080101	09119W19DBB	1949	GENEVA	FRANKLIN	05-28-86	1130	341APLG	160.00
65	424533093061201	09219W28BBB	1958	HANSELL NO 1	FRANKLIN	05-28-86	1300	344CDVL	470.00
66	403604095394401	06742W21DDCA	1973	HAMBURG 5	FREMONT	08-14-86	1300	111ALVM	75.00
67	404224095310601	06841W14CDBB	1973	RIVERTON 2	FREMONT	08-14-86	1100	112PLSC	57.00
68	404432095361701	06941W31BAAA	1981	SIDNEY 6	FREMONT	10-16-86	0945	111ALVM	32.00
69	405354095411402	07042W04BCBA	1968	TABOR NO 1	FREMONT	08-15-86	1145	112PLSC	61.00
70	420923094282201	08531W21CBCC	1977	CHURDAN 4	GREENE	09-18-86	1000	112PLSC	160.00

STATION NUMBER	DATE	FLOW RATE (GPM) (00058)	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	TEMPERATURE (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (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)
411246094402401	08-15-86	--	30	11.0	320	6.30	110	28	10	8.6	<0.1	72
411950094361201	08-15-86	100	120	11.0	500	6.85	180	52	13	8.9	4.3	176
412852094275101	08-18-86	7	180	12.0	545	7.15	210	67	11	15	<0.1	191
412854094275301	11-19-85	12	30	10.0	360	7.10	170	53	10	15	0.8	152
410115094362201	07-17-86	80	150	11.0	840	6.48	320	87	24	29	2.6	158
432139091125801	11-14-85	250	30	12.5	500	7.70	190	33	26	38	3.8	202
432953091172001	11-13-85	205	30	10.5	475	7.75	260	32	44	2.8	2.2	248
415944091573501	09-24-86	80	30	12.0	876	7.40	360	81	39	60	11	312
423351092092801	09-23-86	300	--	11.5	500	7.50	250	70	19	16	4.0	270
415212093520701	09-24-86	320	20	11.0	800	7.10	430	120	32	25	5.0	378
420156093562401	09-24-86	240	30	13.5	840	7.20	410	110	34	8.4	4.3	314
420959094001901	09-17-86	38	30	13.0	660	7.00	340	90	29	7.4	3.2	295
423902092272502	09-23-86	400	60	11.5	490	7.50	240	65	20	3.4	3.5	186
424224092133901	09-17-86	--	30	11.0	580	7.60	300	82	24	16	2.1	326
424855092152701	09-22-86	230	30	11.0	585	7.10	290	79	23	15	3.5	324
424319092283401	09-17-86	1500	60	12.0	590	7.50	300	80	24	8.9	0.9	232
422742091534801	09-23-86	600	10	13.0	510	7.50	270	78	19	8.0	3.6	220
423600091381501	09-16-86	90	20	11.5	490	7.50	260	73	19	5.7	0.8	204
425336095144202	11-14-85	35	20	11.0	930	6.75	460	120	39	17	3.8	358
425144094590401	11-13-85	120	20	10.0	1080	7.20	500	130	43	44	5.0	386
425344095090401	11-14-85	250	180	12.0	900	7.10	480	130	37	15	3.1	313
424704092400803	05-28-86	400	15	12.5	850	7.50	440	120	34	12	2.3	347
423401092373601	05-29-86	121	20	11.5	420	7.55	240	63	20	6.9	1.6	196
423437092471001	05-29-86	220	30	12.0	400	7.50	230	62	18	5.5	1.6	217
423145094320301	09-18-86	300	30	15.0	1650	8.40	52	18	1.8	300	1.2	73
423255094410303	09-18-86	200	30	13.0	1480	7.10	600	150	55	150	9.1	506
415435094492801	11-19-85	36	60	11.0	610	7.20	290	76	25	8.8	0.6	220
421114094412501	11-20-85	45	30	11.0	660	7.20	330	86	29	9.9	4.3	348
415808094491801	11-20-85	10	180	11.0	650	7.75	320	85	25	15	1.8	281
411818095045801	07-31-86	120	120	12.0	750	6.50	350	85	34	12	1.6	197
412706095065501	06-19-86	3	30	12.5	1200	6.50	580	150	50	13	2.6	208
411502094471401	06-20-86	25	30	12.0	419	6.58	200	60	12	9.2	1.2	200
412400094532001	06-19-86	<90	90	12.5	550	6.80	250	73	16	9.0	1.0	142
413605090542901	09-18-86	275	30	13.5	738	7.50	420	99	41	15	0.43	316
414558091074801	09-18-86	600	30	14.0	503	7.40	290	74	26	6.5	0.3	296
425455093282601	05-28-86	122	20	11.0	630	7.05	340	75	37	16	8.0	374
425714092320801	09-17-86	1500	60	11.5	640	7.20	350	94	28	12	1.9	272
410038093361901	10-21-86	--	15	12.5	635	6.70	290	88	16	12	1.4	250
430105095022101	11-14-85	35	--	11.0	900	7.10	430	120	32	10	1.0	349
425507095203902	11-14-85	103	15	11.5	1070	6.90	550	150	42	21	4.0	348
423842091242501	05-27-86	100	30	17.0	560	7.35	290	77	24	7.4	3.7	262
425730091215411	05-28-86	108	30	11.5	515	7.39	290	70	28	2.8	3.3	264
425208091135801	05-28-86	125	30	12.0	520	7.28	300	71	29	2.7	2.3	266
430330091264301	05-29-86	350	30	11.0	735	7.44	400	96	38	7.3	1.5	305
430240091110001	05-28-86	300	30	12.5	770	7.67	290	71	28	48	4.7	248
430130091103001	05-27-86	280	30	11.0	660	7.50	340	85	32	14	3.1	281
425550091233001	05-28-86	60	30	11.5	500	7.38	270	64	27	3.4	3.7	244
424820091324002	05-28-86	175	30	11.5	580	7.38	320	76	32	3.0	1.8	238
415754090230201	03-05-86	60	20	15.5	708	7.30	280	68	27	34	11	257
413723094002401	09-25-86	275	60	13.0	560	7.10	350	89	30	9.3	3.9	265
414130094021501	09-25-86	90	20	13.0	650	7.10	370	100	29	5.1	3.4	304
415055094131202	09-25-86	60	30	12.0	1000	7.40	480	130	37	21	3.8	268
413517094112801	09-25-86	150	60	12.0	650	7.20	330	86	28	6.5	3.4	240
413833094161601	09-25-86	75	60	12.0	1200	7.20	84	19	8.9	220	5.0	242
422834091281601	05-27-86	600	40	12.5	560	7.38	300	77	25	6.3	0.5	179
410015091093401	05-21-86	85	60	13.0	625	7.20	320	81	29	20	1.2	310
423305091064901	05-27-86	50	30	11.0	725	7.80	370	90	35	8.9	<0.1	297
432351094285002	09-23-86	310	30	10.0	1180	8.10	530	140	44	56	5.1	450
432801094364601	09-23-86	30	30	9.0	1550	7.30	610	160	50	110	5.2	398
431750094302701	09-23-86	113	30	10.0	1400	7.10	740	190	65	72	5.1	338
425713091373101	09-16-86	200	15	11.5	610	7.20	350	94	29	4.5	2.7	266
425719091483301	09-16-86	100	30	11.0	855	7.30	420	110	35	21	2.4	298
424606091594201	09-16-86	90	20	11.5	750	7.00	410	100	38	19	3.2	376
424044093080101	05-28-86	90	60	12.0	480	7.30	240	66	18	3.2	1.5	189
424533093061201	05-28-86	70	15	12.5	650	7.55	380	78	44	8.0	5.0	246
403604095394401	08-14-86	700	60	14.0	690	7.15	370	95	31	12	5.0	354
404224095310601	08-14-86	120	60	--	710	7.60	310	83	26	14	4.8	336
404432095361701	10-16-86	200	60	13.0	595	7.10	310	88	23	14	2.6	288
405354095411402	08-15-86	130	30	12.0	590	7.05	270	71	22	8.0	4.7	242
420923094282201	09-18-86	108	180	13.0	1250	7.40	510	120	52	97	7.6	590

STATION NUMBER	DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DISSOLVED (MG/L) (00515)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
411246094402401	08-15-86	12	32	0.15	27	181	7.50	--	--	<20	<20
411950094361201	08-15-86	9.0	30	0.75	32	240	<0.02	--	--	17000	800
412852094275101	08-18-86	16	30	0.25	24	270	4.70	--	--	<20	220
412854094275301	11-19-85	10	29	0.3	26	228	1.29	--	--	130	270
410115094362201	07-17-86	60	140	0.15	17	530	0.11	0.87	0.07	27000	3000
432139091125801	11-14-85	26	30	0.2	8.2	304	<0.02	--	--	280	<10
432953091172001	11-13-85	2.5	20	0.2	8.6	281	<0.02	--	--	330	<10
415944091573501	09-24-86	0.5	200	1.3	6.6	550	0.04	4.00	0.05	1700	20
423351092092801	09-23-86	0.5	8.8	0.6	12	266	<0.02	1.00	0.11	1300	<20
415212093520701	09-24-86	48	76	0.5	20	558	0.22	--	--	410	1200
420156093562401	09-24-86	50	69	0.2	25	484	0.47	--	--	30	80
420959094001901	09-17-86	5.5	78	0.3	31	398	0.16	--	--	2700	220
423902092272502	09-23-86	8.0	18	0.15	13	264	1.89	<0.01	0.06	<20	<20
424224092133901	09-17-86	2.0	<0.1	0.35	16	302	<0.02	--	--	1600	30
424855092152701	09-22-86	1.0	1.0	0.4	15	292	<0.02	0.84	0.20	1300	80
424319092283401	09-17-86	20	22	0.15	13	333	7.10	--	--	<20	<20
422742091534801	09-23-86	9.5	38	0.3	9.4	274	<0.02	0.16	0.04	100	<20
423600091381501	09-16-86	14	36	0.25	11	292	<0.02	--	--	1200	100
425336095144202	11-14-85	22	78	0.45	28	550	1.91	--	--	20	1300
425144094590401	11-13-85	1.5	180	0.35	33	708	<0.02	--	--	2000	460
425344095090401	11-14-85	20	94	0.3	27	561	9.77	--	--	<10	10
424704092400803	05-28-86	23	78	0.25	13	458	<0.02	--	--	1100	80
423401092373601	05-29-86	17	23	0.65	12	218	<0.02	--	--	360	100
423437092471001	05-29-86	0.5	20	0.75	11	234	<0.02	--	--	350	50
423145094320301	09-18-86	340	110	4.6	8.0	806	<0.02	0.34	0.03	40	20
423255094410303	09-18-86	11	400	0.35	28	1080	0.07	2.40	0.03	3100	290
415435094492801	11-19-85	10	38	0.3	19	338	9.10	--	--	40	<10
421114094412501	11-20-85	1.0	28	0.4	25	343	<0.02	1.00	0.01	11000	170
415808094491801	11-20-85	3.0	62	0.35	25	379	0.04	--	--	3800	280
411818095045801	07-31-86	45	49	0.25	22	496	18.9	--	--	<20	40
412706095065501	06-19-86	84	170	0.25	28	792	26.6	--	--	40	<20
411502094471401	06-20-86	8.5	9.2	0.25	31	305	0.20	--	--	1500	190
412400094532001	06-19-86	18	36	0.3	21	294	12.0	--	--	30	<20
413605090542901	09-18-86	21	53	0.2	19	438	6.88	--	--	<20	<20
414558091074801	09-18-86	1.0	1.5	0.3	18	278	0.02	--	--	720	30
425455093282601	05-28-86	3.5	25	1.8	8.8	396	<0.02	--	--	130	<20
425714092320801	09-17-86	24	22	0.2	13	346	4.66	--	--	<20	<20
410038093361901	10-21-86	8.0	68	0.15	21	416	0.02	0.44	0.74	--	1300
430105095022101	11-14-85	30	42	0.4	25	505	4.00	--	--	<10	10
425507095203902	11-14-85	46	150	0.35	38	676	<0.02	--	--	740	650
423842091242501	05-27-86	13	16	0.3	9.8	314	<0.02	--	--	1900	70
425730091215411	05-28-86	1.0	21	0.35	9.0	314	<0.02	--	--	1200	<20
425208091135801	05-28-86	1.0	18	0.3	9.0	232	<0.02	--	--	<20	<20
430330091264301	05-29-86	20	78	0.3	19	450	<0.02	--	--	130	<20
430240091110001	05-28-86	66	53	0.25	8.5	442	<0.02	--	--	180	<20
430130091103001	05-27-86	28	32	0.15	12	396	2.00	--	--	<20	<20
425550091233001	05-28-86	2.0	30	0.45	12	292	<0.02	--	--	50	<20
424820091324002	05-28-86	10	35	0.3	13	360	6.70	--	--	<20	<20
415754090230201	03-05-86	36	60	0.35	7.4	421	0.04	--	--	170	<20
413723094002401	09-25-86	60	52	0.35	19	428	0.11	--	--	1400	350
414130094021501	09-25-86	14	34	0.25	23	392	6.44	--	--	320	60
415055094131202	09-25-86	52	110	0.25	23	520	6.44	--	--	40	30
413517094112801	09-25-86	14	54	3.6	25	364	1.58	--	--	20	70
413833094161601	09-25-86	32	220	5.2	7.6	644	<0.02	--	--	40	<20
422834091281601	05-27-86	16	44	0.15	12	354	10.4	--	--	<20	<20
410015091093401	05-21-86	5.0	18	0.5	11	320	<0.02	--	--	550	300
423305091064901	05-27-86	32	24	0.2	24	438	5.30	--	--	<20	<20
432351094285002	09-23-86	0.5	190	0.25	29	714	<0.02	--	--	2200	420
432801094364601	09-23-86	0.5	400	0.25	21	1060	<0.02	--	--	2800	810
431750094302701	09-23-86	2.0	510	0.35	15	1100	<0.02	--	--	260	370
425713091373101	09-16-86	14	49	0.35	10	362	1.29	--	--	<20	<20
425719091483301	09-16-86	54	34	0.2	20	490	11.1	--	--	<20	<20
424606091594201	09-16-86	<0.05	57	0.35	14	428	0.36	--	--	1800	20
424044093080101	05-28-86	8.5	36	0.4	13	218	2.40	--	--	<20	<20
424533093061201	05-28-86	2.0	160	2.2	10	410	<0.02	--	--	420	<20
403604095394401	08-14-86	12	55	0.35	29	488	<0.02	--	--	5700	400
404224095310601	08-14-86	4.0	32	0.4	22	360	0.16	--	--	70	200
404432095361701	10-16-86	6.0	40	0.3	19	250	0.07	0.09	0.23	1100	230
405354095411402	08-15-86	6.0	34	0.25	21	328	3.30	--	--	20	<20
420923094282201	09-18-86	2.0	120	0.25	31	808	0.11	2.90	0.02	2600	80

STATION NUMBER	DATE	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)	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)
411246094402401	08-15-86	<10	110	<1	<10	<10	<10	<1.0	<10	<10	<10
411950094361201	08-15-86	10	290	<1	<10	<10	<10	<1.0	<10	<10	<10
412852094275101	08-18-86	<10	180	<1	<10	<10	<10	<1.0	<10	<10	<10
412854094275301	11-19-85	<10	400	<1	<10	10	<10	<1.0	<10	<10	10
410115094362201	07-17-86	<10	230	<1	<10	<10	<10	<1.0	<10	<10	<10
432139091125801	11-14-85	<10	200	<1	<10	10	<10	<1.0	<10	<10	<10
432953091172001	11-13-85	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<10
415944091573501	09-24-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
423351092092801	09-23-86	<10	240	<1	<10	<10	<10	<1.0	<10	<10	<10
415212093520701	09-24-86	<10	220	<1	<10	<10	<10	<1.0	<10	<10	<10
420156093562401	09-24-86	<10	130	<1	<10	<10	<10	<1.0	<10	<10	<10
420959094001901	09-17-86	<10	360	<1	<10	<10	<10	<1.0	<10	<10	<10
423902092272502	09-23-86	<10	90	<1	<10	<10	<10	<1.0	<10	<10	<10
424224092133901	09-17-86	<10	360	<1	<10	30	<10	<1.0	<10	<10	<10
424855092152701	09-22-86	<10	320	<1	<10	30	<10	<1.0	<10	<10	<10
424319092283401	09-17-86	<10	90	<1	<10	<10	<10	<1.0	<10	<10	<10
422742091534801	09-23-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
423600091381501	09-16-86	<10	120	<1	<10	<10	<10	<1.0	<10	<10	<10
425336095144202	11-14-85	<10	200	<1	<10	10	<10	<1.0	<10	<10	10
425144094590401	11-13-85	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	<10
425344095090401	11-14-85	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<10
424704092400803	05-28-86	<10	230	<1	<10	<10	<10	<1.0	<10	<10	20
423401092373601	05-29-86	<10	290	<1	<10	<10	<10	<1.0	<10	<10	<10
423437092471001	05-29-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
423145094320301	09-18-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
423255094410303	09-18-86	10	<50	<1	<10	30	<10	<1.0	<10	<10	<10
415435094492801	11-19-85	<10	400	<1	<10	10	<10	<1.0	<10	<10	10
421114094412501	11-20-85	80	700	<1	<10	<10	<10	<1.0	<10	<10	<10
415808094491801	11-20-85	<10	200	<1	<10	<10	<10	<1.0	<10	<10	10
411818095045801	07-31-86	<10	230	<1	<10	<10	<10	<1.0	<10	<10	<10
412706095065501	06-19-86	<10	140	<1	<10	20	<10	<1.0	<10	<10	40
411502094471401	06-20-86	<10	220	<1	<10	<10	<10	<1.0	<10	<10	<20
412400094532001	06-19-86	<10	170	<1	<10	<10	<10	<1.0	<10	<10	20
413605090542901	09-18-86	<10	120	<1	<10	<10	<10	<1.0	<10	<10	<10
414558091074801	09-18-86	<10	590	<1	<10	<10	<10	<1.0	<10	<10	<10
425455093282601	05-28-86	<10	120	<1	<10	<10	<10	<1.0	<10	<10	<10
425714092320801	09-17-86	<10	90	<1	<10	30	<10	<1.0	<10	<10	<10
410038093361901	10-21-86	<10	260	<1	<10	<10	<10	<1.0	<10	<10	<20
430105095022101	11-14-85	<10	200	<1	<10	10	<10	<1.0	<10	<10	10
425507095203902	11-14-85	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	10
423842091242501	05-27-86	<10	180	<1	<10	<10	<10	<1.0	<10	<10	140
425730091215411	05-28-86	<10	100	<1	<10	<10	<10	1.0	<10	<10	<10
425208091135801	05-28-86	<10	150	<1	<10	<10	<10	<1.0	<10	<10	20
430330091264301	05-29-86	<10	90	<1	<10	<10	<10	<1.0	<10	<10	70
430240091110001	05-28-86	<10	60	<1	<10	<10	<10	<1.0	<10	<10	<10
430130091103001	05-27-86	<10	70	<1	<10	<10	<10	<1.0	<10	<10	<10
425550091233001	05-28-86	<10	70	<1	10	<10	<10	<1.0	<10	<10	30
424820091324002	05-28-86	<10	60	<1	<10	<10	<10	<1.0	<10	<10	<10
415754090230201	03-05-86	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	<10
413723094002401	09-25-86	<10	300	<1	<10	<10	<10	<1.0	<10	<10	<10
414130094021501	09-25-86	<10	120	<1	<10	<10	<10	<1.0	<10	<10	<10
415055094131202	09-25-86	<10	180	<1	<10	<10	<10	<1.0	<10	<10	<10
413517094112801	09-25-86	<10	230	<1	<10	<10	<10	<1.0	<10	<10	<10
413833094161601	09-25-86	<10	<50	<1	<10	30	<10	<1.0	<10	<10	<10
422834091281601	05-27-86	<10	80	<1	<10	<10	<10	<1.0	<10	<10	50
410015091093401	05-21-86	<10	500	<1	<10	<10	<10	<1.0	<10	<10	10
423305091064901	05-27-86	<10	110	<1	<10	<10	<10	<1.0	<10	<10	<10
432351094285002	09-23-86	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	<10
432801094364601	09-23-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
431750094302701	09-23-86	<10	<50	<1	<10	40	<10	<1.0	<10	<10	20
425713091373101	09-16-86	<10	80	<1	<10	<10	<10	<1.0	<10	<10	<10
425719091483301	09-16-86	<10	130	<1	<10	<10	<10	<1.0	<10	<10	<10
424606091594201	09-16-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
424044093080101	05-28-86	<10	220	<1	<10	<10	<10	<1.0	<10	<10	<10
424533093061201	05-28-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
403604095394401	08-14-86	<10	320	<1	<10	<10	<10	<1.0	<10	<10	<10
404224095310601	08-14-86	<10	350	<1	<10	<10	<10	<1.0	<10	<10	20
404432095361701	10-16-86	<10	210	<1	<10	<10	<10	<1.0	<10	<10	<20
405354095411402	08-15-86	<10	230	<1	<10	<10	<10	<1.0	<10	<10	<10
420923094282201	09-18-86	40	90	<1	<10	40	<10	<1.0	<10	<10	<10

STATION NUMBER	DATE	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)	ATRA-ZINE, TOTAL (UG/L) (39630)	CYAN-AZINE TOTAL (UG/L) (81757)	METRI-BUZIN IN WHOLE WATER (UG/L) (81408)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	METOLA-CHLOR IN WHOLE WATER (UG/L) (39356)	TRI-FLURA-LIN TOTAL RECOVER (UG/L) (39030)
411246094402401	08-15-86	0.5	4.0	--	--	--	--	--	--	--	--
411950094361201	08-15-86	1.2	1.0	--	--	0.28	0.1	<0.1	<0.1	<0.1	<0.1
412852094275101	08-18-86	<0.2	3.0	--	--	0.74	<0.1	<0.1	<0.1	<0.1	<0.1
412854094275301	11-19-85	0.9	1.0	--	--	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
410115094362201	07-17-86	1.8	5.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
432139091125801	11-14-85	8.1	--	5.6	2.4	--	--	--	--	--	--
432953091172001	11-13-85	12	5.0	4.4	3.6	--	--	--	--	--	--
415944091573501	09-24-86	4.9	10	3.2	<0.9	--	--	--	--	--	--
423351092092801	09-23-86	0.8	7.0	--	--	--	--	--	--	--	--
415212093520701	09-24-86	2.5	<1.1	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420156093562401	09-24-86	2.1	6.0	--	--	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420959094001901	09-17-86	<0.3	<1.1	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423902092272502	09-23-86	0.8	2.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424224092133901	09-17-86	0.9	<1.1	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424855092152701	09-22-86	1.3	5.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424319092283401	09-17-86	0.3	1.0	--	--	0.31	<0.1	<0.1	<0.1	<0.1	<0.1
422742091534801	09-23-86	1.5	6.0	--	--	--	--	--	--	--	--
423600091381501	09-16-86	0.9	<1.1	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
425336095144202	11-14-85	4.1	3.0	0.4	1.0	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
425144094590401	11-13-85	2.4	9.0	--	--	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
425344095090401	11-14-85	2.5	1.0	--	--	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
424704092400803	05-28-86	2.2	1.6	--	--	--	--	--	--	--	--
423401092373601	05-29-86	1.7	5.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423437092471001	05-29-86	<0.2	<0.8	--	--	--	--	--	--	--	--
423145094320301	09-18-86	1.0	5.0	--	--	--	--	--	--	--	--
423255094410303	09-18-86	4.0	13	1.3	1.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
415435094492801	11-19-85	1.4	2.0	--	--	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
421114094412501	11-20-85	12	10	4.4	2.2	--	--	--	--	--	--
415808094491801	11-20-85	<0.2	<0.7	--	--	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
411818095045801	07-31-86	3.8	14	0.6	2.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
412706095065501	06-19-86	2.9	7.0	--	--	--	--	--	--	--	--
411502094471401	06-20-86	1.7	<0.7	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
412400094532001	06-19-86	0.4	3.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
413605090542901	09-18-86	2.5	3.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
414558091074801	09-18-86	1.0	6.0	--	--	--	--	--	--	--	--
425455093282601	05-28-86	1.2	7.0	--	--	--	--	--	--	--	--
425714092320801	09-17-86	<0.2	<1.1	--	--	0.18	<0.1	<0.1	<0.1	<0.1	<0.1
410038093361901	10-21-86	3.8	1.0	1.0	0.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
430105095022101	11-14-85	7.9	4.0	<0.2	1.0	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
425507095203902	11-14-85	0.5	<0.7	--	--	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
423842091242501	05-27-86	5.7	5.0	1.7	<0.9	--	--	--	--	--	--
425730091215411	05-28-86	4.0	4.0	2.8	<0.9	--	--	--	--	--	--
425208091135801	05-28-86	3.4	<1.0	2.0	<0.9	--	--	--	--	--	--
430330091264301	05-29-86	11	5.0	1.5	1.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
430240091110001	05-28-86	2.3	11	2.1	4.3	--	--	--	--	--	--
430130091103001	05-27-86	0.4	12	--	--	--	--	--	--	--	--
425550091233001	05-28-86	1.5	7.0	--	--	--	--	--	--	--	--
424820091324002	05-28-86	1.8	1.0	--	--	--	--	--	--	--	--
415754090230201	03-05-86	12	22	9.5	1.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
413723094002401	09-25-86	1.4	4.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
414130094021501	09-25-86	1.0	6.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
415055094131202	09-25-86	0.4	<1.1	--	--	0.74	<0.1	<0.1	<0.1	<0.1	<0.1
413517094112801	09-25-86	0.9	<1.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
413833094161601	09-25-86	3.1	1.0	2.5	<0.9	--	--	--	--	--	--
422834091281601	05-27-86	<0.2	3.0	--	--	0.64	<0.1	<0.1	0.1	0.17	<0.1
410015091093401	05-21-86	8.0	5.0	1.2	<0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423305091064901	05-27-86	0.7	<0.8	--	--	0.38	<0.1	<0.1	<0.1	<0.1	<0.1
432351094285002	09-23-86	<0.2	4.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
432801094364601	09-23-86	2.7	11	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
431750094302701	09-23-86	3.0	6.0	4.3	<0.9	--	--	--	--	--	--
425713091373101	09-16-86	2.4	7.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
425719091483301	09-16-86	0.8	<1.0	--	--	0.25	<0.1	<0.1	<0.1	<0.1	<0.1
424606091594201	09-16-86	2.0	<1.2	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424044093080101	05-28-86	0.7	<0.8	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424533093061201	05-28-86	1.5	6.0	--	--	--	--	--	--	--	--
403604095394401	08-14-86	1.7	5.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
404224095310601	08-14-86	59	17	1.2	<0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
404432095361701	10-16-86	4.5	2.0	0.5	1.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
405354095411402	08-15-86	7.2	11	0.5	<0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420923094282201	09-18-86	0.7	8.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

STATION NUMBER	DATE	CHLOR-AMBEN TOTAL (UG/L) (82051)	DICAMBA (MEDIBEN) (BANVEL D) TOTAL (UG/L) (82052)	2,4-D, TOTAL (UG/L) (39730)	SILVEX, TOTAL (UG/L) (39760)	CARBO-FURAN (UG/L) (81405)	CHLOR-PYRIFOS TOTAL (UG/L) (81403)	ETHO-PROP TOTAL (UG/L) (81758)	DYFO-NATE (UG/L) (81294)	PHORATE OTAL (UG/L) (39023)	TERBU-FOS (UG/L) (82088)
411246094402401	08-15-86	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--	--
411950094361201	08-15-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
412852094275101	08-18-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
412854094275301	11-19-85	<0.07	<0.07	<0.07	<0.05	--	<0.1	<0.1	<0.1	<0.1	<0.1
410115094362201	07-17-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
432139091125801	11-14-85	--	--	--	--	--	--	--	--	--	--
432953091172001	11-13-85	--	--	--	--	--	--	--	--	--	--
415944091573501	09-24-86	--	--	--	--	--	--	--	--	--	--
423351092092801	09-23-86	--	--	--	--	--	--	--	--	--	--
415212093520701	09-24-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420156093562401	09-24-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420959094001901	09-17-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423902092272502	09-23-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424224092133901	09-17-86	<0.1	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1
424855092152701	09-22-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424319092283401	09-17-86	<0.1	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1
422742091534801	09-23-86	--	--	--	--	--	--	--	--	--	--
423600091381501	09-16-86	<0.1	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1
425336095144202	11-14-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
425144094590401	11-13-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
425344095090401	11-14-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
424704092400803	05-28-86	--	--	--	--	--	--	--	--	--	--
423401092373601	05-29-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423437092471001	05-29-86	--	--	--	--	--	--	--	--	--	--
423145094320301	09-18-86	--	--	--	--	--	--	--	--	--	--
423255094410303	09-18-86	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
415435094492801	11-19-85	--	--	--	--	--	--	<0.1	<0.1	<0.1	--
421114094412501	11-20-85	--	--	--	--	--	--	--	--	--	--
415808094491801	11-20-85	--	--	--	--	--	--	<0.1	<0.1	<0.1	--
411818095045801	07-31-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
412706095065501	06-19-86	--	--	--	--	--	--	--	--	--	--
411502094471401	06-20-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
412400094532001	06-19-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
413605090542901	09-18-86	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1
414558091074801	09-18-86	--	--	--	--	--	--	--	--	--	--
425455093282601	05-28-86	--	--	--	--	--	--	--	--	--	--
425714092320801	09-17-86	<0.1	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1
410038093361901	10-21-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
430105095022101	11-14-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
425507095203902	11-14-85	<0.07	<0.07	<0.07	<0.05	--	<0.1	<0.1	<0.1	<0.1	<0.1
423842091242501	05-27-86	--	--	--	--	--	--	--	--	--	--
425730091215411	05-28-86	--	--	--	--	--	--	--	--	--	--
425208091135801	05-28-86	--	--	--	--	--	--	--	--	--	--
430330091264301	05-29-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
430240091110001	05-28-86	--	--	--	--	--	--	--	--	--	--
430130091103001	05-27-86	--	--	--	--	--	--	--	--	--	--
425550091233001	05-28-86	--	--	--	--	--	--	--	--	--	--
424820091324002	05-28-86	--	--	--	--	--	--	--	--	--	--
415754090230201	03-05-86	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
413723094002401	09-25-86	<0.1	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1
414130094021501	09-25-86	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1
415055094131202	09-25-86	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1
413517094112801	09-25-86	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1
413833094161601	09-25-86	--	--	--	--	--	--	--	--	--	--
422834091281601	05-27-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
410015091093401	05-21-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423305091064901	05-27-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
432351094285002	09-23-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
432801094364601	09-23-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
431750094302701	09-23-86	--	--	--	--	--	--	--	--	--	--
425713091373101	09-16-86	<0.1	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1
425719091483301	09-16-86	<0.1	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1
424606091594201	09-16-86	<0.1	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1
424044093080101	05-28-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424533093061201	05-28-86	--	--	--	--	--	--	--	--	--	--
403604095394401	08-14-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
404224095310601	08-14-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
404432095361701	10-16-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
405354095411402	08-15-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420923094282201	09-18-86	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

MAP STATION NUMBER	STATION NUMBER	LOCAL WELL NUMBER	DATE	LOCAL WELL NAME	COUNTY	SAMPLE DATE	SAMPLE TIME	GEO-LOGIC UNIT	DEPTH OF WELL (FEET)
71	420632094143001	08429W04CCBB	1980	DANA NO 1	GREENE	09-18-86	1100	112BVCL	186.00
72	420953094151201	08529W20BAAD	1973	PATON 2	GREENE	09-17-86	1430	320PSLV	400.00
73	421327092492201	08617W34BB	1978	BEAMAN 2	GRUNDY	11-13-85	0930	330MSSP	125.00
74	421856092355101	08715W28DBDD	1978	REINBECK 3	GRUNDY	11-13-85	1325	344CDVL	420.00
75	421902093344701	08723W30CBB	1948	ELLSWORTH 1 (NORTH)	HAMILTON	07-21-86	1445	339KDRK	365.00
76	425610093473901	09425W28AADA	1958	KANAWHA NO 2	HANCOCK	06-03-86	0930	330MSSP	200.00
77	431350093544201	09726W10CBBD	1948	WODEN NO 1	HANCOCK	06-03-86	1055	361MQKT	531.00
78	423036093163401	08921W13BABD	1957	IOWA FALLS 5	HARDIN	06-04-86	1045	330MSSP	230.00
79	421856093260101	08722W29DBCB	1957	RADCLIFFE NO 3	HARDIN	06-04-86	1220	330MSSP	365.00
80	421544093002201	08619W13ACAA	1955	WHITTEN 1	HARDIN	11-13-85	1035	330MSSP	188.00
81	415119095361601	08141W03DBBD	1984	DUNLAP 3	HARRISON	10-23-85	1200	111ALVM	90.00
82	413819095471101	07942W19CBAB	1979	LOGAN NO 7	HARRISON	10-22-85	1315	111BRRV	57.00
83	413323095533101	07844W15CABC	1964	MISSOURI VALLEY NO 1	HARRISON	10-21-85	1300	111ALVM	90.00
84	413715096003102	07944W30DCAB	1952	MODALE NO 2	HARRISON	10-21-85	1145	111ALVM	96.00
85	414236096012501	08045W25DABD	1951	MONDAMIN NO 2	HARRISON	10-21-85	1020	111ALVM	90.00
86	414500095420002	08042W14AACC	1936	WOODBINE NO 1	HARRISON	10-22-85	1040	217DKOT	90.00
87	431443092261401	09714W01DDAB	1914	ELMA NO 1	HOWARD	09-17-86	1200	112PLSC	150.00
88	414514092105801	08012W12ADDD	1979	LADORA NO 2	IOWA	09-22-86	1115	112PLSC	70.00
89	413501092001101	07810W03CCCC	1970	PARNELL NO 2	IOWA	09-19-86	1440	112PLSC	364.00
90	413930092002701	07910W09DDD		WILLIAMSBURG 4	IOWA	09-19-86	1300	112PLSC	160.00
91	420310090190301	08406E30BBD	1983	MILES 2	JACKSON	03-05-86	1100	364GLEN	605.00
92	420247090234201	08405E32AAAD	1965	PRESTON NO 2	JACKSON	03-05-86	0940	364STPR	697.00
93	414954093121202	08120W17BADD	1970	BAXTER NO 2	JASPER	09-23-86	1330	112PLSC	58.00
94	414028093154502	07921W02CDD		PRAIRIE CITY 1	JASPER	09-23-86	1130	111ALVM	51.00
95	414110091352201	07906W06BAAA	1975	CORALVILLE NO 6	JOHNSON	09-08-86	1020	112PLSC	86.00
96	415835090573801	08301W21DA		OXFORD JUNCTION	JONES	09-18-86	1030	111ALVM	30.00
97	420331091000701	08401W30A		WYOMING NO 1	JONES	09-18-86	1230	355GOWR	260.00
98	411849092115401	07512W12CBC	1958	SIGOURNEY NO 5	KEOKUK	03-04-86	1015	111ALVM	32.00
99	403839091333801	06806W33CBB	1969	DONNELLSON NO 4	LEE	05-21-86	1115	371JRDN	1850.00
100	420007091411801	08307W17BDB	1964	CEDAR RAPIDS WEST 1	LINN	02-20-86	1000	111ALVM	64.00
101	415959091433101	08308W13CAC	1971	CEDAR RAPIDS SEM. 9	LINN	02-20-86	1350	111ALVM	58.00
102	421138091471801	08508W09BAB	1964	CENTER POINT (NORTH)	LINN	09-22-86	1315	344SOLN	49.00
103	415221091350801	08206W31ACA		ELY	LINN	09-08-86	1230	350SLRN	415.00
104	421723091465002	08608W04DCD		WALKER NO 2	LINN	02-20-86	1045	371JRDN	1525.00
105	432031096175301	09846W05AAC	1979	ALVORD 3	LYON	10-07-85	1345	111ALVM	37.00
106	431646096142601	09846W26ADC	1967	DOON NO 3	LYON	10-09-85	0900	110QRNR	35.00
107	432018095594101	09844W01BCD	1971	GEORGE 4	LYON	10-08-85	1050	110QRNR	37.00
108	432608096201502	10047W36DC		LESTER 3	LYON	10-07-85	1530	111ALVM	36.00
109	432622096101901	10045W33CBA	1925	ROCK RAPIDS NO 2	LYON	10-08-85	0830	111ALVM	38.00
110	411047093493301	07426W27DAD		TRURO NO 2	MADISON	03-06-86	1245	111ALVM	450.00
111	411230092262201	07414W14CDA	1971	FREMONT 4	MAHASKA	09-10-86	0745	111ALVM	72.00
112	412938092380201	07715W07BAB	1960	NEW SHARON NO 1	MAHASKA	09-08-86	1635	111ALVM	65.00
113	412117092392301	07616W25CBDA	1974	OSKALOOSA 22	MAHASKA	09-10-86	0940	111ALVM	50.00
114	411855092552101	07518W10BDCA	1977	HARVEY NO 1	MARION	09-10-86	1130	111ALVM	79.00
115	411940093060101	07520W01DAAA	1961	KNOXVILLE NO 1	MARION	09-10-86	1320	300PLZC	2280.00
116	420613092593601	08418W07BACA		ALBION NO 2	MARSHALL	09-24-86	1115	111ALVM	26.00
117	420648093092101	08420W02CBBC	1954	CLEMENS NO 1	MARSHALL	06-17-86	1430	112PLSC	47.00
118	420020092465001	08317W13BA	1955	LEGRAND 2	MARSHALL	09-24-86	1015	339PPCH	95.00
119	410113095242901	07240W23DACC	1956	EMERSON 2	MILLS	06-09-86	1245	112PLSC	117.00
120	410114095300001	06841W14CDBB	1965	HASTINGS 1	MILLS	08-19-86	1530	111ALVM	53.00
121	410830095253901	07340W10ACAA	1978	HENDERSON 2	MILLS	08-21-86	1530	111ALVM	66.00
122	410007095330501	07241W27CDCC	1978	MALVERN 11	MILLS	06-09-86	1030	111ALVM	56.00
123	410656095380202	07342W23AAAC	1978	SILVER CITY 3	MILLS	06-18-86	1215	111ALVM	40.00
124	415558096044901	08245W09ADAD	1964	BLENCOE NO 1	MONONA	10-23-85	1115	111ALVM	100.00
125	420420095545702	08444W24CAAC	1963	CASTANA TOWN NO 2	MONONA	10-31-85	1200	111ALVM	58.00
126	420955095475601	08543W24BDBA	1973	MAPLETON TOWN NO 5	MONONA	10-31-85	1315	111ALVM	68.00
127	415518095510002	08243W09DDCD	1957	MOORHEAD TOWN	MONONA	10-30-85	0950	112PLSC	76.00
128	420140096054001	08345W04CBDB	1963	ONAWA NO 1 (OLD NO 5)	MONONA	11-27-85	1030	111ALVM	128.00
129	415901095465601	08342W19CACC	1974	SOLDIER (SHALLOW WELL)	MONONA	10-30-85	1130	112PLSC	80.00
130	420241095422001	08442W35CABB	1974	UTE NO 3	MONONA	10-30-85	1330	111SDRV	60.00
131	420735096085701	08446W01BABC	1974	WHITING (WEST WELL)	MONONA	10-23-85	1320	111ALVM	110.00
132	430013095385902	09541W35DBA	1978	PAULLINA 5	O'BRIEN	11-20-85	1215	111ALVM	65.00
133	430517095364602	09640W31DBCD		PRIMGHAR NO 3	O'BRIEN	11-20-85	1100	111ALVM	24.00
134	431045095413401	09741W33ACCC	1980	SANBORN 4	O'BRIEN	11-19-85	1515	112PLSC	75.50
135	431159095500901	09742W29BABA	1959	SHELDON NO 8	O'BRIEN	11-20-85	0830	111ALVM	35.00
136	431203095513001	09742W19CCDC	1979	SHELDON 10	O'BRIEN	11-20-85	0930	111ALVM	39.00
137	432646095260201	10039W27DCDB	1960	HARRIS	OSCEOLA	11-19-85	1215	112PLSC	90.00
138	431703095272401	09839W28ABBB	1973	MELVIN NO 2	OSCEOLA	11-19-85	1330	110QRNR	40.00
139	404957095183501	07039W27DDAB	1982	ESSEX 5	PAGE	08-14-86	0900	111ALVM	44.00
140	404635095224901	06939W18CBDA	1954	SHENANDOAH 17	PAGE	08-14-86	1600	111ALVM	73.00

STATION NUMBER	DATE	FLOW RATE (GPM) (00058)	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	TEMPERATURE (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (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)
420632094143001	09-18-86	30	15	12.5	990	7.55	420	110	36	86	5.6	546
420953094151201	09-17-86	100	30	14.0	1130	6.90	440	110	40	87	12	432
421327092492201	11-13-85	--	40	11.0	740	7.50	390	90	39	14	3.3	343
421856092355101	11-13-85	280	90	10.0	944	7.30	520	130	48	12	3.8	216
421902093344701	07-21-86	600	15	13.0	650	7.20	290	68	29	42	5.0	356
425610093473901	06-03-86	100	20	11.5	720	7.15	370	94	32	29	4.7	380
431350093544201	06-03-86	150	30	11.0	620	7.05	310	78	28	17	4.7	315
423036093163401	06-04-86	250	30	11.5	730	6.90	360	93	32	8.3	3.2	316
421856093260101	06-04-86	--	20	12.5	620	7.10	310	83	26	16	0.2	317
421544093002201	11-13-85	50	30	10.0	635	7.20	340	84	31	20	3.3	397
415119095361601	10-23-85	300	60	9.0	750	7.00	410	110	34	11	2.7	329
413819095471101	10-22-85	100	60	9.0	950	6.90	500	130	43	15	4.8	390
413323095533101	10-21-85	--	--	9.0	1120	7.20	550	130	54	37	5.5	410
413715096003102	10-21-85	100	60	8.5	860	7.30	390	100	33	18	5.3	408
414236096012501	10-21-85	90	60	9.0	1340	7.15	660	170	56	45	7.2	527
414500095420002	10-22-85	100	60	8.0	960	7.40	430	110	37	50	5.6	319
431443092261401	09-17-86	--	30	11.0	570	7.20	310	85	23	9.0	1.1	203
414514092105801	09-22-86	300	10	14.0	950	7.60	330	84	30	97	4.8	373
413501092001101	09-19-86	200	60	16.0	1300	7.20	580	140	55	140	5.2	255
413930092002701	09-19-86	500	15	13.0	700	7.60	210	53	18	92	4.7	393
420310090190301	03-05-86	220	10	15.0	663	7.40	320	75	32	31	9.5	260
420247090234201	03-05-86	250	25	10.0	662	7.40	310	75	31	28	9.5	262
414954093121202	09-23-86	100	30	12.0	600	7.40	330	84	28	12	1.8	256
414028093154502	09-23-86	150	10	12.5	604	7.40	320	86	26	13	3.3	250
414110091352201	09-08-86	320	1440	13.0	640	7.20	350	89	32	9.3	0.3	330
415835090573801	09-18-86	150	60	12.0	603	7.80	330	86	29	7.4	2.9	270
420331091000701	09-18-86	120	120	12.5	638	7.70	360	92	31	8.5	1.2	346
411849092115401	03-04-86	80	30	12.5	598	7.20	290	81	21	12	0.9	228
403839091333801	05-21-86	100	30	23.0	2320	7.50	290	70	29	380	17	242
420007091411801	02-20-86	--	60	9.5	593	7.30	280	76	23	8.2	2.9	240
415959091433101	02-20-86	--	1440	10.5	600	7.30	280	74	24	11	3.5	218
421138091471801	09-22-86	100	300	14.0	675	7.05	300	99	14	22	4.3	202
415221091350801	09-08-86	215	30	11.5	483	7.40	270	72	22	5.0	0.7	232
421723091465002	02-20-86	240	10	11.0	432	7.30	220	51	23	7.7	2.9	226
432031096175301	10-07-85	60	60	9.0	1180	7.40	570	150	48	39	4.5	310
431646096142601	10-09-85	200	60	9.0	860	7.50	460	120	39	14	3.8	265
432018095594101	10-08-85	180	60	9.0	760	7.45	400	100	37	12	1.5	265
432608096201502	10-07-85	45	30	9.0	1190	7.00	630	170	50	30	3.1	293
432622096101901	10-08-85	--	--	9.0	810	7.40	420	110	35	14	3.0	268
411047093493301	03-06-86	--	120	12.5	505	6.80	230	72	11	19	0.4	217
411230092262201	09-10-86	68	45	13.0	634	7.10	320	92	22	19	2.3	360
412938092380201	09-08-86	170	20	11.5	531	7.40	270	68	24	11	2.3	240
412117092392301	09-10-86	--	60	18.5	595	7.60	310	83	26	9.6	3.7	254
411855092552101	09-10-86	35	20	14.0	1100	7.20	610	200	26	12	2.0	228
411940093060101	09-10-86	920	300	23.0	1050	7.40	260	62	26	120	17	260
420613092593601	09-24-86	75	60	13.0	648	7.30	350	92	30	13	1.1	280
420648093092101	06-17-86	--	15	11.5	601	7.60	340	95	26	6.3	2.7	314
420020092465001	09-24-86	700	20	13.0	670	7.40	330	87	27	19	3.0	234
410113095242901	06-09-86	150	300	11.5	560	7.11	290	85	19	10	1.3	257
410114095300001	08-19-86	--	30	13.0	750	6.70	310	82	26	19	4.4	223
410830095253901	08-21-86	--	--	12.5	830	6.98	390	100	33	14	4.6	326
410007095330501	06-09-86	240	90	11.5	740	7.20	370	100	28	11	4.3	296
410656095380202	06-18-86	80	30	12.5	990	7.03	490	140	35	20	3.7	304
415558096044901	10-23-85	90	60	8.0	1220	7.15	630	160	56	36	7.6	556
420420095545702	10-31-85	--	120	11.5	830	7.30	400	100	36	10	5.0	334
420955095475601	10-31-85	200	120	12.0	810	7.20	410	110	33	22	3.8	311
415518095510002	10-30-85	125	120	12.0	860	7.30	430	110	38	14	8.4	368
420140096054001	11-27-85	600	60	8.0	890	7.20	460	130	33	21	6.0	412
415901095465601	10-30-85	100	90	12.0	1670	7.50	570	150	47	130	9.6	250
420241095422001	10-30-85	120	45	11.5	850	7.00	470	130	35	9.7	3.3	320
420735096085701	10-23-85	90	60	9.0	1100	7.20	540	140	45	33	6.4	448
430013095385902	11-20-85	350	15	9.0	750	7.10	410	110	32	11	3.0	316
430517095364602	11-20-85	60	60	9.0	700	7.30	390	100	35	7.1	<0.1	328
431045095413401	11-19-85	275	45	9.0	890	7.05	460	120	38	16	3.9	356
431159095500901	11-20-85	200	24	10.0	775	7.25	400	100	37	13	2.2	284
431203095513001	11-20-85	185	1440	12.0	870	7.10	410	100	39	19	1.7	316
432646095260201	11-19-85	--	15	9.0	2300	7.55	1300	340	100	48	7.8	335
431703095272401	11-19-85	85	25	9.5	680	7.10	350	88	31	6.7	2.3	242
404957095183501	08-14-86	100	90	12.0	440	7.12	200	54	16	7.8	3.7	150
404635095224901	08-14-86	150	60	13.5	980	7.75	450	120	36	21	4.7	286

STATION NUMBER	DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DISSOLVED (MG/L) (00515)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
420632094143001	09-18-86	4.5	42	0.4	34	618	0.07	2.40	0.68	3400	130
420953094151201	09-17-86	7.5	210	0.6	12	722	0.04	2.90	0.16	510	20
421327092492201	11-13-85	8.5	50	0.45	12	396	0.20	--	--	280	250
421856092355101	11-13-85	1.0	330	1.5	12	700	<0.02	--	--	530	40
421902093344701	07-21-86	1.5	16	0.75	24	348	<0.02	--	--	4000	20
425610093473901	06-03-86	<0.5	48	0.2	19	430	<0.02	--	--	1000	310
431350093544201	06-03-86	<0.5	21	0.4	13	344	0.07	--	--	170	30
423036093163401	06-04-86	12	25	0.35	13	358	<0.02	--	--	810	110
421856093260101	06-04-86	<0.5	4.0	0.5	16	296	<0.02	--	--	1500	280
421544093002201	11-13-85	2.5	28	0.4	13	384	<0.02	--	--	570	140
415119095361601	10-23-85	13	45	0.3	26	437	3.11	--	--	50	80
413819095471101	10-22-85	15	100	0.35	26	591	2.65	--	--	830	700
413323095533101	10-21-85	51	130	0.25	31	697	1.15	--	--	800	440
413715096003102	10-21-85	2.0	8.4	0.3	31	458	0.04	--	--	7100	610
414236096012501	10-21-85	46	140	0.25	25	832	0.24	--	--	5800	500
414500095420002	10-22-85	9.5	160	0.35	15	631	1.31	0.29	0.04	<10	110
431443092261401	09-17-86	19	52	0.15	13	318	4.66	--	--	<20	<20
414514092105801	09-22-86	5.5	160	0.5	13	606	<0.02	4.90	0.42	1300	<20
413501092001101	09-19-86	3.5	560	0.45	11	1100	<0.02	3.60	0.23	1300	280
413930092002701	09-19-86	2.5	4.2	0.85	11	376	<0.02	3.10	0.30	1300	40
420310090190301	03-05-86	36	63	0.4	7.0	390	0.09	--	--	50	<20
420247090234201	03-05-86	30	62	0.4	7.3	372	<0.02	--	--	100	<20
414954093121202	09-23-86	7.5	69	0.25	24	360	0.02	0.23	0.16	1900	250
414028093154502	09-23-86	14	64	0.25	18	370	<0.02	0.18	0.10	380	340
414110091352201	09-08-86	14	32	0.3	22	350	0.04	--	--	300	530
415835090573801	09-18-86	12	40	0.15	17	344	4.88	--	--	<20	20
420331091000701	09-18-86	3.5	14	0.25	16	356	0.47	--	--	30	100
411849092115401	03-04-86	18	74	0.2	18	332	<0.02	--	--	3200	460
403839091333801	05-21-86	370	300	3.7	9.6	1410	<0.02	--	--	700	<20
420007091411801	02-20-86	18	40	0.2	14	317	0.38	--	--	1300	820
415959091433101	02-20-86	24	47	0.2	10	259	2.44	--	--	350	110
421138091471801	09-22-86	58	66	0.15	12	418	0.78	0.02	0.06	200	60
415221091350801	09-08-86	3.0	33	1.5	14	234	<0.02	--	--	<20	<20
421723091465002	02-20-86	2.0	12	0.35	8.1	154	<0.02	--	--	20	<20
432031096175301	10-07-85	62	240	0.3	16	783	3.33	--	--	1300	430
431646096142601	10-09-85	39	75	0.2	15	530	21.5	--	--	<100	60
432018095594101	10-08-85	20	81	0.4	24	483	8.40	--	--	10	<10
432608096201502	10-07-85	26	320	0.5	20	847	0.09	--	--	3300	1600
432622096101901	10-08-85	14	92	0.35	19	504	14.4	--	--	<10	10
411047093493301	03-06-86	14	41	0.25	23	279	<0.02	--	--	12000	1000
411230092262201	09-10-86	1.5	21	0.5	27	350	<0.02	--	--	1100	100
412938092380201	09-08-86	5.0	48	0.6	16	292	<0.02	--	--	1400	40
412117092392301	09-10-86	20	44	0.35	18	372	0.93	--	--	240	1200
411855092552101	09-10-86	12	410	0.25	16	844	<0.02	--	--	450	60
411940093060101	09-10-86	50	230	1.6	10	642	0.04	--	--	150	<20
420613092593601	09-24-86	24	59	0.25	18	410	4.00	<0.01	0.08	<20	<20
420648093092101	06-17-86	8.0	30	0.2	28	366	<0.02	<0.01	0.07	3200	170
420020092465001	09-24-86	30	66	0.2	21	426	7.55	<0.01	0.13	<20	<20
410113095242901	06-09-86	5.5	15	0.35	21	320	6.20	--	--	<20	<20
410114095300001	08-19-86	21	65	0.2	20	388	7.33	--	--	<20	<20
410830095253901	08-21-86	31	68	0.4	--	506	6.70	--	--	30	<20
410007095330501	06-09-86	15	70	0.45	21	412	0.33	--	--	480	160
410656095380202	06-18-86	92	100	0.3	22	626	0.09	--	--	3900	550
415558096044901	10-23-85	4.0	130	0.35	33	767	<0.02	--	--	9100	510
420420095545702	10-31-85	22	80	0.35	20	485	5.55	--	--	250	1800
420955095475601	10-31-85	16	86	0.35	26	455	5.33	--	--	40	<10
415518095510002	10-30-85	26	31	0.35	26	492	9.10	--	--	<10	<10
420140096054001	11-27-85	18	45	0.4	32	540	<0.02	--	--	5900	370
415901095465601	10-30-85	7.0	550	0.3	30	1300	0.09	--	--	1200	200
420241095422001	10-30-85	26	89	0.3	21	524	9.99	--	--	10	80
420735096085701	10-23-85	4.0	130	0.4	31	678	<0.02	--	--	7000	480
430013095385902	11-20-85	5.5	110	0.4	26	504	0.79	--	--	80	490
430517095364602	11-20-85	10	35	0.65	22	424	6.44	--	--	20	<10
431045095413401	11-19-85	10	120	0.5	28	549	0.84	--	--	190	300
431159095500901	11-20-85	17	80	0.5	17	506	5.55	--	--	340	700
431203095513001	11-20-85	16	80	0.6	18	466	1.35	--	--	1900	970
432646095260201	11-19-85	2.0	940	0.3	30	1970	<0.02	--	--	5500	950
431703095272401	11-19-85	12	88	0.25	28	415	<0.02	--	--	1800	500
404957095183501	08-14-86	12	57	0.24	17	258	0.76	--	--	<20	20
404635095224901	08-14-86	34	210	0.3	18	606	<0.02	--	--	2300	450

STATION NUMBER	DATE	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)	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)
420632094143001	09-18-86	10	260	<1	<10	<10	<10	<1.0	<10	<10	<10
420953094151201	09-17-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
421327092492201	11-13-85	<10	200	<1	<10	10	<10	<1.0	<10	<10	<10
421856092355101	11-13-85	<10	<100	<1	<10	20	<10	<1.0	<10	<10	<10
421902093344701	07-21-86	<10	750	<1	<10	<10	<10	<1.0	<10	<10	60
425610093473901	06-03-86	<10	70	<1	<10	<10	<10	<1.0	<10	<10	<10
431350093544201	06-03-86	<10	110	<1	<10	<10	<10	<1.0	<10	<10	<10
423036093163401	06-04-86	<10	250	<1	<10	<10	<10	<1.0	<10	<10	<10
421856093260101	06-04-86	<10	390	<1	<10	<10	<10	<1.0	<10	<10	<10
421544093002201	11-13-85	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	<10
415119095361601	10-23-85	<10	300	<1	<10	10	<10	<1.0	<10	<10	40
413819095471101	10-22-85	<10	200	<1	<10	30	<10	<1.0	<10	<10	<10
413323095533101	10-21-85	<10	100	<1	<10	70	<10	<1.0	<10	<10	<10
413715096003102	10-21-85	<10	900	<1	<10	30	<10	<1.0	<10	<10	10
414236096012501	10-21-85	<10	200	<1	<10	80	<10	<1.0	<10	<10	10
414500095420002	10-22-85	<10	<100	<1	<10	30	<10	<1.0	<10	<10	10
431443092261401	09-17-86	<10	140	<1	<10	<10	<10	<1.0	<10	<10	<10
414514092105801	09-22-86	<10	80	<1	<10	30	<10	<1.0	<10	<10	<10
413501092001101	09-19-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
413930092002701	09-19-86	<10	430	<1	<10	<10	<10	<1.0	<10	<10	<10
420310090190301	03-05-86	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	<10
420247090234201	03-05-86	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	<10
414954093121202	09-23-86	<10	140	<1	<10	<10	<10	<1.0	<10	<10	<10
414028093154502	09-23-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
414110091352201	09-08-86	<10	620	<1	<10	<10	<10	<1.0	<10	<10	<10
415835090573801	09-18-86	<10	130	<1	<10	<10	<10	<1.0	<10	<10	<10
420331091000701	09-18-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	20
411849092115401	03-04-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
403839091333801	05-21-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	30
420007091411801	02-20-86	<10	300	<1	<10	<10	<10	<1.0	<10	<10	10
415959091433101	02-20-86	<10	200	<1	<10	10	<10	<1.0	<10	<10	10
421138091471801	09-22-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
415221091350801	09-08-86	<10	80	<1	<10	<10	<10	--	<10	<10	<10
421723091465002	02-20-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	10
432031096175301	10-07-85	<10	<100	<1	<10	100	<10	<1.0	<10	<10	10
431646096142601	10-09-85	<10	200	<1	<10	220	<10	<1.0	<10	<10	10
432018095594101	10-08-85	<10	<100	<1	<10	70	<10	<1.0	<10	<10	10
432608096201502	10-07-85	<10	<100	<1	<10	60	<10	<1.0	<10	<10	80
432622096101901	10-08-85	<10	<100	<1	<10	50	<10	<1.0	<10	<10	<10
411047093493301	03-06-86	<10	100	<1	<10	20	<10	<1.0	<10	<10	<10
411230092262201	09-10-86	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<10
412938092380201	09-08-86	<10	80	<1	<10	<10	<10	<1.0	--	<10	<10
412117092392301	09-10-86	<10	160	<1	<10	<10	<10	<1.0	<10	<10	<10
411855092552101	09-10-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
411940093060101	09-10-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
420613092593601	09-24-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
420648093092101	06-17-86	<10	320	<1	<10	<10	<10	<1.0	<10	<10	<10
420020092465001	09-24-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
410113095242901	06-09-86	<10	180	<1	<10	<10	<10	<1.0	<10	<10	<10
410114095300001	08-19-86	<10	140	<1	<10	<10	<10	<1.0	<10	<10	30
410830095253901	08-21-86	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<10
410007095330501	06-09-86	<10	280	<1	<10	<10	<10	<1.0	<10	<10	<10
410656095380202	06-18-86	<10	600	<1	<10	<10	<10	<1.0	<10	<10	<10
415558096044901	10-23-85	<10	100	<1	<10	10	<10	<1.0	<10	<10	<10
420420095545702	10-31-85	<10	300	<1	<10	<10	<10	<1.0	<10	<10	<10
420955095475601	10-31-85	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<10
415518095510002	10-30-85	<10	300	<1	<10	<10	<10	<1.0	<10	<10	10
420140096054001	11-27-85	<10	200	<1	<10	20	<10	<1.0	<10	<10	<10
415901095465601	10-30-85	<10	<100	<1	<10	10	<10	<1.0	<10	<10	<10
420241095422001	10-30-85	<10	300	<1	<10	10	<10	<1.0	<10	<10	10
420735096085701	10-23-85	<10	200	<1	<10	20	<10	<1.0	<10	<10	<10
430013095385902	11-20-85	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
430517095364602	11-20-85	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<10
431045095413401	11-19-85	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	<10
431159095500901	11-20-85	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	50
431203095513001	11-20-85	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<10
432646095260201	11-19-85	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	<10
431703095272401	11-19-85	<10	300	<1	<10	<10	<10	<1.0	<10	<10	10
404957095183501	08-14-86	<10	180	<1	<10	<10	<10	<1.0	<10	<10	<10
404635095224901	08-14-86	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<10

STATION NUMBER	DATE	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)	ATRA-ZINE, TOTAL (UG/L) (39630)	CYAN-AZINE TOTAL (UG/L) (81757)	METRI-BUZIN IN WHOLE WATER (UG/L) (81408)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	METOLA-CHLOR IN WHOLE WATER (UG/L) (39356)	TRI-FLURA-LIN TOTAL RECOVER (UG/L) (39030)
420632094143001	09-18-86	<0.4	3.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420953094151201	09-17-86	3.4	16	2.4	5.5	--	--	--	--	--	--
421327092492201	11-13-85	10	8.0	3.4	0.7	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
421856092355101	11-13-85	1.4	4.0	--	--	--	--	--	--	--	--
421902093344701	07-21-86	<0.4	5.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
425610093473901	06-03-86	1.6	2.0	--	--	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
431350093544201	06-03-86	2.3	4.0	1.9	<0.9	--	--	--	--	--	--
423036093163401	06-04-86	6.3	13	3.1	<0.9	--	--	--	--	--	--
421856093260101	06-04-86	4.4	3.3	0.8	2.0	--	--	--	--	--	--
421544093002201	11-13-85	3.1	5.0	--	--	--	--	--	--	--	--
415119095361601	10-23-85	3.3	8.0	0.8	1.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
413819095471101	10-22-85	9.0	1.0	--	--	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
413323095533101	10-21-85	7.5	5.0	1.8	<0.7	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
413715096003102	10-21-85	5.0	13	1.5	2.7	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
414236096012501	10-21-85	6.9	17	0.9	<0.7	0.37	<0.1	<0.05	<0.1	<0.1	<0.05
414500095420002	10-22-85	7.7	10	0.7	<0.7	--	--	--	--	--	--
431443092261401	09-17-86	0.9	<1.1	--	--	0.33	<0.1	<0.1	0.15	0.14	<0.1
414514092105801	09-22-86	3.6	1.0	2.0	<0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
413501092001101	09-19-86	2.7	8.0	1.5	<0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
413930092002701	09-19-86	0.4	9.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420310090190301	03-05-86	9.8	12	4.2	<0.6	--	--	--	--	--	--
420247090234201	03-05-86	5.2	11	3.7	0.7	--	--	--	--	--	--
414954093121202	09-23-86	0.9	6.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
414028093154502	09-23-86	1.5	2.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
414110091352201	09-08-86	2.7	4.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
415835090573801	09-18-86	1.0	2.0	--	--	12	0.9	0.22	14.0	3.70	<0.1
420331091000701	09-18-86	1.4	<1.2	--	--	--	--	--	--	--	--
411849092115401	03-04-86	1.3	3.0	--	--	0.1	<0.1	<0.1	0.11	0.1	<0.1
403839091333801	05-21-86	10	20	10	<0.9	--	--	--	--	--	--
420007091411801	02-20-86	1.1	<0.7	--	--	0.15	<0.1	<0.1	<0.1	<0.1	<0.1
415959091433101	02-20-86	0.7	2.0	--	--	0.3	<0.1	<0.1	<0.1	<0.1	<0.1
421138091471801	09-22-86	2.4	4.0	--	--	0.12	<0.1	<0.1	<0.1	<0.1	<0.1
415221091350801	09-08-86	1.4	4.0	--	--	--	--	--	--	--	--
421723091465002	02-20-86	1.2	3.0	--	--	--	--	--	--	--	--
432031096175301	10-07-85	88	22	<0.7	0.7	2.7	0.8	0.69	0.63	<0.1	<0.05
431646096142601	10-09-85	4.0	5.0	1.2	<0.7	1.8	0.15	1.40	0.78	11.0	<0.05
432018095594101	10-08-85	7.3	<0.7	<0.2	<0.7	--	--	--	--	--	--
432608096201502	10-07-85	20	4.0	0.6	1.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
432622096101901	10-08-85	2.3	<0.7	--	--	2.3	<0.1	<0.05	<0.1	<0.1	<0.05
411047093493301	03-06-86	3.3	<0.6	1.0	0.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
411230092262201	09-10-86	2.2	2.0	--	--	--	--	--	--	--	--
412938092380201	09-08-86	<0.3	2.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
412117092392301	09-10-86	2.7	1.0	--	--	--	--	--	--	--	--
411855092552101	09-10-86	0.4	<1.1	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
411940093060101	09-10-86	8.1	15	8.2	<0.9	--	--	--	--	--	--
420613092593601	09-24-86	3.0	<1.0	0.2	<0.9	0.32	<0.1	<0.1	<0.1	<0.1	<0.1
420648093092101	06-17-86	2.9	8.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420020092465001	09-24-86	1.0	<1.0	--	--	0.21	<0.1	<0.1	<0.1	<0.1	<0.1
410113095242901	06-09-86	2.3	4.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
410114095300001	08-19-86	3.3	4.0	0.4	<1.0	0.16	<0.1	<0.1	<0.1	<0.1	<0.1
410830095253901	08-21-86	8.9	<1.1	0.8	1.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
410007095330501	06-09-86	6.7	2.0	0.9	<0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
410656095380202	06-18-86	6.0	4.0	0.9	2.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
415558096044901	10-23-85	7.0	9.0	1.5	0.9	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
420420095545702	10-31-85	4.6	14	0.6	<0.6	0.23	<0.1	<0.05	<0.1	<0.1	<0.05
420955095475601	10-31-85	2.8	6.0	--	--	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
415518095510002	10-30-85	5.4	20	0.4	<0.6	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
420140096054001	11-27-85	2.1	6.0	--	--	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
415901095465601	10-30-85	2.7	18	0.6	<0.6	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
420241095422001	10-30-85	3.1	3.0	0.5	0.9	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
420735096085701	10-23-85	1.3	10	--	--	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
430013095385902	11-20-85	5.2	4.0	0.4	<0.7	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
430517095364602	11-20-85	6.6	1.0	<0.2	<0.7	0.1	<0.1	<0.05	<0.1	0.1	<0.05
431045095413401	11-19-85	6.3	8.0	0.3	<0.7	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
431159095500901	11-20-85	17	3.0	1.6	0.7	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
431203095513001	11-20-85	13	10	0.3	<0.7	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
432646095260201	11-19-85	12	11	0.4	0.7	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
431703095272401	11-19-85	5.2	3.0	0.9	1.3	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
404957095183501	08-14-86	6.8	<1.0	0.7	<0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
404635095224901	08-14-86	17	<1.4	1.4	<0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

STATION NUMBER	DATE	CHLOR-AMBEN TOTAL (UG/L) (82051)	DICAMBA (MEDIBEN) (BANVEL D) TOTAL (UG/L) (82052)	2,4-D, TOTAL (UG/L) (39730)	SILVEX, TOTAL (UG/L) (39760)	CARBO-FURAN (UG/L) (81405)	CHLOR-PYRIFOS TOTAL (UG/L) (81403)	ETHO-PROP TOTAL (UG/L) (81758)	DYFO-NATE (UG/L) (81294)	PHORATE OTAL (UG/L) (39023)	TERBU-FOS (UG/L) (82088)
420632094143001	09-18-86	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420953094151201	09-17-86	--	--	--	--	--	--	--	--	--	--
421327092492201	11-13-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
421856092355101	11-13-85	--	--	--	--	--	--	--	--	--	--
421902093344701	07-21-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
425610093473901	06-03-86	<0.07	<0.07	<0.07	<0.05	--	<0.1	<0.1	<0.1	<0.1	<0.1
431350093544201	06-03-86	--	--	--	--	--	--	--	--	--	--
423036093163401	06-04-86	--	--	--	--	--	--	--	--	--	--
421856093260101	06-04-86	--	--	--	--	--	--	--	--	--	--
421544093002201	11-13-85	--	--	--	--	--	--	--	--	--	--
415119095361601	10-23-85	<0.07	<0.07	<0.07	<0.05	--	<0.1	<0.1	<0.1	<0.1	<0.1
413819095471101	10-22-85	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
413323095533101	10-21-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
413715096003102	10-21-85	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
414236096012501	10-21-85	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
414500095420002	10-22-85	--	--	--	--	--	--	--	--	--	--
431443092261401	09-17-86	<0.1	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1
414514092105801	09-22-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
413501092001101	09-19-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
413930092002701	09-19-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420310090190301	03-05-86	--	--	--	--	--	--	--	--	--	--
420247090234201	03-05-86	--	--	--	--	--	--	--	--	--	--
414954093121202	09-23-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
414028093154502	09-23-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
414110091352201	09-08-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
415835090573801	09-18-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420331091000701	09-18-86	--	--	--	--	--	--	--	--	--	--
411849092115401	03-04-86	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
403839091333801	05-21-86	--	--	--	--	--	--	--	--	--	--
420007091411801	02-20-86	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
415959091433101	02-20-86	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
421138091471801	09-22-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
415221091350801	09-08-86	--	--	--	--	--	--	--	--	--	--
421723091465002	02-20-86	--	--	--	--	--	--	--	--	--	--
432031096175301	10-07-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
431646096142601	10-09-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
432018095594101	10-08-85	--	--	--	--	--	--	--	--	--	--
432608096201502	10-07-85	<0.07	<0.07	<0.07	<0.05	--	<0.1	<0.1	<0.1	<0.1	<0.1
432622096101901	10-08-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
411047093493301	03-06-86	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
411230092262201	09-10-86	--	--	--	--	--	--	--	--	--	--
412938092380201	09-08-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
412117092392301	09-10-86	--	--	--	--	--	--	--	--	--	--
411855092552101	09-10-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
411940093060101	09-10-86	--	--	--	--	--	--	--	--	--	--
420613092593601	09-24-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420648093092101	06-17-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420020092465001	09-24-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
410113095242901	06-09-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
410114095300001	08-19-86	--	--	--	--	--	--	--	--	--	--
410830095253901	08-21-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
410007095330501	06-09-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
410656095380202	06-18-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
415558096044901	10-23-85	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
420420095545702	10-31-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
420955095475601	10-31-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
415518095510002	10-30-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
420140096054001	11-27-85	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
415901095465601	10-30-85	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
420241095422001	10-30-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
420735096085701	10-23-85	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
430013095385902	11-20-85	<0.07	<0.07	<0.07	<0.05	--	<0.1	<0.1	<0.1	<0.1	<0.1
430517095364602	11-20-85	--	--	--	--	--	--	<0.1	<0.1	<0.1	--
431045095413401	11-19-85	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1
431159095500901	11-20-85	--	--	--	--	--	--	--	<0.1	<0.1	--
431203095513001	11-20-85	<0.07	<0.07	<0.07	<0.05	--	<0.1	<0.1	<0.1	<0.1	<0.1
432646095260201	11-19-85	--	--	--	--	--	--	<0.1	<0.1	<0.1	--
431703095272401	11-19-85	--	--	--	--	--	--	<0.1	<0.1	<0.1	--
404957095183501	08-14-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
404635095224901	08-14-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

MAP STATION NUMBER	STATION NUMBER	LOCAL WELL NUMBER	DATE	LOCAL WELL NAME	COUNTY	SAMPLE DATE	SAMPLE TIME	GEO-LOGIC UNIT	DEPTH OF WELL (FEET)
141	404521095235801	06940W26BABD	1975	SHENANDOAH 25	PAGE	08-14-86	1500	111ALVM	33.50
142	431429094450601	09733W09BABB	1964	GRAETTINGER NO 4	PALO ALTO	09-24-86	1340	112PLSC	30.50
143	430745094541101	09634W18DCAC	1957	RUTHVEN NO 5	PALO ALTO	09-24-86	1215	217DKOT	511.00
144	423650096175701	09046W17ACAC	1974	HINTON NO 4	PLYMOUTH	08-14-86	1000	217DKOT	270.00
145	423737096173201	09046W08ADDD	1956	HINTON NO 2	PLYMOUTH	08-14-86	0920	110QRNR	52.00
146	423449094505002	09034W27CADA	1969	FONDA NO 1	POCAHONTAS	09-24-86	1000	112PLSC	311.00
147	414117093474101	07925W06AAAA	1960	GRIMES NO 2	POLK	09-25-86	1310	112PLSC	72.00
148	412812095211201	07739W17ACDC	1955	AVOCA 2	POTTAWATTAMIE	06-19-86	1000	111ALVM	27.00
149	411445095251601	07540W35CCCD	1963	CARSON 1	POTTAWATTAMIE	07-20-86	1100	111ALVM	26.83
150	411453095251201	07540W35CCAC	1978	CARSON 4	POTTAWATTAMIE	06-09-86	1530	111ALVM	24.00
151	412327095215401	07639W08CCCC	1978	HANCOCK 6	POTTAWATTAMIE	08-20-86	1545	111ALVM	48.00
152	411201095252801	07440W22AADC	1954	MACEDONIA 1	POTTAWATTAMIE	08-20-86	1000	111ALVM	39.00
153	412812095322701	07741W15ACDD	1940	MINDEN 2	POTTAWATTAMIE	06-06-86	1215	111ALVM	48.00
154	411838095252801	07540W10DAAB	1979	OAKLAND 11	POTTAWATTAMIE	08-26-86	1200	111ALVM	42.00
155	412328095411901	07642W09CCCC	1974	UNDERWOOD 3	POTTAWATTAMIE	06-06-86	1030	112PLSC	156.00
156	404835094240201	06931W03AABB	1967	CLEARFIELD NO 1	RINGGOLD	07-11-86	1230	111ALVM	41.00
157	404831094201102	06930W05BBCD	1978	DIAGONAL NO 5	RINGGOLD	08-19-86	1530	111ALVM	56.00
158	422739095084201	08837W03CCAC	1914	EARLY NO 2	SAC	11-12-85	1215	112PLSC	21.00
159	421826095025101	08736W33BCAA	1980	LAKE VIEW NO 5	SAC	11-13-85	1045	110QRCU	105.00
160	423057095052201	08936W22BBCA	1966	NEMAHA	SAC	11-12-85	1115	112PLSC	275.00
161	421831095152101	08738W34BADD	1976	ODEBOLT NO 8	SAC	11-12-85	1330	112PLSC	2131.00
162	422447094594101	08836W26AAAC	1969	SAC CITY NO 3E	SAC	11-13-85	0915	112PLSC	240.00
163	421617095051001	08636W07CDBB	1972	WALL LAKE NO 3	SAC	11-13-85	1145	112PLSC	43.00
164	413933090351301	07903E11CBC		ELDRIDGE 3	SCOTT	11-20-85	1435	355NIGR	487.00
165	413521090171001	07805E03CAB	1983	LECLAIRE 4	SCOTT	11-20-85	1140	350SLRN	421.00
166	414017090203701	07905E02DC		PRINCETON 1	SCOTT	11-20-85	1320	350SLRN	455.00
167	413500090462401	07802E06DCC		WALCOTT 3	SCOTT	11-21-85	1000	350SLRN	230.00
168	425941096002701	09444W02ABCB	1939	ALTON NO 2	SIOUX	12-04-85	1215	112PLSC	30.00
169	431504096000901	09744W02ADCD	1976	BOYDEN NO 3	SIOUX	10-09-85	1040	111ALVM	31.00
170	425946096292901	09448W03AAAB	1960	HAWARDEN NO 6	SIOUX	12-03-85	1545	110QRCU	37.50
171	431228096174001	09746W21CCCC	1977	ROCK VALLEY 6	SIOUX	10-08-85	1325	110QRNR	78.00
172	430459096061901	09545W01ABBC	1960	SIOUX CENTER NO 5	SIOUX	12-04-85	0845	110QRNR	39.00
173	415357093314101	08223W21DBAB	1973	CAMBRIDGE NO 2	STORY	07-21-86	1200	112PLSC	80.00
174	425702093394901	08324W32DCDD	1939	KELLY NO 1	STORY	07-21-86	1000	112PLSC	216.00
175	415253093411301	08224W30DCBB	1957	SLATER NO 2	STORY	07-21-86	1045	112PLSC	180.00
176	420932093175101	08521W21ACCD	1965	ZEARING NO 3	STORY	07-21-86	1330	112PLSC	110.00
177	420504092240301	08413W18DAC	1955	CLUTIER 2	TAMA	06-17-86	1205	344CDVL	290.00
178	404458094372601	06933W27ADDD	1971	CONWAY NO 1	TAYLOR	07-18-86	1030	112PLSC	56.00
179	404501094444901	06934W27ACBC	1970	GRAVITY NO 3	TAYLOR	07-11-86	0930	111ALVM	35.00
180	403844091442901	06808W35DABB	1941	FARMINGTON NO 1	VAN BUREN	02-25-86	1210	112PLSC	38.00
181	404005092094901	06811W30ABBB	1961	MILTON NO 2	VAN BUREN	02-25-86	1050	112PLSC	110.00
182	410907092375101	07315W06CADD	1970	EDDYVILLE NO 2	WAPELLO	03-04-86	1245	112PLSC	30.00
183	412220093441801	07625W21DBAC	1976	MARTENDALE NO 2	WARREN	09-09-86	1300	111ALVM	45.00
184	411336093433101	07425W10CAC	1979	NEW VIRGINIA 4	WARREN	10-21-86	1650	112PLSC	51.00
185	411806093440501	07525W16ADCA	1979	ST MARYS NO 2	WARREN	10-21-86	1410	112PLSC	55.00
186	422128094030101	08728W12DACD	1963	LEHIGH NO 3	WEBSTER	09-17-86	0900	112PLSC	35.00
187	423517094010401	09027W22DCC	1960	VINCENT NO 1	WEBSTER	06-02-86	0945	340DVNN	745.00
188	432851093551801	10026W16ABCD	1939	RAKE TOWN NO 1	WINNEBAGO	06-03-86	1230	360ODVC	168.00
189	431103091515501	09709W26DDDC	1963	CALMAR 3	WINNESHIEK	11-12-85	1115	340DVNN	700.00
190	431816091474401	09808W16CABD	1958	DECORAH NO 2	WINNESHIEK	11-13-85	0820	111ALVM	59.00
191	430843091555601	09609W09DBCC	1961	FORT ATKINSON 2	WINNESHIEK	11-12-85	1430	364STPR	480.00
192	431747091592601	09810W23ABCA	1930	RIDGEWAY 1	WINNESHIEK	11-13-85	1030	344CDVL	192.00
193	422317095522201	08843W32DCBC	1973	ANTHON NO 4	WOODBURY	08-18-86	1230	112PLSC	160.00
194	422441096124001	08846W28BCBA	1971	BRONSON NO 1	WOODBURY	10-08-86	1600	112PLSC	235.00
195	422759095402501	08842W01ADCC	1950	CUSHING NO 1	WOODBURY	09-30-86	1300	111ALVM	40.00
196	421406095433701	08642W27BCCA	1955	DANBURY NO 2	WOODBURY	08-19-86	1215	111ALVM	50.00
197	421352096054802	08645W28CBCC	1951	HORNICK NO 2	WOODBURY	10-09-86	1200	112PLSC	127.00
198	421705095533602	08643W06DC	1984	OTO 2	WOODBURY	08-20-86	1400	111ALVM	65.00
199	423242095521501	08943W12BADB	1920	PIERSON NO 1	WOODBURY	09-30-86	1115	111ALVM	26.00
200	421834096171301	08747W35BCDB	1970	SALIX NO 2	WOODBURY	08-14-86	1315	110QRNR	168.00
201	421351095555001	08644W26DGCA	1953	SMITHLAND 1	WOODBURY	10-09-86	1245	112PLSC	62.00
202	431943093041801	09819W03DCDC	1938	GRAFTON NO 1	WORTH	06-04-86	0815	344CDVL	199.00
203	432642093132102	10020W29DDDC	1931	NORTHWOOD NO 2	WORTH	06-03-86	1400	344CDVL	162.00
204	424405093551511	09226W33DCBB	1915	GOLDFIELD NO 1	WRIGHT	06-04-86	1215	112PLSC	200.00
205	424415093500101	09225W31DADA	1946	HOLMES	WRIGHT	06-02-86	1250	330MSSP	205.00
206	423359093503001	09025W31ACC	1952	WOOLSTOCK NO 1	WRIGHT	06-02-86	1035	333STLS	120.00

GROUND-WATER QUALITY DATA

STATION NUMBER	DATE	FLOW RATE (GPM) (00058)	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	TEMPERATURE (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (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)
404521095235801	08-14-86	130	60	13.0	440	7.29	190	50	15	7.6	4.4	148
431429094450601	09-24-86	220	30	12.0	750	7.10	370	99	29	6.9	4.6	298
430745094541101	09-24-86	150	30	9.0	1520	6.40	640	170	52	95	5.1	352
423650096175701	08-14-86	165	90	12.0	691	7.00	320	88	24	12	4.9	278
423737096173201	08-14-86	45	90	12.0	1150	6.90	540	150	40	11	5.0	324
423449094505002	09-24-86	150	60	12.0	1480	7.60	670	160	66	71	5.2	394
414117093474101	09-25-86	112	20	13.0	840	7.30	460	120	38	13	0.2	320
412812095211201	06-19-86	190	300	12.0	870	6.90	480	150	26	14	4.5	288
411445095251601	07-20-86	--	30	12.5	660	7.15	330	90	26	10	1.0	283
411453095251201	06-09-86	80	180	10.0	650	7.01	350	100	24	9.0	1.2	291
412327095215401	08-20-86	--	30	13.0	890	6.95	400	110	30	25	3.8	285
411201095252801	08-20-86	--	30	12.5	700	6.90	330	89	27	10	<0.1	249
412812095322701	06-06-86	10	240	11.0	835	7.06	440	120	33	12	1.4	310
411838095252801	08-26-86	--	--	12.0	625	7.50	270	72	22	11	3.6	258
412328095411901	06-06-86	70	30	11.5	629	7.14	310	84	25	13	2.8	292
404835094240201	07-11-86	70	240	11.5	425	6.70	150	46	9.6	26	1.5	164
404831094201102	08-19-86	50	120	12.0	800	6.70	300	86	20	31	4.5	266
422739095084201	11-12-85	1	15	10.0	680	7.30	300	79	24	12	2.5	238
421826095025101	11-13-85	289	20	11.0	810	7.20	400	100	36	15	2.5	291
423057095052201	11-12-85	--	10	11.0	1400	7.20	530	140	44	130	3.4	786
421831095152101	11-12-85	200	25	18.5	1820	7.30	600	160	48	140	33	223
422447094594101	11-13-85	580	300	11.0	910	7.25	460	120	39	21	4.5	373
421617095051001	11-13-85	600	30	11.0	920	7.20	450	120	36	18	3.8	297
413933090351301	11-20-85	425	60	11.5	370	7.90	200	35	27	14	0.6	223
413521090171001	11-20-85	320	30	11.0	630	7.00	380	88	40	7.8	0.4	371
414017090203701	11-20-85	200	15	10.5	612	7.20	360	82	37	7.8	0.4	335
413500090462401	11-21-85	220	20	11.0	600	6.80	340	84	31	10	0.5	320
425941096002701	12-04-85	80	30	14.0	886	6.90	350	88	31	26	4.6	283
431504096000901	10-09-85	130	60	8.0	790	7.90	400	98	38	21	3.4	257
425946096292901	12-03-85	120	465	12.0	1260	7.00	620	170	48	35	6.5	329
431228096174001	10-08-85	150	--	9.0	1000	7.35	560	150	45	18	4.1	278
430459096061901	12-04-85	100	30	10.0	1240	7.00	630	170	49	18	3.5	299
415357093314101	07-21-86	120	60	14.0	800	7.15	380	100	29	24	3.3	268
425702093394901	07-21-86	80	30	13.0	810	7.60	350	86	33	62	5.3	316
415253093411301	07-21-86	--	30	19.0	900	7.50	320	83	27	82	5.5	332
420932093175101	07-21-86	80	300	12.5	620	7.45	330	23	65	27	5.0	318
420504092240301	06-17-86	85	20	11.0	610	7.50	1200	290	110	77	6.8	174
404458094372601	07-18-86	35	240	12.0	720	6.35	280	79	21	24	1.3	173
404501094444901	07-11-86	8	30	12.0	460	7.12	230	74	12	15	0.1	216
403844091442901	02-25-86	120	20	13.0	840	7.40	420	110	35	18	1.4	273
404005092094901	02-25-86	50	20	13.0	1080	7.20	410	100	38	71	4.7	556
410907092375101	03-04-86	120	60	12.5	700	7.30	400	110	30	11	1.5	236
412220093441801	09-09-86	70	20	12.5	638	7.00	280	83	18	20	1.1	172
411336093433101	10-21-86	--	30	14.0	496	7.10	240	73	13	11	1.2	226
411806093440501	10-21-86	20	10	14.5	352	7.30	170	44	14	9.6	<0.1	132
422128094030101	09-17-86	150	30	11.0	1630	7.10	510	120	52	140	27	264
423517094010401	06-02-86	120	5	13.0	880	6.95	510	120	52	24	4.6	398
432851093551801	06-03-86	100	20	11.0	1040	7.15	240	66	18	150	4.4	395
431103091515501	11-12-85	200	30	9.5	820	7.25	390	100	35	9.0	2.7	324
431816091474401	11-13-85	400	30	13.0	590	7.35	300	82	24	6.9	2.4	255
430843091555601	11-12-85	100	30	10.0	775	7.10	370	85	39	22	7.0	284
431747091592601	11-13-85	130	30	9.5	715	7.30	320	92	21	11	2.1	261
422317095522201	08-18-86	400	30	11.5	1180	7.01	490	140	34	46	5.1	310
422441096124001	10-08-86	570	30	12.0	580	7.23	300	78	25	7.3	4.8	258
422759095402501	09-30-86	90	20	11.5	790	7.90	430	120	32	14	1.8	310
421406095433701	08-19-86	225	30	12.0	720	6.90	170	10	36	10	4.9	318
421352096054802	10-09-86	110	30	11.0	620	7.40	330	89	25	12	6.1	324
421705095533602	08-20-86	110	30	12.0	1100	6.70	490	140	34	22	5.0	406
423242095521501	09-30-86	200	15	12.0	815	7.20	410	110	33	21	2.4	331
421834096171301	08-14-86	95	300	12.0	909	6.90	390	100	33	25	5.1	386
421351095555001	10-09-86	120	30	11.0	760	7.35	420	120	30	12	4.4	360
431943093041801	06-04-86	100	30	11.0	540	7.40	280	74	22	6.1	<0.1	236
432642093132102	06-03-86	210	60	12.0	670	6.90	340	90	27	5.7	1.8	285
424405093551511	06-04-86	200	180	12.0	770	7.05	390	100	34	23	3.9	377
424415093500101	06-02-86	--	20	12.0	750	7.05	420	110	35	26	4.4	366
423359093503001	06-02-86	100	20	12.0	830	7.15	400	94	40	25	5.0	377

STATION NUMBER	DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 105 DEG. C, DISSOLVED (MG/L) (00515)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
404521095235801	08-14-86	6.0	58	0.25	21	214	1.31	--	--	60	<20
431429094450601	09-24-86	15	46	0.25	23	424	1.60	--	--	<20	190
430745094541101	09-24-86	4.0	520	0.35	21	1160	<0.02	--	--	2600	250
423650096175701	08-14-86	2.0	86	0.4	14	398	<0.02	--	--	250	130
423737096173201	08-14-86	20	180	0.3	22	728	14.7	--	--	<20	<20
423449094505002	09-24-86	1.5	470	0.3	24	1050	<0.02	--	--	4500	90
414117093474101	09-25-86	42	100	0.3	21	534	3.77	--	--	40	300
412812095211201	06-19-86	34	150	0.3	14	576	0.47	--	--	2600	1800
411445095251601	07-20-86	7.0	48	0.35	17	390	2.89	--	--	610	320
411453095251201	06-09-86	14	50	0.4	17	362	2.90	--	--	650	330
412327095215401	08-20-86	33	85	0.25	20	518	1.60	--	--	<20	290
411201095252801	08-20-86	7.0	77	0.4	19	408	2.89	--	--	<20	<20
412812095322701	06-06-86	48	36	0.3	19	468	10.0	--	--	<20	<20
411838095252801	08-26-86	6.0	26	0.25	19	308	0.56	--	--	540	140
412328095411901	06-06-86	7.0	17	0.3	18	360	7.55	--	--	<20	<20
404835094240201	07-11-86	4.5	30	0.3	35	268	<0.02	--	--	13000	1200
404831094201102	08-19-86	14	100	0.25	31	490	<0.02	--	--	16000	1100
422739095084201	11-12-85	16	32	0.3	15	365	2.44	--	--	<10	<10
421826095025101	11-13-85	16	71	0.3	28	479	8.66	--	--	110	40
423057095052201	11-12-85	<0.5	46	0.3	22	875	0.36	--	--	320	60
421831095152101	11-12-85	30	650	2.1	9.2	1320	0.07	--	--	2000	20
422447094594101	11-13-85	3.5	98	0.45	33	553	<0.02	--	--	260	170
421617095051001	11-13-85	38	120	0.45	24	537	2.66	--	--	990	520
413933090351301	11-20-85	<0.5	4.0	0.55	13	210	0.04	--	--	1500	30
413521090171001	11-20-85	7.5	9.3	0.3	16	363	<0.02	--	--	160	60
414017090203701	11-20-85	2.5	12	0.25	19	353	1.55	--	--	<10	<10
413500090462401	11-21-85	6.0	26	0.35	17	356	<0.02	--	--	1300	120
425941096002701	12-04-85	36	23	0.45	17	542	6.66	--	--	230	1100
431504096000901	10-09-85	19	140	0.55	22	510	0.24	--	--	110	1100
425946096292901	12-03-85	68	200	0.25	25	860	9.77	--	--	<10	<10
431228096174001	10-08-85	19	240	0.25	22	735	2.02	--	--	210	140
430459096061901	12-04-85	12	330	0.4	20	887	0.29	--	--	5200	1000
415357093314101	07-21-86	36	91	0.2	25	476	<0.02	0.14	0.06	5000	370
425702093394901	07-21-86	2.5	160	0.3	15	480	<0.02	<0.10	0.06	1100	<20
415253093411301	07-21-86	2.5	140	0.5	12	530	0.02	<0.01	0.06	310	<40
420932093175101	07-21-86	1.5	25	0.3	22	--	<0.02	--	--	--	<20
420504092240301	06-17-86	6.0	1100	0.6	12	1860	<0.02	--	--	1800	490
404458094372601	07-18-86	28	110	0.1	21	448	0.95	0.58	0.06	24000	2500
404501094444901	07-11-86	4.5	20	0.3	29	266	2.10	--	--	370	650
403844091442901	02-25-86	18	140	0.4	22	515	6.44	--	--	<20	<20
404005092094901	02-25-86	3.0	25	0.15	23	572	0.09	--	--	350	40
410907092375101	03-04-86	16	120	<0.1	16	396	3.33	--	--	60	80
412220093441801	09-09-86	56	70	0.2	31	386	<0.02	--	--	8400	1300
411336093433101	10-21-86	5.0	33	0.25	21	304	0.33	0.56	0.44	8800	940
411806093440501	10-21-86	4.5	17	0.35	27	244	7.55	0.01	0.21	40	<20
422128094030101	09-17-86	33	500	1.7	7.4	1000	0.33	--	--	1400	30
423517094010401	06-02-86	1.0	160	1.0	14	636	<0.02	--	--	240	<20
432851093551801	06-03-86	0.5	150	0.4	21	670	<0.02	--	--	810	40
431103091515501	11-12-85	14	80	0.7	12	467	<0.02	--	--	700	20
431816091474401	11-13-85	14	24	0.2	12	337	2.90	--	--	20	10
430843091555601	11-12-85	8.5	120	1.2	7.4	468	<0.02	--	--	470	<10
431747091592601	11-13-85	24	42	0.5	13	396	<0.02	--	--	1500	110
422317095522201	08-18-86	6.0	300	0.8	--	782	0.20	--	--	1300	160
422441096124001	10-08-86	<0.5	4.9	0.35	23	318	0.47	<0.01	0.15	<20	<20
422759095402501	09-30-86	15	80	0.4	21	498	18.4	<0.01	0.02	<20	<20
421406095433701	08-19-86	23	62	0.25	24	494	14.2	--	--	130	<20
421352096054802	10-09-86	2.0	18	0.5	28	386	<0.02	0.20	0.10	3200	250
421705095533602	08-20-86	28	120	0.2	22	608	0.95	--	--	240	160
423242095521501	09-30-86	20	62	0.55	22	524	8.00	<0.01	0.06	20	<20
421834096171301	08-14-86	1.0	86	0.4	29	534	<0.02	--	--	4400	200
421351095555001	10-09-86	7.0	49	0.35	27	470	1.49	0.07	0.10	270	240
431943093041801	06-04-86	5.5	20	0.25	16	232	<0.02	--	--	570	140
432642093132102	06-03-86	9.5	29	0.15	19	340	<0.02	--	--	1200	190
424405093551511	06-04-86	0.5	59	0.3	22	504	<0.02	--	--	590	460
424415093500101	06-02-86	<0.5	70	0.25	22	284	0.16	--	--	30	460
423359093503001	06-02-86	2.5	63	0.6	22	500	<0.02	--	--	2900	100

STATION NUMBER	DATE	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)	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)
404521095235801	08-14-86	<10	90	<1	<10	<10	<10	<1.0	<10	<10	<10
431429094450601	09-24-86	<10	70	<1	<10	50	<10	<1.0	<10	<10	<10
430745094541101	09-24-86	<10	130	<1	<10	<10	<10	<1.0	<10	<10	<10
423650096175701	08-14-86	<10	<50	<1	<10	6000	<10	<1.0	<10	<10	<10
423737096173201	08-14-86	<10	110	<1	<10	<10	<10	<1.0	<10	<10	<10
423449094505002	09-24-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
414117093474101	09-25-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
412812095211201	06-19-86	<10	170	<1	<10	<10	<10	<1.0	<10	<10	<10
411445095251601	07-20-86	<10	260	<1	<10	<10	<10	<1.0	<10	<10	<10
411453095251201	06-09-86	<10	260	<1	<10	<10	<10	<1.0	<10	<10	<10
412327095215401	08-20-86	<10	180	<1	<10	<10	<10	<1.0	<10	<10	<10
411201095252801	08-20-86	<10	90	<1	<10	<10	<10	<1.0	<10	<10	<10
412812095322701	06-06-86	<10	340	<1	10	<10	<10	<1.0	<10	<10	<10
411838095252801	08-26-86	<10	220	<1	<10	<10	<10	<1.0	<10	<10	<10
412328095411901	06-06-86	<10	260	<1	<10	<10	<10	<1.0	<10	<10	<10
404835094240201	07-11-86	<10	300	--	--	<10	<10	<1.0	<10	--	<10
404831094201102	08-19-86	<10	460	<1	<10	<10	<10	<1.0	<10	<10	<10
422739095084201	11-12-85	<10	300	<1	<10	<10	<10	<1.0	<10	<10	<10
421826095025101	11-13-85	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<10
423057095052201	11-12-85	<10	200	<1	<10	<10	<10	<1.0	<10	<10	30
421831095152101	11-12-85	<10	<100	1	--	<10	<10	<1.0	<10	<10	<10
422447094594101	11-13-85	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<10
421617095051001	11-13-85	<10	300	<1	<10	<10	<10	<1.0	<10	<10	<10
413933090351301	11-20-85	10	400	<1	<10	10	<10	<1.0	<10	<10	<10
413521090171001	11-20-85	<10	300	<1	<10	10	<10	<1.0	<10	<10	<10
414017090203701	11-20-85	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	20
413500090462401	11-21-85	<10	300	<1	<10	10	<10	<1.0	<10	<10	<10
425941096002701	12-04-85	<10	300	<1	<10	20	<10	<1.0	<10	<10	<10
431504096000901	10-09-85	<10	100	<1	<10	60	<10	<1.0	<10	<10	10
425946096292901	12-03-85	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
431228096174001	10-08-85	<10	<100	<1	<10	50	<10	<1.0	<10	<10	10
430459096061901	12-04-85	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	<10
415357093314101	07-21-86	<10	220	<1	<10	<10	<10	<1.0	<10	<10	<10
425702093394901	07-21-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
415253093411301	07-21-86	<10	<500	<1	<10	<10	<10	<1.0	<10	<10	<10
420932093175101	07-21-86	<10	530	<1	<10	<10	<10	<1.0	<10	<10	<10
420504092240301	06-17-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	140
404458094372601	07-18-86	<10	360	<1	<10	<10	<10	<1.0	<10	<10	<10
404501094444901	07-11-86	<10	200	--	--	<10	<10	<1.0	<10	--	<10
403844091442901	02-25-86	<10	<100	<1	<10	10	<10	<1.0	<10	<10	20
404005092094901	02-25-86	<10	200	<1	<10	<10	<10	<1.0	<10	<10	10
410907092375101	03-04-86	<10	<100	<1	<10	<10	<10	<1.0	<10	<10	<10
412220093441801	09-09-86	<10	380	<1	<10	<10	<10	<1.0	<10	<10	<10
411336093433101	10-21-86	<10	200	<1	<10	<10	<10	<1.0	<10	<10	190
411806093440501	10-21-86	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<20
422128094030101	09-17-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
423517094010401	06-02-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	40
432851093551801	06-03-86	<10	60	1	<10	<10	<10	<1.0	<10	<10	10
431103091515501	11-12-85	<10	200	<1	<10	10	<10	<1.0	<10	<10	<10
431816091474401	11-13-85	<10	200	<1	<10	<10	<10	<1.0	<10	<10	<10
430843091555601	11-12-85	<10	100	<1	<10	10	<10	<1.0	<10	<10	280
431747091592601	11-13-85	<10	400	<1	<10	<10	<10	<1.0	<10	<10	<10
422317095522201	08-18-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	<10
422441096124001	10-08-86	<10	250	<1	<10	<10	<10	<1.0	<10	<10	20
422759095402501	09-30-86	<10	50	<1	<10	<10	<10	<1.0	<10	<10	30
421406095433701	08-19-86	<10	280	<1	<10	<10	<10	<1.0	<10	<10	10
421352096054802	10-09-86	<10	210	<1	<10	<10	<10	<1.0	<10	<10	<20
421705095533602	08-20-86	<10	120	<1	<10	<10	<10	<1.0	<10	<10	<10
423242095521501	09-30-86	<10	120	<1	<10	<10	<10	<1.0	<10	<10	<20
421834096171301	08-14-86	<10	100	<1	<10	<10	<10	<1.0	<10	<10	<10
421351095555001	10-09-86	<10	90	<1	<10	<10	<10	<1.0	<10	<10	<20
431943093041801	06-04-86	<10	90	<1	<10	<10	<10	<1.0	<10	<10	<10
432642093132102	06-03-86	<10	160	<1	<10	<10	<10	<1.0	<10	<10	<10
424405093551511	06-04-86	<10	70	<1	<10	<10	<10	<1.0	<10	<10	<10
424415093500101	06-02-86	<10	<50	<1	<10	<10	<10	<1.0	<10	<10	60
423359093503001	06-02-86	<10	280	<1	<10	<10	<10	<1.0	<10	<10	<10

STATION NUMBER	DATE	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)	ATRA-ZINE, TOTAL (UG/L) (39630)	CYAN-AZINE TOTAL (UG/L) (81757)	METRI-BUZIN IN WHOLE WATER (UG/L) (81408)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	METOLA-CHLOR IN WHOLE WATER (UG/L) (39356)	TRI-FLURA-LIN TOTAL RECOVER (UG/L) (39030)
404521095235801	08-14-86	2.1	10	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
431429094450601	09-24-86	1.0	6.0	--	--	<0.1	<0.1	<0.1	<0.1	0.38	<0.1
430745094541101	09-24-86	2.1	18	--	--	--	--	--	--	--	--
423650096175701	08-14-86	3.5	9.0	1.1	5.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423737096173201	08-14-86	10	13	0.2	2.4	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423449094505002	09-24-86	4.9	9.0	3.0	<0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
414117093474101	09-25-86	2.3	<1.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
412812095211201	06-19-86	1.7	8.0	--	--	0.29	<0.1	<0.1	<0.1	<0.1	<0.1
411445095251601	07-20-86	4.5	7.0	0.3	<1.0	<0.1	<0.1	<0.1	<0.1	--	<0.1
411453095251201	06-09-86	3.9	5.0	0.7	1.4	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
412327095215401	08-20-86	5.5	2.0	0.3	0.9	0.18	<0.1	<0.1	<0.1	<0.1	<0.1
411201095252801	08-20-86	1.8	1.0	--	--	0.23	<0.1	<0.1	<0.1	<0.1	<0.1
412812095322701	06-06-86	1.4	2.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
411838095252801	08-26-86	4.8	<1.0	0.5	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
412328095411901	06-06-86	2.4	8.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
404835094240201	07-11-86	0.9	<1.1	--	--	<0.1	<0.1	<0.1	<0.1	0.28	<0.1
404831094201102	08-19-86	1.4	10	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
422739095084201	11-12-85	1.0	1.0	--	--	0.37	<0.1	<0.05	<0.1	<0.1	<0.05
421826095025101	11-13-85	5.0	3.0	0.6	0.6	0.15	<0.1	<0.05	<0.1	<0.1	<0.05
423057095052201	11-12-85	8.3	2.0	0.8	0.8	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
421831095152101	11-12-85	21	50	9.3	2.2	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
422447094594101	11-13-85	4.2	7.0	0.9	1.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
421617095051001	11-13-85	21	13	1.2	1.9	0.14	<0.1	<0.05	<0.1	<0.1	<0.05
413933090351301	11-20-85	0.6	4.0	--	--	--	--	--	--	--	--
413521090171001	11-20-85	5.2	2.0	1.4	1.3	--	--	--	--	--	--
414017090203701	11-20-85	0.4	1.0	--	--	--	--	--	--	--	--
413500090462401	11-21-85	3.0	5.0	1.2	1.6	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
425941096002701	12-04-85	<0.2	8.0	--	--	0.16	<0.1	<0.05	<0.1	<0.1	<0.05
431504096000901	10-09-85	6.2	9.0	0.5	<0.7	0.3	<0.1	<0.05	<0.1	0.2	<0.05
425946096292901	12-03-85	8.5	9.0	0.3	0.6	0.52	<0.1	<0.05	<0.1	<0.1	<0.05
431228096174001	10-08-85	46	20	0.7	<0.7	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
430459096061901	12-04-85	15	5.0	0.9	<0.6	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05
415357093314101	07-21-86	3.5	5.0	0.6	1.3	--	--	--	--	--	--
425702093394901	07-21-86	0.8	10	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
415253093411301	07-21-86	4.1	<9.0	0.8	<0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420932093175101	07-21-86	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420504092240301	06-17-86	4.1	11	0.9	1.4	--	--	--	--	--	--
404458094372601	07-18-86	1.4	3.0	--	--	0.31	<0.1	<0.1	0.73	<0.1	<0.1
404501094444901	07-11-86	0.7	<1.1	--	--	<0.1	<0.1	<0.1	0.32	0.36	<0.1
403844091442901	02-25-86	<0.2	<0.7	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
404005092094901	02-25-86	4.5	5.0	1.0	1.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
410907092375101	03-04-86	<0.2	2.0	--	--	0.15	<0.1	<0.1	<0.1	<0.1	<0.1
412220093441801	09-09-86	0.6	<1.0	--	--	--	--	--	--	--	--
411336093433101	10-21-86	0.9	2.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
411806093440501	10-21-86	0.3	<1.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
422128094030101	09-17-86	15	28	12	5.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423517094010401	06-02-86	1.4	3.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
432851093551801	06-03-86	4.2	3.0	1.6	2.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
431103091515501	11-12-85	1.9	6.0	--	--	--	--	--	--	--	--
431816091474401	11-13-85	2.8	4.0	--	--	--	--	--	--	--	--
430843091555601	11-12-85	2.2	10	1.6	1.4	--	--	--	--	--	--
431747091592601	11-13-85	<0.2	6.0	--	--	--	--	--	--	--	--
422317095522201	08-18-86	1.3	--	--	5.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
422441096124001	10-08-86	1.0	6.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
422759095402501	09-30-86	1.1	6.0	--	--	--	--	--	--	--	--
421406095433701	08-19-86	4.0	<1.1	0.2	<0.1	--	--	--	--	--	--
421352096054802	10-09-86	1.1	5.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
421705095533602	08-20-86	5.5	9.0	0.5	2.6	--	--	--	--	--	--
423242095521501	09-30-86	2.0	<1.3	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
421834096171301	08-14-86	4.9	19	1.5	5.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
421351095555001	10-09-86	2.1	2.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
431943093041801	06-04-86	3.1	2.6	1.9	2.6	--	--	--	--	--	--
432642093132102	06-03-86	4.4	<0.8	1.5	<0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424405093551511	06-04-86	2.9	5.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424415093500101	06-02-86	1.8	3.0	--	--	--	--	--	--	--	--
423359093503001	06-02-86	1.3	5.0	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

STATION NUMBER	DATE	CHLOR-AMBEN TOTAL (UG/L) (82051)	DICAMBA (MEDIBEN) (BANVEL D) TOTAL (UG/L) (82052)	2,4-D, TOTAL (UG/L) (39730)	SILVEX, TOTAL (UG/L) (39760)	CARBO-FURAN (UG/L) (81405)	CHLOR-PYRIFOS TOTAL (UG/L) (81403)	ETHO-PROP TOTAL (UG/L) (81758)	DYFO-NATE (UG/L) (81294)	PHORATE OTAL (UG/L) (39023)	TERBU-FOS (UG/L) (82088)
404521095235801	08-14-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
431429094450601	09-24-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
430745094541101	09-24-86	--	--	--	--	--	--	--	--	--	--
423650096175701	08-14-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423737096173201	08-14-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423449094505002	09-24-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
414117093474101	09-25-86	<0.1	<0.1	<0.1	<0.1	--	<0.1	<0.1	<0.1	<0.1	<0.1
412812095211201	06-19-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
411445095251601	07-20-86	--	--	--	--	--	--	--	--	--	--
411453095251201	06-09-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
412327095215401	08-20-86	--	--	--	--	--	--	--	--	--	--
411201095252801	08-20-86	--	--	--	--	--	--	--	--	--	--
412812095322701	06-06-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
411838095252801	08-26-86	--	--	--	--	--	--	--	--	--	--
412328095411901	06-06-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
404835094240201	07-11-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
404831094201102	08-19-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
422739095084201	11-12-85	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
421826095025101	11-13-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
423057095052201	11-12-85	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
421831095152101	11-12-85	<0.07	<0.07	<0.07	<0.05	--	<0.1	<0.1	<0.1	<0.1	<0.1
422447094594101	11-13-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
421617095051001	11-13-85	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
413933090351301	11-20-85	--	--	--	--	--	--	--	--	--	--
413521090171001	11-20-85	--	--	--	--	--	--	--	--	--	--
414017090203701	11-20-85	--	--	--	--	--	--	--	--	--	--
413500090462401	11-21-85	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
425941096002701	12-04-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
431504096000901	10-09-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
425946096292901	12-03-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
431228096174001	10-08-85	<0.07	<0.07	<0.07	<0.05	--	<0.1	<0.1	<0.1	<0.1	<0.1
430459096061901	12-04-85	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
415357093314101	07-21-86	--	--	--	--	--	--	--	--	--	--
425702093394901	07-21-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
415253093411301	07-21-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420932093175101	07-21-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
420504092240301	06-17-86	--	--	--	--	--	--	--	--	--	--
404458094372601	07-18-86	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
404501094444901	07-11-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
403844091442901	02-25-86	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
404005092094901	02-25-86	--	<0.07	<0.07	<0.05	--	--	--	<0.1	<0.1	--
410907092375101	03-04-86	--	<0.07	<0.07	<0.05	--	--	<0.1	<0.1	<0.1	--
412220093441801	09-09-86	--	--	--	--	--	--	--	--	--	--
411336093433101	10-21-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
411806093440501	10-21-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
422128094030101	09-17-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
423517094010401	06-02-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
432851093551801	06-03-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
431103091515501	11-12-85	--	--	--	--	--	--	--	--	--	--
431816091474401	11-13-85	--	--	--	--	--	--	--	--	--	--
430843091555601	11-12-85	--	--	--	--	--	--	--	--	--	--
431747091592601	11-13-85	--	--	--	--	--	--	--	--	--	--
422317095522201	08-18-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
422441096124001	10-08-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
422759095402501	09-30-86	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--
421406095433701	08-19-86	--	--	--	--	--	--	--	--	--	--
421352096054802	10-09-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
421705095533602	08-20-86	--	--	--	--	--	--	--	--	--	--
423242095521501	09-30-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
421834096171301	08-14-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
421351095555001	10-09-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
431943093041801	06-04-86	--	--	--	--	--	--	--	--	--	--
432642093132102	06-03-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424405093551511	06-04-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
424415093500101	06-02-86	--	--	--	--	--	--	--	--	--	--
423359093503001	06-02-86	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

BIG SPRING FISH HATCHERY NEAR ELKADER, IOWA

LOCATION.--Lat 42°54'35", long 91°28'11", in SE1/4 SE1/4 sec. 31, T.94 N., R.5 W., Clayton County, Hydrologic Unit 07060004, 3.0 mi north and 2.8 mi west of Elkader, Iowa.

OWNER.--U.S. Geological Survey.

PERIOD OF RECORD.--August 1984 to current year.

INSTRUMENTATION.--Wet/dry precipitation collector, weighing-bucket type recording rain gage with alter wind shield and event recorder and National Weather Service standard 8-inch rain and snow gage (back-up only).

EXTREMES FOR PERIOD OF RECORD.--Maximum field pH, 6.66, June 25 to July 2, 1985; minimum field pH, 3.83, July 30 to August 6, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum field pH, 6.54, April 22 to April 29, 1986; minimum field pH, 3.87, March 20 to March 27, 1986.

WET DEPOSITION DATA

DATE	PH (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)
OCT 01-08	--	--	4.1	4.6	14	0.14	<0.016	<0.007	1.6	5.1	0.546
OCT 08-15	4.58	11	0.14	0.03	<0.01	0.02	0.202	0.195	0.11	1.3	<0.001
OCT 15-22	5.89	9	0.64	0.07	0.02	0.02	0.086	0.191	0.05	1.5	<0.001
OCT 22-29	--	--	0.24	0.03	0.05	0.02	0.56	0.282	0.05	2.4	<0.001
OCT 29-NOV 05	--	--	0.3	0.11	0.58	0.01	<0.016	<0.007	0.09	0.8	0.003
NOV 05-12	--	--	0.99	0.09	0.06	0.05	0.591	0.713	0.11	2.5	<0.001
NOV 12-19	--	--	0.48	0.17	0.03	0.04	0.257	0.484	0.08	2.4	0.007
NOV 19-26	--	--	3.1	0.42	0.07	0.14	1.25	1.30	0.32	5.3	<0.001
NOV 26-DEC 03	--	--	0.11	0.03	<0.01	0.02	<0.016	0.584	0.29	0.7	<0.001
DEC 03-10	4.33	15	0.19	0.03	0.05	0.06	<0.016	0.417	0.16	0.8	<0.001
DEC 10-17	--	--	--	--	--	--	--	--	--	--	--
DEC 17-24	--	--	0.18	0.05	0.08	0.1	<0.016	<0.007	0.17	0.3	0.012
DEC 24-31	--	--	0.69	0.12	0.03	0.07	0.086	0.491	0.16	1.3	<0.001
DEC 31 1985-JAN 07 1986	--	--	0.27	0.02	0.02	0.02	0.21	0.384	0.12	0.9	<0.003
JAN 07-14	--	--	<0.22	<0.07	<0.07	<0.07	<0.389	<0.164	<0.74	<0.7	0.081
JAN 14-21	--	--	--	--	--	--	--	--	--	--	--
JAN 21-28	--	--	--	--	--	--	--	--	--	--	--
JAN 28-FEB 05	4.43	21	0.12	0.02	0.02	0.05	0.405	0.377	0.1	2.1	<0.003
FEB 05-11	--	--	1.6	0.34	0.09	0.14	1.99	0.997	0.37	7.0	<0.003
FEB 11-18	--	--	--	--	--	--	--	--	--	--	--
FEB 18-25	--	--	0.25	0.05	0.04	0.1	0.405	0.555	0.17	2.8	0.003
FEB 25-MAR 04	4.98	10	0.48	0.11	0.06	0.11	0.459	0.444	0.15	1.4	0.003
MAR 04-11	--	--	--	--	--	--	--	--	--	--	--
MAR 11-18	4.23	35	0.39	0.04	0.03	0.06	0.451	0.608	0.16	3.7	<0.003
MAR 18-25	4.55	23	0.87	0.08	0.1	0.16	0.443	0.355	0.25	3.6	<0.003

PRECIPITATION WATER-QUALITY DATA.--Continued

BIG SPRINGS FISH HATCHERY NEAR ELKADER, IOWA

WET DEPOSITION DATA

DATE	PH (STANDARD UNITS) (00400)	SPECIFIC CONDUCTANCE (US/CM) (00095)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, NITRATE DISSOLVED (MG/L AS N) (00618)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)
MAR 25-APR 04	--	--	0.27	0.05	0.1	0.08	0.669	0.251	0.15	1.0	<0.003
APR 01-08	--	--	0.41	0.07	0.09	0.13	0.84	0.579	0.28	4.4	<0.003
APR 08-15	5.45	15	0.55	0.08	0.32	0.02	<0.016	0.20	0.11	2.9	0.007
APR 15-22	--	--	3.7	0.7	0.21	0.27	1.53	0.937	0.51	11.0	0.003
APR 22-29	6.54	14	1.1	0.21	0.83	0.08	<0.016	<0.007	0.19	1.3	0.003
APR 29-MAY 06	6.44	23	1.2	0.21	0.93	0.08	0.233	0.417	0.23	3.0	0.007
MAY 06-13	--	--	0.42	0.12	0.06	0.1	0.591	0.602	0.22	4.6	<0.003
MAY 13-20	--	--	0.19	0.06	0.03	0.04	0.381	0.415	0.08	1.7	<0.003
MAY 20-27	3.87	56	0.5	0.11	0.02	0.02	0.731	0.837	0.14	5.3	<0.003
MAY 27-JUN 03	--	--	0.23	0.07	0.04	0.07	1.76	1.20	0.25	7.2	<0.003
JUN 03-10	4.00	14	0.56	0.11	0.02	0.05	0.086	0.297	0.07	2.0	<0.003
JUN 10-17	4.68	8	0.22	0.04	0.07	0.06	0.272	0.251	0.12	1.0	0.003
JUN 17-24	4.88	10	0.44	0.07	0.03	0.06	<0.016	0.333	0.1	1.1	0.003
JUN 24-JUL 01	5.75	9	0.43	0.1	0.02	0.04	<0.016	0.286	0.07	0.9	<0.003
JUL 01-08	5.46	11	0.39	0.05	0.02	0.08	0.241	0.271	0.11	1.6	<0.003
JUL 08-15	4.99	11	0.22	0.04	0.02	0.03	0.086	0.22	0.07	1.4	<0.003
JUL 15-22	--	--	--	--	--	--	--	--	--	--	--
JUL 22-29	6.08	10	0.73	0.11	0.04	0.02	<0.016	0.218	0.04	1.8	<0.003
JUL 29-AUG 05	--	--	2.8	0.64	0.1	0.18	<0.039	1.13	0.49	6.6	<0.009
AUG 05-12	6.38	9	0.71	0.09	0.03	0.01	0.07	0.124	0.16	0.9	<0.003
AUG 12-19	4.58	18	0.1	0.02	0.02	0.04	0.303	0.246	0.04	2.1	<0.003
AUG 19-26	4.97	31	0.12	0.02	0.01	0.01	0.086	0.158	<0.03	0.7	<0.003
AUG 26-SEP 02	--	--	0.03	<0.01	<0.01	0.02	<0.016	<0.007	<0.03	<0.1	<0.003
SEP 02-09	5.28	13	0.46	0.07	0.03	0.08	0.436	0.315	0.05	2.0	<0.003
SEP 09-16	--	--	0.31	0.04	0.03	0.04	0.42	0.40	0.08	2.7	<0.003
SEP 16-23	4.56	19	0.19	0.02	0.03	0.07	0.405	0.313	0.1	2.0	0.016
SEP 23-30	5.41	4	0.05	0.01	0.01	0.03	0.078	0.064	<0.03	0.5	<0.003

MCNAY RESEARCH STATION NEAR CHARITON, IOWA

LOCATION.--Lat 40°57'47", long 93°23'32", in SW1/4 NE1/4 sec. 9, T.71 N., R.23 W., Lucas County, Hydrologic Unit 10280201, 3.1 mi east and 2.0 mi north of Derby, Iowa, 3.4 mi west and 2.8 mi south of Chariton, Iowa.

OWNER.--U.S. Geological Survey.

PERIOD OF RECORD.--September 1984 to current year.

INSTRUMENTATION.--Wet/dry precipitation collector, weighing-bucket type recording rain gage with alter wind shield and event recorder. National Weather Service standard 8-inch rain and snow gage (back-up only).

EXTREMES FOR PERIOD OF RECORD.--Maximum field pH, 6.91, March 25 to April 1, 1986; minimum field pH, 3.84, February 12 to February 19, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum field pH, 6.91, March 25 to April 1, 1986; minimum field pH, 4.10, December 3 to December 10, 1985.

WET DEPOSITION DATA

DATE	SPECIFIC PH (STANDARD UNITS) (00400)	CALCIUM CONDUCTANCE (US/CM) (00095)	MAGNESIUM, DISSOLVED (MG/L AS CA) (00915)	POTASSIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS K) (00935)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NA) (00930)	NITROGEN, NITRATE DISSOLVED (MG/L AS N) (00608)	CHLORIDE, DISSOLVED (MG/L AS N) (00618)	SULFATE DISSOLVED (MG/L AS CL) (00940)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS SO4) (00945)	DISSOLVED (MG/L AS P) (00671)
OCT 01-09	4.89	5	0.18	0.02	0.01	0.02	0.07	0.067	<0.03	0.6	<0.001
OCT 09-15	5.01	7	0.05	0.02	<0.01	0.06	<0.015	<0.007	0.14	0.6	<0.001
OCT 15-22	4.73	96	0.05	0.01	0.01	0.01	0.195	0.173	<0.03	1.0	<0.001
OCT 22-29	4.46	25	--	--	--	--	--	--	--	--	--
OCT 29-NOV 05	4.60	10	0.08	0.02	0.01	0.01	0.202	0.235	<0.03	1.0	<0.001
NOV 05-28	4.57	15	0.44	0.04	0.03	0.06	0.179	0.306	0.09	1.9	<0.001
NOV 12-19	4.70	11	0.07	0.01	0.01	0.03	0.179	0.142	<0.03	0.9	<0.001
NOV 19-26	--	--	--	--	--	--	--	--	--	--	--
NOV 26-DEC 02	--	--	--	--	--	--	--	--	--	--	--
DEC 03-10	4.10	45	0.55	0.08	0.1	0.19	1.28	0.963	0.31	4.0	<0.001
DEC 10-17	--	--	0.18	0.06	<0.04	0.3	<0.187	<0.08	0.71	1.0	<0.012
DEC 17-24	--	--	0.53	0.18	0.22	0.85	<0.311	<0.135	1.4	0.8	<0.02
DEC 24-31	--	--	--	--	--	--	--	--	--	--	--
DEC 31 1985-JAN 07 1986	--	--	--	--	--	--	--	--	--	--	--
JAN 07-14	--	--	--	--	--	--	--	--	--	--	--
JAN 14-21	--	--	--	--	--	--	--	--	--	--	--
JAN 21-28	--	--	--	--	--	--	--	--	--	--	--
JAN 28-FEB 04	4.44	27	0.13	0.02	0.14	0.12	0.622	0.295	0.24	3.1	<0.003
FEB 04-11	4.80	7	0.03	0.01	0.01	0.02	0.086	0.031	0.05	0.9	<0.003
FEB 11-18	4.47	24	0.47	0.09	0.06	0.14	0.226	0.457	0.23	2.4	0.003
FEB 18-25	--	--	0.19	0.03	0.01	0.16	0.296	0.34	<0.14	1.8	0.016
FEB 26-MAR 04	--	--	--	--	--	--	--	--	--	--	--
MAR 04-11	6.15	18	0.72	0.05	0.06	0.1	0.926	0.435	0.1	2.2	<0.003
MAR 11-18	4.38	28	0.31	0.03	0.03	0.03	0.49	0.448	0.08	2.9	<0.003
MAR 18-25	--	--	0.13	0.02	0.01	0.04	0.475	0.448	0.08	1.7	<0.003

PRECIPITATION WATER-QUALITY DATA.--Continued.

MCNAY RESEARCH STATION NEAR CHARITON, IOWA

WET DEPOSITION DATA

DATE	PH (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)
MAR 25-APR 01	6.91	24	2.0	0.17	0.07	0.19	1.07	0.528	0.25	3.2	<0.003
APR 01-08	4.50	16	0.32	0.03	0.02	0.09	0.405	0.302	0.17	2.4	<0.003
APR 08-15	5.10	8	0.5	0.04	0.04	0.04	0.233	0.131	<0.03	1.1	<0.003
APR 15-22	4.82	13	0.66	0.05	0.04	0.08	0.335	0.257	0.14	2.1	<0.003
APR 22-29	5.32	15	0.89	0.09	0.06	0.2	0.591	0.326	0.32	2.2	<0.003
APR 29-MAY 06	5.31	41	1.7	0.25	0.35	0.29	3.68	0.917	0.42	6.5	0.121
MAY 06-13	4.70	19	0.19	0.03	0.06	0.08	<0.016	0.164	0.13	2.3	0.007
MAY 13-20	4.54	13	0.11	0.01	0.01	0.04	0.163	0.211	0.09	1.3	<0.003
MAY 20-27	4.45	72	3.8	0.32	0.21	0.11	2.72	2.50	0.42	13.0	<0.003
MAY 27-JUN 03	4.32	30	0.41	0.03	0.03	0.02	0.685	0.322	0.07	4.2	<0.003
JUN 03-10	4.97	12	0.32	0.07	0.18	0.03	0.179	0.369	0.1	2.0	0.01
JUN 10-17	5.36	8	0.4	0.04	0.02	0.04	0.265	0.233	0.06	1.4	<0.003
JUN 17-24	4.81	16	0.94	0.06	0.03	0.07	0.303	0.526	0.19	1.9	<0.003
JUN 24-JUL 01	5.01	8	0.29	0.03	0.02	0.05	<0.016	0.233	0.08	1.1	<0.003
JUL 01-08	4.72	12	0.21	0.03	0.03	0.08	0.179	0.255	0.12	1.4	0.003
JUL 08-15	4.71	9	0.18	0.02	0.02	0.03	0.124	0.218	0.06	1.1	<0.003
JUL 15-22	--	--	--	--	--	--	--	--	--	--	--
JUL 22-29	5.41	12	0.72	0.05	0.04	0.06	0.054	0.477	0.11	1.4	<0.003
JUL 29-AUG 05	4.32	38	0.92	0.07	0.04	0.09	0.638	0.75	0.19	3.5	<0.003
AUG 05-12	4.96	8	0.08	0.01	0.01	0.02	0.039	0.186	0.05	0.7	<0.003
AUG 12-19	4.67	13	0.27	0.03	0.13	0.06	<0.016	0.044	0.13	1.9	<0.003
AUG 19-26	--	--	--	--	--	--	--	--	--	--	--
AUG 26-SEP 02	--	--	--	--	--	--	--	--	--	--	--
SEP 02-09	5.45	7	0.29	0.05	0.02	0.16	0.218	0.202	0.05	1.0	0.003
SEP 09-16	4.87	8	0.16	0.01	0.01	0.02	0.148	0.211	0.04	0.8	<0.003
SEP 16-23	4.66	13	0.11	0.01	0.02	0.05	0.054	0.175	0.08	1.4	<0.003
SEP 23-30	4.71	8	0.12	0.01	0.01	0.06	0.10	0.14	0.08	0.8	<0.003

☆ U.S. GOVERNMENT PRINTING OFFICE: 1987—757-250/60026

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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