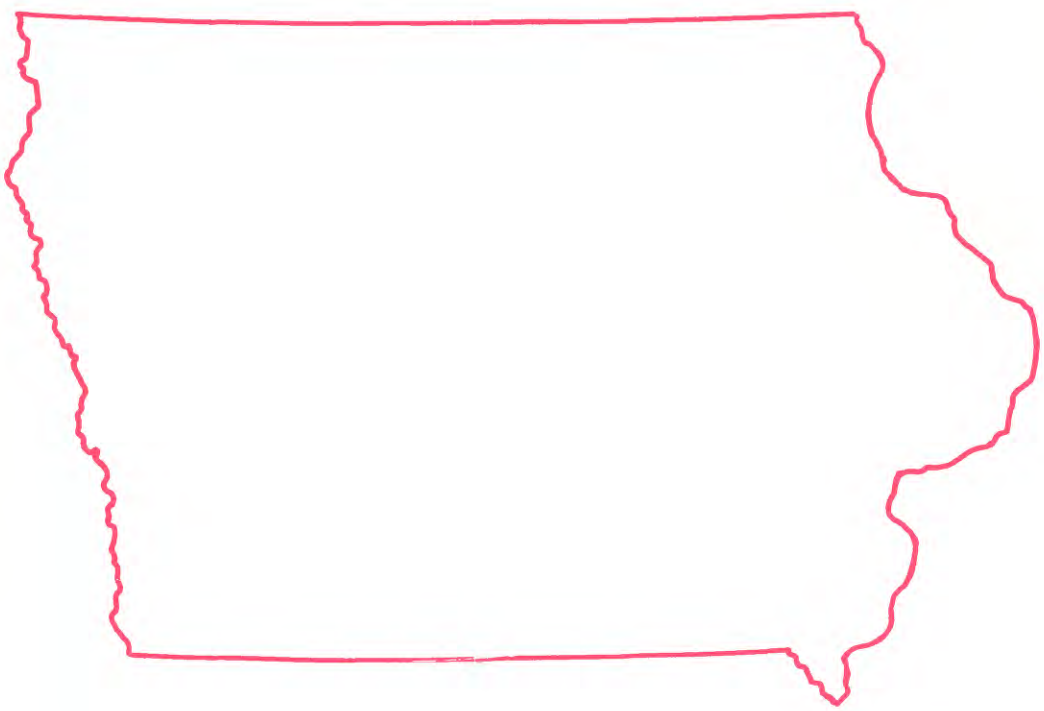
Water Resources Data
Iowa
Water Year 1982



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT IA-82-1
Prepared in cooperation with the Iowa Geological Survey and with other State and Federal agencies

CALENDAR FOR WATER YEAR 1982

1981

OCTOBER

S	M	T	W	T	F	S
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1982

JANUARY

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31						

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28						

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JUNE

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JULY

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AUGUST

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SEPTEMBER

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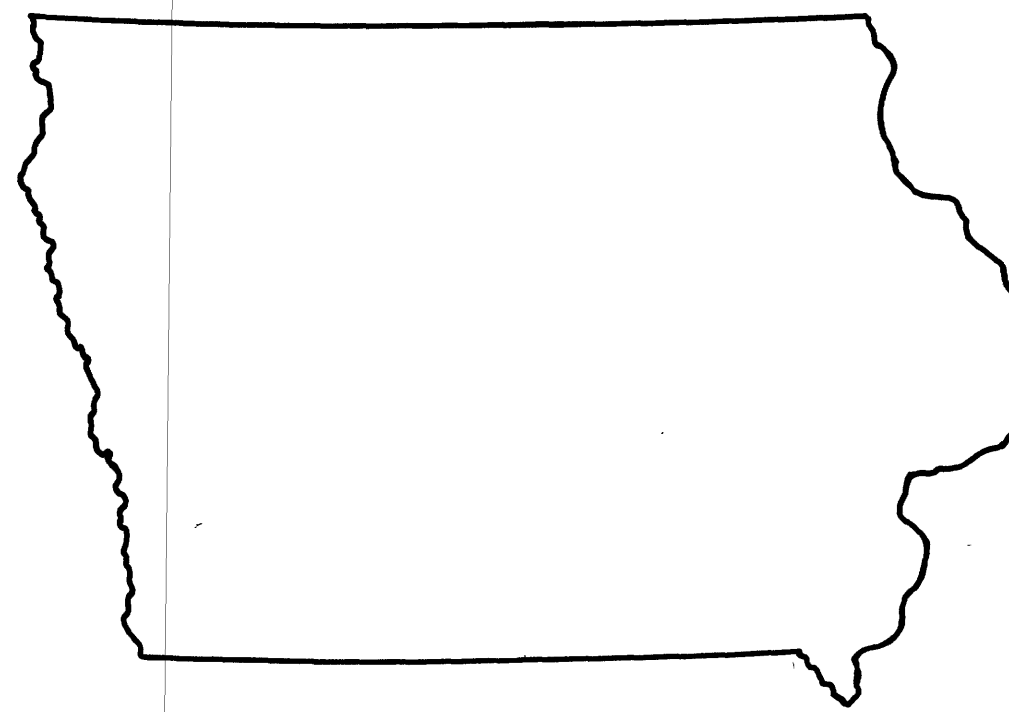
Water Resources Data
Iowa
Water Year 1982

by I.L. Burmeister, V.L. Spiers, P.J. Soenksen, and W.J. Matthes, Jr.



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT IA-82-1
Prepared in cooperation with the Iowa Geological Survey and with other State and Federal agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, 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

1983

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- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

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

R.E. Hansen	R.D. Goodrich	R.C. Klosterman
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This report was prepared in cooperation with the State of Iowa and with other agencies under the general supervision of J.M. Klein, District Chief, Iowa.

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16. Abstract (Limit: 200 words)

Water resources data for the 1982 water year for Iowa consists of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels in wells. This report contains discharge records for 116 gaging stations; stage and contents for 7 lakes and reservoirs; water quality for 17 gaging stations; and water levels for 34 observations wells. Also included are 125 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 Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Iowa.

17. Document Analysis a. Descriptors

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

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TABLES

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

GAGING STATIONS, IN DOWNSTREAM ORDER--Continued

WATER RESOURCES DATA FOR IOWA, 1982

INTRODUCTION

Water resources data for the 1982 water year for Iowa consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels of ground-water wells. This report contains records for water discharge at 116 gaging stations; stage or contents at 7 lakes and reservoirs; water quality at 17 gaging stations, and water levels at 34 observation wells. Also included are data for 125 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-81-1." These water-data reports are for sale, in paper copy or in microfiche, by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

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

COOPERATION

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

Iowa Geological Survey, Donald L. Koch, director and state geologist

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

Iowa Department of Transportation, Highway Division, Donald E. McLean, Director, and Vernon J. Marks, research engineer

Iowa State University, Richard E. Hasbrook, contracts and grants officer, and E. Robert Bauman Professor-in-charge; Department of Agricultural Engineering, C. W. Bockhop, head; and Engineering Research Institute, W. W. Sanders, Jr., assistant director.

City of Cedar Rapids, Donald Canney, mayor

City of Des Moines, Pete Creivaro, mayor

City of Fort Dodge, Vincent B. Gardner, general manager, department of municipal utilities

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

The following organizations aided in collecting records:

Union Electric Co.; Des Moines Water Works; Hospers Rural Water System No. 1; 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.

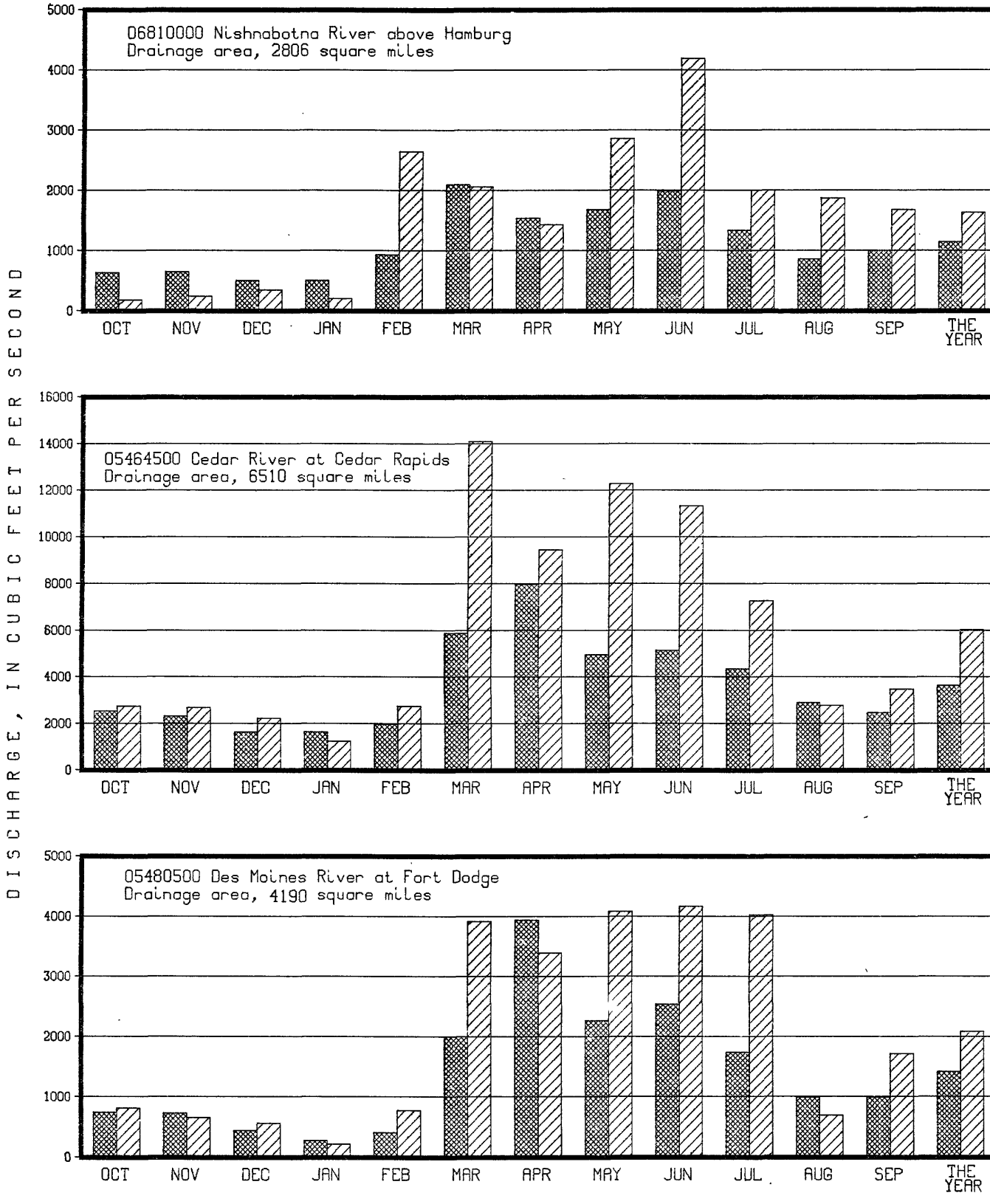


FIGURE 1.--RUNOFF DURING 1982 WATER YEAR COMPARED WITH MEAN RUNOFF FOR PERIOD 1951-80 FOR THREE REPRESENTATIVE GAGING STATIONS.

SUMMARY OF HYDROLOGIC CONDITIONS

Runoff for 1982 in Iowa was above normal and ranged from about 3 inches in the northwest to over 15 inches in the southeast. Normal runoff varies from 2 inches in the northwest to 8 inches in the southeast. Parts of east-central and south-central Iowa had 14 to 17 inches of runoff and some localized areas had runoff greater than 18 inches. Cedar Creek near Bussey (05489000) in south-central Iowa had 24.6 inches of runoff. Streamflow for the three index stations (fig. 1) was above normal most of the period February through September and above normal for the year.

Water-quality data was collected bi-monthly at 7 National Streams Quality Accounting Network (NASQAN) stations and 1 Hydrologic Bench-Mark Network (HBMN) station in Iowa. These networks utilize a fixed station and fixed-sampling interval concept. Field data collected included measurements of pH, specific conductance, water temperature, dissolved oxygen, and fecal bacteria. Water samples were collected and analyzed for common constituents including cations, anions, dissolved solids; nutrient constituents including nitrate, ammonia, phosphate and other nitrogen and phosphorus species, trace metals and suspended sediment. These samples were depth integrated and field preserved prior to analysis by the USGS Central Laboratory in Denver, Colorado.

Dissolved-solids data from selected NASQAN stations were used to demonstrate temporal variability of water quality for the Mississippi River, the Missouri River, and the Iowa River (sites shown on fig. 9). In extreme southeast Iowa, dissolved-solids concentrations in the Mississippi River at Keokuk were relatively normal throughout the year except for the August sample in which the dissolved-solids concentration was considerably higher than the mean for the period of record (fig. 2). Additionally, nitrate plus nitrite concentrations at this station were consistently higher than the mean for the period of record; the water year mean (3.1 mg/L) was higher than the period of record mean (1.8 mg/L). For the NASQAN station located on the Missouri River at Sioux City, dissolved-solids concentrations were higher throughout the year than the mean for the period of record (fig. 2). The concentrations of dissolved-solids at Iowa River at Wapello (figure 2) varied little from the mean values for the period of record.

Table 1. Summary of flood peak discharges at selected sites for the floods of June-July, 1982, in Iowa

Site No. (**)	Station number	Stream	Drainage area (sq mi)	Flood of June 15 Date	Gage height (feet)	Discharge (cfs)	RI (+)	Flood of July 3 Date	Gage height (feet)	Discharge (cfs)	RI (+)	Flood of July 16-18 Date	Gage height (feet)	Discharge (cfs)	RI (+)
1	05451700	Timber Cr nr Marshalltown	118	15	17.30	9940	40								
2	05451955	Stein Cr nr Clutier	23.4	15	77.92	11400	1.78								
3	05452000	Salt Cr nr Elberon	201	15	20.00	33200	1.98					18	17.58	7540	7
4	05454300	Clear Cr nr Coralville	98.1	15	14.61	9900	50					19	13.23	4710	7
5	---	Old Mans Cr at Williamsburg	41.7	15	---	16100	1.9*								
6	05455100	Old Mans Cr nr Iowa City	201	15	15.25	13500	90								
7	05464310	Pratt Cr nr Garrison	23.4	15	96.17	10900	1.6*								
8	---	Blue Cr nr Center Point	31.2	15	---	10700	1.4*								
9	---	East Blue Cr nr Center Point	27.4	15	---	7300	100								
10	05487470	South R nr Ackworth	460					3	22.55	9700	4	16	32.00	26000	100
11	05487980	White Breast Cr nr Dallas	342					3	26.73	12300	15	16	33.45	37300	1.8*
12	---	English Cr nr Melcher	46.3									16	---	16100	1.8*
13	---	English Cr nr Knoxville	91.0									16	---	28000	2.3*
14	05488620	Coal Cr nr Albia	13.5					3	88.51	12700	2.4*				
15	---	Cedar Cr nr Marysville	241					3	---	64700	3.6*				
16	---	North Cedar Cr nr Marysville	123					3	---	35900	2.7*				
17	05489000	Cedar Cr nr Bussey	374					3	34.61	96000	4.4*	16	33.20	63800	2.9*
18	05489350	South Avery Cr nr Blakesburg	33.1					3	90.20	21000	2.7*				
19	06807470	Indian Cr nr Emerson	37.3	15	92.66	15800	1.9*								
20	06808500	W. Nishnabotna R. at Randolph	1,326	15	23.51	27600	20								
21	06811800	East Tarkio Cr nr Stanton	4.66	15	12.82	2600	50								
22	06811840	Tarkio R at Stanton	49.3	15	21.23	10100	1.1*								
23	06817000	Nodaway R at Clarinda	762	15	19.70	29700	70								

\+ Recurrence interval, in years (Lara,1973).
* Ratio of flood discharge to that of regional 100-year flood (Lara,1973).
** Relates to sites plotted in figure 6.

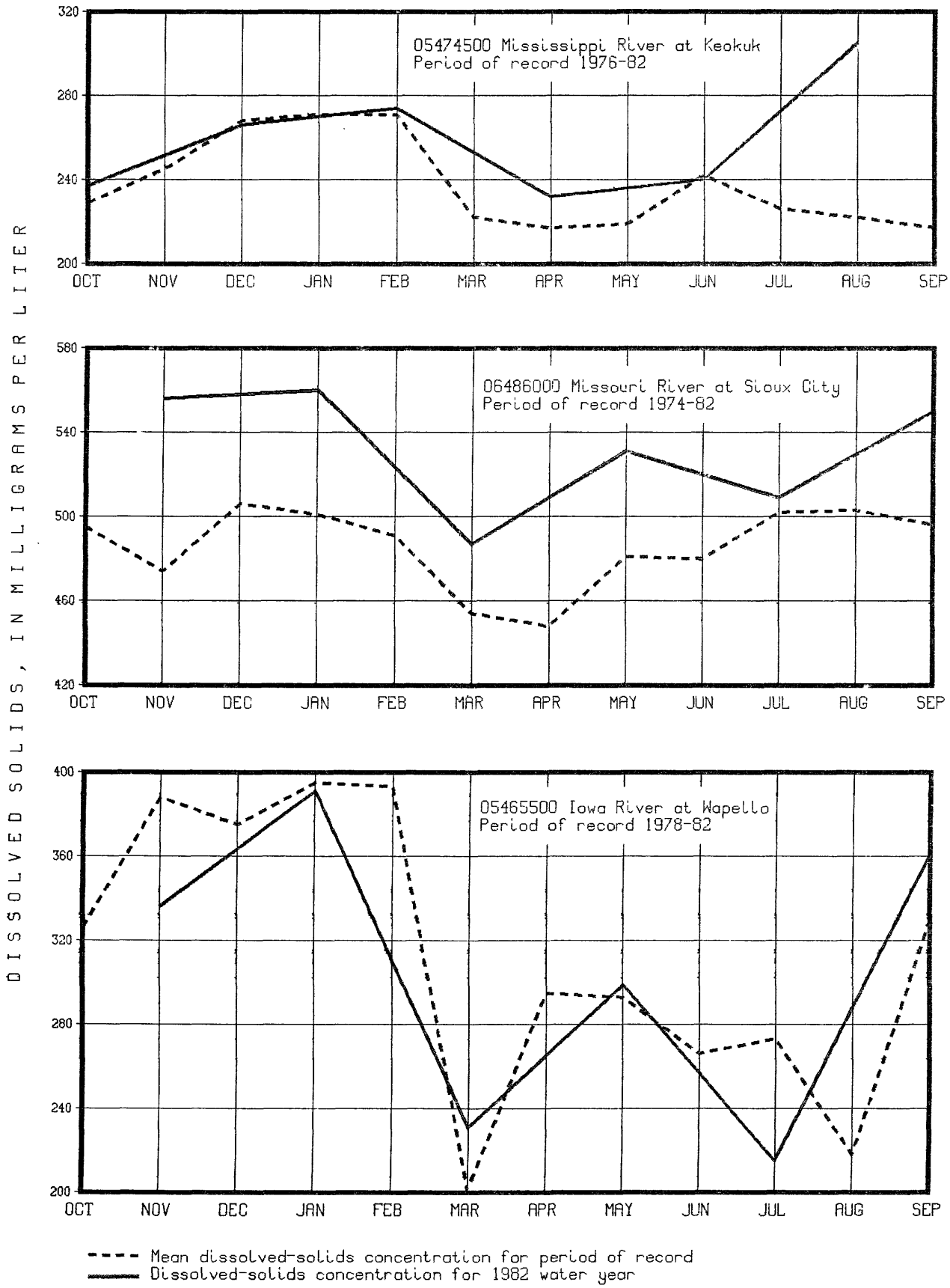


FIGURE 2.--COMPARISON OF DISSOLVED-SOLIDS CONCENTRATIONS FOR 1982 WATER YEAR WITH MEAN MONTHLY VALUES FOR THE PERIODS OF RECORD AT THREE SELECTED GAGING STATIONS.

Water levels in shallow wells were above average for most of the state during the water year. In extreme southwest Iowa, the water-levels were slightly below average for several months in the first half of the water year. Water levels in parts of the southwest were only slightly above average early in the water year but finished the year above average. Water levels in the eastern one-half of the State were much above average nearly three-fourths of the year. A new high level, for the period of record since 1941, was recorded in May in an observation well in Linn County. New high monthly levels for October and April were recorded in a well in Johnson County with 30 years of record. At the end of the water year, water levels were rising and were much above average throughout the State.

FLOODS OF JUNE-JULY, 1982

Flood-peak discharges of record occurred on streams in southwest, south-central, and east-central Iowa from rainstorms of 7 to 8 inches in June and July, 1982. These storms had been preceded by the wettest May since 1959, averaging just over 7 inches of precipitation statewide. The June 15 floods extended from near the southwest corner of the State to the east-central part. The July 3 floods covered a large part of south-central Iowa as did the later floods on July 16-20. Minor flooding also occurred again in east-central Iowa from the July 16th storms. Table 1 lists gaging stations and miscellaneous sites where major flood peak gage heights and discharges were obtained. The locations of the daily gaging stations are shown in figure 3 and described in the gaging station manuscript, whereas the miscellaneous sites are described in the section on discharges at miscellaneous sites.

ANTECEDENT PRECIPITATION

Table 2 lists the monthly rainfall and departure from normal for the nine divisional areas in Iowa for the period March-July, 1982. Noteworthy are the high monthly totals for most of the southern two-thirds of the State. Figure 4 shows the divisional areas in Iowa of the National Oceanic and Atmospheric Administration, National Weather Service, for which these data were compiled.

Figure 5 shows the cumulative rainfall for three recording stations in the State; Randolph in the southwest, Toledo in the east-central and Albia in the south-central. Albia is in the vicinity of the upper reaches of the Cedar Creek basin where the greatest flooding in 1982 occurred.

May Precipitation

According to the precipitation records of the National Oceanic and Atmospheric Administration, Climatological Data for Iowa, 1982, May was the wettest across Iowa since 1959, averaging just over 7 inches statewide to rank as Iowa's 6th wettest May in 100 years of State records.

Record amounts of rainfall for the month of May were recorded at Glenwood, 11.24 inches, Creston, 10.98 inches, Bedford, 10.68 inches, and Hampton, 10.34 inches. A few heavy downpours and the spacing of rains during May caused most streams to run full or near bank full for most of the month.

June Precipitation

On June 8-9, many National Weather Service stations reported 1 to 2 inches of rainfall. On June 15, there were several large rainstorms that caused severe flooding from near the southwest corner of the state into east-central Iowa. On June 15, a number of stations reported rains of 4 to 6 inches, and there were unofficial reports of 8 inches or more. One notable storm occurred at Albia on June 28 during which 4.83 inches of rain fell in 2.5 hours, exceeding the 100-year rainstorm by half an inch (Waite).

July Precipitation

July 1982 was notable for record rainfalls. At Moulton, in Appanoose County, a record 22.45 inches was measured. Lake Rathbun with 18.19 inches and Albia with 18.33 inches also reported July 1982 as their wettest recorded month. Albia measured 7.25 inches of rain on July 3 to establish a new daily record rainfall. During the period June 26-July 5, 15.69 inches of rain fell at Albia, which exceeded the 100-year, 10-day rainfall by 3.69 inches (Waite). Moulton reported 18.02 inches in the 7-day period, July 14-20, which exceeded the 100-year, 7-day rainfall by 6.8 inches (Waite).

SOUTHWEST IOWA STREAMS

Indian Creek

A devastating flood on Indian Creek in Mills and Montgomery Counties in southwest Iowa contributed to the derailment of an Amtrak passenger train 2 miles west of Emerson in the early morning hours of June 16, 1982, and almost the entire business community in Emerson was inundated by 5-6 feet of water.

The flood discharge of 15,800 cubic feet per second (ft^3/s) at the Indian Creek crest-stage gage (06807470) was 1.9 times that of a 100-year regional flood (Lara,1973). Floods on other streams on June 15 in southwest Iowa include the West Nishnabotna River at Randolph (06808500) with a 20-year flood, East Tarkio Creek near Stanton (06811800) with a 50-year flood, Tarkio River at Stanton (06811840) with a flood 1.1 times that of a regional 100-year flood, and Nodaway River at Clarinda (06817000) with a 70-year flood. The flood-peak discharges and the expected recurrence intervals for the significant floods of June-July 1982 are listed in table 1.

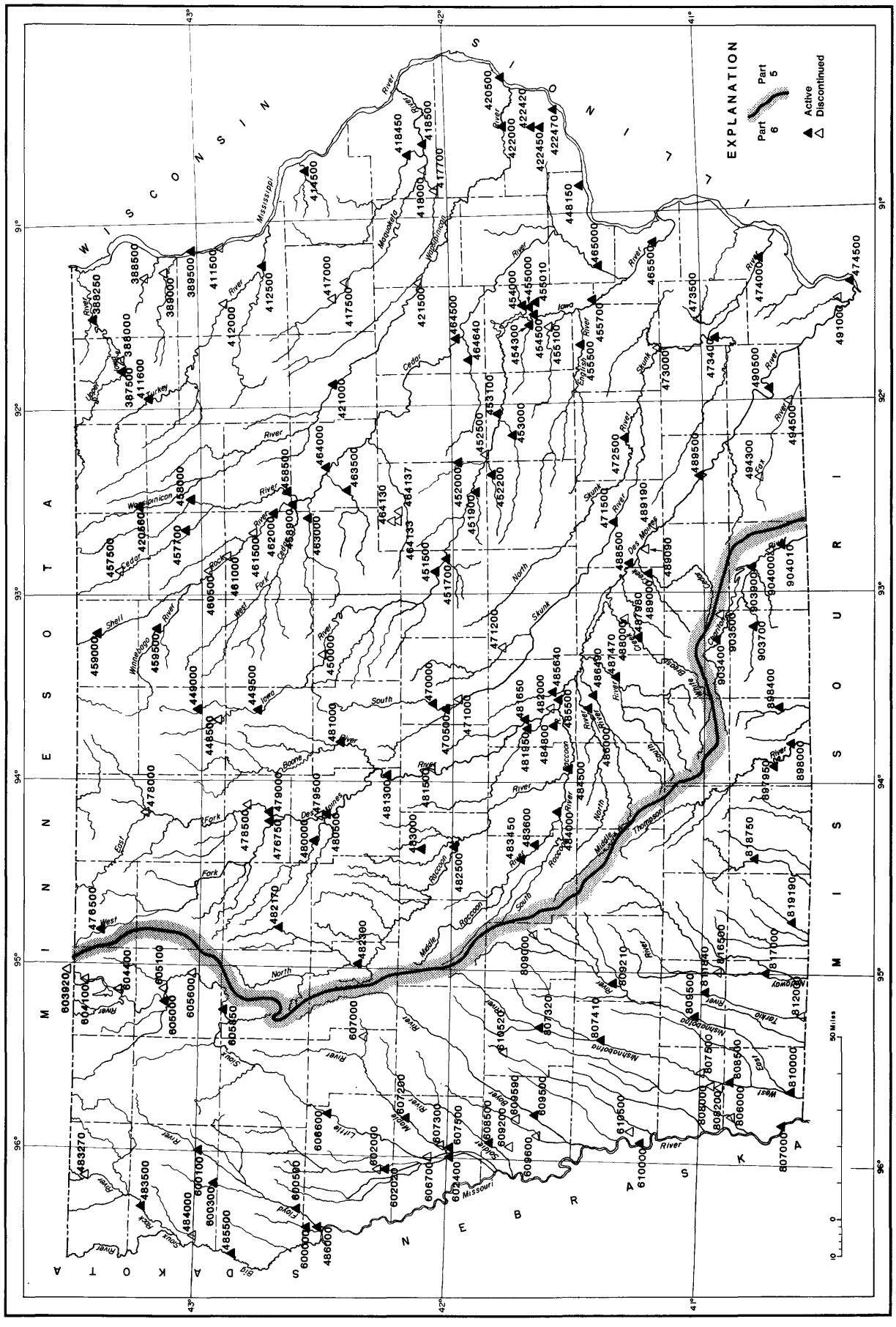


Figure 3.-Location of continuous-record gaging stations in Iowa.

Table 2.--Total monthly rainfall and departure from normal for March-July, 1982 for the nine divisional areas in Iowa. (Modified from National Oceanic and Atmospheric Administration, Climatological data for Iowa, March-July, 1982).

AREA	MARCH		APRIL		MAY		JUNE		JULY	
	TOTAL	DEPARTURE FROM NORMAL	TOTAL	DEPARTURE FROM NORMAL	TOTAL	DEPARTURE FROM NORMAL	TOTAL	DEPARTURE FROM NORMAL	TOTAL	DEPARTURE FROM NORMAL
Northwest	1.10	-0.47	1.37	-0.98	6.66	2.79	2.08	-2.76	4.96	1.37
North central	1.77	-0.25	2.99	0.21	7.86	3.68	3.15	-1.98	4.79	0.60
Northeast	2.39	0.19	2.36	-0.75	6.41	2.28	3.02	-2.01	4.88	0.68
West central	2.27	0.39	1.93	-0.79	8.18	4.08	2.92	-2.38	5.34	1.78
Central	2.70	0.50	3.10	0.05	7.55	3.25	3.46	-1.80	6.82	2.95
East central	2.77	0.40	2.19	-1.29	5.03	1.06	4.94	0.00	7.06	3.09
Southwest	3.51	1.44	3.01	0.07	8.73	4.41	4.09	-1.50	3.55	-0.24
South central	4.33	2.02	2.80	-0.53	8.09	3.99	3.53	-1.70	9.91	6.21
Southeast	4.47	2.04	2.99	-0.63	5.96	2.16	3.13	-1.66	9.02	5.00

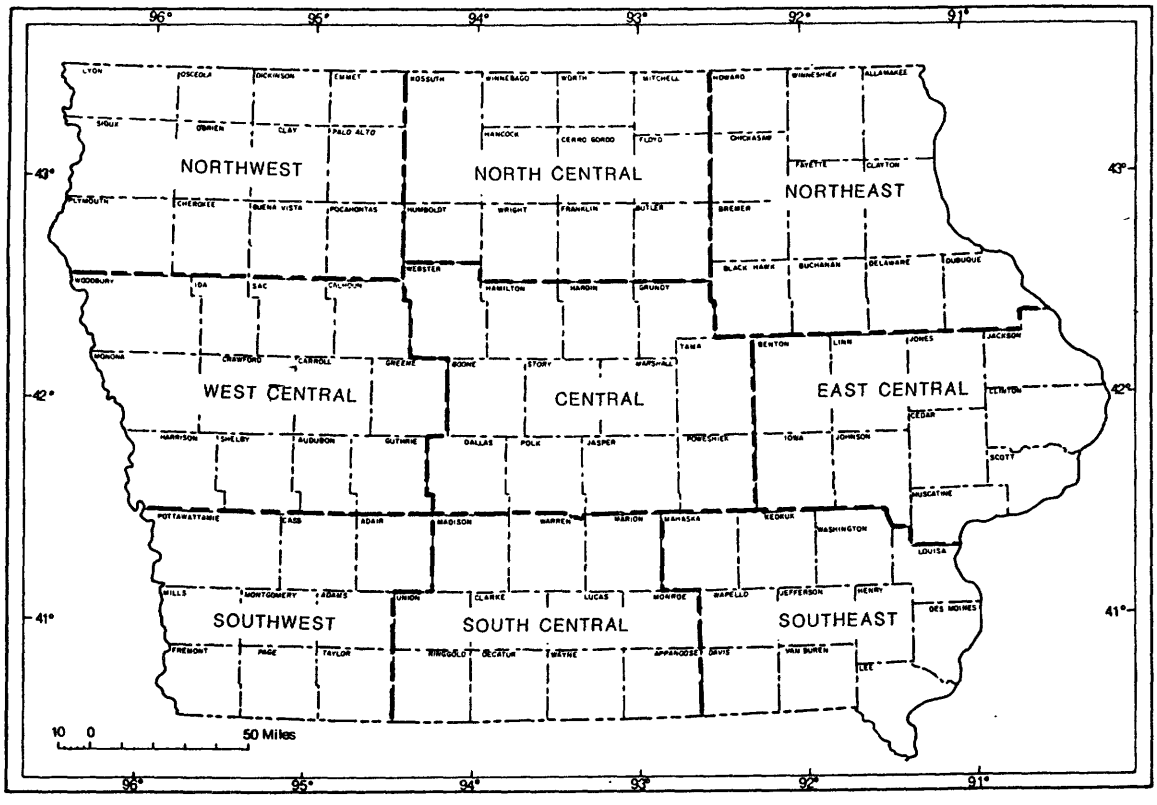


Figure 4.--Divisional areas in Iowa of the National Oceanic and Atmospheric Administration.

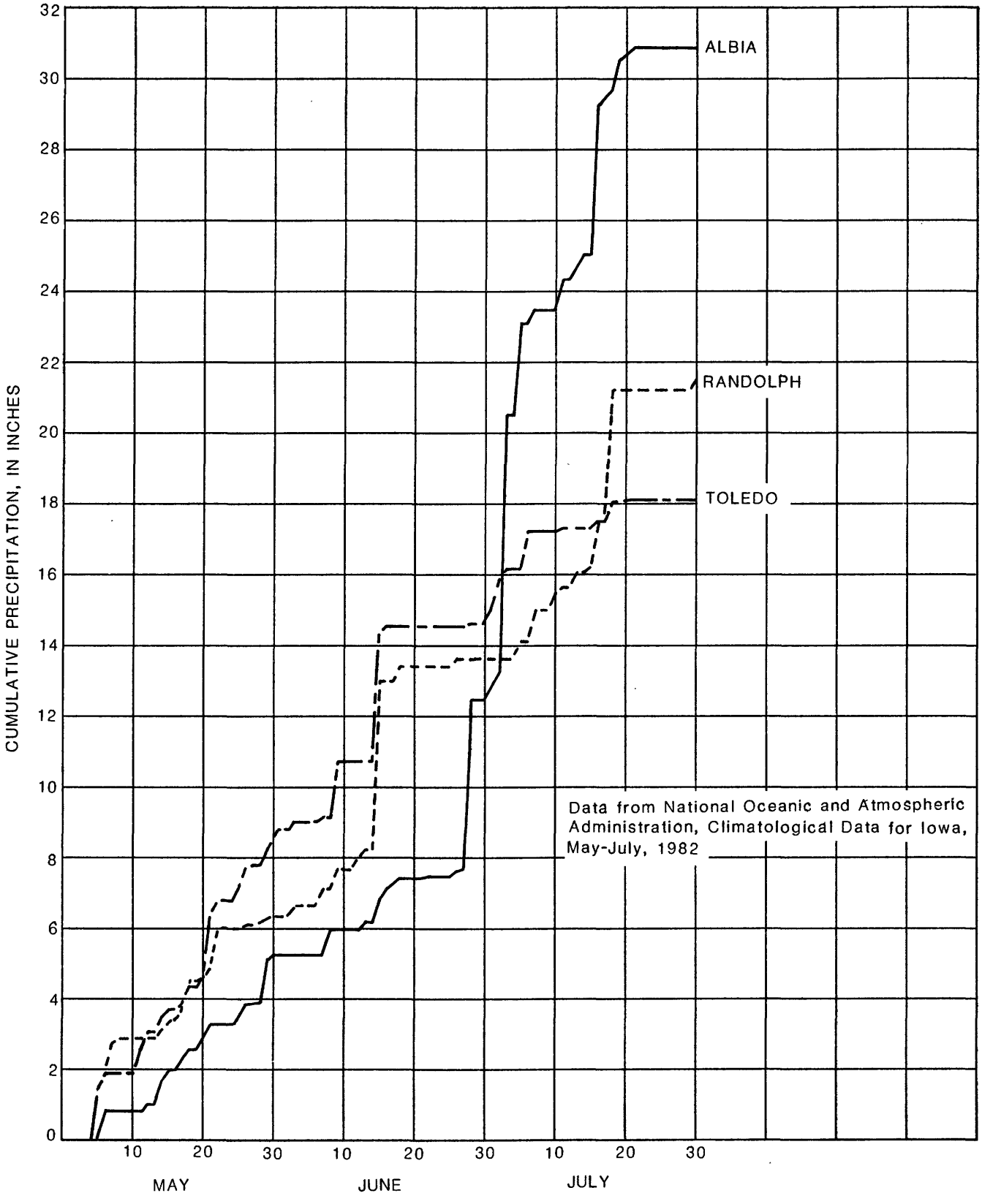


Figure 5.--Cumulative precipitation, May-July, 1982, at recording stations at Albia, Randolph and Toledo, Iowa.

SOUTH-CENTRAL IOWA STREAMS

Many streams in Marion, Lucas and Monroe counties had significant flood-peak discharges during the July 1982 rain storms. Included among these streams were Coal Creek, White Breast Creek, English Creek, Cedar Creek, North Cedar Creek, South Avery Creek, and South River.

Much of the south-central Iowa area that was flooded July 3 and 16, 1982, is the same area that was flooded extensively July 4, 1981, when new flood peaks of record were set on several streams. Several small communities were severely flooded at least 3 times in the period between July 3, 1981, and July 16, 1982.

Cedar Creek

The greatest peak discharge ever recorded on interior streams in the state of Iowa, except for those on the Des Moines River downstream from Des Moines, was recorded July 3, 1982, on Cedar Creek in Marion County, south-central Iowa. The flood-peak discharge of 96,000 ft^3/s at the gaging station, Cedar Creek near Bussey (05489000), exceeded the regional 100-year flood by 4.4 times (Lara,1973). The gage height of the July 3, 1982, flood exceeded the previous record flood state by 5.78 feet.

The July 3, 1982, flood was followed by a second flood on July 16, 1982, which was the second greatest flood recorded at this site. The discharge of 63,800 ft^3/s for this flood exceeded the regional 100-year flood by 2.9 times (Lara,1973).

Peak discharges for July 3 were computed for the Cedar Creek and North Cedar Creek crossings at State Highway 5 (miscellaneous sites) where the flood waters had inundated the roads and bridges. The July 16 flood was about 2 feet lower at the Cedar Creek site and was 0.1 foot higher at the North Cedar Creek site than was the July 3 flood.

EAST-CENTRAL IOWA STREAMS

Old Mans Creek

Old Mans Creek in Iowa and Johnson Counties in east-central Iowa flows past the north edge of Williamsburg where record rains of 6 to 7 inches were reported on June 15, 1982. State Highway 149 and the bridge over Old Mans Creek (miscellaneous site), were inundated by a flood-peak discharge of 16,100 ft^3/s which was 1.9 times that of a regional 100-year flood (Lara,1973).

A new flood peak discharge of record (13,500 ft^3/s) occurred at the crest-stage gage on Old Mans Creek (05455100) southwest of Iowa City. The flood-peak discharge was equivalent to a 100-year flood (Lara,1973). The rather wide and flat flood plain on Old Mans Creek, upstream from the gage, allowed a large amount of inundation and flood water storage to occur in the lower reaches of the basin. As a result, the flood-peak discharge was attenuated as it reached the crest-stage gage. The road and bridge at this site were not inundated.

Clear Creek

A peak discharge of record (9,900 ft^3/s) occurred at the gaging station, Clear Creek near Coralville (05454300) on July 15. Water from Clear Creek flowed over the I-80 Highway west of Coralville. The Clear Creek basin adjoins the Old Mans Creek basin on the north.

Pratt Creek

About 400 feet of U.S. Highway 218, north of Garrison in Benton County, was inundated by about 1.5 feet of water from Pratt Creek on June 15. A peak discharge of record (10,800 ft^3/s) occurred at the crest-stage gage (05454310) located at this site.

Salt Creek

A new flood stage of record was set by the June 15, 1982, flood at the gaging station on Salt Creek near Elberon (05452000). However, the peak discharge of 33,200 ft^3/s was second to the 1947 discharge of 35,000 ft^3/s. The June 15 peak discharge was 1.9 times that of a regional 100-year flood (Lara,1973). The road and bridge were not inundated at this site.

FLOOD MAGNITUDE AND FREQUENCY

The relative magnitude of floods may be compared by the use of regional flood-frequency relations (Lara, 1973). Figure 6 shows the relation of the 1982 flood-peak discharges to the regional 100-year flood discharges and to the curve enveloping the maximum discharges for the state of Iowa (Lara, 1973). The 96,000 ft^3/s flood peak on the Cedar Creek near Bussey (no. 17) approaches the enveloping curve of maximum discharges. For a drainage area of 374 square miles (mi^2), the peak runoff rate was 257 cubic feet per second per square mile (CFSM). Many of the 1982 flood peaks plot in the vicinity of 2 times that of a regional 100-year flood (Lara,1973).

It is very significant that the peak discharge of Cedar Creek (96,000 ft^3/s) from a drainage area (DA) of 374 mi^2 exceeds the peak discharges of all other interior streams with records in Iowa except the Des Moines River downstream from Des Moines. The greatest flood of record on the Iowa River at Wapello (DA = 12,499 mi^2) was 94,000 ft^3/s (7.52 CFSM) on June 18, 1947; that on the Cedar River at Cedar Rapids (DA = 6,510 mi^2) was 73,000 ft^3/s (11.2 CFSM) March 31, 1961; that on the Skunk River at Augusta (DA = 4,303 mi^2) was 66,800 ft^3/s (15.5 CFSM) on April 23, 1973; and that on the Des Moines River near Stratford (DA = 5,452 mi^2) was 57,400 ft^3/s (10.5 CFSM) on June 22, 1954.

The regional analysis of flood peak discharges considers records for all stations in a hydrologically homogeneous area and tends to reduce the errors associated with short, random and nonrepresentative samples. However, the user of flood frequency data must be aware of the rare and outstanding floods that have occurred on relatively few streams in Iowa. Over an extreme length of time, it is possible that storms such as those that occurred in 1982 could develop over any drainage basin. The storm intensity, duration and direction, the antecedent conditions, and the basin's physiographic characteristics, such as shape, stream density, drainage pattern, and direction, all contribute to the probability of maximum runoff.

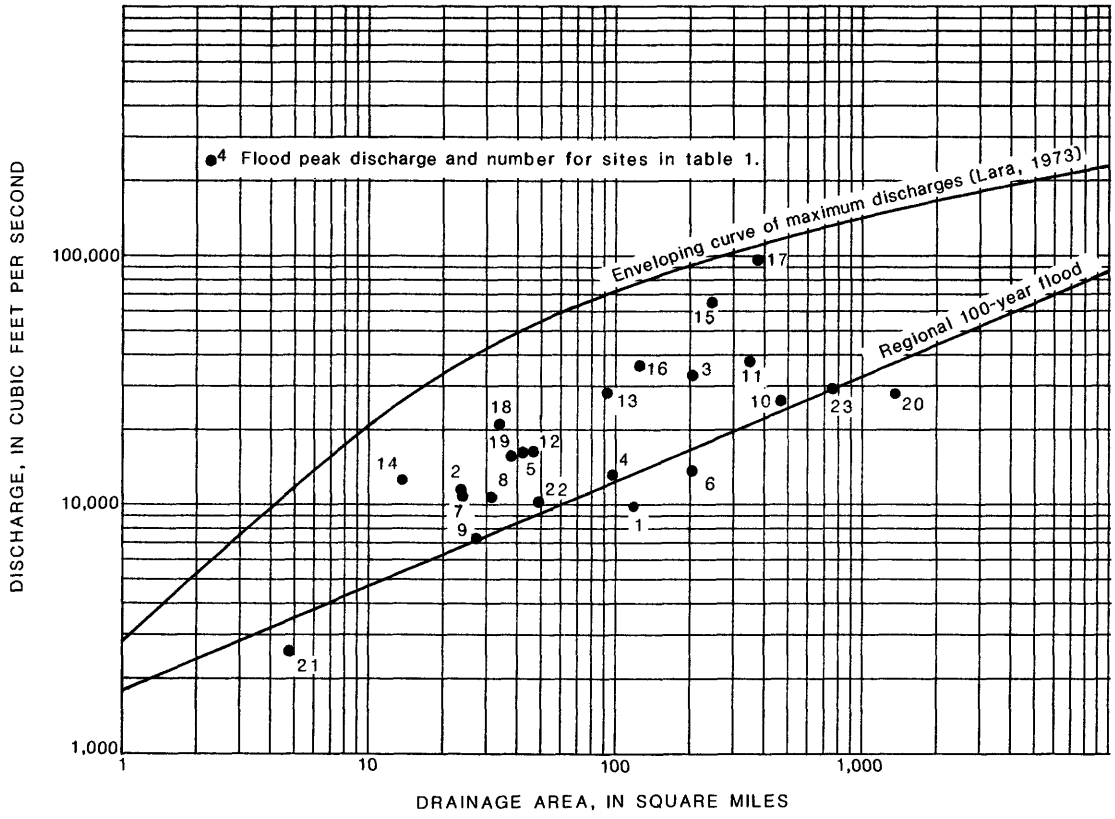


Figure 6.--Relation of flood-peak discharge to drainage area for floods of June-July, 1982, in Iowa.

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.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

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

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

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

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

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

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

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

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and the ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

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

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

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

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

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

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

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

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

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

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

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

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

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

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

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

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

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

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

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

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

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

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

Organism is any living entity, such as an insect, phytolplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (ml) or liters (l). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

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

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

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

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

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

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

Periphyton is the assemblage of microorganisms attached to and growing upon solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton is a useful indicator of water quality.

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

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

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/ml) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/ml) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of cholrinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly green plants). The rate of primary production is estimated by measureing the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/)m^2.time) for periphyton and macrophytes and mg C/(m^2.time)] for periphyton and macrophytes and mg C/m^3.time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg O_2 /m^3.time) for periphyton and macrophytes and mg C/(mg O_2 /(m^3.time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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

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

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

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

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

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

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

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

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

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

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

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

Streamflow is the discharge that occurs in a natural channel. Although the term "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.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multi-plate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

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

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

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

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexagenia
Species	Hexagenia limbata

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

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

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

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

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

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

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.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

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

DOWNSTREAM ORDER AND STATION NUMBER

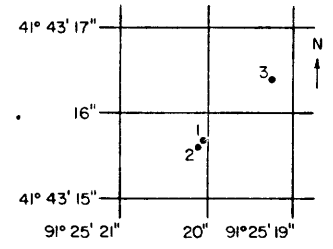
Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed between stations on the main stream in the order in which those tributaries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

As an added means of identification and each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 05387500, which appears just to the left of the station name, includes the 2-digit part number "05" plus the 6-digit downstream order number "387500."

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

NUMBERING SYSTEM FOR WELLS

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



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

Figure 7. Latitude-longitude well number.

The local well numbers are in accordance with the Bureau of Land Management's system of land subdivision. Each well number is made up of three segments. The first segment indicates the township, the second the range, and the third the section in which the well is situated. The letters after the section number which are assigned in a counter-clockwise direction (beginning with "a" in the northeast quarter), represent subdivisions of the section. The first letter denotes the 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. Numbers are added as suffixes to distinguish wells in the same tract. Thus, the number 96-20-3cdbd1 designates the well in the SE1/4 NW1/4 SE1/4 SW1/4 sec.3, T.96 N., R.20 W.

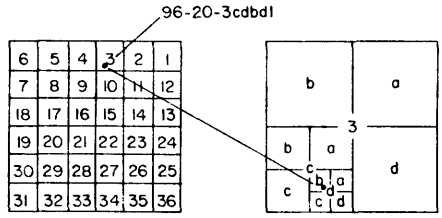


Figure 8. Local well numbering system for well 96-20-3cdbd1.

SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

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

EXPLANATION OF STAGE AND WATER-DISCHARGE

Collection and computation of data

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

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

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

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

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

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

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

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

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

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

The type of gage currently in use; the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum (NGVD) is explained in "DEFINITION OF TERMS" on page 10.

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

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

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

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

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

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

Accuracy of data

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

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

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

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

Other data available

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

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

Records of discharge collected by agencies other than the Geological Survey

Records of discharge not published by the Geological Survey were collected during water year 1982 at several sites in Iowa by the Corps of Engineers, U.S. Army. The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, Va. 22092, maintains an index of such sites. Information on records available at specific sites can be obtained upon request.

EXPLANATION OF WATER QUALITY RECORDS

Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

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

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on the next page.

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 a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-qaulity conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. Although these temperatures are measured on different days of the month, an analysis of these data for each month for a long period of record will indicate significant thermal characteristics of the stream. Data have been analyzed for the period of record through 1974 for gaging stations with 10 or more years of record. A summary on monthly maximum, minimum and mean temperatures were published in the 1974 water data report. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small daily temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharge.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published.

Sediment

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

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

At other stations, suspended-sediment samples are collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observation, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic national network of observation wells are published herein. These water-level measurements are intended to provide a sampling and historical record of water-level changes in the nation's most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude, and (2) a local number that is provided for local needs. See figures 6 and 7.

Measurements are made in many types of wells under varying conditions of access and of diffferent temperatures, hence neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will insure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level 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 levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of depth to water of several hundred feet, the error of derterminning the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reportted to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

1-D1. Water temperature--influential factors, field measurements, and data presentation, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
1-D2. Guidelines for collection and field analysis of ground-water samples for selected unstable constituents, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
2-D1. Application of surface geophysics to ground-water resources investigations, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
2-E1. Application of borehole geophysics to water-resources investigations, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
3-A1. General field and office procedures for indirect discharge measurements, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
3-A2. Measurement of peak discharge by the slope-area method, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
3-A3. Measurement of peak discharge at culverts by indirect methods, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
3-A4. Measurement of peak discharge at width contractions by indirect methods, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
3-A5. Measurement of peak discharge at dams by indirect methods, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
3-A6. General procedure for gaging streams, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.3-A
3-A7. State measurements at gaging stations, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 29 pages.
3-A8. Discharge measurements at gaging stations, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
3-A9. Measurement of time of travel and dispersion in streams by dye tracing, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.
3-A11. Measurements of discharge by moving-boat method, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
3-B1. Aquifer-test design, observation, and data analysis, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
3-B2. Introduction to ground-water hydraulics, a programed text for self-instruction, by G. D. Bennet: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
3-B3. Type curves for selected problems of flow to wells in confined aquifers, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.

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 44, Chapter B2. 1973. 20 pages.
4-B3. Regional analyses of streamflow characteristics, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3, 1973. 15 pages.
4-D1. Computation of rate and volume of stream depletion by wells, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1, 1970. 17 pages.
5-A1. Methods for determination of inorganic substances in water and fluvial sediments, by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979, 626 pages.
5-A2. Determination of minor elements in water by emission spectroscopy, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
5-A3. Methods for analysis or organic substances in water, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.
5-A4. Methods for collection and analysis of aquatic biological and microbiological samples, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Bock 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-C1. Laboratory theory and methods for sediment analysis, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
7-C1. Finite difference model for aquifer simulation in two dimensions with results of numerical experiments, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
7-C2. Computer model of two-dimensional solute transport and dispersion in ground water, by L. F. Konikow and J. D. Bredenhoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
7-C3. A model for simulation of flow in singular and interconnected channels, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
8-A1. Methods of measuring water levels in deep wells, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
8-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.

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Waite, P.,1983, June-July Weather Summary: Iowa Department of Agriculture, State Climatologist's office.

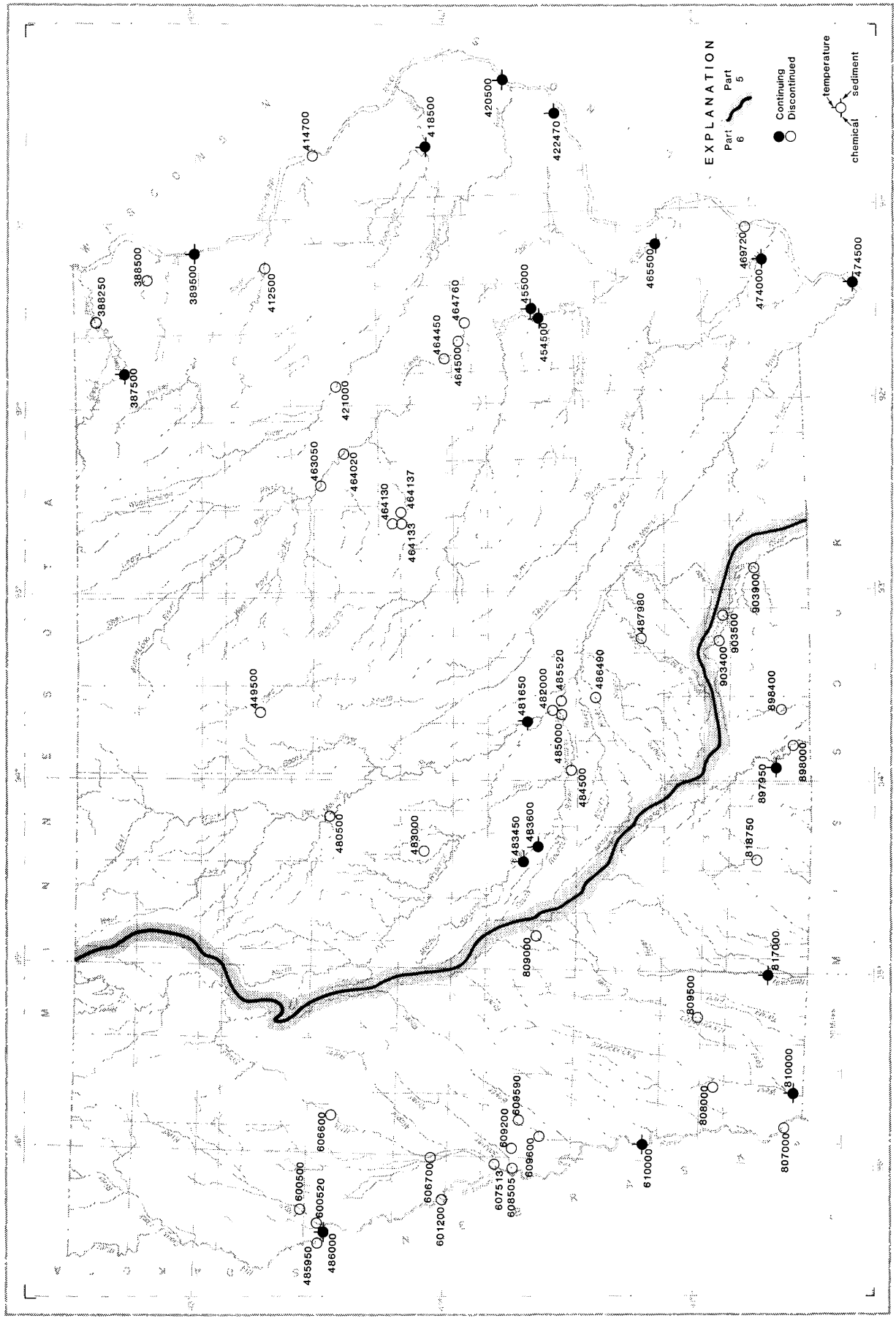

Figure 9.-Location of water-quality stations in Iowa.

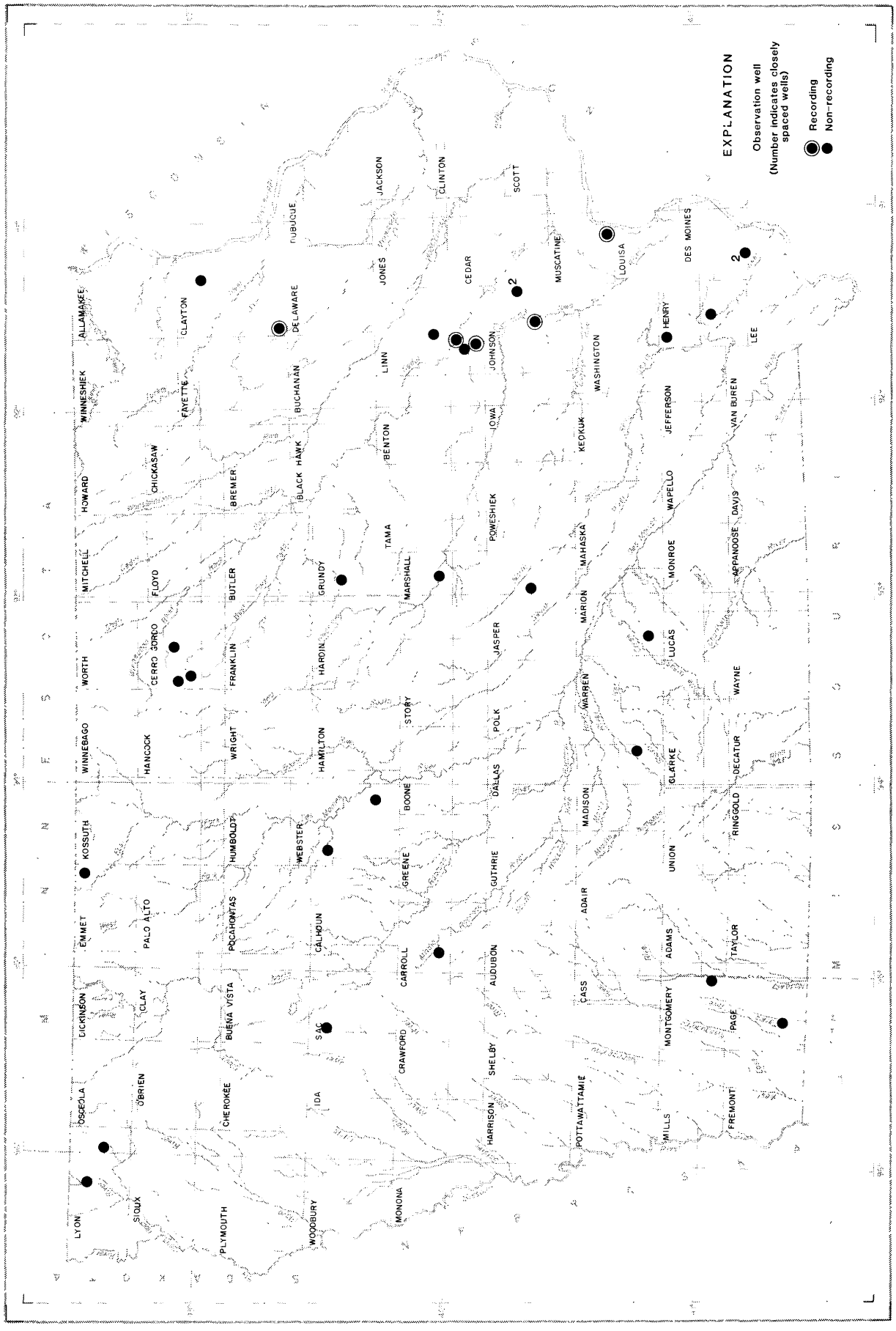

Figure 10.–Location of observation wells in Iowa.

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 near Decorah, Iowa.	05388000	568	1913-14; 1919-27; 1933-51.
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.
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.
Eagle Lake inlet near Britt, Iowa.	05448285	3.83	1975-80.
Eagle Lake outlet near Britt, Iowa.	05448290	11.3	1975-80.
West Branch (West Fork) Iowa River near Klemme, Iowa.	05448500	112	1948-58.
Iowa River near Iowa Falls, Iowa.	05450000	665	1911-14.
Upper Pine Lake at Eldora, Iowa.	05450500	14.9	1936-70.
Lower Pine Lake at Eldora, Iowa.	05451000	15.9	1936-70.
Iowa River near Belle Plaine, Iowa.	05452500	2,455	1939-59.
Lake Macbride near Solon, Iowa.	05453500	27.0	1936-71.
Old Mans Creek near Iowa City, Iowa.	05455100	201	1950-64.
Cedar River at Mitchell, Iowa.	05457500	826	1933-42.
Shell Rock River at Marble Rock (Greene), Iowa.	05460500	1,318	1933-53.
Shell Rock River at Greene, Iowa.	05461000	1,357	1933-42.
Shell Rock River near Clarksville, Iowa.	05461500	1,626	1915-27; 1932-34.
Fourmile Creek near Lincoln, Iowa.	05464130	13.78	1962-67; 1969-74; 1976-80.
Half Mile Creek near Gladbrook, Iowa.	05464133	1.33	1962-67; 1969-74; 1976-80.
Fourmile Creek near Traer, Iowa.	05464137	19.51	1962-74; 1975-80.
South Skunk River below Squaw Creek near Ames, Iowa.	05471000	556	1952-79.
Indian Creek near Mingo, Iowa.	05471200	276	1958-75.
Lake Keomah near Oskaloosa, Iowa.	05472000	3.06	1936-71.
Skunk River at Coppock, Iowa.	05473000	2,916	1913-44.
Big Creek near Mount Pleasant, Iowa.	05473500	106	1955-79.
East Fork Des Moines River near Burt, Iowa.	05478000	462	1971-74.
East Fork Des Moines River near Hardy, Iowa.	05478500	1,268	1940-54.
Des Moines River near Fort Dodge, Iowa.	05479500	3,753	1911-13.
Des Moines River near Boone, Iowa.	05481500	5,511	1920-68.
Des Moines River at Des Moines, Iowa.	05482000	6,245	1905-06; 1915-61.
Storm Lake at Storm Lake, Iowa.	05482140	28.3	1970-75.
Springbrook Lake near Guthrie Center, Iowa.	05483500	5.18	1936-71.
Raccoon River at Des Moines, Iowa.	05485000	3,590	1902-03.
Lake Ahquabi near Indianola, Iowa.	05487000	4.93	1936-71.
White Breast Creek near Knoxville, Iowa.	05488000	380	1945-62.
Lake Wapello near Drakesville, Iowa.	05490000	7.75	1936-71.
Sugar Creek near Keokuk, Iowa.	05491000	105	1922-31; 1958-73.
Muchakinock Creek near Eddyville, Iowa.	05489190	70.2	1975-79.
Fox River at Bloomfield, Iowa.	05494300	87.7	1957-73.
Fox River at Cantril, Iowa.	05494500	161	1940-51.
Rock River at Rock Rapids, Iowa.	06483270	788	1959-74.
Dry Creek at Hawarden, Iowa.	06484000	48.4	1948-69.
West Fork ditch at Holly Springs, Iowa.	06602000	399	1939-69.
Loon Creek near Orleans, Iowa.	06603920	31	1971-74.
Spirit Lake outlet at Orleans, Iowa.	06604100	75.6	1971-74.
Milford Creek at Milford, Iowa.	06604400	146	1971-74.
Little Sioux River at Spencer, Iowa.	06605100	990	1936-42.
Little Sioux River at Gillett Grove, Iowa.	06605600	1,334	1958-73.
Little Sioux River near Kennebeck, Iowa.	06606700	2,738	1939-69.
Odebolt Creek near Arthur, Iowa.	06607000	39.3	1957-75.
Maple River at Turin, Iowa.	06607300	725	1939-41.
Little Sioux River near Blencoe (Turin), Iowa.	06607510	4,470	1939-42.
Steer Creek near Magnolia, Iowa.	06609200	9.26	1963-69.
Thompson Creek near Woodbine, Iowa.	06609590	6.97	1963-69.
Willow Creek near Logan, Iowa.	06609600	129	1972-75.
Indian Creek at Council Bluffs, Iowa.	06610500	7.99	1954-76.
Mosquito Creek near Earling, Iowa.	06610520	33.0 (revised)	1965-79.
Waubonsie Creek near Bartlett, Iowa.	06806000	30.4	1946-69.
West Nishnabotna River at (near) White Cloud, Iowa.	06807500	967	1918-24.
Mule Creek near Malvern, Iowa.	06808000	10.6	1954-69.
Spring Valley Creek near Tabor, Iowa.	06808200	7.6	1955-64.
Davids Creek near Hamlin, Iowa.	06809000	26.0	1952-73.
Milford Creek at Milford, Iowa.	06604400	146	1971-74.8
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
Paint Creek at Waterville, Iowa.	05388500	42.8	Temp	1952-56
			Sed.	1952-57
Turkey River at Garber, Iowa.	05412500	1,545	Temp.	1957-62
			Sed.	1957-62
Mississippi River at Dubuque, Iowa.	05414700	1,600	Chem.	1969-73
Wapsipinicon River at Independence, Iowa.	05421000	1,048	Chem. *	1968-70
			Temp. *	1967-70
			Sed. *	1967-70
Iowa River near Rowan, Iowa.	05449500	429	Temp. *	1957-62
			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.	1969-74
			Temp.	1969-74
			Sed.	1969-74
Half Mile Creek near Gladbrook, Iowa.	05464133	1.33	Chem.	1969-74
			Temp.	1969-74
			Sed.	1969-74
Fourmile Creek near Traer, Iowa.	05464137	19.51	Chem.	1969-74
			Temp.	1969-74
			Sed.	1969-74
Cedar River near Palo, Iowa.	05464450	6,380	Chem.	1975-79
Cedar River at Cedar Rapids, Iowa.	05464500	6,640	Chem. *	1906-07; 1944-54
			Temp. *	1944-54
			Sed.	1943-54
Cedar River near Bertram, Iowa.	05464760	6,955	Chem.	1975-81
Mississippi River at Burlington, Iowa.	05469720	4,000	Chem.	1969-73
Des Moines River at Fort Dodge, Iowa.	05480500	4,190	Chem.	1972-73
Des Moines River at Des Moines, Iowa.	05482000	6,245	Chem.	1954-55
			Temp.	1954-61
			Sed.	1954-61
E. Fork Hardin Creek near Churdan, Iowa.	05483000	24.0	Temp. *	1952-57
			Sed. *	1952-57
Raccoon River at Van Meter, Iowa.	05484500	3,441	Chem.	1969-73; 1974-79
Raccoon River at Des Moines, Iowa.	05485000	3,590	Chem.	1945-47
			Temp.	1945-47
Des Moines River below Raccoon River at Des Moines, Iowa.	05485500	9,770	Chem. *	1944-45
			Temp. *	1944-47
			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. *	1962-67
			Sed.	1962-67
White Breast Creek near Dallas, Iowa.	05487980	342	Chem.	1968-73
			Temp.	1967-73
			Sed.	1967-73
Big Sioux River at Sioux City, Iowa.	06485950	9,410	Chem.	1969-73
Floyd River at James, Iowa.	06600500	882	Temp.	1968-73
			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.	1963-69
			Sed.	1963-69
Thompson Creek near Woodbine, Iowa.	06609590	6.97	Temp.	1963-69
			Sed.	1963-69
Willow Creek near Logan, Iowa.	06609600	129	Chem.	1972-75
			Temp.	1972-75
			Sed.	1971-75
Missouri River at Nebraska City, Nebraska.	06807000	410,000	Chem.	1951-77
			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.	1962-73
			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.	1968-73
			Sed.	1968-73
Weldon River near Leon, Iowa.	06898400	104	Chem.	1968-73
Chariton River near Chariton, Iowa.	06903400	182	Temp.	1969-73
			Sed.	1969-73
Honey Creek near Russell, Iowa.	06903500	13.2	Sed.	1952-62
Chariton River near Rathbun, Iowa.	06903900	551	Temp. *	1962-69
			Sed. *	1962-69

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

05387500 UPPER IOWA RIVER AT DECORAH, IA

LOCATION.--Lat 43°18'19", long 91°47'48", in NE1/4 SW1/4 sec.16, T.98 N., R.8 W., Winneshiek County, Hydrologic Unit 07060002, on right bank 1,200 ft (366 m) upstream from bridge on U.S. Highway 52 (city route) in Decorah, 1,500 ft (457 m) downstream from Dry Run cutoff, and 3.0 mi (4.8 km) upstream from Trout Run.

DRAINAGE AREA.--511 mi² (1,323 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1951 to current year.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 850.00 ft (259.080 m) NGVD.

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

AVERAGE DISCHARGE.--31 years, 311 ft³/s (8.808 m³/s), 8.26 in/yr (210 mm/yr), 225,300 acre-ft/yr (278 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,200 ft³/s (572 m³/s) Mar. 27, 1961, gage height, 13.08 ft (3.987 m); minimum daily, 22 ft³/s (0.62 m³/s) Feb. 2-7, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood known, probably since at least 1913, occurred May 29, 1941, at site of former gaging station near Decorah, 4 mi (6.4 km) downstream, discharge, 28,500 ft³/s (807 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,290 ft³/s (93.2 m³/s) Mar. 20, gage height, 7.39 ft (2.252 m), no peak above base of 4,000 ft³/s (113 m³/s); minimum daily, 100 ft³/s (2.83 m³/s) Jan. 16, 25, Feb. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	236	207	188	139	113	140	1680	437	877	310	174	648
2	231	204	192	132	114	138	1310	425	787	294	171	651
3	227	201	190	137	123	131	1220	408	709	288	168	592
4	233	197	182	133	120	129	1060	402	651	278	232	432
5	230	199	167	136	118	125	846	462	602	266	226	378
6	228	197	174	130	116	120	710	596	578	254	215	384
7	223	199	180	126	114	118	629	790	675	257	196	352
8	220	194	192	122	112	116	588	928	604	248	184	337
9	220	187	180	118	107	114	552	779	559	240	171	321
10	218	185	158	115	102	118	507	669	532	238	167	331
11	218	182	146	111	100	130	484	607	491	231	163	337
12	214	180	148	110	101	150	501	649	467	229	161	303
13	211	178	190	108	105	321	598	1280	438	232	158	587
14	222	178	170	103	107	573	668	1780	428	226	157	665
15	224	179	150	101	109	696	662	1300	541	233	153	696
16	216	181	141	100	112	1860	723	1090	511	268	151	570
17	236	178	138	102	116	2630	1180	1140	479	238	148	513
18	253	174	133	108	116	2150	1480	1260	458	244	147	464
19	270	178	133	110	120	2880	1150	1410	437	228	144	424
20	273	174	138	114	124	2870	1080	1100	421	219	143	391
21	262	171	141	117	128	2350	997	970	402	220	138	361
22	252	167	138	116	130	1820	823	1490	384	216	149	338
23	240	174	138	114	138	1790	731	2570	371	209	148	323
24	234	178	141	109	144	2560	666	2080	363	201	172	311
25	233	174	138	100	137	2880	617	1540	380	195	263	295
26	229	174	141	109	135	2150	568	1340	371	192	199	284
27	226	178	138	110	138	1460	525	1390	356	192	188	278
28	222	185	135	118	139	1180	496	1320	341	207	170	269
29	217	185	131	112	---	1160	476	1210	344	191	351	267
30	212	185	137	117	---	1670	455	1220	330	185	686	265
31	211	---	146	117	---	2120	---	989	---	180	681	---
TOTAL	7141	5523	4814	3594	3338	36649	23982	33631	14887	7209	6574	12367
MEAN	230	184	155	116	119	1182	799	1085	496	233	212	412
MAX	273	207	192	139	144	2880	1680	2570	877	310	686	696
MIN	211	167	131	100	100	114	455	402	330	180	138	265
CFSM	.45	.36	.30	.23	.23	2.31	1.56	2.12	.97	.46	.42	.81
IN.	.52	.40	.35	.26	.24	2.67	1.75	2.45	1.08	.52	.48	.90
AC-FT	14160	10950	9550	7130	6620	72690	47570	66710	29530	14300	13040	24530

CAL YR 1981	TOTAL	121051	MEAN 332	MAX 2570	MIN 84	CFSM .65	IN 8.81	AC-FT	240100	
WTR YR 1982	TOTAL	159709	MEAN 438	MAX 2880	MIN 100	CFSM .86	IN 11.63	AC-FT	316800	

05387500 UPPER IOWA RIVER AT DECORAH, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1962 to September 1964, October 1965 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1962 to December 1967.

INSTRUMENTATION.--Temperature recorder since Apr. 12, 1967.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 33.5°C July 5-6, 1977; minimum, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,700 mg/L May 26, 1965; minimum daily mean, 1 mg/L Oct. 21, 1965.
SEDIMENT LOADS: Maximum daily, 62,300 tons (56,500 tonnes) June 10, 1967; minimum daily, 0.1 ton (0.09 tonne) Oct. 21, 1965.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 30.0°C Aug. 3; minimum, 0.0°C on many days during winter period.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	14.5	10.0	11.0	10.5	.0	.0	.0	.0	.0	.0	.5	.0
2	11.0	8.0	10.5	10.0	.0	.0	.0	.0	.0	.0	.5	.0
3	10.0	8.5	11.5	10.5	.5	.0	.0	.0	.0	.0	.5	.0
4	11.0	9.5	11.5	11.0	.0	.0	.0	.0	.0	.0	1.0	.0
5	11.5	10.5	11.5	9.0	.5	.0	.0	.0	.0	.0	1.0	.0
6	13.5	11.5	9.5	8.0	1.0	.0	.0	.0	.0	.0	1.0	.0
7	12.0	9.5	8.5	6.0	1.0	.0	.0	.0	.0	.0	1.0	.0
8	11.5	9.0	8.5	6.0	.5	.0	.0	.0	.0	.0	.5	.0
9	14.0	9.5	6.0	4.5	.5	.0	.0	.0	.0	.0	.5	.0
10	12.0	10.0	5.0	4.0	.0	.0	.0	.0	.0	.0	1.0	.0
11	12.0	10.5	5.5	4.0	.0	.0	.0	.0	.0	.0	1.0	.0
12	12.0	10.0	5.5	4.0	.0	.0	.0	.0	.0	.0	.5	.0
13	13.5	11.5	6.0	4.0	.0	.0	.0	.0	.0	.0	.5	.0
14	14.0	13.5	7.0	5.0	.0	.0	.0	.0	.0	.0	.5	.0
15	14.5	12.0	8.0	6.5	.5	.0	.0	.0	.0	.0	.0	.0
16	13.0	10.0	9.0	7.0	1.0	.0	.0	.0	.0	.0	1.0	.0
17	11.5	11.0	6.5	5.5	.5	.0	.0	.0	.0	.0	1.5	1.0
18	11.0	8.0	8.0	5.5	.5	.0	.0	.0	.0	.0	2.0	1.5
19	9.0	6.0	6.5	4.5	.5	.0	.0	.0	.0	.0	2.0	1.0
20	9.5	8.0	4.5	3.0	.0	.0	.0	.0	.5	.0	1.5	.5
21	10.0	9.0	3.0	1.5	.0	.0	.0	.0	.5	.0	1.5	1.5
22	6.5	9.0	2.0	1.5	.0	.0	.0	.0	.5	.0	3.0	1.5
23	6.0	4.0	1.0	.5	.0	.0	.0	.0	.5	.0	4.5	3.0
24	4.0	3.5	.5	.0	.0	.0	.0	.0	.5	.0	4.5	3.5
25	4.5	3.5	.5	.0	.0	.0	.0	.0	1.0	.0	4.0	3.5
26	5.5	3.5	.5	.5	.0	.0	.0	.0	1.0	.0	3.5	3.0
27	7.0	4.0	.5	.5	.0	.0	.0	.0	1.0	.0	4.5	3.0
28	8.5	6.0	.5	.5	.0	.0	.0	.0	.5	.0	5.5	3.5
29	10.0	7.0	.5	.0	.0	.0	.0	.0	---	---	6.5	4.5
30	11.5	9.0	.0	.0	.0	.0	.0	.0	---	---	8.0	6.5
31	11.5	11.5	---	---	.0	.0	.0	.0	---	---	8.0	6.0
MONTH	14.5	3.5	11.5	.0	1.0	.0	.0	.0	1.0	.0	8.0	.0

05387500 UPPER IOWA RIVER AT DECORAH, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	8.0	6.0	15.5	11.0	16.5	13.5	22.0	18.0	25.5	21.0	19.0	16.5
2	8.5	7.0	16.0	12.0	16.0	14.0	21.0	19.0	28.5	23.0	19.0	18.0
3	8.5	4.5	17.0	14.0	16.0	13.5	24.0	18.5	30.0	24.5	19.0	15.5
4	5.0	3.5	18.5	15.5	16.5	13.5	26.0	20.0	28.0	24.5	19.0	15.5
5	5.0	3.0	18.0	16.0	16.5	14.0	28.0	22.0	25.0	23.5	19.0	18.0
6	4.5	1.5	16.0	11.5	18.0	13.5	26.5	22.0	25.0	22.0	18.0	16.5
7	4.5	3.5	13.5	10.0	18.5	13.5	25.0	20.0	25.5	22.0	16.5	15.5
8	4.5	4.0	15.5	12.0	18.0	15.5	25.0	20.0	25.5	21.5	18.0	16.5
9	6.0	4.0	15.5	13.5	16.5	15.5	23.5	21.0	23.0	19.5	20.5	16.5
10	6.5	5.0	17.0	13.5	18.0	14.0	21.5	20.0	21.0	16.5	21.5	19.0
11	8.5	4.5	17.0	15.5	18.0	14.5	23.5	18.5	22.0	16.5	23.5	19.5
12	8.5	6.5	16.5	15.0	18.0	14.0	23.5	19.0	22.0	16.5	23.0	21.0
13	10.0	8.0	16.5	15.5	19.0	14.5	23.5	19.0	21.5	19.0	22.0	19.5
14	9.5	8.0	17.0	16.0	18.5	16.0	25.5	20.0	23.5	20.0	19.5	17.0
15	9.5	8.5	18.0	15.5	18.0	15.5	24.0	21.5	24.0	20.5	17.0	15.5
16	12.0	10.0	19.0	16.0	19.0	15.0	25.0	20.0	25.0	21.0	15.5	14.0
17	12.0	10.5	18.5	16.0	19.0	16.5	28.0	23.5	26.5	21.0	15.0	14.5
18	12.0	10.0	18.0	15.5	16.5	15.5	26.5	24.0	26.0	22.0	15.5	13.5
19	11.5	9.5	19.0	16.0	18.0	14.5	25.5	21.5	26.0	22.0	15.5	13.5
20	9.5	8.5	18.5	16.5	18.0	15.5	26.5	22.0	26.5	22.0	15.0	13.5
21	10.5	7.0	18.0	13.5	19.0	15.0	26.0	23.5	25.5	20.0	14.0	11.0
22	11.5	8.5	13.5	12.0	19.0	14.5	26.0	20.5	23.0	21.0	14.5	11.0
23	13.0	9.5	11.5	11.0	20.0	15.5	26.5	21.5	24.5	15.5	15.5	13.0
24	14.5	10.5	12.0	11.5	21.0	18.0	27.0	21.5	22.0	18.5	15.5	14.5
25	14.0	12.0	13.5	12.0	20.0	17.0	28.5	23.5	20.5	15.5	15.0	12.0
26	14.5	13.0	13.5	13.0	18.5	15.5	28.5	24.5	22.0	18.0	14.0	13.0
27	14.0	10.5	13.5	12.0	21.0	18.5	26.5	23.5	21.0	19.0	14.5	11.5
28	13.0	11.0	15.0	13.0	24.5	19.0	26.5	21.0	19.5	16.5	15.5	13.5
29	14.0	10.5	15.0	14.0	23.5	19.5	25.0	21.0	18.0	14.5	10.0	10.0
30	14.0	11.5	16.5	13.5	21.0	16.5	23.5	20.5	16.5	14.5	19.0	16.5
31	---	---	16.5	15.3	---	---	25.5	19.5	18.0	16.5	---	---
MONTH	14.5	1.5	19.0	10.0	24.5	13.5	28.5	18.0	30.0	14.5	23.5	11.0
YEAR	30.0	.0										

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 (198 m) upstream from Mineral Creek, 0.5 mi (0.8 km) upstream from Bear Creek, 3.5 mi (5.6 km) south of Dorchester, and 18.1 mi (29.1 km) upstream from mouth.

DRAINAGE AREA.--770 mi² (1,994 km²).

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 (201.168 m) NGVD. Prior to Jan. 6, 1938, nonrecording gage on old bridge at site 0.2 mi (0.3 km) upstream at datum 5.91 ft (1.801 m) higher. Jan. 6, 1938, to Apr. 26, 1948, nonrecording gage at datum 60.00 ft (18.288 m) lower, Apr. 27, 1948 to August 1963, nonrecording gage on old bridge and August 1963 to June 1975 nonrecording gage on new bridge at same datum.

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

AVERAGE DISCHARGE.--7 years, 485 ft³/s (13.74 m³/s), 8.55 in/yr (217 mm/yr), 351,400 acre-ft/yr (433 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s (396 m³/s) Mar. 12, 1976, gage height, 17.67 ft (5.386 m); minimum daily, 79 ft³/s (2.24 m³/s) Dec. 31, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1941, reached a stage of 21.8 ft (6.64 m), from flood profile, discharge, 30,400 ft³/s (861 m³/s) on basis of slope-area determination of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,350 ft³/s (123 m³/s) Mar. 17, gage height, 12.15 ft (3.703 m), no other peak above base of 4,000 ft³/s (113 m³/s); minimum daily, 128 ft³/s (3.62 m³/s) Jan. 16-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	408	318	290	220	158	230	2720	809	1430	514	334	869
2	392	309	285	205	154	220	2210	774	1320	494	336	861
3	385	308	280	195	150	215	2220	753	1230	496	323	832
4	393	304	285	190	148	210	1900	713	1160	479	427	684
5	391	304	265	188	147	205	1750	795	1080	452	476	569
6	386	299	260	185	146	195	1510	908	1020	439	396	549
7	375	293	270	178	145	190	1400	1290	1120	494	376	510
8	367	288	290	173	146	185	1320	1340	1060	443	353	486
9	361	284	275	165	146	180	1250	1330	990	417	327	463
10	362	276	250	152	146	180	1180	1200	930	416	312	455
11	359	276	235	145	147	195	1110	1120	857	424	307	488
12	348	274	245	138	147	300	1090	1070	813	420	297	461
13	338	270	260	136	148	500	1160	1190	761	446	289	569
14	355	261	250	134	148	1170	1200	2060	727	431	288	778
15	358	266	230	130	149	1280	1240	1730	832	420	288	887
16	351	287	220	128	153	2150	1270	1510	865	475	283	806
17	359	278	210	128	161	3940	1470	1400	793	470	272	720
18	404	276	208	130	165	2950	1830	1610	741	435	261	662
19	388	275	205	135	170	3640	1770	1600	714	437	251	615
20	401	282	203	140	180	3780	1590	1560	687	409	253	575
21	393	273	200	146	190	3610	1560	1410	661	396	254	537
22	377	264	208	150	200	2850	1410	1700	632	397	261	504
23	367	281	218	152	210	1760	1300	2650	606	382	272	478
24	357	294	223	147	220	3850	1210	2830	585	370	298	448
25	352	276	228	140	230	3990	1140	2150	587	362	419	418
26	349	275	230	142	240	3480	1080	1870	608	354	394	393
27	347	279	225	148	250	2590	1000	1770	573	358	321	386
28	339	280	228	170	240	2160	921	1900	551	351	297	378
29	331	281	218	161	---	2020	886	1680	546	363	365	367
30	326	283	222	166	---	2320	851	1730	542	439	1050	358
31	324	---	230	164	---	2990	---	1560	---	344	811	---
TOTAL	11343	8514	7446	4881	4834	53535	42548	46012	25021	13127	11191	17106
MEAN	366	284	240	157	173	1727	1418	1484	834	423	361	570
MAX	408	318	290	220	250	3990	2720	2830	1430	514	1050	887
MIN	324	261	200	128	145	180	851	713	542	344	251	358
CFSM	.48	.37	.31	.20	.23	2.24	1.84	1.93	1.08	.55	.47	.74
IN.	.55	.41	.36	.24	.23	2.59	2.06	2.22	1.21	.63	.54	.83
AC-FT	22500	16890	14770	9680	9590	106200	84390	91260	49630	26040	22200	33930

CAL YR 1981 TOTAL 186756 MEAN 512 MAX 2520 MIN 126 CFSM .67 IN 9.02 AC-FT 370400
WTR YR 1982 TOTAL 245558 MEAN 673 MAX 3990 MIN 128 CFSM .87 IN 11.86 AC-FT 487100

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 (4.2 km) upstream from Wisconsin River, 4.3 mi (6.9 km) downstream from Yellow River, and at mile 633.4 (1,019.1 km) upstream from Ohio River.

DRAINAGE AREA.--67,500 mi² (174,800 km²), 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 (184.355 m) 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 (22.7 km) upstream in tailwater of dam 9, at datum 5.30 ft (1.615 m) lower.

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

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

AVERAGE DISCHARGE.--46 years, 33,920 ft³/s (960.6 m³/s), 6.82 in/yr (173 mm/yr), 24,570,000 acre-ft/yr (30,290 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 276,000 ft³/s (7,820 m³/s) Apr. 24, 1965; maximum gage height, 25.38 ft (7.736 m) Apr. 24, 1965; minimum daily discharge, 6,200 ft³/s (176 m³/s) Dec. 9, 1936; minimum gage height, -0.86 ft (-0.262 m) 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, 139,000 ft³/s (3,940 m³/s) Apr. 26; maximum gage height 17.96 ft (5.474 m) Apr. 26; minimum daily discharge, 14,500 ft³/s (411 m³/s) Dec. 22; minimum gage height, 6.22 ft (1.896 m) Aug. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20200	40600	30600	22800	17400	20800	67900	115000	83400	30600	27100	24900
2	17100	39600	31600	22600	17400	20500	68300	110000	80500	29500	26000	28800
3	16800	37800	30300	22400	17300	19600	75700	104000	77600	28500	25100	29900
4	18900	35900	29300	22000	17300	18500	80800	97800	74700	27800	26000	30600
5	23600	35400	28000	21300	17200	18500	91500	94400	70600	27600	26800	29100
6	28000	33500	25700	20500	17000	18400	98400	91000	66000	26400	26200	26500
7	31100	32600	23500	19500	16700	18400	104000	86000	65000	26000	26200	23500
8	31800	32000	22900	18500	16200	18500	110000	82900	64200	25400	24900	23400
9	31700	31800	23400	17500	15500	19000	114000	80500	59700	25000	21000	23700
10	32400	31200	24000	17500	15300	19600	118000	78400	55600	25700	16900	24600
11	32200	29600	23400	17500	15500	20000	118000	78700	52000	28400	15300	26100
12	32400	29500	22000	17600	15500	20800	119000	79200	49300	30900	15900	27400
13	31400	28100	21300	17600	15600	21200	117000	81800	46300	33500	17000	29400
14	31100	26200	20600	17600	15800	22000	114000	84200	44200	34100	19200	32500
15	32300	25900	20000	17700	16000	23600	110000	85700	43400	35100	20300	35700
16	31800	27800	18600	17600	16100	26000	107000	88900	41600	36700	20600	38800
17	31900	29100	18200	17500	17000	29500	105000	86700	38100	37300	20400	40400
18	35000	30000	16700	17500	17400	37000	102000	86700	35700	36900	20000	41900
19	36300	29500	15700	17400	17600	42000	102000	86300	35600	36900	18700	43000
20	37900	29700	15000	17300	19000	45500	105000	87400	35300	36800	17500	44100
21	40800	29100	14700	17200	19800	49000	108000	89600	35600	36400	17900	45100
22	41800	27200	14500	17200	19100	50000	116000	91000	35600	35900	17800	43500
23	43200	26100	15000	17200	19800	49500	126000	91000	35000	35000	16800	39200
24	44400	26300	15300	17200	20700	50200	134000	92000	34000	33700	17900	36100
25	45400	23100	15600	18200	21200	53000	137000	93200	33200	32700	20700	33900
26	46700	21900	16000	17500	20700	56200	139000	91800	32200	31300	22500	30700
27	46200	23000	17100	17400	20700	59900	138000	92200	31900	30800	22400	27600
28	43700	24200	18600	17400	20500	64600	132000	91200	32000	30700	23100	25800
29	40600	25800	21000	17400	---	67300	126000	90000	31300	29100	21900	25400
30	40500	28100	22100	17400	---	66800	120000	87500	30800	27800	21100	26500
31	40400	---	22600	17400	---	69200	---	85700	---	28000	22400	---
TOTAL	1057600	890600	653300	571400	495300	1115100	3303600	2780800	1450400	970500	655600	958100
MEAN	34120	29690	21070	18430	17690	35970	110100	89700	48350	31310	21150	31940
MAX	46700	40600	31600	22800	21200	69200	139000	115000	83400	37300	27100	45100
MIN	16800	21900	14500	17200	15300	18400	67900	78400	30800	25000	15300	23400
CFSM	.51	.44	.31	.27	.26	.53	1.63	1.33	.72	.46	.31	.47
IN.	.58	.49	.36	.31	.27	.61	1.82	1.53	.80	.53	.36	.53
AC-FT	2098000	1767000	1296000	1133000	982400	2212000	6553000	5516000	2877000	1925000	1300000	1900000

CAL YR 1981 TOTAL 11981300 MEAN 32830 MAX 80700 MIN 13100 CFSM .49 IN 6.60 AC-FT 23760000
WTR YR 1982 TOTAL 14902300 MEAN 40830 MAX 139000 MIN 14500 CFSM .61 IN 8.21 AC-FT 29560000

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected by boat 1.5 mi (2.4 km) downstream from discharge station. Prior to April 1981, at bridge on U.S. Highway 18, 1.2 mi (1.9 km) upstream from gage.

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 882 mg/L Mar. 21, 1982; minimum daily mean, 1 mg/L Dec. 23-25, 1976, Dec. 20, 28, 1977.
SEDIMENT LOADS: Maximum daily, 166,000 tons (151,000 tonnes) Mar. 31, 1979; minimum daily, 31 tons (28 tonnes) Dec. 25, 1976.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 882 mg/L Mar. 21; minimum daily mean, 3 mg/L Jan. 23, 31, Feb.12.
SEDIMENT LOADS: Maximum daily, 150,000 tons (136,000 tonnes) Apr. 4; minimum daily, 126 tons (114 tonnes) Feb. 12.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	345	---	445	---	---
2	---	380	---	---	---	---	---	---	---	---	---	430
3	450	---	---	450	465	---	---	---	385	---	---	---
4	---	---	---	---	---	---	500	---	---	---	410	---
5	440	380	450	---	---	420	---	340	435	470	---	---
6	---	---	---	---	---	---	365	---	---	---	430	---
7	435	---	---	---	470	---	---	360	---	---	---	410
8	---	---	440	440	---	---	---	---	---	465	---	---
9	---	360	---	---	---	---	320	---	440	---	---	---
10	---	---	---	---	---	415	---	---	---	450	---	415
11	---	370	---	440	---	---	---	---	460	---	---	---
12	400	---	440	---	475	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	335	---	450	---	400
14	---	385	---	---	---	---	375	---	---	---	---	---
15	---	---	450	450	---	410	---	330	---	---	---	---
16	---	395	---	---	---	---	380	---	---	---	---	---
17	400	380	---	---	490	---	---	---	470	445	---	340
18	405	---	---	---	---	390	---	---	---	---	430	---
19	---	---	440	460	---	---	---	---	480	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	330
21	---	---	---	---	---	415	---	340	---	---	430	---
22	---	---	450	---	460	---	335	---	470	435	---	355
23	---	---	---	460	---	---	---	---	---	---	---	---
24	420	---	---	---	---	---	---	345	---	425	---	---
25	---	---	---	---	---	510	---	---	---	---	---	370
26	---	---	---	---	---	---	---	---	475	---	---	---
27	---	440	440	---	---	520	340	360	---	---	---	---
28	400	---	---	460	445	---	---	---	---	---	450	---
29	380	---	---	---	---	---	---	---	---	400	---	---
30	---	---	---	---	---	---	---	380	---	---	---	380
31	---	---	440	460	---	500	---	---	---	430	---	---

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---					---	16.0	---	26.0	---	---
2	---	10.0					---	---	---	---	---	24.0
3	18.0	---					---	---	20.0	---	---	26.0
4	---	---					---	---	---	---	28.0	---
5	14.0	10.0					---	18.0	20.0	26.0	---	---
6	---	---					6.0	---	---	---	28.0	---
7	14.0	---					---	19.0	---	---	---	25.0
8	---	---					---	---	---	26.0	---	---
9	---	6.0					9.0	---	20.0	---	26.0	---
10	---	---					---	---	---	28.0	---	22.0
11	---	4.0					---	---	22.0	---	---	---
12	14.0	---					---	---	---	---	---	---
13	---	---					---	20.0	---	28.0	---	17.0
14	---	6.0					8.0	---	---	---	28.0	---
15	---	---					---	22.0	---	---	---	---
16	---	9.5					6.0	---	---	---	---	---
17	13.0	---					---	---	18.0	29.0	---	16.0
18	11.0	---					---	---	---	---	26.0	---
19	---	---					---	---	18.0	---	---	---
20	---	---					---	---	---	---	---	16.0
21	---	---					11.0	18.0	---	---	26.0	---
22	---	---					11.0	---	18.0	29.0	---	15.5
23	---	---					---	---	---	---	---	---
24	6.0	---					---	15.0	---	29.0	---	---
25	---	---					---	---	---	---	26.0	18.0
26	---	---					---	---	22.0	---	---	---
27	---	---					15.0	18.0	---	---	---	---
28	6.0	---					---	---	---	---	---	---
29	7.0	---					---	---	---	29.0	29.0	---
30	---	---					---	18.0	---	---	---	---
31	---	---					---	---	---	26.0	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	59	3220	58	6360	68	5620	14	862	4	188	8	449
2	57	2630	50	5350	73	6230	15	915	5	235	9	498
3	57	2590	45	4590	54	4420	14	847	4	187	30	1590
4	57	2910	43	4170	24	1900	11	653	4	187	71	3550
5	66	4210	40	3820	11	832	8	460	5	232	120	5990
6	74	5590	38	3440	10	694	7	387	5	229	148	7350
7	68	5710	35	3080	7	444	7	369	6	271	151	7500
8	57	4890	42	3630	7	433	8	400	7	306	143	7140
9	48	4110	58	4980	6	379	13	614	7	293	133	6820
10	42	3670	63	5310	5	324	33	1560	5	207	121	6400
11	39	3390	61	4880	7	442	55	2600	4	167	114	6160
12	42	3670	46	3660	37	2200	60	2850	3	126	109	6120
13	39	3310	33	2500	79	4540	50	2380	4	168	107	6120
14	35	2940	23	1630	65	3620	33	1570	4	171	112	6650
15	36	3140	22	1540	27	1460	19	908	4	173	134	8540
16	41	3520	24	1800	22	1100	18	855	4	174	194	13600
17	53	4560	29	2280	21	1030	18	850	5	229	273	21700
18	85	8030	58	4700	20	902	18	850	6	282	362	36200
19	115	11300	94	7490	20	848	19	893	6	285	530	60100
20	125	12800	105	8420	20	810	15	701	7	359	797	97900
21	124	13700	99	7780	18	714	11	511	5	267	882	117000
22	108	12200	85	6240	14	548	7	325	4	206	808	109000
23	82	9560	69	4860	12	486	3	139	5	267	685	91600
24	51	6110	49	3480	11	454	4	186	5	279	550	74500
25	54	6620	36	2250	10	421	5	246	6	343	420	60100
26	62	7820	29	1710	9	389	7	331	7	391	400	60700
27	61	7610	19	1180	9	416	7	329	7	391	395	63900
28	51	6020	19	1240	10	502	6	282	8	443	375	65400
29	40	4380	26	1810	11	624	6	282	---	---	355	64500
30	42	4590	45	3410	12	716	4	188	---	---	336	60600
31	56	6110	---	---	13	793	3	141	---	---	316	59000
TOTAL	---	180910	---	117590	---	44291	---	24484	---	7056	---	1136677

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	293	53700	33	10200	56	12600	138	11400	97	7100	17	1140
2	272	50200	33	9800	68	14800	130	10400	88	6180	11	855
3	390	79700	32	8990	79	16600	119	9160	85	5760	12	969
4	688	150000	30	7920	78	15700	110	8260	106	7440	22	1820
5	372	91900	29	7390	75	14300	100	7450	213	15400	30	2360
6	71	18900	32	7860	72	12800	91	6490	293	20700	31	2220
7	61	17100	37	8590	66	11600	71	4980	285	20200	29	1840
8	52	15400	36	8060	60	10400	59	4050	263	17700	23	1450
9	42	12900	36	7820	55	8870	45	3040	240	13600	21	1340
10	38	12100	33	6990	52	7810	45	3120	204	9310	27	1790
11	34	10800	33	7010	48	6740	50	3830	1990	7850	40	2820
12	30	9640	36	7700	47	6260	53	4420	219	9400	47	3480
13	27	8530	42	9280	47	5880	55	4970	258	11800	32	2540
14	23	7080	70	15900	47	5610	56	5160	288	14900	22	1930
15	45	13400	120	27800	59	6910	53	5020	308	16900	21	2020
16	115	33200	145	34800	62	6960	50	4950	316	17600	24	2510
17	111	31500	140	32800	53	5450	48	4830	312	17200	27	2950
18	69	19000	126	29500	45	4340	47	4680	296	16000	31	3510
19	48	13200	104	24200	48	4610	45	4480	250	12600	31	3600
20	39	11100	79	18600	62	5910	43	4270	187	8840	23	2740
21	47	13700	52	12600	76	7310	40	3930	123	5940	21	2560
22	93	29100	41	10100	100	9610	36	3490	84	4040	26	3050
23	171	58200	39	9580	100	9450	32	3020	58	2630	30	3180
24	209	75600	40	9940	97	8900	28	2550	42	2030	29	2830
25	185	68400	41	10300	90	8070	33	2910	30	1680	26	2380
26	120	45000	45	11200	86	7480	46	3890	28	1700	21	1740
27	51	19000	52	12900	85	7320	55	4570	28	1690	20	1490
28	34	12100	54	13300	121	10500	67	5550	28	1750	20	1390
29	33	11200	52	12600	148	12500	74	5810	26	1540	22	1510
30	33	10700	48	11300	143	11900	76	5700	24	1370	22	1570
31	---	---	48	11100	---	---	81	6120	21	1270	---	---
TOTAL	---	1002350	---	416130	---	277190	---	162500	---	282120	---	65584

TOTAL LOAD FOR YEAR: 3716882 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

TE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
R 7...	1700	140000	6	0	2	37	85	92	94	95	97	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 (18 m) downstream from bridge on county highway W14 at north edge of Spillville, 150 ft (46 m) downstream from old mill dam, 0.6 mi (1.0 km) upstream from Wonder Creek and at mile 98.5 (158.5 km).

DRAINAGE AREA.--177 mi² (458 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 1,034.92 ft (315.44 m) NGVD.

REMARKS.--Records good except those for winter period, which are fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years, 116 ft³/s (3.285 m³/s), 8.90 in/yr (226 mm/yr), 84,040 acre-ft/yr (104 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,600 ft³/s (244 m³/s) July 12, 1972, gage height, 16.73 ft (5.099 m); minimum daily, 4.4 ft³/s (0.12 m³/s) Feb. 1-3, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in June 1947 reached a stage of 18.4 ft (5.61 m), from floodmark, discharge, about 10,000 ft³/s (283 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft³/s (34.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 16	2300	ice jam		*9.81	2.990	May 28	0115	1,240	35.1	8.11	2.472
Mar. 24	2230	1,210	34.3	7.95	2.423	Aug 30	2200	*1,700	48.1	9.14	2.786

Minimum daily discharge, 29 ft³/s (0.82 m³/s) Jan. 10-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	77	96	38	35	54	481	158	409	120	67	606
2	104	79	86	37	34	52	377	153	351	115	65	786
3	102	75	79	35	34	50	382	146	308	113	63	387
4	103	75	71	34	33	50	283	144	278	109	90	269
5	104	77	65	33	33	49	257	168	254	104	112	235
6	100	79	72	32	32	48	214	215	253	100	145	305
7	93	78	70	31	32	48	217	269	361	103	95	281
8	90	76	68	30	32	48	205	245	370	97	82	226
9	89	76	66	30	32	50	195	214	293	93	75	196
10	87	77	58	29	31	53	185	197	269	90	71	184
11	84	75	66	29	31	56	180	187	236	88	68	180
12	82	74	69	29	31	130	204	235	220	87	65	163
13	80	73	66	29	32	190	299	273	204	108	63	477
14	85	71	60	29	33	370	302	338	193	135	61	407
15	85	72	50	29	34	640	275	280	269	109	61	376
16	83	73	44	29	35	960	354	269	300	215	59	290
17	99	72	41	29	38	1500	582	250	247	231	58	250
18	115	70	38	29	40	1220	509	265	223	164	56	223
19	108	72	39	29	43	1140	363	273	205	140	55	200
20	104	74	40	29	46	1000	428	239	192	126	53	180
21	98	73	41	29	50	970	365	227	180	114	52	162
22	94	72	42	30	54	672	289	494	166	109	56	153
23	93	77	43	30	56	648	259	652	157	103	55	147
24	93	75	44	31	58	1110	238	458	151	96	66	142
25	92	73	44	32	60	1020	220	367	160	92	90	133
26	89	76	44	33	58	597	204	327	157	87	73	126
27	87	78	45	35	58	423	188	633	148	84	63	122
28	84	80	44	36	56	365	178	1060	141	79	59	116
29	82	80	43	38	---	385	171	683	134	75	145	112
30	80	80	41	37	---	600	166	713	126	72	1350	107
31	79	---	39	36	---	782	---	508	---	69	767	---
TOTAL	2878	2259	1714	986	1141	15280	8570	10640	6955	3427	4240	7541
MEAN	92.8	75.3	55.3	31.8	40.8	493	286	343	232	111	137	251
MAX	115	80	96	38	60	1500	582	1060	409	231	1350	786
MIN	79	70	38	29	31	48	166	144	126	69	52	107
CFSM	.52	.43	.31	.18	.23	2.79	1.62	1.94	1.31	.63	.77	1.42
IN.	.60	.47	.36	.21	.24	3.21	1.80	2.24	1.46	.72	.89	1.58
AC-FT	5710	4480	3400	1960	2260	30310	17000	21100	13800	6800	8410	14960

CAL YR 1981	TOTAL	48205	MEAN 132	MAX 1990	MIN 29	CFSM .75	IN 10.13	AC-FT 95610			
WTR YR 1982	TOTAL	65631	MEAN 180	MAX 1500	MIN 29	CFSM 1.02	IN 13.79	AC-FT 130200			

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 (3 m) downstream from bridge on county highway C43, 800 ft (244 m) upstream from Wayman Creek, 1,000 ft (305 m) southeast of Garber, 2,000 ft (610 m) downstream from Elk Creek, 1 mi (1.6 km) downstream from Volga River, and 19.8 mi (31.9 km) upstream from mouth.

DRAINAGE AREA.--1,545 mi² (4,002 km²).

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 (193.383 m) NGVD. Prior to Feb. 7, 1935, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

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

AVERAGE DISCHARGE.--62 years (1913-16, 1919-27, 1929-30, 1932-82), 928 ft³/s (26.28 m³/s), 8.16 in/yr (207 mm/yr), 672,300 acre-ft/yr (829 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,300 ft³/s (915 m³/s) Feb. 23, 1922, gage height, 28.06 ft (8.553 m), from floodmark; minimum daily, 49 ft³/s (1.39 m³/s) Jan. 28, 29, 1940.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,000 ft³/s (227 m³/s) and maximum (*):

		Discharge		Gage height				Discharge		Gage height	
Date	Time	(ft³/s)	(m³/s)	(ft)	(m)	Date	Time	(ft³/s)	(m³/s)	(ft)	(m)
Mar. 14	0300	8,800	249	16.25	4.953	Mar. 20	1000	9,920	281	17.15	5.227
Mar. 16	2300	*15,500	439	*20.65	6.294						

Minimum daily discharge, 390 ft³/s (11.0 m³/s) Jan. 5-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1370	1020	1210	430	515	1190	3870	1460	3210	1140	870	2650
2	1300	994	1200	420	510	1060	3230	1400	2800	1080	833	2240
3	1190	976	1110	410	500	856	3600	1330	2490	1150	791	2440
4	1160	958	1050	400	490	800	3100	1290	2280	1130	789	1830
5	1200	988	964	390	500	720	2660	1470	2110	1040	965	1430
6	1180	994	952	390	495	650	2320	2380	1950	996	902	1300
7	1090	970	982	390	490	600	2100	3990	2620	1820	1060	1270
8	1030	952	1020	390	485	560	2010	3540	2700	1380	1170	1300
9	995	916	970	390	485	550	1920	2930	2570	1180	978	1170
10	984	880	892	390	480	550	1820	2570	2120	1120	852	1080
11	954	862	862	390	475	600	1760	2320	1910	1100	777	1050
12	917	844	874	390	480	940	1890	2240	1790	1010	721	976
13	891	832	910	390	490	6060	2260	2280	1660	948	681	998
14	1200	820	886	390	500	7890	2410	2360	1620	917	654	1520
15	1210	814	790	390	515	5850	2400	2650	2240	1020	621	1660
16	1190	868	640	390	525	10700	2590	2380	2890	1620	609	1600
17	1280	850	560	390	540	12900	3250	2260	2480	2380	579	1450
18	1870	820	460	400	550	8340	4000	2500	2170	2410	560	1300
19	1880	820	400	400	565	8270	3510	2690	1990	2590	548	1180
20	1680	832	420	420	580	9710	2980	2490	1840	1980	528	1080
21	1540	796	440	430	620	8070	2760	2370	1720	1660	483	995
22	1430	742	435	450	700	5930	2640	3220	1600	1790	473	925
23	1330	772	430	470	1250	4800	2350	5050	1500	1490	521	874
24	1250	844	435	500	3500	5990	2170	4680	1410	1290	510	835
25	1220	856	425	480	2750	6190	2030	3890	1350	1180	552	790
26	1180	1010	435	475	2070	5070	1900	3190	1410	1080	604	752
27	1140	1290	440	510	1690	3990	1770	3270	1420	1180	561	735
28	1100	1290	445	530	1450	3240	1700	4750	1340	1180	513	706
29	1060	1200	450	535	---	2950	1620	5050	1270	1020	508	685
30	1040	1150	455	525	---	3170	1510	4030	1210	985	959	665
31	1020	---	455	520	---	3820	---	3760	---	934	1740	---
TOTAL	37881	27960	21997	13375	24200	132016	74130	89790	59670	41800	22912	37486
MEAN	1222	932	710	431	864	4259	2471	2896	1989	1348	739	1250
MAX	1880	1290	1210	535	3500	12900	4000	5050	3210	2590	1740	2650
MIN	891	742	400	390	475	550	1510	1290	1210	917	473	665
CFSM	.79	.60	.46	.28	.56	2.76	1.60	1.87	1.29	.87	.48	.81
IN.	.91	.67	.53	.32	.58	3.18	1.78	2.16	1.44	1.01	.55	.90
AC-FT	75140	55460	43630	26530	48000	261900	147000	178100	118400	82910	45450	74350

CAL YR 1981	TOTAL	484555	MEAN	1328	MAX	13800	MIN 190	CFSM .86	IN 11.67	AC-FT	961100
WTR YR 1982	TOTAL	583217	MEAN	1598	MAX	12900	MIN 390	CFSM 1.03	IN 14.04	AC-FT	1157000

05414500 LITTLE MAQUOKETA RIVER NEAR DURANGO, IA

LOCATION.--Lat 42°33'18", long 90°44'46", in NW1/4 NE1/4 sec.5, T.89 N., R.2 E., Dubuque County, Hydrologic Unit 07060003, 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.

DRAINAGE AREA.--130 mi² (337 km²).

PERIOD OF RECORD.--October 1934 to January 1982 (discontinued).

REVISED RECORDS.--WSP 1508: 1935-38, 1939 (M), 1940, 1943 (M), 1946, 1948. WDR IA-76-01: 1975.

GAGE.--Water-stage recorder. Datum of gage is 612.03 ft (186.547 m) NGVD. Prior to Jan. 5, 1939, nonrecording gage at same site and datum.

REMARKS.--Records excellent except those for winter period, which are good. Several observations of water temperature were made during the year.

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

AVERAGE DISCHARGE.--47 years, (1934-1981) 84.9 ft³/s (2.404 m³/s), 8.87 in/yr (225 mm/yr), 61,510 acre-ft/yr (75.8 hm³/yr); median of yearly mean discharges, 73 ft³/s (2.07 m³/s), 7.6 in/yr (193 mm/yr), 52,900 acre-ft/yr (65.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft³/s (1,130 m³/s) Aug. 2, 1972, gage height, 23.13 ft (7.050 m) in gage well, 23.8 ft (7.25 m), from floodmarks, on basis of slope-area measurement of peak flow; minimum daily, 5 ft³/s (0.14 m³/s) July 12, 13, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 15, 1925, reached a stage of about 22.1 ft (6.74 m), discharge, about 29,000 ft³/s (821 m³/s), computed by Corps of Engineers.

EXTREMES FOR CURRENT PERIOD.--October to January 1982: Maximum discharge during period, 638 ft³/s (18.07 m³/s) Oct. 14, gage height, 5.82 ft (1.774 m): minimum daily, 32 ft³/s (0.91 m³/s) Jan. 11-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO JANUARY 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	73	155	39								
2	86	71	150	38								
3	77	69	111	37								
4	86	69	103	36								
5	79	72	89	35								
6	94	67	90	35								
7	71	64	105	34								
8	67	64	116	33								
9	64	60	94	33								
10	66	58	81	33								
11	61	58	76	32								
12	58	56	71	32								
13	57	56	64	32								
14	315	56	59	32								
15	187	56	53	32								
16	138	76	49	32								
17	268	63	46	33								
18	262	58	45	34								
19	169	59	44	36								
20	148	59	45	37								
21	128	54	46	38								
22	116	51	48	38								
23	107	58	49	37								
24	102	70	49	36								
25	100	66	48	33								
26	93	232	46	34								
27	88	154	45	35								
28	83	106	44	35								
29	79	92	43	34								
30	77	89	41	33								
31	74	---	40	33								
TOTAL	3502	2236	2145	1071								
MEAN	113	74.5	69.2	34.5								
MAX	315	232	155	39								
MIN	57	51	40	32								
CFSM	.87	.57	.53	.27								
IN.	1.00	.64	.61	.31								
AC-FT	6950	4440	4250	2120								

CAL YR 1981 TOTAL 30842 MEAN 84.5 MAX 2070 MIN 17 CFSM .65 IN 8.83 AC-FT 61180

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 (12.6 km) upstream from mouth, and 5.5 mi (8.8 km) north of junction of State Highway 64 and 61 and 0.5 mi (0.8 km) south of Fulton.

DRAINAGE AREA.--516 mi² (1,329 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 666.19 ft (203.055 m) NGVD. Nonrecording gage July 7 to September 22, 1977.

REMARKS.--Records fair except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 351 ft³/s (9.940 m³/s), 9.24 in/yr (235 mm/yr), 354,300 acre-ft/yrr (437 hm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft³/s (303 m³/s) Aug. 31, 1981, gage height, 17.26 ft (5.261 m); minimum daily, 70 ft³/s (1.982 m³/s) July 11, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 18, 1974 reached a stage of 16.0 ft. (4.88 m), from floodmark, discharge, 10,000 ft³/s (283.2 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 23	0630	3,530	100	ice jam		Mar. 16	1645	4,990	141	10.78	3.286
Mar. 13	0815	*8,490	240	*14.67	4.471	Mar. 19	2400	6,570	186	12.53	3.819

Minimum daily discharge, 150 ft³/s (4.25 m³/s) Jan. 13-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	465	366	469	210	195	548	672	380	487	323	337	271
2	412	357	517	210	198	535	648	373	447	314	324	265
3	377	350	465	200	200	442	835	355	420	316	314	248
4	388	347	430	200	200	347	750	370	399	314	374	235
5	386	349	395	190	200	310	596	474	384	301	624	232
6	394	344	380	180	202	270	496	607	375	303	635	230
7	375	332	386	176	209	200	471	632	520	605	591	229
8	359	326	392	170	214	162	435	666	443	1430	467	225
9	343	316	389	165	205	152	415	578	395	614	394	222
10	335	303	359	160	202	281	395	524	377	857	354	223
11	323	305	379	157	200	482	385	488	359	968	330	225
12	310	303	396	152	203	1700	395	473	349	655	309	227
13	303	298	351	150	210	6950	510	492	358	485	292	227
14	409	297	340	150	218	4000	890	445	352	424	288	248
15	699	297	320	150	226	1600	683	423	908	392	283	250
16	704	315	300	150	230	3040	735	422	1230	411	265	235
17	803	328	260	150	238	2660	954	401	686	410	272	238
18	1120	323	180	155	248	1020	865	391	566	413	261	263
19	794	316	200	158	260	2500	723	385	501	397	255	258
20	648	314	250	162	280	4290	640	382	461	367	252	249
21	577	299	300	170	720	1340	597	367	435	352	249	244
22	523	288	330	190	1500	939	541	376	415	820	243	243
23	483	298	310	210	2650	722	505	392	386	609	250	233
24	453	331	290	210	2250	730	478	397	365	436	248	227
25	442	335	270	190	1040	620	465	393	358	386	243	219
26	429	448	280	185	654	548	453	401	359	364	239	208
27	411	494	270	190	542	450	434	436	361	387	239	201
28	399	497	240	200	526	391	409	517	351	519	239	195
29	385	428	230	210	---	370	397	519	346	405	234	190
30	376	403	240	210	---	457	386	521	337	368	251	186
31	369	---	230	208	---	680	---	528	---	364	266	---
TOTAL	14794	10307	10148	5568	14220	38736	17158	14108	13730	15309	9922	6946
MEAN	477	344	327	180	508	1250	572	455	458	494	320	232
MAX	1120	497	517	210	2650	6950	954	666	1230	1430	635	271
MIN	303	288	180	150	195	152	385	355	337	301	234	186
CFSM	.92	.67	.63	.35	.98	2.42	1.11	.88	.89	.96	.62	.45
IN.	1.07	.74	.73	.40	1.03	2.79	1.24	1.02	.99	1.10	.72	.50
AC-FT	29340	20440	20130	11040	28210	76830	34030	27980	27230	30370	19680	13780

CAL YR 1981 TOTAL 150181 MEAN 411 MAX 9460 MIN 71 CFSM .80 IN 10.83 AC-FT 297900
WTR YR 1982 TOTAL 170946 MEAN 468 MAX 6950 MIN 150 CFSM .91 IN 12.32 AC-FT 339100

MAQUOKETA RIVER BASIN

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA

LOCATION.--Lat 42°05'05", long 90°38'04", in SW1/4 NE1/4 sec.17, T.84 N., R.3 E., Jackson County, Hydrologic Unit 07060006, on right bank 500 ft (152 m) upstream from bridge on State Highway 62, 1,200 ft (366 m) upstream from Prairie Creek, 2.0 mi (3.2 km) northeast of Maquoketa, 2.2 mi (3.5 km) downstream from North Fork, and 26.7 mi (43.0 km) upstream from mouth.

DRAINAGE AREA.--1,553 mi² (4,022 km²).

WATER-DISCHARGE RECORDS

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 (190.793 m) 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 (3.048 m) higher.

REMARKS.--Records good except those for winter period, which are poor. Diurnal fluctuation caused by powerplant 4 mi (6.4 km) above station. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

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

AVERAGE DISCHARGE.--69 years, 1,020 ft³/s (28.89 m³/s), 8.92 in/yr (227 mm/yr), 739,000 acre-ft/yr (911 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft³/s (1,360 m³/s) June 27, 1944, gage height, 24.70 ft (7.529 m) at datum then in use; minimum daily, 105 ft³/s (2.97 m³/s) Feb. 11-20, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--A flood, probably in 1903, reached a stage of 23.5 ft (7.16 m), discharge, 43,000 ft³/s (1,220 m³/s), at datum in use prior to Oct. 1, 1972.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,500 ft³/s (212 m³/s) and maximum (*):

		Discharge		Gage height				Discharge		Gage height	
Date	Time	(ft³/s)	(m³/s)	(ft)	(m)	Date	Time	(ft³/s)	(m³/s)	(ft)	(m)
Mar. 13	1545	*15,900	450	*26.13	7.964	Mar. 20	0500	10,300	292	23.11	7.044
Mar. 17	0045	8,860	251	21.91	6.678						

Minimum daily discharge, 473 ft³/s (13.4 m³/s) Sept. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2130	1400	1850	670	630	2180	2020	1310	2150	1060	1010	811
2	1650	1370	2000	650	620	2050	1780	1280	1860	1050	974	732
3	1640	1350	1900	640	615	1720	2030	1250	1740	1060	934	700
4	1590	1330	1770	620	610	1360	2450	1250	1480	1020	1070	664
5	1610	1370	1530	620	610	1150	2230	1540	1420	980	1380	636
6	1610	1420	1480	590	650	1110	1750	2440	1380	985	1790	735
7	1590	1440	1420	560	660	900	1630	2810	1490	1300	1740	901
8	1560	1400	1440	530	650	800	1550	3300	1510	2940	1770	670
9	1480	1350	1420	510	640	720	1440	2860	1390	2320	1340	629
10	1400	1280	1370	500	635	790	1400	2450	1340	2500	1210	665
11	1320	1240	1340	490	640	1380	1350	2210	1280	3270	1090	634
12	1280	1220	1300	485	650	3190	1580	2440	1210	2560	1010	622
13	1230	1180	1270	490	660	13500	2100	1970	1230	1800	944	612
14	1810	1170	1220	490	680	10000	2730	1820	1250	1530	913	650
15	2280	1170	1130	490	715	5990	2550	1680	4350	1390	905	660
16	2970	1190	990	490	740	6060	2530	1720	5000	1390	881	556
17	3010	1270	800	490	780	7570	3410	1530	3150	1470	816	473
18	4430	1180	670	500	840	5160	3720	1490	2300	1630	811	747
19	3140	1190	680	500	940	5000	2980	1460	2000	2090	772	724
20	2780	1220	720	520	1130	9220	2640	1500	1800	1780	766	663
21	2570	1120	800	530	2200	6070	2230	1400	1600	1570	751	586
22	2270	1070	900	550	3600	4020	2100	1430	1470	1880	733	656
23	2050	1050	960	580	5600	2560	1910	1440	1380	1620	739	601
24	1900	1160	1000	580	6540	2280	1670	1880	1300	1370	746	557
25	1840	1210	1000	560	4220	2260	1690	1810	1280	1220	731	573
26	1620	1880	960	555	2820	2140	1570	1760	1270	1140	700	605
27	1620	1810	920	580	2130	1870	1520	1860	1260	1110	683	564
28	1550	1880	820	600	2070	1540	1430	1930	1200	1340	635	622
29	1490	1820	740	630	---	1420	1370	2230	1120	1270	595	591
30	1430	1690	700	640	---	1680	1340	2610	1110	1110	686	534
31	1400	---	685	640	---	2020	---	2320	---	1120	717	---
TOTAL	60250	40430	35785	17280	43275	107710	60700	58980	52320	48875	29842	19373
MEAN	1944	1348	1154	557	1546	3475	2023	1903	1744	1577	963	646
MAX	4430	1880	2000	670	6540	13500	3720	3300	5000	3270	1790	901
MIN	1230	1050	670	485	610	720	1340	1250	1110	980	595	473
CFSM	1.25	.87	.74	.36	1.00	2.24	1.30	1.23	1.12	1.02	.62	.42
IN.	1.44	.97	.86	.41	1.04	2.58	1.45	1.41	1.25	1.17	.71	.46
AC-FT	119500	80190	70980	34270	85840	213600	120400	117000	103800	96940	59190	38430

CAL YR 1981 TOTAL 521377 MEAN 1428 MAX 19900 MIN 269 CFSM .92 IN 12.49 AC-FT 1034000
WTR YR 1982 TOTAL 574820 MEAN 1575 MAX 13500 MIN 473 CFSM 1.01 IN 13.77 AC-FT 1140000

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at bridge on Highway 62, 500 ft (152 m) downstream from gage.

PERIOD OF RECORD.--Water years 1978 to December 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1978 to December 1981 (discontinued).
WATER TEMPERATURES: April 1978 to December 1981 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: April 1978 to December 1981 (discontinued).

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 600 micromhos June 7, 1978; minimum daily, 160 micromhos June 16, 1981.
WATER TEMPERATURES: Maximum daily, 27.5°C Aug. 7, 1979, July 13, 1980; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 14,700 mg/L June 13, 1981; minimum daily mean, 12 mg/L Feb. 7, 8, 1981.
SEDIMENT LOADS: Maximum daily, 361,000 tons (327,000 tonnes) Aug. 31, 1981; minimum daily, 9.4 tons (8.5 tonnes) Feb. 8, 1981.

EXTREMES FOR PERIOD OCT. 1 TO DEC.31, 1982.--
SPECIFIC CONDUCTANCE: Maximum daily, 580 micromhos Dec. 7,8,10,11; minimum daily, 440 micromhos Dec. 18,21,22.
WATER TEMPERATURES: Maximum daily, 14.0°C Oct. 7; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 921 mg/L Oct. 16: minimum daily mean, 23 mg/L Dec. 30.
SEDIMENT LOADS: Maximum daily, 7,390 tons (6,700 tonnes) Oct. 16; minimum daily, 43 tons (39 tonnes) Dec. 30.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO DECEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	550									
2	---	---	540									
3	---	---	550									
4	---	---	560									
5	---	---	---									
6	---	---	570									
7	560	---	580									
8	---	510	580									
9	---	---	---									
10	---	---	580									
11	---	---	580									
12	---	---	510									
13	---	---	510									
14	560	---	530									
15	---	---	---									
16	---	460	---									
17	560	---	---									
18	560	520	440									
19	560	500	470									
20	---	---	450									
21	---	560	440									
22	---	---	440									
23	---	480	520									
24	---	---	---									
25	---	540	520									
26	---	---	520									
27	---	---	520									
28	---	540	520									
29	510	560	520									
30	---	560	500									
31	---	---	---									

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO DECEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	2.0									
2	---	---	3.0									
3	---	---	3.0									
4	---	---	2.0									
5	---	---	---									
6	---	---	3.0									
7	14.0	---	3.0									
8	---	12.0	4.0									
9	---	---	---									
10	---	---	2.0									
11	---	---	3.0									
12	---	---	3.0									
13	---	---	4.0									
14	---	---	3.0									
15	---	---	.0									
16	10.0	10.0	---									
17	---	---	---									
18	---	8.0	6.0									
19	8.0	6.0	.0									
20	---	---	1.0									
21	---	5.0	2.0									
22	---	---	.0									
23	---	8.0	1.0									
24	---	---	---									
25	---	5.0	2.0									
26	---	---	3.0									
27	---	---	3.0									
28	---	4.0	.0									
29	---	3.0	.0									
30	---	2.0	.0									
31	---	---	---									

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO DECEMBER 1981

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	506	163	616	112	559						
2	275	1230	156	577	116	626						
3	234	1040	141	514	107	549						
4	186	798	125	449	82	392						
5	153	665	112	414	82	339						
6	122	530	97	372	105	420						
7	94	404	84	327	75	288						
8	90	379	72	272	74	288						
9	87	348	63	230	78	299						
10	81	306	60	207	65	240						
11	76	271	58	194	67	242						
12	68	235	53	175	103	362						
13	60	199	51	162	70	240						
14	392	2140	55	174	51	168						
15	632	3890	59	186	84	256						
16	921	7390	91	292	108	289						
17	903	7340	88	302	103	222						
18	578	6910	62	198	85	154						
19	438	3710	44	141	63	116						
20	441	3310	50	165	71	138						
21	432	3000	58	175	98	212						
22	421	2580	55	159	101	245						
23	417	2310	40	113	113	293						
24	402	2060	34	106	105	283						
25	379	1880	34	111	82	221						
26	342	1500	210	1070	73	169						
27	310	1360	294	1440	62	154						
28	259	1000	180	914	59	131						
29	198	797	120	590	68	136						
30	173	668	153	698	23	43						
31	169	639	---	---	37	68						
TOTAL	---	59475	---	11343	---	8162						

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO DECEMBER 1981

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 07...	1230	14.0	1590	92	395	79
NOV 16...	1215	10.0	1180	78	249	51

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (00165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (00166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (00168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (00169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (00170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (00171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (00172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (00173)
OCT 07...	1300	1590	6	0	5	35	61	76	85	92	99	100
NOV 16...	1330	1180	7	0	5	51	80	92	96	98	100	---

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 (8.0 km) upstream from Wapsipinicon River, 6.4 mi (10.3 km) downstream from Clinton, 10.6 mi (17.1 km) downstream from dam 13, and at mile 511.8 (823.5 km) upstream from Ohio River. Prior to June 6, 1969, at site 400 ft (122 m) downstream.

DRAINAGE AREA.--85,600 mi² (221,700 km²), 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 (171.505 m) NGVD. Oct. 1, 1955, to June 5, 1969, water-stage recorder at site 400 ft (121 m) downstream at same datum. Auxiliary water-stage recorder at dam 13 since Oct. 1, 1958. See WSP 1728 for history of changes prior to Oct. 1, 1955.

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

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

AVERAGE DISCHARGE.--109 years, 47,180 ft³/s (1,336 m³/s), 7.48 in/yr (190 mm/yr), 34,180,000 acre-ft/yr (42,140 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 307,000 ft³/s (8,690 m³/s) Apr. 28, 1965; maximum gage height, 24.65 ft (7.513 m) Apr. 28, 1965; minimum daily discharge, 6,500 ft³/s (184 m³/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, 163,000 ft³/s (4,620 m³/s) Apr. 29; maximum gage height, 17.87 ft (5.447 m) Apr. 29, minimum daily discharge, 16,900 ft³/s (479 m³/s) Dec. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37700	53300	40000	23400	19200	30000	86400	157000	108000	40400	36400	30600
2	34700	52400	43000	23700	19300	29000	85700	151000	104000	38700	34400	33800
3	31300	50200	44700	24000	19400	28000	88100	145000	99400	37900	34100	36300
4	28900	49300	46000	24500	19300	26500	89100	137000	94600	40200	33600	38100
5	29800	48200	46600	24800	19500	25500	89900	131000	89300	40100	40600	37900
6	32700	47000	43200	24000	19500	24800	90800	124000	82500	38200	42600	36800
7	37600	45600	38300	23500	19300	24400	94800	118000	79500	40000	42600	36800
8	42700	43600	32000	22300	19000	24500	105000	109000	79200	42800	40700	33900
9	43700	42700	29000	21500	19300	24000	113000	106000	77300	39000	37500	30700
10	43500	40800	27500	20500	19100	23600	125000	103000	74300	35100	30100	29900
11	44200	39400	26500	19800	18800	24500	132000	101000	70500	36400	25000	30100
12	43300	39800	25500	19000	18400	27600	139000	99600	66100	39300	23600	32300
13	42100	40700	25500	18800	18000	38000	147000	98800	63700	42200	23700	33900
14	42600	41200	25500	19000	18000	57900	150000	98700	61100	43400	25400	36400
15	46600	41100	23200	19300	18000	61700	149000	100000	55400	45100	27000	41100
16	47200	39400	19500	19800	18500	62000	147000	103000	57600	45300	27000	43700
17	45900	39200	17800	20000	18600	65100	143000	104000	58100	46100	26900	45200
18	55100	38000	17500	19800	19400	70900	138000	104000	56500	46400	26800	46300
19	57600	35900	18000	19800	21000	73100	133000	103000	53900	47800	24800	49600
20	52300	41900	18000	19000	21600	75800	130000	101000	45200	48300	23500	51100
21	52600	43600	18000	18800	25800	85500	127000	99900	42800	47700	24300	52800
22	53900	41800	18000	18800	29000	86200	126000	99500	43100	47000	23700	52800
23	57400	39400	17800	18800	32400	85500	128000	100000	44500	48400	22600	52200
24	56500	39000	17500	18700	35000	84600	132000	103000	45400	47800	23500	49800
25	54900	38100	16900	18800	37500	74200	139000	105000	45500	46700	25800	46500
26	57200	34000	17200	18800	35500	73500	148000	106000	45500	43000	27500	40900
27	59600	36000	18400	18600	32500	73600	156000	109000	45200	39700	29700	37000
28	59300	38000	21200	18800	31000	73600	162000	111000	45100	39200	30600	30000
29	59000	37000	23000	19000	---	74100	163000	111000	44300	39700	30200	29000
30	56100	38000	23000	19400	---	75400	161000	112000	42100	37400	28800	31500
31	54500	---	23000	19300	---	80100	---	110000	---	36700	29000	---
TOTAL	1460500	1254600	821300	634300	641900	1683200	3817800	3460500	1919700	1306000	922000	1177000
MEAN	47110	41820	26490	20460	22930	54300	127300	111600	63990	42130	29740	39230
MAX	59600	53300	46600	24800	37500	86200	163000	157000	108000	48400	42600	52800
MIN	28900	34000	16900	18600	18000	23600	85700	98700	42100	35100	22600	29000
CFSM	.55	.49	.31	.24	.27	.63	1.49	1.30	.75	.49	.35	.46
IN.	.63	.55	.36	.28	.28	.73	1.66	1.50	.83	.57	.40	.51
AC-FT	2897000	2488000	1629000	1258000	1273000	3339000	7573000	6864000	3808000	2590000	1829000	2335000

CAL YR 1981 TOTAL 16169800 MEAN 44300 MAX 96800 MIN 16900 CFSM .52 IN 7.03 AC-FT 32070000
WTR YR 1982 TOTAL 19098800 MEAN 52330 MAX 163000 MIN 16900 CFSM .61 IN 8.30 AC-FT 37880000

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	8.5	6.0	14.5	12.5	19.5	17.0	22.5	21.5	25.5	24.5	20.5	19.5
2	9.5	7.5	15.5	13.5	20.0	18.0	22.5	21.5	26.5	24.5	21.0	20.0
3	9.5	5.5	16.5	15.5	19.0	17.5	23.0	21.5	27.0	25.5	20.0	18.5
4	5.5	3.0	16.5	15.5	19.5	17.5	24.5	22.5	27.0	25.5	20.0	18.5
5	5.0	2.0	18.0	16.5	20.5	17.5	25.0	23.5	26.0	25.0	20.0	19.0
6	3.5	1.0	18.0	17.0	20.0	18.0	25.0	24.5	25.0	24.0	20.0	18.0
7	3.0	2.0	18.0	15.5	20.5	18.0	25.0	23.5	25.0	24.0	19.0	18.0
8	2.5	2.0	18.5	16.5	21.0	19.0	25.5	23.5	25.5	24.0	19.5	18.5
9	3.0	1.5	18.0	16.5	21.0	19.5	25.5	24.5	24.0	23.0	20.0	19.0
10	3.5	2.0	18.5	16.5	20.5	18.5	25.0	24.5	23.0	22.5	20.0	18.0
11	4.5	2.0	19.0	17.0	20.5	18.5	24.5	23.0	24.0	22.5	20.5	20.0
12	5.5	3.5	19.5	17.0	21.5	19.0	23.5	23.0	23.0	22.0	21.0	20.0
13	6.5	5.0	19.5	18.5	22.0	19.5	25.0	23.5	22.5	22.5	21.0	20.5
14	7.5	6.0	20.5	18.5	---	19.5	25.0	24.0	23.0	22.0	21.0	20.0
15	8.5	7.0	20.0	18.5	21.5	---	25.5	24.0	23.0	22.5	20.5	18.5
16	9.0	8.0	20.0	18.5	21.0	19.5	25.5	24.5	23.5	23.0	19.0	18.0
17	9.5	8.5	21.0	18.0	21.0	19.5	26.5	25.0	24.0	23.0	18.0	17.0
18	10.5	8.5	21.5	20.0	20.5	20.0	26.5	24.5	23.5	23.0	17.5	16.5
19	10.5	10.0	21.5	20.0	20.5	19.5	26.0	24.5	23.5	23.0	17.5	16.0
20	10.5	8.5	22.0	20.5	20.5	19.0	26.5	25.0	24.5	23.0	17.0	15.0
21	10.5	7.5	20.0	18.0	20.0	19.0	26.0	25.0	24.5	23.0	15.0	13.5
22	12.0	9.0	18.0	17.5	21.0	19.0	25.5	23.5	23.0	22.0	15.5	13.5
23	12.0	10.0	18.0	17.0	21.5	20.0	25.5	24.0	23.5	22.0	14.5	13.5
24	13.0	10.5	17.5	17.0	21.5	20.5	26.5	24.5	23.0	21.5	14.0	13.5
25	12.5	11.5	17.5	17.0	22.0	20.0	26.5	25.0	22.5	21.5	13.5	13.0
26	12.5	12.0	17.0	16.5	22.0	20.0	27.0	26.0	22.5	21.5	13.5	12.5
27	12.5	11.5	17.0	16.5	22.0	21.0	27.0	24.5	22.0	21.0	14.0	13.0
28	12.0	11.5	18.5	16.5	23.0	21.5	26.0	24.5	21.5	20.5	14.5	13.5
29	12.5	11.0	18.0	17.5	23.5	22.5	25.5	24.5	20.5	19.5	15.0	14.0
30	13.5	12.0	19.0	17.0	22.5	21.5	25.5	24.0	20.0	19.5	16.0	15.0
31	---	---	19.0	18.5	---	---	25.5	24.5	19.5	19.0	---	---
MONTH	13.5	1.0	22.0	12.5	23.5	17.0	27.0	21.5	27.0	19.0	21.0	12.5
YEAR	27.0	.0										

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV 09...	1230	46300	345	8.5	7.0	23	12.6	105	K87	80
JAN 08...	1030	22300	395	8.2	.0	4.0	13.0	91	--	K30
MAR 24...	1030	84600	390	8.0	3.0	31	13.0	98	K170	1700
APR 28...	1200	162000	275	7.7	11.5	22	10.9	99	K44	170
JUN 22...	0930	42500	425	8.1	20.0	27	7.8	87	--	K100
AUG 26...	1230	26800	350	8.5	22.0	12	--	--	K30	290

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 LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
NOV 09...	180	43	17	8.2	9	.3	2.1	140	6.6
JAN 08...	210	50	20	9.0	9	.3	2.0	180	5.0
MAR 24...	160	40	14	7.5	9	.3	4.1	130	6.0
APR 28...	110	29	10	4.3	7	.2	3.1	87	8.0
JUN 22...	200	50	19	7.2	7	.2	2.7	155	33
AUG 26...	180	43	18	7.2	8	.3	2.0	150	25

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

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
NOV 09...	<3	5	3	2500	<10	14	3	200	<1	.1
MAR 24...	<1	8	2	2700	82	13	<1	170	50	.1
JUN 22...	<1	3	2	1200	9	<1	<1	130	18	.1
AUG 26...	<1	3	1	880	12	<1	<1	120	7	.1

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 09...	<.1	4	2	<1	<1	<1	<1	30	38
MAR 24...	<.1	3	3	<1	<1	<1	<1	20	<4
JUN 22...	.1	10	3	1	<1	1	<1	10	7
AUG 26...	<.1	6	2	4	<1	<1	<1	10	<3

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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, AMMONIA DISSOLVED (MG/L AS N) (00608)
NOV									
09...	19	.2	14	211	195	.29	26400	1.0	.070
JAN									
08...	14	.2	9.5	252	218	.34	15200	1.8	.190
MAR									
24...	14	.1	11	203	175	.28	46400	2.0	.570
APR									
28...	9.6	.2	8.1	169	125	.23	73900	1.5	.090
JUN									
22...	13	.2	8.1	246	227	.33	28200	2.3	.080
AUG									
26...	11	.2	6.3	211	203	.29	15300	.40	.160

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	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)
NOV									
09...	.09	1.50	.050	.34	.030	.110	80	10000	98
JAN									
08...	.24	1.10	<.010	.18	.030	.060	8	482	74
MAR									
24...	.73	1.40	.130	.37	.250	.120	84	19200	99
APR									
28...	.12	1.70	.040	.37	.180	.120	71	31100	90
JUN									
22...	.10	1.50	.060	.46	.080	.150	44	5040	96
AUG									
26...	.21	1.20	.100	.37	.120	.120	27	1950	100

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
NOV										
09...	1230	2	1	<100	--	<1	<1	10	<10	3
MAR										
24...	1030	2	1	100	52	2	<1	<10	<10	1
JUN										
22...	0930	2	1	<100	61	<1	<1	10	<10	1
AUG										
26...	1230	2	2	<100	50	<1	<1	<10	<10	<1

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 (10.3 km) upstream from discharge station.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 560 micromhos Nov. 24 to Dec. 3, 1979; minimum daily, 220 micromhos Apr. 19,20, 1976; Nov. 8-18, 1980.
WATER TEMPERATURES: Maximum, 30.5°C July 15, 1977; minumum, 0.0°C on many days during winter periods each year.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 27.0°C July 26, 27, Aug. 3,4; minimum, 0.0°C on many days during winter period.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1			---	---	1.0	1.0	.0	.0	.0	.0	.5	.5
2			---	---	1.0	1.0	.0	.0	.0	.0	.0	.0
3			---	---	1.0	.5	.0	.0	.0	.0	.0	.0
4			---	---	.5	.5	.0	.0	.0	.0	.0	.0
5			---	---	.5	.5	.0	.0	.0	.0	.0	.0
6			---	---	.5	.5	.0	.0	.0	.0	.0	.0
7			---	---	.5	.5	.0	.0	.0	.0	.0	.0
8			---	---	.5	.5	.0	.0	.0	.0	.0	.0
9			---	---	.5	.0	.0	.0	.0	.0	.0	.0
10			7.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0
11			7.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0
12			7.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0
13			7.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0
14			6.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0
15			6.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0
16			7.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0
17			7.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0
18			7.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0
19			6.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0
20			4.0	2.5	.0	.0	.0	.0	.0	.0	1.0	.0
21			2.5	2.0	.0	.0	.0	.0	.0	.0	2.5	.5
22			2.5	2.0	.0	.0	.0	.0	.5	.5	3.0	1.0
23			---	---	.0	.0	.0	.0	.5	.5	4.5	1.5
24			2.5	2.0	.0	.0	.0	.0	.5	.5	4.0	2.5
25			2.0	2.0	.0	.0	.0	.0	.5	.5	3.5	2.5
26			3.0	2.0	.0	.0	.0	.0	.5	.5	4.0	2.0
27			2.0	1.5	.0	.0	.0	.0	.5	.5	4.5	2.0
28			1.5	1.5	.0	.0	.0	.0	.5	.5	5.0	2.5
29			1.5	1.5	.0	.0	.0	.0	---	---	7.0	3.0
30			---	---	.0	.0	.0	.0	---	---	7.0	4.5
31			---	---	.0	.0	.0	.0	---	---	---	5.5
MONTH			7.5	1.5	1.0	.0	.0	.0	.5	.0	7.0	.0

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 (3 m) downstream from bridge on county highway B17, 0.2 mi (0.3 km) downstream from small left-bank tributary, 4.8 mi (7.7 km) west of Elma, and at mile 217.9 (350.6 km).

DRAINAGE AREA.--95.2 mi² (247 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 1,130.05 ft (344.439 m) NGVD.

REMARKS.--Records good except those for periods of no gage-height record, Jan. 5-25, Jan. 30 to Feb. 16 and winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years, 62.0 ft³/s (1.756 m³/s), 8.84 in/yr (224 mm/yr), 44,920 acre-ft/yr (55.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft³/s (286 m³/s) June 4, 1974, gage height, 14.94 ft (4.554 m), from high-water mark in well; maximum gage height, 15.38 ft (4.688 m), from high-water mark in well, probably occurred Aug. 22, 1979 (backwater from vegetation); minimum daily discharge, 1.9 ft³/s (0.054 m³/s) Feb. 4-8, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 18	2000	*1,900	53.8	*12.96	3.950	June 7	0500	1,060	30.0	12.11	3.691
Mar. 25	1830	1,300	36.8	12.42	3.786	July 15	1915	707	20.0	11.03	3.362
Mar. 31	0715	632	17.9	10.62	3.237	Aug. 30	1700	667	18.9	10.84	3.304
May 23	0300	805	22.8	11.44	3.487						

Minimum daily discharge, 8.2 ft³/s (0.23 m³/s) Jan. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	26	19	13	11	18	290	46	128	29	16	306
2	22	25	24	13	11	18	185	43	107	28	16	319
3	21	25	21	12	12	18	192	41	92	27	15	150
4	23	24	19	12	12	18	137	39	81	25	39	105
5	26	25	17	12	12	16	98	50	72	23	62	87
6	25	26	19	12	12	16	91	105	176	22	35	104
7	24	26	22	11	13	16	79	181	591	28	26	91
8	23	25	19	11	13	15	65	151	199	23	22	78
9	23	24	16	11	13	14	61	107	125	21	20	69
10	23	24	14	11	13	17	57	87	103	21	18	64
11	22	24	16	10	13	23	56	75	85	20	17	64
12	22	24	18	9.2	13	30	77	92	77	19	16	55
13	22	24	20	8.6	13	38	118	297	67	21	16	184
14	24	23	15	8.4	13	49	113	302	63	19	15	250
15	26	23	12	8.2	13	108	106	200	180	164	14	157
16	25	23	13	8.4	13	390	266	246	124	130	13	132
17	29	22	14	8.6	14	940	468	305	94	61	13	103
18	50	22	13	8.8	14	1710	320	231	83	46	12	89
19	45	22	12	8.9	14	1540	235	278	72	40	12	77
20	39	24	12	9.4	15	1590	262	175	64	37	12	66
21	36	21	12	9.4	15	1160	167	148	57	35	11	58
22	34	18	12	9.8	16	782	127	596	51	35	14	53
23	31	21	13	10	17	586	106	614	45	29	15	49
24	31	24	14	9.6	18	752	92	316	41	25	15	45
25	31	25	14	9.0	19	1120	81	208	43	23	29	43
26	31	25	14	9.0	20	759	71	178	40	21	22	40
27	30	24	14	9.2	20	303	61	311	38	22	16	38
28	29	23	14	9.8	19	234	55	272	35	20	14	36
29	28	23	14	10	---	266	52	199	33	18	68	53
30	26	23	13	10	---	454	48	201	36	17	597	216
31	27	---	13	10	---	581	---	162	---	16	246	---
TOTAL	871	708	482	312.3	401	13581	4136	6256	3002	1065	1456	3181
MEAN	28.1	23.6	15.5	10.1	14.3	438	138	202	100	34.4	47.0	106
MAX	50	26	24	13	20	1710	468	614	591	164	597	319
MIN	21	18	12	8.2	11	14	48	39	33	16	11	36
CFSM	.30	.25	.16	.11	.15	4.60	1.45	2.12	1.05	.36	.49	1.11
IN.	.34	.28	.19	.12	.16	5.31	1.62	2.44	1.17	.42	.57	1.24
AC-FT	1730	1400	956	619	795	26940	8200	12410	5950	2110	2890	6310

CAL YR 1981	TOTAL	18208.7	MEAN 49.9	MAX 475	MIN 9.3	CFSM .52	IN 7.12	AC-FT 36120			
WTR YR 1982	TOTAL	35451.3	MEAN 97.1	MAX 1710	MIN 8.2	CFSM 1.02	IN 13.85	AC-FT 70320			

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 (549 m) downstream from dam at abandoned hydroelectric plant, 4.9 mi (7.9 km) downstream from Otter Creek, 9.7 mi (15.6 km) upstream from Pine Creek, and at mile 142.5 (229.3 km).

DRAINAGE AREA.--1,048 mi² (2,714 km²).

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 (269.093 m) NGVD. Prior to May 24, 1941, nonrecording gage in tailrace of powerplant 1,800 ft (549 m) upstream at datum 80.00 ft (24.38 m) lower.

REMARKS.--Records excellent. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--49 years, 602 ft³/s (17.05 m³/s), 7.80 in/yr (198 mm/yr), 436,100 acre-ft/yr (538 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,800 ft³/s (759 m³/s) July 18, 1968, gage height, 21.11 ft (6.434 m); minimum daily, 7.0 ft³/s (0.20 m³/s) for several days in 1934 and 1977.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 17	0815	6,240	177	10.03	3.057	Mar. 20	1745	*8,260	234	*11.54	3.517

Minimum daily discharge, 118 ft³/s (3.34 m³/s) Feb. 11,12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1140	663	893	228	135	820	1970	812	2860	685	810	193
2	990	647	840	225	135	780	1820	758	2680	633	636	200
3	890	628	820	220	138	700	2050	725	2270	697	523	221
4	850	643	780	211	140	620	2240	666	1800	891	455	260
5	820	798	740	206	140	560	2050	760	1450	709	531	375
6	790	887	659	200	140	500	1760	1260	1240	651	1160	618
7	735	856	640	195	136	450	1500	2500	1270	1680	790	545
8	697	797	620	190	136	410	1290	2630	1220	1640	654	467
9	669	709	600	187	124	370	1140	2430	1260	1240	618	416
10	651	649	591	182	120	360	1060	2210	1380	1090	548	394
11	619	605	580	180	118	390	1010	1950	1480	929	430	371
12	583	570	560	176	118	986	1130	1700	1500	812	352	352
13	555	536	520	170	119	1500	1410	1690	1370	704	302	338
14	621	514	480	170	120	1900	1540	1770	1070	630	280	362
15	819	512	380	170	121	2160	1620	1720	1090	702	260	508
16	953	540	323	170	125	3810	2050	1670	1440	924	248	521
17	1000	557	323	165	127	5820	2570	1840	1530	1470	239	577
18	1440	523	330	160	132	4810	2730	2170	1480	1540	230	606
19	1490	531	338	160	143	5000	2750	2190	1430	1900	222	557
20	1410	523	345	155	169	7680	2600	2150	1300	1970	217	483
21	1270	510	345	152	206	7670	2440	2310	1110	2030	210	423
22	1120	497	345	153	559	6560	2270	3130	975	1900	205	386
23	998	512	338	146	1360	5400	2010	3800	865	1420	203	366
24	910	609	323	146	1530	4810	1780	3760	766	1030	230	344
25	858	753	309	147	1130	4480	1580	3830	710	848	390	335
26	796	890	299	143	1030	3630	1370	3600	684	712	270	300
27	751	993	295	143	900	3030	1180	3330	751	621	230	282
28	701	993	288	140	860	2790	1040	3480	930	576	205	257
29	662	937	257	137	---	2570	944	3350	902	522	196	204
30	648	870	250	139	---	2300	880	3240	783	540	190	191
31	645	---	240	132	---	2120	---	3010	---	1010	188	---
TOTAL	27081	20252	14651	5298	10211	84986	51784	70441	39596	32706	12022	11452
MEAN	874	675	473	171	365	2741	1726	2272	1320	1055	388	382
MAX	1490	993	893	228	1530	7680	2750	3830	2860	2030	1160	618
MIN	555	497	240	132	118	360	880	666	684	522	188	191
CFSM	.83	.64	.45	.16	.35	2.62	1.65	2.17	1.26	1.01	.37	.37
IN.	.96	.72	.52	.19	.36	3.02	1.84	2.50	1.41	1.16	.43	.41
AC-FT	53720	40170	29060	10510	20250	168600	102700	139700	78540	64870	23850	22720

CAL YR 1981 TOTAL 306981 MEAN 841 MAX 7720 MIN 79 CFSM .80 IN 10.90 AC-FT 608900
WTR YR 1982 TOTAL 380480 MEAN 1042 MAX 7680 MIN 118 CFSM .99 IN 13.51 AC-FT 754700

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 (2 m) upstream from bridge on U.S. Highway 61, 0.9 mi (1.4 km) downstream from Silver Creek, 4.0 mi (6.4 km) south of water tower in De Witt, 6.2 mi (10.0 km) upstream from Brophy Creek, and 18.2 mi (29.3 km) upstream from mouth.

DRAINAGE AREA.--2,330 mi² (6,034 km²).

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 (182.517 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--48 years, 1,505 ft³/s (42.62 m³/s), 8.77 in/yr (223 mm/yr), 1,090,000 acre-ft/yr (1,344 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,900 ft³/s (847 m³/s) May 17, 1974, gage height, 13.07 ft (3.984 m); minimum daily, 46 ft³/s (1.30 m³/s) Jan. 22, 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s (170 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 1	1415	6,500	184	10.56	3.219	June 16	2030	*10,800	306	*12.02	3.664
Oct. 19	0945	7,800	221	11.00	3.353	July 11	1945	6,400	181	10.82	3.298
Mar. 24	1200	10,200	289	11.78	3.591	Aug. 9	1830	9,600	272	11.40	3.475
May 31	1345	7,350	208	11.14	3.395						

Minimum daily discharge, 500 ft³/s (14.2 m³/s) Jan. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6420	1990	2420	880	560	3100	6180	2260	7070	1950	1580	890
2	5500	1990	2420	845	545	2700	5290	2080	6410	1910	1530	880
3	3690	1940	2420	815	540	2300	4810	1970	5730	1980	1700	870
4	3210	1930	2420	795	535	2000	4490	1860	5010	1940	1650	910
5	3020	1950	2430	760	530	1800	4220	1840	4440	1710	1620	995
6	3070	2120	2390	720	530	1700	3870	2690	3910	1660	2150	1080
7	2840	2170	2270	660	525	1600	3860	3500	3380	3490	3270	1100
8	2500	2220	2130	620	525	1550	3710	3720	3070	2770	7190	1140
9	2360	2200	2020	590	520	1480	3450	3920	2640	2260	9570	1130
10	2190	2120	1970	560	530	1520	3120	4170	2380	3060	5800	1090
11	2040	2030	1960	535	540	1800	3010	4410	2220	5850	2880	1010
12	1900	1900	1900	520	550	3750	3080	4920	2180	5230	2320	946
13	1790	1820	1830	520	560	5860	3110	5560	2190	4030	2010	903
14	2860	1730	1770	520	560	7590	3090	4670	2220	2980	1800	894
15	5080	1690	1700	510	580	8120	3240	4060	4940	3070	1620	885
16	4270	1690	1600	500	620	8200	3430	3530	9200	2730	1510	939
17	4040	1720	1510	510	665	8670	4000	3320	10100	2560	1400	904
18	6200	1680	900	515	740	8170	4650	3210	8960	2600	1300	1080
19	7230	1660	750	530	820	8190	5020	3140	7150	4030	1210	1130
20	4540	1650	700	550	960	9380	5200	3310	4470	5560	1150	1100
21	4030	1580	700	555	1500	10000	5220	3500	3720	4980	1090	1060
22	3750	1520	720	560	2500	9920	5140	3470	3370	4260	1050	1000
23	3450	1500	740	560	4500	10300	4900	3490	3060	3840	1050	947
24	3160	1560	780	550	7000	10400	4550	3570	2740	3670	1020	897
25	2890	1580	850	540	6400	10100	4100	3950	2550	3440	996	853
26	2650	1730	900	535	5600	10100	3770	4570	2540	3030	974	834
27	2460	2370	940	550	4500	9980	3410	5290	2310	2500	945	805
28	2320	2370	960	555	3700	9610	3060	5860	2300	2170	940	783
29	2200	2390	950	570	---	8920	2740	6140	2090	1980	934	757
30	2110	2410	940	580	---	8270	2460	6910	1990	1870	906	725
31	2020	---	930	570	---	7230	---	7330	---	1700	900	---
TOTAL	105790	57210	46920	18580	47635	194310	120180	122220	124340	94810	64065	28537
MEAN	3413	1907	1514	599	1701	6268	4006	3943	4145	3058	2067	951
MAX	7230	2410	2430	880	7000	10400	6180	7330	10100	5850	9570	1140
MIN	1790	1500	700	500	520	1480	2460	1840	1990	1660	900	725
CFSM	1.47	.82	.65	.26	.73	2.69	1.72	1.69	1.78	1.31	.89	.41
IN.	1.69	.91	.75	.30	.76	3.10	1.92	1.95	1.99	1.51	1.02	.46
AC-FT	209800	113500	93070	36850	94480	385400	238400	242400	246600	188100	127100	56600

CAL YR 1981 TOTAL 731794 MEAN 2005 MAX 10700 MIN 310 CFSM .86 IN 11.68 AC-FT 1452000
WTR YR 1982 TOTAL 1024597 MEAN 2807 MAX 10400 MIN 500 CFSM 1.21 IN 16.36 AC-FT 2032000

05422420 CROW CREEK AT ELDRIDGE, IA

LOCATION. Lat 41°38'24", long 90°33'07", in SE1/4 SE1/4 sec.13, T.79 N., R.3 E., Scott County, Hydrologic Unit 07080101, on left bank 10 ft (3 m) upstream from culvert on county highway 1.0 mi (1.6 km) south and 1.2 mi (1.9 km) east of Eldridge.

DRAINAGE AREA.--2.20 mi² (5.70 km²).

PERIOD OF RECORD.--October 1977 to September 30, 1982 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 741.22 ft (225.924 m) NGVD.

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

AVERAGE DISCHARGE.--5 years, 2.05 ft³/s (0.058 m³/s), 12.65 in/yr (321 mm/yr), 1,480 acre ft/yr (1.825 hm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 531 ft³/s (15.0 m³/s) Aug. 20, 1979, gage height, 12.63 ft (3.850 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 522 ft³/s (14.78 m³/s) June 15, gage height, 12.62 ft (3.847 m) at 0530 hours, no other peak above base of 100 ft³/s (2.83 m³/s); no flow for many days in Aug. and Sept.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	3.2	6.9	.60	.46	2.4	2.6	1.2	.80	1.6	.26	.03
2	5.3	3.2	5.6	.62	.44	2.3	2.6	1.1	.67	1.8	.16	.00
3	4.7	2.8	4.6	.64	.43	1.3	3.1	1.0	.67	1.6	.18	.52
4	6.2	2.6	3.7	.84	.42	1.4	2.5	1.0	.55	1.3	.19	.00
5	5.6	2.4	3.3	1.5	.40	.95	2.8	1.2	.55	1.2	.86	.00
6	6.5	2.6	3.2	1.1	.39	.82	2.0	1.4	.55	3.7	.33	.00
7	5.3	2.2	2.9	.90	.41	.76	1.8	1.2	.45	3.5	.69	.00
8	4.7	2.0	2.7	.74	.42	.74	1.8	1.2	.45	2.1	.32	.00
9	4.1	1.9	2.4	.60	.42	.78	1.8	1.2	.45	1.8	.25	.00
10	3.9	1.8	2.2	.50	.40	1.4	2.7	1.1	.37	4.3	.27	.00
11	3.4	1.8	2.1	.42	.39	7.1	4.3	.93	.37	2.7	.26	.00
12	3.4	1.7	1.9	.38	.38	12	5.6	.80	.37	1.8	.24	.09
13	3.2	1.7	1.8	.36	.37	10	4.7	.80	.37	1.8	.24	.00
14	23	1.8	1.7	.36	.35	4.9	4.0	.80	.30	1.7	.46	.00
15	12	1.8	1.6	.36	.34	4.4	3.4	.80	101	1.5	.21	.00
16	9.0	2.2	1.5	.36	.45	18	4.9	.80	12	1.3	.23	.00
17	28	2.0	1.3	.36	.70	7.3	5.4	.80	8.6	1.0	.16	.81
18	17	1.7	1.2	.36	1.5	5.5	4.2	.93	6.8	2.9	.07	.23
19	9.7	1.7	1.1	.37	2.0	19	3.7	.80	5.6	2.0	.02	.00
20	7.9	2.0	1.0	.40	9.6	13	3.3	.80	4.6	1.2	.03	.00
21	6.5	1.4	1.1	.42	8.5	8.1	2.8	.93	4.3	4.0	.02	.00
22	5.3	1.3	.95	.44	7.3	6.2	2.7	.80	3.8	5.8	.20	.00
23	4.7	2.3	.90	.48	6.4	5.2	2.6	.80	3.4	3.5	.02	.00
24	4.4	3.2	.88	.43	3.6	4.7	2.2	.80	2.9	2.8	.00	.00
25	4.1	2.9	.88	.39	2.3	3.8	2.0	.80	2.5	.63	.00	.00
26	3.6	6.1	.94	.38	2.1	3.2	1.8	.93	2.2	.64	.04	.00
27	3.4	5.3	.85	.40	2.0	2.9	1.5	1.1	2.4	.45	.00	.10
28	3.2	4.1	.56	.45	2.1	2.6	1.4	.93	2.2	.34	.00	.10
29	3.0	3.5	.48	.49	---	2.4	1.3	1.2	2.0	.25	.00	.00
30	2.9	4.0	.50	.50	---	3.4	1.2	.93	1.8	.32	.22	.00
31	3.0	---	.62	.50	---	3.1	---	.80	---	.39	.09	---
TOTAL	213.2	77.2	61.36	16.65	54.57	159.65	86.7	29.88	173.02	59.92	6.02	1.88
MEAN	6.88	2.57	1.98	.54	1.95	5.15	2.89	.96	5.77	1.93	.19	.063
MAX	28	6.1	6.9	1.5	9.6	19	5.6	1.4	101	5.8	.86	.81
MIN	2.9	1.3	.48	.36	.34	.74	1.2	.80	.30	.25	.00	.00
CFSM	3.13	1.17	.90	.25	.89	2.34	1.31	.44	2.62	.88	.09	.03
IN.	3.60	1.30	1.04	.28	.92	2.70	1.47	.51	2.92	1.01	.10	.03
AC-FT	423	153	122	33	108	317	172	59	343	119	12	3.7

CAL YR 1981 TOTAL 851.39 MEAN 2.33 MAX 55 MIN .00 CFSM 1.06 IN 14.39 AC-FT 1690
WTR YR 1982 TOTAL 940.05 MEAN 2.58 MAX 101 MIN .00 CFSM 1.17 IN 15.89 AC-FT 1860

05422450 CROW CREEK AT MT. JOY, IA

LOCATION.--Lat 41°36'54", long 90°32'57", in NW1/4 SW1/4 sec.30, T.79 N., R.4 E., Scott County, Hydrologic Unit 07080101, on left bank 10 ft (3 m) downstream from bridge on county highway, 1.0 mi (1.6 km) east of Mt. Joy.

DRAINAGE AREA.--6.90 mi² (17.87 km²).

PERIOD OF RECORD.--October 1977 to September 30, 1982 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 695.57 ft (212.010 m) NGVD.

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

AVERAGE DISCHARGE.--5 years, 6.49 ft³/s (0.184 m³/s), 12.77 in/yr (324 mm/yr), 4700 acre-ft/yr (5.795 hm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,150 ft³/s (60.9 m³/s) Aug. 20, 1979, gage height, 16.47 ft (5.020 m); minimum, 0.06 ft³/s (0.002 m³/s) Sept. 4, 8, 27, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 14	0745	236	6.68	10.20	3.109	June 15	0415	*1,750	49.6	*15.58	4.749
Oct. 17	1100	300	8.50	10.71	3.264						

Minimum daily discharge, 0.17 ft³/s (0.005 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	8.4	21	3.1	1.6	5.9	8.1	3.2	1.2	5.4	1.7	.90
2	15	8.3	14	3.3	1.6	5.2	11	3.2	1.0	7.0	1.6	.50
3	13	7.3	13	3.4	1.6	3.6	11	3.9	1.4	5.2	1.5	.85
4	20	7.5	11	3.5	1.5	3.9	7.9	3.5	1.3	4.8	5.4	.55
5	15	6.7	8.9	3.6	1.5	3.4	6.7	4.1	1.2	4.5	13	.37
6	17	6.3	8.3	3.4	1.4	3.2	9.1	4.1	1.2	45	4.0	1.6
7	12	6.1	7.8	2.9	1.5	3.0	6.6	3.2	1.2	23	5.7	.57
8	11	5.7	7.6	2.3	1.6	2.8	6.7	3.3	1.1	13	3.4	.43
9	10	5.2	7.2	1.9	1.5	2.6	7.3	2.7	1.1	8.9	3.4	.27
10	9.3	5.1	7.1	1.7	1.5	2.5	11	2.5	.93	37	3.7	.47
11	8.1	4.8	6.9	1.5	1.5	16	13	2.4	.90	24	3.4	.20
12	7.5	5.7	6.6	1.5	1.5	35	13	2.4	.77	11	3.3	.20
13	8.6	6.0	6.5	1.4	1.6	29	11	2.1	.57	8.6	3.1	.28
14	90	5.6	5.4	1.3	1.7	17	8.4	2.0	1.6	7.4	3.3	2.1
15	30	7.4	5.0	1.3	2.0	13	7.9	2.0	394	7.0	2.8	.37
16	21	7.3	4.6	1.3	5.8	50	16	1.8	40	50	2.5	.28
17	103	5.5	4.3	1.3	23	30	13	2.2	28	28	2.5	7.0
18	46	5.4	4.0	1.3	15	21	9.1	1.8	22	70	2.4	2.1
19	24	6.1	3.9	1.4	9.8	58	7.9	1.5	18	30	2.3	.57
20	19	7.0	3.9	1.4	46	47	7.0	1.5	15	15	2.0	.37
21	16	5.2	3.9	1.4	34	26	6.8	1.9	12	9.2	1.7	.28
22	14	5.4	4.1	1.4	28	19	6.2	1.0	11	6.4	1.6	.24
23	13	10	4.1	1.5	10	17	6.2	.99	8.9	4.4	1.2	.37
24	12	9.0	4.1	1.4	5.8	15	6.3	.78	7.8	3.2	1.4	.24
25	11	7.9	4.1	1.3	5.0	9.6	5.3	.80	10	2.6	1.1	.23
26	9.6	17	4.2	1.3	4.8	7.9	5.1	1.7	8.0	2.6	1.1	.21
27	8.6	13	3.9	1.4	5.1	7.0	4.0	5.4	11	4.4	.96	.20
28	8.0	11	3.5	1.5	5.8	7.2	5.0	1.3	8.1	2.9	.66	.19
29	7.5	9.5	3.0	1.5	---	7.9	4.0	3.3	6.7	2.2	2.3	.18
30	7.0	15	3.1	1.6	---	15	3.6	1.5	5.7	1.9	1.5	.17
31	7.7	---	3.2	1.6	---	8.8	---	1.9	---	1.8	1.8	---
TOTAL	610.9	230.4	198.2	58.7	221.7	492.5	244.2	73.97	621.67	446.4	86.32	22.29
MEAN	19.7	7.68	6.39	1.89	7.92	15.9	8.14	2.39	20.7	14.4	2.78	.74
MAX	103	17	21	3.6	46	58	16	5.4	394	70	13	7.0
MIN	7.0	4.8	3.0	1.3	1.4	2.5	3.6	.78	.57	1.8	.66	.17
CFSM	2.86	1.11	.93	.27	1.15	2.30	1.18	.35	3.00	2.09	.40	.11
IN.	3.29	1.24	1.07	.32	1.20	2.65	1.32	.40	3.35	2.41	.47	.12
AC-FT	1210	457	393	116	440	977	484	147	1230	885	171	44

CAL YR 1981 TOTAL 2676.74 MEAN 7.33 MAX 143 MIN .30 CFSM 1.06 IN 14.43 AC-FT 5310
WTR YR 1982 TOTAL 3307.25 MEAN 9.06 MAX 394 MIN .17 CFSM 1.31 IN 17.83 AC-FT 6560

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 (61 m) upstream from bridge on Valley Road (old U.S. Highway 67), 3.5 mi (5.6 km) east of U.S. Highway 6, and 0.7 mi (1.1 km) upstream from mouth.

DRAINAGE AREA.--17.8 mi² (46.0 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 576.23 ft (175.635 m) NGVD.

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

AVERAGE DISCHARGE.--5 years, 16.1 ft³/s (0.456 m³/s), 12.28 in/yr (312 mm/yr), 11,660 acre-ft/yr (14.38 hm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,490 ft³/s (70.5 m³/s) June 15, 1982, gage height, 10.24 ft (3.121 m); minimum, 0.023 ft³/s (0.007 m³/s) Sept. 10, 11, 26-28, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s (7.08 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 17	1345	354	10.0	5.58	1.701	July 10	1745	281	7.96	5.28	1.609
Mar. 12	2200	293	8.3	5.37	1.637	July 19	0100	387	11.0	5.65	1.722
June 15	2100	*2490	70.5	*10.24	3.121	July 27	1415	449	12.7	5.83	1.777
July 6	1800	622	17.6	6.48	1.975						

Minimum daily discharge, 1.0 ft³/s (0.028 m³/s) Sept. 9, 10, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	25	67	7.8	3.6	6.3	13	9.5	15	7.4	5.0	2.2
2	34	26	43	7.6	3.4	6.4	17	8.9	12	7.7	4.5	1.7
3	29	23	38	7.4	3.4	5.6	23	8.8	11	9.2	4.5	1.3
4	59	22	33	6.8	3.3	4.4	13	8.8	9.9	7.3	4.0	1.2
5	39	22	29	6.8	3.3	4.0	12	8.6	9.3	6.5	30	2.3
6	53	20	25	6.2	2.9	3.6	23	10	9.9	99	5.9	5.0
7	31	18	22	5.6	3.4	3.4	15	8.4	9.9	73	8.3	5.6
8	26	17	20	5.0	3.2	3.2	9.9	8.2	9.3	32	5.6	2.8
9	21	14	19	3.4	3.0	2.9	11	7.4	9.9	24	4.5	1.0
10	20	14	17	3.3	2.9	2.8	17	7.4	8.3	94	4.0	1.0
11	17	13	17	3.2	2.9	41	24	7.1	6.9	49	3.8	1.7
12	15	12	15	3.2	3.0	52	28	8.1	14	30	3.3	2.5
13	14	12	15	3.2	3.0	58	24	7.5	45	26	3.1	1.8
14	138	12	14	3.2	3.1	13	19	6.4	25	23	3.1	4.5
15	102	12	12	3.2	3.3	14	17	6.1	1140	49	3.3	2.6
16	84	22	11	3.2	15	81	30	6.1	460	103	2.6	2.5
17	185	12	9.2	3.3	60	24	37	5.9	170	98	2.6	9.8
18	140	11	8.4	3.4	43	16	25	6.5	51	122	2.6	7.7
19	94	12	8.4	3.5	26	83	24	5.6	40	124	2.5	3.1
20	72	17	9.3	3.6	109	62	20	8.3	30	34	2.2	2.7
21	58	11	11	3.6	72	37	18	7.8	19	21	2.2	2.1
22	50	11	12	3.6	52	26	16	6.9	15	31	2.9	1.8
23	42	23	9.4	3.7	37	23	15	5.9	12	12	2.3	2.5
24	36	28	8.7	3.5	7.4	23	14	5.4	11	11	1.8	1.7
25	32	22	8.9	3.4	5.9	19	12	5.9	11	9.9	1.8	1.5
26	29	37	9.0	3.4	5.4	15	12	8.8	10	7.8	1.7	1.4
27	26	35	8.0	3.6	5.7	14	11	30	14	51	1.5	1.3
28	24	29	7.7	3.8	6.1	12	10	17	13	10	1.3	1.2
29	22	24	7.5	4.0	---	12	10	35	8.7	6.9	1.5	1.1
30	23	29	8.0	4.0	---	27	10	24	8.1	5.9	3.4	1.0
31	22	---	8.7	3.9	---	17	---	18	---	5.6	1.8	---
TOTAL	1578	585	531.2	133.4	492.2	711.6	529.9	318.3	2208.2	1190.2	127.6	78.6
MEAN	50.9	19.5	17.1	4.30	17.6	23.0	17.7	10.3	73.6	38.4	4.12	2.62
MAX	185	37	67	7.8	109	83	37	35	1140	124	30	9.8
MIN	14	11	7.5	3.2	2.9	2.8	9.9	5.4	6.9	5.6	1.3	1.0
CFSM	2.86	1.10	.96	.24	.99	1.29	.99	.58	4.14	2.16	.23	.15
IN.	3.30	1.22	1.11	.28	1.03	1.49	1.11	.67	4.61	2.49	.27	.16
AC-FT	3130	1160	1050	265	976	1410	1050	631	4380	2360	253	156

CAL YR 1981 TOTAL 6193.7 MEAN 17.0 MAX 254 MIN 1.4 CFSM .96 IN 12.94 AC-FT 12290
WTR YR 1982 TOTAL 8484.2 MEAN 23.2 MAX 1140 MIN 1.0 CFSM 1.30 IN 17.73 AC-FT 16830

05422470 CROW CREEK AT BENTENDORF, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to December 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1978 to December 1981 (discontinued).
WATER TEMPERATURES: April 1978 to December 1981 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: April 1978 to December 1981 (discontinued).

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, 1,300 micromhos Feb. 26, 1979; minimum daily, 220 micromhos Aug. 27, 1979.
WATER TEMPERATURES: Maximum daily, 34.0°C Aug. 5, 1979; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 7,450 mg/L Aug. 20, 1979; minimum daily mean, 4 mg/L Feb. 5, 1981.
SEDIMENT LOADS: Maximum daily, 18,300 tons (16,600 tonnes) Aug. 20, 1979; minimum daily, 0.02 tons (0.018 tonnes) Aug. 7, Sept. 28-30, 1978, Feb. 5, 1981.

EXTREMES FOR PERIOD OCTOBER TO DECEMBER 1981.--
SPECIFIC CONDUCTANCE: Maximum daily, 670 micromhos Oct. 8, 9, Nov. 27; minimum daily, 340 micromhos Oct. 17.
WATER TEMPERATURES: Maximum daily, 15.0°C Oct. 17; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,310 mg/L Oct. 17; minimum daily mean, 8 mg/L Dec. 30.
SEDIMENT LOADS: Maximum daily, 654 tons (593 tonnes) Oct. 17; minimum daily, .17 tons (.15 tonnes) Dec. 30.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO DECEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	640	540	530									
2	600	620	630									
3	660	540	580									
4	400	520	600									
5	650	520	580									
6	410	530	540									
7	650	520	---									
8	670	520	550									
9	670	520	550									
10	540	530	550									
11	530	520	560									
12	530	520	550									
13	520	520	560									
14	520	520	550									
15	600	520	560									
16	600	550	560									
17	340	540	600									
18	500	530	660									
19	600	520	580									
20	580	520	560									
21	560	540	560									
22	560	540	570									
23	550	590	600									
24	540	620	560									
25	---	620	550									
26	530	660	540									
27	540	670	540									
28	540	620	520									
29	520	---	540									
30	520	590	540									
31	500	---	540									

05422470 CROW CREEK AT BETTENDORF, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO DECEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.5	14.0	4.5									
2	9.0	13.0	4.0									
3	13.0	10.5	4.0									
4	14.0	13.5	2.5									
5	13.0	11.0	3.0									
6	13.0	4.5	5.0									
7	10.0	6.0	---									
8	9.5	9.0	3.0									
9	11.0	4.5	2.5									
10	11.0	3.0	.5									
11	12.0	5.0	1.0									
12	14.0	5.5	1.0									
13	13.0	6.5	4.5									
14	14.5	9.0	2.5									
15	12.5	9.0	.5									
16	10.5	8.5	1.0									
17	15.0	6.0	.5									
18	11.0	6.0	.0									
19	8.0	6.0	.5									
20	13.0	4.0	.0									
21	13.0	2.0	.5									
22	10.0	2.5	1.0									
23	6.0	2.0	.5									
24	3.0	3.0	.5									
25	---	4.0	.0									
26	7.0	5.0	.0									
27	5.0	6.0	.0									
28	7.5	4.5	.0									
29	6.0	---	.0									
30	6.0	3.0	.0									
31	12.0	---	.0									

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO DECEMBER 1981

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	148	16	35	2.4	281	51						
2	100	9.2	34	2.4	87	10						
3	76	6.0	47	2.9	51	5.2						
4	760	121	58	3.4	50	4.5						
5	160	17	52	3.1	44	3.4						
6	1220	175	58	3.1	29	2.0						
7	220	18	28	1.4	34	2.0						
8	102	7.2	32	1.5	35	1.9						
9	84	4.8	43	1.6	27	1.4						
10	68	3.7	54	2.0	30	1.4						
11	59	2.7	52	1.8	54	2.5						
12	68	2.8	45	1.5	38	1.5						
13	55	2.1	23	.75	46	1.9						
14	1240	462	14	.45	59	2.2						
15	370	102	14	.45	29	.94						
16	210	48	59	3.5	79	2.3						
17	1310	654	31	1.0	110	2.7						
18	640	242	37	1.1	85	1.9						
19	187	47	47	1.5	49	1.1						
20	163	32	28	1.3	27	.68						
21	160	25	20	.59	35	1.0						
22	189	26	23	.68	11	.36						
23	144	16	59	3.7	31	.79						
24	86	8.4	78	5.9	24	.56						
25	93	8.0	67	4.0	28	.67						
26	108	8.5	153	15	34	.83						
27	107	7.5	109	10	21	.45						
28	114	7.4	38	3.0	13	.27						
29	76	4.5	24	1.6	13	.26						
30	62	3.9	81	6.3	8	.17						
31	53	3.1	---	---	11	.26						
TOTAL	---	2090.8	---	87.92	---	106.14						

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO DECEMBER 1981

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70344)
OCT 17...	1308	15.0	347	3890	3650	29	32	34	48	96	99	100

05448150 PINE CREEK NEAR MUSCATINE, IA

LOCATION.--Lat 41°28'03", long 90°52'04", in SE1/4 SE1/4 sec.17, T.77 N., R.1 E., Muscatine County, Hydrologic Unit 07080101, on right bank 4 ft (1 m) downstream of Old Pine Creek Mill dam at Wildcat Den State Park, 1.5 miles (2.4 km) upstream from mouth, and 9.8 miles (15.8 km) northeast of Muscatine.

DRAINAGE AREA.--38.9 mi² (100.8 km²).

PERIOD OF RECORD.--October 1975 to September 1982 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 551.84 ft (168.201 m) NGVD. Prior to July 28, 1978 at site 20 ft (6 m) upstream in pool of mill dam.

REMARKS.--Records fair except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years, 21.4 ft³/s (0.606 m³/s), 7.47 in/yr (190 mm/yr), 15,500 acre-ft/yr (19.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,890 ft³/s (252 m³/s) July 6, 1982, gage height, 11.97 ft (3.648 m), on basis of indirect measurement of peak flow over dam of 3,670 ft³/s (104 m³/s), gage height, 15.80 ft (4.816 m) Mar. 4, 1976; no flow Jan. 11-16, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 17	2125	4,820	137	10.81	3.295
Feb. 28	----	5,670	161	ice jam	
June 15	0640	8,480	240	11.86	3.615
July 6	1855	*8,890	252	*11.97	3.648
July 18	0510	8,110	230	11.76	3.584

Minimum daily discharge, 5.2 ft³/s (0.15 m³/s) June 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	27	50	5.8	6.3	25	31	11	14	20	18	32
2	20	28	38	5.8	6.2	23	31	10	13	19	17	28
3	19	27	35	6.0	6.2	20	33	9.2	12	20	16	25
4	31	28	34	6.0	6.2	15	30	8.9	12	18	16	23
5	29	29	33	6.0	6.2	22	30	19	11	16	37	23
6	35	27	33	6.0	6.2	21	33	80	11	1280	27	28
7	27	26	33	6.0	6.2	18	31	60	10	54	50	27
8	25	25	32	6.0	6.2	18	32	35	10	32	45	24
9	23	24	32	6.4	6.2	18	33	25	11	28	39	23
10	23	23	29	6.6	6.2	20	35	19	9.3	34	32	22
11	22	23	27	7.1	6.2	56	41	16	7.7	29	28	21
12	20	22	25	7.6	6.2	56	40	14	7.9	26	26	20
13	20	22	23	7.9	6.2	52	40	13	7.7	24	24	19
14	95	22	21	7.9	6.2	32	38	12	5.2	23	22	19
15	45	22	18	7.9	6.2	31	42	13	1600	24	20	18
16	36	28	16	7.7	12	57	41	12	54	25	19	16
17	929	24	16	7.8	24	34	39	15	45	22	18	22
18	177	23	15	7.9	19	31	37	16	38	1100	18	24
19	41	23	13	7.8	20	69	36	28	33	67	17	18
20	35	24	12	7.6	50	52	32	24	29	36	17	16
21	32	22	12	7.3	31	40	30	18	25	32	17	16
22	30	22	11	7.2	29	35	28	15	20	29	17	15
23	28	23	9.9	7.2	25	34	26	12	20	27	27	14
24	27	24	8.8	7.0	20	32	25	11	19	25	36	12
25	27	24	8.1	6.9	19	30	22	10	20	24	33	11
26	26	56	7.5	6.8	21	28	20	14	18	23	32	9.8
27	25	38	7.0	6.7	31	28	17	11	40	27	31	9.0
28	24	32	6.4	6.7	42	27	15	11	33	24	30	8.2
29	24	31	5.6	6.6	---	28	13	15	24	21	29	7.4
30	24	36	5.8	6.6	---	35	12	19	21	21	36	6.5
31	24	---	5.8	6.5	---	32	---	16	---	19	32	---
TOTAL	1965	805	622.9	213.3	436.1	1019	913	592.1	2180.8	3169	826	556.9
MEAN	63.4	26.8	20.1	6.88	15.6	32.9	30.4	19.1	72.7	102	26.6	18.6
MAX	929	56	50	7.9	50	69	42	80	1600	1280	50	32
MIN	19	22	5.6	5.8	6.2	15	12	8.9	5.2	16	16	6.5
CFSM	1.63	.69	.52	.18	.40	.85	.78	.49	1.87	2.62	.68	.48
IN.	1.88	.77	.60	.20	.42	.97	.87	.57	2.09	3.03	.79	.53
AC-FT	3900	1600	1240	423	865	2020	1810	1170	4330	6290	1640	1100

CAL YR 1981	TOTAL	6958.8	MEAN 19.1	MAX 929	MIN 1.4	CFSM .49	IN 6.65	AC-FT 13800				
WTR YR 1982	TOTAL	13299.1	MEAN 36.4	MAX 1600	MIN 5.2	CFSM .94	IN 12.72	AC-FT 26380				

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 (5 m) upstream from bridge on county highway B55, 1.2 mi (1.9 km) west of Chicago, Rock Island and Pacific Railroad crossing in Klemme, 1.5 mi (2.4 km) upstream from Drainage ditch 9, 18.2 mi (29.3 km) upstream from confluence with West Branch Iowa River, and at mile 341.0 (548.7 km).

DRAINAGE AREA.--133 mi^2 (344 km^2).

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 (359.46 m) NGVD. Apr. 1, 1948, to Sept. 30, 1955, nonrecording gage at site 0.6 mi (1.0 km) upstream at datum 0.80 ft (0.24 m) higher. Oct. 1, 1955, to Sept. 30, 1969, at present site at datum 0.31 ft (0.09 m) lower.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--33 years (water years 1948-76, 1978-82), 59.9 ft^3/s (1.696 m^3/s), 6.12 in/yr (155 mm/yr), 43,400 acre-ft/yr (53.5 hm^3/yr); median of yearly mean discharges, 52 ft^3/s (1.47 m^3/s), 5.3 in/yr (135 mm/yr), 37,700 acre-ft/yr (46.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,960 ft^3/s (169 m^3/s) June 19, 1954, gage height, 11.2 ft (3.41 m), from floodmark, site and datum then in use; maximum gage height, 10.67 ft (3.252 m) Sept. 6, 1965, backwater from ice; minimum daily discharge, 0.2 ft^3/s (0.006 m^3/s) Feb. 22-26, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1944 reached a stage of about 10 ft (3 m), from information by local residents, former site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 976 ft^3/s (27.6 m^3/s) June 7, gage height, 8.37 ft (2.55 m) at 2130 hours, no other peak above base of 700 ft^3/s (19.8 m^3/s); minimum daily, 0.77 ft^3/s (0.022 m^3/s) Feb. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	37	30	14	.85	28	94	62	185	58	28	32
2	20	37	25	14	.82	27	97	59	161	57	27	23
3	22	36	27	12	.79	24	51	53	145	54	25	18
4	38	37	29	11	.77	22	67	58	133	49	33	16
5	38	36	31	9.6	.77	21	63	68	123	45	29	17
6	37	34	32	8.4	.78	19	58	103	212	52	26	18
7	35	33	33	7.1	.78	17	61	183	811	60	24	16
8	34	33	31	6.0	.79	15	63	157	862	55	23	15
9	33	29	25	5.4	.79	14	62	128	590	63	19	15
10	32	31	21	4.1	.80	23	61	112	395	115	18	16
11	30	31	23	3.3	.80	38	67	100	282	117	20	15
12	29	29	25	3.1	.83	57	93	160	227	92	20	17
13	32	29	26	3.0	.85	89	99	282	194	78	20	38
14	34	30	20	2.8	.88	160	101	430	173	70	20	36
15	35	30	17	2.6	.91	260	113	452	164	68	19	27
16	37	29	19	2.3	.94	395	202	419	145	69	16	22
17	47	27	20	2.2	1.0	465	316	360	135	60	18	21
18	59	27	22	2.1	1.5	406	277	293	124	51	15	19
19	59	28	23	1.8	2.4	391	221	267	114	45	15	18
20	59	23	24	1.6	4.3	610	201	233	107	41	15	17
21	51	42	25	1.4	7.8	550	166	204	98	41	13	16
22	48	31	24	1.3	14	408	143	284	94	39	13	15
23	45	32	23	1.3	33	308	186	346	88	35	13	15
24	46	27	22	1.2	41	264	117	284	84	30	15	14
25	46	27	22	1.1	35	217	105	233	80	28	15	13
26	42	32	21	1.1	28	177	92	246	75	27	13	14
27	42	34	19	1.0	24	144	81	431	73	39	13	14
28	41	36	18	.96	24	130	75	426	69	34	13	14
29	42	34	18	.93	---	125	71	331	66	32	22	18
30	42	37	17	.90	---	140	66	255	61	29	32	54
31	39	---	18	.88	---	119	---	215	---	29	26	---
TOTAL	1215	958	730	128.47	229.15	5663	3469	7234	6070	1662	618	603
MEAN	39.2	31.9	23.5	4.14	8.18	183	116	233	202	53.6	19.9	20.1
MAX	59	42	33	14	41	610	316	452	862	117	33	54
MIN	20	23	17	.88	.77	14	51	53	61	27	13	13
CFSM	.30	.24	.18	.03	.06	1.38	.87	1.75	1.52	.40	.15	.15
IN.	.34	.27	.20	.04	.06	1.58	.97	2.02	1.70	.46	.17	.17
AC-FT	2410	1900	1450	255	455	11230	6880	14350	12040	3300	1230	1200

CAL YR 1981	TOTAL	24752.00	MEAN 67.8	MAX 896	MIN 10	CFSM .51	IN 6.92	AC-FT	49100
WTR YR 1982	TOTAL	28579.62	MEAN 78.3	MAX 862	MIN .77	CFSM .59	IN 7.99	AC-FT	56690

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 (3 m) downstream from bridge on county highway C38, 0.9 mi (1.4 km) downstream from Drainage ditch 123, 3.8 mi (6.1 km) northwest of Rowan, 10.7 mi (17.2 km) downstream from confluence of East and West Branches, and at mile 316.4 (509.1 km).

DRAINAGE AREA.--429 mi² (1,111 km²).

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

REVISED RECORDS.--WSP 1308: 1942-43 (M). WSP 1438: Drainage area. WRD IA - 1981: 1978.

GAGE.--Water-stage recorder. Datum of gage is 1,143.35 ft (348.49 m) NGVD. Prior to Oct. 14, 1948, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--41 years (water years 1941-76, 1978-82), 198 ft³/s (5.607 m³/s), 6.27 in/yr (159 mm/yr), 143,500 acre-ft/yr (177 hm³/yr); median of yearly mean discharges, 190 ft³/s (5.38 m³/s), 6.0 in/yr (152 mm/yr), 138,000 acre-ft/yr (170 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,460 ft³/s (240 m³/s) June 21, 1954, gage height, 14.88 ft (4.535 m); minimum daily, 2.9 ft³/s (0.082 m³/s) Jan. 21-23,1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft³/s (34.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 24	0515	ice jam		*10.35	3.155	May 16	1245	1,280	36.2	9.72	2.963
Mar. 20	1330	*1,790	50.7	9.94	3.030	June 10	0545	1,530	43.3	9.85	3.002

Minimum daily discharge 20 ft³/s (0.57 m³/s) Jan. 30 - Feb. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	125	103	54	20	190	380	225	773	202	109	101
2	83	117	86	52	20	200	321	210	650	193	104	99
3	82	115	94	45	20	178	321	200	568	191	98	82
4	93	115	102	46	20	154	190	193	508	182	132	71
5	109	114	106	43	20	140	240	225	462	169	144	64
6	118	112	108	40	20	128	200	389	432	168	118	65
7	116	108	109	36	20	118	220	558	578	192	106	62
8	112	104	104	34	21	103	230	762	960	197	99	59
9	109	103	89	32	21	98	228	708	1250	374	92	58
10	107	96	72	29	21	90	218	543	1330	852	87	56
11	105	97	77	27	21	118	230	445	1160	871	81	54
12	101	97	82	26	21	140	258	484	875	747	80	52
13	101	95	84	25	21	180	314	699	646	560	78	68
14	106	93	66	25	22	240	327	967	522	418	76	110
15	112	92	54	25	22	390	335	1200	475	349	75	108
16	112	92	60	25	22	520	634	1290	442	331	73	92
17	122	91	65	25	22	780	910	1210	405	335	68	81
18	151	88	68	26	24	900	1100	1080	377	294	67	75
19	177	87	70	26	26	1160	1040	1010	352	249	64	69
20	182	91	72	26	29	1720	859	960	330	218	62	63
21	176	68	72	25	43	1680	718	907	309	196	60	59
22	158	73	70	25	90	1480	594	967	288	185	57	57
23	149	101	69	24	280	1190	502	1090	271	169	56	54
24	145	99	68	23	370	945	444	1110	255	154	54	51
25	143	97	66	22	320	788	394	1020	254	141	56	50
26	142	96	62	22	240	689	351	944	245	132	56	48
27	135	106	64	21	160	589	305	1000	240	124	52	47
28	135	109	65	21	172	507	276	1100	232	143	49	46
29	132	108	66	21	---	451	261	1150	221	140	56	47
30	130	114	65	20	---	420	245	1140	210	127	85	53
31	128	---	58	20	---	432	---	950	---	118	90	---
TOTAL	3855	3003	2396	911	2108	16718	12645	24736	15620	8721	2484	2001
MEAN	124	100	77.3	29.4	75.3	539	422	798	521	281	80.1	66.7
MAX	182	125	109	54	370	1720	1100	1290	1330	871	144	110
MIN	82	68	54	20	20	90	190	193	210	118	49	46
CFSM	.29	.23	.18	.07	.18	1.26	.98	1.86	1.21	.66	.19	.16
IN.	.33	.26	.21	.08	.18	1.45	1.10	2.14	1.35	.76	.22	.17
AC-FT	7650	5960	4750	1810	4180	33160	25080	49060	30980	17300	4930	3970

CAL YR 1981	TOTAL	83720	MEAN 229	MAX 2250	MIN 27	CFSM .53	IN 7.26	AC-FT	166100	
WTR YR 1982	TOTAL	95198	MEAN 261	MAX 1720	MIN 20	CFSM .61	IN 8.25	AC-FT	188800	

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 (3 m) downstream from bridge on State Highway 14, 1,500 ft (457 km) upstream from Burnett Creek, 2.2 mi (3.5 km) upstream from Linn Creek and at mile 222.8 (358.5 km).

DRAINAGE AREA.--1,564 mi² (4,050 km²), 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 (260.205 m) NGVD. See WSP 1728 for history of changes prior to Sept. 21, 1934.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--64 years (water years 1903, 1915-27, 1933-82), 778 ft³/s (22.03 m³/s), 6.76 in/yr (172 mm/yr), 563,700 acre-ft/yr (695 hm³/yr); median of yearly mean discharges, 690 ft³/s (19.5 m³/s), 6.0 in/yr (152 mm/yr), 500,000 acre-ft/yr (616 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,000 ft³/s (1,190 m³/s) June 4, 1918, gage height, 17.74 ft (5.407 m), from floodmark, from rating curve extended above 19,000 ft³/s (538 m³/s) on basis of velocity-area study; maximum gage height, 19.77 ft (6.026 m) March 19, 1979; minimum daily discharge, 4.7 ft³/s (0.13 m³/s) Jan. 25, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s (142 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 24	0300	6,180	175	15.84	4.828	May 27	2100	6,860	194	16.29	4.965
Mar. 16	2015	7,040	199	16.41	5.002	Jun 15	1700	7,880	223	16.93	5.160
Mar. 20	1000	*9,130	259	*17.50	5.334	Jul 19	0815	7,900	224	16.94	5.163
May 22	0800	5,700	161	15.50	4.724						

Minimum daily discharge, 64 ft³/s (1.81 m³/s) Jan. 17-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	284	314	355	79	86	1900	1440	996	3370	1180	712	769
2	269	315	364	80	88	1700	1350	955	3070	1140	662	721
3	256	320	360	80	88	1500	1340	910	2800	1330	617	629
4	263	354	334	82	88	1440	1180	863	2480	1150	609	550
5	262	394	310	84	90	1420	1150	882	2160	1050	1070	490
6	253	388	301	84	91	1240	1020	1080	2630	1010	925	508
7	258	370	335	85	92	1030	1000	1800	3100	1140	818	593
8	266	355	354	84	93	947	971	2070	2480	2170	747	516
9	273	341	351	80	94	787	986	1990	2700	1590	670	482
10	275	325	333	78	94	765	950	1880	2420	2940	589	457
11	270	317	346	74	92	1160	955	1850	2360	3440	542	426
12	258	308	324	70	92	2350	1190	2080	2430	3280	501	402
13	251	299	333	66	93	4150	1350	3080	2510	3190	475	605
14	264	291	334	66	94	4290	1230	2330	2460	2850	457	730
15	276	289	190	66	96	3450	1260	2290	6080	2330	450	708
16	283	286	140	66	100	5640	1790	2620	5550	3130	450	641
17	322	278	135	64	105	5960	2890	2960	3480	3970	436	605
18	342	271	135	64	115	4070	2960	3710	2750	5330	419	589
19	329	276	130	66	140	5160	2830	3650	2340	7430	405	538
20	333	293	125	68	250	7920	2680	3240	2060	5150	378	493
21	352	278	105	70	1200	5940	2470	4820	1840	3340	365	461
22	363	268	88	72	2200	4900	2310	5660	1720	2380	349	432
23	354	272	88	72	3900	4300	2070	5190	1560	1890	340	375
24	349	264	84	70	5910	4230	1800	4480	1450	1550	324	346
25	341	262	82	72	4090	3570	1620	3760	1390	1300	300	352
26	332	290	80	74	2310	2860	1450	3760	1370	1160	297	362
27	323	300	78	78	2140	2350	1320	6260	1320	1010	291	362
28	319	303	82	78	2100	2010	1190	6460	1290	963	282	359
29	314	290	84	78	---	1780	1110	5400	1240	824	279	356
30	304	310	81	80	---	1660	1050	4620	1210	868	398	352
31	312	---	76	82	---	1590	---	3850	---	764	523	---
TOTAL	9250	9221	6517	2312	25931	92069	46912	95496	73620	70849	15680	15209
MEAN	298	307	210	74.6	926	2970	1564	3081	2454	2285	506	507
MAX	363	394	364	85	5910	7920	2960	6460	6080	7430	1070	769
MIN	251	262	76	64	86	765	950	863	1210	764	279	346
CFSM	.19	.20	.13	.05	.59	1.90	1.00	1.97	1.57	1.46	.32	.32
IN.	.22	.22	.16	.05	.62	2.19	1.12	2.27	1.75	1.69	.37	.36
AC-FT	18350	18290	12930	4590	51430	182600	93050	189400	146000	140500	31100	30170

CAL YR 1981 TOTAL 170281 MEAN 467 MAX 3870 MIN 60 CFSM .30 IN 4.05 AC-FT 337800
WTR YR 1982 TOTAL 463066 MEAN 1269 MAX 7920 MIN 64 CFSM .81 IN 11.01 AC-FT 918500

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 (6 m) downstream from bridge on U.S. Highway 30, 3.5 mi (5.6 km) upstream from mouth, and 4.1 mi (6.6 km) southeast of court house in Marshalltown.

DRAINAGE AREA.--118 mi² (306 km²).

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 (258.909 m) NGVD.

REMARKS.--Records excellent except those for winter period, which are poor. Several observations of water temperature were made during the year.

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

AVERAGE DISCHARGE.--33 years, 68.4 ft³/s (1.937 m³/s), 7.87 in/yr (200 mm/yr), 49,560 acre-ft/yr (61.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) Aug. 16, 1977, gage height, 17.69 ft (5.392 m), 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 (5.12 m), discharge, 5,700 ft³/s (161 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	unknown	3,680	104	14.90	4.542	June 15	unknown	*9,940	282	*17.30	5.273
Mar. 13	unknown	1,600	45.3	11.75	3.581	July 18	2030	2,580	73.1	13.97	4.258
Mar. 16	unknown	1,510	42.8	11.50	3.505						

Minimum daily discharge, 5.4 ft³/s (0.153 m³/s) Oct.1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	26	43	8.2	10	100	64	68	202	120	73	42
2	5.7	30	47	8.2	10	76	67	65	183	116	68	29
3	7.1	39	38	8.2	9.8	56	75	61	174	117	63	25
4	8.8	73	33	8.0	9.8	52	53	67	158	104	61	24
5	9.0	69	33	8.0	9.6	49	84	84	144	98	68	22
6	9.8	43	30	8.0	9.4	46	43	264	139	122	64	23
7	9.1	34	30	8.0	9.4	44	54	282	138	149	63	23
8	8.9	29	29	8.0	9.3	42	65	205	126	107	58	22
9	9.5	24	28	8.0	9.2	41	65	171	149	99	53	22
10	10	22	40	8.0	9.2	43	66	147	123	97	52	20
11	10	22	32	8.2	9.4	90	83	130	115	95	50	18
12	9.7	20	27	8.3	9.4	536	177	137	115	85	48	17
13	9.7	19	24	8.4	9.5	1250	173	150	118	80	46	24
14	15	17	24	8.4	9.6	287	123	129	112	78	45	21
15	19	16	23	8.6	10	132	112	137	5300	88	44	20
16	17	16	23	8.8	13	875	194	164	894	139	42	18
17	22	15	20	9.0	18	234	293	157	426	135	39	22
18	34	14	18	9.2	39	149	208	174	414	1480	38	29
19	22	15	16	9.4	120	181	172	138	298	762	37	21
20	17	16	14	10	1050	439	147	173	260	283	36	20
21	18	12	12	11	3060	244	126	258	231	210	33	19
22	16	14	11	11	2280	156	114	345	212	173	34	17
23	14	15	10	11	1840	135	105	239	194	150	32	17
24	13	16	9.6	11	392	125	100	205	179	135	31	17
25	15	15	9.4	10	190	110	94	186	168	120	32	17
26	16	17	9.2	10	153	96	88	382	158	109	29	17
27	15	16	9.0	10	135	86	79	428	154	103	28	16
28	16	14	8.8	10	120	82	78	313	180	95	26	15
29	16	15	8.6	10	---	79	75	277	136	87	27	14
30	17	16	8.4	10	---	75	71	283	127	82	36	14
31	19	---	8.3	10	---	54	---	230	---	76	37	---
TOTAL	433.7	709	676.3	282.9	9553.6	5964	3248	6049	11327	5694	1393	625
MEAN	14.0	23.6	21.8	9.13	341	192	108	195	378	184	44.9	20.8
MAX	34	73	47	11	3060	1250	293	428	5300	1480	73	42
MIN	5.4	12	8.3	8.0	9.2	41	43	61	112	76	26	14
CFSM	.12	.20	.19	.08	2.89	1.63	.92	1.65	3.20	1.56	.38	.18
IN.	.14	.22	.21	.09	3.01	1.88	1.02	1.91	3.57	1.80	.44	.20
AC-FT	860	1410	1340	561	18950	11830	6440	12000	22470	11290	2760	1240

CAL YR 1981 TOTAL 6213.3 MEAN 17.0 MAX 297 MIN 1.1 CFSM .14 IN 1.96 AC-FT 12320
WTR YR 1982 TOTAL 45955.5 MEAN 126 MAX 5300 MIN 5.4 CFSM 1.07 IN 14.49 AC-FT 91150

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 (2 m) upstream from bridge on county highway, 0.6 mi (1.0 km) northeast of Haven, and 2.8 mi (4.5 km) upstream from mouth.

DRAINAGE AREA.--56.1 mi² (145 km²).

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 (240.393 m) NGVD. Prior to Oct. 1, 1971, at datum 10.00 ft (3.048 m) higher.

REMARKS.--Records excellent except those for winter period, which are fair. Several observations of water temperature were made during the year.

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

AVERAGE DISCHARGE.--33 years, 34.3 ft³/s (0.971 m³/s), 8.30 in/yr (211 mm/yr), 24,850 acre-ft/yr (30.6 hm³/yr); median of yearly mean discharges, 30 ft³/s (0.85 m³/s), 7.3 in/yr (185 mm/yr), 21,700 acre-ft/yr (26.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft³/s (198 m³/s) May 28, 1974, gage height, 24.00 ft (7.315 m); no flow Jan. 22 to Feb. 2, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1918 reached a stage of 24.3 ft (7.41 m), discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	----	1,000	28.3	ice jam		Mar. 19	1545	2,220	62.9	19.64	5.986
Mar. 13	0130	1,390	39.4	17.86	5.444	May 21	2215	1,010	28.6	16.58	5.054
Mar. 16	0945	1,810	51.3	18.82	5.736	June 15	1500	*2,560	72.5	*21.17	6.453

Minimum daily discharge, 6.0 ft³/s (0.17 m³/s) Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	14	101	7.2	10	66	33	45	91	48	32	13
2	11	19	67	7.0	10	60	37	43	84	47	32	11
3	11	28	56	7.0	10	54	35	42	81	47	32	9.4
4	12	155	50	6.8	10	50	41	42	75	43	31	8.1
5	11	92	46	6.8	10	47	39	84	70	41	33	7.4
6	11	64	41	6.8	10	44	48	315	67	46	29	13
7	11	53	37	6.8	9.6	42	38	186	66	50	28	9.4
8	11	45	34	6.8	9.4	40	36	137	61	42	27	8.6
9	11	39	32	6.8	9.2	39	34	108	93	39	24	8.5
10	11	39	30	6.8	9.0	41	37	93	63	38	22	7.2
11	11	37	28	6.8	8.8	120	58	84	58	37	21	6.2
12	9.8	34	25	6.8	8.6	409	101	81	62	43	20	6.0
13	11	32	22	7.0	8.6	553	82	79	56	33	20	6.6
14	23	29	19	7.2	8.8	109	60	77	81	32	19	22
15	25	29	16	7.4	9.0	67	58	77	1680	36	19	15
16	19	30	13	7.6	9.2	638	220	180	209	58	18	13
17	21	28	11	7.8	9.6	85	216	240	169	43	17	10
18	20	27	10	8.0	24	59	126	156	141	1330	16	18
19	18	25	9.6	8.2	62	911	103	113	111	169	15	14
20	17	24	9.2	8.4	310	192	88	240	97	99	14	12
21	17	24	8.8	8.6	920	86	76	442	85	76	13	11
22	17	24	8.6	9.0	660	64	71	313	77	63	13	10
23	16	25	8.4	9.2	500	61	67	174	71	57	12	9.6
24	15	25	8.2	9.4	196	59	63	143	66	52	12	9.4
25	15	25	8.0	9.6	124	51	59	126	63	47	12	9.2
26	15	27	8.0	10	87	46	56	160	60	43	11	9.0
27	15	32	7.8	11	80	42	51	144	58	41	9.8	9.2
28	14	32	7.8	11	74	40	50	122	64	38	9.2	9.0
29	13	31	7.6	11	---	39	49	123	54	36	9.8	8.8
30	13	38	7.6	11	---	43	46	119	50	34	13	8.6
31	13	---	7.4	11	---	36	---	103	---	33	12	---
TOTAL	448.8	1126	745.0	254.8	3196.8	4193	2078	4391	4063	2841	595.8	312.2
MEAN	14.5	37.5	24.0	8.22	114	135	69.3	142	135	91.6	19.2	10.4
MAX	25	155	101	11	920	911	220	442	1680	1330	33	22
MIN	9.8	14	7.4	6.8	8.6	36	33	42	50	32	9.2	6.0
CFSM	.26	.67	.43	.15	2.03	2.41	1.24	2.53	2.41	1.63	.34	.19
IN.	.30	.75	.49	.17	2.12	2.78	1.38	2.91	2.69	1.88	.40	.21
AC-FT	890	2230	1480	505	6340	8320	4120	8710	8060	5640	1180	619

CAL YR 1981 TOTAL 6135.96 MEAN 16.8 MAX 280 MIN .76 CFSM .30 IN 4.07 AC-FT 12170
WTR YR 1982 TOTAL 24245.40 MEAN 66.4 MAX 1680 MIN 6.0 CFSM 1.18 IN 16.08 AC-FT 48090

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 (3.2 km) upstream from Hog Run, 3.0 mi (4.8 km) south of Elberon, and 9.0 mi (14.5 km) upstream from mouth.

DRAINAGE AREA.--201 mi² (521 km²).

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 (238.226 m) NGVD (Iowa Highway Commission bench mark). Prior to Oct. 15, 1945, and June 14, 1947, to Feb. 10, 1949, nonrecording gage on upstream side of bridge at present datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers rain-gage and gage-height telemeter at station.

AVERAGE DISCHARGE.--37 years, 127 ft³/s (3.597 m³/s), 8.58 in/yr (218 mm/yr), 92,010 acre-ft/yr (113 hm³/yr); median of yearly mean discharges, 110 ft³/s (3.12 m³/s), 7.4 in/yr (188 mm/yr), 79,700 acre-ft/yr (98.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 35,000 ft³/s (991 m³/s) June 13, 1947, gage height, 17.6 ft (5.36 m) from rating curve extended above 17,000 ft³/s (481 m³/s); maximum gage height, 20.00 ft (6.096 m) June 15, 1982; minimum daily discharge, 0.85 ft³/s (0.024 m³/s) Jan. 31, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 16, 1944, reached a stage of 19.9 ft (6.07 m), from floodmark at downstream side of bridge, discharge, about 30,000 ft³/s (850 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 22	0030	5,960	169	15.96	4.865	May 7	0215	3,040	86.1	14.63	4.459
Mar. 13	1900	3,600	102	15.17	4.624	May 22	0830	2,810	79.6	14.43	4.398
Mar. 16	2100	4,850	137	15.68	4.779	June 15	unknown	*33,200	940	*20.00	6.096
Mar. 20	0200	5,100	144	15.67	4.776	July 18	1600	7,540	214	17.58	5.358

Minimum daily discharge, 30 ft³/s (0.85 m³/s) Jan. 6-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	54	259	33	45	290	124	126	308	211	141	81
2	39	56	230	32	44	270	128	121	269	207	131	55
3	37	60	173	32	43	250	188	117	242	209	121	49
4	37	150	144	31	43	230	166	116	224	196	117	46
5	38	350	125	31	43	210	142	470	219	190	141	46
6	38	200	121	30	43	190	144	1740	218	184	116	67
7	36	156	123	30	43	180	148	1810	382	210	120	50
8	34	132	125	30	43	170	132	749	280	170	112	47
9	32	110	125	30	42	170	126	559	270	150	99	46
10	32	103	114	30	42	170	122	448	253	145	93	45
11	32	96	111	30	42	320	200	383	230	140	88	43
12	32	88	108	30	42	1470	330	339	234	160	84	41
13	31	85	103	30	42	3280	270	313	238	140	82	49
14	44	81	98	30	41	1600	210	296	255	125	80	93
15	78	80	82	31	41	422	200	286	11900	438	79	74
16	77	89	70	31	41	3000	710	279	2500	473	76	50
17	78	78	64	32	50	1660	660	327	829	284	71	68
18	105	74	60	33	65	401	410	379	797	3480	68	80
19	100	75	56	34	140	1970	340	313	519	2150	65	57
20	90	72	52	35	900	2920	300	468	439	614	61	50
21	82	67	48	36	3500	463	260	1670	378	460	57	47
22	73	67	45	37	5020	303	233	2020	341	374	56	45
23	67	82	42	38	4240	260	212	775	308	314	55	44
24	64	92	40	39	1050	220	198	590	287	280	52	43
25	63	84	39	40	381	200	183	507	272	251	52	42
26	60	129	37	41	330	181	170	512	263	225	50	41
27	58	129	36	42	317	159	151	488	251	209	48	42
28	55	106	35	43	310	148	144	440	242	196	46	41
29	53	97	34	44	---	143	140	395	231	177	49	40
30	52	120	34	45	---	153	132	379	218	169	75	39
31	52	---	33	45	---	140	---	349	---	152	75	---
TOTAL	1711	3162	2766	1075	16983	21543	6873	17764	23397	12683	2560	1561
MEAN	55.2	105	89.2	34.7	607	695	229	573	780	409	82.6	52.0
MAX	105	350	259	45	5020	3280	710	2020	11900	3480	141	93
MIN	31	54	33	30	41	140	122	116	218	125	46	39
CFSM	.28	.52	.44	.17	3.02	3.46	1.14	2.85	3.88	2.04	.41	.26
IN.	.32	.59	.51	.20	3.14	3.99	1.27	3.29	4.33	2.35	.47	.29
AC-FT	3390	6270	5490	2130	33690	42730	13630	35230	46410	25160	5080	3100

CAL YR 1981	TOTAL	21433.9	MEAN	58.7	MAX	903	MIN	5.7	CFSM	.29	IN	3.97	AC-FT	42510
WTR YR 1982	TOTAL	112078.0	MEAN	307	MAX	11900	MIN	30	CFSM	1.53	IN	20.74	AC-FT	222300

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 left bank 5 ft (2 m) upstream from bridge on county highway V21, 1.2 mi (1.9 km) downstream from North Walnut Creek, 4.0 mi (6.4 km) northwest of Hartwick, and 6.5 mi (10.5 km) upstream from mouth.

DRAINAGE AREA.--70.9 mi² (184 km²).

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 (239.753 m) NGVD.

REMARKS.--Records fair except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--33 years, 42.1 ft³/s (1.192 m³/s), 8.06 in/yr (205 mm/yr), 30,500 acre-ft/yr (37.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,800 ft³/s (193 m³/s) Aug. 16, 1977, gage height, 16.30 ft (4.968 m), from rating curve extended above 2,600 ft³/s (73.6 m³/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 (5.39 m), from information by local residents, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	----	1,570	44.5	ice jam		Mar. 19	unknown	1,310	37.1	11.60	3.536
Mar. 12	unknown	1,080	30.6	10.80	3.292	June 15	0400	2,980	84.4	14.58	4.444
Mar. 16	unknown	2,600	73.6	14.20	4.328	July 18	0945	*3,110	88.1	*14.71	4.484

Minimum daily discharge, 2.7 ft³/s (0.076 m³/s) Oct. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	10	100	9.4	13	82	20	41	107	47	34	23
2	3.7	12	80	9.2	13	74	25	39	95	46	32	12
3	3.8	21	60	9.0	12	68	25	37	90	46	30	9.7
4	6.0	175	46	9.0	12	64	41	38	81	43	29	8.3
5	4.1	101	42	9.0	12	60	32	98	76	43	33	8.0
6	3.4	67	40	9.0	12	52	42	326	73	54	31	15
7	3.0	51	37	9.0	12	44	30	242	72	63	30	12
8	3.0	41	32	9.0	12	38	27	179	66	43	27	10
9	3.0	31	29	9.0	12	35	25	143	73	41	24	9.0
10	3.0	28	29	9.0	11	31	30	121	63	40	23	8.3
11	2.9	24	28	9.0	11	100	71	105	59	39	22	7.1
12	2.7	21	26	9.0	11	346	130	99	60	52	21	6.5
13	2.9	20	25	9.0	11	337	91	92	57	38	20	18
14	19	18	22	9.0	11	84	65	88	90	35	20	25
15	12	18	22	9.0	11	145	66	86	1030	44	20	16
16	9.4	19	23	9.2	15	1220	260	123	212	92	18	12
17	15	15	25	9.4	25	98	279	178	153	56	16	26
18	14	15	22	9.6	50	131	178	154	133	971	16	29
19	10	15	20	9.8	200	855	142	112	110	171	15	16
20	9.4	14	18	10	600	210	117	142	95	116	14	13
21	7.7	13	16	11	1200	105	97	292	83	93	12	12
22	7.4	13	14	11	840	69	87	268	77	77	13	10
23	7.1	18	13	11	620	61	78	193	70	67	12	10
24	7.4	16	12	11	250	53	72	161	66	59	12	9.4
25	7.1	16	11	12	150	40	65	142	65	54	12	9.4
26	6.5	40	11	12	115	32	60	158	61	48	11	9.0
27	5.9	39	10	12	100	28	51	155	59	46	11	9.4
28	5.4	28	10	12	90	26	48	138	56	43	9.7	9.0
29	5.1	25	10	12	---	25	46	166	52	40	12	8.6
30	4.6	29	9.7	13	---	32	43	150	49	38	16	8.3
31	5.1	---	9.6	13	---	23	---	126	---	35	15	---
TOTAL	203.8	953	852.3	313.6	4431	4568	2343	4392	3433	2680	610.7	379.0
MEAN	6.57	31.8	27.5	10.1	158	147	78.1	142	114	86.5	19.7	12.6
MAX	19	175	100	13	1200	1220	279	326	1030	971	34	29
MIN	2.7	10	9.6	9.0	11	23	20	37	49	35	9.7	6.5
CFSM	.09	.45	.39	.14	2.23	2.07	1.10	2.00	1.61	1.22	.28	.18
IN.	.11	.50	.45	.16	2.32	2.40	1.23	2.30	1.80	1.41	.32	.20
AC-FT	404	1890	1690	622	8790	9060	4650	8710	6810	5320	1210	752

CAL YR 1981 TOTAL 5392.65 MEAN 14.8 MAX 331 MIN .50 CFSM .21 IN 2.83 AC-FT 10700
WTR YR 1982 TOTAL 25159.40 MEAN 68.9 MAX 1220 MIN 2.7 CFSM .97 IN 13.20 AC-FT 49900

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 (3 m) downstream from bridge on county highway V52, 0.4 mi (0.6 km) south of Ladora, 1.2 mi (1.9 km) downstream from Coats Creek, 2.8 mi (4.5 km) upstream from Little Bear Creek, and 8.1 mi (13.0 km) upstream from mouth.

DRAINAGE AREA.--189 mi² (490 km²).

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 (227.058 m) 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 (3.048 m) higher.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

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

AVERAGE DISCHARGE.--37 years, 118 ft³/s (3.342 m³/s), 8.48 in/yr (215 mm/yr), 85,490 acre-ft/yr (105 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,500 ft³/s (297 m³/s) Mar. 30, 1960, gage height, 14.60 ft (4.450 m) datum then in use; maximum gage height, 15.32 ft (4.670 m) datum then in use, Sept. 18, 1977; no flow for several days in 1956 and 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (56.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	----	2,380	67.4	ice jam		Mar. 19	1600	3,310	93.7	21.37	6.514
Feb. 22	----	2,070	58.6	ice jam		June 15	1400	*5,450	154	*23.91	7.288
Mar. 13	0100	2,610	73.9	20.15	6.142	July 19	0100	4,770	135	23.23	7.081
Mar. 16	0945	2,680	75.9	20.27	6.178						

Minimum daily discharge, 11 ft³/s (0.31 m³/s) Oct. 12-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	25	216	26	34	150	111	126	278	179	128	50
2	14	31	236	26	33	130	116	119	250	172	117	35
3	14	63	169	26	33	100	145	114	235	177	109	28
4	16	396	137	25	32	96	131	122	212	159	104	25
5	17	323	115	25	31	98	173	177	201	148	118	29
6	14	179	111	25	31	96	135	573	187	226	105	130
7	13	131	106	25	31	98	142	640	179	185	94	78
8	13	105	93	25	32	100	122	423	165	133	88	48
9	13	83	85	25	32	100	116	352	171	120	80	39
10	13	74	82	25	32	110	120	297	153	120	74	33
11	12	70	86	25	31	200	211	258	140	117	68	26
12	11	62	79	25	31	718	338	245	137	109	64	24
13	11	58	76	26	31	1190	306	233	148	100	63	26
14	33	54	72	26	32	471	219	219	142	94	62	43
15	52	53	52	27	32	254	209	222	4480	89	60	80
16	33	63	47	28	33	1310	709	219	1010	203	58	39
17	33	53	44	29	36	393	895	293	669	177	54	38
18	36	50	41	30	68	237	490	431	753	2800	51	91
19	29	48	38	31	190	1470	387	274	487	1910	48	69
20	27	46	35	32	880	711	336	232	414	535	47	50
21	24	42	34	33	1900	388	284	312	356	396	41	42
22	23	43	33	33	1200	290	249	642	319	329	42	36
23	22	51	32	34	800	242	227	390	290	285	42	35
24	22	60	31	33	434	218	209	322	262	249	38	33
25	22	52	30	32	230	181	190	285	254	222	36	31
26	22	57	29	32	182	154	177	326	246	201	34	31
27	22	96	29	33	175	137	156	443	229	187	32	29
28	21	74	28	33	170	129	146	368	217	176	29	28
29	20	68	28	33	---	124	140	361	204	160	31	27
30	19	70	27	33	---	152	133	422	188	144	40	26
31	18	---	27	34	---	131	---	325	---	135	42	---
TOTAL	654	2580	2248	895	6776	10178	7322	9765	12976	10237	1999	1299
MEAN	21.1	86.0	72.5	28.9	242	328	244	315	433	330	64.5	43.3
MAX	52	396	236	34	1900	1470	895	642	4480	2800	128	130
MIN	11	25	27	25	31	96	111	114	137	89	29	24
CFSM	.11	.46	.38	.15	1.28	1.74	1.29	1.67	2.29	1.75	.34	.23
IN.	.13	.51	.44	.18	1.33	2.00	1.44	1.92	2.55	2.01	.39	.26
AC-FT	1300	5120	4460	1780	13440	20190	14520	19370	25740	20310	3970	2580

CAL YR 1981	TOTAL	16763.8	MEAN	45.9	MAX 1570	MIN 1.8	CFSM .24	IN 3.30	AC-FT 33250			
WTR YR 1982	TOTAL	66929.0	MEAN	183	MAX 4480	MIN 11	CFSM .97	IN 13.17	AC-FT 132800			

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 07080208, on left bank 5 ft (2 m) upstream from bridge on State Highway 411, 1.0 mi (1.6 km) downstream from Big Bear Creek, 0.8 mi (1.3 km) north of Marengo, 4.6 mi (7.4 km) upstream from Hilton Creek, and at mile 139.1 (223.8 km).

DRAINAGE AREA.--2,794 mi² (7,236 km²).

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. (219.614 m) NGVD.

REMARKS.--Records good except those for winter period, which are fair. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--26 years, 1,704 ft³/s (48.26 m³/s), 8.28 in/yr (210 mm/yr), 1,235,000 acre-ft/yr (1,520 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,800 ft³/s (872 m³/s) Mar. 31, 1960, gage height, 19.21 ft (5.855 m); maximum gage height, 19.79 ft (6.032 m) July 12, 1969; minimum daily discharge, 24 ft³/s (0.68 m³/s) Jan. 29 to Feb. 1, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s (170 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	unknown	13,800	391	16.77	5.111	June 3	0215	7,880	223	14.84	4.523
Apr. 17	unknown	6,350	180	14.03	4.276	June 16	2200	*21,100	598	*18.12	5.523
May 27	2315	7,700	218	14.75	4.496	July 20	1445	13,100	371	16.60	5.060

Minimum daily discharge, 320 ft³/s (9.06 m³/s) Feb. 6-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	614	628	1170	380	330	8400	2920	2090	7110	2470	1890	816
2	550	682	1510	370	340	6600	2730	1980	7640	2370	1770	929
3	512	738	1420	370	340	5020	2640	1900	7790	2310	1640	1000
4	517	1210	1320	370	340	3920	2600	1910	6860	2300	1540	972
5	514	1870	1230	380	330	3130	2520	2270	5140	2260	1490	901
6	491	1610	1170	370	320	2800	2370	3530	4120	2320	1560	1100
7	469	1440	1120	370	320	2630	2320	5000	3830	2520	1790	1060
8	456	1290	1110	380	320	2440	2220	5020	4000	2580	1720	856
9	447	1170	1100	380	325	2600	2090	4540	4130	2820	1590	876
10	452	1070	1060	380	340	3400	2060	4150	3980	2710	1450	804
11	463	1020	1050	370	345	3500	2220	3760	3840	2700	1340	748
12	461	963	1030	380	350	3700	2610	3570	3500	3670	1230	694
13	450	921	1030	370	350	5400	3050	3440	3490	4020	1180	653
14	533	886	995	360	350	6400	3170	4030	3520	3960	1140	908
15	671	861	917	360	350	7360	3130	4040	13400	3840	1100	1130
16	675	876	872	360	350	9070	3850	3720	16700	4100	1060	1100
17	667	852	1100	360	350	9380	6020	4040	18900	3930	1010	1050
18	718	812	860	360	390	9910	5670	4720	19200	6390	977	1250
19	822	788	840	360	580	10300	5530	4820	17500	8910	928	1120
20	858	773	700	360	1300	12900	5140	4820	14400	9580	883	982
21	787	750	660	360	3500	13400	4740	5130	11300	8680	840	885
22	743	743	600	360	5400	11000	4330	6220	7830	7860	797	823
23	729	759	520	360	6200	11700	3970	6640	4910	8240	775	776
24	729	809	460	360	6600	11500	3660	7010	4040	8340	743	744
25	729	803	410	360	7100	9530	3330	6960	3580	6640	723	690
26	719	799	410	350	6800	8060	3020	7100	3540	3920	708	635
27	699	951	410	350	8000	6320	2790	7500	3120	3090	670	619
28	671	923	410	350	9000	4980	2550	7650	2930	2720	631	623
29	649	889	390	350	---	3910	2370	7430	2800	2430	619	612
30	628	898	380	340	---	3540	2210	7180	2610	2220	680	595
31	618	---	380	330	---	3240	---	6950	---	2040	717	---
TOTAL	19041	28784	26634	11260	60620	206040	97830	149120	215710	131940	35191	25951
MEAN	614	959	859	363	2165	6646	3261	4810	7190	4256	1135	865
MAX	858	1870	1510	380	9000	13400	6020	7650	19200	9580	1890	1250
MIN	447	628	380	330	320	2440	2060	1900	2610	2040	619	595
CFSM	.22	.34	.31	.13	.78	2.38	1.17	1.72	2.57	1.52	.41	.31
IN.	.25	.38	.35	.15	.81	2.74	1.30	1.99	2.87	1.76	.47	.35
AC-FT	37770	57090	52830	22330	120200	408700	194000	295800	427900	261700	69800	51470

CAL YR 1981 TOTAL 291525 MEAN 799 MAX 3290 MIN 130 CFSM .29 IN 3.88 AC-FT 578200
WTR YR 1982 TOTAL 1008121 MEAN 2762 MAX 19200 MIN 320 CFSM .99 IN 13.42 AC-FT 2000000

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 (3.7 km) upstream from Rapid Creek, 4.3 mi (6.9 km) northeast of Coralville Post Office and at mile 83.3 (134.0 km).

DRAINAGE AREA.--3,115 mi² (8,067 km²).

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

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

REMARKS.--Reservoir is formed by earthfill dam completed in 1957. Storage began in September 1958. Releases controlled by three gates, 8.33 ft (2.539 m) wide and 20 ft (6 m) high, into forechamber of 23-ft (7 m) diameter concrete conduit through dam. Inlet invert elevation at 646.0 ft (197 m). No dead storage. Maximum design discharge through gates is 20,000 ft³/s (566 m³/s). Ungated spillway is concrete overflow section 500 ft (152 m) in length at elevation 712 ft (217 m) NGVD, contents, 469,000 acre-ft (578 hm³), surface area, 24,800 acres (10,040 hm²). Reservoir is used for flood control, low-flow augmentation, conservation and recreation. Normal operation will maintain an elevation of 670 ft (204 m) Feb. 15 to June 15, surface area, 1,820 acres (737 hm²), 680 ft (207 m) June 15 to Sept. 25, surface area, 4,900 acres (1,983 hm²), 683 ft (208 m) Sep. 25 to Dec. 15, and 680 ft (207 m) December 15 to Feb. 1 with a minimum release of 150 ft³/s (4.25 m³/s) and maximum release of 10,000 ft³/s (283 m³/s) Dec. 15 to May 1 and 6,000 ft³/s (170 m³/s) May 1 to Dec. 15.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 472,000 acre-ft (582 hm³) July 21, 1969, elevation, 711.85 ft (216.972 m); minimum daily contents, 456 acre-ft (0.562 hm³) Jan. 15, 1975; minimum elevation, 658.77 ft (200.793 m) Mar. 10, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 392,000 acre-ft (483 hm³) July 26-27; maximum elevation, 707.48 ft (215.640 m) July 27; minimum daily contents, 49,200 acre-ft (60.7 hm³) Apr. 24; minimum elevation, 675.18 ft (205.795 m) Apr. 24.

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75300	78400	82100	62900	63500	116000	141000	56600	112000	294000	370000	167000
2	75400	78600	82300	62900	63600	117000	131000	52900	118000	290000	364000	159000
3	75800	78400	81700	63000	63400	115000	122000	51600	124000	285000	358000	152000
4	76100	79100	80300	63300	63200	110000	113000	52300	129000	280000	352000	145000
5	76300	80100	78400	63100	62900	103000	104000	57700	134000	275000	347000	138000
6	76500	80200	77700	62900	62700	95600	97000	62800	137000	271000	342000	135000
7	76400	79500	78000	62600	62400	88800	89700	66600	138000	268000	342000	129000
8	76100	78300	78400	62700	62100	82500	83400	70600	136000	264000	339000	122000
9	76000	77200	78800	63000	61900	76600	77000	72500	135000	260000	333000	116000
10	75900	76800	78900	63300	61900	71400	71300	73300	134000	257000	327000	109000
11	75800	76600	77900	63300	61900	67400	66700	73900	133000	255000	321000	102000
12	75800	76200	76000	63400	61900	65800	63100	73600	131000	254000	314000	95300
13	75900	76100	73900	63400	61900	65500	59800	72300	129000	254000	307000	89600
14	78200	76300	71700	63200	61900	65300	56300	70800	127000	254000	300000	85700
15	78200	76600	69400	63000	61900	63500	54100	70300	150000	253000	293000	82600
16	78200	76900	67800	63000	62000	60600	53500	70200	173000	255000	285000	79800
17	79900	77000	66800	63000	61800	56900	52800	69200	202000	256000	277000	78100
18	80100	77200	66500	63000	58900	55500	54100	68600	233000	289000	270000	76200
19	79500	77400	66400	63000	55200	56900	55400	69500	265000	310000	262000	75700
20	79000	77500	66100	63000	54300	78400	54300	71000	284000	334000	254000	75900
21	78500	77500	65800	63100	54800	105000	52800	67400	298000	352000	247000	76100
22	77900	77700	65500	63100	56800	129000	51300	68900	308000	364000	239000	75500
23	77500	77600	65100	63200	62900	153000	49700	70600	314000	373000	232000	75600
24	77100	78300	64700	63300	74200	170000	49200	72700	314000	382000	225000	75900
25	76800	78700	64200	63300	91500	180000	49300	75700	313000	388000	218000	76100
26	76500	79400	63700	63300	105000	182000	49400	79700	311000	392000	211000	76300
27	76300	79900	63200	63400	111000	182000	52800	85100	308000	392000	204000	76400
28	76300	80300	62900	63500	114000	178000	58100	90500	305000	389000	196000	76300
29	76600	80500	62900	63400	---	171000	62300	97100	301000	385000	189000	76200
30	77000	80300	62800	63500	---	163000	61900	103000	299000	380000	182000	76100
31	77500	---	62800	63500	---	152000	---	106000	---	376000	174000	---
MAX	80100	80500	82300	63500	114000	182000	141000	106000	314000	392000	370000	167000
MIN	75300	76100	62800	62600	54300	55500	49200	51600	112000	253000	174000	75500

WTR YR 1982 MAX 392000 MIN 49200

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 (24 m) upstream from bridge on State Highway 1, 3.5 mi (5.6 km) northeast of Iowa City, and 4.7 mi (7.6 km) upstream from mouth.

DRAINAGE AREA.--25.3 mi² (65.5 km²).

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 (205.350 m) NGVD.

REMARKS.--Records good except those for winter period, which are fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--45 years, 15.6 ft³/s (0.442 m³/s), 8.37 in/yr (213 mm/yr), 11,300 acre-ft/yr (13.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,100 ft³/s (173 m³/s) May 23, 1965, gage height, 14.10 ft (4.298 m), from contracted-opening measurement of peak flow; maximum gage height, 14.93 ft (4.551 m) July 17, 1972; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	unknown	878	24.9	9.36	2.853	June 15	0325	2,180	61.7	11.92	3.633
Mar. 12	2205	638	18.1	8.49	2.588	July 18	0625	*2,920	82.7	*12.84	3.914

Minimum daily discharge, 3.7 ft³/s (0.105 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	15	52	6.5	5.6	31	25	12	12	9.8	15	6.9
2	12	15	42	6.2	5.6	28	25	12	10	9.7	13	5.2
3	11	15	37	6.0	5.5	21	25	11	10	9.9	12	4.4
4	14	34	32	5.9	5.2	16	20	12	9.3	8.4	12	4.1
5	11	49	29	5.8	5.1	13	19	19	8.5	7.7	19	3.8
6	10	40	27	5.6	5.2	11	20	27	8.4	9.8	14	40
7	9.2	34	26	5.5	5.5	9.8	17	19	8.6	9.4	32	15
8	9.2	30	23	5.4	5.2	9.2	17	18	7.6	7.2	20	10
9	8.7	26	21	5.4	4.9	8.8	17	17	7.9	6.6	15	8.1
10	8.7	24	20	5.2	4.7	11	19	15	7.0	60	13	7.1
11	7.8	22	19	5.2	4.7	90	25	14	6.7	24	12	6.4
12	7.6	20	18	5.2	5.0	177	27	19	7.0	14	10	5.8
13	7.3	19	17	5.4	5.7	145	24	14	6.2	14	9.7	5.3
14	123	18	16	5.6	8.0	49	21	13	6.2	10	9.2	5.3
15	57	19	15	5.8	8.8	43	27	12	646	11	8.9	5.1
16	42	23	12	6.0	9.6	84	44	12	65	43	8.6	4.7
17	91	18	10	6.2	14	47	48	12	43	19	7.9	15
18	69	18	9.0	6.4	19	36	38	11	33	1090	7.2	17
19	46	17	8.8	6.6	35	196	33	11	28	100	6.8	10
20	38	17	9.2	6.8	318	99	28	10	24	64	6.4	8.1
21	32	15	12	7.0	414	60	24	11	21	95	5.8	7.1
22	28	15	13	7.2	378	47	22	11	18	69	8.0	6.4
23	26	20	11	7.6	218	41	21	10	16	44	7.1	5.8
24	24	20	10	6.4	65	38	19	9.5	14	36	6.6	5.5
25	22	19	10	5.8	48	32	18	9.4	14	30	6.0	5.3
26	20	34	11	5.6	38	27	17	10	14	26	5.1	4.9
27	18	32	9.9	7.0	33	24	15	9.9	13	24	5.0	4.7
28	17	28	8.6	6.4	32	22	14	8.8	12	21	4.6	4.2
29	16	25	7.8	5.9	---	21	13	19	13	19	5.0	3.8
30	15	30	7.6	6.2	---	36	13	16	10	20	7.9	3.7
31	14	---	7.4	5.7	---	29	---	13	---	16	8.0	---
TOTAL	828.5	711	551.3	187.5	1706.3	1501.8	695	417.6	1099.4	1927.5	320.8	238.7
MEAN	26.7	23.7	17.8	6.05	60.9	48.4	23.2	13.5	36.6	62.2	10.3	7.96
MAX	123	49	52	7.6	414	196	48	27	646	1090	32	40
MIN	7.3	15	7.4	5.2	4.7	8.8	13	8.8	6.2	6.6	4.6	3.7
CFSM	1.06	.94	.70	.24	2.41	1.91	.92	.53	1.45	2.46	.41	.32
IN.	1.22	1.05	.81	.28	2.51	2.21	1.02	.61	1.62	2.83	.47	.35
AC-FT	1640	1410	1090	372	3380	2980	1380	828	2180	3820	636	473

CAL YR 1981 TOTAL 6918.9 MEAN 19.0 MAX 576 MIN 1.4 CFSM .75 IN 10.17 AC-FT 13720
WTR YR 1982 TOTAL 10185.4 MEAN 27.9 MAX 1090 MIN 3.7 CFSM 1.10 IN 14.98 AC-FT 20200

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 (15 m) upstream from bridge on county highway, 1.1 mi (1.8 km) west of post office in Coralville, 1.5 mi (2.4 km) downstream from Deer Creek and 2.7 mi (4.3 km) upstream from mouth.

DRAINAGE AREA.--98.1 mi² (254.1 km²).

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 (197.352 m) NGVD (levels by Corps of Engineers). Prior to Jan. 7, 1957, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--30 years, 65.1 ft³/s (1.844 m³/s), 9.01 in/yr (229 mm/yr), 47,160 acre-ft/yr (58.1 hm³/yr); median of yearly mean discharges, 48 ft³/s (1.36 m³/s), 6.6 in/yr (168 mm/yr), 34,800 acre-ft/yr (42.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,900 ft³/s (280 m³/s) June 15, 1982, gage height, 14.61 ft (4.453 m); no flow Jan. 18 to Feb. 4, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 22	----	1,270	36.0	ice jam		July 19	0700	4,710	133	13.23	4.032
June 15	1715	*9,900	280	*14.61	4.453	Aug. 8	0545	4,050	115	12.73	3.880
July 13	----	1,500	42.5	-----	-----						

Minimum daily discharge, 16 ft³/s (0.45 m³/s) Oct. 13, Jan. 12-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	42	177	22	24	174	106	56	58	70	56	62
2	26	41	152	21	24	174	92	55	50	67	50	36
3	25	44	111	20	24	166	125	52	47	83	44	28
4	32	115	97	20	24	130	111	68	44	62	41	25
5	30	132	87	20	24	90	93	172	42	55	46	23
6	29	98	84	20	23	70	87	256	40	79	42	352
7	24	84	80	19	23	62	82	186	39	541	796	182
8	22	75	72	18	23	57	79	121	37	134	1940	91
9	21	66	66	17	23	55	84	101	36	91	225	69
10	20	60	63	17	23	56	78	97	35	314	160	57
11	18	57	63	17	23	120	122	92	34	559	128	48
12	17	54	59	16	24	471	146	88	33	336	107	41
13	16	51	57	16	25	485	142	84	32	1220	94	40
14	229	49	55	16	27	217	129	80	32	266	84	119
15	147	48	49	16	30	149	164	76	5560	157	80	154
16	97	57	44	16	37	299	260	71	1670	387	74	64
17	153	51	39	16	42	180	285	68	358	320	65	126
18	211	47	36	17	52	128	198	64	293	2590	59	260
19	124	47	33	18	78	540	157	81	230	2570	54	121
20	103	48	31	19	240	571	144	64	191	385	50	90
21	86	43	32	20	450	228	128	55	163	266	44	74
22	73	41	34	21	1050	162	114	51	143	213	53	65
23	65	49	35	22	861	133	103	48	126	167	46	59
24	60	60	36	20	286	118	91	46	114	139	40	54
25	57	55	36	19	195	108	87	44	105	118	38	49
26	53	71	38	19	175	99	80	43	194	103	34	46
27	49	68	39	20	168	90	73	62	119	92	32	45
28	46	61	35	22	175	80	67	55	104	87	29	41
29	43	58	28	23	---	73	61	105	88	74	31	37
30	40	65	26	24	---	156	59	107	78	69	51	36
31	38	---	25	25	---	143	---	68	---	61	53	---
TOTAL	1985	1837	1819	596	4173	5584	3547	2616	10095	11675	4646	2494
MEAN	64.0	61.2	58.7	19.2	149	180	118	84.4	337	377	150	83.1
MAX	229	132	177	25	1050	571	285	256	5560	2590	1940	352
MIN	16	41	25	16	23	55	59	43	32	55	29	23
CFSM	.65	.62	.60	.20	1.52	1.84	1.20	.86	3.44	3.84	1.53	.85
IN.	.75	.70	.69	.23	1.58	2.12	1.35	.99	3.83	4.43	1.76	.95
AC-FT	3940	3640	3610	1180	8280	11080	7040	5190	20020	23160	9220	4950

CAL YR 1981 TOTAL 17614.4 MEAN 48.3 MAX 649 MIN 4.1 CFSM .49 IN 6.68 AC-FT 34940
WTR YR 1982 TOTAL 51067.0 MEAN 140 MAX 5560 MIN 16 CFSM 1.43 IN 19.36 AC-FT 101300

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 (8 m) downstream from Hydraulics Laboratory of University of Iowa in Iowa City, 175 ft (53 m) downstream from University Dam, 0.8 mi (1.3 km) upstream from Ralston Creek, 3.6 mi (5.8 km) downstream from Clear Creek, and at mile 74.2 (119.4 km).

DRAINAGE AREA.--3,271 mi² (8,472 km²).

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 (8.839 m) above Iowa City datum, and 617.27 ft (188.144 m) NGVD. Oct. 1, 1934 to Sept. 30, 1972, at datum 10.00 ft (3.048 m) higher. See WSP 1708 for history of changes prior to Oct. 1, 1934.

REMARKS.--Records excellent. Slight fluctuation at low stages caused by powerplant above station. Flow regulated by Coralville Lake (station 05453510) 9.1 mi (14.6 km) upstream, since Sept. 17, 1958. Corps of Engineers gage height telemeter at station.

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

AVERAGE DISCHARGE.--79 years, 1,659 ft³/s (46.98 m³/s), 6.89 in/yr (175 mm/yr), 1,202,000 acre-ft/yr (1,480 hm³/yr); median of yearly mean discharges, 1,450 ft³/s (41.1 m³/s), 6.0 in/yr (152 mm/yr), 1,050,000 acre-ft/yr (1,290 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,500 ft³/s (1,200 m³/s) June 8, 1918, gage height, 19.6 ft (5.974 m) from graph based on gage readings, site and datum then in use; minimum daily, 29 ft³/s (0.82 m³/s) Oct. 21, 22, 1916, regulated.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 17, 1881, reached a stage of 21.1 ft (6.43 m), from floodmarks at site and datum in use 1913-21, from information by local resident, discharge, 51,000 ft³/s (1,440 m³/s). Maximum stage known since at least 1850, about 3 ft (1 m) higher than that of July 17, 1881, occurred in June 1851, discharge, 70,000 ft³/s (1,980 m³/s), estimated.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,400 ft³/s (295 m³/s) June 15, gage height, 21.44 ft (6.535 m); minimum daily, 354 ft³/s (10.0 m³/s) Feb. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1690	437	1360	646	384	7320	8420	4390	4640	4330	4700	4600
2	777	674	1670	652	438	8170	7870	3500	4590	4400	4680	4520
3	557	1020	2000	648	460	8690	7330	2490	4590	4480	4660	4480
4	582	1340	2140	635	455	8650	7120	2010	4580	4440	4650	4440
5	565	1760	2280	620	457	8090	6660	1570	4570	4420	4380	4400
6	555	2140	1880	600	446	6590	6200	2430	4610	4480	4220	4830
7	633	2110	1350	590	452	5680	5900	3290	4620	4840	4800	4550
8	669	2090	1170	473	446	5020	5380	3790	4610	4480	5560	4390
9	613	1910	1160	427	400	4480	5280	4390	4600	4410	4780	4310
10	609	1510	1160	420	364	4390	4990	4810	4580	4640	4700	4260
11	604	1290	1470	434	360	4500	4610	4620	4570	5030	4660	4200
12	600	1230	1880	488	358	4910	4380	4620	4570	4600	4620	4140
13	548	1110	1870	542	357	5760	4230	4610	4540	5560	4600	3790
14	1120	1040	1860	541	354	6400	4790	4500	4570	4700	4570	3140
15	1290	975	1850	500	356	7670	4660	4290	7800	4500	4550	2860
16	1440	1040	1660	424	359	8660	4720	4280	3350	4800	4530	2740
17	1080	1110	1320	420	509	8740	5230	4280	1430	4740	4500	2440
18	1320	1080	1030	426	1550	8470	5080	4260	1270	6710	4480	2600
19	1370	1050	934	419	2260	8800	5380	4130	1210	4050	4460	2090
20	1330	1050	885	414	2220	6190	6070	4210	2880	1540	4430	1390
21	1300	1040	890	410	3790	1470	6010	4570	4980	1380	4400	1390
22	1280	957	905	410	4910	1210	5820	4600	4700	1970	4440	1420
23	1110	750	930	410	4390	1190	5300	4620	4690	3470	4380	1190
24	981	811	955	401	1460	1970	4700	4540	4640	4520	4340	921
25	981	902	975	402	1280	4520	4160	4480	4660	4540	4310	903
26	969	966	986	392	2630	7510	3730	4540	4730	4550	4290	855
27	892	949	987	398	5530	8420	2530	4380	4660	4650	4250	808
28	786	921	894	391	6920	8580	1250	4550	4650	4780	4220	800
29	624	1030	707	394	---	8560	1180	4590	4620	4760	4240	796
30	531	1170	707	389	---	8670	2410	4630	4470	4750	4190	803
31	432	---	687	387	---	8600	---	4650	---	4720	4470	---
TOTAL	27838	35462	40552	14703	43895	197880	151390	126620	128980	135240	140060	84056
MEAN	898	1182	1308	474	1568	6383	5046	4085	4299	4363	4518	2802
MAX	1690	2140	2280	652	6920	8800	8420	4810	7800	6710	5560	4830
MIN	432	437	687	387	354	1190	1180	1570	1210	1380	4190	796
AC-FT	55220	70340	80430	29160	87070	392500	300300	251200	255800	268200	277800	166700

CAL YR 1981 TOTAL 358536 MEAN 982 MAX 3870 MIN 146 AC-FT 711200
WTR YR 1982 TOTAL 1126676 MEAN 3087 MAX 8800 MIN 354 AC-FT 2235000

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at Benton Street bridge at Iowa City, 0.5 mi (0.8 km) 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, 750 micromhos Feb. 25, 1972, Mar. 2, 7, 1977; minimum daily, 150 micromhos May 17, 1974.
WATER TEMPERATURES: Maximum daily, 32.0°C July 19, 1957, Aug. 24, 25, 1959, June 27, 1971; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 7,800 mg/L June 13, 1953; minimum daily mean, 1 mg/L Feb. 4,1979.
SEDIMENT LOADS: Maximum daily, 177,000 tons (161,000 tonnes) May 23, 1944; minimum daily, 0.82 ton (0.74 tonne) Jan. 21, 22, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 720 micromhos Feb. 17; minimum daily, 275 micromhos Mar. 1.
WATER TEMPERATURES: Maximum daily, 26.0°C July 15,20,29,30, Aug. 4,18,23; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2390 mg/L June 15; minimum daily mean, 3 mg/L Feb. 8.
SEDIMENT LOADS: Maximum daily, 54,100 tons (49,100 tonnes) June 15; minimum daily, 3.6 tons (3.3 tonnes) Feb. 8.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	540	---	570	275	400	---	580	---	---	530
2	560	550	540	---	---	---	420	---	590	380	---	---
3	---	540	540	---	---	---	---	660	---	---	---	540
4	---	520	---	---	580	---	---	640	590	---	520	---
5	560	520	---	---	---	320	---	640	---	---	510	---
6	560	530	---	---	---	---	500	---	---	---	---	---
7	---	---	490	---	---	---	---	640	580	400	500	560
8	560	---	---	---	---	---	---	---	590	---	---	---
9	---	560	480	---	---	360	540	---	640	410	490	540
10	---	580	---	---	---	---	---	500	650	---	---	---
11	---	---	460	---	---	410	---	---	650	---	480	---
12	---	---	---	520	---	420	580	---	---	430	---	---
13	---	540	---	520	---	---	580	530	---	350	---	580
14	---	---	530	---	---	---	580	560	640	450	---	---
15	480	---	540	---	---	---	590	---	330	470	---	550
16	500	540	---	---	620	330	---	---	500	---	560	---
17	---	545	540	---	720	300	---	600	630	---	470	550
18	---	600	---	---	630	300	---	---	640	295	460	---
19	490	560	---	530	---	---	550	600	---	300	---	---
20	490	---	---	---	---	---	---	530	640	500	---	550
21	480	---	560	---	---	---	560	600	---	510	---	550
22	480	---	560	---	570	360	600	530	---	480	---	570
23	---	---	---	---	500	370	600	---	620	---	480	---
24	---	540	---	---	---	---	---	600	590	---	---	---
25	---	540	---	---	360	320	---	600	---	---	500	---
26	500	---	---	---	---	320	640	---	---	---	500	---
27	500	---	---	560	---	---	640	540	---	490	---	530
28	---	---	---	---	---	---	---	---	470	---	---	560
29	520	---	---	---	---	340	640	---	430	500	---	570
30	510	550	---	---	---	---	640	---	420	510	510	560
31	---	---	---	---	---	360	---	---	---	---	---	---

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	4.0	---	.0	7.0	9.0	---	20.0	---	---	24.5
2	16.0	13.0	4.5	---	---	---	10.5	---	20.0	22.0	---	---
3	---	12.5	4.0	---	---	---	---	19.0	---	---	---	24.0
4	---	12.0	---	---	.0	---	---	20.0	21.0	---	26.0	---
5	17.0	10.5	---	---	---	1.5	---	20.5	---	---	25.0	---
6	15.5	11.0	---	---	---	---	7.0	---	---	---	---	---
7	---	---	6.5	---	---	---	---	19.0	23.0	24.0	---	---
8	16.0	---	---	---	---	---	---	---	21.0	---	---	22.5
9	---	9.5	2.0	---	---	.0	5.0	---	21.5	25.0	25.0	25.5
10	---	10.0	---	---	---	---	---	20.0	21.0	---	---	---
11	---	---	2.5	---	---	3.0	---	---	21.0	---	25.5	---
12	---	---	---	.0	---	2.0	7.0	---	---	21.0	---	---
13	---	10.5	---	.0	---	---	8.5	20.0	---	23.0	---	24.0
14	---	---	3.0	---	---	---	10.0	20.0	21.5	---	---	---
15	---	---	2.0	---	---	---	10.5	---	19.0	26.0	---	22.0
16	16.0	10.0	---	---	1.5	2.5	---	---	21.0	23.0	22.0	---
17	---	10.0	.0	---	1.0	1.0	---	23.0	21.0	---	25.5	20.5
18	---	10.0	---	---	1.0	2.0	---	---	20.0	---	26.0	---
19	13.0	9.0	---	.0	---	---	13.0	---	---	25.0	---	---
20	14.5	---	---	---	---	---	---	23.0	22.5	26.0	---	18.0
21	12.5	---	2.0	---	---	---	11.0	19.5	---	24.5	---	18.0
22	12.5	---	2.0	---	3.0	6.0	12.0	---	---	24.0	---	---
23	---	---	---	---	2.0	6.5	14.5	---	---	---	26.0	---
24	---	7.0	---	---	---	---	---	18.0	22.5	---	---	---
25	---	5.0	---	---	2.0	4.0	---	18.0	---	---	21.0	---
26	11.0	---	---	---	---	5.5	15.0	---	---	---	25.0	---
27	12.0	---	---	3.0	---	---	16.0	18.0	---	25.5	---	18.0
28	---	---	---	---	---	---	---	---	23.0	---	---	19.5
29	13.0	---	---	---	---	7.5	15.0	---	23.0	26.0	---	19.5
30	14.0	4.0	---	---	---	---	16.0	---	22.5	26.0	24.0	20.0
31	---	---	---	---	---	9.0	---	---	---	---	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	122	557	45	53	48	176	12	21	40	41	254	5020
2	78	164	44	80	53	239	13	23	32	38	202	4460
3	70	105	40	110	28	151	12	21	18	22	176	4130
4	71	112	67	242	20	116	11	19	4	4.9	152	3550
5	75	114	99	470	19	117	12	20	5	6.2	133	2910
6	74	111	74	428	18	91	10	16	5	6.0	113	2010
7	77	132	63	359	15	55	9	14	4	4.9	92	1410
8	84	152	57	322	15	47	9	11	3	3.6	70	949
9	75	124	51	263	17	53	8	9.2	4	4.3	50	605
10	63	104	45	183	18	56	6	6.8	4	3.9	40	2310
11	54	88	42	146	19	75	9	11	4	3.9	35	425
12	52	84	43	143	17	86	18	24	4	3.9	172	2280
13	51	75	45	135	13	66	21	31	4	3.9	328	5100
14	278	931	46	129	10	50	22	32	5	4.8	387	6690
15	131	456	48	126	8	40	20	27	6	5.8	372	7700
16	96	373	50	140	7	31	19	22	17	16	324	7580
17	71	207	52	156	7	25	18	20	8	11	319	7530
18	126	449	35	102	7	19	14	16	21	88	293	6700
19	98	363	21	60	6	15	12	14	63	384	267	6340
20	86	309	19	54	5	12	11	12	154	1050	240	4010
21	78	274	18	51	7	17	11	12	330	3380	211	837
22	72	249	15	39	9	22	9	10	303	4020	183	598
23	68	204	13	26	9	23	8	8.9	330	3910	170	546
24	64	170	12	26	10	26	6	6.5	273	1080	225	1330
25	60	159	10	24	10	26	5	5.4	212	733	363	4430
26	55	144	20	52	11	29	15	16	202	2470	258	5230
27	53	128	15	38	10	27	35	38	409	6110	235	5340
28	50	106	14	33	10	24	38	40	337	6300	257	5950
29	48	81	24	67	11	21	37	39	---	---	266	6150
30	49	70	20	63	12	23	38	40	---	---	188	4400
31	48	56	---	---	12	22	40	42	---	---	143	3320
TOTAL	---	6651	---	4122	---	1780	---	627.8	---	29700.1	---	119840

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	151	3430	173	2050	39	489	52	608	57	723	37	460
2	102	2170	116	1100	44	545	53	630	56	708	38	464
3	77	1520	71	477	52	644	63	762	55	692	38	460
4	71	1360	89	483	45	556	62	743	52	653	36	432
5	65	1170	182	771	45	555	58	692	53	627	35	416
6	59	988	282	1850	42	523	67	810	53	604	107	1400
7	50	796	318	2820	43	536	370	4840	52	674	68	835
8	42	610	310	3170	42	523	153	1850	55	826	53	628
9	34	485	210	2490	44	546	67	798	55	710	53	617
10	42	566	134	1740	49	606	93	1170	47	596	50	575
11	62	772	114	1420	49	605	126	1710	39	491	46	522
12	39	461	102	1270	50	617	75	931	39	486	42	469
13	37	423	91	1130	50	613	127	1910	39	484	35	358
14	38	491	88	1070	97	1230	76	964	38	469	37	314
15	96	1210	101	1170	2390	54100	53	644	38	467	41	317
16	160	2040	101	1170	930	8410	45	583	36	440	43	318
17	107	1510	93	1070	245	946	38	486	32	389	42	277
18	95	1300	79	909	196	672	1650	32400	28	339	41	288
19	92	1340	70	781	192	627	980	10700	29	349	40	226
20	94	1540	87	989	137	1070	220	915	31	371	37	139
21	96	1560	86	1060	82	1100	102	380	33	392	36	135
22	79	1240	79	981	72	914	183	973	34	408	37	142
23	72	1030	73	911	63	798	252	2360	34	402	35	112
24	73	926	67	821	52	651	152	1060	34	398	36	90
25	79	887	64	774	53	667	103	1260	34	396	36	88
26	78	786	57	699	86	1100	88	1080	28	324	35	81
27	82	560	58	686	83	1040	78	979	29	333	35	76
28	82	277	67	823	69	866	67	865	32	365	35	76
29	72	229	64	793	62	773	59	758	34	389	38	82
30	110	716	59	738	57	688	58	744	36	407	35	76
31	---	---	50	628	---	---	58	739	37	447	---	---
TOTAL	---	32393	---	36844	---	83010	---	76144	---	15359	---	10473

TOTAL LOAD FOR YEAR: 416952.9 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)
OCT 15...	1300	--	1250	121	408	--	--	--
MAR 01...	1200	7.0	7520	300	6090	--	--	--
APR 14...	1115	10.0	4890	50	660	--	--	--
MAY 20...	1200	23.0	4040	93	1010	--	--	--
JUN 15...	0800	19.0	10300	4310	120000	48	62	69
JUL 13...	0900	23.0	5510	930	13800	50	57	59
SEP 22...	1315	19.5	1450	37	145	--	--	--

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 15...	--	--	--	--	--	--	99
MAR 01...	--	--	--	--	--	--	88
APR 14...	--	--	--	--	--	--	88
MAY 20...	--	--	--	--	--	--	99
JUN 15...	79	--	--	--	--	--	99
JUL 13...	67	82	83	86	99	100	--
SEP 22...	--	--	--	--	--	--	99

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 15...	1300	1250	8	--	0	4	38
MAR 01...	1200	7520	7	--	0	6	50
APR 14...	1000	4890	8	1	1	7	47
MAY 20...	1200	4040	8	--	0	5	44
JUL 13...	0900	5510	8	2	3	14	66
SEP 22...	1315	1450	10	1	1	6	44

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 15...	89	97	98	99	100	--
MAR 01...	90	96	98	99	100	--
APR 14...	78	89	95	97	98	100
MAY 20...	74	88	94	97	100	--
JUL 13...	92	97	98	99	100	--
SEP 22...	73	87	92	96	100	--

05455000 RALSTON CREEK AT IOWA CITY, IA

LOCATION.--Lat 41°39'50", long 91°30'48", in SE1/4 NW1/4 sec.11, T.79 N., R.6 W., Johnson County, Hydrologic Unit 07080209, on left bank 10 ft (3 m) upstream from bridge on Rochester Avenue, 1.0 mi (1.6 km) northeast of post office in Iowa City and 2.2 mi (3.5 km) upstream from mouth.

DRAINAGE AREA.--3.01 mi² (7.80 km²).

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 (202.165 m) NGVD (University of Iowa bench mark).

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

AVERAGE DISCHARGE.--58 years, 1.71 ft³/s (0.048 m³/s), 7.71 in/yr (196 mm/yr), 1,240 acre-ft/yr (1.53 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,760 ft³/s (49.8 m³/s) July 17, 1972, gage height, 9.01 ft (2.746 m); maximum gage height, 9.06 ft (2.761 m) July 18, 1956; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 15	0255	436	12.3	5.63	1.716	July 18	0550	*550	15.6	*6.25	1.905

Minimum daily discharge, 0.18 ft³/s (0.005 m³/s) Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	1.0	5.1	.41	.58	2.6	2.4	1.2	.77	.62	.67	.51
2	.28	1.1	2.6	.40	.62	2.8	3.0	1.1	.60	.91	.61	.32
3	.31	1.3	2.2	.53	.56	1.8	2.3	1.0	.66	.79	.51	.22
4	1.1	12	1.8	.50	.50	1.3	1.8	1.3	.54	.52	.44	.21
5	.40	4.6	1.6	.60	.48	.96	1.7	2.4	.48	.38	1.7	.21
6	.29	3.0	1.6	.54	.46	.84	2.9	1.8	.58	1.7	.98	5.1
7	.23	2.5	1.4	.49	.46	.78	1.7	.96	.58	.74	4.0	.94
8	.22	2.3	1.3	.45	.51	.80	2.1	1.3	.49	.28	1.0	.52
9	.23	1.8	1.2	.42	.48	.90	2.4	.98	.60	.40	.73	.42
10	.29	1.7	1.1	.40	.45	1.8	2.7	.90	.42	5.1	.62	.43
11	.22	1.7	1.1	.39	.58	9.5	2.6	1.0	.38	1.4	.48	.33
12	.20	1.4	1.0	.38	.70	19	3.5	.84	.81	1.1	.42	.27
13	.32	1.5	1.1	.37	.86	11	2.5	1.1	.35	.73	.38	.29
14	17	1.5	1.0	.36	1.1	4.9	2.1	.98	1.3	.79	.35	.32
15	3.7	2.0	.79	.35	1.6	4.6	4.2	.91	64	.88	.35	.26
16	2.3	1.8	.67	.35	.51	9.9	8.2	.86	5.7	5.9	.33	.22
17	8.9	1.2	.48	.34	43	4.2	5.0	1.1	3.5	1.4	.29	2.0
18	4.9	1.1	.39	.46	39	3.3	3.5	.95	2.7	74	.27	1.4
19	2.8	1.2	.41	.60	41	35	2.6	.91	2.0	6.9	.25	.47
20	2.1	1.1	.46	.56	76	12	2.4	1.0	1.7	4.2	.23	.36
21	1.7	.87	.79	.52	57	6.2	2.2	1.3	1.3	2.9	.20	.30
22	1.5	.87	.76	.64	53	4.7	2.0	1.2	1.2	2.2	.72	.27
23	1.2	2.0	.58	.60	14	4.0	1.8	.93	1.0	1.7	.32	.24
24	1.2	1.3	.53	.49	5.6	3.2	1.7	.87	.90	1.4	.28	.24
25	1.2	1.3	.53	.42	3.6	1.8	1.7	.74	2.0	1.2	.22	.22
26	1.1	3.6	.61	.45	3.0	1.5	1.6	1.1	1.2	1.2	.24	.24
27	.93	1.9	.56	.60	3.0	1.3	1.6	1.9	1.0	1.1	.20	.26
28	.82	1.5	.49	.56	3.4	1.2	1.5	1.1	.99	1.0	.18	.21
29	.80	1.3	.40	.58	---	1.2	1.5	2.5	.87	.95	.40	.21
30	.69	3.0	.38	.60	---	12	1.3	1.4	.76	.92	.70	.21
31	.80	---	.49	.58	---	4.1	---	1.0	---	.77	2.0	---
TOTAL	58.09	63.44	33.42	14.94	352.05	169.18	76.5	36.63	99.38	124.08	20.07	17.20
MEAN	1.87	2.11	1.08	.48	12.6	5.46	2.55	1.18	3.31	4.00	.65	.57
MAX	17	12	5.1	.64	76	35	8.2	2.5	64	74	4.0	5.1
MIN	.20	.87	.38	.34	.45	.78	1.3	.74	.35	.28	.18	.21
CFSM	.62	.70	.36	.16	4.19	1.81	.85	.39	1.10	1.33	.22	.19
IN.	.72	.78	.41	.18	4.35	2.09	.95	.45	1.23	1.53	.25	.21
AC-FT	115	126	66	30	698	336	152	73	197	246	40	34

CAL YR 1981 TOTAL 558.86 MEAN 1.53 MAX 38 MIN .00 CFSM .51 IN 6.90 AC-FT 1110
WTR YR 1982 TOTAL 1064.98 MEAN 2.92 MAX 76 MIN .18 CFSM .97 IN 13.16 AC-FT 2110

05455000 RALSTON CREEK AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 8,000 micromhos Dec. 24, 1973; minimum daily, 120 micromhos 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.
SEDIMENT LOADS: Maximum daily, 4,300 tons (3,900 tonnes) May 23, 1966; minimum daily, 0 ton (0 tonne) on many days most years.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,400 micromhos Feb. 16; minimum daily, 355 micromhos Jul 18.
WATER TEMPERATURES: Maximum daily, 26.0°C July 15; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,340 mg/L Mar. 19; minimum daily mean, 9 mg/L on Jan. 1.
SEDIMENT LOADS: Maximum daily, 491 tons (445 tonnes) June 15; minimum daily, .01 ton (0.009 tonne) Oct. 6, Jan. 2.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	520	520	520	500	500	530	510	450	500	540	540	---
2	520	510	610	520	500	520	520	460	500	540	530	---
3	540	500	520	590	490	520	520	470	500	560	---	---
4	540	460	510	540	490	490	510	480	490	540	---	---
5	620	500	510	560	490	540	520	510	490	560	---	---
6	---	500	500	450	490	530	540	480	480	570	590	360
7	580	560	520	500	480	550	630	490	490	530	590	490
8	540	520	500	500	480	510	800	470	480	640	590	610
9	520	520	500	490	470	500	560	460	520	560	---	550
10	520	510	500	490	480	500	550	460	500	380	540	530
11	---	520	500	490	480	690	490	470	540	570	530	---
12	---	520	500	480	480	540	480	460	540	560	530	530
13	---	500	500	480	720	530	490	470	530	570	---	560
14	370	500	510	470	540	570	470	470	520	560	540	520
15	640	600	500	480	510	570	460	480	380	570	---	---
16	540	540	510	480	1400	510	520	460	600	450	550	---
17	480	540	560	480	720	570	490	460	590	590	---	---
18	580	530	520	480	750	550	480	470	580	355	540	---
19	520	520	520	480	600	410	470	470	560	590	---	---
20	500	520	500	480	500	540	470	470	560	550	---	610
21	500	520	500	470	390	580	480	500	560	560	---	---
22	500	510	520	490	420	560	460	480	550	550	550	---
23	480	505	560	490	440	550	460	480	560	550	670	550
24	480	590	540	500	520	540	460	480	560	---	570	---
25	630	540	600	500	520	540	470	480	550	---	---	540
26	480	560	520	480	520	530	480	480	480	540	---	---
27	480	540	530	480	540	520	480	480	540	550	540	530
28	480	500	500	530	570	500	480	530	500	540	530	---
29	480	500	520	---	---	500	480	490	560	530	530	550
30	480	500	520	900	---	520	480	510	---	---	590	---
31	700	---	500	570	---	520	---	520	---	---	620	---

05455000 RALSTON CREEK AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	12.0	4.0	.0	.0	2.0	7.0	13.0	16.0	16.0	20.0	20.0
2	14.0	13.0	2.0	.0	.0	2.0	9.0	12.0	16.0	18.0	22.0	21.0
3	13.0	13.0	2.0	1.0	.0	2.0	7.0	10.0	13.5	18.0	23.0	17.0
4	13.0	13.0	4.0	.0	.0	1.0	3.0	19.0	13.0	20.0	24.0	17.0
5	15.0	10.0	2.0	.0	.0	.0	.0	12.0	15.0	21.0	24.0	17.0
6	14.0	8.0	2.0	.0	.0	1.0	.0	16.0	15.0	23.0	22.0	18.0
7	8.0	8.0	7.0	.0	.0	1.0	.0	13.0	17.0	20.0	23.0	17.0
8	12.0	8.0	5.0	2.0	.0	.0	1.0	16.0	16.0	19.0	23.0	16.0
9	10.0	6.0	4.0	.0	.0	.0	1.0	15.0	18.0	21.0	19.0	16.0
10	12.0	5.0	1.0	.0	.0	.0	2.0	19.0	20.0	22.0	17.0	20.0
11	14.0	7.0	.0	.0	.0	2.0	4.0	18.0	17.0	21.0	15.0	20.0
12	13.0	5.0	4.0	.0	.0	4.0	7.0	21.0	16.0	20.0	15.0	23.0
13	15.0	7.0	3.0	.0	.0	4.0	9.0	18.0	15.0	22.0	14.0	22.0
14	14.0	6.0	2.0	.0	.0	5.0	12.0	16.0	19.0	22.0	19.0	20.0
15	15.0	8.0	.0	.0	.0	4.0	9.0	18.0	12.0	26.0	19.0	19.0
16	13.0	8.0	.0	.0	.0	6.0	11.0	20.0	18.0	20.0	19.0	15.0
17	13.0	7.0	.0	.0	.0	5.0	9.0	20.0	14.0	25.0	20.0	17.0
18	10.0	8.0	.0	.0	3.0	5.0	13.0	20.0	17.0	20.5	20.0	16.0
19	10.0	7.0	.0	.0	3.0	3.0	8.0	17.0	15.0	20.0	20.0	16.0
20	10.0	7.0	.0	.0	3.0	5.0	8.0	13.0	15.0	20.0	18.0	13.0
21	10.0	7.0	2.0	.0	3.0	4.0	7.0	15.0	16.0	24.0	19.0	12.0
22	10.0	7.0	1.0	.0	4.0	5.0	7.0	14.0	15.0	20.0	20.0	10.0
23	9.0	4.0	2.0	.0	3.0	5.0	11.0	17.0	16.0	21.0	19.0	18.0
24	8.0	3.0	.0	.0	4.0	6.0	9.0	15.0	16.0	21.0	18.0	13.0
25	5.0	4.0	.0	.0	3.0	6.0	11.0	15.0	18.0	23.0	17.0	13.0
26	7.0	7.0	.0	.0	3.0	5.0	12.0	15.0	17.0	22.0	17.0	13.0
27	6.0	4.0	.0	.0	4.0	6.0	14.0	15.0	20.0	21.0	20.0	10.0
28	9.0	4.0	.0	.0	3.0	5.0	9.0	18.0	21.0	21.0	15.0	12.0
29	10.0	2.0	.0	---	---	5.0	10.0	18.0	20.0	21.0	15.0	15.0
30	12.0	3.0	.0	.0	---	7.0	14.0	18.0	18.0	20.0	18.0	16.0
31	10.0	---	2.0	.0	---	7.0	---	18.0	---	21.0	18.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	67	.07	56	.15	122	1.7	14	.02	48	.08	62	.44
2	72	.05	62	.18	54	.38	11	.01	69	.12	52	.39
3	53	.04	52	.18	54	.32	18	.03	41	.06	65	.32
4	59	.18	173	7.5	48	.23	24	.03	40	.05	114	.40
5	28	.03	84	1.0	56	.24	32	.05	52	.08	110	.29
6	18	.01	94	.76	48	.21	59	.09	67	.08	92	.21
7	37	.02	65	.44	49	.19	56	.07	60	.07	67	.14
8	52	.03	46	.29	42	.15	59	.07	73	.10	120	.26
9	62	.04	66	.32	30	.10	62	.07	36	.05	96	.23
10	66	.05	69	.32	42	.12	65	.07	34	.04	71	.35
11	54	.03	58	.27	32	.10	68	.07	52	.08	75	1.9
12	69	.04	53	.20	19	.05	86	.09	63	.12	121	6.2
13	63	.05	54	.22	54	.16	45	.04	102	.24	123	3.7
14	243	13	72	.29	36	.10	61	.06	78	.23	58	.77
15	61	.61	66	.36	44	.09	55	.05	40	.17	45	.56
16	80	.50	63	.31	78	.14	76	.07	49	.07	188	5.0
17	166	5.0	73	.24	54	.07	66	.06	24	2.8	39	.44
18	69	.91	47	.14	75	.08	82	.10	30	3.2	27	.24
19	83	.63	43	.14	43	.05	95	.15	49	5.4	3340	485
20	84	.48	57	.17	48	.06	78	.12	190	39	207	6.7
21	68	.31	68	.16	80	.17	73	.10	234	36	43	.72
22	82	.33	59	.14	73	.15	86	.15	268	38	37	.47
23	88	.29	63	.34	27	.04	56	.09	190	7.2	30	.32
24	88	.29	52	.18	37	.05	36	.05	63	.95	40	.35
25	104	.34	61	.21	21	.03	63	.07	64	.62	75	.36
26	95	.28	77	.75	27	.04	37	.04	87	.70	43	.17
27	102	.26	64	.33	26	.04	68	.11	37	.30	44	.15
28	120	.27	74	.30	43	.06	70	.11	30	.28	45	.15
29	80	.17	92	.32	36	.04	66	.10	---	---	67	.22
30	62	.12	103	.83	25	.03	63	.10	---	---	165	6.7
31	47	.10	---	---	17	.02	59	.09	---	---	88	.97
TOTAL	---	24.53	---	17.04	---	5.21	---	2.33	---	136.09	---	524.12

05455000 RALSTON CREEK AT IOWA CITY, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	84	.54	65	.21	120	.25	95	.16	156	.28	102	.14
2	153	3.3	61	.18	93	.15	94	.23	135	.22	66	.06
3	137	.85	55	.15	66	.12	109	.23	122	.17	113	.07
4	125	.61	59	.21	85	.12	139	.20	117	.14	116	.07
5	99	.45	89	.58	92	.12	121	.12	119	.55	143	.08
6	97	.76	86	.42	85	.13	198	1.6	104	.28	644	12
7	89	.41	110	.29	88	.14	149	.30	150	1.6	180	.46
8	89	.50	96	.34	74	.10	83	.06	111	.30	105	.15
9	68	.44	89	.24	72	.12	327	.35	135	.27	121	.14
10	60	.44	63	.15	80	.09	537	15	169	.28	151	.18
11	77	.54	101	.27	124	.13	102	.39	167	.22	120	.11
12	65	.61	102	.23	113	.25	92	.27	142	.16	72	.05
13	72	.49	95	.28	145	.14	85	.17	145	.15	68	.05
14	69	.39	101	.27	378	7.9	84	.18	124	.12	76	.07
15	159	10	109	.27	1310	491	230	.55	92	.09	67	.05
16	197	7.7	108	.25	184	2.8	837	19	123	.11	90	.05
17	80	1.1	99	.29	164	1.5	70	.26	135	.11	154	.83
18	56	.53	74	.19	124	.90	818	318	91	.07	165	.62
19	91	.64	65	.16	112	.60	148	2.8	102	.07	109	.14
20	68	.44	72	.19	90	.41	148	1.7	98	.06	118	.11
21	76	.45	85	.30	107	.38	160	1.3	100	.05	133	.11
22	57	.31	96	.31	110	.36	151	.90	110	.21	143	.10
23	43	.21	97	.24	101	.27	143	.66	78	.07	137	.09
24	79	.36	97	.23	97	.24	133	.50	113	.09	105	.07
25	118	.54	75	.15	820	4.4	127	.41	104	.06	101	.06
26	74	.32	94	.28	185	.60	159	.52	105	.07	100	.06
27	61	.26	67	.34	85	.23	154	.46	111	.06	113	.08
28	65	.26	72	.21	108	.29	135	.36	71	.03	103	.06
29	69	.28	113	.76	97	.23	151	.39	84	.09	106	.06
30	55	.19	90	.34	108	.22	154	.38	67	.13	102	.06
31	---	---	90	.24	---	---	146	.30	137	1.1	---	---
TOTAL	---	33.92	---	8.57	---	514.19	---	367.75	---	7.21	---	16.18

TOTAL LOAD FOR YEAR: 1657.14 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. 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)
MAR 19...	0930	3.0	40	7000	756	24	28	33	49	99	99	100

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 (18 m) downstream from bridge on Muscatine Avenue in Iowa City, and 1.2 mi (1.9 km) upstream from mouth.

DRAINAGE AREA.--2.94 mi² (7.61 km²).

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 (206.664 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 2.46 ft³/s (0.070 m³/s), 11.36 in/yr (289 mm/yr), 1,780 acre-ft/yr (2.19 hm³/yr); median of yearly mean discharges, 2.2 ft³/s (0.06 m³/s), 10.2 in/yr (259 mm/yr), 1,600 acre-ft/yr (2.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,070 ft³/s (30.3 m³/s) July 17, 1972, gage height, 9.47 ft (2.886 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 14, 1962, reached a stage of 10.5 ft (3.20 m), from flood profile, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*);

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 15	0045	490	13.9	7.25	2.210	July 18	0500	*666	18.9	*8.10	2.469

Minimum daily discharge, 0.17 ft³/s (0.005 m³/s) Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	.60	5.2	.68	.56	2.5	2.3	.79	.80	.56	.70	.53
2	.72	.72	1.7	.70	.60	2.2	2.7	.74	.72	.72	.64	.29
3	1.1	1.7	1.7	.84	.56	1.4	2.1	.69	.72	.58	.57	.21
4	2.7	20	1.2	.81	.48	1.2	1.5	1.6	.59	.49	.53	.18
5	1.0	3.6	1.1	.96	.47	.90	1.5	4.0	.56	.44	2.0	.33
6	.52	2.1	1.1	.88	.46	.78	2.3	1.6	.74	5.2	1.1	15
7	.48	1.4	1.1	.80	.52	.70	1.3	.90	.55	.67	4.8	.94
8	.44	1.1	1.0	.74	.47	.65	1.7	1.4	.87	.48	1.5	.66
9	1.0	.89	.95	.66	.45	.63	2.1	.75	.61	.42	.80	.52
10	.44	.80	1.1	.60	.49	2.0	2.5	.64	.47	14	.63	.66
11	.31	.71	1.1	.57	.54	17	2.5	.68	1.5	1.4	.51	.52
12	.29	.65	.94	.53	.70	20	2.7	.57	.68	2.5	.44	.36
13	1.6	.60	.89	.50	1.2	9.1	1.9	.80	.53	.70	.39	1.1
14	38	.56	.86	.48	3.8	3.5	1.7	.62	7.1	.64	.37	.56
15	2.9	2.8	.82	.47	17	3.5	3.1	.58	86	5.4	.45	.31
16	2.1	.91	.76	.46	26	12	7.4	.60	7.5	11	.35	.33
17	12	.60	.70	.45	14	3.8	4.2	1.1	4.1	1.9	.29	11
18	4.2	.52	.68	.58	19	3.0	2.8	.80	3.1	132	.25	1.3
19	2.3	1.1	.68	.80	29	40	2.3	.65	2.3	12	.23	.79
20	1.8	.53	.70	.68	68	17	2.0	1.9	1.8	7.4	.20	.60
21	1.2	.48	.76	.65	36	7.0	1.7	1.4	1.5	4.6	.18	.56
22	1.3	.46	.90	.77	30	4.8	1.4	.83	1.3	3.0	1.0	.56
23	1.0	2.3	.77	.78	13	4.3	1.2	.71	1.2	2.6	.32	.41
24	.94	.69	.72	.59	5.6	4.9	1.2	.67	.91	2.1	.28	.66
25	.86	.69	.70	.55	4.9	3.1	1.1	.64	4.0	1.7	.25	.72
26	.72	5.0	.87	.58	2.9	2.3	1.1	1.9	1.7	1.4	.25	.52
27	.60	1.2	.79	.95	3.1	1.9	1.0	2.1	1.2	1.2	.20	.36
28	.56	.93	.72	.67	2.6	1.8	.94	.80	1.0	1.0	.17	.36
29	.52	.79	.64	.69	---	1.8	.94	2.5	.72	.90	2.9	.36
30	.48	5.4	.70	.86	---	11	.90	1.2	.66	.84	.52	.33
31	.72	---	.80	.66	---	2.7	---	1.0	---	.74	3.7	---
TOTAL	83.40	59.83	32.65	20.94	282.40	187.46	62.08	35.16	135.43	218.58	26.52	41.03
MEAN	2.69	1.99	1.05	.68	10.1	6.05	2.07	1.13	4.51	7.05	.86	1.37
MAX	38	20	5.2	.96	68	40	7.4	4.0	86	132	4.8	15
MIN	.29	.46	.6	.23	3.44	2.06	.70	.38	1.53	2.40	.29	.47
IN.	1.05	.76	.41	.26	3.57	2.37	.79	.44	1.71	2.76	.34	.52
AC-FT	165	119	65	42	560	372	123	70	269	434	53	81

CAL YR 1981	TOTAL	807.75	MEAN 2.21	MAX 58	MIN .00	CFSM .75	IN 10.22	AC-FT 1600		
WTR YR 1982	TOTAL	1185.48	MEAN 3.25	MAX 132	MIN .17	CFSM 1.11	IN 14.99	AC-FT 2350		

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 (9 m) upstream from bridge on State Highway 1, 0.8 mi (1.3 km) south of Kalona, 1.1 mi (1.8 km) upstream from Camp Creek, 4.5 mi (7.2 km) downstream from Smith Creek, and 14.5 mi (23.3 km) upstream from mouth.

DRAINAGE AREA.--573 mi² (1,484 km²).

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 (193.076 m) NGVD (levels by Corps of Engineers). Prior to Dec. 27, 1939, nonrecording gage 30 ft (9 m) downstream at same datum.

REMARKS.--Records good except those for winter period, which are fair. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--43 years, 366 ft³/s (10.37 m³/s), 8.67 in/yr (220 mm/yr), 265,200 acre-ft/yr (327 hm³/yr); median of yearly mean discharges, 330 ft³/s (9.35 m³/s), 7.8 in/yr (198 mm/yr), 239,000 acre-ft/yr (295 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s (566 m³/s) Sept. 21, 1965, gage height, 21.45 ft (6.538 m); minimum daily, 0.66 ft³/s (0.019 m³/s) Feb. 5-7, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1930 reached a stage of 19.9 ft (6.07 m) from floodmark, from information by local residents, discharge, 18,500 ft/s (524 m/s).

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 23	----	4,220	120	ice jam		Apr. 17	1230	4,020	114	12.89	3.929
Mar. 13	0930	4,650	132	13.62	4.151	June 17	0815	8,170	231	17.18	5.236
Mar. 21	0145	6,210	176	15.28	4.657	July 20	1430	*11,200	317	*18.45	5.624

Minimum daily discharge, 38 ft³/s (1.08 m³/s) Aug. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	103	453	96	90	634	574	308	871	259	282	79
2	55	171	1150	94	90	693	471	289	680	240	254	46
3	48	392	750	95	89	516	763	275	592	260	231	193
4	52	1310	610	93	88	283	738	288	510	389	213	206
5	85	2940	460	96	88	260	616	365	437	297	834	159
6	88	1680	420	94	88	240	537	1630	384	310	742	124
7	72	841	396	88	88	230	499	2080	353	2800	364	119
8	61	605	361	86	89	210	464	1230	316	1520	285	587
9	55	472	314	84	89	190	432	895	295	604	215	388
10	53	385	284	80	90	200	432	693	277	503	167	266
11	51	345	270	82	90	310	783	575	227	1450	161	193
12	51	305	260	80	91	1080	1000	500	199	508	156	173
13	50	277	250	82	97	4350	962	479	182	401	146	125
14	821	257	230	80	105	2640	692	443	183	355	135	133
15	837	247	210	81	120	1090	926	409	4470	317	126	485
16	545	287	165	80	130	1830	2240	411	5870	785	118	253
17	360	285	160	76	160	2460	3790	376	7700	1890	110	209
18	582	246	140	82	210	1050	2410	374	2420	4210	101	1190
19	432	232	125	85	300	2330	1410	478	1170	7270	91	828
20	283	227	115	88	450	6080	1040	389	809	10800	83	420
21	225	211	110	85	3500	5240	823	687	642	7940	79	303
22	185	192	120	86	4200	1800	697	601	529	2700	69	239
23	161	203	125	88	5400	994	633	729	453	1100	63	207
24	147	303	120	89	4500	811	569	568	389	810	56	183
25	143	286	115	90	1680	678	514	485	403	663	49	164
26	133	384	120	89	834	556	467	484	786	555	43	148
27	119	375	115	88	664	468	416	922	503	483	38	139
28	107	288	110	89	604	413	371	1470	861	477	43	131
29	100	499	105	88	---	383	351	1510	383	402	106	120
30	95	879	100	90	---	557	332	2140	300	349	94	109
31	90	---	98	90	---	935	---	1200	---	315	109	---
TOTAL	6152	15227	8361	2694	24024	39511	25952	23283	33194	50962	5563	7919
MEAN	198	508	270	86.9	858	1275	865	751	1106	1644	179	264
MAX	837	2940	1150	96	5400	6080	3790	2140	7700	10800	834	1190
MIN	48	103	98	76	88	190	332	275	182	240	38	46
CFSM	.35	.89	.47	.15	1.50	2.23	1.51	1.31	1.93	2.87	.31	.46
IN.	.40	.99	.54	.17	1.56	2.57	1.68	1.51	2.15	3.31	.36	.51
AC-FT	12200	30200	16580	5340	47650	78370	51480	46180	65840	101100	11030	15710

CAL YR 1981 TOTAL 72155.7 MEAN 198 MAX 2940 MIN 6.2 CFSM .35 IN 4.68 AC-FT 143100
WTR YR 1982 TOTAL 242842.0 MEAN 665 MAX 10800 MIN 38 CFSM 1.16 IN 15.77 AC-FT 481700

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 ,(610 m) downstream from new tri-county bridge on county highway W66, 5 mi (8.0 km) southwest of Lone Tree, 6.2 mi (10.0 km) downstream from English River, and at mile 47.2 (75.9 km).

DRAINAGE AREA.--4,293 mi² (11,118 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 588.16 ft (179.271 m) NGVD. Prior to Dec. 28, 1956, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are fair. Flow regulated by Coralville Lake (station 05453510) 36.1 mi (58.1 km) upstream since Sept. 17, 1958. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--26 years, 2,731 ft³/s (77.34 m³/s), 8.64 in/yr (219 mm/yr), 1,979,000 acre-ft/yr (2,440 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,700 ft³/s (110 m³/s) May 19, 1974, gage height, 18.97 ft (5.782 m); maximum gage height, 20.27 ft (6.178 m) Sept. 22, 1965; minimum daily discharge, 69 ft³/s (1.95 m³/s) Aug. 4, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 25, 1944, reached a stage of 19.94 ft (6.078 m), discharge not determined, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,400 ft³/s (521 m³/s) June 16, gage height, 16.34 ft (4.980 m), maximum gage height, 16.87 ft (5.142 m) Feb. 23, backwater from ice; minimum daily discharge, 560 ft³/s (15.9 m³/s) Feb. 12-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2430	851	2660	860	620	8120	10000	4900	5960	5120	5400	4880
2	1540	901	3460	840	620	8870	9570	4590	5670	5080	5340	4820
3	980	1410	3320	820	650	9470	8940	3340	5530	5190	5290	4720
4	917	2310	3040	840	640	9440	8800	3150	5440	5220	5240	4640
5	940	4660	3120	830	660	9230	8310	2490	5330	5230	5290	4590
6	984	4570	3010	820	640	8050	7520	4230	5290	6510	5500	5100
7	920	3680	2410	800	640	6720	7200	5900	5280	8190	5370	7440
8	976	3190	2030	760	630	5870	6600	5700	5230	8240	5960	5910
9	937	2960	1910	740	620	5230	6290	5510	5200	5980	5890	5020
10	905	2530	1800	720	590	5130	6160	5950	5150	6610	5320	4790
11	885	2090	1750	700	570	5360	6030	5600	5090	8140	5200	4650
12	867	1990	2150	690	560	7050	6280	5500	5050	6360	5120	4540
13	859	1830	2200	740	560	10300	5910	5510	5000	6940	5050	4410
14	2360	1740	2100	770	560	11100	6040	5370	4970	6240	5010	3870
15	3140	1630	2100	760	640	9830	5900	5100	10500	5580	4970	3530
16	2690	1700	1900	730	680	10400	7270	5050	16700	5970	4930	3490
17	2230	1770	1700	700	740	12100	9230	5000	16300	7750	4890	3240
18	2330	1730	1300	680	1100	11900	9150	4970	10800	11300	4850	3380
19	2430	1670	1150	700	2300	11600	7540	5000	4770	15900	4800	4210
20	2130	1660	1100	690	3800	14800	7580	4830	3460	14600	4770	2290
21	1970	1610	1100	680	7000	13000	7400	5500	6100	13300	4720	1600
22	1850	1570	1150	670	9300	6870	7150	5420	5940	9300	4740	1410
23	1750	1460	1100	660	14500	3910	6590	5610	5770	5410	4710	1340
24	1490	1410	1150	660	13500	3370	6190	5460	5630	5830	4640	1270
25	1450	1580	1200	660	8460	4560	5280	5270	5570	5830	4590	1190
26	1430	1600	1250	650	4080	7490	5040	5300	6790	5690	4560	1120
27	1390	1880	1200	640	5640	8790	3980	5460	5980	5590	4520	1050
28	1260	1670	1150	650	7640	9310	2570	6170	6150	5730	4470	1010
29	1130	1590	1000	640	---	9440	2330	6080	5670	5680	4440	979
30	991	1740	960	640	---	9530	2600	7090	5400	5560	4520	957
31	897	---	900	620	---	10100	---	6450	---	5480	4560	---
TOTAL	47058	60982	56370	22360	87940	266940	199450	161510	195720	223550	154660	101446
MEAN	1518	2033	1818	721	3141	8611	6648	5210	6524	7211	4989	3382
MAX	3140	4660	3460	860	14500	14800	10000	7090	16700	15900	5960	7440
MIN	859	851	900	620	560	3370	2330	2490	3460	5080	4440	957
AC-FT	93340	121000	111800	44350	174400	529500	395600	320400	388200	443400	306800	201200

CAL YR 1981 TOTAL 502015 MEAN 1375 MAX 6450 MIN 190 AC-FT 995700
WTR YR 1982 TOTAL 1577986 MEAN 4323 MAX 16700 MIN 560 AC-FT 3130000

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 (244 m) downstream from bridge on U.S. Highway 18 (Brantingham Street) in Charles City, 10.6 mi (17.1 km) upstream from Gizzard Creek, and at mile 252.9 (406.9 km) upstream from mouth of Iowa River.

DRAINAGE AREA.--1,054 mi² (2,730 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 973.02 ft (296.576 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Occasional minor regulation by dam 0.2 mi (0.3 km) above gage. Daily wire-weight gage readings available in district office for period Sept. 13, 1945, to June 30, 1954, at same site and datum. Discharge not published for this period because of extreme regulation of streamflow by power dam 0.2 mi (0.3 km) upstream. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--18 years, 681 ft³/s (19.29 m³/s), 8.77 in/yr (223 mm/yr), 493,400 acre-ft/yr (608 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,000 ft³/s (595 m³/s) Apr. 7, 1965, gage height, 19.14 ft (5.834 m); maximum gage height, 21.64 ft (6.596 m) Mar. 2, 1965, backwater from ice; minimum daily discharge, 60 ft³/s (1.70 m³/s) Nov. 23, 1977, Jan. 7, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 27, 1961, reached a stage of 21.6 ft (6.58 m), from floodmarks, discharge, 29,200 ft³/s (827 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,600 ft³/s (102 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	2230	*5,740	163	*a9.44	2.877
Apr. 18	1630	4,390	124	7.54	2.298
May 6	2345	5,530	157	8.71	2.655
May 23	1300	4,880	138	8.06	2.457
June 7	1345	4,040	114	7.16	2.182
July 16	0715	5,550	157	8.73	2.661

a. "ice jam"

Minimum daily discharge, 166 ft³/s (4.70 m³/s) Dec. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	393	449	320	240	220	265	2760	845	1560	619	361	1010
2	379	435	415	235	220	265	2250	810	1540	580	352	1240
3	370	420	347	230	219	250	2280	765	1430	507	336	1020
4	383	418	360	228	218	252	2270	754	1200	517	395	1010
5	521	417	285	235	218	258	2010	971	1040	491	524	789
6	781	414	369	228	219	260	1580	4460	1600	475	515	688
7	475	407	368	219	218	270	1280	5120	3390	505	438	662
8	434	399	350	208	220	242	1160	4030	1750	472	393	616
9	434	386	340	200	218	240	1100	2670	1380	491	360	590
10	430	374	226	192	217	238	1100	2000	1180	507	338	558
11	424	370	316	200	215	278	1100	1670	1060	476	324	538
12	410	366	363	188	212	310	1120	1480	957	450	312	512
13	398	359	364	170	210	338	1200	1490	880	434	304	656
14	409	356	309	168	210	365	1340	1810	845	421	300	1640
15	420	357	166	168	205	480	1450	1950	1160	874	296	2390
16	425	355	209	172	222	1020	2070	1830	1130	4210	292	1920
17	492	350	235	180	238	3200	2920	2230	943	1540	286	1440
18	544	345	265	188	255	4400	4260	2210	884	1240	277	1170
19	568	354	268	185	272	5200	3780	2510	827	991	270	996
20	618	354	270	182	282	5600	2590	2720	782	855	260	864
21	626	348	270	180	292	5400	1970	2150	729	750	248	757
22	581	325	270	200	312	4550	1670	2610	685	666	280	680
23	534	341	260	200	332	3620	1460	4660	645	599	295	628
24	311	354	260	210	340	3940	1310	3750	732	552	335	594
25	279	347	252	215	340	4500	1200	2500	2070	515	389	560
26	403	354	250	215	340	4130	1100	2040	1080	478	469	528
27	458	359	249	218	300	3000	1030	2370	881	472	401	507
28	459	361	249	220	280	2320	928	2410	792	456	344	485
29	453	355	249	220	---	2090	929	2150	724	432	402	497
30	451	354	249	222	---	2280	887	2050	667	402	1030	561
31	456	---	248	220	---	2780	---	1700	---	378	1030	---
TOTAL	14319	11183	8951	6336	7044	62341	52104	70715	34543	22355	12156	26106
MEAN	462	373	289	204	252	2011	1737	2281	1151	721	392	870
MAX	781	449	415	240	340	5600	4260	5120	3390	4210	1030	2390
MIN	279	325	166	168	205	238	887	754	645	378	248	485
CFSM	.44	.35	.27	.19	.24	1.91	1.65	2.16	1.09	.68	.37	.83
IN.	.51	.39	.32	.22	.25	2.20	1.84	2.50	1.22	.79	.43	.92
AC-FT	28400	22180	17750	12570	13970	123700	103300	140300	68520	44340	24110	51780

CAL YR 1981 TOTAL 250634 MEAN 687 MAX 6120 MIN 140 CFSM .65 IN 8.85 AC-FT 497100
WTR YR 1982 TOTAL 328153 MEAN 899 MAX 5600 MIN 166 CFSM .85 IN 11.58 AC-FT 650900

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 (4 m) downstream from bridge on county highway B57, 2.4 mi (3.9 km) west of Ionia, 6.4 mi (10.3 km) upstream from mouth, and 7.6 mi (12.2 km) downstream from Beaver Creek.

DRAINAGE AREA.--306 mi² (793 km²).

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 (296.677 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--28 years, 164 ft³/s (4.644 m³/s), 7.28 in/yr (185 mm/yr), 118,800 acre-ft/yr (146 hm³/yr); median of yearly mean discharges, 140 ft³/s (3.96 m³/s), 6.2 in/yr (157 mm/yr), 101,000 acre-ft/yr (125 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s (306 m³/s) Mar. 27, 1961, gage height, 15.58 ft (4.749 m); minimum daily, 3.0 ft³/s (0.085 m³/s) Feb. 4-9, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1954, reached a stage of 11.37 ft (3.466 m), discharge, 4,600 ft³/s (130 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft³/s (34.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	1915	*2,510	71.1	*8.86	2.701
Mar. 25	0730	1,870	53.0	7.86	2.396
May 23	1430	1,750	49.6	7.71	2.350
May 27	1900	1,650	46.7	7.53	2.295
June 7	2000	1,690	47.9	7.61	2.320
June 25	0430	1,510	42.8	7.30	2.225
July 16	1300	1,800	51.0	7.79	2.374

Minimum daily discharge, 21 ft³/s (0.59 m³/s) Jan. 23-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	93	60	43	24	44	887	172	415	155	88	468
2	82	91	83	41	26	44	607	162	371	143	84	753
3	80	89	95	39	26	44	602	154	312	136	82	451
4	83	88	82	37	27	44	827	149	280	125	86	292
5	87	91	64	37	27	44	513	165	255	116	132	230
6	87	96	92	37	28	44	339	265	555	109	140	220
7	84	96	96	37	30	43	306	783	1420	124	117	226
8	84	94	86	37	32	42	289	739	870	108	100	199
9	83	93	65	37	32	42	263	472	851	103	90	180
10	83	92	45	36	34	42	242	348	348	103	82	165
11	83	91	70	34	36	43	230	305	298	101	78	156
12	81	90	84	32	35	44	256	275	268	93	74	143
13	80	89	93	31	34	59	313	398	240	94	71	204
14	84	89	59	29	34	130	333	499	223	109	70	490
15	84	93	39	28	33	250	338	544	435	118	69	388
16	84	97	43	27	33	779	596	698	398	1450	67	312
17	92	96	52	26	33	1340	1040	743	318	554	65	271
18	115	94	43	26	33	1690	1030	596	281	363	63	238
19	120	96	38	24	34	2320	807	568	252	268	62	211
20	104	93	36	24	35	2390	774	478	228	236	60	187
21	98	72	38	24	36	2310	580	457	207	199	57	168
22	95	72	40	22	38	1730	440	1370	188	187	63	154
23	92	93	39	21	40	1390	367	1710	172	159	66	143
24	97	92	39	21	40	1460	319	1270	204	139	65	131
25	102	104	38	21	42	1800	286	738	872	124	78	123
26	100	97	38	21	43	1460	258	560	397	113	98	116
27	97	96	39	23	44	886	233	1110	257	107	84	111
28	95	94	39	24	44	645	212	1100	219	99	69	107
29	94	86	38	24	---	656	196	702	193	97	76	106
30	93	75	42	24	---	878	183	624	171	102	620	150
31	94	---	43	24	---	1090	---	482	---	93	698	---
TOTAL	2822	2732	1758	911	953	23783	13666	18636	11498	6027	3654	7093
MEAN	91.0	91.1	56.7	29.4	34.0	767	456	601	383	194	118	236
MAX	120	104	96	43	44	2390	1040	1710	1420	1450	698	753
MIN	80	72	36	21	24	42	183	149	171	93	57	106
CFSM	.30	.30	.19	.10	.11	2.51	1.49	1.96	1.25	.63	.39	.77
IN.	.34	.33	.21	.11	.12	2.89	1.66	2.27	1.40	.73	.44	.86
AC-FT	5600	5420	3490	1810	1890	47170	27110	36960	22810	11950	7250	14070

CAL YR 1981	TOTAL	63992	MEAN 175	MAX 2050	MIN 30	CFSM .57	IN 7.78	AC-FT 126900				
WTR YR 1982	TOTAL	93533	MEAN 256	MAX 2390	MIN 21	CFSM .84	IN 11.37	AC-FT 185500				

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 (91 m) downstream from bridge on county highway at Janesville, 3.6 mi (5.8 km) upstream from West Fork Cedar River, and at mile 207.7 (334.2 km) upstream from mouth of Iowa River.

DRAINAGE AREA.--1,661 mi² (4,302 km²).

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 (264.646 m) NGVD. Prior to July 26, 1919, nonrecording gage at site 1,000 ft (305 m) downstream at datum 4.0 ft (1.2 m) 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 (91 m) upstream at same datum.

REMARKS.--Records good except those for winter period, which are poor. Diurnal fluctuation during low water caused by powerplant at Waverly, 10 mi (16.1 km) upstream. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--62 years (water years 1905-06,1915-27,1933-42,1946-82), 817 ft³/s (23.14 m³/s), 6.68 in/yr (170 mm/yr), 591,900 acre-ft/yr (730 hm³/yr); median of yearly mean discharges, 730 ft³/s (20.7 m³/s), 6.0 in/yr (152 mm/yr), 529,000 acre-ft/yr (652 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,000 ft³/s (1,050 m³/s) Mar. 28, 1961, gage height, 16.33 ft (4.977 m); minimum daily, 28 ft³/s (0.79 m³/s) Oct. 21, 1922.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 17, 1945, reached a stage of 16.2 ft (4.94 m), from floodmark at site 300 ft (91 m) upstream, discharge, 34,300 ft³/s (971 m³/s). Flood of Mar. 16, 1929, reached a stage of about 16 ft (5 m), from information by City of Waterloo, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	0400	*9,640	273	*8.69	2.649	May 25	0230	6,800	193	6.94	2.115
Mar. 26	1845	6,790	192	6.85	2.088	May 29	0100	5,290	150	5.68	1.731
Apr. 1	2200	4,360	123	4.85	1.478	June 9	0015	5,020	142	5.45	1.661
Apr. 19	2345	5,660	160	5.94	1.811	July 17	2215	4,840	137	5.30	1.615
May 8	1815	5,940	168	6.23	1.899						

Minimum daily discharge, 175 ft³/s (4.96 m³/s) Jan. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	684	666	598	265	240	780	4230	1300	3140	1260	674	1770
2	654	652	577	262	250	680	4300	1280	2750	1190	649	1610
3	610	641	555	262	260	580	3840	1230	2620	1180	624	1970
4	623	660	577	260	270	510	3460	1200	2450	1040	615	1850
5	627	699	574	264	275	485	3530	1260	2180	990	658	1470
6	618	699	533	260	280	450	3270	1550	2000	1000	772	1230
7	971	664	533	260	290	405	2700	3610	2490	1670	830	1020
8	811	649	576	260	295	440	2250	5700	4310	1200	745	1030
9	702	622	560	240	300	390	2080	5500	4110	1000	666	1010
10	677	604	481	220	307	480	1920	4130	2610	1090	615	840
11	653	583	513	220	307	470	1800	3100	2190	1070	559	736
12	632	559	479	250	310	650	1750	2660	1960	990	551	763
13	616	551	518	235	314	940	1880	2470	1760	923	535	870
14	620	549	539	210	317	1300	1970	2590	1620	880	535	980
15	642	551	412	200	320	1740	2120	2890	1880	870	486	1610
16	633	554	325	190	330	2650	2510	3180	2120	1150	500	2420
17	669	547	320	175	350	3950	3510	3190	2050	3850	493	2540
18	779	538	330	180	390	4900	4420	3410	1840	3710	479	2040
19	828	537	360	190	440	6160	5300	3430	1700	2430	465	1660
20	833	548	370	210	490	8850	5460	3630	1580	1890	451	1420
21	909	526	355	208	540	9500	4470	3760	1480	1580	437	1280
22	788	483	370	200	580	8800	3480	4580	1390	1390	458	1130
23	853	538	360	202	950	7930	3150	5350	1290	1240	486	989
24	804	561	345	205	980	6830	2550	6240	1210	1120	465	948
25	716	570	330	200	990	6250	2290	6440	1440	1010	500	875
26	663	609	320	197	940	6640	2080	4850	2930	934	514	821
27	604	618	315	200	900	6500	1880	3970	2280	901	632	775
28	608	600	315	210	850	5100	1710	4710	1710	850	575	735
29	638	576	314	220	---	3990	1580	4970	1480	790	551	710
30	642	582	293	230	---	3560	1470	4050	1360	754	632	707
31	658	---	300	240	---	3770	---	3710	---	718	1380	---
TOTAL	21765	17736	13347	6925	13065	105680	86960	109940	63930	40670	18532	37809
MEAN	702	591	431	223	467	3409	2899	3546	2131	1312	598	1260
MAX	971	699	598	265	990	9500	5460	6440	4310	3850	1380	2540
MIN	604	483	293	175	240	390	1470	1200	1210	718	437	707
CFSM	.42	.36	.26	.13	.28	2.05	1.75	2.14	1.28	.79	.36	.76
IN.	.49	.40	.30	.16	.29	2.37	1.95	2.46	1.43	.91	.42	.85
AC-FT	43170	35180	26470	13740	25910	209600	172500	218100	126800	80670	36760	74990

CAL YR 1981 TOTAL 391634 MEAN 1073 MAX 6540 MIN 180 CFSM .65 IN 8.77 AC-FT 776800
WTR YR 1982 TOTAL 536359 MEAN 1469 MAX 9500 MIN 175 CFSM .88 IN 12.01 AC-FT 1064000

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 (30 m) downstream from bridge on county highway C55 at Finchford, 3.2 mi (5.1 km) upstream from Shell Rock River, and 5.0 mi (8.0 km) upstream from mouth.

DRAINAGE AREA.--846 mi² (2,191 km²).

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 (264.426 m) NGVD. Prior to June 10, 1955, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. An authorized diversion is made into Big Marsh, 16 mi (25.7 km) 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. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--37 years, 471 ft³/s (13.34 m³/s), 7.56 in/yr (192 mm/yr), 341,200 acre-ft/yr (421 hm³/yr); median of yearly mean discharges, 430 ft³/s (12.2 m³/s), 6.9 in/yr (175 mm/yr), 312,000 acre-ft/yr (385 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 ft³/s (903 m³/s) June 27, 1951, gage height, 17.28 ft (5.267 m), from floodmarks; minimum daily, 5.9 ft³/s (0.17 m³/s) Feb. 26, 27, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1929 reached a stage of about 14 ft (4 m), from information by local resident, discharge, about 12,800 ft³/s (362 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	----	*8,310	235	*13.56	4.133	May 30	1930	4,510	128	11.92	3.633
Apr. 19	1345	3,220	91.2	10.99	3.350						

Minimum daily discharge, 64 ft³/s (1.81 m³/s) Jan. 14-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	324	253	365	126	79	388	1290	750	3620	606	431	251
2	297	249	358	118	81	410	1170	713	2950	579	399	267
3	273	246	346	108	81	420	1090	683	2310	570	372	223
4	265	259	326	102	81	410	1090	663	1890	542	355	171
5	274	270	306	99	82	360	984	688	1630	518	381	142
6	290	267	277	97	82	320	910	797	1470	541	456	131
7	292	261	300	93	82	295	836	1080	1420	1230	412	124
8	283	255	305	88	83	275	829	1340	1450	1050	376	118
9	275	246	282	83	83	250	773	1500	1570	850	344	113
10	271	235	247	79	85	230	720	1590	1570	1310	306	110
11	263	227	228	74	87	300	720	1410	1370	1880	285	103
12	255	224	270	68	87	460	840	1240	1210	2270	268	100
13	246	221	290	66	88	700	1090	1370	1090	2050	252	116
14	252	215	246	64	88	1500	1220	1520	991	1550	238	235
15	265	214	200	64	88	2780	1200	1450	1090	1250	226	259
16	273	213	120	64	88	3420	1430	1410	1190	1160	214	217
17	287	208	160	65	88	4140	1930	1660	1160	1360	206	192
18	301	202	170	66	89	4910	2520	2270	1040	1460	197	177
19	339	203	180	66	90	6080	3190	2720	947	1710	203	166
20	380	214	186	66	93	7860	2860	2720	859	2040	188	153
21	373	209	190	66	95	6420	2300	2650	779	1670	172	141
22	358	192	190	70	97	5370	1920	3020	717	1260	158	133
23	328	199	190	71	100	4560	1630	3210	669	1070	140	127
24	312	223	188	73	104	3790	1430	3340	632	925	130	124
25	303	259	186	76	122	2980	1270	3500	680	817	118	118
26	299	263	180	76	200	2530	1150	3400	746	727	108	113
27	290	270	176	77	260	2090	1030	2980	804	673	93	110
28	281	276	170	76	310	1690	930	2900	752	621	85	106
29	272	271	166	76	---	1460	852	3800	698	574	90	104
30	256	265	150	77	---	1380	797	4490	651	534	115	102
31	252	---	140	78	---	1360	---	4270	---	481	174	---
TOTAL	9029	7109	7088	2472	2993	69138	40001	65134	37955	33878	7492	4546
MEAN	291	237	229	79.7	107	2230	1333	2101	1265	1093	242	152
MAX	380	276	365	126	310	7860	3190	4490	3620	2270	456	267
MIN	246	192	120	64	79	230	720	663	632	481	85	100
CFSM	.34	.28	.27	.09	.13	2.64	1.58	2.48	1.50	1.29	.29	.18
IN.	.40	.31	.31	.11	.13	3.04	1.76	2.86	1.67	1.49	.33	.20
AC-FT	17910	14100	14060	4900	5940	137100	79340	129200	75280	67200	14860	9020

CAL YR 1981 TOTAL 168107 MEAN 461 MAX 3280 MIN 90 CFSM .55 IN 7.39 AC-FT 333400
WTR YR 1982 TOTAL 286835 MEAN 786 MAX 7860 MIN 64 CFSM .93 IN 12.61 AC-FT 568900

IOWA RIVER BASIN

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 (15 m) downstream from bridge on county highway A27, 1.3 mi (2.1 km) downstream from Drainage ditch 2, 2.0 mi (3.2 km) south of Northwood, 3.7 mi (6.0 km) upstream from Elk Creek, and 84.5 mi (136.0 km) upstream from mouth.

DRAINAGE AREA.--300 mi² (777 km²).

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

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

GAGE.--Water-stage recorder. Datum of gage is 1,176.48 ft (358.591 m) NGVD. Prior to May 17, 1956, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--37 years, 148 ft³/s (4.191 m³/s), 6.70 in/yr (170 mm/yr), 107,200 acre-ft/yr (132 hm³/yr); median of yearly mean discharges, 140 ft³/s (3.96 m³/s), 6.3 in/yr (160 mm/yr), 101,000 acre-ft/yr (125 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,400 ft³/s (96.3 m³/s) Apr. 8, 1965, gage height, 12.07 ft (3.679 m), backwater from ice; no flow Jan. 14-19, 26-30, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
a	----	*1,600	35.7	a*9.60	2.926	May 7	0345	986	27.9	7.41	2.259
Apr. 17	2000	742	21.0	6.77	2.063	May 22	2345	1,040	29.5	7.54	2.298

a "Floodmark sometime during period Mar. 16-25, backwater from ice jam."

Minimum daily discharge, 32 ft³/s (0.91 m³/s) Jan. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	121	86	58	41	53	699	233	600	166	59	282
2	102	117	86	57	41	52	644	219	558	156	55	304
3	85	112	86	57	41	52	644	207	520	150	55	241
4	105	111	84	55	41	52	601	199	484	143	270	195
5	110	111	84	53	41	52	556	638	445	132	307	178
6	114	120	96	50	41	50	521	907	426	125	207	183
7	118	109	108	48	41	50	483	977	432	125	158	173
8	106	101	107	47	41	49	443	920	417	118	132	158
9	100	108	100	45	40	50	415	833	406	112	120	146
10	101	96	80	42	40	58	391	737	396	181	105	135
11	101	92	90	38	40	69	374	649	378	190	89	127
12	96	90	98	36	39	82	387	630	347	159	80	137
13	92	87	92	36	40	105	395	702	322	138	73	536
14	101	85	80	36	40	118	384	741	300	129	70	666
15	114	85	68	35	41	260	371	774	334	131	67	604
16	113	87	58	33	43	350	396	773	335	141	64	544
17	121	88	58	32	45	540	673	774	311	130	62	493
18	164	85	64	33	47	700	712	928	303	135	59	455
19	186	87	74	33	48	1000	634	992	290	126	57	413
20	148	85	82	35	50	1250	574	963	279	119	55	371
21	139	80	82	36	52	1400	527	903	265	121	52	329
22	135	80	83	38	56	1450	482	990	245	119	53	291
23	136	88	78	40	58	1470	431	1030	224	110	53	261
24	131	98	75	38	58	1500	393	984	213	100	68	242
25	129	105	73	36	56	1370	358	915	274	92	110	230
26	133	109	72	37	56	1220	335	863	250	87	93	208
27	133	97	72	38	55	1050	311	850	222	85	84	189
28	131	102	70	40	54	972	285	791	207	80	83	178
29	127	97	68	41	---	858	260	724	190	74	103	174
30	120	94	64	41	---	806	238	663	180	71	250	311
31	118	---	60	41	---	767	---	622	---	66	213	---
TOTAL	3701	2927	2478	1285	1286	17855	13917	23131	10153	3811	3306	8754
MEAN	119	97.6	79.9	41.5	45.9	576	464	746	338	123	107	292
MAX	186	121	108	58	58	1500	712	1030	600	190	307	666
MIN	85	80	58	32	39	49	238	199	180	66	52	127
CFSM	.40	.33	.27	.14	.15	1.92	1.55	2.49	1.13	.41	.36	.97
IN.	.46	.36	.31	.16	.16	2.21	1.73	2.87	1.26	.47	.41	1.09
AC-FT	7340	5810	4920	2550	2550	35420	27600	45880	20140	7560	6560	17360

CAL YR 1981	TOTAL	72003	MEAN 197	MAX 1180	MIN 37	CFSM .66	IN 8.93	AC-FT 142800		
WTR YR 1982	TOTAL	92604	MEAN 254	MAX 1500	MIN 32	CFSM .85	IN 11.48	AC--FT 183700		

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 (198 m) upstream from Thirteenth Street Bridge in Mason City, 0.1 mi (0.2 km) downstream from Calmus Creek, and 1.0 mi (1.6 km) upstream from Willow Creek, and at mile 275.8 above mouth of Iowa River.

DRAINAGE AREA.--526 mi² (1,362 km²).

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 (326.011 m) NGVD. Prior to Oct. 15, 1934, nonrecording gage at datum 6.47 ft (1.97 m) lower. Oct. 15 to Nov. 6, 1934, nonrecording gage at different datum, and Nov. 7, 1934, to Mar. 22, 1935, nonrecording gage at present datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--50 years, 248 ft³/s (7.023 m³/s), 6.40 in/yr (163 mm/yr), 179,700 acre-ft/yr (222 hm³/yr); median of yearly mean discharges, 210 ft³/s (5.95 m³/s), 5.4 in/yr (137 mm/yr), 152,000 acre-ft/yr (187 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s (306 m³/s) Mar. 30, 1933, gage height, 15.7 ft (4.79 m), present datum; minimum daily, 2.5 ft³/s (0.071 m³/s) Dec. 29-31, 1933, Aug. 5, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (56.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 16	2200	3,020	85.5	8.11	2.472	June 7	0445	*3,940	112	*9.16	2.792
Mar. 20	1530	3,070	86.9	8.15	2.484						

Minimum daily discharge, 29 ft³/s (0.82 m³/s) Feb. 10-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	187	240	164	96	39	330	643	310	785	430	137	497
2	180	232	164	96	38	340	608	295	721	401	130	436
3	177	234	148	76	38	320	608	283	679	382	120	377
4	221	236	164	90	37	285	545	276	638	346	153	331
5	272	232	180	90	34	260	474	342	598	320	178	310
6	268	227	194	93	33	235	424	574	1100	308	222	294
7	261	218	211	93	33	210	502	807	3200	316	235	270
8	250	211	190	92	32	190	540	807	1860	282	219	247
9	239	201	149	87	31	178	525	780	1490	277	188	228
10	232	192	140	78	29	168	469	780	1230	455	160	210
11	219	194	149	78	29	210	432	748	1020	493	143	197
12	207	185	184	88	29	315	478	726	885	472	128	201
13	209	181	180	78	29	460	521	830	770	447	120	444
14	218	178	134	70	29	1240	526	1010	700	388	116	534
15	231	174	90	76	29	1500	540	1160	1100	416	108	553
16	247	176	96	63	29	2010	574	1260	1010	487	105	530
17	275	173	114	56	30	2040	574	1260	902	427	100	495
18	330	166	128	56	30	1470	574	1390	812	415	95	470
19	355	170	125	62	30	1550	579	1260	747	405	90	446
20	367	174	120	65	31	2250	579	1120	696	327	85	416
21	354	149	122	63	31	2050	579	997	644	308	80	381
22	332	152	131	56	39	1640	579	1240	590	293	86	345
23	305	180	122	54	49	1400	579	1240	546	263	81	316
24	289	194	120	52	105	1370	564	1060	528	241	112	288
25	278	180	117	48	195	1210	521	950	627	221	120	261
26	274	190	117	44	230	1010	464	961	630	205	113	238
27	276	211	117	42	260	892	415	1210	589	202	119	222
28	273	214	109	42	305	813	376	1180	541	193	107	210
29	268	211	111	42	---	780	351	1050	507	172	172	220
30	263	200	106	42	---	796	334	944	466	158	409	517
31	255	---	101	40	---	732	---	863	---	146	371	---
TOTAL	8112	5875	4297	2108	1853	28254	15477	27713	26611	10196	4602	10484
MEAN	262	196	139	68.0	66.2	911	516	894	887	329	148	349
MAX	367	240	211	96	305	2250	643	1390	3200	493	409	553
MIN	177	149	90	40	29	168	334	276	466	146	80	197
CFSM	.50	.37	.26	.13	.13	1.73	.98	1.70	1.69	.63	.28	.66
IN.	.57	.42	.30	.15	.13	2.00	1.09	1.96	1.88	.72	.33	.74
AC-FT	16090	11650	8520	4180	3680	56040	30700	54970	52780	20220	9130	20800

CAL YR 1981 TOTAL 145039 MEAN 397 MAX 4500 MIN 58 CFSM .76 IN 10.26 AC-FT 287700
WTR YR 1982 TOTAL 145582 MEAN 399 MAX 3200 MIN 29 CFSM .76 IN 10.30 AC-FT 288800

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 (58.5 km²).

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 (372.539 m) NGVD, and 4.60 ft (1.402 m) 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 (15 m) long at elevation 1,226.84 ft (373.941 m) 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 (1,460 hm²).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 5.94 ft (1.811 m) July 3, 1951; minimum observed, 1.16 ft (0.354 m) Dec. 20, 22-24, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.22 ft (1.591 m) June 9; minimum, 4.18 ft (1.274 m) Aug. 28.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.65	4.58	4.64	---	---	4.79	4.97	4.83	5.11	4.74	4.52	4.41
2	4.60	4.57	4.64	---	---	4.79	4.98	4.83	5.05	4.72	4.49	4.41
3	4.58	4.58	4.64	---	---	4.79	5.11	4.83	5.03	4.73	4.50	4.38
4	4.65	4.59	4.64	---	---	4.81	4.93	4.84	5.01	4.71	4.53	4.36
5	4.64	4.63	4.64	---	---	4.81	4.90	4.86	4.99	4.71	4.52	4.37
6	4.66	4.61	4.64	---	---	4.81	4.94	4.93	5.07	4.72	4.50	4.36
7	4.63	4.60	4.64	---	---	4.81	4.91	4.94	5.19	4.73	4.50	4.35
8	4.62	4.58	4.64	4.68	4.75	4.81	4.90	4.91	5.14	4.68	4.49	4.35
9	4.61	4.57	4.64	---	---	4.81	4.93	4.92	5.16	4.70	4.45	4.35
10	4.61	4.60	4.64	---	---	4.80	4.95	4.93	5.12	4.74	4.41	4.37
11	4.60	4.57	4.63	---	---	4.81	4.90	4.89	5.10	4.74	4.39	4.36
12	4.59	4.58	4.63	---	---	4.83	4.89	4.92	5.09	4.71	4.36	4.38
13	4.61	4.58	4.63	---	---	4.83	4.89	4.94	5.06	4.70	4.35	4.44
14	4.63	4.58	4.65	---	---	---	4.89	4.97	5.06	4.69	4.34	4.42
15	4.64	4.58	4.65	---	---	---	4.91	4.97	5.06	4.69	4.33	4.42
16	4.63	4.58	4.65	---	4.75	---	4.96	5.00	5.05	4.71	4.33	4.40
17	4.67	4.57	4.65	---	4.75	---	5.01	5.02	5.04	4.71	4.33	4.40
18	4.72	4.54	4.65	---	4.75	---	5.00	5.05	5.01	4.68	4.33	4.39
19	4.65	4.54	4.65	---	4.75	---	4.98	5.08	5.00	4.66	4.34	4.39
20	4.64	4.58	4.65	---	4.75	---	4.98	5.05	4.98	4.65	4.29	4.35
21	4.62	4.57	4.65	---	4.77	---	4.97	5.04	4.92	4.66	4.28	4.34
22	4.64	4.55	4.65	---	4.78	5.05	4.95	5.11	4.89	4.65	4.27	4.34
23	4.60	4.58	4.65	---	4.78	5.06	4.96	5.12	4.87	4.63	4.24	4.34
24	4.61	4.59	4.65	---	4.79	5.06	4.94	5.12	4.86	4.63	4.24	4.32
25	4.60	4.57	4.65	---	4.77	5.05	4.93	5.10	4.84	4.62	4.27	4.29
26	4.59	4.61	4.65	---	4.77	5.04	4.89	5.12	4.80	4.60	4.26	4.28
27	4.59	4.61	---	---	4.77	5.03	4.87	5.19	4.81	4.60	4.20	4.27
28	4.58	4.58	---	---	4.78	5.03	4.85	5.17	4.80	4.59	4.18	4.26
29	4.58	4.58	---	---	---	5.02	4.84	5.16	4.78	4.58	4.24	4.31
30	4.59	4.56	---	---	---	5.05	4.84	5.15	4.75	4.55	4.34	4.37
31	4.60	---	4.66	---	---	5.05	---	5.14	---	4.54	4.36	---
MEAN	4.62	4.58	---	---	---	---	4.93	5.00	4.99	4.67	4.36	4.36
MAX	4.72	4.63	---	---	---	---	5.11	5.19	5.19	4.74	4.53	4.44
MIN	4.58	4.54	---	---	---	---	4.84	4.83	4.75	4.54	4.18	4.26

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 (122 m) upstream from bridge on county highway C45 in Shell Rock, 2.2 mi (3.5 km) downstream from Curry Creek, and 10.4 mi (16.7 km) upstream from mouth.

DRAINAGE AREA.--1,746 mi² (4,522 km²).

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 (269.852 m) NGVD.

REMARKS.--Records good. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--29 years, 917 ft³/s (25.97 m³/s), 7.13 in/yr (181 mm/yr), 664,400 acre-ft/yr (819 hm/yr); median of yearly mean discharges, 800 ft³/s (22.7 m³/s), 6.2 in/yr (157 mm/yr), 580,000 acre-ft/yr (715 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,500 ft³/s (949 m³/s) Mar. 28, 1961, gage height, 16.26 ft (4.956 m); minimum daily, 38 ft³/s (1.08 m³/s) Feb. 9, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1856 reached a stage of 17.7 ft (5,39 m) at bridge 400 ft (122 m) downstream, from information furnished by Corps of Engineers, discharge, about 45,000 ft³/s (1,270 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 18	0345	*9,020	255	*11.92	3.633	May 23	1400	5,100	144	10.36	3.158
Mar. 25	0730	5,900	167	10.75	3.277	May 28	1315	6,190	175	10.84	3.304
Apr. 18	0900	4,180	118	9.96	3.036	June 8	1130	7,440	2111	11.34	3.456

Minimum daily discharge, 185 ft³/s (5.24 m³/s) Jan. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	654	712	624	336	222	647	2930	1380	3390	1430	648	1110
2	609	681	577	332	227	693	2620	1310	3020	1340	618	1250
3	598	650	530	325	236	726	2720	1260	2760	1280	589	1210
4	615	658	545	319	243	668	2660	1210	2560	1210	585	1050
5	670	673	560	319	240	764	2360	1270	2380	1150	649	931
6	757	650	555	315	244	647	2070	1840	2260	1160	954	857
7	752	635	624	308	249	607	1960	2760	4540	1270	914	813
8	746	628	664	307	251	583	1950	3200	7000	1150	834	774
9	726	592	612	282	256	502	1890	3100	5310	1050	741	730
10	692	578	501	253	255	533	1800	2850	3920	1130	674	681
11	665	571	540	256	252	550	1710	2660	3250	1340	624	644
12	642	550	660	292	253	564	1700	2500	2850	1420	579	607
13	621	530	660	257	254	937	1880	2590	2540	1350	547	682
14	631	517	560	229	259	1870	1960	2710	2280	1240	526	1260
15	653	511	390	219	264	3380	1930	2890	2300	1140	513	1610
16	664	511	350	206	268	5270	2590	3130	2710	2080	500	1610
17	713	498	340	185	273	7530	3640	3370	2560	2260	486	1510
18	784	493	370	186	280	8320	4090	3420	2350	2060	473	1370
19	856	504	400	202	288	6600	3640	3670	2180	1780	460	1300
20	946	511	420	217	295	7710	3360	3590	2030	1520	449	1220
21	943	498	410	214	305	7380	3070	3410	1900	1310	433	1120
22	892	449	430	202	315	6250	2720	3860	1780	1190	444	1040
23	849	437	425	205	331	5090	2470	4960	1660	1110	449	953
24	801	530	415	205	339	5150	2270	4690	1560	1020	435	873
25	798	530	400	197	347	5810	2090	4050	1770	949	436	809
26	768	578	395	192	400	4930	1930	3680	2340	878	480	766
27	752	578	390	191	511	3980	1760	4190	2060	840	496	727
28	744	600	395	202	592	3480	1640	5920	1820	820	468	675
29	736	612	404	207	---	3200	1540	5030	1670	766	483	649
30	728	606	377	216	---	3120	1460	4540	1550	727	611	673
31	728	---	381	226	---	3220	---	4070	---	685	1040	---
TOTAL	22733	17071	14904	7602	8249	100731	70410	99110	80300	38655	18138	29504
MEAN	733	569	481	245	295	3249	2347	3197	2677	1247	585	983
MAX	946	712	664	336	592	8320	4090	5920	7000	2260	1040	1610
MIN	598	437	340	185	222	502	1460	1210	1550	685	433	607
CFSM	.42	.33	.28	.14	.17	1.86	1.34	1.83	1.53	.71	.34	.56
IN.	.48	.36	.32	.16	.18	2.15	1.50	2.11	1.71	.82	.39	.63
AC-FT	45090	33860	29560	15080	16360	199800	139700	196600	159300	76670	35980	58520

CAL YR 1981 TOTAL 433390 MEAN 1187 MAX 8700 MIN 158 CFSM .68 IN 9.23 AC-FT 859600
WTR YR 1982 TOTAL 507407 MEAN 1390 MAX 8320 MIN 185 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 (0.3 km) north of New Hartford, and 8 mi (12.9 km) upstream from mouth.

DRAINAGE AREA.--347 mi² (899 km²).

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 (268.968 m) NGVD. Prior to July 14, 1959, nonrecording gage at same site and datum.

REMARKS.--Records good except those May, August, September, which are fair, and those for for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage- height telemeter at station.

AVERAGE DISCHARGE.--37 years, 189 ft³/s (5.352 m³/s), 7.40 in/yr (188 mm/yr), 136,900 acre-ft/yr (169 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft³/s (510 m³/s) June 13, 1947, gage height, 13.5 ft (4.11 m), from graph based on gage readings, from rating curve extended above 14,000 ft³/s (396 m³/s); minimum daily, 2.3 ft³/s (0.065 m³/s) Jan. 20-24, 1956, Jan. 24, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,400 ft³/s (39.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 15	----	3,310	93.7	ice jam		July 8	0900	2,190	62.0	8.82	2.688
Mar. 17	1300	3,120	88.4	9.53	2.905	July 11	1415	2,340	66.3	8.98	2.737
Mar. 20	1630	*4,270	121	*10.19	3.106	July 19	2145	2,120	60.0	8.82	2.688
a	----	unknown	----	unknown	----						

a Sometime during period May 21-25.

Minimum daily discharge, 15 ft³/s (0.42 m³/s) Feb. 4-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	58	130	45	17	490	334	215	555	207	196	184
2	50	56	120	42	17	470	310	207	494	202	186	181
3	48	55	98	40	16	360	312	200	450	207	176	144
4	55	58	87	39	15	280	261	203	415	194	174	135
5	60	68	78	36	15	230	272	240	383	203	188	126
6	54	84	89	36	15	200	202	400	358	246	185	126
7	52	86	93	35	15	175	263	700	361	1260	178	120
8	51	82	81	34	15	160	235	560	346	1900	169	114
9	49	77	75	32	15	140	224	440	331	722	159	108
10	49	74	69	31	15	145	214	346	322	1260	150	104
11	48	73	69	29	15	220	221	312	303	2240	140	100
12	47	71	90	25	15	560	303	310	289	1590	133	97
13	47	68	76	21	15	1070	476	460	280	905	126	103
14	50	65	65	20	16	1950	475	460	268	632	120	134
15	53	64	56	19	17	2800	410	400	478	517	114	142
16	57	63	47	18	17	2150	643	400	647	561	119	132
17	61	61	40	17	18	2880	1130	440	532	1030	104	130
18	75	60	44	17	20	1360	919	480	447	941	99	123
19	79	61	49	17	24	1250	653	435	390	1860	96	117
20	74	63	52	18	28	3590	562	400	350	1430	92	112
21	71	53	56	18	31	2070	473	850	315	721	88	107
22	67	63	56	18	36	834	411	1800	289	563	92	103
23	64	76	57	20	55	652	370	1400	267	464	89	99
24	63	73	56	20	380	729	335	900	250	400	86	96
25	64	75	55	19	730	674	309	740	281	349	84	92
26	63	83	55	19	610	528	284	680	279	308	81	92
27	61	91	54	20	590	445	260	918	261	276	80	89
28	59	90	52	19	515	393	244	1260	247	258	78	86
29	56	86	48	19	---	365	234	958	234	239	85	83
30	55	88	50	19	---	372	224	737	221	222	133	82
31	56	---	50	18	---	384	---	625	---	207	147	---
TOTAL	1790	2125	2097	780	3287	27926	11563	18476	10643	22114	3947	3461
MEAN	57.7	70.8	67.6	25.2	117	901	385	596	355	713	127	115
MAX	79	91	130	45	730	3590	1130	1800	647	2240	196	184
MIN	47	53	40	17	15	140	202	200	221	194	78	82
CFSM	.17	.20	.20	.07	.34	2.60	1.11	1.72	1.02	2.06	.37	.33
IN.	.19	.23	.22	.08	.35	2.99	1.24	1.98	1.14	2.37	.42	.37
AC-FT	3550	4210	4160	1550	6520	55390	22940	36650	21110	43860	7830	6860

CAL YR 1981 TOTAL 35714 MEAN 97.8 MAX 1510 MIN 15 CFSM .28 IN 3.83 AC-FT 70840
WTR YR 1982 TOTAL 108209 MEAN 296 MAX 3590 MIN 15 CFSM .85 IN 11.60 AC-FT 214600

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 (11 m) downstream from bridge on State Highway 58, 0.2 mi (0.3 km) northwest of Chicago and Great Western Railway tracks at the west edge of Hudson, 4.5 mi (7.2 km) upstream from Prescotts Creek, and 9.6 mi (15.4 km) upstream from mouth.

DRAINAGE AREA.--303 mi² (785 km²).

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 (263.661 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--30 years, 161 ft³/s (4.560 m³/s), 7.22 in/yr (183 mm/yr), 116,600 acre-ft/yr (144 hm³/yr); median of yearly mean discharges, 150 ft³/s (4.25 m³/s), 6.7 in/yr (170 mm/yr), 109,000 acre-ft/yr (134 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,300 ft³/s (547 m³/s) July 9, 1969, gage height, 18.23 ft (5.557 m); minimum daily, 0.12 ft³/s (0.003 m³/s) Jan. 26, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,200 ft³/s (34.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 17	1215	2940	83.3	14.89	3.538	May 22	1715	2,780	78.7	14.71	4.484
Mar. 20	1215	*3600	102	*15.32	4.670	June 16	1230	1,720	48.7	12.90	3.932

Minimum daily discharge, 5.4 ft³/s (0.15 m³/s) Feb. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	31	56	24	6.5	280	172	131	415	197	104	120
2	19	32	54	22	6.2	260	164	125	382	195	96	79
3	18	30	46	21	6.0	210	194	120	357	221	89	60
4	21	41	40	19	5.6	170	159	121	335	190	88	52
5	23	71	44	18	5.5	150	165	186	315	324	91	49
6	21	72	47	16	5.7	125	129	370	486	264	89	50
7	19	67	49	15	5.4	98	161	781	636	671	86	48
8	18	61	45	14	5.5	78	139	576	397	487	81	47
9	18	52	40	13	5.5	66	137	451	402	334	74	47
10	19	48	36	12	5.6	75	132	373	362	411	69	45
11	18	46	41	11	5.7	180	137	319	321	415	66	43
12	18	44	45	9.8	5.8	580	217	402	306	403	62	41
13	19	41	44	9.0	6.0	1000	457	498	343	437	60	54
14	24	40	38	8.4	5.8	1180	423	454	268	298	59	62
15	28	41	34	7.6	6.0	1020	351	393	931	248	57	52
16	36	40	31	7.4	6.0	1510	425	545	1510	226	58	48
17	37	38	28	7.0	6.0	2730	644	439	711	240	54	48
18	65	36	28	7.2	7.4	822	562	462	561	576	51	48
19	55	37	32	7.4	9.2	1130	442	378	480	1070	49	45
20	46	36	36	7.6	13	3530	372	384	425	564	45	42
21	40	30	39	7.8	103	1340	311	1170	377	402	42	39
22	36	30	39	8.0	285	467	272	2500	344	325	44	38
23	33	34	39	7.9	660	378	244	2090	315	269	42	37
24	31	39	38	8.0	720	528	223	1000	290	229	40	36
25	32	41	36	7.8	480	444	203	730	273	199	40	35
26	32	45	35	7.9	330	322	186	652	268	175	39	33
27	30	45	35	8.2	270	258	165	679	254	159	38	33
28	29	41	32	7.7	260	222	153	590	240	147	35	33
29	28	38	29	7.4	---	204	147	538	226	132	40	32
30	29	38	27	7.2	---	204	139	498	210	122	70	31
31	28	---	26	6.9	---	203	---	457	---	112	76	---
TOTAL	889	1285	1189	341.2	3236.4	19764	7625	18412	12740	10042	1934	1427
MEAN	28.7	42.8	38.4	11.0	116	638	254	594	425	324	62.4	47.6
MAX	65	72	56	24	720	3530	644	2500	1510	1070	104	120
MIN	18	30	26	6.9	5.4	66	129	120	210	112	35	31
CFSM	.10	.14	.13	.04	.38	2.11	.84	1.96	1.40	1.07	.21	.16
IN.	.11	.16	.15	.04	.40	2.43	.94	2.26	1.56	1.23	.24	.18
AC-FT	1760	2550	2360	677	6420	39200	15120	36520	25270	19920	3840	2830

CAL YR 1981 TOTAL 19680.1 MEAN 53.9 MAX 1370 MIN 8.5 CFSM .18 IN 2.42 AC-FT 39040
WTR YR 1982 TOTAL 78884.6 MEAN 216 MAX 3530 MIN 5.4 CFSM .71 IN 9.68 AC-FT 156500

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 (0.5 km) upstream from Eleventh Avenue bridge in Waterloo, 1.1 mi (1.8 km) downstream from Black Hawk Creek, and at mile 187.9 (302.3 km) above mouth of Iowa River.

DRAINAGE AREA.--5,146 mi² (13,328 km²).

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 (251.198 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Slight diurnal fluctuation during low flow caused by powerplant above station. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--42 years, 2,872 ft³/s (81.34 m³/s), 7.58 in/yr (193 mm/yr), 2,081,000 acre-ft/yr (2,570 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,700 ft³/s (2,170 m³/s) Mar. 29, 1961, gage height, 21.86 ft (6.663 m); minimum daily, 152 ft³/s (4.30 m³/s) Jan. 28, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 16, 1929, reached a stage of about 20 ft (6.1 m), determined by Corps of Engineers, from information by City of Waterloo, discharge, 65,000 ft³/s (1,840 m³/s). Flood of Apr. 2, 1933, reached a stage of about 19.5 ft (5.9 m), from information by City of Waterloo, discharge, 61,000 ft³/s (1,730 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 13,000 ft³/s (368 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	0815	*27,500	779	*13.41	4.087	May 24	1215	15,700	445	9.98	3.042

Minimum daily discharge, 530 ft³/s (15.0 m³/s) Jan. 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2360	2210	1970	960	635	2550	9430	4570	11700	4430	2400	3620
2	2270	2160	1930	940	640	2400	9420	4260	10300	4160	2260	3650
3	2160	2120	1930	920	670	2300	9000	3940	9190	3940	2160	3550
4	2170	2190	1960	910	690	2000	8500	3710	8380	3740	2160	3580
5	2190	2240	1880	900	680	1920	8170	4160	7500	3580	2130	3240
6	2240	2250	1870	890	695	1890	7750	4990	7000	3710	2290	2830
7	2400	2220	1950	880	700	1850	6490	7230	10000	5590	2740	2490
8	2660	2160	2040	870	700	1830	6310	9690	13500	6150	2600	2320
9	2420	2080	1950	800	702	1840	6070	10700	14000	5320	2350	2320
10	2340	1990	1580	725	710	1900	5790	10100	11800	4900	2160	2160
11	2250	1930	1690	720	720	2220	5550	8690	8620	5990	2020	1890
12	2170	1880	1970	820	720	3550	5540	7790	7460	7100	1870	1870
13	2120	1850	2080	730	725	5150	5990	7560	6720	6810	1810	1970
14	2220	1790	2120	650	730	3000	6690	7980	6210	5680	1740	2260
15	2180	1810	1460	620	740	10500	6720	8120	7000	4870	1690	3580
16	2180	1790	952	590	760	12700	7110	8550	7920	4600	1640	4300
17	2370	1740	879	530	770	15600	9160	8990	8080	7100	1590	4780
18	2430	1710	820	530	780	14500	10900	9330	7100	9130	1570	4400
19	2650	1760	960	570	800	15200	12000	9910	6530	8550	1490	3770
20	2790	1730	1150	620	830	23100	12400	10400	6090	8320	1450	3400
21	3020	1690	1100	610	900	26900	11600	11200	5680	7070	1380	3090
22	2730	1590	1150	570	1600	23300	10000	12600	5260	5590	1400	2830
23	2750	1630	1210	580	2430	20800	8920	14700	4990	5020	1380	2430
24	2640	1760	1150	580	3900	17900	7950	15500	4750	4530	1350	2320
25	2530	1830	1110	560	3500	15900	7100	15200	4720	4070	1330	2210
26	2380	1930	1050	545	3350	15200	6430	14200	6120	3520	1330	2070
27	2360	1970	1110	545	2750	14200	6020	12400	6680	3400	1380	1940
28	2190	1970	1140	580	2950	12600	5530	12600	5530	3150	1420	1870
29	2250	1950	1130	585	---	10600	5170	14500	5110	2970	1490	1810
30	2210	1900	1070	620	---	9580	4870	13900	4780	2770	1590	1790
31	2240	---	1080	640	---	9260	---	13000	---	2600	2350	---
TOTAL	73870	57830	45441	21590	35777	302240	232580	300470	228720	158360	56520	84340
MEAN	2383	1928	1466	696	1278	9750	7753	9693	7624	5108	1823	2811
MAX	3020	2250	2120	960	3900	26900	12400	15500	14000	9130	2740	4780
MIN	2120	1590	820	530	635	1830	4870	3710	4720	2600	1330	1790
CFSM	.46	.38	.29	.14	.25	1.90	1.51	1.88	1.48	.99	.35	.55
IN.	.53	.42	.33	.16	.26	2.18	1.68	2.17	1.65	1.14	.41	.61
AC-FT	146500	114700	90130	42820	70960	599500	461300	596000	453700	314100	112100	167300

CAL YR 1981	TOTAL	1227887	MEAN	3364	MAX	15200	MIN	700	CFSM	.65	IN	8.88	AC-FT	2436000
WTR YR 1982	TOTAL	1597738	MEAN	4377	MAX	26900	MIN	530	CFSM	.85	IN	11.55	AC-FT	3169000

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 (122 m) upstream from bridge on Eighth Avenue in Cedar Rapids, 2.7 mi (4.3 km) upstream from Prairie Creek, and at mile 112.7 (181.3 km) upstream from mouth of Iowa River.

DRAINAGE AREA.--6,510 mi² (16,861 km²).

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 (213.503 m) NGVD. Prior to Aug. 20, 1920, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--80 years, 3,339 ft³/s (94.56 m³/s), 6.96 in/yr (177 mm/yr), 2,419,000 acre-ft/yr (2,980 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,000 ft³/s (2,070 m³/s) Mar. 31, 1961, gage height, 19.66 ft (5.992 m); maximum gage height, 20.0 ft (6.10 m) Mar. 18, 1929; minimum discharge, 53 ft³/s (1.50 m³/s) Jan. 6, 1950, caused by construction operations upstream; minimum daily, 212 ft³/s (6.00 m³/s) Dec. 10, 1949.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1851 reached a stage of about 20 ft (6 m), discharge, 65,000 ft³/s (1,840 m³/s), estimated.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 12,000 ft³/s (340 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 15	1900	21,600	612	8.73	2.661	May 26	0930	21,000	595	8.60	2.621
Mar. 23	1330	*32,200	912	*11.21	3.417	June 16	0900	30,100	852	10.67	3.252
Apr. 22	1415	14,300	405	7.14	2.176	July 19	0900	18,400	521	7.96	2.426
May 10	1630	13,500	382	6.88	2.097						

Minimum daily discharge, 808 ft³/s (22.9 m³/s) Dec. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2910	2510	2990	1570	975	5460	11200	5310	17000	5900	3650	2680
2	2700	2540	3340	1480	940	5390	10800	5030	16000	5500	3550	3720
3	2550	2520	3450	1180	995	5230	10800	4770	14700	5230	3350	4060
4	2560	2820	3260	1280	1170	4140	10900	4630	12800	5110	3230	4020
5	2450	3180	3000	1400	1040	3890	10300	6120	11200	4840	3300	4140
6	2390	3550	2870	1300	1150	3830	9550	8360	10100	4750	3270	4310
7	2400	3420	2800	1420	1100	4020	8870	9620	9970	5350	3600	3740
8	2410	3220	2770	1290	1090	3390	8240	10400	9510	7370	3630	3460
9	2590	3020	2900	1410	1310	2700	7360	11500	10200	8080	3560	3210
10	2580	2850	2820	1500	1340	2630	6650	12600	12000	8290	3350	3100
11	2450	2720	2770	1450	1330	2920	6420	13300	13700	7920	3160	3020
12	2350	2480	2460	1400	1190	4710	6480	12600	12800	7080	2990	2820
13	2200	2530	2480	1350	1170	9430	7410	11200	10100	8340	2730	2700
14	2540	2460	2530	1300	1110	10800	7760	9960	8760	8600	2750	2880
15	2900	2450	2430	1300	1040	14600	8110	9790	15600	7400	2680	2960
16	3190	2480	1750	1260	1000	13500	9330	9930	26600	7000	2610	3420
17	2990	2490	1140	1300	1000	16800	10600	10000	18500	6480	2520	4340
18	2960	2400	863	1250	1100	19100	11100	11100	14700	11700	2490	4890
19	3220	2380	808	1210	1160	22100	11900	11500	12300	16000	2420	4950
20	3260	2360	1060	1140	1300	29500	13000	12000	10100	13600	2350	4500
21	3230	2340	1300	1090	2000	31100	13800	13000	8880	12000	2260	4130
22	3230	2270	1750	1060	4600	30500	14200	14200	8040	10500	2390	3690
23	3190	2290	2270	1100	8750	31800	13500	16600	7410	8040	2370	3590
24	3020	2360	2300	1200	8700	29400	11400	19000	6700	6410	2240	3400
25	3000	2500	2190	1130	8550	24900	9770	20200	6610	5980	2170	3080
26	2890	2680	1950	1100	8000	21900	8510	20300	6490	5360	2130	3000
27	2740	2880	1880	1070	7250	19600	7360	19700	6610	4790	2100	2880
28	2630	2960	1830	1010	6090	18200	6740	18800	8380	4550	2080	2750
29	2450	2850	1930	975	---	17000	6170	17000	7500	4370	2190	2640
30	2460	2770	1700	960	---	15200	5610	15900	6450	4190	2270	2550
31	2490	---	1480	955	---	12800	---	16600	---	4000	2490	---
TOTAL	84930	80280	69071	38440	76450	436540	283840	381020	339710	224730	85880	104630
MEAN	2740	2676	2228	1240	2730	14080	9461	12290	11320	7249	2770	3488
MAX	3260	3550	3450	1570	8750	31800	14200	20300	26600	16000	3650	4950
MIN	2200	2270	808	955	940	2630	5610	4630	6450	4000	2080	2550
CFSM	.42	.41	.34	.19	.42	2.16	1.45	1.89	1.74	1.11	.43	.54
IN.	.49	.46	.39	.22	.44	2.49	1.62	2.18	1.94	1.28	.49	.60
AC-FT	168500	159200	137000	76250	151600	865900	563000	755800	673800	445800	170300	207500

CAL YR 1981 TOTAL 1315011 MEAN 3603 MAX 14900 MIN 760 CFSM .55 IN 7.51 AC-FT 2608000
WTR YR 1982 TOTAL 2205521 MEAN 6043 MAX 31800 MIN 808 CFSM .93 IN 12.60 AC-FT 4375000

05464640 PRAIRIE CREEK AT FAIRFAX, IA

LOCATION.--Lat 41°55'22", long 91°47'02", in SE1/4 SW1/4 sec.9, T.82 N., R.8 W., Linn County, Hydrologic Unit 07080205, on right bank 12 ft (4 m) upstream from bridge on State Highway 149 at west side of Fairfax, and 10.7 mi (17.2 km) upstream from mouth.

DRAINAGE AREA.--178 mi² (461 km²).

PERIOD OF RECORD.--October 1966 to September 1982 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 737.00 ft (224.638 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years, 134 ft³/s (3.795 m³/s), 10.22 in/yr (260 mm/yr), 97,080 acre-ft/yr (120 hm³/yr); median of yearly mean discharges, 110 ft³/s (3.12 m³/s), 8.4 in/yr (213 mm/yr), 79,700 acre-ft/yr (98.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,140 ft³/s (231 m³/s) Mar. 19, 1979, gage height, 14.63 ft (4.459 m); no flow July 10-15, 30, Aug. 1, 3, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--An outstanding flood occurred in June 1944, stage and discharge unknown.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft/s (34.0 m/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 23	0045	1,450	41.1	ice jam		May 6	----	1,200	34.0	----	----
Mar. 13	1615	1,400	39.6	7.26	2.213	May 20	1545	1,510	42.8	7.65	2.332
Mar. 17	0630	1,830	51.8	8.29	2.527	June 16	0345	*4,600	130.	*12.10	3.688
Mar. 20	1015	2,230	63.2	9.09	2.771	July 19	1745	2,330	66.0	9.04	2.755

Minimum daily discharge, 32 ft/s (0.91 m/s) Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	71	188	47	34	200	127	108	244	111	88	58
2	90	72	309	44	35	190	122	99	219	106	81	45
3	80	75	248	40	35	180	174	93	209	104	75	37
4	87	99	200	36	34	160	141	116	194	90	67	34
5	79	224	161	34	35	145	133	409	187	81	69	33
6	71	194	153	34	35	120	98	1070	170	97	71	195
7	62	154	153	35	36	110	107	980	234	150	187	115
8	59	135	137	34	36	105	92	647	199	124	118	72
9	57	111	134	33	36	102	86	519	182	93	81	61
10	59	104	134	34	36	100	76	426	158	124	71	54
11	52	100	130	34	37	190	110	358	146	106	67	49
12	51	91	126	35	38	886	304	331	146	135	63	43
13	54	87	121	34	39	1270	394	295	153	236	61	79
14	117	83	112	34	40	671	276	272	120	124	59	322
15	244	80	107	35	40	370	231	259	2930	120	55	180
16	191	87	98	35	40	1050	580	234	3460	177	57	109
17	158	79	94	36	40	1060	976	254	913	177	55	104
18	165	77	90	36	40	339	579	303	587	1350	51	167
19	130	81	88	35	43	865	437	256	474	2140	49	125
20	113	76	88	35	60	1650	351	576	393	792	49	95
21	101	69	88	33	350	537	286	635	326	437	43	79
22	118	94	87	33	1100	340	256	756	278	337	43	73
23	107	75	85	33	1300	279	230	505	234	264	43	67
24	98	103	82	34	525	249	212	412	202	219	36	64
25	99	105	80	35	385	213	192	360	185	190	38	57
26	88	113	74	36	300	171	172	363	277	160	37	55
27	83	124	66	35	235	142	147	400	185	144	34	51
28	78	123	60	34	215	123	133	470	165	131	32	49
29	75	111	55	34	---	117	128	580	144	118	34	45
30	75	112	52	34	---	143	117	600	122	106	60	44
31	70	---	49	34	---	169	---	290	---	95	50	---
TOTAL	3019	3109	3649	1095	5179	12246	7267	12976	13436	8638	1924	2561
MEAN	97.4	104	118	35.3	185	395	242	419	448	279	62.1	85.4
MAX	244	224	309	47	1300	1650	976	1070	3460	2140	187	322
MIN	51	69	49	33	34	100	76	93	120	81	32	33
CFSM	.55	.58	.66	.20	1.04	2.22	1.36	2.35	2.52	1.57	.35	.48
IN.	.63	.65	.76	.23	1.08	2.56	1.52	2.71	2.81	1.81	.40	.54
AC-FT	5990	6170	7240	2170	10270	24290	14410	25740	26650	17130	3820	5080

CAL YR 1981	TOTAL	27517.4	MEAN	75.4	MAX	677	MIN	6.2	CFSM	.42	IN	5.75	AC-FT	54580
WTR YR 1982	TOTAL	75099.0	MEAN	206	MAX	3460	MIN	32	CFSM	1.16	IN	15.69	AC-FT	149000

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 (3 m) downstream from bridge on county highway G28, 3.4 mi (5.5 km) northeast of Conesville, 5.2 mi (8.4 km) downstream from Wapsinonoc Creek, 10.7 mi (17.2 km) upstream from mouth, and at mile 39.8 (64.0 km) upstream from mouth of Iowa River.

DRAINAGE AREA.--7,785 mi² (20,163 km²).

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 (177.378 m) 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 (46 m) downstream on left bank at same datum.

REMARKS.--Records good except those for winter period, which are fair. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--43 years, 4,538 ft³/s (128.5 m³/s), 7.92 in/yr (201 mm/yr), 3,288,000 acre-ft/yr (4,050 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,800 ft³/s (2,010 m³/s) Apr. 2, 1961, gage height, 16.62 ft (5.066 m); maximum gage height, 16.85 ft (5.136 m) Apr. 12, 1965; minimum daily discharge, 250 ft³/s (7.08 m³/s) Nov. 28, 1955, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1929 reached a stage of 15.8 ft (4.82 m), from information by local residents to Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 12,000 ft³/s (340 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 25	----	14,400	408	ice jam	
Mar. 23	1800	30,200	855	14.02	4.273
Apr. 24	0030	16,000	453	12.15	3.703
May 13	0200	15,400	436	11.99	3.655
May 28	1200	21,800	617	13.29	4.051
June 18	1345	*30,300	858	*14.23	4.337
July 7	1000	12,000	340	11.14	3.395
July 11	2100	14,400	408	11.72	3.572
July 19	1145	25,200	714	13.72	4.182
Aug. 8	0630	15,500	439	11.82	3.603

Minimum daily discharge, 1,250 ft³/s (35.4 m³/s) Feb. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4890	3720	4360	2250	1350	7800	17300	7590	18200	7040	5500	2740
2	4440	3760	4780	2300	1300	6400	14600	7190	18300	6450	5210	2830
3	4140	3780	4930	2400	1350	5800	13800	6840	18200	6050	4910	3170
4	4120	4030	5050	2450	1350	5200	13800	6480	17200	5680	4620	4020
5	4090	4940	4800	2400	1350	4800	13500	6490	15300	5420	4440	4110
6	4390	5290	4470	2350	1300	4500	12900	9170	13400	6240	4540	4580
7	4170	5320	4280	2300	1300	4300	12000	12000	12000	11200	7310	5660
8	4050	5170	4160	2250	1300	4200	11200	12800	11700	8020	4830	4970
9	3930	4830	4040	2200	1300	4000	10500	12700	11200	7710	8290	4100
10	3870	4510	4010	2200	1300	3920	9560	13100	11300	9080	5430	3810
11	3840	4290	4010	2150	1250	3830	8960	13800	12500	13500	4790	3590
12	3800	4140	3950	2100	1300	5770	8740	14700	13900	12700	4330	3480
13	3740	4040	3770	2050	1300	10500	9070	15000	14400	9550	4020	3330
14	4450	3840	3620	2000	1400	13400	9830	13600	12100	9240	3930	3250
15	6560	3770	3550	1950	1450	14000	9990	11900	16900	9840	3570	3660
16	5820	3780	3400	1900	1500	15000	10400	11400	27000	10400	3470	3750
17	5590	3790	2400	1800	1650	17900	12400	11400	27200	9600	3360	3650
18	7110	3780	1800	1800	1800	17800	13800	11400	29400	13700	3350	4750
19	6630	3740	1400	1700	1950	19300	14000	12500	24400	23800	3050	5510
20	5710	3690	1300	1700	2300	22900	14100	13100	17100	22800	2980	5650
21	5290	3630	1500	1650	4100	25600	14700	13700	13100	20900	2770	5270
22	5010	3540	2000	1600	6000	28800	15300	14800	10800	17300	2690	4770
23	4810	3470	2300	1550	10000	29600	15800	15200	9630	14300	2880	4380
24	4690	3450	2700	1500	12000	29500	15700	16500	8710	12000	2910	4000
25	4480	3460	2850	1400	14000	30200	14400	18000	7890	9910	2690	3880
26	4350	3480	2750	1450	12000	29800	12300	19700	7760	8630	2560	3640
27	4230	3930	2600	1450	10000	27200	10800	21100	7880	7810	2480	3430
28	4090	4210	2450	1400	9000	24600	9570	21800	7610	7170	2410	3300
29	3950	4210	2500	1400	---	22400	8690	21600	8510	6580	2320	3170
30	3860	4150	2400	1400	---	20900	8160	21300	8160	6160	2510	3060
31	3690	---	2350	1400	---	19700	---	19700	---	5820	2750	---
TOTAL	143790	121740	100480	58450	106200	479620	365870	426560	431750	324600	120900	119510
MEAN	4638	4058	3241	1885	3793	15470	12200	13760	14390	10470	3900	3984
MAX	7110	5320	5050	2450	14000	30200	17300	21800	29400	23800	8290	5660
MIN	3690	3450	1300	1400	1250	3830	8160	6480	7610	5420	2320	2740
CFSM	.60	.52	.42	.24	.49	1.99	1.57	1.77	1.85	1.35	.50	.51
IN.	.69	.58	.48	.28	.51	2.29	1.75	2.04	2.06	1.55	.58	.57
AC-FT	285200	241500	199300	115900	210600	951300	725700	846100	856400	643800	239800	237000

CAL YR 1981	TOTAL	1689570	MEAN	4629	MAX	15500	MIN	1300	CFSM .60	IN 8.07	AC-FT	3351000
WTR YR 1982	TOTAL	2799470	MEAN	7670	MAX	30200	MIN	1250	CFSM .99	IN 13.38	AC-FT	5553000

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 (9 m) downstream from bridge on State Highway 99 at east edge of Wapello, 13.0 mi (20.9 km) downstream from Cedar River, and at mile 16.0 (25.7 km).

DRAINAGE AREA.--12,499 mi² (32,372 km²).

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 (164.034 m) NGVD; Oct. 1, 1914 to Apr. 15, 1934, non-recording gage and Apr. 16, 1934 to Sept. 30, 1972, water-stage recorder at datum 10.00 ft (3.048 m) higher.

REMARKS.--Records good except those for winter period, which are fair. Flow regulated by Coralville Lake (station 05453510) 67.3 mi (108.3 km) upstream, since Sept. 17, 1958. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

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

AVERAGE DISCHARGE.--68 years, 6,801 ft³/s (192.6 m³/s), 7.39 in/yr (188 mm/yr), 4,927,000 acre-ft/yr (6,070 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 94,000 ft³/s (2,660 m³/s) June 18, 1947, gage height, 16.14 ft (4.919 m), datum then in use; maximum gage height, 28.63 ft (8.726 m) Apr. 22, 1973; minimum daily discharge, 300 ft³/s (8.50 m³/s) Nov. 28, 1955, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 48,900 ft³/s (1380 m³/s) July 20, gage height, 23.61 ft (7.196 m); minimum daily, 1,900 ft³/s (53.8 m³/s) Feb. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8050	4990	7500	3400	2250	17000	30000	10600	24600	13700	10800	7940
2	7220	5070	9040	3500	2200	16500	26700	11900	22700	13100	10500	7970
3	5900	5300	9170	3600	2200	16000	23500	11100	22500	13300	10000	7930
4	5370	7080	9100	3400	2100	15500	22300	9810	21900	12600	9770	8510
5	5340	9490	8840	3800	2050	14500	21600	9360	20500	12200	10600	8790
6	5710	11200	8550	3700	2000	14000	20400	10300	18400	12600	11000	9180
7	5720	10400	7900	3600	2000	13100	19000	14800	16600	22800	11400	11400
8	5170	9550	7130	3500	1950	12300	18000	17000	15800	19900	17100	12000
9	4990	8870	6670	3400	2000	11400	16700	16700	15500	15600	17200	9710
10	4840	8160	6470	3300	1950	10600	15900	17000	15100	15300	12000	8870
11	4870	7460	6440	3200	1900	10600	15300	17600	15600	20000	10700	8430
12	4790	6890	6540	3100	1950	12800	15000	18000	16500	21600	10100	8150
13	4630	6580	6740	2950	2000	18700	14900	18700	17500	18000	9600	7930
14	6270	6150	6630	2850	2100	24600	15000	18400	17000	16600	9250	7790
15	11000	6000	6510	2800	2200	25900	15500	16800	18200	16100	8930	7050
16	10000	6100	6200	2750	2250	26000	16100	15700	28300	16600	8750	7450
17	9410	6140	5400	2700	2400	28500	19500	15700	41900	18000	8590	7240
18	10100	6110	4600	2600	2550	31700	21900	15700	46700	24800	8950	8050
19	10500	5970	3800	2550	3000	33200	21800	16200	42000	37500	8240	9290
20	9300	5890	3200	2500	4500	37300	20400	17400	29100	47500	8060	8910
21	8300	5750	2800	2450	6500	41700	20700	20000	20600	43900	7920	7630
22	7770	5580	3200	2400	12000	43300	21000	19600	18300	37600	7800	6970
23	7320	5490	3700	2400	21000	40000	21200	19600	16400	25400	7830	6520
24	7000	5340	4200	2350	25500	38700	21000	20100	15400	18600	7870	5960
25	6640	5460	4700	2300	26000	38000	19900	22200	14500	16200	7640	5420
26	6410	5730	4500	2250	22000	39800	17500	23400	14700	14500	7460	5180
27	6250	6280	4400	2350	17000	40700	15300	24400	15400	13400	7300	4850
28	6040	6660	4300	2450	16000	38100	13200	25600	15100	12700	7210	4640
29	5730	6410	3800	2400	---	35300	11200	26800	15000	12100	7090	4460
30	5440	6460	3700	2350	---	33100	10500	26900	14900	11600	7280	4300
31	5160	---	3500	2300	---	31200	---	27200	---	11200	7440	---
TOTAL	211240	202560	179230	89200	191550	810100	561000	554570	626700	605000	294380	228520
MEAN	6814	6752	5782	2877	6841	26130	18700	17890	20890	19520	9496	7617
MAX	11000	11200	9170	3800	26000	43300	30000	27200	46700	47500	17200	12000
MIN	4630	4990	2800	2250	1900	10600	10500	9360	14500	11200	7090	4300
AC-FT	419000	401800	355500	176900	379900	1607000	1113000	1100000	1243000	1200000	583900	453300

CAL YR 1981	TOTAL	2363180	MEAN	6474	MAX	19700	MIN	1400	AC-FT	4687000
WTR YR 1982	TOTAL	4554050	MEAN	12480	MAX	47500	MIN	1900	AC-FT	9033000

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 of time of analysis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 810 micromhos Jan 23, 1978-Jan. 20, 1981; minimum daily, 250 micromhos Sept. 18, 1978, July 20, 1982.
WATER TEMPERATURES: Maximum daily, 32.0°C July 15, 1980; minimum daily, 0.0°C on many days during winter periods.
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 (375,000 tonnes) July 19, 1982; minimum daily, 5.4 tons (4.9 tonnes) Jan. 21, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 680 micromhos Dec. 19,21,30,31; minimum daily, 250 micromhos July 20.
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 30; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,080 mg/L July 19; minimum daily mean, 2 mg/L Feb. 5,12,13.
SEDIMENT LOADS: Maximum daily, 413,000 tons (375,000 tonnes) July 19; minimum daily, 11 tons (10 tonnes) Feb. 5,12,13.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	540	620	590	---	---	310	---	620	510	---	---	510
2	570	620	560	660	---	300	---	---	---	480	560	530
3	580	620	580	---	---	300	---	600	525	470	540	---
4	---	560	600	580	---	300	---	560	590	---	510	520
5	560	540	620	620	---	---	---	560	---	460	480	---
6	560	500	620	580	---	330	440	525	---	---	500	---
7	550	---	620	---	---	---	500	450	610	330	---	520
8	550	---	640	---	---	---	550	---	600	375	---	490
9	530	580	640	---	---	---	540	---	590	470	380	540
10	540	600	625	---	---	420	---	480	600	---	480	580
11	540	620	620	---	---	440	---	480	600	370	510	---
12	550	620	620	620	---	420	560	460	---	390	---	---
13	520	630	620	---	---	360	560	470	560	430	470	---
14	430	620	610	630	---	340	570	490	590	470	---	570
15	400	630	---	610	---	380	580	510	550	490	---	580
16	460	620	---	---	---	380	---	---	340	---	470	570
17	500	620	---	---	---	360	520	530	280	---	470	540
18	500	620	---	660	---	320	520	540	---	400	---	550
19	490	---	680	650	---	320	530	550	290	---	450	550
20	520	620	---	670	---	---	550	520	---	250	450	---
21	540	620	680	650	---	---	540	460	520	300	450	---
22	550	640	640	---	380	300	560	---	560	360	---	---
23	560	630	620	---	360	320	580	---	580	420	460	600
24	---	640	650	---	340	320	---	500	580	480	460	640
25	---	640	640	670	300	340	---	500	580	---	460	650
26	620	---	---	---	290	360	600	480	---	540	460	660
27	610	620	---	---	310	---	620	470	---	560	470	670
28	620	---	620	---	320	---	620	490	490	560	---	660
29	610	---	---	660	---	420	620	---	500	---	---	650
30	640	620	680	---	---	---	620	---	500	570	480	630
31	620	---	680	---	---	440	---	510	---	---	500	---

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	14.0	3.0	---	---	2.0	11.0	17.0	20.0	---	---	26.0
2	16.0	14.0	4.0	.0	---	1.0	12.0	---	---	25.0	29.0	24.0
3	14.0	13.5	4.0	---	---	1.0	8.0	19.0	19.0	23.0	30.0	---
4	---	14.0	2.0	.0	---	1.0	8.0	21.0	20.0	---	28.0	23.0
5	17.0	12.0	3.0	.0	---	---	---	21.0	---	26.0	27.0	---
6	17.0	12.0	4.0	.0	---	1.0	6.0	18.5	---	---	26.0	---
7	16.0	---	4.0	---	---	---	5.0	17.0	22.0	25.0	---	21.0
8	15.0	---	3.0	---	---	---	4.0	---	22.0	25.5	---	23.0
9	15.0	9.0	1.0	---	---	---	5.0	---	22.0	27.0	25.0	24.0
10	14.0	8.0	1.5	---	---	3.0	---	20.0	22.0	---	25.0	25.0
11	16.0	9.0	2.0	---	---	3.0	---	20.0	22.0	24.0	25.0	---
12	15.0	8.0	.0	.0	---	4.0	9.0	21.0	---	25.0	---	---
13	16.0	9.0	.0	---	---	3.0	11.0	21.0	22.0	26.0	25.0	---
14	16.0	8.0	.0	.0	---	3.0	12.0	21.0	23.0	26.0	---	25.0
15	16.0	9.0	---	.0	---	3.0	12.0	20.0	21.0	26.0	---	23.0
16	16.0	10.0	---	---	---	4.0	---	---	21.0	---	27.0	22.0
17	16.0	9.0	---	---	---	3.0	11.0	23.0	21.0	---	27.0	20.0
18	13.0	10.0	---	.0	---	4.0	13.0	22.0	---	25.0	---	20.0
19	12.0	12.0	1.0	.0	---	4.0	13.0	23.0	21.0	---	28.0	20.0
20	13.0	4.0	---	.0	---	---	11.0	23.0	---	26.0	28.0	---
21	12.0	3.0	1.0	.0	---	---	12.0	20.0	22.0	27.0	28.0	---
22	11.0	3.0	.0	---	5.0	5.0	13.0	---	23.0	27.0	---	---
23	8.0	3.0	.0	---	1.0	4.0	12.0	---	23.0	27.0	26.0	18.0
24	---	5.0	1.0	---	1.0	7.0	---	19.0	24.0	26.0	26.0	18.0
25	---	4.0	1.0	.0	1.0	6.0	---	18.0	25.0	---	26.0	16.0
26	9.0	---	---	---	1.0	6.0	14.0	18.0	---	29.0	---	16.0
27	10.0	4.0	---	---	1.0	---	14.0	17.0	---	28.0	24.0	16.0
28	11.0	---	.0	---	1.0	---	14.0	17.0	24.0	28.0	---	20.0
29	13.0	---	---	.0	---	7.0	13.0	---	26.0	---	---	21.0
30	12.0	---	.0	---	---	---	14.0	19.0	24.0	26.0	24.0	23.0
31	13.0	---	1.0	---	---	9.5	---	---	---	---	24.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	275	5980	70	943	211	4270	17	156	4	24	700	32100
2	191	3720	72	986	389	9490	17	161	12	71	692	30800
3	140	2230	95	1360	322	7970	33	321	5	30	660	28500
4	132	1910	308	5890	308	7570	44	404	6	34	480	20100
5	151	2180	467	12000	149	3560	20	205	2	11	422	16500
6	187	2880	549	16600	97	2240	35	350	3	16	353	13300
7	179	2760	473	13300	93	1980	39	379	3	16	302	10700
8	125	1740	303	7810	89	1710	32	302	5	26	266	8830
9	99	1330	167	4000	56	1010	24	220	5	27	220	6770
10	98	1280	112	2470	37	646	18	160	7	37	190	5440
11	103	1350	100	2010	38	661	15	130	5	26	175	5010
12	88	1140	80	1490	121	2140	14	117	2	11	840	29000
13	89	1110	67	1190	80	1460	16	127	2	11	2370	120000
14	672	11400	66	1100	64	1150	15	115	4	23	2920	194000
15	1020	30300	64	1040	62	1090	8	60	5	30	840	58700
16	518	14000	83	1370	60	1000	7	52	10	61	810	56900
17	322	8180	81	1340	57	831	8	58	23	149	890	68500
18	358	9760	94	1550	53	658	13	91	60	413	730	62500
19	422	12000	87	1400	50	513	32	220	122	988	530	47500
20	260	6530	70	1110	44	380	41	277	180	2190	830	83600
21	162	3630	55	854	33	249	20	132	280	4910	800	90100
22	200	4200	45	678	17	147	10	65	420	13600	510	59600
23	139	2750	38	563	19	190	5	32	470	26600	340	36700
24	88	1660	34	490	19	215	4	25	405	27900	300	31300
25	72	1290	44	649	21	266	4	25	352	24700	340	34900
26	70	1210	63	975	24	292	3	18	250	14900	300	32200
27	74	1250	88	1490	24	285	3	19	240	11000	251	27600
28	83	1350	107	1920	23	267	4	26	890	38400	232	23900
29	91	1410	94	1630	20	205	3	19	---	---	219	20900
30	74	1090	82	1430	18	180	5	32	---	---	210	18800
31	74	1030	---	---	18	170	5	31	---	---	202	17000
TOTAL	---	142650	---	89638	---	52795	---	4329	---	166204	---	1291750

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	201	16300	171	4890	155	10300	227	8400	125	3650	132	2830
2	211	15200	148	4760	115	7050	233	8240	118	3350	131	2820
3	253	16100	120	3600	135	8200	283	10200	120	3240	128	2740
4	272	16400	132	3500	161	9520	240	8160	118	3110	174	4000
5	240	14000	135	3410	167	9240	193	6360	191	5470	188	4460
6	200	11000	218	6060	169	8400	222	8020	216	6420	187	4630
7	152	7800	730	29200	190	8520	1600	99400	272	8370	345	10600
8	167	8120	919	42200	342	14600	1490	80100	421	19400	467	15100
9	148	6670	570	25700	492	20600	680	28600	382	17700	275	7210
10	130	5580	432	19800	308	12600	450	18600	233	7550	155	3710
11	133	5490	322	15300	316	13300	1300	70200	151	4360	143	3250
12	140	5670	275	13400	375	16700	1120	65300	133	3630	132	2900
13	152	6110	285	14400	329	15500	572	27800	122	3160	119	2550
14	162	6560	322	16000	248	11400	570	25500	123	3070	144	3030
15	150	6280	205	9300	954	51500	742	32300	124	2990	139	2650
16	305	13300	250	10600	1770	135000	600	26900	125	2950	186	3740
17	1020	53700	300	12700	1250	141000	365	17700	121	2810	285	5570
18	1020	60300	250	10600	1000	126000	2320	177000	116	2800	349	7590
19	540	31800	255	11200	800	90700	4080	413000	112	2490	382	9580
20	290	16000	310	14600	650	51100	1170	150000	112	2440	353	8490
21	240	13400	995	53700	496	27600	475	56300	115	2460	284	5850
22	195	11100	705	37300	340	16800	414	42000	121	2550	197	3710
23	159	9100	485	25700	253	11200	412	28300	126	2660	130	2290
24	146	8280	415	22500	220	9150	358	18000	128	2720	114	1830
25	141	7580	320	19200	199	7790	282	12300	121	2500	109	1600
26	136	6430	292	18400	342	13600	244	9550	117	2360	103	1440
27	129	5330	210	13800	727	30200	235	8500	117	2310	69	904
28	127	4530	138	9540	702	28600	218	7480	117	2280	66	827
29	121	3660	200	14500	462	18700	187	6110	118	2260	77	927
30	116	3290	279	20300	310	12500	149	4670	120	2360	100	1160
31	---	---	275	20200	---	---	132	3990	120	2410	---	---
TOTAL	---	395080	---	526360	---	937370	---	1478980	---	135830	---	127988

TOTAL LOAD FOR YEAR: 5348974 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
NOV 03...	1330	13.0	5170	87	1210	--	--
JAN 21...	1430	.0	2450	9	60	--	--
MAR 15...	0745	2.5	25000	773	52200	--	--
MAY 06...	1300	18.5	9610	226	5860	--	--
JUN 19...	1610	21.0	40300	771	83900	--	--
JUL 08...	1230	24.0	20300	1520	83300	53	60
SEP 02...	1130	23.0	8270	135	3010	--	--

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. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 03...	--	--	--	--	--	91
JAN 21...	--	--	--	--	--	63
MAR 15...	--	--	--	--	--	91
MAY 06...	--	--	--	--	--	97
JUN 19...	--	--	--	--	--	96
JUL 08...	70	78	99	99	100	--
SEP 02...	--	--	--	--	--	96

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
NOV												
03...	1330	5170	8	--	0	6	38	76	93	98	99	100
MAY												
06...	1300	9610	9	1	2	13	53	84	92	96	99	100
JUL												
08...	1230	20300	9	3	4	13	47	79	90	97	99	100
SEP												
02...	1130	8270	9	2	2	7	44	89	98	100	--	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV										
03...	1330	5170	580	8.7	13.0	15	11.3	109	520	490
JAN										
21...	1430	2450	720	7.8	.0	3.0	10.1	70	420	160
MAR										
15...	0745	25000	370	7.7	2.5	140	--	--	2200	K12000
MAY										
06...	1300	9610	455	8.3	18.5	32	8.5	91	2100	6100
JUL										
08...	1230	20300	350	7.7	24.0	320	6.0	72	K20000	<20000
SEP										
02...	1130	8270	495	8.3	23.0	11	9.1	107	620	--

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 LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
03...	290	76	24	13	9	.4	2.9	220	42	24
JAN										
21...	330	87	27	19	11	.5	2.3	260	58	33
MAR										
15...	160	44	13	7.2	8	.3	5.7	130	11	23
MAY										
06...	240	59	23	11	9	.3	2.4	170	44	24
JUL										
08...	160	43	12	5.5	7	.2	4.0	114	26	13
SEP										
02...	220	57	20	9.7	8	.3	2.8	177	35	20

DATE	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, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)
NOV									
03...	.2	8.6	336	323	.46	4690	5.6	.080	.10
JAN									
21...	.3	13	391	396	.53	2590	5.9	.850	1.1
MAR									
15...	.2	10	231	193	.31	15600	3.9	.590	.76
MAY									
06...	1.7	4.3	299	272	.41	7760	5.5	.110	.14
JUL									
08...	.2	9.2	215	181	.29	11800	5.3	.080	.10
SEP									
02...	.2	7.3	361	259	.49	8060	3.4	<.060	.08

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

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	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)
NOV									
03...	1.90	.110	.37	.110	.120	87	1210	91	--
JAN									
21...	1.80	.210	.67	.190	.220	9	60	63	--
MAR									
15...	2.50	.170	.95	.250	.310	773	52200	91	--
MAY									
06...	2.70	.030	.83	.050	.270	226	5860	97	--
JUL									
08...	3.30	.130	2.9	.130	.950	1520	83300	--	99
SEP									
02...	2.50	.040	.58	.130	.190	135	3010	96	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
NOV										
03...	1330	5	2	<100	110	<1	<1	<10	10	3
MAR										
15...	0745	8	2	300	94	<1	<1	20	<10	6
MAY										
06...	1300	3	2	<100	97	1	<3	<10	<10	2
SEP										
02...	1130	2	2	100	110	<1	<1	<10	<10	2

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)
NOV										
03...	<3	24	3	1300	<10	11	3	130	9	.2
MAR										
15...	<1	20	2	14000	120	11	<1	580	28	.1
MAY										
06...	<1	20	4	3900	10	11	1	250	3	.2
SEP										
02...	<1	14	4	2500	3	5	<1	290	2	.1

DATE	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV									
03...	<.1	4	1	1	1	<1	<1	20	11
MAR									
15...	<.1	14	4	1	1	<1	<1	70	<3
MAY									
06...	.1	8	1	1	1	<1	<1	40	<12
SEP									
02...	.1	7	<1	1	1	<1	<1	30	10

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 (4.0 km) north of Ames, 3.5 mi (5.6 km) downstream from Keigley Branch, 5.2 mi (8.4 km) upstream from Squaw Creek, and at mile 228.1 (367.0 km) upstream from mouth of Skunk River.

DRAINAGE AREA.--315 mi² (816 km²).

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

REMARKS.--Records good except Dec. through Feb., which are poor. Several diversions for irrigation above station. Several observations of water temperature were made during the year. National Weather Service gage height telemeter at station.

AVERAGE DISCHARGE.--57 years (water years 1921-27, 1933-82), 151 ft³/s (4.276 m³/s), 6.51 in/yr (165 mm/yr), 109,400 acre-ft/yr (135 hm³/yr); median of yearly mean discharges, 120 ft³/s (3.40 m³/s) 5.2 in/yr (132 mm/yr), 86,900 acre-ft/yr (107 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,630 ft³/s (244 m³/s) June 10, 1954, gage height, 13.66 ft (4.164 m); maximum gage height, 13.90 ft (4.237 m) May 20, 1944; no flow at times in 1934, 1937, 1953-57, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
a	----	3,140	88.9	7.05	2.149	June 15	0630	1,730	49.0	5.46	1.664
Mar. 16	1830	1,630	46.2	5.35	1.631	July 19	0100	*3,490	98.8	*7.53	2.295
Mar. 20	0930	2,600	73.6	6.39	1.948						

a Sometime during period Feb. 21-23.

Minimum daily discharge, 3.7 ft³/s (0.10 m³/s) Feb. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	14	25	7.6	4.0	428	154	105	411	151	122	238
2	15	17	24	7.4	4.0	410	144	99	361	152	109	169
3	15	22	24	7.2	3.9	265	138	97	331	151	98	111
4	20	21	22	9.2	3.9	154	94	93	301	135	120	80
5	24	25	20	9.1	3.8	231	110	123	278	121	181	64
6	15	24	25	8.2	3.8	175	100	190	402	144	174	65
7	5.2	23	24	6.8	3.8	136	133	358	831	486	145	70
8	5.5	22	24	5.6	3.8	127	124	330	537	419	124	59
9	4.8	21	23	5.1	3.7	91	119	266	715	281	103	53
10	5.2	19	19	5.2	3.9	121	124	224	533	765	91	48
11	5.5	18	28	5.7	4.2	223	168	201	407	909	79	42
12	5.5	19	28	6.1	4.5	560	299	350	356	653	70	39
13	5.5	18	26	5.8	4.9	871	350	479	318	475	65	67
14	5.7	17	22	5.5	5.5	856	255	603	297	369	62	119
15	11	18	16	5.2	10	680	202	1140	1340	303	57	126
16	11	17	13	5.0	25	1260	491	1140	1240	643	52	92
17	14	18	10	4.9	60	1260	761	903	785	470	47	81
18	17	14	7.9	4.8	130	741	510	786	571	2240	43	71
19	19	15	6.0	4.7	250	1620	387	605	453	3020	40	63
20	18	15	7.2	4.5	500	2340	317	505	385	1570	37	54
21	17	15	8.5	4.5	900	1340	256	918	332	977	32	47
22	16	13	7.5	5.4	1200	831	222	1330	295	702	29	43
23	15	14	7.3	4.8	1100	635	201	971	263	525	27	40
24	14	15	7.9	4.5	900	570	185	722	238	411	27	39
25	16	15	8.6	4.3	514	463	168	580	221	334	30	36
26	14	14	9.2	4.2	524	347	153	899	211	276	22	34
27	13	17	9.0	4.0	505	267	134	1380	201	228	19	32
28	13	14	8.0	4.0	450	225	123	1070	188	185	17	30
29	12	13	8.8	4.0	---	200	119	761	174	160	20	29
30	11	14	9.3	4.0	---	195	112	593	162	173	42	29
31	12	---	8.5	4.0	---	182	---	488	---	141	135	---
TOTAL	386.9	521	486.7	171.3	7125.7	17804	6653	18309	13137	17569	2219	2070
MEAN	12.5	17.4	15.7	5.53	254	574	222	591	438	567	71.6	69.0
MAX	24	25	28	9.2	1200	2340	761	1380	1340	3020	181	238
MIN	4.8	13	6.0	4.0	3.7	91	94	93	162	121	17	29
CFSM	.04	.06	.05	.02	.81	1.82	.71	1.88	1.39	1.80	.23	.22
IN.	.05	.06	.06	.02	.84	2.10	.79	2.16	1.55	2.07	.26	.24
AC-FT	767	1030	965	340	14130	35310	13200	36320	26060	34850	4400	4110

CAL YR 1981	TOTAL	10752.34	MEAN	29.5	MAX	1600	MIN	.10	CFSM	.09	IN	1.27	AC-FT	21330
WTR YR 1982	TOTAL	86452.60	MEAN	237	MAX	3020	MIN	3.7	CFSM	.75	IN	10.21	AC-FT	171500

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 (20 m) downstream from Lincoln Way Bridge in Ames, 0.2 mi (0.3 km), revised, downstream from College Creek, and 2.4 mi (3.9 km), revised, upstream from mouth.

DRAINAGE AREA.--204 mi² (528 km²).

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 (268.529 m) NGVD (levels by Iowa State University). Prior to Mar. 11, 1925, nonrecording gage at site 0.6 mi (1.0 km) upstream at different datum. Mar. 11, 1925, to Apr. 30, 1927, nonrecording gage at site 65 ft (20 m) upstream at datum about 4 ft (1 m) higher.

REMARKS.--Records good except those for December and January or below 3.0 ft³/s (0.085 m³/s), which are fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years (water years 1920-27,1966-82), 118 ft³/s (3.342 m³/s), 7.86 in/yr (200 mm/yr), 85,490 acre-ft/yr (105 hm³/yr); median of yearly mean discharges, 95 ft³/s (2.69 m³/s), 6.3 in/yr (160 mm/yr), 68,800 acre-ft/yr (84.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft³/s (320 m³/s) June 27, 1975, gage height, 14.00 ft (4.267 m), 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 (4.42 m), from flood marks, site and datum used 1919-25, discharge, 6,900 ft³/s (195 m³/s). Flood of Mar. 1, 1965, reached a stage of 10.7 ft (3.26 m), from graph based on gage readings, at present site and datum, discharge, 4,200 ft³/s (119 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s (45.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	1515	1,900	53.8	6.61	2.015	June 16	0100	1,970	55.8	6.78	2.067
May 21	2030	1,680	47.6	5.85	1.783	July 18	2215	*3,820	108	*10.30	3.139
May 26	2315	1,910	54.1	6.56	1.999						

Minimum daily discharge, 0.10 ft³/s (0.003 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	2.8	17	4.0	1.7	217	76	73	322	111	82	271
2	.35	10	9.5	4.0	1.7	239	73	66	275	132	75	103
3	2.7	13	12	3.6	1.7	114	67	63	249	120	66	63
4	1.8	11	9.8	4.0	1.7	63	50	63	225	103	91	40
5	.60	6.9	9.5	4.5	1.7	116	80	84	203	94	145	31
6	.59	6.6	13	4.5	1.5	84	79	152	255	190	111	75
7	.89	6.6	13	4.0	1.5	71	82	297	424	328	89	21
8	.79	6.0	14	3.6	1.6	70	74	227	281	224	71	20
9	.70	5.0	12	2.7	1.5	55	76	169	465	190	53	18
10	.46	5.1	10	2.0	1.7	78	78	139	340	685	50	15
11	.55	6.6	18	2.6	1.7	227	124	122	257	654	43	13
12	.41	3.9	17	3.4	2.1	687	222	162	224	441	41	20
13	.36	3.9	15	3.1	2.4	700	229	275	194	296	38	41
14	1.6	4.8	10	2.8	2.8	481	147	864	187	224	36	36
15	2.5	4.0	6.3	2.6	4.2	326	126	1030	1490	238	33	28
16	2.9	4.3	4.6	1.8	7.3	876	700	904	1530	400	32	24
17	9.6	4.0	3.5	1.9	5.3	544	708	684	838	206	26	28
18	3.3	3.9	2.7	2.1	10	296	446	644	600	2410	22	24
19	2.7	6.5	2.0	2.0	16	1150	312	566	458	2310	19	20
20	3.8	5.7	2.3	2.2	86	1250	238	490	364	1040	17	17
21	3.7	4.1	3.4	2.0	836	647	187	1210	286	703	14	20
22	2.1	4.4	3.0	2.1	1070	376	161	1370	243	507	14	18
23	2.0	5.9	3.5	2.0	829	285	143	853	214	382	12	16
24	2.0	4.5	3.6	1.8	483	260	134	616	194	296	13	17
25	2.0	4.9	3.7	1.7	225	201	118	497	178	233	19	13
26	2.8	4.8	3.8	1.8	199	150	106	1000	163	190	15	11
27	3.3	4.8	3.4	1.7	206	121	87	1480	149	160	12	11
28	2.3	4.5	3.0	1.8	218	108	86	861	142	138	9.1	9.8
29	2.3	3.5	3.4	1.6	---	98	81	607	129	120	34	11
30	2.0	9.3	3.9	1.7	---	105	78	487	123	108	43	10
31	4.8	---	4.0	1.7	---	91	---	400	---	94	131	---
TOTAL	65.70	171.3	239.9	81.3	4220.1	10086	5168	16455	11002	13327	1456.1	994.8
MEAN	2.12	5.71	7.74	2.62	151	325	172	531	367	430	47.0	33.2
MAX	9.6	13	18	4.5	1070	1250	708	1480	1530	2410	145	271
MIN	.10	2.8	2.0	1.6	1.5	55	50	63	123	94	9.1	9.8
CFSM	.01	.03	.04	.01	.74	1.59	.84	2.60	1.80	2.11	.23	.16
IN.	.01	.03	.04	.01	.77	1.84	.94	3.00	2.01	2.43	.27	.18
AC-FT	130	340	476	161	8370	20010	10250	32640	21820	26430	2890	1970

CAL YR 1981 TOTAL 5124.67 MEAN 14.0 MAX 721 MIN .02 CFSM .07 IN .93 AC-FT 10160
WTR YR 1982 TOTAL 63267.20 MEAN 173 MAX 2410 MIN .10 CFSM .85 IN 11.54 AC-FT 125500

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 (122 m) upstream from bridge on U.S. Highway 63, 0.3 mi (0.5 km) downstream from Painter Creek, 4.0 mi (6.4 km) north of Oskaloosa, 52.0 mi. (83.7 km) (revised) upstream from confluence with North Skunk River, and at mile 147.3 (237.0 km) upstream from mouth of Skunk River.

DRAINAGE AREA.--1,635 mi² (4,234 km²).

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 (208.940 m) NGVD. Prior to Nov. 21, 1947, nonrecording gage at site 400 ft (122 m) downstream at same datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--37 years, 881 ft³/s (24.95 m³/s), 7.32 in/yr (186 mm/yr), 638,300 acre-ft/yr (787 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s (566 m³/s) June 15, 1947, gage height, 21.26 ft (6.480 m), from floodmarks; maximum gage height, 22.52 ft (6.864 m) Feb. 3, 1973, backwater from ice; minimum daily discharge, 1.8 ft³/s (0.051 m³/s) Oct. 11-13, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 25.8 ft (7.86 m), from floodmarks, discharge, 37,000 ft³/s (1,050 m³/s), from rating curve extended above 18,000 ft³/s (510 m³/s) on basis of velocity-area study.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s (142 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 17	unknown	5,890	167	16.50	5.029	May 23	0915	6,610	187	17.20	5.243
Mar. 20	unknown	7,750	219	18.20	5.547	May 29	1945	6,960	197	17.52	5.340
Apr. 16	2345	5,200	147	15.76	4.804	Jun 17	1430	7,620	216	18.10	5.517
May 17	0745	5,440	154	16.04	4.889	Jul 20	0630	*12,000	340	*20.92	6.376

Minimum daily discharge, 56 ft³/s (1.59 m³/s) Jan. 1-2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	139	284	56	69	1700	1180	877	3090	1040	1520	566
2	62	224	288	56	69	1600	1110	834	2600	1000	1390	615
3	61	328	259	58	70	1400	1120	797	2330	2100	1320	687
4	70	434	255	62	70	1220	1110	775	2090	1730	1240	562
5	76	381	240	64	70	1010	1080	792	1920	1250	1210	483
6	67	295	235	64	70	917	1020	2440	1790	1140	1910	695
7	72	273	240	62	70	861	988	3610	1680	2070	1910	748
8	77	254	233	60	71	781	965	2480	1940	1890	1540	518
9	77	231	220	60	72	880	950	2230	2070	1650	1360	482
10	81	217	210	58	72	930	934	1900	1940	1500	1240	4[illegible]
11	81	208	210	58	73	973	989	1660	2090	2320	1120	420
12	77	197	201	58	74	1540	1320	1470	1750	2600	1050	389
13	77	189	219	60	75	4250	1610	1500	1560	2230	972	384
14	173	183	214	62	76	3800	1690	1820	1550	1830	868	768
15	139	181	200	62	78	3060	1960	2700	2180	1790	777	711
16	105	184	175	63	82	4050	3740	4270	6640	4310	709	552
17	98	169	160	64	170	5510	4700	5030	7500	7340	666	646
18	115	163	140	64	250	4260	3800	4180	6020	9670	627	1250
19	99	161	110	64	450	5480	3130	3560	4160	11300	596	717
20	93	157	80	64	1250	7600	2450	3400	3060	12000	566	587
21	96	150	70	64	1700	7550	2030	4060	2490	12000	533	523
22	92	145	66	65	2200	6130	1770	6040	2120	11800	501	479
23	90	151	64	66	3100	4180	1570	6530	1880	11000	474	447
24	86	160	62	66	2800	3080	1410	5500	1720	8680	451	423
25	87	155	60	66	2400	2640	1300	4340	1480	5740	429	402
26	92	156	60	66	2200	2260	1220	4090	1370	4000	411	386
27	93	185	60	66	1940	1870	1120	4850	1280	3110	398	371
28	91	153	60	66	1810	1580	1030	5650	1220	2560	377	357
29	90	143	58	68	---	1440	966	5770	1160	2100	360	342
30	90	154	58	68	---	1370	918	5310	1090	1870	383	329
31	95	---	58	68	---	1290	---	3850	---	1690	480	---
TOTAL	2767	6120	4849	1948	21431	85212	49180	102315	73770	135310	27388	16292
MEAN	89.3	204	156	62.8	765	2749	1639	3300	2459	4365	883	543
MAX	173	434	288	68	3100	7600	4700	6530	7500	12000	1910	1250
MIN	61	139	58	56	69	781	918	775	1090	1000	360	329
CFSM	.06	.13	.10	.04	.47	1.68	1.00	2.02	1.50	2.67	.54	.33
IN.	.06	.14	.11	.04	.49	1.94	1.12	2.33	1.68	3.08	.62	.37
AC-FT	5490	12140	9620	3860	42510	169000	97550	202900	146300	268400	54320	32320

CAL YR 1981 TOTAL 69849 MEAN 191 MAX 2500 MIN 23 CFSM .12 IN 1.59 AC-FT 138500
WTR YR 1982 TOTAL 526582 MEAN 1443 MAX 12000 MIN 56 CFSM .88 IN 11.98 AC-FT 1044000

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 (6 m) downstream from bridge on State Highway 149, 1.2 mi (1.9 km) downstream from Cedar Creek, 2.2 mi (3.5 km) south of Sigourney, 4.0 mi (6.4 km) upstream from Bridge Creek, and 16.2 mi (26.1 km) upstream from confluence with South Skunk River.

DRAINAGE AREA.--730 mi² (1,890 km²).

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 (198.586 m) NGVD. Prior to June 10, 1953, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are fair. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--37 years, 428 ft³/s (12.12 m³/s), 7.96 in/yr (202 mm/yr), 310,100 acre-ft/yr (382 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft³/s (779 m³/s) Mar. 31, 1960, gage height, 25.33 ft (7.721 m); minimum daily, 0.1 ft³/s (0.003 m³/s) Oct. 7 to Nov. 15, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 22.8 ft (6.95 m), from floodmark, discharge, 14,500 ft³/s (411 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,800 ft³/s (108 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 24	----	3,850	109	ice jam		July 21	0845	*8,650	245	*21.18	6.456
Mar. 20	0900	4,920	139	18.00	5.486						

Minimum daily discharge, 27 ft³/s (0.76 m³/s) Oct. 12,13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	83	459	78	77	700	593	403	1430	317	451	540
2	32	174	634	77	78	600	520	381	1120	317	403	340
3	27	379	521	80	78	540	860	366	977	850	374	260
4	32	1580	406	79	76	450	845	361	876	1270	344	193
5	37	1880	342	78	76	390	754	363	785	803	946	149
6	35	936	302	79	74	370	660	558	703	759	647	1720
7	31	586	291	78	74	360	608	1790	643	1730	496	1710
8	28	443	277	74	74	345	606	2200	604	926	419	608
9	28	350	250	74	74	340	576	1570	586	625	361	374
10	29	291	220	73	72	320	662	1090	556	601	325	298
11	29	263	200	71	72	376	988	892	506	621	301	247
12	27	237	180	73	71	859	1080	764	454	473	280	213
13	27	219	190	72	74	2720	1080	697	441	497	265	197
14	233	202	180	70	79	2570	973	702	443	400	251	171
15	408	193	165	71	83	2600	883	736	504	353	242	336
16	265	195	140	72	94	1990	1900	813	1690	1470	234	510
17	189	195	130	74	160	2380	2820	819	2080	2310	226	512
18	204	180	110	76	290	2400	3160	1360	1990	4280	217	705
19	162	172	105	76	670	3020	2830	1260	1090	6330	207	829
20	127	166	96	76	1700	4490	1370	1120	811	6830	175	437
21	112	153	90	76	2300	4250	1090	1030	668	8420	153	322
22	98	145	92	76	2700	4520	911	1310	578	6700	146	264
23	88	144	92	78	3300	2170	803	1920	511	3950	146	233
24	80	162	90	78	3800	1110	726	1450	460	1350	128	211
25	77	173	86	80	2500	925	656	1140	579	985	146	193
26	76	177	88	78	1550	778	602	1140	647	825	296	178
27	72	168	86	78	1000	663	548	1950	410	723	376	161
28	69	176	84	78	838	590	491	2230	380	685	401	148
29	69	170	80	78	---	547	450	1960	369	625	395	145
30	66	164	78	78	---	802	426	1980	349	550	414	144
31	65	---	80	78	---	761	---	2070	---	499	617	---
TOTAL	2862	10356	6144	2357	22034	44936	30471	36425	23240	57074	10382	12338
MEAN	92.3	345	198	76.0	787	1450	1016	1175	775	1841	335	411
MAX	408	1880	634	80	3800	4520	3160	2230	2080	8420	946	1720
MIN	27	83	78	70	71	320	426	361	349	317	128	144
CFSM	.13	.47	.27	.10	1.08	1.99	1.39	1.61	1.06	2.52	.46	.56
IN.	.15	.53	.31	.12	1.12	2.29	1.55	1.86	1.18	2.91	.53	.63
AC-FT	5680	20540	12190	4680	43700	89130	60440	72250	46100	113200	20590	24470

CAL YR 1981	TOTAL	68820	MEAN 189	MAX 5430	MIN 13	CFSM .26	IN 3.51	AC-FT	136500	
WTR YR 1982	TOTAL	258619	MEAN 709	MAX 8420	MIN 27	CFSM .97	IN 13.18	AC-FT	513000	

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 (9.1 m) upstream from bridge on county highway H46, 3.0 mi (4.8 km) west of Oakland Mills, 2.9 mi (4.7 km) upstream from Wolf Creek, and 4.3 mi (6.9 km) upstream from mouth.

DRAINAGE AREA.--530 mi² (1,373 km²).

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 (172.233 m) NGVD.

REMARKS.--Records good except those for winter period, which are fair. Occasional high-water measurements were made by Corps of Engineers in 1965, 1966, 1970 and 1974 and by U.S. Geological Survey in 1966 and 1967. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 410 ft³/s (11.61 m³/s), 10.5 in/yr (267 mm/yr) 297,000 acre-ft/yr (366 hm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,010 ft³/s (199 m³/s) June 3, 1980, gage height, 18.26 ft (5.566 m); minimum daily, 1.0 ft³/s (0.028 m³/s) July 9, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of April 22, 1973 reached a stage of 24.09 ft (7.343 m), discharge not determined. Flood of June 1905 reached a stage approximately 2 feet higher from information by local resident.

EXTREMES FOR CURRENT PERIOD.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 15	1515	4,030	114	14.19	4.325	Apr. 17	1730	5,490	155	16.44	5.011
Nov. 4	2400	4,690	133	15.28	4.657	May 30	2200	3,130	88.6	12.56	3.828
Feb. 22	----	4,340	123	ice jam		July 3	2300	4,510	128	15.08	4.596
Mar. 14	1200	3,840	109	13.86	4.225	July 19	0130	4,490	127	15.05	4.587
Mar. 17	0400	3,550	101	13.33	4.064	Sept 15	1030	3,160	89.5	12.61	3.844
Mar. 20	1400	*6,650	188	*17.89	5.453						

Minimum daily discharge, 21 ft³/s (0.59 m³/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	34	1590	69	64	706	500	166	960	91	65	394
2	40	95	1360	68	62	500	460	162	595	127	56	224
3	34	1720	575	66	60	420	480	151	415	3950	50	137
4	31	3620	396	65	58	330	440	145	350	4270	45	62
5	63	4480	307	68	54	280	400	160	263	3440	107	39
6	109	2380	245	68	50	250	430	245	222	1820	1710	35
7	86	855	234	66	50	230	390	379	195	1130	1230	638
8	53	610	227	64	52	200	370	250	231	973	330	634
9	41	463	222	62	56	170	361	179	382	446	193	202
10	37	352	168	60	56	185	486	149	654	276	139	130
11	32	302	160	59	56	646	781	131	344	247	108	96
12	32	273	155	58	56	1730	775	121	227	316	94	77
13	31	237	150	57	61	3320	561	120	191	200	80	67
14	1740	217	135	56	70	3790	418	118	191	1530	70	994
15	3850	210	120	56	82	2560	313	116	162	1640	63	2760
16	1620	432	100	56	160	2960	1680	116	149	1380	60	587
17	948	426	80	56	400	2820	5050	132	153	3570	60	236
18	1190	273	76	57	700	1340	4940	129	141	3900	55	1480
19	622	219	70	58	1200	3590	2270	137	276	4350	47	1790
20	344	229	66	58	1850	6310	828	126	179	3930	43	540
21	245	186	68	59	2800	5880	595	931	112	3090	40	313
22	118	173	72	60	4100	5920	440	1170	191	1840	35	210
23	91	166	73	60	3700	2250	367	398	81	1440	30	157
24	78	177	72	60	1700	1370	318	263	74	1470	28	130
25	72	173	74	62	870	1160	289	213	71	1600	28	115
26	73	214	76	61	536	784	263	885	767	1410	29	101
27	72	370	73	58	547	640	232	2170	404	979	26	88
28	58	219	72	56	746	500	198	1330	359	555	26	84
29	53	155	70	57	---	440	177	986	157	188	21	79
30	48	268	68	59	---	680	175	2830	120	91	24	71
31	40	---	70	62	---	580	---	1900	---	75	127	---
TOTAL	11900	19528	7224	1881	20196	52541	24987	16308	8616	50324	5019	12470
MEAN	384	651	233	60.7	721	1695	833	526	287	1623	162	416
MAX	3850	4480	1590	69	4100	6310	5050	2830	960	4350	1710	2760
MIN	31	34	66	56	50	170	175	116	71	75	21	35
CFSM	.73	1.23	.44	.12	1.36	3.20	1.57	.99	.54	3.06	.31	.79
IN.	.84	1.37	.51	.13	1.42	3.69	1.75	1.14	.60	3.53	.35	.88
AC-FT	23600	38730	14330	3730	40060	104200	49560	32350	17090	99820	9960	24730

CAL YR 1981 TOTAL 130349.8 MEAN 357 MAX 6050 MIN 6.0 CFSM .67 IN 9.15 AC-FT 258500
WTR YR 1982 TOTAL 230994.0 MEAN 633 MAX 6310 MIN 21 CFSM 1.19 IN 16.21 AC-FT 458200

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 (91 m) upstream from bridge on State Highway 394 at Augusta, 2.0 mi (3.2 km) upstream from Long Creek, and at mile 12.5 (20.1 km).

DRAINAGE AREA.--4,303 mi² (11,144 km²).

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 (158.874 m) NGVD. Prior to Nov. 15, 1913, nonrecording gage at site 400 ft (122 m) upstream at datum about 0.7 ft (0.2) higher. May 27, 1915, to Jan. 14, 1935, nonrecording gage at site 400 ft (122 m) upstream at present datum.

REMARKS.--Records good except those for winter period, which are fair. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

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

AVERAGE DISCHARGE.--68 years (water years 1915-82), 2,375 ft³/s (67.26 m³/s), 7.50 in/yr (190 mm/yr), 1,721,000 acre-ft/yr (2,120 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,800 ft³/s (1,892 m³/s) Apr. 23, 1973, gage height, 27.05 ft (8.245 m); minimum daily, 7 ft³/s (0.20 m³/s) Aug. 27 to Sept. 1, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1903, reached a stage of about 21 ft (6 m), discharge, about 45,000 ft³/s (1,270 m³/s). Stage and discharge for flood of April 1973 are believed to be the greatest since 1851.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 15,000 ft³/s (425 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 4	1830	15,600	442	12.87	3.923	Mar. 21	0315	23,900	677	17.04	5.194
Feb. 22	1515	ice jam		*19.51	5.947	Apr. 17	1945	16,400	464	13.71	4.179
Feb. 24	----	23,800	674	ice jam		July 3	1815	18,300	518	14.77	4.502
Mar. 17	0515	15,000	425	12.95	3.947	July 20	0145	*24,900	705	17.44	5.316

Minimum daily discharge, 174 ft³/s (4.93 m³/s) Oct. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	532	452	3530	430	340	13000	5590	2950	10900	2110	4060	2510
2	412	500	4890	400	330	8930	4250	2840	9360	1840	3340	2570
3	333	1800	3680	380	300	6060	3820	2710	8260	13700	2860	1820
4	302	13200	2780	360	290	4740	3840	2530	7000	13100	2440	1300
5	420	13800	2300	350	280	3830	3990	2380	5480	9980	3270	1140
6	560	11200	1960	340	275	3020	3650	2490	4340	7650	6870	1150
7	680	6050	1780	350	270	2480	3370	2580	3770	6600	6680	5080
8	492	3680	1670	350	270	2200	3180	3380	3380	6480	4160	7210
9	357	2730	1540	335	270	2440	3100	5420	3550	5450	3670	4500
10	249	2210	1400	325	270	2260	3330	5370	3930	3980	3030	2460
11	220	1880	1300	320	280	2770	4100	4290	3760	3400	2560	1720
12	187	1670	1240	325	280	5120	4680	3580	3180	3820	2250	1410
13	174	1530	1200	330	285	10600	4670	3140	3120	3640	2000	1220
14	2020	1400	1160	330	280	13800	4410	2860	2890	4030	1790	3550
15	8080	1340	1110	335	280	14300	4250	2750	2640	5500	1630	5930
16	6240	1610	920	340	570	14600	6150	3010	2570	4610	1510	3720
17	3180	1780	600	340	1600	14700	15400	3460	2930	8060	1410	2230
18	4170	1550	450	350	3000	12000	15700	4120	5050	13700	1340	5000
19	2910	1390	420	355	3900	16300	13800	4500	5820	23300	1260	7140
20	2190	1400	440	370	7200	23500	9970	5130	5730	24400	1180	4680
21	1910	1280	460	370	10000	23400	8960	6630	5410	21600	1090	3280
22	1050	1180	470	350	18000	22000	6960	8940	5610	19500	1030	2300
23	939	1100	460	340	20000	21500	5290	7140	5270	17200	1060	1830
24	771	1080	470	350	22000	15700	4490	6440	4010	16200	985	1570
25	680	1070	480	360	20600	14000	4020	6390	2950	16900	913	1400
26	650	1200	470	370	15900	11900	3700	7170	3080	16900	844	1280
27	600	1500	450	365	13000	8170	3440	10500	3590	15000	799	1170
28	550	1460	440	355	12500	6010	3270	11900	5160	12500	928	1080
29	500	1300	430	345	---	4810	3140	11000	3120	10100	963	1030
30	468	1280	440	350	---	4460	3030	12500	2580	7360	996	970
31	452	---	450	340	---	5310	---	12800	---	5440	1300	---
TOTAL	42278	83622	39390	10910	152570	313910	167550	170900	138440	324050	68218	82290
MEAN	1364	2787	1271	352	5449	10130	5585	5513	4615	10450	2201	2743
MAX	8080	13800	4890	430	22000	23500	15700	12800	10900	24400	6870	7210
MIN	174	452	420	320	270	2200	3030	2380	2570	1840	799	970
CFSM	.32	.65	.30	.08	1.27	2.35	1.30	1.28	1.07	2.43	.51	.64
IN.	.37	.72	.34	.09	1.32	2.71	1.45	1.48	1.20	2.80	.59	.71
AC-FT	83860	165900	78130	21640	302600	622600	332300	339000	274600	642800	135300	163200

CAL YR 1981 TOTAL 613380 MEAN 1680 MAX 27900 MIN 120 CFSM .39 IN 5.30 AC-FT 1217000
WTR YR 1982 TOTAL 1594128 MEAN 4367 MAX 24400 MIN 174 CFSM 1.02 IN 13.78 AC-FT 3162000

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER QUALITY RECORDS

LOCATION.--Samples collected at bridge on State Highway 394, 300 ft (91 m) downstream from gage.

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 950 micromhos Dec. 20, 1979, Feb. 12, 1980; minimum daily, 190 micromhos Aug. 10, 1977.
WATER TEMPERATURES: Maximum daily, 34.0°C July 20, 1980; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,550 mg/L June 25, 1981; minimum daily mean, 1 mg/L Mar. 8, 9, 12, 1978.
SEDIMENT LOADS: Maximum daily, 499,000 tons (453,000 tonnes) Mar. 21, 1978; minimum daily, 1.5 tons (1.4 tonnes) Feb. 8, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 740 micromhos June 17; minimum daily, 200 micromhos July 20.
WATER TEMPERATURES: Maximum daily, 29.0°C Aug. 3,4; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,360 mg/L Apr. 17; minimum daily mean, 3 mg/L Jan. 24,28,29,31, Feb. 1,5,10,11.
SEDIMENT LOADS: Maximum daily, 181,000 tons (164,000 tonnes) Apr. 17; minimum daily, 2.2 tons (2.0 tonnes) Feb. 10.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	340	600	500	600	660	320	480	610	500	640	560	370
2	360	600	440	580	660	370	460	600	510	660	570	390
3	400	560	440	580	660	400	530	560	640	240	590	370
4	420	295	460	620	660	400	480	560	670	330	595	430
5	450	320	500	630	680	410	540	580	670	310	600	420
6	460	330	520	610	680	440	530	590	690	420	250	450
7	480	400	540	610	660	460	540	560	690	420	310	370
8	460	460	550	610	670	480	550	560	700	450	440	280
9	460	510	555	620	680	500	550	420	690	410	500	310
10	440	520	590	620	680	520	540	430	650	490	480	370
11	490	540	540	650	670	490	520	500	680	520	540	440
12	520	560	570	620	660	420	500	560	660	570	580	490
13	470	570	600	620	630	340	480	680	680	540	590	520
14	340	580	600	650	680	310	520	590	720	530	620	470
15	280	580	580	620	670	375	540	600	690	460	590	260
16	310	550	550	620	620	300	460	610	730	500	570	310
17	390	560	540	670	470	310	360	570	740	410	570	460
18	340	560	560	670	400	350	300	560	650	320	580	340
19	400	560	640	670	360	290	340	550	410	210	570	290
20	420	560	640	610	320	235	410	550	480	200	580	380
21	440	560	640	660	280	270	470	520	550	220	570	490
22	490	580	620	680	260	260	530	430	560	260	590	490
23	520	580	630	630	240	300	560	500	610	260	580	530
24	540	560	640	660	240	340	580	500	630	270	560	570
25	560	580	630	660	260	380	600	490	640	300	470	610
26	570	560	580	660	260	420	600	460	660	360	470	620
27	580	580	590	660	280	400	600	480	590	420	450	630
28	580	540	600	660	260	440	600	420	400	440	420	650
29	590	540	580	640	---	520	610	490	560	500	420	640
30	590	540	560	640	---	530	620	430	600	520	405	650
31	590	---	600	670	---	---	---	430	---	540	---	---
MEAN	461	528	567	635	509	386	513	529	622	410	521	453

WTR YR 1982 MEAN 511 MAX 740 MIN 200

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	13.0	3.0	.0	.0	2.0	12.0	18.0	19.0	23.0	26.0	24.0
2	18.0	15.0	3.0	1.0	.0	2.0	13.0	19.0	18.5	25.0	28.0	24.0
3	18.0	15.0	3.0	1.0	.0	2.0	9.0	20.0	19.0	23.0	29.0	24.0
4	16.0	14.5	3.0	.0	.0	2.0	9.0	21.0	18.0	23.0	29.0	24.0
5	17.0	13.0	3.0	.0	.0	2.0	5.0	21.0	20.0	25.0	28.0	24.0
6	20.0	13.0	4.0	.0	.0	2.0	6.0	19.0	20.0	25.0	28.0	24.0
7	18.0	13.0	5.0	.0	.0	2.0	5.0	19.0	22.0	27.0	25.0	21.0
8	17.0	11.0	5.0	.0	.0	2.0	3.0	19.0	21.0	25.0	26.0	21.0
9	13.0	11.0	2.0	.0	.0	.0	3.0	18.0	20.0	26.0	26.0	21.0
10	16.0	9.0	3.0	.0	.0	3.0	6.0	18.0	21.0	25.0	26.0	24.0
11	17.0	9.0	3.0	.0	.0	2.0	8.0	20.0	21.0	25.0	24.0	24.0
12	17.0	9.0	2.0	.0	.0	4.0	11.0	21.0	22.0	26.0	24.0	25.0
13	17.0	8.0	2.0	.0	.0	4.0	12.0	21.0	23.0	27.0	24.0	25.0
14	15.0	8.0	2.0	.0	1.0	3.0	13.0	21.0	23.0	25.0	25.0	23.0
15	16.0	9.0	.0	.0	1.0	3.0	13.0	21.0	21.0	25.0	24.0	21.0
16	17.0	10.0	.0	.0	1.0	3.0	12.0	21.0	22.0	27.0	25.0	21.0
17	17.0	10.0	.0	.0	1.0	4.0	12.0	23.0	23.0	25.0	26.0	20.0
18	13.0	9.0	.0	.0	1.0	4.0	13.0	23.0	20.0	25.0	26.0	19.0
19	14.0	8.0	.0	.0	1.0	4.0	12.0	22.0	20.0	23.5	26.0	18.0
20	14.0	11.0	.0	.0	1.0	4.0	11.0	21.0	21.0	25.0	27.0	17.0
21	12.0	4.0	1.0	.0	1.0	4.0	11.0	20.0	22.0	25.0	26.0	17.0
22	12.0	5.0	1.0	1.0	2.0	5.0	13.0	17.0	22.0	26.0	25.0	17.0
23	9.0	4.0	1.0	.0	2.0	5.0	13.0	17.0	22.0	26.0	27.0	17.0
24	7.0	5.0	1.0	.0	2.0	5.0	14.0	18.0	24.0	26.0	24.0	16.0
25	7.0	5.0	2.0	.0	2.0	5.0	15.0	17.0	24.0	27.0	25.0	15.0
26	8.0	6.0	2.0	.0	3.0	4.0	17.0	17.0	24.0	28.0	25.0	15.0
27	8.0	5.0	1.0	1.0	2.0	6.0	16.0	18.0	23.0	28.0	23.0	16.0
28	11.0	4.0	1.0	.0	3.0	7.0	15.0	19.0	23.0	27.0	23.0	19.0
29	12.0	4.0	.0	1.0	---	8.0	16.0	19.0	26.0	25.0	23.0	20.0
30	14.0	3.0	.0	.0	---	8.0	16.0	19.0	25.0	26.0	24.0	21.0
31	13.0	---	.0	.0	---	9.0	---	19.0	---	26.0	22.5	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	152	218	47	57	541	5650	22	26	3	2.8	706	24800
2	168	187	58	78	658	8690	26	28	6	5.3	565	13600
3	126	113	370	1800	505	5020	24	25	5	4.1	672	11000
4	84	68	1800	64200	368	2760	12	12	5	3.9	685	8770
5	79	90	1680	62600	202	1250	7	6.6	3	2.3	500	5170
6	123	186	1340	40500	101	534	6	5.5	8	5.9	365	2980
7	164	301	810	13200	66	317	8	7.6	8	5.8	265	1770
8	145	193	500	4970	51	230	8	7.6	8	5.8	172	1020
9	125	120	270	1990	36	150	9	8.1	5	3.6	160	1050
10	118	79	180	1070	24	91	15	13	3	2.2	130	793
11	97	58	125	634	44	154	10	8.6	3	2.3	480	3590
12	64	32	77	347	46	154	10	8.8	4	3.0	1000	13800
13	92	43	53	219	22	71	14	12	5	3.8	2970	89400
14	1190	10500	48	181	21	66	11	9.8	4	3.0	3000	112000
15	2910	63500	50	181	45	135	22	20	5	3.8	2060	79500
16	1310	22100	145	630	54	134	16	15	15	23	1830	72100
17	660	5670	120	577	50	81	8	7.3	65	281	2020	80200
18	970	10900	78	326	27	33	6	5.7	108	875	1470	47600
19	570	4480	62	233	14	16	7	6.7	142	1500	3180	164000
20	317	1870	56	212	19	23	14	14	530	10300	2180	138000
21	220	1130	35	121	22	27	13	13	1010	27300	1450	91600
22	190	539	20	64	21	27	12	11	882	42900	1390	82600
23	152	385	15	45	16	20	6	5.5	1080	58300	810	47000
24	91	189	15	44	22	28	3	2.8	1210	71900	852	36100
25	44	81	19	55	16	21	4	3.9	805	44800	900	34000
26	31	54	73	237	15	19	6	6.0	515	22100	720	23100
27	31	50	94	301	14	17	4	3.9	440	15400	618	13600
28	36	56	88	347	24	29	3	2.9	511	17200	582	9440
29	46	62	69	242	28	33	3	2.8	---	---	480	6230
30	54	68	87	301	42	50	4	3.8	---	---	565	6800
31	51	62	---	---	30	36	3	2.8	---	---	1140	16300
TOTAL	---	123304	---	195042	---	25666	---	305.7	---	312936.6	---	1237913

SKUNK RIVER BASIN

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	1260	19000	141	1120	630	18500	460	2620	415	4550	1980	15200
2	775	8890	130	997	540	13600	390	1940	348	3140	900	6250
3	450	4640	126	922	468	10400	3310	139000	278	2150	345	1700
4	435	4510	108	738	440	8320	2610	92300	244	1610	102	358
5	495	5330	98	630	524	7750	1900	51200	2250	24400	30	92
6	520	5120	112	753	571	6690	1680	34700	3600	66800	120	386
7	340	3090	217	1510	476	4850	2250	40100	2180	39300	1850	27700
8	208	1790	380	3470	390	3560	2000	35000	1330	14900	2770	53900
9	160	1340	1460	21400	400	3830	1900	28000	700	6940	1190	14500
10	350	3150	1510	21900	678	7190	1480	15900	570	4660	527	3500
11	382	4230	770	8920	827	8400	910	8350	390	2700	251	1170
12	360	4550	510	4930	653	5610	820	8460	307	1870	170	647
13	395	4980	409	3470	512	4310	910	8940	257	1390	127	418
14	340	4050	320	2470	430	3360	1350	14700	233	1130	1530	22900
15	295	3390	251	1860	393	2800	2070	30700	208	915	2300	36800
16	1450	31100	294	2390	359	2490	1460	18200	190	775	980	9840
17	4360	181000	750	7010	361	2860	2020	44000	187	712	330	1990
18	2890	123000	1050	11700	1310	17900	2770	102000	182	658	1430	21500
19	2000	74500	940	11400	2080	32700	1990	125000	176	599	2460	47500
20	1260	33900	1040	14400	1160	17900	1120	73800	169	538	1090	13800
21	780	18900	1510	27000	658	9610	900	52500	155	456	580	5140
22	610	11500	3370	81300	562	8510	710	37400	152	423	340	2110
23	520	7430	2140	41300	468	6660	618	28700	182	521	210	1040
24	425	5150	1420	24700	432	4680	558	24400	123	327	132	560
25	350	3800	1080	18600	400	3190	1100	50200	74	182	99	374
26	325	3250	2600	54400	730	6070	860	39200	63	144	77	266
27	290	2690	2250	63000	1420	13800	392	15900	61	132	62	196
28	245	2160	2130	68400	3490	49100	443	15000	57	143	65	190
29	202	1710	1210	35900	1490	12600	421	11500	52	135	70	195
30	153	1250	2000	67500	590	4110	380	7550	34	91	60	157
31	---	---	1530	52900	---	---	400	5880	400	1400	---	---
TOTAL	---	579400	---	656990	---	301350	---	1163140	---	183691	---	290379

TOTAL LOAD FOR YEAR: 5071197.3 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
NOV 04...	1100	14.0	13600	2420	88900	43	43
JAN 21...	1100	.0	368	12	12	--	--
MAR 03...	1400	1.5	5560	648	9730	--	--
20...	1830	4.0	23600	1760	112000	--	--
APR 17...	1800	12.0	16300	4220	186000	44	51
MAY 07...	1100	18.0	2640	242	1730	59	62
JUL 07...	1400	25.0	6890	2340	43500	61	67
17...	2030	25.0	9780	2470	65200	43	49
AUG 31...	1200	22.0	1080	43	125	--	--
SEP 08...	1800	21.0	7160	2500	48300	48	50

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)
NOV 04...	50	67	95	97	100	--	--
JAN 21...	--	--	--	--	--	--	44
MAR 03...	--	--	--	--	--	--	82
20...	--	--	81	84	94	100	--
APR 17...	55	70	96	97	99	100	--
MAY 07...	72	86	--	--	--	--	98
JUL 07...	78	87	99	99	100	--	--
17...	54	67	92	94	98	100	--
AUG 31...	--	--	--	--	--	--	92
SEP 08...	56	67	--	--	--	--	97

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
NOV 04...	1100	13600	4	0	1	8	61
MAY 07...	1100	2640	4	--	0	6	69
JUL 07...	1400	6890	5	1	3	26	87

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)
NOV 04...	90	92	93	95	98	100
MAY 07...	97	100	--	--	--	--
JUL 07...	99	100	--	--	--	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV 04...	1100	13600	215	7.8	14.0	380	7.3	71	K45000	K52000
JAN 21...	1100	368	685	7.5	.0	2.0	8.6	60	1800	750
MAR 03...	1400	5560	375	7.7	1.5	100	12.4	89	--	K1200
MAY 07...	1100	2640	540	7.9	18.0	62	8.3	89	6600	12000
JUL 07...	1400	6890	375	8.1	25.0	350	6.3	79	22000	34000
AUG 31...	1200	1080	360	8.6	22.0	10	11.2	130	K100	K1900

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 LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV 04...	90	25	6.8	4.7	9	.2	6.6	69	7.0	16
JAN 21...	330	86	29	23	13	.5	2.8	240	80	25
MAR 03...	160	43	13	7.3	9	.3	6.5	120	27	20
MAY 07...	250	64	22	13	10	.4	3.1	180	60	20
JUL 07...	160	44	13	6.5	8	.2	4.2	112	29	12
AUG 31...	150	29	20	11	13	.4	2.5	106	52	17

DATE	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, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)
NOV 04...	.2	9.2	143	117	.19	5250	1.5	.180	.23
JAN 21...	.3	15	418	405	.57	415	4.6	.400	.52
MAR 03...	.2	11	234	200	.32	3510	4.0	.800	1.0
MAY 07...	.2	2.4	327	293	.44	2330	5.3	.120	.15
JUL 07...	.3	11	218	187	.30	4060	5.7	.130	.17
AUG 31...	.3	140	263	336	.36	767	.26	.130	.17

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

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	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)
NOV									
04...	1.70	.140	1.0	.130	.340	2420	88900	--	95
JAN									
21...	1.60	.060	.18	.040	.060	12	12	44	--
MAR									
03...	2.30	.100	.67	.120	.220	648	9730	82	--
MAY									
07...	2.40	.070	.95	.090	.310	242	1730	98	--
JUL									
07...	2.60	.130	2.9	.130	.960	2340	43500	--	99
AUG									
31...	4.10	.030	.46	.070	.150	43	125	92	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
OCT , 1980										
02...	1330	2	2	100	80	0	<1	0	0	0
MAR , 1981										
03...	1200	5	2	300	200	1	<1	0	0	6
APR										
27...	1630	2	2	200	100	0	<1	10	0	7
SEP										
01...	1400	3	3	100	130	1	<1	10	0	0
NOV										
04...	1100	18	2	500	71	<1	<1	20	<10	22
MAR , 1982										
03...	1400	4	1	200	110	1	<1	20	<10	5
MAY										
07...	1100	3	2	100	120	<1	<3	<10	<10	3
AUG										
31...	1200	2	2	100	55	<1	<1	<10	<10	<1

DATE	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT , 1980									
02...	.0	5	0	1	1	0	0	50	30
MAR , 1981									
03...	.1	10	3	0	0	0	0	50	30
APR									
27...	.0	7	0	1	1	0	0	20	10
SEP									
01...	.0	4	2	0	0	0	0	40	7
NOV									
04...	.1	43	3	1	<1	<1	<1	140	38
MAR , 1982									
03...	<.1	13	--	1	1	<1	<1	60	<3
MAY									
07...	.1	12	2	2	1	<1	<1	40	<12
AUG									
31...	<.1	17	1	2	1	<1	<1	40	5

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)
OCT , 1980										
02...	<3	10	3	550	20	6	1	210	3	.1
MAR , 1981										
03...	<3	17	5	7800	40	17	1	410	6	.3
APR										
27...	<3	8	2	1900	<10	7	6	130	7	.1
SEP										
01...	<3	8	1	1600	<10	6	4	290	33	.2
NOV										
04...	<3	48	6	40000	130	36	5	1900	22	.2
MAR , 1982										
03...	<3	30	3	12000	38	32	<1	590	34	.1
MAY										
07...	<1	20	5	5800	12	15	1	310	<3	.2
AUG										
31...	<1	22	3	610	21	1	<1	240	3	.6

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 (0.3 km) upstream from bridge on U.S. Highway 136, 2.7 mi (4.3 km) upstream from Des Moines River, and at mile 364.2 (586.0 km) upstream from Ohio River.

DRAINAGE AREA.--119,000 mi² (308,000 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1878 to current year.

GAGE.--Water-stage recorder. Datum of gage is 477.41 ft (145.515 m) NGVD (levels by Corps of Engineers); Jan. 1, 1878, to May 1913, nonrecording gage at Galland (formerly Nashville), 8 mi (12.9 km) upstream; zero of gage was set to low-water mark of 1864, or 496.52 ft (151.339 m) NGVD.

REMARKS.--Discharge computed from records of operation of turbines in powerplant and spillway gates in dam. Minor flow regulation caused by powerplant since 1913 and navigation dams. Records for May 1913 to September 1937 adjusted for change in contents in Keokuk Reservoir, those after September 1937 unadjusted.

COOPERATION.--Records furnished by Union Electric Co.

AVERAGE DISCHARGE.--104 years, 62,880 ft³/s (1,781 m³/s), 7.18 in/yr (182 mm/yr), 45,560,000 acre-ft/yr (56,180 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 344,000 ft³/s (9,740 m³/s) Apr. 24, 1973; maximum gage height, 23.35 ft (7.117 m) Apr. 24, 1973; minimum daily discharge, 5,000 ft³/s (142 m³/s) Dec. 27, 1933.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 6, 1851, reached a stage of 21.0 ft (6.40 m), present site and datum, estimated as 13.5 ft (4.11 m) at Galland, discharge, 360,000 ft³/s (10,200 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 225,000 ft³/s (6,370 m³/s) Apr. 17; minimum daily, 27,600 ft³/s (782 m³/s) Dec. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61700	75900	61200	41300	33000	98000	142000	193000	173000	73300	66800	48900
2	63500	76300	67100	40600	34600	96000	142000	193000	169000	67200	62200	50900
3	63400	79100	70200	40200	35600	88900	142000	190000	166000	85600	62300	48700
4	52400	95300	71400	39400	33700	74100	145000	186000	162000	85100	56300	48400
5	48900	89700	72000	40700	35800	65300	143000	179000	153000	80200	63000	57400
6	47700	87400	67800	39700	34500	61000	145000	173000	144000	75500	78700	59700
7	52600	77800	67800	41400	34300	64300	146000	165000	134000	98300	82600	60300
8	59800	74100	61200	43400	32500	59600	147000	160000	124000	112000	101000	64100
9	60000	69900	54300	40800	33200	52100	149000	159000	119000	110000	86800	60300
10	60100	66500	51100	36500	33800	53500	154000	154000	116000	103000	72400	45900
11	61300	63500	53500	35000	33700	61200	162000	146000	111000	82000	65500	48900
12	62400	59000	53900	34900	35500	71900	168000	143000	107000	86900	55700	46800
13	61800	55900	52700	34600	35200	93600	179000	139000	104000	88900	48600	42900
14	67900	57000	49900	34500	33000	110000	185000	137000	97900	86700	49500	48000
15	79200	56500	47800	34700	32000	127000	190000	136000	94600	90500	48000	58500
16	85000	59100	48200	33500	33500	151000	202000	136000	110000	91100	47500	58600
17	79900	59600	42400	32500	38300	150000	225000	135000	110000	91300	47300	64100
18	81700	59800	27900	32400	42900	148000	222000	136000	119000	112000	45000	68000
19	90300	50400	27600	33800	44900	169000	219000	137000	127000	161000	44500	72900
20	93500	55200	30900	35500	51600	184000	210000	139000	124000	160000	43600	73100
21	92900	56700	30900	35400	60900	184000	204000	146000	108000	151000	42200	71300
22	87800	57700	33600	36300	72100	185000	195000	148000	87600	143000	34100	72900
23	84100	54600	35600	34000	82500	189000	188000	150000	79200	127000	32100	70600
24	81000	58100	36000	32500	86800	187000	181000	142000	77200	114000	43500	69600
25	85800	54300	35500	32700	90100	181000	181000	140000	75300	110000	35700	64400
26	81900	51300	36400	32800	92900	175000	181000	146000	75800	109000	45300	61000
27	83600	50200	41600	32800	94500	166000	183000	155000	77300	102000	42800	59500
28	85700	54700	41400	33700	94300	156000	185000	162000	82500	93200	43800	54800
29	84100	58500	42900	34400	---	152000	189000	163000	81200	84200	42700	46500
30	84200	56300	41800	35800	---	145000	191000	168000	75700	78300	42800	40100
31	82200	---	39900	34000	---	148000	---	173000	---	73700	49000	---
TOTAL	2266400	1920400	1494500	1119800	1395700	3846500	5295000	4829000	3384300	3126000	1681300	1737100
MEAN	73110	64010	48210	36120	49850	124100	176500	155800	112800	100800	54240	57900
MAX	93500	95300	72000	43400	94500	189000	225000	193000	173000	161000	101000	73100
MIN	47700	50200	27600	32400	32000	52100	142000	135000	75300	67200	32100	40100
CFSM	.61	.54	.41	.30	.42	1.04	1.48	1.31	.95	.85	.46	.49
IN.	.71	.60	.47	.35	.44	1.20	1.66	1.51	1.06	.98	.53	.54
AC-FT	4495000	3809000	2964000	2221000	2768000	7630000	10500000	9578000	6713000	6200000	3335000	3446000

CAL YR 1981 TOTAL 24070200 MEAN 65950 MAX 162000 MIN 24100 CFSM .55 IN 7.52 AC-FT 47740000
WTR YR 1982 TOTAL 32096000 MEAN 87930 MAX 225000 MIN 27600 CFSM .74 IN 10.03 AC-FT 63660000

05474500 MISSISSIPPI RIVER AT KEOKUK, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Samples collected at bridge on U.S. Highway 136, 0.2 mi (0.3 km) downstream from discharge station.

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1977 to September 1981.
WATER TEMPERATURES: December 1977 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 612 micromhos Jan. 21, 1980; minimum daily, 310 micromhos Apr. 7, 1981.
WATER TEMPERATURES: Maximum daily, 28.0°C July 13-23, 1980; minimum daily, 0.0° C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT										
01...	0930	63600	390	8.2	18.5	37	6.7	73	440	K110
DEC										
09...	1000	54300	460	8.5	2.5	15	13.3	99	K160	K220
FEB										
02...	1000	44100	505	8.2	.0	3.0	12.9	90	K11000	840
APR										
01...	1000	140000	420	8.1	10.5	54	12.4	103	250	1300
JUN										
02...	1030	167000	405	7.8	19.0	96	6.9	76	630	650
AUG										
04...	1230	60200	415	8.2	28.5	10	7.2	94	K45	160

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 LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT									
01...	180	43	18	8.7	9	.3	3.3	150	11
DEC									
09...	220	53	22	8.9	8	.3	2.6	170	14
FEB									
02...	240	58	22	14	11	.4	2.4	190	19
APR									
01...	180	47	16	7.7	8	.3	4.5	150	9.0
JUN									
02...	190	49	17	6.0	6	.2	2.8	140	28
AUG									

DATE	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, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT									
01...	26	.1	2.3	237	203	.32	40700	1.2	.220
DEC									
09...	20	.2	7.2	266	230	.36	39000	3.5	<.070
FEB									
02...	20	.2	12	274	262	.37	32600	3.8	.540
APR									
01...	19	<.1	11	232	205	.32	87700	3.4	.440
JUN									
02...	12	.2	8.4	240	208	.33	108000	4.1	.090
AUG									
04...	18	.2	9.5	305	258	.41	49600	2.7	<.060

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

05474500 MISSISSIPPI RIVER AT KEOKUK, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	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)
OCT									
01...	.28	1.60	.020	.55	.130	.180	71	12200	98
DEC									
09...	.09	1.40	.050	.34	.050	.110	24	3520	100
FEB									
02...	.70	.96	.150	.31	.090	.100	1	119	100
APR									
01...	.57	1.40	.060	.49	.050	.160	230	86900	100
JUN									
02...	.12	2.50	.070	.83	.090	.270	296	133000	98
AUG									
04...	.08	1.30	.110	.58	.110	.190	38	6180	61

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
FEB										
02...	1000	1	1	<100	64	1	<1	10	<10	<1
APR										
01...	1000	2	1	100	68	1	<3	10	<10	2
AUG										
04...	1230	2	2	<100	80	1	<1	<10	<10	<1

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)
FEB										
02...	<3	9	3	180	56	2	2	90	72	.1
APR										
01...	<1	26	3	5200	63	9	2	240	23	.1
AUG										
04...	<1	4	2	610	7	1	<1	90	6	.3

DATE	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
FEB									
02...	<.1	3	2	<1	<1	<1	<1	10	62
APR									
01...	<.1	5	1	<1	<1	1	<1	50	<12
AUG									
04...	.4	21	1	<1	1	<1	<1	20	21

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 (366 m) downstream from bridge on State Highway 9 at Estherville, 0.1 mi (0.2 km) upstream from School Creek, 2.3 mi (3.7 km) upstream from Brown Creek, and at mile 404.2 (650.4 km).

DRAINAGE AREA.--1,372 mi² (3,553 km²).

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 (380.253 m) NGVD.

REMARKS.--Records good except those for winter period, which are fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years, 301 ft³/s (8.524 m³/s), 2.98 in/yr (76 mm/yr), 218,100 acre-ft/yr (269 hm³/yr); median of yearly mean discharges, 220 ft³/s (6.23 m³/s), 2.2 in/yr (56 mm/yr), 159,000 acre-ft/yr (196 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s (453 m³/s) Apr. 12, 1969, gage height, 17.68 ft (5.389 m), from floodmark; no flow Jan. 16-18, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,410 ft³/s (39.9 m³/s) Mar. 23, gage height, 5.86 ft (1.786 m), no peak above base of 1,500 ft³/s (42.5 m³/s); minimum daily, 7.2 ft³/s (0.20 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	39	32	29	11	441	885	401	810	334	206	100
2	7.2	40	29	28	12	378	837	375	815	315	214	85
3	13	45	30	28	11	259	893	357	824	299	174	71
4	34	50	42	27	10	249	1030	346	850	280	203	70
5	48	47	39	26	11	237	869	351	897	269	198	68
6	44	43	38	27	11	206	685	337	1090	469	241	72
7	46	40	47	26	11	161	774	316	1180	446	220	73
8	44	42	48	23	11	145	787	310	1030	365	229	72
9	45	38	40	20	11	163	741	293	968	365	220	73
10	43	36	39	18	10	264	723	287	916	429	198	95
11	42	39	42	15	10	328	696	287	910	450	170	96
12	37	38	50	17	10	384	688	295	872	432	155	222
13	39	38	50	15	10	444	701	292	806	444	145	325
14	39	37	41	15	10	540	708	345	764	432	132	283
15	35	33	45	15	10	576	712	453	752	420	119	277
16	40	32	43	14	11	636	764	557	723	454	104	268
17	57	32	42	12	11	713	826	589	692	428	99	274
18	69	33	39	13	12	752	845	935	669	424	91	272
19	68	36	40	13	13	767	827	1080	656	444	82	255
20	75	30	40	13	15	1010	796	1150	642	490	76	233
21	68	29	39	13	19	978	778	1060	617	534	73	213
22	65	32	39	13	106	934	742	997	576	538	65	193
23	62	37	38	13	444	1030	692	943	530	490	58	181
24	59	35	37	13	628	970	653	887	491	412	74	167
25	59	35	34	13	338	962	639	835	469	376	64	155
26	51	38	35	13	292	947	602	827	457	348	54	141
27	47	37	36	14	353	928	543	847	443	320	48	128
28	49	37	34	14	420	870	493	818	416	288	48	119
29	46	36	32	13	---	886	454	830	389	268	58	124
30	44	38	30	13	---	921	424	854	360	250	56	128
31	42	---	30	12	---	916	---	822	---	229	109	---
TOTAL	1424.8	1122	1200	538	2821	18995	21807	19076	21614	12042	3983	4833
MEAN	46.0	37.4	38.7	17.4	101	613	727	615	720	388	128	161
MAX	75	50	50	29	628	1030	1030	1150	1180	538	241	325
MIN	7.2	29	29	12	10	145	424	287	360	229	48	68
CFSM	.03	.03	.03	.01	.07	.45	.53	.45	.53	.28	.09	.12
IN.	.04	.03	.03	.01	.08	.52	.59	.52	.59	.33	.11	.13
AC-FT	2830	2230	2380	1070	5600	37680	43250	37840	42870	23890	7900	9590

CAL YR 1981	TOTAL	20213.2	MEAN	55.4	MAX	1340	MIN	7.2	CFSM	.04	IN	.55	AC-FT	40090
WTR YR 1982	TOTAL	109455.8	MEAN	300	MAX	1180	MIN	7.2	CFSM	.22	IN	2.97	AC-FT	217100

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 (2 m) downstream from First Avenue in city of Humboldt, about 700 ft (213 m) below dam, 3.2 mi (5.1 km) upstream from Indian Creek, 3.9 mi (6.3 km) upstream from East Fork Des Moines River, and at mile 334.3 (537.9 km).

DRAINAGE AREA.--2,256 mi² (5,843 km²).

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 (321.119 m) NGVD. Prior to Oct. 3, 1966, nonrecording gage at same site and datum.

REMARKS.--Records good except those for January and February, which are fair. 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 (213 m) upstream from gage. Power generation and streamflow regulation discontinued August 1964. Low flow discharges occasionally affected by minor regulation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years, 756 ft³/s (21.41 m³/s), 4.55 in/yr (116 mm/yr), 547,700 acre-ft/yr (675 hm³/yr); median of yearly mean discharges, 640 ft³/s (18.1 m³/s) 3.9 in/yr (99 mm/yr), 464,000 acre-ft/yr (572 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft³/s (510 m³/s) Apr. 14, 1969, gage height, 15.40 ft (4.694 m); minimum daily, 13 ft³/s (0.37 m³/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 (3.72 m), discharge, 11,000 ft³/s (312 m³/s) at present site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,800 ft³/s (79.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	1730	3,100	87.8	6.96	2.121	June 9	1130	3,000	85.0	6.79	2.070
May 28	2045	3,150	89.2	6.94	2.115	July 11	1215	*3,770	107	*7.53	2.295

Minimum daily discharge, 66 ft³/s (1.87 m³/s) Feb. 11-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	345	268	145	68	1370	1590	846	2330	886	642	794
2	106	325	216	135	68	1330	1540	897	2170	827	593	1260
3	127	315	200	131	68	1310	1580	854	1990	786	535	1080
4	177	315	281	127	68	1200	1600	819	1870	740	543	862
5	240	315	260	124	68	1040	1820	902	1790	691	557	696
6	264	305	256	120	68	920	1820	1090	1780	993	599	579
7	264	295	315	115	67	820	1600	1180	1980	1910	555	508
8	260	285	305	115	67	700	1510	1150	2610	2310	529	468
9	256	273	243	111	67	640	1550	1070	2940	2700	485	443
10	244	311	168	108	67	570	1500	987	2670	3280	469	421
11	236	291	220	116	66	730	1510	927	2280	3670	435	404
12	224	256	273	123	66	740	1630	1070	2030	3650	406	369
13	224	252	290	116	66	880	1700	1300	1900	3170	405	1080
14	224	248	228	114	66	1000	1670	1580	1760	2600	385	2160
15	248	248	141	112	66	1200	1690	1780	1690	2140	358	2540
16	290	234	128	110	66	1270	1750	1950	1660	1870	332	2450
17	315	236	138	105	68	1300	1810	2150	1620	1760	315	2130
18	404	230	185	110	74	1560	1940	2210	1550	1620	294	1820
19	636	232	185	98	78	1690	1970	2050	1500	1430	281	1570
20	650	228	178	90	90	2250	1880	2240	1490	1310	263	1370
21	587	200	175	90	130	2500	1740	2330	1440	1280	254	1210
22	524	212	171	96	400	2690	1630	2380	1350	1220	243	1090
23	468	248	168	87	840	2670	1550	2300	1250	1160	232	1000
24	440	234	160	74	980	2430	1470	2220	1160	1090	228	922
25	434	237	152	72	1090	2240	1370	2070	1170	996	218	845
26	416	256	152	70	1250	2010	1290	2230	1220	898	246	788
27	410	248	152	76	1290	1840	1210	2660	1150	861	231	751
28	398	248	160	80	1270	1730	1120	3060	1090	858	212	704
29	380	242	152	72	---	1640	1050	3090	1020	848	224	693
30	375	260	142	68	---	1600	990	2820	947	768	259	794
31	365	---	145	68	---	1600	---	2510	---	701	401	---
TOTAL	10302	7924	6207	3178	8632	45470	47080	54722	51407	49023	11729	31901
MEAN	332	264	200	103	308	1467	1569	1765	1714	1581	378	1063
MAX	650	345	315	145	1290	2690	1970	3090	2940	3670	642	2540
MIN	106	200	128	68	66	570	990	819	947	691	212	404
CFSM	.15	.12	.09	.05	.14	.65	.70	.78	.76	.70	.17	.47
IN.	.17	.13	.10	.05	.14	.75	.78	.90	.85	.81	.19	.53
AC-FT	20430	15720	12310	6300	17120	90190	93380	108500	102000	97240	23260	63280

CAL YR 1981	TOTAL 127328	MEAN 349	MAX 2540	MIN 54	CFSM .16	IN 2.10	AC-FT 252600			
WTR YR 1982	TOTAL 327575	MEAN 897	MAX 3670	MIN 66	CFSM .40	IN 5.40	AC-FT 649700			

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 (15 m) upstream from old mill dam, in city park at east edge of Dakota City, 500 ft (152 m) upstream from bridge on county highway P56, 0.6 mi (1.0 km) downstream from bridge on State Highway 3, 3.4 mi (5.5 km) upstream from confluence with Des Moines River, and at mile 333.8 (537.1 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--1,308 mi² (3,388 km²).

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 (316.599 m) NGVD. Prior to Oct. 1, 1954, nonrecording gage at site 8 mi (12.9 km) upstream at different datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather service gage-height telemeter at station.

AVERAGE DISCHARGE.--42 years, 500 ft³/s (14.16 m³/s), 5.19 in/yr (132 mm/yr), 362,200 acre-ft/yr (447 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,800 ft³/s (532 m³/s) June 21, 1954, gage height, 16.95 ft (5.166 m), from floodmark, site and datum then in use; minimum daily, 4.8 ft³/s (0.14 m³/s) Jan. 11-14, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1954, reached a stage of 24.02 ft (7.321 m), discharge, 17,400 ft³/s (493 m³/s) at present site. Flood of September 1938 reached a stage of 17.4 ft (5.30 m), discharge, about 22,000 ft³/s (623 m³/s) site and datum in use during the period 1940-54.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,700 ft³/s (48.1 m³/s), revised, and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	1015	2,050	58.1	11.38	3.469	June 11	0630	3,050	86.4	12.39	3.776
May 20	1200	3,220	91.2	12.60	3.840	July 11	2315	*3,330	94.3	*12.94	3.944
May 28	1145	3,240	91.8	12.62	3.847						

Minimum daily discharge, 50 ft³/s (1.42 m³/s) Feb. 14-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	144	414	252	128	60	950	950	651	2650	712	515	440
2	138	400	239	124	59	980	902	610	2490	656	455	706
3	143	379	298	120	58	950	875	575	2290	610	394	837
4	163	366	330	116	60	940	755	545	2090	560	381	880
5	178	361	296	112	58	900	795	545	1890	515	376	846
6	199	350	357	110	58	830	796	700	1730	642	372	693
7	269	340	354	106	58	760	813	896	1740	1200	435	523
8	288	325	296	102	56	700	844	1060	2300	1050	440	419
9	284	308	260	97	55	640	872	1160	2770	1770	381	364
10	280	300	162	99	57	660	866	1150	2950	2880	328	331
11	274	285	200	100	54	800	881	1090	3050	3260	277	312
12	262	273	252	97	52	901	938	1080	2960	3230	241	305
13	251	272	263	87	51	970	962	1270	2710	2860	222	427
14	242	262	195	81	50	1000	968	1550	2410	2520	204	622
15	242	257	160	78	50	1000	1060	1760	2130	2320	194	844
16	240	253	150	80	50	1020	1370	2120	1850	2110	181	991
17	246	246	165	88	50	1050	1450	2450	1630	1840	174	1070
18	263	241	220	83	52	1100	1500	2750	1540	1620	165	1100
19	326	239	215	76	56	1400	1540	3030	1560	1500	156	1090
20	451	234	210	73	70	1900	1600	3160	1590	1400	144	1050
21	537	223	207	71	154	2030	1620	3120	1560	1400	139	943
22	575	217	185	72	450	2010	1600	3000	1470	1290	136	800
23	562	208	180	64	600	1990	1510	2820	1370	1110	127	680
24	517	227	177	58	720	2040	1390	2630	1240	950	122	601
25	484	238	175	60	800	2030	1220	2420	1150	822	119	544
26	459	243	170	64	940	1950	1080	2660	1170	717	119	497
27	447	241	165	65	980	1830	938	3080	1050	651	122	457
28	437	248	155	60	960	1690	827	3220	942	651	122	429
29	436	248	150	59	---	1420	756	3100	856	706	133	411
30	435	253	145	58	---	1210	700	2890	783	690	159	435
31	425	---	135	58	---	1060	---	2770	---	605	237	---
TOTAL	10197	8451	6718	2646	6718	38711	32378	59862	55921	42847	7570	19647
MEAN	329	282	217	85.4	240	1249	1079	1931	1864	1382	244	655
MAX	575	414	357	128	980	2040	1620	3220	3050	3260	515	1100
MIN	138	208	135	58	50	640	700	545	783	515	119	305
CFSM	.25	.22	.17	.07	.18	.96	.83	1.48	1.43	1.06	.19	.50
IN.	.29	.24	.19	.08	.19	1.10	.92	1.70	1.59	1.22	.22	.56
AC-FT	20230	16760	13330	5250	13330	76780	64220	118700	110900	84990	15020	38970

CAL YR 1981 TOTAL 218484 MEAN 599 MAX 7910 MIN 47 CFSM .46 IN 6.21 AC-FT 433400
WTR YR 1982 TOTAL 291666 MEAN 799 MAX 3260 MIN 50 CFSM .61 IN 8.30 AC--FT 578500

05480000 LIZARD CREEK NEAR CLARE, IA

LOCATION.--Lat 42°32'35", long 94°20'45", in NE1/4 NE1/4 sec.11, T.89 N., R.30 W., Webster County, Hydrologic Unit 07100004, on right bank 20 ft (6 m) downstream from bridge on county highway, 2.3 mi (3.7 km) downstream from Drainage ditch 3, 3.0 mi (4.8 km) south of Clare, and 8.2 mi (13.2 km) upstream from South Lizard Creek.

DRAINAGE AREA.--257 mi^2 (666 km^2).

PERIOD OF RECORD.--March 1940 to December 1981 (discontinued). Prior to April 1940, monthly discharge only, published in WSP 1308. Prior to October 1954, published as North Lizard Creek near Clare.

REVISED RECORDS.--WSP 1508: 1940, 1942, 1944-46 (M), 1947-48.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,079.30 ft (328.971 m) NGVD. Prior to May 6, 1953, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the period.

AVERAGE DISCHARGE.--41 years, (water years 1941-1981), 96.3 ft/s (2.727 m/s), 45.5 ft^3/s (1.289 m^3/s), 5.09 in/yr (129 mm/yr) 69,770 acre-ft/yr (86.0 hm^3/yr); median of yearly mean discharges, 82 ft^3/s (2.32 m^3/s); 4.3 in/yr (109 mm/yr), 59,400 acre-ft/yr (73.2 hm^3/yr). The figure published in the 1981 report was in error; the correct figure is that as shown above for the 41-year average.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,000 ft^3/s (283 m^3/s) June 23, 1947, gage height, 16.0 ft (4.88 m), from floodmark, from rating curve extended above 5,300 ft^3/s (150 m^3/s); no flow on a few days in 1943, 1956, and 1968 and many days in 1977.

EXTREMES FOR CURRENT PERIOD.--October to December 1981: Maximum discharge, 149 ft^3/s (4.22 m^3/s) Oct. 5, gage height, 3.94 ft (1.201 m), no peak above base of 800 ft^3/s (22.7 m^3/s); minimum daily, 18 ft^3/s (0.51 m^3/s) Dec. 15, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	64	42	25								
2	21	63	35	26								
3	23	64	40	25								
4	78	64	44	26								
5	137	63	37	25								
6	112	59	37	21								
7	91	56	42	18								
8	81	57	38	16								
9	76	51	36	15								
10	68	47	31	15								
11	61	50	37	13								
12	56	47	41	12								
13	56	46	40	11								
14	57	47	25	10								
15	61	48	18	9.5								
16	72	47	18	8.2								
17	83	42	21	7.6								
18	102	41	25	8.2								
19	106	45	29	8.0								
20	107	38	31	7.2								
21	95	22	33	7.2								
22	83	44	29	6.9								
23	78	53	27	7.3								
24	78	48	24	6.0								
25	83	42	25	5.7								
26	76	46	27	5.4								
27	82	44	27	5.7								
28	81	37	24	6.0								
29	79	35	23	5.8								
30	80	41	24	---								
31	75	---	24	---								
TOTAL	2361	1451	954	---								
MEAN	76.2	48.4	30.8	---								
MAX	137	64	44	---								
MIN	21	22	18	---								
CFSM	.30	.19	.12	---								
IN.	.34	.21	.14	---								
AC-FT	4680	2880	1890	---								

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 (122 m) upstream from Soldier Creek, 1,800 ft (549 m) downstream from Illinois Central Railroad bridge in Fort Dodge, 2,000 ft (610 m) downstream from Lizard Creek, and at mile 314.6 (506.2 km).

DRAINAGE AREA.--4,190 mi² (10,852 km²).

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 (295.467 m) NGVD. See WSP 1728 for history of changes prior to Dec. 8, 1949.

REMARKS.--Records good except those for winter period, which are poor. Occasional minor regulation caused by dam 0.8 mi (1.3 km) upstream from gage. Several observations of water temperature were made during the year. Corps of Engineers rain-gage and gage-height telemeters and City of Fort Dodge gage-height telemeter at station.

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

AVERAGE DISCHARGE.--50 years (water years 1914-27, 1947-82), 1,393 ft³/s (39.45 m³/s), 4.51 in/yr (115 mm/yr), 1,009,000 acre-ft/yr (1,244 hm³/yr); median of yearly mean discharges, 1,170 ft³/s (33.1 m³/s), 3.8 in/yr (97 mm/yr), 848,000 acre-ft/yr (1,050 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,600 ft³/s (1,010 m³/s) Apr. 8, 1965, gage height, 17.79 ft (5.422 m); maximum gage height, 19.62 ft (5.980 m), from floodmark, June 23, 1947, present site and datum; minimum daily discharge, 14 ft³/s (0.40 m³/s) Nov. 3, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s (170 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 23	0145	ice jam		*10.51	3.203	May 26	2230	9,040	256	7.67	2.338
Mar. 20	1245	8,490	240	7.50	2.286	June 9	1400	6,380	181	6.56	1.999
Apr. 16	0915	6,520	185	6.62	2.018	July 10	1500	*9,920	281	8.03	2.448
May 20	1545	7,770	220	7.14	2.176						

Minimum daily discharge, 125 ft³/s (3.54 m³/s) Jan. 25,26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	326	880	638	250	140	3700	2800	1970	6040	2000	1390	993
2	314	853	520	245	146	3350	2700	1870	5580	1860	1260	1940
3	337	824	470	240	140	3100	2830	1810	5100	1760	1100	2030
4	454	799	630	250	138	2800	2640	1760	4680	1640	1090	1860
5	630	798	610	240	142	2700	3080	2030	4300	1510	1060	1660
6	661	774	600	230	135	2520	3090	2710	4180	1680	1080	1380
7	687	752	710	220	140	2320	2940	3180	4210	3780	1080	1110
8	718	738	700	210	145	2200	2820	3190	5250	4430	1100	952
9	697	701	540	200	138	2000	2820	3070	6230	5420	985	852
10	687	675	410	180	134	2000	2810	2880	6160	8370	897	795
11	657	729	460	180	136	2140	2950	2720	5800	9310	817	757
12	619	645	610	190	140	2390	3250	2970	5450	9110	751	763
13	609	631	640	180	142	2540	3360	3680	5040	7760	754	1160
14	593	618	500	168	148	2860	3220	4370	4610	6410	694	2760
15	629	613	330	165	160	3060	3280	5020	4330	5470	670	3540
16	665	608	390	160	170	3180	4820	5930	3890	4760	620	3690
17	739	601	400	162	175	3060	4710	6000	3680	4230	586	3510
18	779	584	450	165	180	3280	4550	6490	3480	4850	554	3230
19	1000	595	430	165	230	4740	4410	6190	3410	4220	520	2940
20	1190	577	500	165	235	6860	4270	6360	3400	3680	495	2680
21	1230	516	450	168	430	7190	4030	6510	3330	3460	462	2400
22	1220	515	400	172	880	6790	3800	6650	3180	3200	448	2100
23	1180	587	416	160	2250	6040	3590	6290	3000	2840	427	1840
24	1110	566	380	140	2650	5420	3420	5870	2800	2560	421	1650
25	1070	578	370	125	3100	4960	3170	5430	2690	2280	403	1490
26	1010	594	350	125	3420	4470	2900	7490	2760	2000	405	1370
27	986	593	330	128	3600	4090	2650	8950	2640	1820	409	1280
28	972	591	320	135	3500	3660	2450	8790	2480	1800	389	1180
29	945	583	310	148	---	3390	2290	8200	2290	1850	423	1160
30	930	609	280	146	---	3150	2160	7290	2160	1780	478	1140
31	930	---	260	140	---	2960	---	6560	---	1580	601	---
TOTAL	24574	19727	14404	5552	22944	112920	97810	152230	122150	117420	22369	54212
MEAN	793	658	465	179	819	3643	3260	4911	4072	3788	722	1807
MAX	1230	880	710	250	3600	7190	4820	8950	6230	9310	1390	3690
MIN	314	515	260	125	134	2000	2160	1760	2160	1510	389	757
CFSM	.19	.16	.11	.04	.20	.87	.78	1.17	.97	.90	.17	.43
IN.	.22	.18	.13	.05	.20	1.00	.87	1.35	1.08	1.04	.20	.48
AC-FT	48740	39130	28570	11010	45510	224000	194000	301900	242300	232900	44370	107500

CAL YR 1981 TOTAL 398648 MEAN 1092 MAX 11800 MIN 115 CFSM .26 IN 3.54 AC-FT 790700
WTR YR 1982 TOTAL 766312 MEAN 2099 MAX 9310 MIN 125 CFSM .50 IN 6.80 AC-FT 1520000

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 (30 m) upstream from bridge on State Highway 17, 2.5 mi (4.0 km) south of Webster City, and 3.2 mi (5.1 km) downstream from Brewers Creek.

DRAINAGE AREA.--844 mi² (2,185 km²).

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 (301.621 m) NGVD. Prior to June 26, 1940, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers rain-gage and gage-height telemeters at station.

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

AVERAGE DISCHARGE.--42 years, 381 ft³/s (10.79 m³/s), 6.13 in/yr (156 mm/yr), 276,000 acre-ft/yr (340 hm³/yr); median of yearly mean discharges, 330 ft³/s (9.35 m³/s), 5.3 in/yr (135 mm/yr), 239,000 acre-ft/yr (295 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,300 ft³/s (575 m³/s) June 22, 1954, gage height, 18.55 ft (5.654 m); no flow Feb. 7, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1896, 19.1 ft (5.82 m) about June 10, 1918, from flood-marks, from information by local resident, discharge, 21,500 ft³/s (609 m³/s). Flood of June 18, 1932, reached a stage of 16.0 ft (4.88 m), discharge, 15,000 ft³/s (425 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft³/s (62.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	1630	3,570	101	7.27	2.216	May 27	1215	4,520	128	8.19	2.496
Apr. 17	0200	2,410	68.3	5.96	1.817	July 11	0530	*6,470	183	*9.79	2.984
May 15	0615	4,880	138	8.57	2.612	July 18	0715	2,360	66.8	5.89	1.795
May 22	1900	3,060	86.7	6.71	2.045						

Minimum daily discharge, 10 ft³/s (0.28 m³/s) Jan. 28-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	129	86	39	11	770	481	416	2000	290	221	162
2	69	128	62	42	12	860	440	387	1730	281	209	156
3	76	121	72	42	12	735	414	367	1490	272	182	131
4	96	122	85	40	12	660	300	365	1280	255	186	110
5	105	124	84	39	12	600	267	591	1130	233	193	91
6	104	117	87	35	12	550	303	1090	1080	246	186	86
7	110	116	85	31	13	470	341	1420	1030	263	167	76
8	115	113	71	28	13	430	374	1340	995	425	146	72
9	111	108	60	23	13	360	350	1270	1180	791	133	68
10	107	102	53	21	14	350	366	1100	1240	4420	119	63
11	104	101	70	22	14	530	449	945	1070	6170	109	58
12	102	95	61	24	15	790	646	1070	889	5280	101	59
13	103	94	58	23	16	1060	749	1720	785	4340	96	117
14	103	94	47	22	16	1070	670	4490	726	3180	94	127
15	155	94	43	22	17	1050	652	4830	900	2230	92	176
16	143	94	40	21	21	1600	1540	4730	830	1670	93	170
17	161	91	45	20	28	1660	2250	4240	736	1340	84	142
18	183	90	51	21	36	1430	1900	3820	679	1890	79	124
19	175	97	50	21	53	2400	1750	3060	619	1460	74	110
20	180	96	47	21	88	3280	1590	2590	575	1060	68	96
21	189	79	47	21	205	3110	1280	2810	536	844	62	86
22	186	82	47	17	430	2630	1070	3030	498	813	58	79
23	171	86	50	19	890	2080	910	2990	457	717	54	71
24	161	83	49	16	800	1620	802	2630	432	591	53	68
25	160	83	48	11	710	1250	721	2310	421	500	51	63
26	151	85	50	12	710	944	647	3170	397	434	50	59
27	150	84	48	11	730	723	564	4460	383	371	48	58
28	142	83	46	10	750	610	506	3910	367	328	46	55
29	135	81	43	10	---	560	469	3230	346	300	88	61
30	135	85	42	10	---	550	443	2940	323	281	106	66
31	133	---	41	10	---	545	---	2430	---	241	129	---
TOTAL	4088	2957	1768	704	5653	35277	23244	73751	25124	41516	3377	2860
MEAN	132	98.6	57.0	22.7	202	1138	775	2379	837	1339	109	95.3
MAX	189	129	87	42	890	3280	2250	4830	2000	6170	221	176
MIN	69	79	40	10	11	350	267	365	323	233	46	55
CFSM	.16	.12	.07	.03	.24	1.35	.92	2.82	.99	1.59	.13	.11
IN.	.18	.13	.08	.03	.25	1.55	1.02	3.25	1.11	1.83	.15	.13
AC-FT	8110	5870	3510	1400	11210	69970	46100	146300	49830	82350	6700	5670

CAL YR 1981 TOTAL 121223 MEAN 332 MAX 9390 MIN 18 CFSM .39 IN 5.34 AC-FT 240400
WTR YR 1982 TOTAL 220319 MEAN 604 MAX 6170 MIN 10 CFSM .72 IN 9.71 AC--FT 437000

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 (2 m) downstream from bridge on State Highway 175, 0.1 mi (0.2 km) downstream from Skillet Creek, 4.0 mi (6.4 km) southwest of Stratford, 7.3 mi (11.7 km) downstream from Boone River and at mile 276.7 (445.2 km).

DRAINAGE AREA.--5,452 mi² (14,120 km²).

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 (272.491 m) NGVD. Prior to May 1, 1920, nonrecording gage 16.6 mi (26.7 km) downstream at datum 23.49 ft (7.16 m) lower. Oct. 9, 1924, to Jan. 10, 1933, nonrecording gage 17.6 mi (28.3 km) downstream at datum 28.53 ft (8.70 m) lower. Jan. 11, 1933, to Sept. 30, 1934, nonrecording gage 17.9 mi (28.8 km) downstream at datum 22.25 ft (6.78 m) lower. Oct. 1, 1934 to Feb. 6, 1935, nonrecording gage and Feb. 7, 1935 to Sept. 30, 1967, water-stage recorder 17.9 mi (28.8 km) downstream at datum 21.84 ft (6.66 m) lower.

REMARKS.--Records good except those for winter period, which are poor. Occasional minor regulation caused by dam at Fort Dodge. Several observations of water temperature were made during the year. Corps of Engineers rain gage and gage-height telemeters at station.

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

AVERAGE DISCHARGE.--62 years, 1,798 ft³/s (50.92 m³/s), 4.48 in/yr (114 mm/yr), 1,303,000 acre-ft/yr (1,607 hm³/yr); median of yearly mean discharges, 1,590 ft³/s (45.0 m³/s), 4.0 in/yr (102 mm/yr), 1,152,000 acre-ft/yr (1,420 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,400 ft³/s (1,630 m³/s) June 22, 1954, gage height, 25.35 ft (7.727 m), 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 (0.37 m³/s) Jan. 23, 24, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1903, reached a stage of 25.4 ft (7.74 m), from high-water mark, site and datum then in use, discharge, 43,600 ft³/s (1,230 m³/s). Flood of June 22, 1954, reached a stage of 29.7 ft (9.05 m), from floodmark, present site and datum, discharge, 54,200 ft³/s (1,530 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,000 ft³/s (198 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	0715	12,000	340	14.65	4.465	June 10	0600	7,730	219	12.09	3.685
Apr. 17	0645	8,400	238	12.35	3.764	July 12	0115	15,300	433	16.79	5.118
May 16	1915	12,100	343	14.95	4.557	July 18	1800	9,800	278	13.51	4.118
May 27	1645	*15,500	439	*16.89	5.148						

Minimum daily discharge, 200 ft³/s (5.66 m³/s) Feb. 5-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	443	1100	809	500	220	4100	3820	2640	8800	2460	1830	864
2	438	1060	783	480	215	4400	3610	2390	7930	2280	1650	1290
3	435	1040	682	460	210	4000	3660	2330	7210	2160	1520	1930
4	517	1010	719	460	205	3500	3280	2250	6550	2030	1410	1920
5	598	982	810	445	200	2900	3310	2590	6010	1910	1450	1750
6	760	967	799	438	200	2600	3640	3840	6120	1870	1340	1580
7	778	938	837	410	200	2350	3640	5220	5870	2580	1340	1340
8	816	904	930	395	202	2100	3510	5200	6000	4600	1310	1150
9	838	877	897	380	202	1900	3400	4890	7340	5010	1270	1020
10	829	844	734	360	204	2700	3430	4520	7690	10100	1150	930
11	802	827	641	320	204	3400	3590	4160	7260	14600	1060	876
12	766	851	722	310	206	4400	4190	4260	6740	15000	965	840
13	750	783	841	310	208	4700	4640	5840	6260	13500	924	1060
14	737	763	849	300	210	4680	4440	9960	5870	10900	894	1680
15	813	752	682	280	212	4970	4410	11100	6750	8680	840	3050
16	846	740	500	270	216	5770	6200	11900	5840	7200	816	3640
17	904	729	400	255	220	5900	8150	11500	5200	6200	762	3630
18	994	710	530	245	225	5490	7380	11300	4800	8120	708	3380
19	1040	705	670	240	250	7240	6870	10200	4490	7940	673	3070
20	1260	732	670	230	290	10900	6530	9350	4300	6220	618	2800
21	1430	695	630	230	470	11600	5990	10100	4190	5200	585	2530
22	1460	634	640	230	1000	10700	5450	10800	4030	4720	547	2240
23	1430	637	630	230	2350	9410	5030	10400	3780	4280	525	1980
24	1370	696	620	230	4500	8210	4620	9470	3520	3740	520	1770
25	1310	693	620	223	3700	7250	4290	8540	3310	3280	505	1610
26	1260	714	620	223	3400	6400	3940	11000	3210	2880	480	1490
27	1210	728	630	223	3300	5660	3530	15000	3210	2560	485	1370
28	1180	726	600	223	3750	5090	3210	14700	3020	2330	485	1300
29	1160	714	570	230	---	4590	2960	13000	2830	2260	475	1260
30	1140	715	540	235	---	4320	2800	11600	2630	2240	668	1250
31	1130	---	520	230	---	4080	---	10100	---	2060	828	---
TOTAL	29444	24266	21125	9595	26769	165310	133520	250150	160760	168910	28633	54600
MEAN	950	809	681	310	956	5333	4451	8069	5359	5449	924	1820
MAX	1460	1100	930	500	4500	11600	8150	15000	8800	15000	1630	3640
MIN	435	634	400	223	200	1900	2800	2250	2630	1870	475	840
CFSM	.17	.15	.13	.06	.18	.98	.82	1.48	.98	1.00	.17	.33
IN.	.20	.17	.14	.07	.18	1.13	.91	1.71	1.10	1.15	.20	.37
AC-FT	58400	48130	41900	19030	53100	327900	264800	496200	318900	335000	56790	108300

CAL YR 1981 TOTAL 536262 MEAN 1469 MAX 18800 MIN 150 CFSM .27 IN 3.66 AC-FT 1064000

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 (5.1 km) northwest of Saylorville, 4.2 mi (6.8 m) upstream from Beaver Creek, and at mile 213.7 (343.8 km), revised.

DRAINAGE AREA.--5,823 mi² (15,082 km²).

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

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

REMARKS.--Reservoir is formed by earthfill dam completed in 1976. Storage began in April 1977. Release controlled at intake structure to forechamber of 22 ft (6.71 m) diameter concrete conduit through dam. Ungated chute spillway 430 ft (131 m) in length at right end of dam at elevation 884 ft (269 m), contents, 570,000 acre-ft (703 hm³). Conservation pool at elevation 833 ft (254 m), contents, 74,000 acre-ft (91 hm³), surface area, 5,400 acres (2,185 hm²). Flood pool elevation at 890 ft (271 m), contents, 676,000 acre-ft (834 hm³), surface area, 16,700 acres (6,758 hm²). Reservoir is used for flood control, low-flow augmentation, conservation and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 561,000 acre-ft (692 hm³) Apr. 6,7, 1979; maximum elevation, 883.81 ft (269.385 m) Apr. 5, 1979; minimum daily contents, 66,900 acre-ft (82.5 hm³) Oct. 13,19-21, 1979; minimum elevation, 832.61 ft (253.780 m) Jan. 19, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 251,000 acre-ft (309 hm³) July 27-28; maximum elevation, 855.55 ft (260.772 m) July 28; minimum daily contents, 78,800 acre-ft (97.2 hm³) Mar. 19; minimum elevation, 832.89 ft (253.865 m) Sept. 19.

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 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90200	90500	92200	81600	80500	97900	110000	90800	215000	128000	243000	107000
2	90200	90600	92000	81800	80400	94000	106000	88700	212000	124000	239000	105000
3	90200	91100	91300	81800	80300	90500	101000	88000	209000	121000	236000	103000
4	90500	91500	90500	81600	80300	95800	95300	88200	207000	117000	230000	103000
5	91000	91100	89600	81500	80300	83900	90200	88400	204000	115000	225000	103000
6	90900	90900	88800	81500	80300	81500	88100	88800	201000	115000	218000	103000
7	90900	90700	88100	81600	80300	80900	87800	92000	199000	115000	213000	102000
8	90900	90500	88300	81600	80300	81300	88200	98700	197000	118000	207000	102000
9	91500	90400	89100	81600	80400	81300	87900	105000	199000	124000	201000	101000
10	91500	90500	89600	81400	80400	81100	87500	107000	199000	133000	194000	99900
11	91100	90600	89100	81000	80300	81400	87400	103000	196000	145000	188000	96000
12	90700	90800	88000	81000	80300	81800	88100	99600	193000	154000	182000	93900
13	90700	90900	86800	81000	80300	82500	88500	97400	188000	161000	176000	92100
14	90800	90900	85500	81000	80300	83400	88100	101000	183000	164000	169000	91700
15	90900	90900	84100	81200	80300	83800	88100	110000	185000	162000	163000	91500
16	90900	90900	83100	81000	80400	82700	89700	119000	184000	167000	156000	92100
17	91000	91000	82400	80900	80400	81100	93200	125000	180000	181000	150000	91900
18	90900	91100	82200	80900	80500	79400	99400	130000	178000	193000	143000	91000
19	90800	91200	82200	81000	81400	78800	109000	133000	176000	206000	136000	91300
20	90900	91200	82200	81000	81900	89400	117000	135000	174000	223000	131000	92000
21	91200	91100	82200	80900	83000	102000	125000	136000	170000	231000	128000	92200
22	91300	90800	82200	81000	83500	115000	130000	140000	167000	236000	124000	92500
23	91200	90600	82200	81000	88800	127000	130000	143000	163000	241000	120000	92800
24	90800	90700	82200	80900	97500	136000	128000	147000	159000	245000	117000	92600
25	90400	90900	82500	80900	101000	139000	124000	153000	154000	248000	113000	92100
26	90000	91300	82200	80800	100000	140000	119000	167000	149000	250000	110000	91300
27	89900	91600	81900	80800	99800	137000	112000	181000	144000	251000	108000	91000
28	89900	91900	81600	80600	98800	133000	106000	199000	139000	251000	108000	91500
29	90000	92000	81500	80500	---	128000	99000	209000	135000	250000	108000	92100
30	90200	92200	81500	80500	---	121000	94100	214000	132000	248000	108000	92100
31	90400	---	81600	80500	---	114000	---	216000	---	245000	109000	---
MAX	91500	92200	92200	81800	101000	140000	130000	216000	215000	251000	243000	107000
MIN	89900	90400	81500	80500	80300	78800	87400	88000	132000	115000	108000	91000

WTR YR 1982 MAX 251000 MIN 78800

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 (2 m) upstream of Fisher bridge on county highway R6F, 2.0 mi (3.2 km) west of Saylorville, 2.1 mi (3.4 km) downstream from Rock Creek, 2.3 mi (3.7 km) downstream from Saylorville Dam, 2.3 mi (3.7 km) upstream from Beaver Creek, and at mile 211.4 (340.1 km).

DRAINAGE AREA.--5,841 mi² (15,128 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 787.42 ft (240.006 m) NGVD (levels by Corps of Engineers). Prior to Aug. 6, 1970, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated by Saylorville Lake (Station 05481650) 2.3 mi (3.7 km) upstream since Apr. 12, 1977. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--21 years, 2,492 ft³/s (70.57 m³/s), 5.79 in/yr (147 mm/yr), 1,805,000 acre-ft/yr (2,230 hm³/yr); median of yearly mean discharges, 2,150 ft³/s (60.9 m³/s) 5.0 in/yr (127 mm/yr), 1,560,000 acre-ft/yr (1,920 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft³/s (1,340 m³/s) Apr. 10, 1965, gage height, 24.02 ft (7.321 m); minimum daily, 13 ft³/s (0.37 m³/s) Jan. 25, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1893, 24.5 ft (7.47 m), June 24, 1954, from floodmarks, discharge, 60,000 ft³/s (1,700 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,200 ft³/s (346 m³/s) May 20, gage height, 15.27 ft (4.654 m); minimum daily, 187 ft³/s (5.30 m³/s) Feb. 10,11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	550	1330	667	570	235	6280	7280	5210	10800	4580	3490	1790
2	535	1340	831	572	220	7160	6880	4320	10300	4560	3480	2340
3	489	1160	1090	576	191	6900	6750	3170	9490	4570	3470	2320
4	450	976	1260	565	191	6390	6660	2700	8710	4520	4440	1940
5	445	1300	1270	522	191	6010	6540	2630	7960	3710	5710	1600
6	620	1230	1270	475	189	5640	5410	3390	7900	3140	5360	1760
7	748	1120	1280	473	190	4370	4240	3120	7850	2380	4750	1810
8	748	1120	992	473	190	3260	4070	2110	7080	2320	4700	1610
9	748	1030	580	473	188	3240	4070	2100	6460	2310	4660	1260
10	914	886	702	473	187	3250	4040	3990	7700	2860	4620	1590
11	1050	879	1060	473	187	3240	3930	6570	8900	5380	4560	2990
12	1060	879	1460	397	188	3610	3850	6510	8870	9600	4510	2570
13	937	879	1470	338	191	4250	4510	6470	8840	11600	4480	2170
14	819	872	1470	332	193	4750	5080	7850	8790	11500	4430	1560
15	953	872	1470	329	193	5560	5130	9340	9080	11700	4390	1890
16	981	872	1320	329	193	7070	5640	9590	9260	8250	4360	2850
17	967	866	1040	316	192	8090	6040	9970	8470	2190	4310	4020
18	1090	866	761	263	190	8060	5200	10500	7040	2220	4240	4630
19	1170	866	600	246	190	8120	4360	11000	6410	2140	4200	3370
20	1180	889	600	246	190	8300	3640	11700	6290	2200	3380	2790
21	1270	922	606	241	600	7080	2220	11000	6230	2220	2240	2610
22	1400	929	606	236	1370	5640	3930	11200	6160	2150	2210	2340
23	1490	790	606	234	2660	6150	6090	11400	6110	2110	2190	2320
24	1630	679	703	232	3650	6700	6080	10300	6070	2110	2160	2320
25	1630	679	768	231	3560	6710	6720	7380	5990	2110	2080	2180
26	1600	679	768	230	4020	7290	7180	6270	5930	2110	1920	2040
27	1360	673	768	231	5760	7810	7090	7990	5910	2120	1570	1670
28	1250	673	768	232	5770	7780	6990	9600	5850	2450	799	1260
29	1240	673	689	235	---	7710	6890	10500	5170	3320	520	1250
30	1250	673	614	235	---	7670	6000	11000	4620	3520	513	1530
31	1290	---	596	235	---	7540	---	10900	---	3500	676	---
TOTAL	31864	27602	28685	11013	31269	191630	162510	229780	224240	129450	104418	66380
MEAN	1028	920	925	355	1117	6182	5417	7412	7475	4176	3368	2213
MAX	1630	1340	1470	576	5770	8300	7280	11700	10800	11700	5710	4630
MIN	445	673	580	230	187	3240	2220	2100	4620	2110	513	1250
AC-FT	63200	54750	56900	21840	62020	380100	322300	455800	444800	256800	207100	131700

CAL YR 1981 TOTAL 561026 MEAN 1537 MAX 12400 MIN 169 AC-FT 1113000
WTR YR 1982 TOTAL 1238841 MEAN 3394 MAX 11700 MIN 187 AC-FT 2457000

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD: Water years 1962 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1967 to September 1971, October 1971 to September 1980 (partial record station), October 1980 to current year.
WATER TEMPERATURES: October 1961 to September 1971, October 1971 to September 1980 (partial record station), October 1980 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1961 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,400 micromhos Feb. 18, 1977; minimum daily, 90 micromhos Feb. 19, 1971.
WATER TEMPERATURES: Maximum daily, 36.0°C June 29, 1971; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 5,400 mg/L May 14, 1970; minimum daily mean, 1 mg/L Jan. 8, 1965.
SEDIMENT LOADS: Maximum daily, 148,000 tons (134,000 tonnes) June 12, 1966; minimum daily, 1 ton (0.91 tonne) Jan. 8, 1965, Feb. 8-12, 23, 1967.

EXTREMES FOR CURRENT YEAR:
SPECIFIC CONDUCTANCE: Maximum daily, 840 micromhos Feb. 23,27,28; minimum daily, 540 micromhos Mar. 24-30.
WATER TEMPERATURES: Maximum daily, 27.0° July 30,31, Aug.1,2; minimum daily, 0.5° Jan. 14.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 498 mg/L July 11; minimum daily mean, 4 mg/L Jan. 7,8.
SEDIMENT LOADS: Maximum daily, 7,230 tons (6,560 tonnes) July 11; minimum daily, 3.0 tons (2.7 tonnes) Feb. 11,12.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	680	700	650	---	790	640	---	---	680	660	610	---
2	690	690	670	680	---	610	---	---	620	670	610	670
3	690	680	655	---	---	610	---	655	640	680	620	---
4	700	670	660	---	820	610	610	660	690	660	620	670
5	700	680	650	700	---	600	580	670	630	670	620	660
6	700	660	---	---	---	610	600	660	620	670	620	---
7	690	660	600	700	820	600	580	680	640	670	610	---
8	690	670	---	---	---	600	580	660	640	680	610	670
9	690	660	640	690	---	600	570	670	620	690	610	650
10	700	690	630	---	830	600	590	660	620	700	610	---
11	700	660	670	---	---	600	620	670	730	680	610	---
12	700	670	---	700	---	600	570	---	720	630	610	---
13	680	680	640	---	800	580	675	670	710	630	610	---
14	700	650	680	690	---	610	570	630	720	640	610	---
15	600	680	---	690	820	600	610	640	730	---	620	720
16	600	650	---	690	---	600	580	640	710	650	610	---
17	650	640	650	---	---	590	590	630	730	650	610	710
18	650	640	---	680	820	600	600	640	730	650	600	740
19	620	650	660	---	---	590	600	645	700	620	615	700
20	650	640	---	680	830	560	590	620	720	610	---	---
21	615	660	680	---	820	570	560	650	720	600	650	750
22	630	640	---	---	840	580	590	630	660	600	---	715
23	630	660	680	680	695	710	600	650	680	600	---	740
24	620	650	---	---	830	540	620	660	720	600	---	750
25	620	660	---	---	---	540	585	670	720	600	---	700
26	620	660	680	---	---	540	650	680	720	600	---	---
27	640	650	---	---	840	540	670	670	650	610	650	---
28	660	650	680	800	840	540	680	680	650	610	670	720
29	700	660	---	---	---	540	670	710	---	620	---	750
30	700	660	---	---	---	540	670	---	720	610	660	---
31	670	---	680	---	---	---	---	670	---	630	---	---

05481650 DES MOINES RIVER BASIN NEAR SAYLORVILLE, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	11.0	4.0	---	1.0	4.0	---	---	17.0	22.0	27.0	25.0
2	18.0	11.0	4.0	1.0	---	3.0	---	---	18.0	23.0	27.0	26.0
3	18.0	11.0	3.0	---	---	4.0	---	16.0	19.0	23.0	26.0	25.0
4	18.0	11.0	4.0	---	2.0	3.0	7.0	16.0	18.0	23.0	26.0	24.0
5	17.0	11.0	4.0	1.0	---	3.0	7.0	18.0	19.0	22.0	26.0	24.0
6	16.0	11.0	---	---	---	3.0	10.0	19.0	17.0	23.0	26.0	---
7	15.0	11.0	2.0	1.0	1.0	3.0	8.0	19.0	18.0	24.0	25.0	25.0
8	13.0	10.0	---	---	---	2.0	7.0	19.0	17.0	24.0	26.0	25.0
9	15.0	10.0	2.0	1.0	---	---	7.0	19.0	18.0	24.0	26.0	25.0
10	15.0	11.0	2.0	---	1.0	3.0	9.0	19.0	18.0	25.0	26.0	24.0
11	14.0	11.0	2.0	---	---	3.0	7.0	20.0	17.0	25.0	25.0	24.0
12	15.0	10.0	3.0	1.0	---	3.0	7.0	---	18.0	24.0	25.0	---
13	15.0	10.0	---	---	2.0	3.0	8.0	19.0	19.0	22.0	26.0	---
14	16.0	11.0	1.0	.5	---	3.0	8.0	20.0	19.0	21.0	25.0	---
15	15.0	10.0	---	2.0	3.0	2.0	7.0	20.0	19.0	21.0	26.0	18.0
16	16.0	10.0	---	1.0	---	3.0	10.0	20.0	19.0	21.0	26.0	18.0
17	15.0	11.0	5.0	---	---	2.0	9.0	18.0	20.0	20.0	25.0	17.0
18	14.0	10.0	---	1.0	2.0	3.0	9.0	---	20.0	20.0	26.0	18.0
19	13.0	9.0	4.0	---	---	4.0	10.0	18.5	20.0	25.0	26.0	19.0
20	13.0	5.0	---	2.0	4.0	3.0	10.0	17.0	20.0	25.0	26.0	18.0
21	13.0	5.0	5.0	---	3.0	3.0	11.0	16.0	21.0	26.0	26.0	18.0
22	13.0	5.0	---	---	2.0	3.0	12.0	16.0	20.0	26.0	25.0	18.0
23	13.0	5.0	5.0	2.0	4.0	6.0	13.0	17.0	22.0	25.0	25.0	18.0
24	13.0	5.0	---	---	---	5.0	14.0	16.0	23.0	26.0	25.0	18.0
25	11.0	5.0	---	---	---	3.0	15.0	17.0	22.0	26.0	24.0	18.0
26	11.0	4.0	4.0	---	---	6.0	15.0	18.0	23.0	26.0	26.0	17.0
27	11.5	4.0	---	---	4.0	5.0	15.0	17.0	21.0	25.0	25.0	17.0
28	11.0	4.0	4.0	1.0	4.0	6.0	14.0	17.0	21.0	25.0	25.0	17.0
29	12.0	4.0	---	---	---	6.0	14.0	17.0	---	26.0	24.0	17.0
30	12.0	4.0	---	---	---	6.0	15.0	---	21.0	27.0	24.0	17.0
31	11.0	---	2.0	---	---	---	---	17.0	---	27.0	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	23	34	24	86	43	77	10	15	47	30	119	2020
2	25	36	23	83	55	123	10	15	47	28	38	735
3	30	40	20	63	46	135	12	19	35	18	43	801
4	26	32	22	58	42	143	12	18	18	9.3	25	431
5	25	30	32	112	32	110	20	28	22	11	48	779
6	25	42	30	100	27	93	14	18	35	18	65	990
7	21	42	31	94	23	79	4	5.1	36	18	45	531
8	28	57	33	100	58	155	4	5.1	47	24	44	387
9	32	65	32	89	59	92	7	8.9	31	16	46	402
10	31	77	38	91	19	36	9	11	13	6.6	102	895
11	35	99	35	83	29	83	7	8.9	6	3.0	58	507
12	34	97	27	64	20	79	10	11	6	3.0	26	253
13	57	144	30	71	15	60	12	11	6	3.1	47	539
14	29	64	32	75	34	135	31	28	9	4.7	52	667
15	19	49	28	66	41	163	19	17	15	7.8	42	631
16	50	132	36	85	31	110	23	20	28	15	37	706
17	30	78	44	103	22	62	21	18	48	25	50	1090
18	22	65	21	49	47	97	21	15	67	34	32	696
19	26	82	34	79	36	58	23	15	91	47	40	877
20	35	112	56	134	28	45	24	16	168	86	32	717
21	23	79	61	152	26	43	23	15	225	364	27	516
22	13	49	52	130	26	43	20	13	232	858	8	122
23	23	93	90	192	27	44	16	10	202	1450	28	465
24	30	132	47	86	27	51	15	9.4	254	2500	113	2040
25	27	119	29	53	20	41	17	11	216	2080	33	598
26	21	91	30	55	16	33	19	12	194	2110	18	354
27	20	73	25	45	14	29	22	14	246	3030	40	843
28	26	88	28	51	12	25	22	14	234	3650	25	525
29	27	90	40	73	9	17	27	17	---	---	26	541
30	28	94	67	122	9	15	32	20	---	---	41	849
31	26	91	---	---	10	16	40	25	---	---	42	855
TOTAL	---	2376	---	2644	---	2292	---	463.4	---	17249.5	---	22362

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	52	1020	80	1130	44	1280	165	2040	115	1080	49	237
2	82	1520	66	770	71	1970	166	2040	131	1230	39	246
3	72	1310	70	599	85	2180	150	1850	70	656	39	244
4	65	1170	75	547	65	1530	163	1990	70	839	40	210
5	63	1110	83	589	82	1760	163	1630	70	1080	37	160
6	63	920	82	751	93	1980	151	1280	61	883	45	214
7	52	595	82	691	94	1990	158	1020	40	513	55	269
8	71	780	77	439	92	1760	148	927	50	634	52	226
9	60	659	66	374	109	1900	128	798	87	1090	53	180
10	48	524	98	1060	110	2290	392	3030	65	811	37	159
11	60	637	95	1690	56	1350	498	7230	62	763	47	379
12	38	395	71	1250	57	1370	272	7050	57	694	77	534
13	50	609	91	1590	65	1550	42	1320	67	810	76	445
14	97	1330	94	1990	65	1540	40	1240	64	766	90	379
15	85	1180	31	782	49	1200	31	979	55	652	76	388
16	54	822	49	1270	64	1600	31	691	53	624	63	485
17	62	1010	65	1750	68	1560	35	207	58	675	57	619
18	101	1420	77	2180	49	931	41	246	71	813	65	813
19	94	1110	73	2170	53	917	98	566	52	590	72	655
20	75	737	80	2530	73	1240	57	339	55	502	58	437
21	23	138	127	3770	62	1040	94	563	64	387	50	352
22	24	255	96	2900	38	632	135	784	45	274	50	316
23	77	1270	78	2400	33	544	126	718	34	201	64	401
24	40	657	66	1840	41	672	114	649	38	222	58	363
25	31	552	66	1320	31	501	118	672	46	258	52	306
26	75	1450	68	1150	35	560	131	745	45	233	48	264
27	108	2070	52	1120	103	1640	124	710	47	199	44	198
28	92	1740	40	1040	142	2240	126	833	46	99	53	180
29	77	1430	34	964	94	1310	124	1110	44	62	51	172
30	85	1380	45	1340	83	1040	139	1320	55	76	42	174
31	---	---	46	1350	---	---	120	1130	54	99	---	---
TOTAL	---	29810	---	43346	---	42077	---	45708	---	17815	---	10005

TOTAL LOAD FOR YEAR: 236147.9 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 21...	1200	5.0	1180	21	67	97
FEB 23...	1230	2.0	2500	242	1630	29
APR 13...	1140	8.0	4740	29	371	86
MAY 19...	1210	19.0	10600	73	2000	82
JUN 30...	1215	20.5	4620	50	624	59
AUG 11...	1030	25.0	4540	75	919	40
SEP 22...	1455	19.0	2440	49	323	74

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 21...	1200	1180	8	0	1	5	27
APR 13...	1230	4740	7	1	2	15	48
JUN 30...	1200	4620	8	3	9	26	57
SEP 22...	1455	2440	7	0	1	8	47

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 21...	60	74	80	89	100	--
APR 13...	82	91	94	96	100	--
JUN 30...	73	80	86	93	98	100
SEP 22...	76	85	94	98	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 (2 m) upstream from bridge on Northwest 70th Avenue, 0.5 mi (0.8 km) downstream from Little Beaver Creek, 2.5 mi (4.0 km) east of Grimes and 6 mi (9.7 km) upstream from mouth.

DRAINAGE AREA.--358 mi² (927 km²).

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 (245.968 m) NGVD. Prior to Aug. 31, 1966, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, April and July which are poor. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--22 years, 193 ft³/s (5.466 m³/s), 7.32 in/yr (186 mm/yr), 139,800 acre-ft/yr (172 hm³/yr); median of yearly mean discharges, 180 ft³/s (5.10 m³/s) 6.8 in/yr (173 mm/yr), 130,000 acre-ft/yr (160 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,340 ft³/s (208 m³/s) May 19, 1974, gage height, 14.69 ft (4.478 m); no flow for several days in 1970 and 1971 and many days in 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 24	----	1,720	48.7	ice jam	---
Mar. 21	0930	1,980	56.1	9.46	2.883
May 18	0130	1,990	56.4	9.88	3.011
May 22	2000	2,200	62.3	10.28	3.133
May 28	1900	*2,780	78.7	*11.32	3.450
June 16	1000	2,580	73.1	10.97	3.344
June 18	1900	1,550	43.9	8.98	2.737

Minimum daily discharge 1.1 ft³/s (0.031 m³/s) Jan. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	15	32	5.4	1.2	447	187	151	760	215	119	62
2	2.3	16	34	5.0	1.5	450	179	139	628	253	105	84
3	2.8	25	33	5.1	1.5	355	168	132	566	260	90	81
4	4.5	29	44	4.9	1.4	177	132	126	504	224	83	59
5	4.9	28	47	4.4	1.3	145	136	130	447	194	976	48
6	4.2	25	44	4.0	1.2	120	136	362	403	495	632	41
7	4.4	27	45	3.2	1.5	105	157	559	420	920	353	37
8	5.0	26	38	2.7	1.5	102	152	587	384	610	253	34
9	4.2	24	34	2.5	1.4	94	156	485	368	490	186	31
10	4.7	23	30	2.4	1.2	110	164	394	341	1600	156	29
11	4.4	22	33	2.5	1.2	187	189	326	329	1520	130	27
12	4.9	21	37	2.2	1.5	528	261	318	338	960	113	25
13	4.8	21	38	2.1	1.9	776	295	416	353	680	99	30
14	4.5	20	28	2.0	2.4	628	241	1240	315	520	90	38
15	5.3	19	19	2.0	3.0	501	192	1800	1260	560	90	30
16	7.1	18	17	2.0	4.3	549	1450	1810	2330	940	82	26
17	4.2	18	14	2.5	6.1	646	1450	1830	1390	480	76	35
18	6.3	16	13	2.2	9.1	545	900	1800	1320	1300	69	38
19	9.9	15	11	1.8	14	733	640	1370	980	1240	59	39
20	10	17	10	1.6	45	1010	480	1060	613	1000	53	31
21	6.8	15	11	1.5	217	1830	380	1190	485	760	50	27
22	11	13	11	1.5	510	1010	330	1970	397	620	49	25
23	11	16	11	1.5	1000	665	290	2100	353	403	46	23
24	10	18	12	1.1	1630	559	270	1690	321	321	41	22
25	9.3	20	13	1.1	980	475	240	1120	282	257	38	21
26	9.8	19	14	1.3	410	387	220	1350	274	226	36	19
27	10	18	12	1.7	410	326	180	2510	257	194	35	19
28	10	17	11	1.8	430	288	176	2740	233	174	31	18
29	9.8	15	9.2	1.8	---	265	165	2130	217	161	31	17
30	8.9	18	7.7	1.8	---	257	159	1340	196	147	39	18
31	10	---	6.7	1.5	---	218	---	964	---	132	54	---
TOTAL	207.6	594	719.6	77.1	5689.2	14488	10075	34139	17064	17856	4264	1034
MEAN	6.70	19.8	23.2	2.49	203	467	336	1101	569	576	138	34.5
MAX	11	29	47	5.4	1630	1830	1450	2740	2330	1600	976	84
MIN	2.3	13	6.7	1.1	1.2	94	132	126	196	132	31	17
CFSM	.02	.06	.07	.01	.57	1.30	.94	3.08	1.59	1.61	.39	.10
IN.	.02	.06	.07	.01	.59	1.51	1.05	3.55	1.77	1.86	.44	.11
AC-FT	412	1180	1430	153	11280	28740	19980	67710	338550	35420	8460	2050

CAL YR 1981	TOTAL	7757.59	MEAN	21.3	MAX	997	MIN	.01	CFSM .06	IN .81	AC-FT	15390
WTR YR 1982	TOTAL	106207.50	MEAN	291	MAX	2740	MIN	1.1	CFSM .81	IN 11.04	AC-FT	210700

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 (1 m) downstream from bridge on county highway N33, 2.0 mi (3.2 km) downstream from Drainage ditch 21, 3.5 mi (5.6 km) upstream from Drainage ditch 74, and 5.5 mi (8.8 km) northeast of Varina.

DRAINAGE AREA.--80.0 mi^2 (207 km^2).

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,225.12 ft (373.417 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years, 35.7 ft^3/s (1.011 m^3/s), 6.06 in/yr (154 mm/yr), 25,860 acre-ft/yr (31.9 hm^3/yr); median of yearly mean discharges, 32 ft^3/s (0.91 m^3/s), 5.4 in/yr (137 mm/yr), 23,200 acre-ft/yr (28.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,080 ft^3/s (58.9 m^3/s) Aug. 31, 1962, gage height, 13.68 ft (4.170 m); maximum gage height, 16.29 ft (4.965 m) Mar. 24, 1979, backwater from ice; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft^3/s (11.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
July 6	1700	459	13.0	7.48	2.280	July 10	0630	*488	13.8	*7.71	2.350

Minimum daily discharge 0.32 ft^3/s (0.009 m^3/s) Jan. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	20	16	3.4	.46	36	32	26	94	18	19	18
2	3.4	20	15	3.8	.44	32	37	25	82	17	15	11
3	5.7	20	16	3.5	.43	30	70	25	72	17	14	7.4
4	39	20	15	3.2	.42	30	140	25	66	15	15	5.6
5	26	19	14	2.8	.41	29	100	32	62	14	13	5.2
6	20	17	16	2.4	.41	26	70	44	61	346	12	5.0
7	17	17	17	2.0	.41	23	58	50	101	285	11	4.4
8	16	17	16	1.7	.42	22	50	47	97	162	9.7	4.2
9	16	14	15	1.4	.44	22	50	42	74	170	8.7	4.0
10	14	15	14	1.2	.46	27	55	39	58	464	8.3	5.3
11	13	15	15	1.0	.52	32	75	36	53	344	7.7	4.1
12	13	15	16	.94	.59	41	93	41	49	261	7.1	81
13	22	14	16	.88	.66	46	81	58	45	188	8.1	233
14	12	14	15	.84	.74	50	68	74	44	147	7.3	182
15	15	15	13	.82	.84	53	68	116	43	119	7.0	109
16	17	14	18	.74	.94	58	73	132	38	95	6.4	77
17	39	14	12	.70	1.0	60	93	98	37	76	5.9	60
18	42	14	11	.72	1.2	63	81	132	35	64	5.1	48
19	36	14	11	.76	1.6	147	70	90	33	55	4.8	40
20	32	12	10	.80	5.5	280	60	93	32	48	4.4	33
21	26	14	10	.78	19	183	51	108	29	47	3.8	29
22	24	13	8.2	.76	29	90	46	100	27	41	3.8	27
23	23	15	7.0	.55	34	84	43	93	26	36	3.9	25
24	24	13	6.4	.44	32	71	41	81	26	33	4.4	22
25	22	14	6.4	.32	28	66	38	72	26	29	4.2	20
26	25	14	6.4	.33	27	51	33	224	26	26	3.4	19
27	27	12	5.2	.38	29	45	30	279	26	26	3.0	18
28	26	12	4.3	.47	32	42	30	204	26	23	2.8	17
29	26	12	3.5	.58	---	41	29	158	25	20	4.3	19
30	24	14	3.7	.55	---	47	28	126	20	18	13	230
31	21	---	4.0	.50	---	37	---	108	---	16	17	---
TOTAL	669.9	453	356.1	39.26	247.89	1864	1793	2778	1433	3220	253.1	1363.2
MEAN	21.6	15.1	11.5	1.27	8.85	60.1	59.8	89.6	47.8	104	8.16	45.4
MAX	42	20	18	3.8	34	280	140	279	101	464	19	233
MIN	3.4	12	3.5	.32	.41	22	28	25	20	14	2.8	4.0
CFSM	.27	.19	.14	.02	.11	.75	.75	1.12	.60	1.30	.10	.57
IN.	.31	.21	.17	.02	.12	.87	.83	1.29	.67	1.50	.12	.63
AC-FT	1330	899	706	78	492	3700	3560	5510	2840	6390	502	2700

CAL YR 1981 TOTAL 6132.40 MEAN 16.8 MAX 320 MIN 2.3 CFSM .21 IN 2.85 AC-FT 12160
WTR YR 1982 TOTAL 14470.45 MEAN 39.6 MAX 464 MIN .32 CFSM .50 IN 6.73 AC-FT 28700

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 (5 m) downstream from bridge on county highway, 0.2 mi (0.3 km) upstream from Indian Creek, 0.9 mi (1.4 km) downstream from Drainage ditch 73, 5.6 mi (9.0 km) south of Sac City, and at mile 365.9 (588.7 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--713 mi² (1,846 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 1,144.60 ft (348.874 m) NGVD (levels by Iowa Natural Resources Council).

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years, 291 ft³/s (8.241 m³/s), 5.54 in/yr (141 mm/yr), 210,800 acre-ft/yr (260 hm³/yr); median of yearly mean discharges, 270 ft³/s (7.65 m³/s), 5.1 in/yr (130 mm/yr), 196,000 acre-ft/yr (242 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 13,100 ft³/s (371 m³/s) Mar. 23, 1979, gage height, 18.02 ft (5.492 m); maximum gage height, 18.12 ft (5.523 m) 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 (4.758 m), from floodmark, discharge, 7,000 ft³/s (198 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2000 ft³/s (56.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	0900	2,610	73.9	10.92	3.328	July 11	0600	3,560	101	12.50	3.810
May 27	1145	2,980	84.4	11.52	3.511	July 18	1800	4,100	116	13.25	4.039
July 7	1015	*4,410	125	*13.64	4.157	Sep. 14	0400	2,110	59.8	9.66	2.944

Minimum daily discharge, 11 ft³/s (0.31 m³/s) Jan. 23 - Feb. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	99	74	48	11	460	255	166	1040	224	302	274
2	23	97	56	46	11	440	240	158	895	206	288	208
3	29	102	100	43	11	320	249	152	784	199	260	145
4	58	101	114	42	11	290	291	152	697	184	220	116
5	116	100	82	41	11	380	509	244	643	168	280	96
6	94	103	97	38	11	350	401	361	608	1910	292	86
7	77	98	110	35	11	315	414	417	570	4200	240	82
8	68	97	100	31	11	270	393	411	604	3070	210	79
9	63	92	84	28	11	230	342	368	583	1930	184	76
10	60	86	74	25	11	220	349	335	487	2710	166	71
11	56	86	77	22	12	300	429	370	436	3490	148	70
12	55	86	115	20	12	400	537	418	408	3200	133	272
13	52	84	100	19	12	470	533	450	377	2660	122	1710
14	58	82	66	18	12	600	435	498	358	1920	116	2040
15	66	80	57	16	12	478	393	613	386	1420	114	1710
16	65	78	52	15	12	454	399	853	353	1170	112	1290
17	76	75	58	14	12	432	418	838	327	808	107	973
18	124	73	74	14	13	390	445	891	316	3200	99	761
19	176	75	74	13	16	1140	435	939	302	2870	97	611
20	155	62	71	13	43	2540	397	814	286	1860	96	500
21	137	50	74	12	145	1960	337	867	265	1850	88	410
22	118	70	74	12	270	1270	307	900	248	1720	82	358
23	111	97	73	11	440	991	284	857	229	1220	74	330
24	109	90	72	11	420	829	271	781	218	957	72	302
25	113	77	70	11	360	599	254	698	256	790	65	280
26	110	73	68	11	360	453	229	1540	324	647	58	264
27	107	72	68	11	380	370	197	2880	313	565	58	250
28	112	67	64	11	420	327	182	2520	278	502	54	238
29	109	55	57	11	---	308	179	1940	252	440	60	226
30	107	74	53	11	---	313	175	1530	238	386	70	252
31	106	---	50	11	---	315	---	1240	---	340	234	---
TOTAL	2735	2481	2358	664	3061	18214	10279	25201	13081	46816	4501	14080
MEAN	88.2	82.7	76.1	21.4	109	588	343	813	436	1510	145	469
MAX	176	103	115	48	440	2540	537	2880	1040	4200	302	2040
MIN	23	50	50	11	11	220	175	152	218	168	54	70
CFSM	.12	.12	.11	.03	.15	.83	.48	1.14	.61	2.12	.20	.66
IN.	.14	.13	.12	.03	.16	.95	.54	1.31	.68	2.44	.23	.73
AC-FT	5420	4920	4680	1320	6070	36130	20390	49990	25950	92860	8930	27930

CAL YR 1981 TOTAL 39105 MEAN 107 MAX 1250 MIN 18 CFSM .15 IN 2.04 AC-FT 77560
WTR YR 1982 TOTAL 143471 MEAN 393 MAX 4200 MIN 11 CFSM .55 IN 7.49 AC-FT 284600

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 (3.2 km) upstream from lake outlet.

DRAINAGE AREA.--23.3 mi² (60.3 km²).

PERIOD OF RECORD.--April 1970 to September 1975, April 1978 to current year.

GAGE.--Water-stage reacorder. Datum of gage is 1,218.50 ft (371.399 m) NGVD and 2.00 ft (0.610 m) 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 (372.008 m) NGVD. Lake is used for conservation and recreation. Area of lake is approximately 957 acres (390 hm²).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 4.08 ft (1.244 m) Mar. 20, 1979; minimum, 0.02 ft (0.006 m) Sept. 26, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 2.99 ft (0.911 m) May 30, affected by seiche; minimum, 0.03 ft (0.009 m) Oct. 18, affected by seiche.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	.18	.33		---	1.52	2.36	2.32	2.75	2.39	2.28	2.33
2	.15	.23	.35		.55	1.52	2.32	2.31	2.70	2.38	2.27	2.31
3	.21	.27	.35		.54	1.55	2.25	2.30	2.68	2.37	2.24	2.30
4	.25	.28	.36		.56	1.60	2.34	2.32	2.63	2.37	2.24	2.29
5	.26	.22	.38		.57	1.60	2.33	2.38	2.60	2.37	2.27	2.28
6	.23	.23	.39		.58	1.61	2.34	2.46	2.60	2.39	2.27	2.27
7	.25	.24	.39		.54	1.61	2.37	2.50	2.55	2.37	2.25	2.26
8	.25	.22	.39		---	1.62	2.37	2.53	2.59	2.38	2.23	2.25
9	.23	.23	.40		---	1.62	2.36	2.54	2.57	2.37	2.20	2.24
10	.23	.21	.42		---	1.63	2.34	2.52	2.56	2.36	2.20	2.24
11	.23	.23	.41		---	1.64	2.37	2.58	2.55	2.36	2.19	2.22
12	.26	.24	.41		---	1.67	2.33	2.59	2.54	2.35	2.18	2.28
13	.23	.24	.43		---	1.70	2.35	2.60	2.51	2.35	2.16	2.31
14	.25	.23	.44		.54	1.75	2.37	2.64	2.51	2.34	2.16	2.30
15	.26	.22	.45		.54	1.79	2.36	2.64	2.53	2.33	2.16	2.28
16	.27	.22	.46		.54	1.82	2.37	2.62	2.53	2.31	2.15	2.28
17	.23	.23	.46		.54	1.85	2.37	2.61	2.51	2.28	2.15	2.27
18	.16	.25	---		.55	1.87	2.40	2.59	2.50	2.52	2.14	2.26
19	.23	.18	---		.56	2.01	2.40	2.58	2.49	2.51	2.13	2.24
20	.23	.21	---		.56	2.18	2.37	2.63	2.46	2.50	2.12	2.22
21	.20	.24	---		.59	2.30	2.38	2.68	2.44	2.51	2.11	2.22
22	.20	.24	---		.84	2.36	2.39	2.69	2.43	2.49	2.08	2.21
23	.19	.24	---		1.05	2.41	2.37	2.70	2.41	2.47	2.07	2.19
24	.21	.27	---		1.34	2.41	2.37	2.70	2.39	2.45	2.08	2.18
25	.21	.28	---		1.39	2.40	2.35	2.70	2.40	2.42	2.09	2.17
26	.20	.20	---		1.43	2.40	2.34	2.80	2.39	2.40	2.08	2.17
27	.19	.24	---		1.41	2.41	2.34	2.86	2.39	2.38	2.06	2.18
28	.20	.25	---		1.49	2.40	2.34	2.90	2.38	2.36	2.05	2.17
29	.22	.25	---		---	2.41	2.33	2.90	2.37	2.35	2.07	2.18
30	.20	.31	---		---	2.35	2.32	2.89	2.40	2.32	2.10	2.20
31	.18	---	---		---	2.33	---	2.80	---	2.30	2.27	---
MEAN	.22	.24	---		---	1.95	2.35	2.61	2.51	2.39	2.16	2.24
MAX	.27	.31	---		---	2.41	2.40	2.90	2.75	2.52	2.28	2.33

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 (2 m) downstream from bridge on State Highway 4, 0.1 mi (0.2 km) downstream from Drainage ditch 33 and 40, 1.9 mi (3.1 km) south of Jefferson, 4.2 mi (6.8 km) upstream from Hardin Creek, and at mile 292.5 (470.6 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--1,619 mi² (4,193 km²).

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 (294.769 m) NGVD. Prior to Apr. 22, 1946, nonrecording gage at site 4 mi (6.4 km) upstream at different datum. Apr. 22 to June 25, 1946, nonrecording gage, June 26, 1946 to Sept. 30, 1955, water-stage recorder, Oct. 1, 1955 to Apr. 30, 1958, nonrecording gage, at present site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage height telemeter at station.

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

AVERAGE DISCHARGE.--42 years, 665 ft³/s (18.83 m³/s), 5.58 in/yr (142 mm/yr), 481,800 acre-ft/yr (594 hm³/yr); median of yearly mean discharges, 580 ft³/s (16.4 m³/s), 4.9 in/yr (124 mm/yr), 420,000 acre-ft/yr (518 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 29,100 ft³/s (824 m³/s) June 23, 1947, gage height, 22.3 ft (6.80 m); minimum daily, 0.6 ft³/s (0.017 m³/s) Oct. 5, 1956.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	1800	5,440	154	12.00	3.658	June 15	1745	4,110	116	10.53	3.210
May 5	1015	4,720	134	11.30	3.444	July 9	1300	4,190	119	10.61	3.234
May 6	2130	4,400	125	10.96	3.341	July 13	0300	4,490	127	10.96	3.341
May 29	1630	6,040	171	12.52	3.816	July 21	1000	*6,540	185	*12.91	3.935

Minimum daily discharge, 57 ft³/s (1.61 m³/s) Jan. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	237	184	122	67	1600	783	528	2940	844	690	309
2	88	237	182	120	63	1500	731	518	2510	828	623	534
3	92	245	187	118	62	1300	714	490	2220	808	566	460
4	104	254	192	118	61	900	659	481	2000	769	537	389
5	129	259	200	118	62	880	708	3350	1830	739	509	304
6	274	259	210	118	61	920	943	4120	1700	742	478	267
7	333	259	220	109	62	830	963	3940	1860	1340	524	245
8	300	253	230	100	60	780	913	3170	1770	3460	496	239
9	266	238	235	90	61	680	894	2470	1710	4070	449	213
10	247	232	220	84	60	550	841	2010	1920	3050	415	202
11	235	223	215	76	59	860	861	1730	1660	3090	385	191
12	221	216	220	68	60	1500	1010	1730	1470	4280	354	185
13	209	208	220	62	61	1550	1110	2010	1360	4400	332	258
14	204	207	220	57	62	1300	1080	1640	1270	3870	321	1050
15	204	204	185	58	63	1400	966	2390	2680	2840	312	1830
16	209	200	135	60	64	1360	921	2580	2260	2150	300	1770
17	250	199	145	59	64	1280	1040	2750	1750	1770	286	1420
18	276	194	155	60	63	1200	1210	2640	1500	1680	273	1170
19	287	189	160	60	80	1940	1220	2910	1360	3990	262	974
20	312	187	155	60	178	4340	1130	2830	1250	5730	247	828
21	348	177	135	62	675	5110	1010	3060	1150	6170	233	720
22	338	153	130	64	1220	4760	907	3130	1070	4160	223	637
23	299	162	131	65	1850	3130	833	2800	1000	3430	213	579
24	273	173	135	65	2260	2390	781	2480	944	2480	229	534
25	264	189	138	66	2140	1960	746	2210	906	1970	209	496
26	264	191	140	66	1600	1530	720	3330	931	1610	206	469
27	262	183	137	67	1500	1220	658	4780	952	1340	191	437
28	252	178	135	65	1600	1030	599	5430	961	1140	180	420
29	245	170	133	69	---	902	560	5870	918	1000	173	415
30	243	168	127	69	---	845	540	4830	897	877	187	401
31	239	---	125	67	---	801	---	3640	---	773	217	---
TOTAL	7359	6244	5336	2442	14218	50348	26051	85847	46749	75400	10620	17926
MEAN	237	208	172	78.8	508	1624	868	2769	1558	2432	343	598
MAX	348	259	235	122	2260	5110	1220	5870	2940	6170	690	1830
MIN	88	153	125	57	59	550	540	481	897	739	173	185
CFSM	.15	.13	.11	.05	.31	1.00	.54	1.71	.96	1.50	.21	.37
IN.	.17	.14	.12	.06	.33	1.16	.60	1.97	1.07	1.73	.24	.41
AC-FT	14600	12380	10580	4840	28200	99870	51670	170300	92730	149600	21060	35560

CAL YR 1981	TOTAL	79778	MEAN 219	MAX 1270	MIN 36	CFSM .14	IN 1.83	AC-FT 158200		
WTR YR 1982	TOTAL	348540	MEAN 955	MAX 6170	MIN 57	CFSM .59	IN 8.01	AC-FT 691300		

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 (11 m) upstream from bridge on county highway E26, 1.6 mi (2.6 km) upstream from small left-bank tributary, 4.4 mi (7.1 km) upstream from mouth, and 6.5 mi (10.5 km) southeast of Churdan.

DRAINAGE AREA.--24.0 mi^2 (62.2 km^2).

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 (320.314 m) NGVD.

REMARKS.--Records good excepthose below 2.0 ft^3/s (0.057 m^3/s) and those for winter period which are fair. Small diversion for irrigation above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--30 years, 9.60 ft^3/s (0.272 m^3/s), 5.43 in/yr (138 mm/yr), 6,960 acre-ft/yr (8.58 hm/yr); median of yearly mean discharges, 7.4 ft^3/s (0.210 m^3/s), 4.2 in/yr (107 mm/yr), 5,400 acre-ft/yr (6.66 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 413 ft^3/s (11.7 m^3/s) May 5, 1960, gage height, 8.92 ft (2.719 m), from rating curve extended above 330 ft^3/s (9.35 m^3/s); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 150 ft^3/s (4.25 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 21	unknown	237	6.71	7.12	2.170
May 4	2230	*282	7.99	*7.16	2.182
May 21	unknown	175	4.96	5.62	1.713
May 26	unknown	155	4.39	5.28	1.609
July 18	1315	158	4.47	5.34	1.628

Minimum daily discharge, 0.07 ft^3/s (0.002 m^3/s) Sept. 27,28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	4.5	19	5.2	2.0	14	12	6.1	48	15	4.8	2.1
2	1.3	5.7	20	4.8	2.0	13	14	6.1	41	15	4.1	.67
3	2.2	13	18	4.5	2.0	11	12	6.1	37	14	3.6	.42
4	8.2	19	16	4.2	1.8	10	11	18	34	12	3.0	.34
5	11	16	16	3.9	1.8	9.0	11	188	31	12	2.9	.32
6	8.8	14	17	3.7	1.8	8.2	9.6	156	31	14	2.6	.27
7	8.5	14	19	3.4	1.8	7.6	9.4	135	29	14	2.3	.27
8	8.5	12	21	3.2	1.8	7.0	9.2	105	28	13	2.2	.25
9	7.9	9.8	19	2.9	1.7	6.7	10	72	26	12	2.1	.24
10	7.0	10	18	2.7	1.7	7.4	12	51	24	20	1.8	.23
11	5.8	9.3	17	3.1	1.6	20	17	42	24	19	1.6	.21
12	6.1	8.9	15	3.0	1.7	24	18	78	23	16	1.4	17
13	6.1	8.6	14	3.0	1.6	24	14	73	21	14	1.6	2.0
14	5.3	8.4	13	2.9	1.6	26	12	75	21	13	1.3	2.7
15	4.8	8.1	12	2.8	1.4	26	12	74	72	12	1.3	1.0
16	4.8	7.1	11	2.7	1.3	29	14	72	61	11	1.1	.59
17	9.7	6.6	10	2.6	1.3	26	16	69	46	9.7	.97	.52
18	13	7.2	10	2.6	1.7	22	17	75	38	101	.87	.44
19	11	7.0	9.9	2.5	2.8	105	16	84	34	65	.70	.35
20	11	5.9	9.4	2.5	14	107	12	71	31	39	.59	.27
21	8.2	5.8	8.9	2.4	106	74	12	127	27	28	.52	.25
22	7.8	6.2	8.4	2.3	124	49	11	130	24	22	.46	.22
23	7.1	7.8	7.9	2.3	60	39	11	90	23	18	.43	.45
24	8.0	12	7.6	2.2	34	33	10	68	22	15	.46	.10
25	7.2	15	7.6	2.0	24	26	9.4	56	20	13	.42	.11
26	6.2	15	7.5	2.3	21	21	7.9	124	19	11	.36	.11
27	6.0	13	6.9	2.3	19	18	7.3	96	19	9.2	.32	.07
28	5.6	11	5.9	2.5	16	17	7.3	68	18	7.8	.30	.07
29	5.8	11	5.7	2.7	---	16	7.0	99	17	6.9	.37	.16
30	6.1	13	5.6	2.3	---	16	6.4	80	16	6.0	.50	.16
31	4.6	---	5.6	2.2	---	13	---	59	---	5.3	.92	---
TOTAL	215.2	304.9	381.9	91.7	451.4	824.9	347.5	2453.3	905	582.9	45.89	15.06
MEAN	6.94	10.2	12.3	2.96	16.1	26.6	11.6	79.1	30.2	18.8	1.48	.50
MAX	13	19	21	5.2	124	107	18	188	72	101	4.8	2.7
MIN	1.3	4.5	5.6	2.0	1.3	6.7	6.4	6.1	16	5.3	.30	.07
CFSM	.29	.43	.51	.12	.67	1.11	.48	3.30	1.26	.78	.06	.02
IN.	.33	.47	.59	.14	.70	1.28	.54	3.80	1.40	.90	.07	.02
AC-FT	427	605	757	182	895	1640	689	4870	1800	1160	91	30

CAL YR 1981	TOTAL	2779.75	MEAN	7.62	MAX 181	MIN .00	CFSM .32	IN 4.31	AC-FT	5510
WTR YR 1982	TOTAL	6619.65	MEAN	18.1	MAX 188	MIN .07	CFSM .75	IN 10.26	AC-FT	13130

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 50 ft (15 m), downstream from bridge on State Highway 25, 0.2 mi (0.3 km) downstream from Battle Run Creek, 1.8 mi (2.9 km) upstream from Springbook Creek, 5.8 mi (9.3 km) southeast of Bayard, 10.4 mi (16.7 km) upstream from dam at Lake Panorama, and at mile 279.2 (449.2 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--375 mi² (971 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1979 to current year. Occasional low-flow measurements, water years 1976,77. Contracted opening measurement of July 3, 1973 flood.

GAGE.--Water-stage recorder. Datum of gage is 1,040.00 ft. (316.992 m) NGVD. Prior to June 23, 1979 nonrecording gage on downstream side of State Highway 25 bridge.

REMARKS.--Records good except those for winter period, which are poor. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,480 ft³/s (98.5 m³/s) Feb. 22, 1982, gage height, 18.71 ft (5.703 m) backwater from ice; minimum daily, 5.5 ft³/s (0.16 m³/s), June 13,14,1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 3, 1973 reached a stage of 21.63 ft (6.593 m) from contracted opening measurement, discharge, 14,600 ft³/s (413 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft³/s (34.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 22	2130	*3,480	98.5	a*18.71	5.703
Mar. 12	0945	1,390	39.4	13.21	4.026
Mar. 20	0245	3,340	94.6	17.53	5.343
May 20	0130	2,130	60.3	15.16	4.621
May 22	0915	1,390	39.4	13.20	4.023
May 27	0315	2,970	84.1	17.00	5.182
June 16	0115	2,540	71.9	16.14	4.919

a Ice jam

Minimum daily discharge 17 ft³/s (0.48 m³/s) Feb. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	33	53	50	20	250	166	116	581	235	99	121
2	25	38	62	47	20	220	164	113	508	260	96	75
3	22	61	72	47	20	200	173	109	476	259	87	53
4	48	153	89	47	19	230	150	108	438	236	82	49
5	78	143	80	44	19	230	232	411	406	234	82	45
6	48	109	84	40	19	230	186	575	384	362	82	43
7	37	93	91	37	18	211	195	575	381	462	79	41
8	34	82	103	33	18	138	171	459	342	310	76	41
9	31	72	117	30	18	72	185	364	342	278	70	43
10	30	65	109	26	18	138	176	307	310	352	69	42
11	28	64	102	23	17	450	209	290	291	314	70	41
12	27	63	96	21	17	1130	258	350	285	264	67	38
13	27	60	87	21	18	625	252	555	269	244	64	59
14	28	58	74	21	18	420	200	460	259	225	63	143
15	28	56	62	21	18	340	186	488	1000	213	66	67
16	30	55	53	20	24	336	213	542	1450	203	63	55
17	32	53	62	20	31	309	228	523	673	195	60	51
18	39	51	70	20	42	274	226	501	524	189	56	51
19	41	52	78	19	62	1650	219	643	449	370	52	47
20	36	52	68	19	470	2280	199	1310	407	209	51	43
21	34	45	73	19	2000	990	174	1130	365	246	47	44
22	33	46	74	21	3030	591	170	1320	334	302	44	42
23	32	50	75	22	2450	468	160	993	310	194	42	40
24	32	57	74	21	915	421	155	761	292	179	43	41
25	36	53	72	21	390	345	152	648	273	166	50	38
26	36	50	72	21	310	296	144	1850	259	154	48	38
27	35	50	74	21	295	264	129	2180	250	149	40	38
28	34	47	68	21	280	235	122	1270	235	144	37	36
29	32	45	62	22	---	217	124	947	233	134	39	38
30	31	50	57	22	---	211	122	836	234	128	74	47
31	32	---	53	21	---	195	---	699	---	109	115	---
TOTAL	1062	1906	2366	838	10576	13966	5440	21433	12560	7319	2013	1550
MEAN	34.3	63.5	76.3	27.0	378	451	181	691	419	236	64.9	51.7
MAX	78	153	117	50	3030	2280	258	2180	1450	462	115	143
MIN	22	33	53	19	17	72	122	108	233	109	37	36
CFSM	.09	.17	.20	.07	1.01	1.20	.48	1.84	1.12	.63	.17	.14
IN.	.11	.19	.23	.08	1.05	1.39	.54	2.13	1.25	.73	.20	.15
AC-FT	2110	3780	4690	1660	20980	27700	10790	42510	24910	14520	3990	3070

CAL YR 1981	TOTAL	23528.7	MEAN	64.5	MAX	1510	MIN	5.5	CFSM	.17	IN	2.33	AC-FT	46670
WTR YR 1982	TOTAL	81029.0	MEAN	222	MAX	3030	MIN	17	CFSM	.59	IN	8.04	AC-FT	160700

05483450 MIDDLE RACCOON RIVER NEAR BAYARD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1979 to current year.
WATER TEMPERATURES: April 1979 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1979 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 860 micromhos Dec. 7, 1981; minimum daily, 230 micromhos Feb. 22, 1982.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 5, 1979; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 9,440 mg/L June 27, 1979; minimum daily mean, 1 mg/L Jan. 29, 1982.
SEDIMENT LOADS: Maximum daily, 56,500 tons (51,300 tonnes) June 27, 1979; minimum daily, 0.06 tons (0.05 tonnes) Jan. 29, 1982.

EXTREMES FOR CURRENT YEAR:
SPECIFIC CONDUCTANCE: Maximum daily, 860 micromhos Dec. 7; minimum daily, 230 micromhos Feb. 22.
WATER TEMPERATURES: Maximum daily, 26.0°C July 20, Aug. 2,5; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 6,840 mg/L Mar. 19; minimum daily mean, 1 mg/L Jan. 29.
SEDIMENT LOADS: Maximum daily, 38,800 tons (35,200 tonnes) Mar. 19; minimum daily, 0.06 tons (0.05 tonnes) Jan. 29.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG.C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	640	620	---	---	710	---	---	---
2	---	600	720	---	---	630	660	---	---	720	650	---
3	---	750	---	---	660	630	---	620	720	---	---	720
4	---	810	805	620	---	---	---	---	---	---	---	---
5	---	---	---	---	720	710	680	720	---	730	700	---
6	---	---	---	590	---	---	500	500	---	660	---	650
7	---	---	860	---	---	---	660	730	710	---	670	---
8	---	---	---	620	640	610	---	---	---	---	---	630
9	---	---	850	---	---	---	640	---	690	---	710	---
10	680	---	---	---	690	600	630	---	---	---	---	---
11	---	620	810	670	---	430	---	720	680	---	690	710
12	660	---	---	---	700	380	690	780	---	780	630	650
13	---	610	---	610	---	---	---	---	---	---	680	630
14	670	---	640	---	---	---	710	745	---	---	---	---
15	---	---	---	580	670	---	---	820	720	---	---	640
16	---	610	620	---	---	620	700	---	460	---	690	---
17	---	---	---	---	---	---	---	610	680	---	---	680
18	---	---	740	760	560	680	---	---	---	---	---	---
19	640	---	---	---	---	415	710	820	---	---	---	---
20	---	620	---	610	285	330	---	440	---	830	---	620
21	730	---	660	---	245	560	620	600	---	---	---	---
22	---	---	---	610	230	640	---	---	---	530	---	---
23	---	---	---	---	360	---	---	---	---	650	---	---
24	---	630	---	---	425	555	---	720	---	---	660	---
25	---	---	620	620	535	---	---	---	---	---	---	---
26	660	---	---	---	580	---	660	580	---	---	660	---
27	---	610	---	---	---	700	---	580	---	730	---	---
28	660	---	640	600	---	---	660	680	670	---	---	---
29	---	---	---	610	---	680	---	---	---	610	---	---
30	620	600	640	---	---	---	650	---	750	670	---	---
31	---	---	---	---	---	720	---	---	---	---	450	---

05483450 MIDDLE RACCOON RIVER NEAR BAYARD--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	2.0	1.0	4.0	---	---	14.0	---	---	---
2	---	12.0	2.0	---	---	4.0	7.0	---	---	---	26.0	---
3	---	13.0	---	---	1.0	2.0	---	13.0	16.0	---	---	25.0
4	---	13.0	1.5	2.0	---	---	---	---	---	---	---	---
5	---	---	---	---	.0	2.0	4.0	17.0	---	23.0	26.0	---
6	---	---	---	1.0	---	---	.0	11.0	---	22.0	---	23.0
7	---	---	---	---	---	---	2.0	12.5	17.0	---	25.0	---
8	---	---	---	1.0	1.0	1.0	---	---	---	---	---	18.0
9	---	---	1.0	---	---	---	7.0	---	17.0	---	25.0	---
10	15.0	---	---	---	2.0	3.0	8.0	---	---	---	---	---
11	---	9.0	.0	.0	---	3.0	---	17.0	18.0	---	20.0	25.0
12	15.0	---	---	---	2.0	3.0	9.0	17.0	---	23.0	19.0	23.0
13	---	8.0	---	.0	---	---	---	---	---	---	24.0	20.0
14	16.0	---	.0	---	---	---	10.0	17.0	---	---	---	---
15	---	---	---	.0	4.0	---	---	---	18.0	---	---	18.0
16	---	8.0	.0	---	---	4.0	12.0	---	17.0	---	20.0	---
17	---	---	---	---	---	---	---	16.0	17.0	---	---	14.0
18	---	---	---	.0	5.0	4.0	---	---	---	---	---	
19	14.0	---	---	---	---	5.0	11.0	17.0	---	---	---	---
20	---	7.0	---	.0	3.0	5.0	---	15.0	---	26.0	---	13.0
21	13.0	---	1.0	---	3.5	4.0	12.0	14.0	---	---	---	15.0
22	---	---	---	1.0	3.0	4.0	---	---	---	23.0	---	---
23	---	---	---	---	3.0	---	---	---	---	24.0	---	---
24	---	7.0	---	---	2.0	6.0	---	15.0	---	---	22.0	---
25	---	---	2.5	1.0	1.0	---	---	---	---	---	---	---
26	12.0	---	---	---	1.0	---	12.0	14.0	---	---	23.0	---
27	---	7.0	---	---	---	5.0	---	18.0	---	24.0	---	---
28	12.0	---	2.0	1.0	---	---	14.0	16.0	25.0	---	---	---
29	---	---	---	2.0	---	6.0	---	---	---	22.0	---	---
30	14.0	6.0	2.0	---	---	---	12.0	---	21.0	21.0	---	---
31	---	---	---	---	---	6.0	---	---	---	---	24.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	45	3.2	31	2.8	92	13	17	2.3	3	.16	216	146
2	46	3.1	54	5.5	49	8.2	14	1.8	4	.22	240	143
3	45	2.7	126	21	68	13	13	1.6	7	.38	174	94
4	54	7.0	405	167	105	25	12	1.5	10	.51	168	104
5	88	19	325	125	86	19	10	1.2	12	.62	113	70
6	46	6.0	235	69	70	16	11	1.2	24	1.2	110	68
7	46	4.6	168	42	62	15	12	1.2	40	1.9	113	64
8	45	4.1	115	25	74	21	11	.98	45	2.2	121	45
9	45	3.8	90	17	93	29	11	.89	30	1.5	159	31
10	52	4.2	80	14	89	26	14	.98	15	.73	1050	391
11	70	5.3	71	12	80	22	14	.87	7	.32	480	583
12	80	5.8	58	9.9	74	19	13	.74	9	.41	4380	13400
13	74	5.4	48	7.8	70	16	12	.68	8	.39	2360	3980
14	65	4.9	49	7.7	62	12	11	.62	8	.39	1100	1250
15	62	4.7	59	8.9	46	7.7	12	.68	12	.58	580	532
16	59	4.8	70	10	38	5.4	13	.70	23	1.5	317	288
17	59	5.1	82	12	119	20	12	.65	33	2.8	290	242
18	56	5.9	87	12	115	22	14	.76	78	8.8	285	211
19	50	5.5	94	13	95	20	20	1.0	159	27	6840	38800
20	37	3.6	98	14	86	16	29	1.5	530	673	5050	34400
21	30	2.8	92	11	78	15	22	1.1	1200	12100	1550	4140
22	31	2.8	90	11	74	15	12	.68	2510	27100	712	1140
23	26	2.2	89	12	68	14	11	.65	3610	26600	467	590
24	23	2.0	92	14	60	12	10	.57	1420	3510	231	263
25	26	2.5	96	14	48	9.3	9	.51	350	369	187	174
26	30	2.9	99	13	45	8.7	7	.40	140	117	192	153
27	26	2.5	102	14	39	7.8	6	.34	147	117	210	150
28	27	2.5	104	13	37	6.8	4	.23	166	125	189	120
29	27	2.3	104	13	34	5.7	1	.06	---	---	210	123
30	25	2.1	111	15	28	4.3	2	.12	---	---	249	142
31	26	2.2	---	---	24	3.4	3	.17	---	---	210	111
TOTAL	---	135.5	---	725.6	---	447.3	---	26.68	---	70762.61	---	101948

05483450 MIDDLE RACCOON RIVER NEAR BAYARD--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	190	85	60	19	825	1290	600	381	197	53	1420	464
2	243	108	50	15	790	1080	608	427	185	48	440	89
3	265	124	42	12	727	934	530	371	180	42	90	13
4	260	105	62	18	668	790	440	280	198	44	92	12
5	292	183	2190	3870	605	663	397	251	260	58	90	11
6	225	113	3730	5840	580	601	3210	3140	270	60	139	16
7	143	75	1150	1790	630	648	4730	5900	265	57	120	13
8	140	65	820	1020	618	571	1130	946	220	45	93	10
9	146	73	630	619	642	593	950	713	155	29	92	11
10	150	71	550	456	618	517	3100	2950	142	26	90	10
11	117	66	450	352	582	457	1330	1130	138	26	87	9.6
12	182	127	850	803	552	425	520	371	135	24	85	8.7
13	332	226	1860	2790	520	378	510	336	139	24	370	59
14	273	147	785	975	482	9350	500	304	140	24	1520	587
15	279	140	1310	1730	2390	14700	500	288	180	32	122	22
16	446	256	1300	1900	3300	12900	510	280	175	30	85	13
17	502	309	2330	3290	1500	2730	590	311	168	27	82	11
18	470	287	580	785	1180	1670	680	347	160	24	70	9.6
19	415	245	1620	5690	1020	1240	3910	3910	155	22	70	8.9
20	218	117	5420	20200	902	991	1230	694	156	21	65	7.5
21	50	23	4280	13100	820	808	3200	2130	157	20	60	7.1
22	47	22	5130	18300	745	672	4480	3650	156	19	62	7.0
23	55	24	1940	5200	660	552	1670	875	157	18	62	6.7
24	70	29	998	2050	575	453	1280	619	195	23	63	7.0
25	90	37	850	1490	500	369	930	417	219	30	63	6.5
26	110	43	3700	18500	415	290	678	282	188	24	63	6.5
27	108	38	3530	20800	362	244	360	145	175	19	63	6.5
28	100	33	1100	3770	295	187	278	108	171	17	67	6.5
29	85	28	1020	2610	244	154	251	91	204	21	78	8.0
30	71	23	1210	2730	600	379	222	77	940	188	120	15
31	---	---	915	1730	---	---	211	62	830	258	---	---
TOTAL	---	3222	---	142454	---	56636	---	31786	---	1353	---	1462.1

TOTAL LOAD FOR YEAR: 410958.79 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
OCT 19...	1820	6.0	40	86	9.3	--	--
DEC 04...	1215	1.0	94	142	36	--	--
FEB 22...	1220	2.0	3030	1760	14400	37	40
MAR 19...	1424	5.0	2220	9370	56200	41	44
MAY 17...	1510	19.0	580	5500	8610	44	52
JUL 22...	0800	23.0	335	6250	5650	61	73
AUG 12...	1210	19.0	64	135	23	--	--

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 19...	--	--	--	--	--	--	78
DEC 04...	--	--	--	--	--	--	71
FEB 22...	44	55	83	86	97	100	--
MAR 19...	47	59	94	97	99	100	--
MAY 17...	56	69	99	100	--	--	--
JUL 22...	82	90	--	--	--	--	99
AUG 12...	--	--	--	--	--	--	82

05483450 MIDDLE RACCOON RIVER NEAR BAYARD--Continued

WATER-QUALITY RECORDS

WATER QUALTIY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
MAY												
17...	1525	530	7	3	3	12	54	92	98	99	100	--
JUN												
28...	1000	230	6	0	1	9	57	89	96	98	99	100
AUG												
12...	1210	64	7	2	4	20	63	87	95	98	100	--

05483470 LAKE PANORAMA AT PANORA, IOWA

LOCATION.--Lat 41°41'44", long 94°22'53", in SW1/4 NE1/4 sec.31, T.80 N., R.30 W., Guthrie County, Hydrologic Unit 07100007, in gate control building of dam on Middle Raccoon River, 0.5 mi (0.8 km) upstream from State Highway 44, 1.0 mi (1.6 km) west of Panora, 4.4 mi (7.1 km) upstream from Bay Branch, and at mile 268.8 upstream from mouth of Des Moines River.

DRAINAGE AREA.--433 mi² (1,121 km²).

PERIOD OF RECORD.--May 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,000.00 ft (304.800 m) NGVD.

REMARKS.--Lake is formed by earthfill dam with 100 ft (30.5 m) bascule gate and concrete chute spillway, and 300 ft (91.4 m) earthen emergency spillway. Low-flow outlet is 30 in (0.762 m) conduit and gate valve through dam. Dam was completed in August 1970 and began filling April 27, 1971. Total storage, 60,000 acre-ft (74.0 hm³), surface area, 2,900 acres (1,170 hm²), at top of dam, elevation 1,068 ft (325.5 m). Storage unknown at top of spillway, elevation 1,048 ft (319.4 m). Normal storage, 19,700 acre-ft (24.3 hm³), surface area, 1,270 acres (514 hm²) with bascule gate closed, elevation 1,045 ft (318.5 m). Dead storage unknown with bascule gate open, elevation 1,036 ft (315.8 m). Present lake classification is utility (industrial) but is also used for recreation. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 46.61 ft (14.207 m) June 30, 1981; minimum, 44.06 ft (13.429 m) Feb. 24, 1982.

EXTREMES FOR CURRENT PERIOD.--Maximum gage height, 46.27 ft (14.103 m) June 15, 16, July 6, 7; minimum, 44.06 ft (13.429 m) Feb. 24.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45.23	45.38	---	45.42	45.29	44.98	45.11	44.58	45.82	45.74	---	45.17
2	45.20	45.41	---	45.41	45.29	44.96	45.09	44.62	45.73	45.81	---	45.19
3	45.21	45.50	---	45.41	45.29	44.92	45.13	44.72	45.63	45.87	---	45.11
4	45.30	45.60	45.54	45.41	45.28	44.81	45.01	45.18	45.56	45.80	---	45.09
5	45.39	45.73	---	45.40	45.27	44.92	45.10	45.70	45.49	45.73	---	45.09
6	45.43	45.73	---	45.39	45.27	45.05	45.13	45.19	45.44	46.03	---	45.11
7	45.41	45.70	---	45.38	45.26	45.09	45.11	44.90	45.47	46.23	---	45.13
8	45.40	45.70	45.59	45.36	45.26	45.09	45.14	44.84	45.42	45.97	---	45.12
9	45.40	45.62	---	45.35	45.26	45.10	45.14	44.87	45.40	45.72	---	45.13
10	45.40	45.58	---	45.32	45.26	45.07	45.13	45.19	45.35	45.62	---	45.14
11	45.38	45.55	---	45.31	45.27	45.27	45.12	45.33	45.31	45.61	---	45.13
12	45.37	45.53	---	45.30	45.27	45.84	45.20	45.33	45.33	45.52	45.16	45.15
13	45.37	45.52	---	45.29	45.26	45.26	45.26	45.48	45.33	45.32	45.18	45.20
14	45.39	45.50	---	45.26	45.26	44.76	45.23	45.57	45.31	45.18	45.19	45.18
15	45.39	45.51	---	45.24	45.26	44.48	45.20	45.58	45.61	45.17	45.17	45.14
16	45.37	45.50	---	45.21	45.26	44.48	45.30	45.49	45.47	45.18	45.12	45.10
17	45.45	45.48	---	45.21	45.26	44.92	45.28	45.51	45.09	45.25	45.13	45.15
18	45.46	45.46	45.48	45.22	45.26	45.23	45.25	45.60	45.19	---	45.13	45.11
19	45.40	45.50	45.45	45.22	45.29	45.75	45.26	45.60	45.25	---	45.12	45.10
20	45.41	45.44	45.42	45.22	45.61	45.68	45.25	45.78	45.21	---	45.13	45.10
21	45.40	45.39	45.36	45.22	45.90	44.77	45.16	45.63	45.20	---	45.11	45.07
22	45.38	45.37	45.36	45.29	45.90	44.86	45.10	45.69	45.20	---	45.12	45.07
23	45.35	45.41	45.36	45.30	45.21	44.82	45.06	45.58	45.18	---	45.12	45.08
24	45.32	45.40	45.36	45.30	44.39	45.22	45.06	45.64	45.28	---	45.14	45.11
25	45.33	45.40	45.36	45.30	44.71	45.38	45.09	45.66	45.51	---	45.13	45.11
26	45.32	45.42	45.36	45.29	44.92	45.39	45.12	45.98	45.62	---	45.13	45.11
27	45.32	45.40	45.36	45.29	44.99	45.31	45.03	45.74	45.68	---	45.13	45.10
28	45.32	45.38	45.36	45.29	45.00	45.26	44.85	45.10	45.69	---	45.11	45.10
29	45.32	45.37	45.36	45.29	---	45.18	44.65	45.08	45.70	---	45.13	45.13
30	45.32	45.38	---	45.31	---	45.18	44.52	45.60	45.73	---	45.18	45.14
31	45.36	---	45.42	45.31	---	45.17	---	45.87	---	---	45.19	---
MEAN	45.36	45.50	---	45.31	45.24	45.10	45.10	45.38	45.44	---	---	45.12
MAX	45.46	45.73	---	45.42	45.90	45.84	45.30	45.98	45.82	---	---	45.20

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 (5 m) downstream from bridge on county highway, 0.2 mi (0.3 km) southwest of Panora, 1.5 mi (2.4 km) upstream from Andy's Branch, 1.6 mi (2.6 km) downstream from Lake Panorama, 18.2 mi (29.3 km) upstream from mouth, and at mile 267.2 (429.9 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--440 mi² (1,140 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR IOWA 1974: 1973 (P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 991.20 ft (302.118 m) NGVD.

REMARKS.--Records good. City of Panora diverts approximately 100 acre-ft/yr (0.123 hm³/yr) above station. Flow regulated by dam on Lake Panorama since August 1970.

AVERAGE DISCHARGE.--24 years, 202 ft³/s (5.721 m³/s), 6.23 in/yr (158 mm/yr), 146,300 acre-ft/yr (180 hm³/yr); median of yearly mean discharges, 170 ft³/s (4.81 m³/s), 5.2 in/yr (132 mm/yr), 123,000 acre-ft/yr (152 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s (396 m³/s) May 19, 1974, gage height, 14.80 ft (4.511 m), from rating curve extended above 5,200 ft³/s (147 m³/s) by step-backwater analysis; no flow June 9, 10, 1977, result of gate operation at Lake Panorama; minimum daily discharge excluding regulation at Lake Panorama, 3.0 ft³/s (0.085 m³/s) July 9, 14, 22-23, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1953, reached a stage of 14.3 ft (4.36 m), from floodmark, discharge, about 14,000 ft³/s (396 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 23	1030	*4,330	123	*9.13	2.783	May 27	0745	3,580	101	8.42	2.566
Mar. 19	1800	3,210	90.9	8.21	2.502	June 16	0730	3,350	94.9	8.26	2.518

Minimum daily discharge, 30 ft³/s (0.85 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	43	80	55	36	233	186	127	632	216	76	75
2	30	47	71	57	36	233	179	118	572	276	72	128
3	31	60	78	57	36	216	201	114	512	267	77	58
4	37	71	81	56	35	92	154	115	471	232	100	43
5	45	103	79	53	35	67	185	193	431	208	262	38
6	49	113	81	51	34	96	187	980	404	351	90	37
7	47	106	88	48	34	102	180	618	416	474	83	38
8	46	103	88	48	33	107	188	432	382	519	79	38
9	45	84	95	47	33	103	189	405	373	362	44	39
10	45	75	93	49	33	105	189	352	341	340	51	40
11	43	70	97	49	33	169	182	323	297	333	53	40
12	40	67	98	40	32	952	209	317	284	286	60	70
13	41	64	97	38	32	895	230	402	286	362	60	130
14	41	61	101	37	33	551	214	463	279	214	74	109
15	41	61	89	37	33	394	206	561	440	176	116	106
16	39	60	77	36	33	180	256	682	2280	156	66	48
17	50	56	66	36	34	59	234	514	486	192	59	99
18	50	54	73	34	35	130	223	516	430	186	57	73
19	42	65	80	34	49	1470	224	628	465	323	54	49
20	42	57	76	33	543	2800	218	1490	384	188	52	48
21	41	48	64	33	1980	992	190	1260	328	213	46	40
22	40	45	63	40	3250	560	109	1310	308	257	42	35
23	37	52	62	41	3300	327	47	1150	264	200	40	32
24	35	49	62	39	862	244	73	700	155	145	43	34
25	37	48	61	39	293	307	102	727	144	134	42	34
26	36	55	61	37	220	294	127	1780	180	133	43	33
27	35	50	61	37	249	268	121	2710	199	129	47	33
28	35	48	62	36	244	249	123	1430	205	110	41	33
29	35	47	59	36	---	226	127	980	198	104	39	44
30	36	52	57	37	---	225	130	477	208	101	60	51
31	40	---	57	37	---	208	---	674	---	95	197	---
TOTAL	1245	1914	2357	1307	11600	12854	5183	22548	12354	7202	2235	1675
MEAN	40.2	63.8	76.0	42.2	414	415	173	727	412	235	72.1	55.8
MAX	50	113	101	57	3300	2000	256	2710	2280	519	262	130
MIN	30	43	57	33	32	59	47	114	144	95	39	32
CFSM	.09	.15	.17	.10	.94	.94	.39	1.65	.94	.53	.16	.13
IN.	.11	.16	.20	.11	.98	1.09	.44	1.91	1.04	.62	.19	.14
AC-FT	2470	3800	4680	2590	23010	25500	10280	44720	24500	14440	4430	3320

CAL YR 1981 TOTAL 24020 MEAN 65.8 MAX 1220 MIN 14 CFSM .15 IN 2.03 AC-FT 47640
WTR YR 1982 TOTAL 82554 MEAN 226 MAX 3300 MIN 30 CFSM .51 IN 6.90 AC-FT 163700

05483600 MIDDLE RACCOON RIVER AT PANORA, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1979 to current year.
WATER TEMPERATURES: April 1979 to current year.
SUSPENDED SEDIMENT DISCHARGE: April 1979 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 800 micromhos Oct. 29, 1979; minimum daily, 280 micromhos Feb. 25, 26, 1982.
WATER TEMPERATURES: Maximum daily, 32.0°C July 15, 1979; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,600 mg/L April 20, 1976; minimum daily mean, 4 mg/L Dec. 31, 1979, Jan. 1, 1980.
SEDIMENT LOADS: Maximum daily, 4,350 tons (3,950 tonnes) Mar. 23, 1982; minimum daily, 0.51 ton (0.46 tonnes) Jan. 16, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 780 micromhos June 17; minimum daily, 280 micromhos Feb. 25,26.
WATER TEMPERATURES: Maximum daily, 29.0°C Sept.1; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 449 mg/L Feb. 23; minimum daily mean, 5 mg/L Nov. 26, 27.
SEDIMENT LOADS: Maximum daily, 4350 tons (3950 tonnes) Mar. 23; minimum daily, 0.68 tons (0.62 tonnes) Nov. 27.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	560	560	290	---	---	450	---	---	560
2	---	510	---	---	---	300	430	---	---	550	590	---
3	---	540	---	---	580	300	---	680	---	---	---	590
4	---	540	520	570	---	---	---	---	---	---	---	---
5	---	---	---	---	560	340	570	590	---	670	590	---
6	---	---	---	580	---	---	540	620	---	690	---	550
7	---	---	540	---	---	---	560	650	700	---	---	---
8	---	---	---	600	550	350	---	---	---	---	---	540
9	---	---	520	---	---	---	580	---	730	---	---	---
10	---	---	---	---	560	380	590	---	---	---	---	---
11	530	490	560	560	---	380	---	620	770	---	580	---
12	520	---	---	---	620	380	610	640	---	650	560	550
13	---	490	---	550	---	---	---	---	---	---	610	530
14	520	---	550	---	---	---	640	590	---	---	---	---
15	---	---	---	560	570	---	---	---	650	---	---	550
16	---	540	570	---	---	400	640	---	770	---	580	---
17	---	---	---	---	---	---	---	560	780	---	---	550
18	---	---	540	560	640	420	---	560	---	---	---	---
19	580	---	---	---	---	440	660	590	---	---	570	---
20	470	500	---	580	630	460	---	600	---	670	---	480
21	500	---	580	---	640	430	650	580	---	---	---	510
22	---	---	---	560	620	440	---	---	---	650	---	---
23	---	---	630	---	410	---	---	---	---	610	---	---
24	---	510	---	---	290	400	---	540	---	---	560	---
25	---	---	560	560	280	640	---	---	---	---	---	---
26	520	---	---	---	280	---	690	530	---	---	550	---
27	---	520	---	---	---	460	---	520	---	670	---	---
28	500	---	570	580	---	---	700	470	680	---	---	---
29	---	---	---	560	---	440	---	---	---	570	---	---
30	500	520	580	---	---	440	660	---	650	560	---	---
31	---	---	---	---	---	440	---	---	---	---	550	---

05483600 MIDDLE RACCOON RIVER AT PANORA, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	2.0	1.0	4.0	---	---	14.0	---	---	29.0
2	---	7.5	---	---	---	4.0	7.0	---	---	21.0	25.0	---
3	---	12.0	---	---	1.0	2.0	---	15.0	16.0	---	---	25.0
4	---	13.0	2.0	2.0	---	---	---	---	---	---	---	---
5	---	---	---	---	.0	2.0	5.0	16.0	---	23.0	26.0	---
6	---	---	---	1.0	---	---	---	14.0	---	22.0	---	22.0
7	---	---	---	---	---	---	2.0	13.0	10.0	---	---	---
8	---	---	---	1.0	1.0	1.0	---	---	---	---	---	19.0
9	---	---	2.0	---	---	---	7.0	---	16.0	---	---	---
10	---	---	---	---	2.0	3.0	---	---	---	---	---	---
11	---	9.0	.0	.0	---	3.0	---	17.0	18.0	---	21.0	---
12	15.0	---	---	---	2.0	3.0	9.0	17.0	---	23.0	22.0	22.0
13	---	8.0	---	.0	---	---	---	---	---	---	13.0	22.0
14	16.0	---	.0	---	---	---	10.0	17.0	---	---	---	---
15	---	---	---	.0	4.0	---	---	---	17.0	---	---	19.0
16	---	8.0	.0	---	---	4.0	12.0	---	17.0	---	21.0	---
17	---	---	---	---	---	---	---	16.0	17.0	---	---	14.0
18	---	---	.0	.0	5.0	4.0	---	19.0	---	---	---	---
19	10.0	---	---	---	---	5.0	11.0	17.0	---	---	24.0	---
20	7.0	7.0	---	.0	3.5	5.0	---	18.0	---	20.0	---	13.0
21	13.0	---	2.0	---	3.5	4.0	11.0	14.0	---	---	---	---
22	---	---	---	1.5	3.0	4.0	---	---	---	26.0	---	18.0
23	---	---	2.0	---	3.0	---	---	---	---	25.0	---	---
24	---	7.0	---	---	2.0	5.0	---	15.0	---	---	22.0	---
25	---	---	2.0	1.0	1.0	6.0	---	---	---	---	---	---
26	12.0	---	---	---	1.0	5.0	12.0	15.0	---	---	22.0	---
27	---	8.0	---	---	---	5.0	---	14.0	---	24.0	---	---
28	12.0	---	2.0	1.0	---	---	14.0	16.0	---	---	---	---
29	---	---	---	2.0	---	6.0	---	---	---	23.0	---	---
30	15.0	7.0	2.0	---	---	---	11.0	---	21.0	23.0	---	---
31	---	---	---	---	---	6.0	---	---	---	---	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	52	4.8	29	3.4	11	2.4	72	11	69	6.7	186	117
2	51	4.1	26	3.3	6	1.2	66	10	43	4.2	173	109
3	50	4.2	34	5.5	7	1.5	57	8.8	31	3.0	155	90
4	49	4.9	25	4.8	18	3.9	46	7.0	58	5.5	113	28
5	47	5.7	23	6.4	20	4.3	37	5.3	84	7.9	92	17
6	44	5.8	23	7.0	22	4.8	29	4.0	87	8.0	90	23
7	41	5.2	21	6.0	22	5.2	25	3.2	87	8.0	88	24
8	37	4.6	20	5.6	18	4.3	20	2.6	88	7.8	87	25
9	33	4.0	20	4.5	14	3.6	24	3.0	88	7.8	88	24
10	29	3.5	20	4.1	11	2.8	35	4.6	83	7.4	83	24
11	26	3.0	19	3.6	9	2.4	62	8.2	51	4.5	65	30
12	26	2.8	22	4.0	12	3.2	50	5.4	27	2.3	138	355
13	26	2.9	49	8.5	15	3.9	22	2.3	30	2.6	180	435
14	25	2.8	46	7.6	17	4.6	35	3.5	38	3.4	153	228
15	27	3.0	30	4.9	15	3.6	75	7.5	43	3.8	135	144
16	30	3.2	20	3.2	13	2.7	81	7.9	34	3.0	80	39
17	33	4.5	19	2.9	15	2.7	80	7.8	28	2.6	51	8.1
18	36	4.9	18	2.6	15	3.0	78	7.2	17	1.6	69	24
19	52	5.9	18	3.2	17	3.7	57	5.2	19	2.5	217	861
20	53	6.0	18	2.8	18	3.7	33	2.9	66	97	211	1600
21	28	3.1	17	2.2	20	3.5	43	3.8	272	1450	150	402
22	26	2.8	15	1.8	27	4.6	66	7.1	388	3400	158	3450
23	25	2.5	13	1.8	34	5.7	74	8.2	449	4000	138	4350
24	23	2.2	9	1.2	29	4.9	75	7.9	305	710	177	117
25	21	2.1	7	.91	26	4.3	74	7.8	251	199	151	125
26	13	1.3	5	.74	37	6.1	62	6.2	251	149	110	87
27	15	1.4	5	.68	51	8.4	52	5.2	258	173	54	39
28	19	1.8	6	.78	58	9.7	46	4.5	222	146	55	37
29	30	2.8	7	.89	48	7.6	78	7.6	---	---	55	34
30	40	3.9	10	1.4	40	6.2	98	9.8	---	---	47	29
31	35	3.8	---	---	55	8.5	93	9.3	---	---	45	25
TOTAL	---	113.5	---	106.30	---	137.0	---	194.8	---	10416.6	---	12900.1

05483600 MIDDLE RACCOON RIVER AT PANORA, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	45	23	31	11	36	61	20	12	43	8.8	40	8.1
2	48	23	26	8.3	31	48	230	171	47	9.1	50	17
3	64	35	20	6.2	25	35	54	39	49	10	47	7.4
4	59	25	19	5.9	24	31	45	28	49	13	42	4.9
5	68	34	52	27	23	27	38	21	48	34	37	3.8
6	64	32	65	172	22	24	230	218	46	11	32	3.2
7	62	30	43	72	18	20	142	182	37	8.3	29	3.0
8	43	22	44	51	17	18	137	192	28	6.0	25	2.6
9	39	20	51	56	13	13	123	120	20	2.4	25	2.6
10	39	20	50	48	13	12	92	84	22	3.0	25	2.7
11	38	19	47	41	13	10	70	63	30	5.1	25	2.7
12	40	23	41	35	17	13	58	45	44	7.1	28	5.3
13	43	27	45	49	20	15	58	57	26	4.2	40	14
14	45	26	60	75	22	17	58	34	24	4.8	34	10
15	49	27	64	97	258	258	54	26	25	5.3	20	2.6
16	52	36	75	138	94	579	52	22	330	5.3	20	2.6
17	50	32	43	60	29	38	52	27	42	6.7	22	5.9
18	49	30	45	63	20	23	51	26	55	8.5	20	3.9
19	69	1140	59	100	25	31	49	43	62	9.0	28	3.7
20	119	70	146	677	22	23	47	24	59	8.3	36	4.7
21	119	61	110	374	18	16	48	28	55	6.8	27	2.9
22	75	22	86	304	15	12	47	33	50	5.7	22	2.1
23	35	4.4	62	193	15	11	44	24	45	4.9	22	1.9
24	38	7.5	37	70	13	5.4	39	15	40	4.6	21	1.9
25	41	11	43	84	12	4.7	34	12	41	4.6	21	1.9
26	42	14	89	428	15	7.3	28	10	51	5.9	21	1.9
27	42	14	65	476	18	9.7	24	8.4	57	7.2	21	1.9
28	40	13	53	205	17	9.4	24	7.1	58	6.4	20	1.8
29	43	15	48	127	18	9.6	26	7.3	57	6.0	26	3.1
30	43	15	42	54	20	11	34	9.3	56	9.1	27	3.7
31	---	---	40	73	---	---	40	10	51	27	---	---
TOTAL	---	1870.9	---	4180.4	---	1392.1	---	1598.1	---	260.6	---	138.4

TOTAL LOAD FOR YEAR: 33308.80 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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						
20...	1215	7.0	79	31	6.6	85
FEB						
22...	1615	2.0	3400	438	4020	73
MAY						
18...	0945	19.0	514	45	63	87
AUG						
12...	0910	22.0	62	52	8.7	68
SEP						
21...	1000	17.5	39	27	2.8	88

05483600 MIDDLE RACCOON RIVER AT PANORA, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
MAY 18...	1010	514	7	2	3	6	14
JUN 28...	1000	205	7	2	3	10	29
AUG 12...	0910	62	7	1	2	7	35
SEP 21...	1000	39	7	2	2	8	41

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)
MAY 18...	40	73	94	99	100	--
JUN 28...	49	58	65	73	84	100
AUG 12...	66	78	92	88	95	100
SEP 21...	64	76	83	93	97	100

05484000 SOUTH RACCOON RIVER AT REDFIELD, IA

LOCATION.--Lat 41°34'48", long 94°10'58", in SW1/4 SW1/4 sec.3, T.78 N., R.29 W., Dallas County, Hydrologic Unit 07100007, on left bank 15 ft (5 m) downstream from bridge on county highway at Redfield, 0.8 mi (1.3 km) downstream from bridge on U.S. Highway 6, 1.0 mi (1.6 km) downstream from Middle Raccoon River, 16.4 mi (26.4 km) upstream from mouth, and at mile 248.0 (399.0 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--988 mi² (2,559 km²).

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 (273.232 m) NGVD. Prior to June 12, 1946, nonrecording gage, and June 12, 1946, to Sept. 30, 1966, water-stage recorder at site 20 ft (6 m) upstream at same datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage height telemeter at station.

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

AVERAGE DISCHARGE.--42 years, 437 ft³/s (12.38 m³/s), 6.01 in/yr (153 mm/yr), 316,600 acre-ft/yr (390 hm³/yr); median of yearly mean discharges, 390 ft³/s (11.0 m³/s), 5.4 in/yr (137 mm/yr), 283,000 acre-ft/yr (349 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s (991 m³/s) July 2, 1958, gage height, 29.04 ft (8.851 m), from floodmark; minimum daily, 17 ft³/s (0.48 m³/s) Aug. 4, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s (142 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	0530	6,150	174	*a14.22	4.334	May 20	1645	6,110	173	11.31	3.447
Feb. 23	0330	5,650	160	12.46	3.798	May 26	0915	5,110	145	10.31	3.142
Mar. 19	2115	*7,740	219	12.85	3.917	June 15	0700	7,700	218	12.82	3.908

Minimum daily discharge 48 ft³/s (1.36 m³/s) Oct. 2.

a Ice jam

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	82	187	127	52	480	395	283	1230	477	228	358
2	48	106	169	127	51	500	373	275	1120	1150	218	252
3	55	172	160	123	52	420	412	260	1040	1150	189	202
4	85	149	174	118	54	280	369	256	968	680	215	138
5	91	155	183	110	56	250	405	562	868	551	1030	120
6	90	175	187	102	58	220	409	1220	805	1620	378	117
7	84	167	184	92	60	240	408	1610	841	1620	291	114
8	76	152	181	89	60	240	391	1020	795	1170	253	114
9	76	151	163	86	60	220	398	907	772	886	190	114
10	78	137	165	81	66	280	415	810	711	943	163	114
11	78	130	165	75	70	571	423	760	646	942	176	102
12	75	126	167	70	74	1760	445	795	596	730	163	108
13	74	119	167	70	80	1860	462	820	617	727	153	396
14	78	116	167	70	86	1160	417	968	577	703	167	326
15	76	114	142	68	94	836	432	1430	3720	520	253	287
16	75	112	146	66	140	823	1410	1770	2880	450	227	195
17	88	111	130	65	205	469	997	1420	1390	396	169	450
18	153	109	154	64	290	417	765	1880	1110	487	154	570
19	108	118	150	63	410	3340	620	1280	967	505	148	230
20	76	126	144	60	2200	4610	565	3380	826	514	141	181
21	70	99	140	58	4500	2330	468	3740	718	458	131	158
22	65	94	142	59	4200	1160	423	3040	663	671	117	132
23	63	111	142	62	4400	966	256	2350	597	486	107	123
24	59	117	140	70	2090	704	249	1680	496	354	107	116
25	58	108	140	66	838	740	267	1560	367	311	112	112
26	64	108	138	64	494	657	294	4260	408	295	109	108
27	65	110	130	60	510	593	287	4230	419	284	108	109
28	65	106	130	59	500	539	271	2680	444	273	103	111
29	63	95	130	56	---	492	279	1970	409	241	105	111
30	64	112	129	55	---	471	287	1300	428	240	279	149
31	69	---	128	54	---	447	---	1320	---	245	545	---
TOTAL	2323	3687	4774	2389	21750	28075	13592	49836	27425	20079	6729	5717
MEAN	74.9	123	154	77.1	777	906	453	1608	914	648	217	191
MAX	153	175	187	127	4500	4610	1410	4260	3720	1620	1030	570
MIN	48	82	128	54	51	220	249	256	367	240	103	102
CFSM	.08	.12	.16	.08	.79	.92	.46	1.63	.93	.66	.22	.19
IN.	.09	.14	.18	.09	.82	1.06	.51	1.88	1.03	.76	.25	.22
AC-FT	4610	7310	9470	4740	43140	55690	26960	98850	54400	39830	13350	11340

CAL YR 1981	TOTAL	48285	MEAN 132	MAX 1460	MIN 40	CFSM .13	IN 1.82	AC-FT	95770	
WTR YR 1982	TOTAL	186376	MEAN 511	MAX 4610	MIN 48	CFSM .52	IN 7.02	AC-FT	369700	

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 (3.0 m) downstream from bridge on county highway R16, 0.3 mi (0.5 km) northeast of Van Meter, 0.7 mi (1.1 km) upstream from small left bank tributary, 1.1 mi (1.8 km) downstream from confluence of North and South Raccóon Rivers, 29.0 mi (46.7 km) upstream from mouth, and at mile 230.5 (370.9 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--3,441 mi² (8,912 km²).

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), 1916-17, 1918-23 (M), 1925 (M), 1926, 1933 (M), 1939 (M), 1947 (M), 1949 (M).

GAGE.--Water-stage recorder. Datum of gage is 841.16 ft (256.386 m) NGVD. See WSP 1308 for history of changes prior to Aug. 8, 1934.

REMARKS.--Records good except those for winter period which are poor. Corps of Engineers raingage and gageheight telemeters at station.

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

AVERAGE DISCHARGE.--67 years, 1,298 ft³/s (36.76 m³/s), 5.12 in/yr (130 mm/yr), 940,400 acre-ft/yr (1,160 hm³/yr); median of yearly mean discharges, 1,120 ft³/s (31.7 m³/s), 4.4 in/yr (112 mm/yr), 811,000 acre-ft/yr (1,000 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,200 ft³/s (1,170 m³/s) June 13, 1947, gage height, 21.37 ft (6.514 m), from floodmark; maximum gage height, 21.77 ft (6.635 m) July 3, 1958; minimum daily discharge, 10 ft³/s (0.28 m³/s) Jan. 22-31, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,500 ft³/s (241 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	----	11,600	329	*a14.34	4.371
Feb. 23	0645	11,500	326	12.25	3.734
Mar. 20	0215	11,300	320	12.14	3.700
May 20	2015	12,700	360	12.86	3.920
May 26	1215	11,800	334	12.41	3.783
June 15	1100	*15,100	428	14.21	4.331
June 16	1900	9,390	266	10.92	3.328

a Ice jam

Minimum daily discharge, 156 ft³/s (4.42 m³/s) Jan. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163	374	483	330	171	3370	2170	1420	7420	2020	1480	918
2	166	406	525	320	172	3580	2100	1300	5910	2240	1350	605
3	168	553	510	310	173	3140	2080	1250	5190	3520	1210	905
4	185	511	561	320	171	2240	1930	1210	4620	2290	1230	835
5	206	508	556	310	170	1990	1830	1380	4130	1930	4760	651
6	222	572	639	305	172	1650	1870	5490	3780	3120	1810	555
7	273	572	617	295	177	1660	2140	7880	3640	4240	1370	466
8	373	552	620	285	180	1700	2220	7200	4070	3420	1160	417
9	418	517	641	270	182	1540	2150	6140	3840	5010	1040	385
10	403	478	670	260	185	1490	2160	4950	3610	5500	950	348
11	357	447	663	245	188	2150	2120	4130	3720	5000	875	331
12	334	427	646	230	190	3760	2230	3680	3300	4830	794	330
13	322	408	662	212	190	5120	2570	4070	3050	5440	734	698
14	316	386	661	198	220	4970	2530	5670	2800	5730	708	697
15	305	378	551	194	265	3920	2480	6770	9530	5150	791	956
16	294	368	421	190	310	3890	5170	7130	7390	4460	776	2080
17	299	361	272	186	375	3510	4230	7020	6810	3350	660	2590
18	339	353	430	183	455	3150	3450	6950	5010	3170	595	2620
19	387	364	480	180	680	5600	3350	6820	4110	3130	558	1820
20	421	372	505	180	3300	10400	3140	9190	3610	5260	520	1430
21	418	341	495	178	9300	9510	2810	10400	3170	6400	475	1200
22	450	309	480	190	8980	8440	2590	10300	2860	7160	442	1030
23	455	313	465	172	10500	8020	2180	9270	2610	5940	420	903
24	431	319	460	168	6780	5960	1940	7770	2370	4680	389	812
25	404	324	450	164	5030	5070	1890	6640	2100	3610	387	732
26	381	349	425	156	4870	4320	1830	10500	2020	2990	397	673
27	376	371	400	160	4140	3550	1720	11300	2010	2570	376	641
28	369	355	395	163	3460	3000	1610	10800	2060	2230	348	607
29	364	330	385	165	---	2630	1540	10400	1990	1970	337	581
30	347	338	370	168	---	2540	1480	9830	1970	1780	474	584
31	355	---	350	170	---	2320	---	9360	---	1630	883	---
TOTAL	10301	12256	15788	6857	60986	124190	71510	206220	118700	119770	28299	27400
MEAN	332	409	509	221	2178	4006	2384	6652	3957	3864	913	913
MAX	455	572	670	330	10500	10400	5170	11300	9530	7160	4760	2620
MIN	163	309	272	156	170	1490	1480	1210	1970	1630	337	330
CFSM	.10	.12	.15	.06	.63	1.16	.69	1.93	1.15	1.12	.27	.27
IN.	.11	.13	.17	.07	.66	1.34	.77	2.23	1.28	1.29	.31	.30
AC-FT	20430	24310	31320	13600	121000	246300	141800	409000	235400	237600	56130	54350

CAL YR 1981 TOTAL 157460 MEAN 431 MAX 3390 MIN 90 CFSM .13 IN 1.70 AC-FT 312300
WTR YR 1982 TOTAL 802277 MEAN 2198 MAX 11300 MIN 156 CFSM .64 IN 8.67 AC-FT 1591000

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 (8 m) downstream from bridge on 63rd Street in Des Moines, and 2.2 mi (3.5 km) upstream from Raccoon River.

DRAINAGE AREA.--78.4 mi² (203 km²).

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 (244.157 m) NGVD (levels by Iowa Natural Resources Council).

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years, 60.0 ft³/s (1.699 m³/s), 10.07 in/yr (256 mm/yr), 43,470 acre-ft/yr (53.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,000 ft³/s (255 m³/s) July 1, 1973, gage height, 17.72 ft (5.401 m); no flow for many days in 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb 23	----	821	23.2	ice jam		July 6	1430	920	26.1	9.39	2.862
Mar. 19	0815	702	19.9	8.58	2.615	July 18	0830	1,440	40.8	11.41	3.478
Apr. 16	1500	766	21.7	8.79	2.679	July 21	0800	668	18.9	8.56	2.609
June 15	1315	989	28.0	9.65	2.941	Aug. 5	0245	*1,650	46.7	*12.08	3.682

Minimum daily discharge, 0.45 ft³/s (0.013 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	33	32	4.2	3.4	68	51	59	122	83	33	66
2	.89	24	19	4.0	3.5	74	56	56	112	92	32	30
3	11	33	18	3.8	3.5	54	57	55	105	182	29	21
4	9.2	39	16	3.7	3.5	38	50	55	97	95	84	17
5	2.6	25	14	3.6	3.5	42	64	104	91	77	673	15
6	3.2	20	13	3.5	3.5	35	57	293	87	474	203	14
7	3.4	16	12	3.4	3.6	37	55	213	88	296	133	13
8	4.6	15	11	3.4	3.7	39	55	147	82	163	99	13
9	9.2	12	10	3.3	3.8	42	56	116	81	136	72	13
10	6.2	9.9	10	3.3	3.8	52	60	101	70	128	85	13
11	8.2	9.6	10	3.3	3.9	107	82	92	67	92	55	12
12	5.5	9.1	9.4	3.3	4.0	204	91	86	101	86	44	14
13	6.0	8.8	9.2	3.3	4.1	190	75	108	79	71	38	48
14	5.8	8.6	9.0	3.3	6.2	135	61	187	65	66	44	22
15	3.6	8.2	10	3.3	17	115	159	292	686	144	51	17
16	3.3	7.8	9.0	3.3	23	234	557	308	296	127	34	12
17	3.0	6.7	8.0	3.3	25	139	343	243	193	71	29	135
18	3.8	7.0	7.6	3.3	38	103	220	197	212	646	26	65
19	4.9	13	7.2	3.3	64	418	172	190	139	175	24	36
20	9.5	8.3	6.8	3.3	190	292	134	312	114	108	23	27
21	12	5.1	6.4	3.3	290	181	111	370	95	287	21	21
22	13	6.5	6.2	3.3	410	128	101	342	87	127	20	18
23	14	9.2	6.0	3.3	460	117	93	249	78	86	19	17
24	16	6.6	5.8	3.3	150	107	87	201	72	71	18	16
25	18	5.9	5.6	3.3	100	85	82	185	67	61	18	15
26	13	5.4	5.4	3.3	72	73	75	384	65	52	18	14
27	13	4.4	5.2	3.4	68	67	67	262	69	49	17	13
28	12	3.9	5.0	3.3	66	62	64	199	89	44	17	12
29	12	3.9	4.8	3.3	---	60	64	181	61	40	33	12
30	15	26	4.6	3.4	---	69	62	152	119	37	39	11
31	26	---	4.4	3.4	---	56	---	144	---	36	177	---
TOTAL	268.34	390.9	300.6	105.8	2027.0	3423	3261	5883	3689	4202	2208	752
MEAN	8.66	13.0	9.70	3.41	72.4	110	109	190	123	136	71.2	25.1
MAX	26	39	32	4.2	460	418	557	384	686	646	673	135
MIN	.45	3.9	4.4	3.3	3.4	35	50	55	61	36	17	11
CFSM	.11	.17	.12	.04	.92	1.40	1.39	2.42	1.57	1.74	.91	.32
IN.	.13	.19	.14	.05	.96	1.62	1.55	2.79	1.75	1.99	1.05	.36
AC-FT	532	775	596	210	4020	6790	6470	11670	7320	8330	4380	1490

CAL YR 1981 TOTAL 5883.37 MEAN 16.1 MAX 907 MIN .45 CFSM .21 IN 2.79 AC-FT 11670
WTR YR 1982 TOTAL 26510.64 MEAN 72.6 MAX 686 MIN .45 CFSM .93 IN 12.58 AC-FT 52580

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 (3 m) downstream from bridge on Southeast 14th Street at Des Moines, 0.8 mi (1.3 km) downstream from Raccoon River and Scott Street Dam, and at mile 200.7 (322.9 km).

DRAINAGE AREA.--9,879 mi² (25,586 km²).

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 (232.42 m) NGVD. Prior to Oct. 1, 1951, and Oct. 1, 1953, to Sept. 30, 1959, water-stage recorder above Scott Street Dam, 0.8 mi (1.3 km) upstream at datum 11.16 ft (3.40 m) higher. Oct. 1, 1951, to Sept. 30, 1953, and Oct. 1, 1959 to Sept. 30, 1961, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are poor. Des Moines municipal water supply is taken from infiltration galleries on Raccoon River, 3.5 mi (5.6 km) above station. Average daily pumpage was about 55 ft³/s (1.56 m³/s). At times, water is pumped from Raccoon River into recharge basins, or into Waterworks Reservoir, capacity, 4,800 acre-ft (5.92 hm³). Effluent from sewage treatment plant enters the river 2.3 mi (3.7 km) below station. Net effect of diversions not known. Several observations of water temperature were made during the year. Flow regulated by Saylorville Lake (station 05481630) 13.0 mi (20.9 km) upstream, since Apr. 12, 1977. Corps of Engineers gage-height telemeter at station.

COOPERATION.--Average monthly pumpage from galleries furnished by Des Moines Water Works.

AVERAGE DISCHARGE.--42 years, 4,063 ft³/s (115.1 m³/s), 5.58 in/yr (142 mm/yr), 2,944,000 acre-ft/yr (3,630 hm³/yr); median of yearly mean discharges, 3,530 ft³/s (100 m³/s), 4.8 in/yr (122 mm/yr), 2,560,000 acre-ft/yr (3,156 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 77,000 ft³/s (2,180 m³/s) June 26, 1947, gage height, 20.8 ft (6.34 m) in gage well, 21.6 ft (6.58 m) from outside floodmark, site and datum then in use; minimum daily, 26 ft³/s (0.74 m³/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 (6.37 m), from flood profile, at Scott Street site and datum, by office of Des Moines City Engineer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,900 ft³/s (705 m³/s) May 21, gage height, 21.99 ft (6.703 m); minimum daily, 390 ft³/s (11.0 m³/s) Jan. 20-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	690	1850	1180	740	400	9030	9340	6700	20400	6900	5330	3050
2	709	1900	1280	720	400	9980	8730	6050	18000	6830	5150	3570
3	722	1950	1600	720	400	9610	8630	4870	16000	8310	4990	3550
4	683	1740	1780	720	410	8210	8390	4350	14700	7510	5630	3450
5	652	1890	1820	660	420	7420	8250	4390	13000	6380	12200	2880
6	728	1840	1870	600	420	6810	7420	6990	12500	6530	8950	2890
7	877	1730	1890	580	420	5950	6150	10900	12100	8040	6880	2890
8	948	1710	1740	580	420	4760	6130	9670	11700	6420	6390	2640
9	999	1630	1140	580	420	4640	6100	8730	10800	6940	6120	2290
10	1130	1410	1300	580	430	4510	6120	8550	11200	8290	5980	2210
11	1270	1360	1520	580	430	4900	6080	10900	13000	10200	5790	3620
12	1290	1340	2050	540	430	6300	6050	10300	12900	13600	5640	3410
13	1200	1320	2060	520	440	8700	6660	10300	12600	17300	5520	3140
14	1020	1300	2080	490	440	9260	7470	12900	12300	17900	5440	2880
15	1110	1290	1970	470	440	9070	7690	16600	18000	17900	5460	2630
16	1180	1260	1550	460	460	10400	10700	17700	18800	16300	5420	4360
17	1120	1240	1170	440	480	11500	11800	18300	18700	6710	5270	6060
18	1220	1240	1100	420	520	11000	9460	18700	13900	7940	5140	7450
19	1370	1240	1000	400	580	12200	7950	18900	11900	6550	5040	5630
20	1420	1250	980	390	720	18600	7370	20600	10800	7630	4540	4470
21	1480	1290	980	390	3600	18100	5520	23700	10100	9530	3240	4160
22	1660	1280	1000	390	6000	14500	6030	23900	9650	9680	3120	3720
23	1740	1180	1050	390	11500	14200	8320	22800	9270	9260	3040	3580
24	1900	1010	1100	390	12500	13300	8000	21200	8950	7590	2990	3480
25	1910	1020	1150	390	9420	11700	8270	16300	8640	6570	2930	3300
26	1870	1020	1100	390	8780	11300	8890	16400	8380	5840	2750	3060
27	1650	1030	1050	390	9880	11300	8720	20400	8270	5370	2560	2840
28	1520	1040	1000	390	9090	10700	8390	22800	8280	5170	1760	2250
29	1550	1040	960	390	---	10200	8150	22600	7720	5680	1420	2220
30	1590	1080	880	390	---	10000	7580	23000	7060	5680	1440	2360
31	1720	---	800	390	---	9740	---	21900	---	5480	2140	---
TOTAL	38928	41480	42150	15480	79850	307890	234360	461400	369620	270030	148270	104040
MEAN	1256	1383	1360	499	2852	9932	7812	14880	12320	8711	4783	3468
MAX	1910	1950	2080	740	12500	18600	11800	23900	20400	17900	12200	7450
MIN	652	1010	800	390	400	4510	5520	4350	7060	5170	1420	2210
AC-FT	77210	82280	83600	30700	158400	610700	464900	915200	733100	535600	294100	206400

CAL YR 1981 TOTAL 720448 MEAN 1974 MAX 14300 MIN 220 AC-FT 1429000
WTR YR 1982 TOTAL 2113498 MEAN 5790 MAX 23900 MIN 390 AC-FT 4192000

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 (6 m) downstream from bridge on Easton Blvd., 4.4 mi (7.1 km) downstream from Muchikinock Creek and 5.0 mi (8.0 km) upstream from Des Moines River.

DRAINAGE AREA.--92.7 mi² (240 km²).

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 (242.581 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years, 65.6 ft³/s (1.858 m³/s), 9.61 in/yr (244 mm/yr), 47,530 acre-ft/yr (58.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,340 ft³/s (151 m³/s) June 9, 1974, gage height, 14.84 ft (4.523 m); no flow for many days in 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 22	----	718	20.3	ice jam		July 6	1545	824	23.3	8.28	2.524
Mar. 19	1900	620	17.6	7.59	2.313	July 16	0945	*4,800	136	*14.46	4.407
Apr. 16	1600	564	16.0	7.37	2.246	July 18	1300	3,080	87.2	12.95	3.947
June 15	0830	1,440	40.8	10.12	3.085	Aug. 5	----	740	21.0	8.00	2.438

Minimum daily discharge, 1.7 ft³/s (0.048 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	12	22	3.8	2.7	72	50	56	133	59	42	18
2	1.8	15	18	3.7	2.7	66	53	54	120	61	39	13
3	3.5	19	16	3.6	2.7	56	55	53	111	123	34	11
4	7.4	15	14	3.4	2.7	44	51	53	101	91	40	9.6
5	4.3	13	13	3.3	2.7	38	63	85	94	71	429	8.9
6	3.1	12	12	3.2	2.7	34	60	233	90	318	135	9.3
7	2.0	10	11	3.1	2.7	33	56	231	86	301	62	8.4
8	2.2	9.6	10	3.0	2.7	32	54	166	79	167	43	8.1
9	3.1	8.6	9.4	2.9	2.7	30	55	134	78	128	36	8.4
10	4.0	7.8	9.2	2.9	2.7	37	62	116	68	125	34	8.0
11	3.2	7.8	9.0	2.9	2.7	60	100	103	66	105	29	7.3
12	2.6	7.5	8.8	2.8	2.7	197	130	105	64	87	25	8.2
13	3.1	7.5	8.6	2.8	2.7	221	107	118	62	75	24	12
14	4.3	7.3	8.4	2.8	2.7	177	79	176	59	67	23	9.2
15	5.1	7.2	8.4	2.8	10	139	99	264	890	88	23	8.5
16	4.9	7.0	8.4	2.8	25	258	372	304	510	2260	21	7.2
17	4.4	6.9	8.0	2.7	50	202	312	255	313	483	19	31
18	7.0	6.7	7.6	2.7	68	142	208	245	228	2030	17	18
19	3.1	7.6	7.2	2.7	90	404	165	197	183	696	16	12
20	3.6	8.1	6.8	2.7	320	361	136	189	151	391	14	9.7
21	4.0	6.0	6.4	2.7	390	236	112	329	129	332	12	8.8
22	3.7	7.3	6.2	2.8	500	159	101	368	114	205	11	8.0
23	3.2	6.8	5.8	2.8	400	146	91	262	99	156	10	7.4
24	3.7	6.3	5.6	2.8	170	123	86	213	89	127	10	7.3
25	4.4	5.7	5.2	2.8	110	103	79	187	83	104	11	7.0
26	4.0	5.7	5.0	2.8	84	84	71	393	77	88	11	6.8
27	4.4	5.5	4.8	2.8	76	75	62	337	76	77	10	6.7
28	3.8	5.2	4.6	2.8	74	69	61	235	71	67	9.4	6.7
29	3.9	5.8	4.4	2.8	---	65	61	201	64	59	14	6.4
30	4.1	8.8	4.2	2.7	---	65	59	171	71	53	15	6.0
31	9.9	---	4.0	2.7	---	56	---	154	---	47	30	---
TOTAL	123.5	258.7	272.0	91.1	2404.8	3794	3050	5987	4359	9041	1249.4	296.9
MEAN	3.98	8.62	8.77	2.94	85.9	122	102	193	145	292	40.3	9.90
MAX	9.9	19	22	3.8	500	404	372	393	890	2260	429	31
MIN	1.7	5.2	4.0	2.7	2.7	30	50	53	59	47	9.4	6.0
CFSM	.04	.09	.10	.03	.93	1.32	1.10	2.08	1.56	3.15	.44	.11
IN.	.05	.10	.11	.04	.97	1.52	1.22	2.40	1.75	3.63	.50	.12
AC-FT	245	513	540	181	4770	7530	6050	11880	8650	17930	2480	589

CAL YR 1981 TOTAL 3238.30 MEAN 8.87 MAX 231 MIN .84 CFSM .10 IN 1.30 AC-FT 6420
WTR YR 1982 TOTAL 30927.40 MEAN 84.7 MAX 2260 MIN 1.7 CFSM .91 IN 12.41 AC-FT 61340

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 (3 m) downstream from bridge on county highway R57, 1.7 mi (2.7 km) southeast of Norwalk, 5.2 mi (8.4 km) upstream from Middle Creek, and 6.2 mi (10.0 km) downstream from Badger Creek.

DRAINAGE AREA.--349 mi² (904 km²).

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 (240.320 m) NGVD (levels by Corps of Engineers). Prior to June 12, 1946, nonrecording gage at same site and datum. Jan. 7 to Oct. 11, 1960, nonrecording gage at site 2.1 mi (3.4 km) upstream at different datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--42 years, 177 ft³/s (5.013 m³/s), 6.89 in/yr (175 mm/yr), 128,200 acre-ft/yr (158 hm³/s/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft³/s (906 m³/s) June 13, 1947, gage height, 25.3 ft (7.71 m), from floodmark, from rating curve extended above 9,100 ft³/s (258 m³/s) on basis of velocity-area studies; no flow at times during period 1954-58.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1700 ft³/s (48.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 23	----	ice jam		*22.00	6.706	July 18	----	3,090	87.5	21.05	6.416
Mar. 21	0545	2,280	64.6	20.31	6.190	Aug. 7	1215	*4,630	131	21.78	6.639
Apr. 17	2330	3,950	112	21.49	6.550						

Minimum daily discharge, 12 ft³/s (0.34 m³/s) Oct. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	69	163	24	30	260	210	244	451	168	135	484
2	15	221	256	24	29	230	185	231	386	173	123	297
3	12	577	201	24	29	200	196	220	356	172	113	179
4	14	571	167	24	29	170	251	211	333	193	107	133
5	19	262	135	24	29	160	238	225	302	169	1420	109
6	26	173	117	23	28	150	242	693	277	341	2080	97
7	21	129	114	23	28	145	226	1260	265	634	4020	90
8	20	104	107	23	28	150	227	664	264	382	2410	84
9	19	87	94	23	27	155	224	419	266	237	462	82
10	20	69	80	23	27	160	253	333	262	210	297	76
11	25	62	74	23	27	316	302	282	223	201	264	70
12	25	57	72	23	27	670	300	258	205	182	228	64
13	26	53	72	24	29	995	269	255	202	157	200	90
14	26	50	73	24	30	757	228	439	197	155	190	533
15	31	50	62	24	32	470	558	965	289	577	216	246
16	34	47	55	24	38	750	2000	1440	1170	1260	225	183
17	37	44	47	24	76	768	3650	826	1470	1980	194	203
18	34	40	40	25	130	510	3820	631	817	2890	172	592
19	33	41	35	25	330	1050	1760	534	402	1960	155	451
20	35	49	32	26	780	1870	641	499	321	867	145	248
21	33	50	30	26	1400	2000	489	1160	275	544	134	193
22	31	42	29	27	3100	662	418	1470	242	597	122	163
23	30	46	28	28	3900	434	385	1130	223	352	112	143
24	31	53	27	29	2980	384	352	652	203	275	105	129
25	33	48	26	29	1240	353	329	544	190	238	99	119
26	35	44	25	30	367	297	315	896	183	211	94	110
27	35	42	25	30	304	256	286	1500	178	191	89	103
28	35	38	25	29	282	236	259	1130	175	186	85	98
29	36	36	25	29	---	222	254	668	169	175	81	94
30	39	43	25	30	---	217	254	673	164	157	90	87
31	45	---	25	31	---	242	---	552	---	146	255	---
TOTAL	870	3197	2286	795	15356	15239	19121	21004	10460	15980	14422	5550
MEAN	28.1	107	73.7	25.6	548	492	637	678	349	515	465	185
MAX	45	577	256	31	3900	2000	3820	1500	1470	2890	4020	592
MIN	12	36	25	23	27	145	185	211	164	146	81	64
CFSM	.08	.31	.21	.07	1.57	1.41	1.83	1.94	1.00	1.48	1.33	.53
IN.	.09	.34	.24	.08	1.64	1.62	2.04	2.24	1.11	1.70	1.54	.59
AC-FT	1730	6340	4530	1580	30460	30230	37930	41660	20750	31700	28610	11010

CAL YR 1981	TOTAL	29482.49	MEAN	80.8	MAX	2700	MIN	.92	CFSM .23	IN 3.14	AC-FT	58480
WTR YR 1982	TOTAL	124280.00	MEAN	340	MAX	4020	MIN	12	CFSM .97	IN 13.25	AC-FT	246500

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 (3 m) downstream from bridge on county highway, 0.4 mi (0.6 km) upstream from Cavitt Creek, 1.5 mi (2.4 km) upstream from bridge on U.S. Highway 69, and 4.6 mi (7.4 km) northwest of Indianola.

DRAINAGE AREA.--503 mi² (1,302 km²).

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 (236.571 m) NGVD (Corps of Engineers bench mark). Prior to June 11, 1946, June 9, 1947, to Nov. 23, 1948, and Sept. 8, 1951, to Oct. 30, 1952, nonrecording gage and June 11, 1946, to June 8, 1947 (destroyed by flood), Nov. 24, 1948, to Sept. 7, 1951, Sept. 1, 1952, to Sept. 30, 1962, water-stage recorder at site 1.6 mi (2.6 km) downstream at datum 2.81 ft (0.856 m) lower.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--42 years, 250 ft³/s (7.080 m³/s) 6.75 in/yr (171 mm/yr), 181,100 acre-ft/yr (223 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,000 ft³/s (963 m³/s) June 13, 1947, gage heights: 26.40 ft (8.047 m), from floodmark, former site and datum; 28.27 ft (8.617 m), from floodmark, present site and datum; minimum daily, 0.11 ft³/s (0.003 m³/s) July 2, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (127 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	----	4,730	134	ice jam		July 6	1600	7,720	219	20.09	6.123
Mar. 19	2100	4,710	133	16.78	5.115	July 16	0800	*11,100	314	*22.21	6.770
Apr. 16	1615	6,740	191	19.23	5.861	Aug. 5	2245	4,760	135	16.85	5.136

Minimum daily discharge, 8.8 ft³/s (0.25 m³/s) Oct. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	26	181	19	21	270	281	214	584	186	143	938
2	9.0	129	159	18	21	240	256	205	507	236	134	770
3	8.8	604	120	18	21	210	263	195	458	1290	115	299
4	13	286	109	18	21	170	298	187	427	731	106	210
5	11	157	87	18	21	160	274	228	399	353	2850	170
6	11	100	80	19	22	150	263	2390	361	3070	2470	149
7	10	86	75	18	22	160	279	1860	347	2200	748	138
8	9.6	72	68	18	22	150	278	757	334	677	494	132
9	10	59	63	18	22	160	273	527	739	449	374	120
10	10	52	59	17	23	280	337	420	455	374	317	111
11	13	47	56	16	24	492	418	350	313	386	299	101
12	11	44	52	16	24	961	370	312	266	301	278	92
13	10	40	50	17	24	1270	312	307	252	240	256	139
14	13	37	40	17	25	740	267	523	246	357	224	404
15	13	35	25	18	25	566	1050	1830	426	749	255	356
16	13	35	24	18	29	1600	4910	1360	2630	6340	249	242
17	11	33	23	18	70	899	2930	922	829	742	223	370
18	9.9	33	22	18	250	628	1210	700	516	706	198	1250
19	11	35	21	18	900	2850	808	605	407	680	172	594
20	9.0	38	20	18	3000	2530	642	561	355	429	142	365
21	9.0	34	20	19	4000	1160	517	1550	305	617	129	273
22	19	31	20	19	2690	742	436	2380	268	692	121	232
23	20	39	19	20	2090	580	396	1180	247	417	112	213
24	19	39	19	20	1090	509	361	786	236	297	105	196
25	13	37	19	20	543	463	332	665	222	249	102	181
26	11	35	20	20	356	415	308	1520	211	220	96	165
27	11	33	20	20	312	365	277	2240	196	195	91	152
28	10	30	19	20	290	334	248	1070	197	284	85	143
29	9.9	29	19	20	---	318	234	958	187	218	82	140
30	9.9	42	18	20	---	311	227	1050	182	173	145	129
31	11	---	18	20	---	319	---	700	---	154	757	---
TOTAL	359.1	2297	1545	573	15958	19992	19055	28552	13102	24012	11872	8774
MEAN	11.6	76.6	49.8	18.5	570	645	635	921	437	775	383	292
MAX	20	604	181	20	4000	2850	4910	2390	2630	6340	2850	1250
MIN	8.8	26	18	16	21	150	227	187	182	154	82	92
CFSM	.02	.15	.10	.04	1.13	1.28	1.26	1.83	.87	1.54	.76	.58
IN.	.03	.17	.11	.04	1.18	1.48	1.41	2.11	.97	1.78	.88	.65
AC-FT	712	4560	3060	1140	31650	39650	37800	56630	25990	47630	23550	17400

CAL YR 1981 TOTAL 34785.3 MEAN 95.3 MAX 9740 MIN 5.0 CFSM .19 IN 2.57 AC-FT 69000
WTR YR 1982 TOTAL 146091.1 MEAN 400 MAX 6340 MIN 8.8 CFSM .80 IN 10.80 AC-FT 289800

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 (5 m) downstream from bridge on county highway, 0.5 mi (0.8 km) downstream from Otter Creek, and 2.2 mi (3.5 km) southwest of Ackworth.

DRAINAGE AREA.--460 mi² (1,191 km²).

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 (234.687 m) 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 (6.4 km) downstream at datum 8.06 ft (2.457 m) lower.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--42 years, 241 ft³/s (6.825 m³/s), 7.11 in/yr (181 mm/yr), 174,600 acre-ft/yr (215 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,000 ft³/s (963 m³/s) June 5, 1947, gage height, 24.60 ft (7.498 m), site and datum then in use; maximum gage height, 32.85 ft (10.013 m) 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 (7.47 m), from information by local residents, discharge, about 30,000 ft³/s (850 m³/s), at site 4.0 mi (6.4 km) downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s (142 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	unknown	6,470	183	19.10	5.822	July 3	unknown	9,700	275	22.55	6.873
Mar. 19	unknown	8,840	250	20.90	6.370	July 6	unknown	12,000	340	24.60	7.498
Apr. 16	unknown	7,960	225	20.00	6.096	July 16	unknown	*26,000	736	*32.00	9.754
May 6	1600	12,300	348	24.00	7.315						

Minimum daily discharge, 4.4 ft³/s (0.125 m³/s) Oct. 2,9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	64	444	22	30	72	224	222	327	62	125	579
2	4.4	309	327	21	30	66	208	217	270	115	113	292
3	4.6	1780	189	21	30	56	270	217	254	5820	101	234
4	7.4	582	155	21	30	50	314	233	226	1540	100	205
5	8.6	272	120	21	31	45	292	443	196	441	1280	194
6	6.5	178	117	21	31	43	252	7790	179	7680	606	157
7	6.0	136	117	21	31	41	296	4430	176	7590	268	106
8	6.1	116	104	21	31	40	314	1030	173	892	182	78
9	4.4	95	91	21	31	39	312	632	713	424	139	59
10	7.0	86	80	21	31	120	490	478	536	290	139	50
11	7.9	84	84	21	31	450	969	385	266	194	155	52
12	6.3	82	82	21	31	1260	728	372	192	224	123	84
13	5.9	81	80	21	31	1750	417	352	106	191	102	1610
14	11	76	78	21	31	675	361	508	97	177	102	948
15	18	78	37	21	90	649	432	2970	89	401	245	500
16	10	76	30	22	250	2920	4690	2620	184	13300	792	228
17	8.9	70	28	23	560	1260	3410	1740	141	2870	256	1880
18	8.9	68	27	24	900	1050	931	1250	113	1220	155	2360
19	8.9	70	26	25	1800	6760	615	582	98	1100	135	453
20	8.9	79	25	26	4380	3110	470	503	87	649	117	284
21	5.4	72	25	27	2010	888	354	1530	78	2110	98	203
22	5.0	65	24	28	1020	563	306	1620	69	777	83	170
23	5.0	77	24	28	895	448	288	675	62	413	68	151
24	5.7	84	24	28	378	381	276	478	58	298	63	124
25	16	77	24	29	163	314	264	582	53	243	98	111
26	10	76	23	29	91	268	250	1590	45	206	95	111
27	6.0	75	23	29	86	245	241	783	46	206	105	109
28	5.8	67	23	29	80	221	235	460	61	392	109	97
29	5.6	60	22	29	---	237	233	704	61	217	102	87
30	4.8	86	22	29	---	250	226	921	55	165	242	77
31	9.7	---	22	30	---	241	---	495	---	141	585	---
TOTAL	233.6	5121	2497	751	13133	24512	18668	36812	5011	50348	6883	11593
MEAN	7.54	171	80.5	24.2	469	791	622	1187	167	1624	222	386
MAX	18	1780	444	30	4380	6760	4690	7790	713	13300	1280	2360
MIN	4.4	60	22	21	30	39	208	217	45	62	63	50
CFSM	.02	.37	.18	.05	1.02	1.72	1.35	2.58	.36	3.53	.48	.84
IN.	.02	.41	.20	.06	1.06	1.98	1.51	2.98	.41	4.07	.56	.94
AC-FT	463	10160	4950	1490	26050	48620	37030	73020	9940	99870	13650	22990

CAL YR 1981 TOTAL 62350.2 MEAN 171 MAX 16000 MIN 4.0 CFSM .37 IN 5.04 AC-FT 123700
WTR YR 1982 TOTAL 175562.6 MEAN 481 MAX 13300 MIN 4.4 CFSM 1.05 IN 14.20 AC-FT 348200

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 (5 m) downstream from bridge on county highway, 0.5 mi (0.8 km) downstream from Kirk Branch, and 1.7 mi (2.7 km) northwest of Dallas.

DRAINAGE AREA.--342 mi² (886 km²).

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 759.12 ft (231.380 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--20 years, 194 ft³/s (5.494 m³/s), 7.70 in/yr (196 mm/yr), 140,600 acre-ft/yr (173 hm³/yr); median of yearly mean discharges, 160 ft³/s (4.53 m³/s), 6.4 in/yr (163 mm/yr), 116,000 acre-ft/yr (143 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,300 ft³/s (1056 m³/s) July 16, 1982, gage height, 33.45 ft (10.196 m); minimum daily, 0.07 ft³/s (0.002 m³/s) Sept. 29, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 11, 1962, reached a stage of 28.87 ft (8.800 m), from floodmark, discharge, about 12,000 ft³/s (340 m³/s). Flood of June 6, 1947, may have been slightly higher.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 19	2115	3,500	91.8	18.01	5.489	July 6	1645	3,240	91.8	14.57	4.441
Mar. 16	0830	3,140	88.9	14.39	4.386	July 16	0830	*37,300	1056	*33.45	10.196
Mar. 19	2315	4,640	131	17.01	5.185	Aug. 5	0845	4,180	118	16.25	4.953
May 6	2400	6,120	173	19.28	5.877	Aug. 15	2300	3,000	85.0	14.13	4.307
July 3	2200	12,300	348	26.73	8.147	Sept 17	2000	4,860	138	17.36	5.291

Minimum daily discharge, 3.4 ft³/s (0.096 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	43	208	11	12	140	125	112	341	73	70	366
2	3.4	230	164	11	12	130	115	116	174	85	67	120
3	3.6	792	132	11	12	120	494	120	142	9130	60	105
4	5.4	332	93	11	12	110	418	123	127	5980	54	52
5	6.2	187	64	10	12	120	244	135	106	790	2940	36
6	5.4	122	60	10	11	130	211	2930	93	1310	754	105
7	5.0	82	58	10	11	140	218	5350	89	1350	257	89
8	5.2	60	48	10	11	123	233	2950	87	677	135	53
9	3.7	40	36	10	11	119	246	514	229	227	90	43
10	5.2	33	30	10	11	126	277	297	350	153	70	35
11	5.6	30	31	10	11	599	494	220	130	139	60	28
12	4.7	29	32	10	11	1650	569	191	90	112	52	23
13	4.6	27	32	10	12	1880	337	178	73	96	50	379
14	8.0	26	31	10	12	772	214	212	66	137	50	2300
15	13	26	19	11	13	514	176	683	60	270	902	1590
16	7.6	30	17	11	60	2360	469	1400	92	23400	1410	484
17	7.2	26	14	11	270	1750	2080	1320	106	10700	379	2120
18	6.8	24	13	11	1000	561	1410	1000	90	2520	202	3440
19	6.4	24	12	11	1800	2710	402	491	71	938	102	1690
20	6.2	30	12	12	3340	3600	257	269	55	686	72	499
21	4.8	26	12	12	2480	1820	178	273	40	1750	62	259
22	4.4	20	12	12	1180	499	144	680	27	1580	46	176
23	4.5	27	11	12	846	333	126	808	26	390	39	139
24	5.0	30	11	12	442	281	108	559	21	221	35	133
25	9.0	26	11	12	245	255	96	447	24	150	49	104
26	7.6	31	11	12	171	240	94	499	106	116	39	83
27	4.9	33	11	12	154	216	96	594	74	97	33	71
28	4.7	23	11	12	147	193	98	469	74	88	30	62
29	4.6	19	11	12	---	174	102	428	64	83	26	55
30	4.2	47	11	12	---	156	108	724	60	81	197	51
31	7.0	---	11	12	---	136	---	583	---	75	587	---
TOTAL	177.7	2475	1229	343	12309	21957	10139	24675	3087	63404	8919	14690
MEAN	5.73	82.5	39.6	11.1	440	708	338	796	103	2045	288	490
MAX	13	792	208	12	3340	3600	2080	5350	350	23400	2940	3440
MIN	3.4	19	11	10	11	110	94	112	21	73	26	23
CFSM	.02	.24	.12	.03	1.29	2.07	.99	2.33	.30	5.98	.84	1.43
IN.	.02	.27	.13	.04	1.34	2.39	1.10	2.68	.34	6.90	.97	1.60
AC-FT	352	4910	2440	680	24410	43550	20110	48940	6120	125800	17690	29140

CAL YR 1981 TOTAL 57518.2 MEAN 158 MAX 10800 MIN 3.0 CFSM .46 IN 6.26 AC-FT 114100
WTR YR 1982 TOTAL 163404.7 MEAN 448 MAX 23400 MIN 3.4 CFSM 1.31 IN 17.77 AC-FT 324100

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 (2.3 km) upstream from Lake Creek, 4.5 mi (7.2 km) southwest of Pella and at mile 142.3 (229.0 km).

DRAINAGE AREA.--12,323 mi² (31,917 km²).

PERIOD OF RECORD.--March 1969 to current year.

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

REMARKS.--Reservoir is formed by earthfill dam completed in 1969. Storage began in March 1969. Releases controlled through 14 concrete conduits extending through the concrete ogee spillway section into the stilling basin. Inlet invert elevation at 690 ft (210 m) NGVD. Maximum design discharge through the conduits is 37,500 ft³/s (1,060 m³/s) but normal flood control operation limits maximum outflow to 30,000 ft³/s (850 m³/s). Spillway section consists of 5 Tainter gates, 41 ft (12 m) wide and 46 ft (14 m) high, on concrete ogee crest at elevation 736 ft (224 m). The storage capacity of the reservoir at full flood-control pool level, 780 ft (238 m), is 1,790,000 acre-ft (2,210 hm³), surface area, 65,500 acres (26,510 hm²) and that of conservation pool level, 728 feet (222 m), is 89,000 acre-feet (110 hm³), surface area, 9,980 acres (3,998 hm²). Reservoir is used for flood control, low-flow augmentation, conservation and recreation. Normal operation will maintain an elevation of 728 ft (222 m) with minimum release of 300 ft³/s (8.50 m³/s) and maximum release of 30,000 ft³/s (850 m³/s) during the non-growing season, providing discharges at Ottumwa and Keosauqua do not exceed 30,000 ft³/s (850 m³/s) and 35,000 ft³/s (991 m³/s) respectively.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 1,680,000 acre-ft (2,070 hm³) May 12-14, 1973; maximum elevation, 777.95 ft (237.119 m) May 14, 1973; minimum daily contents, 58,000 acre-ft (71.5 hm³) Feb. 16, 1977; minimum elevation, 719.68 ft (219.358 m) Feb. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 690,000 acre-ft (851 hm³) July 19; maximum elevation, 757.11 ft (230.767 m) July 19; minimum daily contents, 97,300 acre-ft (120 hm³) Aug. 30; minimum elevation, 728.06 ft (221.913 m) Mar. 9.

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 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129000	135000	126000	105000	106000	144000	159000	124000	487000	229000	491000	103000
2	129000	136000	128000	106000	106000	130000	154000	111000	496000	215000	473000	101000
3	130000	138000	128000	106000	106000	122000	144000	103000	498000	242000	459000	97400
4	130000	137000	127000	106000	105000	115000	131000	98300	497000	281000	445000	98600
5	130000	130000	126000	106000	105000	114000	127000	98800	491000	290000	453000	102000
6	130000	128000	126000	106000	104000	109000	120000	120000	485000	312000	465000	103000
7	130000	129000	126000	106000	104000	106000	113000	160000	476000	347000	458000	101000
8	130000	131000	127000	106000	104000	103000	110000	171000	466000	343000	444000	101000
9	130000	132000	127000	105000	104000	102000	108000	166000	460000	329000	426000	103000
10	130000	132000	127000	104000	104000	106000	106000	155000	450000	313000	405000	104000
11	130000	132000	125000	104000	104000	111000	102000	143000	442000	300000	382000	105000
12	130000	132000	122000	104000	103000	113000	106000	132000	435000	294000	359000	109000
13	131000	132000	118000	104000	103000	120000	99900	120000	427000	300000	336000	117000
14	130000	132000	114000	104000	103000	122000	97800	114000	419000	321000	314000	133000
15	129000	132000	110000	104000	103000	117000	101000	127000	417000	355000	293000	144000
16	129000	131000	107000	104000	103000	116000	144000	154000	425000	491000	274000	152000
17	130000	130000	105000	103000	113000	115000	202000	175000	434000	655000	255000	164000
18	130000	130000	104000	103000	120000	106000	232000	193000	437000	687000	236000	182000
19	130000	130000	104000	104000	121000	121000	254000	206000	429000	690000	198000	179000
20	130000	130000	105000	104000	140000	183000	265000	216000	416000	684000	200000	168000
21	130000	130000	105000	104000	158000	239000	253000	238000	402000	683000	185000	161000
22	130000	130000	105000	105000	171000	277000	236000	270000	386000	678000	173000	154000
23	130000	130000	105000	106000	197000	299000	222000	301000	370000	669000	162000	147000
24	131000	129000	105000	105000	216000	301000	210000	321000	353000	656000	151000	138000
25	131000	129000	105000	105000	206000	286000	197000	333000	337000	638000	139000	128000
26	132000	129000	105000	105000	183000	264000	184000	343000	320000	623000	128000	118000
27	133000	129000	105000	106000	170000	265000	173000	359000	303000	601000	118000	114000
28	133000	130000	105000	106000	158000	225000	162000	376000	285000	579000	109000	114000
29	134000	130000	104000	106000	---	206000	151000	402000	266000	559000	101000	115000
30	135000	130000	105000	106000	---	190000	139000	441000	247000	537000	97300	114000
31	135000	---	105000	106000	---	173000	---	478000	---	515000	102000	---
MAX	135000	138000	128000	106000	216000	301000	265000	478000	498000	690000	491000	182000
MIN	129000	128000	104000	103000	103000	102000	97800	98300	247000	215000	97300	97400

WTR YR 1982 MAX 690000 MIN 97300

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 (76 m) upstream from abandoned Bellefountaine Bridge, 0.5 mi (0.8 km) downstream from bridge on old State Highway 92 (now relocated), 0.8 mi (1.3 km) east of Tracy, 3.1 mi (5.0 km) upstream from Cedar Creek, 3.8 mi (6.1 km) downstream from bridge on newly located State Highway 92, 6.4 mi (10.3 km) downstream from English Creek, and at mile 130.4 (209.8 km).

DRAINAGE AREA.--12,479 mi² (32,321 km²).

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 (204.493 m) 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 (76 m) downstream at same datum.

REMARKS.--Records good except those for winter period, which are fair. Flow regulated by Lake Red Rock (station 05488100) 11.9 mi (19.1 km) upstream, since March 12, 1969. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--62 years, 4,711 ft³/s (133.4 m³/s), 5.13 in/yr (130 mm/yr), 3,413,000 acre-ft/yr (4,208 hm³/yr); median of yearly mean discharges, 4,060 ft³/s (115 m³/s), 4.4 in/yr (112 mm/yr), 2,941,000 acre-ft/yr (3,630 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 155,000 ft³/s (4,390 m³/s), June 14, 1947, gage height, 26.5 ft (8.08 m); minimum daily, 40 ft³/s (1.13 m³/s) Jan. 29 to Feb. 1, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1851, that of June 14, 1947. Flood of May 31, 1903, reached a stage of about 25 ft (7 m), discharge, about 130,000 ft³/s (3,680 m³/s). Minimum daily discharge since at least 1910, that of Jan. 29 to Feb. 1, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,000 ft³/s (991 m³/s) July 16, gage height, 19.62 ft (5.980 m) backwater from Cedar Creek; minimum daily, 560 ft³/s (15.9 m³/s) Jan. 21-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	763	2280	1250	1150	700	17400	18400	14700	15600	16700	17300	4850
2	759	2400	2140	1150	760	17200	16200	13500	17300	16600	16300	7670
3	624	3180	2700	1150	760	16200	14900	10700	17400	22200	12300	6920
4	604	5300	2800	1150	760	13900	14500	7970	17400	14900	15900	4940
5	588	6790	3030	1150	760	11500	13600	6370	17400	7300	15200	3140
6	656	4490	2660	1150	660	11000	12500	8790	17400	7390	13200	4050
7	929	1970	2020	1150	580	9740	11700	14400	17500	9870	15700	5620
8	944	1360	2010	1150	580	8490	10200	15800	17900	15800	17500	4210
9	949	1430	2010	1150	580	5800	8970	16500	17900	17400	17800	2760
10	996	2020	2010	1150	580	4670	8950	17100	17800	18100	18600	2730
11	1180	2030	2390	1150	580	5470	8650	16800	17700	18000	18900	2710
12	1340	1930	3420	920	580	9170	8300	16700	17700	17900	18700	2700
13	1340	1340	3430	800	580	13800	10200	16500	17600	13200	18500	2660
14	1710	1420	3420	900	580	14200	10700	16400	17600	17100	17400	899
15	2170	1730	3650	940	580	15100	8440	16800	17500	9040	17000	1800
16	1940	2010	3500	960	600	17800	10100	16600	17500	18100	16800	1730
17	1340	2000	2980	840	840	20400	7080	17300	17500	18900	16200	2650
18	1400	1820	2350	700	2400	19800	5960	17400	17600	13500	16000	8550
19	1550	1340	1640	600	8260	18800	5860	17600	17900	16500	15200	12800
20	1560	1550	1500	580	10700	12400	6300	17600	18300	16500	14300	13600
21	1550	1990	1500	560	12500	6350	13600	17700	18200	16700	13300	9800
22	1550	1700	1500	560	14200	5940	16100	17600	17900	17400	11000	8660
23	1750	1260	1500	560	13300	7840	15900	17600	17200	17300	9570	8610
24	2030	1980	1500	560	19000	15200	15800	17800	17500	17200	9520	8520
25	1630	1730	1620	560	23500	20900	15700	17800	17600	17000	9280	8430
26	1630	1150	1350	560	22900	22600	15500	17700	17700	17000	8670	8340
27	1630	1140	1500	560	18900	22300	15400	16700	17400	17200	8280	6830
28	1630	1150	1640	560	17500	22100	15200	17300	17400	17800	6680	3280
29	1640	1150	2010	560	---	20800	15100	17600	17100	17700	6580	3220
30	1630	1170	1680	560	---	19500	14900	11100	16900	17600	5070	3180
31	1850	---	1130	560	---	19300	---	9410	---	17400	1620	---
TOTAL	41862	62810	67840	26050	174220	445670	364710	473040	525400	495300	418370	165859
MEAN	1350	2094	2188	840	6222	14380	12160	15290	17510	15980	13500	5529
MAX	2170	6790	3650	1150	23500	22600	18400	17000	18300	22200	18900	13600
MIN	588	1140	1130	560	580	4670	5860	6370	15600	7300	1620	899
AC-FT	83030	124600	134600	51670	345600	884000	723400	939900	1042000	982400	829800	329000

CAL YR 1981 TOTAL 987245 MEAN 2705 MAX 17700 MIN 373 AC-FT 1958000
WTR YR 1982 TOTAL 3261931 MEAN 8937 MAX 23500 MIN 560 AC-FT 6470000

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 (3 m) downstream from bridge on State Highway 156, 0.8 mi (1.3 km) downstream from North Cedar Creek, 1.6 mi (2.6 km) northwest of Bussey, 3.0 mi (4.8 km) upstream from Honey Creek, and 8.9 mi (14.3 km) upstream from mouth.

DRAINAGE AREA.--374 mi² (969 km²).

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 (207.919 m) NGVD (levels by Corps of Engineers). Prior to Feb. 21, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--35 years, 210 ft³/s (5.947 m³/s), 7.63 in/yr (194 mm/yr), 152,100 acre-ft/yr (188 hm³/yr); median of yearly mean discharges, 180 ft³/s (5.10 m³/s), 6.5 in/yr (165 mm/yr), 130,000 acre-ft/yr (160 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 96,000 ft³/s (2,718 m³/s) July 3, 1982, gage height, 34.61 ft (10.549 m); 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 (8.672 m) on upstream side and 28.05 ft (8.550 m) on downstream side of bridge, levels to floodmarks by Corps of Engineers, discharge, 31,500 ft³/s (892 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	1000	5,990	170	20.23	6.166	July 3	----	*96,000	2,718	*34.61	10.549
Mar. 20	0245	9,760	276	22.82	6.956	July 5	1600	7,460	211	21.01	6.404
Apr. 17	0900	7,140	202	20.71	6.312	July 14	1445	11,000	312	23.66	7.212
May 7	0100	5,510	156	18.93	5.770	July 16	1245	63,800	1,807	33.20	10.119
May 30	0415	6,570	186	20.17	6.148	Aug. 5	1815	13,600	385	25.10	7.650

Minimum daily discharge, 5.5 ft³/s (0.16 m³/s) Oct. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	94	584	18	24	200	247	117	469	199	102	1450
2	6.6	1100	350	18	23	190	306	115	308	348	95	270
3	5.5	1410	157	18	22	180	1320	110	253	42000	94	109
4	6.9	1050	117	17	21	160	438	176	223	8940	85	77
5	6.4	366	86	16	20	170	270	331	196	6070	5570	65
6	8.0	198	81	16	19	180	231	3260	177	1630	1350	260
7	8.1	138	86	16	19	175	300	2650	169	548	247	471
8	8.9	111	76	16	20	166	280	458	158	262	177	156
9	8.8	90	63	16	20	128	264	260	255	191	138	104
10	8.9	71	52	16	20	141	312	194	304	177	120	84
11	8.7	67	53	16	19	901	447	163	168	249	131	71
12	9.2	59	57	16	19	1620	308	149	141	378	122	60
13	11	55	58	16	19	2240	227	168	132	661	99	53
14	222	53	57	16	20	644	177	296	143	7010	94	254
15	245	53	44	17	23	512	654	1800	135	2320	877	266
16	67	67	40	18	160	2220	2460	753	543	29200	1600	108
17	33	66	35	19	1000	1080	5580	372	218	10600	274	295
18	32	52	30	20	1200	451	883	296	149	1510	162	2720
19	26	49	25	20	1800	3940	460	216	249	1890	123	1500
20	20	51	24	20	3700	8440	322	166	137	2130	100	650
21	17	52	23	21	5010	1420	244	374	101	695	85	450
22	14	43	22	21	1630	531	213	253	86	610	70	260
23	12	43	21	22	1200	380	191	174	79	294	63	180
24	12	55	21	22	640	316	176	149	72	232	59	155
25	12	51	20	22	350	260	164	179	116	203	75	135
26	13	47	20	21	270	216	155	940	1420	179	69	115
27	13	46	20	21	240	192	138	519	225	163	52	90
28	14	40	20	21	210	177	129	229	1090	153	48	76
29	13	35	19	21	---	168	125	2280	242	136	45	68
30	13	48	19	22	---	458	122	5520	137	128	61	62
31	17	---	19	23	---	596	---	1030	---	110	473	---
TOTAL	899.0	5660	2299	582	17718	28452	17143	23697	9095	119215	12660	10614
MEAN	29.0	189	74.2	18.8	633	918	571	764	270	3846	408	354
MAX	245	1410	584	23	5010	8440	5580	5520	1420	42000	5570	2720
MIN	5.5	35	19	16	19	128	122	110	72	110	45	53
CFSM	.08	.51	.20	.05	1.69	2.46	1.53	2.04	.72	10.3	1.09	.95
IN.	.09	.56	.23	.06	1.76	2.83	1.71	2.36	.81	11.86	1.26	1.06
AC-FT	1780	11230	4560	1150	35140	56430	34000	47000	16060	236500	25110	21050

CAL YR 1981 TOTAL 59733.7 MEAN 164 MAX 13700 MIN 5.5 CFSM .44 IN 5.94 AC-FT 118500
WTR YR 1982 TOTAL 247035.0 MEAN 677 MAX 42000 MIN 5.5 CFSM 1.81 IN 24.57 AC-FT 490000

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 (4 m) downstream from Wabash Railroad Bridge at Ottumwa, 0.4 mi (0.6 km) downstream from Ottumwa powerplant, 6.5 mi (10.5 km) upstream from Village Creek, 9.5 mi (15.3 km) downstream from South Avery Creek, and at mile 94.1 (151.4 km).

DRAINAGE AREA.--13,374 mi² (34,638 km²).

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 (189.586 m) NGVD. Prior to Sept. 30, 1930, nonrecording gages at Market Street Bridge 1,700 ft (518 m) upstream at datum 0.83 ft (0.25 m) higher. Oct. 1, 1930, to Mar. 31, 1935, nonrecording gage at Eldon 15 mi (24.1 km) downstream at different datum. Apr. 1, 1935, to Oct. 25, 1963, water-stage recorder at site 1,100 ft (335 m) downstream at Vine Street Bridge at datum 0.77 ft (0.23 m) higher.

REMARKS.--Records good except those for winter period, which are fair. Prior to Dec. 12, 1958, and since Nov. 30, 1960, diurnal fluctuation at low flow caused by powerplant above station. Flow regulated by Lake Red Rock (station 05488100) 48.2 mi (77.6 km) upstream, since March 12, 1969. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

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

AVERAGE DISCHARGE.--65 years, 5,135 ft³/s (145 m³/s), 5.21 in/yr (132 mm/yr), 3,720,000 acre-ft/yr (4,590 hm³/yr); median of yearly mean discharges, 4,540 ft³/s (129 m³/s), 4.6 in/yr (117 mm/yr), 3,290,000 acre-ft/yr (4,060 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 135,000 ft³/s (3,820 m³/s) June 7, 1947, gage height, 20.2 ft (6.16 m), site and datum then in use; minimum daily, 30 ft³/s (0.85 m³/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 (5.91 m), former site and datum at Vine Street Bridge or about 22 ft (6.71 m) at Market Street Bridge, from information by Corps of Engineers and U.S. Weather Bureau, discharge, about 140,000 ft³/s (3,960 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 45,300 ft³/s (1,280 m³/s) July 17, gage height, 14.46 ft (4.407 m); minimum daily, 540 ft³/s (15.3 m³/s) Feb. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	740	2340	2820	1400	740	15900	18600	14300	13600	16100	16900	4090
2	595	4000	2850	1350	790	16200	16800	14100	16600	15900	16800	7830
3	709	5860	2940	1300	760	16100	16400	12300	16700	18500	13200	7350
4	676	7430	3340	1400	770	14700	15100	9420	16700	37300	14400	5810
5	585	8180	3500	1350	760	12000	14300	7350	16600	39800	21400	3160
6	564	6840	3580	1300	780	11500	13000	8520	16600	17000	15600	4140
7	736	4020	2900	1250	740	10400	12600	16200	16500	10600	14800	5780
8	899	2090	2490	1300	700	9390	11200	15600	17000	8970	17200	4940
9	904	1860	1630	1200	660	7710	9780	15800	17100	14200	17400	3040
10	981	1860	2020	1250	560	6050	9420	16400	17100	15900	18100	2120
11	1060	2350	2240	1200	640	6190	9810	16300	16900	17300	18700	2020
12	1400	2480	3190	1250	580	11100	8550	16100	16800	17200	18700	2010
13	1300	2150	3890	1150	540	16300	9810	16000	16800	17100	18500	2130
14	3260	1600	3780	840	570	15400	11400	15900	16700	15800	17700	2000
15	2820	1770	3700	990	640	14800	9570	17700	16700	18400	17300	1220
16	2520	2340	3300	1050	860	18400	13800	18600	16700	28300	17900	1740
17	1900	2290	2600	1000	1450	20300	17500	16800	16900	41200	16700	2900
18	1560	2400	2400	940	1800	20200	9870	17100	16700	29300	16100	7640
19	1810	1980	2100	780	3100	25200	7080	17000	16700	19400	15800	11900
20	1780	1570	1600	620	7600	25700	6330	17500	17300	17900	14500	14500
21	1740	1900	1400	600	12500	14100	9900	17500	17200	16600	14200	11400
22	1700	2260	1500	590	23400	7660	15300	17200	17100	17200	12300	8870
23	1690	1800	1550	580	15600	7110	15600	16900	16700	16900	10100	8440
24	2100	1690	1600	560	16600	11900	15400	17000	16200	16800	9670	8330
25	1900	2350	1500	550	20800	17700	15300	17100	16400	16600	9480	8240
26	1780	1900	1450	600	22400	21000	14800	17900	17100	16500	8790	8110
27	1800	1360	1400	560	18500	21300	15000	16800	17800	16400	8440	8020
28	1670	1360	1750	600	16400	21100	14800	16700	17000	16900	7010	4370
29	1790	1360	2000	640	---	20800	14600	18900	17300	17000	6130	2650
30	1740	1360	1850	680	---	20100	14500	18400	16400	17000	6120	2600
31	1790	---	1500	700	---	19300	---	11500	---	17000	3020	---
TOTAL	46499	82750	74370	29580	171240	475610	386120	484890	501900	601070	432960	167350
MEAN	1500	2758	2399	954	6116	15340	12870	15640	16730	19390	13970	5578
MAX	3260	8180	3890	1400	23400	25700	18600	18900	17800	41200	21400	14500
MIN	564	1360	1400	550	540	6050	6330	7350	13600	8970	3020	1220
AC-FT	92230	164100	147500	58670	339700	943400	765900	961800	995500	1192000	858800	331900

CAL YR 1981 TOTAL 1126641 MEAN 3087 MAX 20900 MIN 319 AC-FT 2235000
WTR YR 1982 TOTAL 3454339 MEAN 9464 MAX 41200 MIN 540 AC-FT 6852000

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 (3 m) upstream from bridge on State Highway 1 at Keosauqua, 4.0 mi (6.4 km) downstream from Chequest Creek, and at mile 51.3 (82.5 km).

DRAINAGE AREA.--14,038 mi² (36,358 km²).

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 (166.835 m) NGVD. Prior to Dec. 24, 1933, nonrecording gage, and Dec. 25, 1933, to Sept. 30, 1972, water-stage recorder, same site at datum 10.00 ft (3.05 m) higher.

REMARKS.--Records good except those for winter period, which are fair. Prior to Dec. 21, 1958, and since Nov. 30, 1960, some diurnal fluctuation at medium and low stages caused by powerplant at Ottumwa. Flow regulated by Lake Red Rock (station 05488100) 91.0 mi (146 km) upstream, since March 12, 1969. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

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

AVERAGE DISCHARGE.--73 years (water years 1904-05, 1912-82), 5,566 ft³/s (157.6 m³/s), 5.38 in/yr (137 mm/yr), 4,033,000 acre-ft/yr (4,970 hm³/yr); median of yearly mean discharges, 4,980 ft³/s (141 m³/s), 4.8 in/yr (122 mm/yr), 3,610,000 acre-ft/yr (4,450 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 146,000 ft³/s (4,130 m³/s) June 1, 1903, gage height, 27.85 ft (8.489 m), from floodmark, datum then in use; minimum daily, 40 ft³/s (1.13 m³/s) Jan. 30, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1851, reached a stage of 24 ft (7 m), discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 67,900 ft³/s (1,920 m³/s) July 17, gage height, 27.14 ft (8.272 m); minimum daily, 570 ft³/s (16.1 m³/s) Jan. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1200	1850	4060	1650	730	17400	19600	14300	11900	16700	16300	4010
2	858	3990	3820	1550	780	17400	18100	14100	16300	17000	16100	5880
3	652	7960	3290	1600	840	17100	17500	13000	17700	46700	15000	7600
4	787	12200	3280	1550	820	15800	16300	10500	17400	59900	11600	6900
5	830	9080	3410	1650	830	13600	14800	8250	17300	44300	19300	5310
6	693	8010	3540	1600	820	11500	13600	6940	17200	19300	17700	3910
7	692	5760	3580	1500	830	10900	12700	12700	17200	11400	13600	5450
8	726	3530	2830	1450	800	9450	12100	16300	17400	10700	15200	6250
9	935	2260	3360	1400	760	8570	10500	15700	18600	15300	16500	5120
10	990	1930	1880	1350	690	6080	9480	16200	18400	17200	16900	3700
11	1010	2030	1960	1300	650	7340	9660	16600	17900	18800	17600	3050
12	1050	2420	2380	1250	680	10500	9370	16400	17600	17500	17800	3010
13	1370	2490	3580	1300	650	19100	8720	16400	17500	17600	17600	3100
14	6690	2120	3840	1200	630	17400	10400	16200	17400	26700	17200	6930
15	6030	1670	3790	1000	630	16900	10600	16600	17400	31300	16500	4240
16	3420	2240	3750	1100	760	20400	13600	18100	17400	36000	17500	2750
17	3100	2560	3450	1150	1050	22300	29000	17100	17600	64900	17100	2640
18	2330	2370	2510	1100	1800	21800	14500	17600	17700	47500	15400	6680
19	1760	2490	2600	1050	2400	33400	8460	17500	17700	27500	15100	10500
20	1890	2070	2300	880	3900	41200	7030	17700	17900	24400	14200	12400
21	1790	1750	1700	740	9600	21000	6850	19700	18100	18300	13500	13100
22	1770	2090	1550	700	16000	10000	13100	18300	17900	17100	12500	9780
23	1710	2350	1600	670	22400	7560	15600	17700	17500	17200	10600	8390
24	1670	1870	1650	650	16700	8870	15400	17500	16800	16600	9300	8300
25	2140	1850	1700	590	20500	15600	15300	17700	17200	16400	8990	8160
26	1870	2460	1600	570	23900	20800	15200	18900	19000	16200	8790	8080
27	1750	2010	1550	620	22400	22000	14900	19300	18500	16100	8140	7960
28	1710	1460	1450	600	18500	21700	14700	17300	17900	16200	7820	7320
29	1670	1400	1850	700	---	21400	14600	22700	18000	16700	6420	4560
30	1690	1590	2200	730	---	22500	14500	24000	17000	16500	6460	3650
31	1710	---	2100	740	---	21800	---	16700	---	16400	5980	---
TOTAL	56493	97860	82160	33940	171050	531370	406170	507990	523400	754400	422700	188730
MEAN	1822	3262	2650	1095	6109	17140	13540	16390	17450	24340	13640	6291
MAX	6690	12200	4060	1650	23900	41200	29000	24000	19000	64900	19300	13100
MIN	652	1400	1450	570	630	6080	6850	6940	11900	10700	5980	2640
AC-FT	112100	194100	163000	67320	339300	1054000	805600	1008000	1038000	1496000	838400	374300

CAL YR 1981 TOTAL 1271003 MEAN 3482 MAX 34400 MIN 413 AC-FT 2521000
WTR YR 1982 TOTAL 3776263 MEAN 10350 MAX 64900 MIN 570 AC-FT 7490000

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 (0.9 m) upstream from bridge on county highway K30, 0.3 mi (0.5 km) north of Rock Valley and at mile 19.1 (30.7 km).

DRAINAGE AREA.--1,592 mi² (4,123 km²).

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 (372.630 m) NGVD. Prior to Aug. 13, 1952, nonrecording gage with supplementary water-stage recorder operating above 6.2 ft (1.89 m) 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 (5.1 km) downstream at datum 10.73 ft (3.271 m) lower.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers rain-gage and gage-height satellite telemeters at station.

AVERAGE DISCHARGE.--34 years, 317 ft³/s (8.977 m³/s), 2.70 in/yr (69 mm/yr), 229,700 acre-ft/yr (283 hm³/yr); median of yearly mean discharges, 250 ft³/s (7.08 m³/s), 2.1 in/yr (53 mm/yr), 181,000 acre-ft/yr (223 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,400 ft³/s (1,140 m³/s) Apr. 7, 1969, gage height, 17.32 ft (5.279 m); 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 (5.18 m), former site and datum, discharge not determined, from information by State Highway Commission.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,070 ft³/s (200 m³/s) Feb. 24, from floodmark, gage height, 14.61 ft (4.453 m), no other peak above base of 3,000 ft³/s (85.0 m³/s); minimum daily, 10 ft³/s (0.28 m³/s) Feb. 14-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	97	90	20	12	1400	533	266	1590	206	123	872
2	60	96	95	18	12	1400	556	257	1580	197	115	626
3	62	95	100	16	12	1200	507	240	1270	189	107	429
4	66	95	110	15	12	600	455	231	994	179	107	326
5	67	93	120	15	12	500	537	228	831	171	111	267
6	69	92	110	15	11	500	445	226	729	1570	110	277
7	71	91	105	15	11	480	452	215	663	848	104	238
8	72	90	100	15	11	450	435	214	656	473	97	208
9	71	88	105	15	11	429	400	213	646	459	90	191
10	70	86	115	15	11	403	394	213	563	503	87	364
11	67	85	120	15	11	458	400	210	494	428	82	515
12	65	85	110	15	11	468	435	239	444	378	75	504
13	65	86	100	14	11	506	483	243	405	343	73	476
14	70	85	95	14	10	629	578	260	403	337	72	457
15	80	84	90	14	10	932	605	363	455	303	71	437
16	97	83	85	14	10	1040	580	624	510	275	70	393
17	114	82	80	14	10	1030	572	888	560	258	67	363
18	116	83	75	14	11	902	606	915	539	366	66	348
19	113	86	70	14	15	830	648	809	479	314	64	322
20	115	76	65	14	50	1380	564	752	418	258	62	295
21	114	72	60	13	200	2120	504	657	377	281	60	273
22	109	80	55	13	800	1540	466	578	343	267	58	253
23	104	85	50	13	3000	1140	430	511	306	242	57	235
24	102	87	45	13	5080	1090	404	461	282	274	92	220
25	103	89	40	13	3110	1080	382	428	276	240	115	205
26	101	94	35	13	2000	989	358	481	260	203	97	195
27	101	88	30	13	1400	759	337	994	252	183	86	186
28	99	97	28	13	1400	615	314	1050	237	166	75	181
29	99	102	26	12	---	534	300	1070	216	151	118	218
30	101	95	24	12	---	507	283	1120	212	140	534	218
31	100	---	22	12	---	500	---	1440	---	132	664	---
TOTAL	2704	2647	2355	441	17254	26411	13963	16396	16990	10334	3709	10092
MEAN	87.2	88.2	76.0	14.2	616	852	465	529	566	333	120	336
MAX	116	102	120	20	5080	2120	648	1440	1590	1570	664	872
MIN	60	72	22	12	10	403	283	210	212	132	57	181
CFSM	.06	.06	.05	.009	.39	.54	.29	.33	.36	.21	.08	.21
IN.	.06	.06	.06	.01	.40	.62	.33	.38	.40	.24	.09	.24
AC-FT	5360	5250	4670	875	34220	52390	27700	32520	33700	20500	7360	20020

CAL YR 1981	TOTAL	41444	MEAN 114	MAX 2790	MIN 22	CFSM .07	IN .97	AC-FT 82200				
WTR YR 1982	TOTAL	123296	MEAN 338	MAX 5080	MIN 10	CFSM .21	IN 2.88	AC-FT 244600				

06485500 BIG SIOUX RIVER AT AKRON, IA
(National stream-quality accounting network station)

LOCATION.--Lat 42°49'42", long 96°33'45", in NW1/4 SW1/4 sec.31, T.93 N., R.48 W., Plymouth County, Iowa, Hydrologic Unit 10170203, on left bank at west edge of Akron, 0.6 mi (1.0 km) downstream from bridge on State Highway 48, and 2.3 mi (3.7 km) upstream from Union Creek.

DRAINAGE AREA.--9,030 mi² (23,390 km²), approximately, of which about 1,970 mi² (5,100 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929 (M), 1931-33 (M), 1936 (M), 1938 (M), 1940 (M). WSP 1389: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,118.90 ft (341.041 m) NGVD. Prior to Dec. 3, 1934, nonrecording gage at bridge 300 ft (91 m) upstream at same datum.

REMARKS.--Records good except those for the winter period, which are poor. Water-quality data available in reports of Water Resources Data for South Dakota. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--54 years, 847 ft³/s (23.99 m³/s), 613,700 acre-ft/yr (757 hm³/yr); median of yearly mean discharges, 730 ft³/s (20.7 m³/s), 529,000 acre-ft/yr (650 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,800 ft³/s (2,290 m³/s) Apr. 9, 1969, gage height, 22.99 ft (7.007 m); minimum daily, 4.0 ft³/s (0.11 m³/s) Jan. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,500 ft³/s (184 m³/s) Feb. 25, gage height, 16.45 ft (5.014 m), backwater from ice, at 2230 hours, no other peak above base of 3,500 ft³/s (99.1 m³/s); minimum daily, 26 ft³/s (0.74 m³/s) Feb. 12-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	172	180	78	36	2700	1370	820	2480	482	671	819
2	96	172	170	74	35	2400	1410	784	2670	455	608	1310
3	96	168	158	70	33	2400	1530	748	2550	443	566	1810
4	101	164	181	66	32	2250	1480	716	2160	413	521	2090
5	105	160	204	63	31	2170	1480	698	1780	401	481	1470
6	105	155	188	62	31	1840	1500	681	1580	443	1060	1040
7	104	153	196	60	30	1720	1460	663	1440	1580	1840	878
8	104	154	225	58	29	1600	1410	647	1350	1720	1110	769
9	109	145	205	56	28	1500	1360	622	1320	1610	837	680
10	116	143	190	55	28	1400	1240	618	1270	1250	688	629
11	112	144	180	54	27	1300	1200	629	1290	1140	573	857
12	110	141	180	51	26	1200	1190	646	1090	990	508	1930
13	110	137	190	50	26	1140	1180	668	990	920	463	2030
14	113	137	210	49	26	1140	1180	697	926	860	427	1620
15	116	135	185	48	26	1600	1270	726	930	839	395	1330
16	123	131	175	48	28	2180	1410	809	954	781	371	1210
17	174	130	160	49	32	2330	1450	1000	990	1000	344	1080
18	203	135	150	48	45	2290	1440	1220	1010	1200	318	968
19	204	142	145	46	70	2090	1460	1320	964	1780	303	906
20	206	133	138	45	180	1970	1450	1290	897	2240	286	841
21	202	125	134	38	400	2460	1380	1250	827	1970	260	776
22	201	101	132	36	1000	3310	1320	1160	770	1580	249	714
23	192	139	130	36	3000	2670	1230	1070	717	1480	237	665
24	188	171	127	36	5200	2170	1150	1010	667	1270	261	618
25	194	176	120	38	5800	2090	1100	971	626	1190	284	575
26	185	176	110	39	6000	2100	1050	972	610	1130	317	532
27	180	178	103	39	5000	2020	998	1020	566	1040	313	493
28	178	177	96	38	3200	1820	951	1510	527	951	261	464
29	176	169	92	38	---	1630	899	1880	515	882	243	483
30	176	183	86	38	---	1510	860	1850	503	805	294	466
31	176	---	82	37	---	1430	---	2080	---	736	717	---
TOTAL	4555	4546	4822	1543	30399	60430	38408	30775	34969	33581	15806	30053
MEAN	147	152	156	49.8	1086	1949	1280	993	1166	1083	510	1002
MAX	206	183	225	78	6000	3310	1530	2080	2670	2240	1840	2090
MIN	96	101	82	36	26	1140	860	610	503	401	237	464
CFSM	.02	.02	.02	.006	.12	.22	.14	.11	.13	.12	.06	.11
IN.	.02	.02	.02	.01	.13	.25	.16	.13	.14	.14	.07	.12
AC-FT	9030	9020	9560	3060	60300	119900	76180	61040	69360	66610	31350	59610

CAL YR 1981 TOTAL 85601 MEAN 235 MAX 2910 MIN 78 CFSM .03 IN .35 AC-FT 169800
WTR YR 1982 TOTAL 289887 MEAN 794 MAX 6000 MIN 26 CFSM .09 IN 1.19 AC-FT 575000

06486000 MISSOURI RIVER AT SIOUX CITY, IA
(National stream-quality accounting network station)

LOCATION.--Lat 42°29'09", long 96°24'49", in NW1/4 SE1/4 sec.16, T.29 N., R.9 E., sixth principal meridian, Dakota County, Nebraska, Hydrologic Unit 10230001, on right bank on upstream side of bridge on U.S. Highway 20 and 77 at South Sioux City, Nebraska, 1.9 mi (3.1 km) downstream from Big Sioux River, and at mile 732.3 (1,78.3 km). Prior to Jan. 31, 1981, at site 227 ft (69 m) downstream.

DRAINAGE AREA.--314,600 mi² (814,800 km²), 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 (322.168 m) NGVD. Sept. 2, 1878, to Dec. 31, 1905, nonrecording gages at various locations within 1.7 mi (2.7 km) 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 (69 m) downstream at datum 19.98 ft (6.090 m) higher, and Oct. 1, 1969 to Sept. 30, 1970 at datum 20.00 ft (6.096 m) higher. Oct. 1, 1970 to Jan. 30, 1981, water-stage recorder at site 227 ft (69 m) downstream at at present datum.

REMARKS.--Records good. Flow regulated by upstream main-stem reservoirs. National Weater Service gage-height telemeter at station. Corps of Engineers rain-gage and gage-height satellite telemeter at station.

AVERAGE DISCHARGE.--85 years, 31,960 ft³/s (905 m³/s), 23,160,000 acre-ft/yr (28,600 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft³/s (12,500 m³/s) Apr. 14, 1952, gage height, 24.28 ft (7.401 m), datum then in use; minimum, 2,500 ft³/s (70.8 m³/s) Dec. 29, 1941; minimum gage height, 9.00 ft (2.743 m) Jan. 8, 1980, based on gage readings at site 14 mi (22.5 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,700 ft³/s (1,010 m³/s) Oct. 14, maximum gage height, 19.81 ft (6.038 m) July 6; minimum daily discharge, 10,000 ft³/s (283 m³/s) Jan. 10; minimum gage height, 11.51 ft (3.508 m) Jan. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34400	35000	16900	14400	15200	17000	29900	30500	28400	31800	33000	33300
2	35300	35000	16300	14400	15000	17000	31100	30000	28700	31500	32600	32600
3	34900	34600	16400	14000	14800	17000	31900	30500	30000	31200	32500	33100
4	34600	34000	16000	13500	14800	15600	30200	31000	29300	30900	32700	33300
5	34000	33600	15500	14000	15000	14800	30300	31500	30200	31300	32700	33500
6	33700	31600	15700	14500	15200	13900	30800	32500	30800	31300	32800	33000
7	33600	29000	15800	15000	16000	13400	31400	32000	30800	31700	32400	32700
8	33500	26500	15800	15000	17000	12500	31800	31500	30400	33300	32100	33000
9	33700	23800	15800	14500	16800	12900	31600	30500	30400	33300	31200	32900
10	33800	21000	15700	10000	16500	12900	31400	31000	30100	33400	31200	32900
11	33700	18900	15700	10500	16300	15100	31300	32100	29900	33600	31400	32600
12	34200	18400	15700	13000	16300	14000	31700	32500	29100	32400	31100	32700
13	34800	18400	15800	14000	16500	15400	32200	32500	27100	31600	30500	33400
14	35200	18100	15900	14500	16700	15100	32500	31900	27000	31800	30600	33100
15	35000	17700	15500	15000	16700	15500	33000	31300	27600	32100	30800	32200
16	34500	17300	15500	14000	16700	16500	33100	31400	27700	32000	30900	32000
17	35000	16900	14500	13000	16700	18600	32600	31600	27000	31900	31100	32000
18	34900	16800	14000	12000	16700	20800	31900	31600	27600	31800	31300	31700
19	34200	16800	13500	13500	16700	24100	31900	31100	28600	31500	31500	31900
20	34100	16500	13000	15500	17500	26800	31600	32000	30200	32200	31200	31900
21	34200	16300	15500	16000	18500	27700	31300	32700	30500	33100	31300	32000
22	33900	16300	17000	15500	20000	28300	31400	31300	30500	33300	31500	32900
23	33600	16400	16500	14000	23000	29600	31400	27600	30700	33400	32100	33400
24	33600	16300	16000	13000	21500	29100	31200	29600	31600	32800	32500	33600
25	33500	16300	15500	14500	17500	29100	30900	31000	32100	32300	32500	33500
26	33300	16400	15500	16000	17000	29000	30500	32400	31600	32100	32100	33600
27	33500	16200	15500	16500	17000	29000	29900	32300	31300	32200	32300	33100
28	33900	16100	15500	16200	17000	29200	30600	31100	31100	32500	32500	33500
29	34400	16100	15500	16000	---	28900	31600	29800	30900	33300	32800	33900
30	34900	16400	15500	15800	---	29100	32100	30400	31600	33600	32900	34100
31	35200	---	15200	15500	---	30200	---	30500	---	33400	33000	---
TOTAL	1061100	642700	482200	443300	474600	648100	943100	967600	892800	1002600	989100	987400
MEAN	34230	21420	15550	14300	16950	20910	31440	31210	29760	32340	31910	32910
MAX	35300	35000	17000	16500	23000	30200	33100	32700	32100	33600	33000	34100
MIN	33300	16100	13000	10000	14800	12500	29900	27600	27000	30900	30500	31700
AC-FT	2105000	1275000	956400	879300	941400	1286000	1871000	1919000	1771000	1989000	1962000	1959000

CAL YR 1981	TOTAL	9768200	MEAN	26760	MAX	37000	MIN	11000	AC-FT	19380000
WTR YR 1982	TOTAL	9534600	MEAN	26120	MAX	35300	MIN	10000	AC-FT	18910000

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 (0.3 km) downstream from gage.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1972 to September 1976, November 1977 to September 1981.
WATER TEMPERATURES: October 1971 to September 1976, November 1977 to September 1981.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 950 micromhos June 17, 19, 1981; minimum daily, 410 micromhos Mar. 22, 1978.
WATER TEMPERATURES: Maximum daily, 28.0°C July 30, 1976 and Aug. 7, 1979; minimum daily, 0.0°C on many days during the winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,620 mg/L Nov. 20, 1972; minimum daily mean, 42 mg/L Dec. 29, 1975.
SEDIMENT LOADS: Maximum daily, 222,000 tons (201,000 tonnes) Nov. 20, 1972; minimum daily, 2,970 tons (2,700 tonnes) Dec. 29, 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV										
03...	1030	33600	750	7.9	11.0	11	10.4	98	K12	K190
JAN										
06...	0915	18000	860	8.0	.0	8.8	13.9	95	K11	K190
MAR										
04...	1200	14500	700	8.6	.0	13	12.7	87	27	290
MAY										
04...	1200	30200	810	8.4	16.0	4.3	10.2	102	60	<10
JUL										
20...	1600	32300	780	8.4	26.0	33	7.9	89	130	80
SEP										
02...	1115	32700	750	8.5	24.0	13	7.7	90	K18	80

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 LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
NOV									
03...	250	58	25	80	41	2.4	5.3	160	260
JAN									
06...	280	66	27	85	40	2.4	5.3	180	250
MAR									
04...	240	58	23	65	36	2.0	5.4	160	220
MAY									
04...	270	64	26	76	38	2.2	5.3	160	250
JUL									
20...	240	61	22	75	40	2.3	5.6	155	230
SEP									
02...	260	66	22	79	40	2.3	5.7	150	250

DATE	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, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
NOV									
03...	12	.5	5.6	556	543	.76	50400	<.09	<.060
JAN									
06...	12	.5	7.1	560	561	.76	27200	<.09	.090
MAR									
04...	10	.5	8.6	487	487	.66	19100	.29	.150
MAY									
04...	11	.6	6.2	531	535	.72	43300	<.10	.060
JUL									
20...	12	.5	7.3	509	507	.69	44400	.23	<.060
SEP									
02...	11	.5	7.8	550	532	.75	48600	.43	<.060

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

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	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)
NOV 03...	.08	.68	<.010	.15	.020	.050	1940	176000	84
JAN 06...	.12	1.70	.020	.18	.030	.060	--	--	--
MAR 04...	.19	1.10	.030	.37	.040	.120	--	--	--
MAY 04...	.08	.69	.050	--	<.010	<.010	--	--	--
JUL 20...	.08	1.10	.030	.37	.080	.120	330	28800	42
SEP 02...	.08	1.10	.010	.12	.090	.040	--	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
NOV 03...	1030	4	2	200	49	1	2	10
MAR 04...	1200	3	2	100	80	1	1	<10
JUL 20...	1600	3	2	200	57	2	<1	10
SEP 02...	1115	4	2	<100	52	<1	<1	<10

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)
NOV 03...	<10	2	<3	16	9	3600	10	12	3
MAR 04...	<10	1	<3	29	4	1400	<10	8	<1
JUL 20...	<10	<1	<1	28	6	2600	4	3	2
SEP 02...	<10	<1	<1	13	5	1700	38	<1	<1

DATE	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)
NOV 03...	130	<1	.2	.0	1	1	<1	<1
MAR 04...	100	17	.1	.1	1	1	<1	<1
JUL 20...	170	3	.5	.1	1	1	<1	<1
SEP 02...	110	10	.1	.1	2	2	<1	<1

DATE	TIME	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDOSULFAN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39389)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)
NOV 03...	1030	.0	.0	.0	.0	.0	.0	.0	.0

05486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

DISSOLVED ORGANIC CARBON DATA, WATER YEAR MARCH 1981 TO SEPTEMBER 1981

DATE	WATER DISCHARGE FT/SEC[a]	DISSOLVED ORGANIC CARBON MG/L	DATE	WATER DISCHARGE FT/SEC[a]	DISSOLVED ORGANIC CARBON MG/L
Mar. 2, 1981	15400	2.9	July 1, 1981	32700	2.9
Mar. 12, 1981	15600	3.1	July 7, 1981	31300	3.0
Mar. 20, 1981	22500	3.0	July 16, 1981	33400	2.8
Mar. 27, 1981	34300	3.4	July 24, 1981	33800	2.9
Apr. 3, 1981	33200	3.0	July 31, 1981	30700	2.9
Apr. 10, 1981	33500	3.2	Aug. 4, 1981	32500	3.1
Apr. 24, 1981	33400	3.0	Aug. 14, 1981	32300	4.1
May 1, 1981	34000	3.1	Aug. 18, 1981	32200	3.3
May 5, 1981	34600	3.0	Aug. 19, 1981	32600	3.0
May 22, 1981	30600	3.0	Aug. 20, 1981	32400	3.1
May 29, 1981	30700	2.6	Aug. 21, 1981	32400	3.0
June 4, 1981	32100	2.8	Aug. 22, 1981	32300	3.0
June 11, 1981	33100	2.8	Aug. 23, 1981	32600	2.8
June 19, 1981	28700	3.0	Sep. 3, 1981	32100	3.6
June 26, 1981	31800	2.8	Sep. 10, 1981	32000	3.1
			Sep. 25, 1981	34600	2.8

DISSOLVED ORGANIC CARBON DATA, WATER YEAR OCTOBER 1981 TO MARCH 1982

Oct. 9, 1981	33700	3.0	Feb. 1, 1982	15200	2.7
Oct. 20, 1981	34100	2.8	Feb. 11, 1982	16300	2.7
Nov. 3, 1981	34600	3.0	Feb. 18, 1982	16700	2.7
Nov. 13, 1981	18400	2.9	Feb. 25, 1982	17500	3.2
Nov. 16, 1981	17300	3.2	Mar. 4, 1982	15600	3.2
Dec. 2, 1981	16300	2.8	Mar. 10, 1982	12900	4.1
Dec. 7, 1981	15800	2.8	Mar. 23, 1982	29600	3.0
Jan. 7, 1982	15000	3.0	Mar. 24, 1982	29100	2.6
Jan. 8, 1982	15000	3.0	Mar. 25, 1982	29100	2.5
Jan. 9, 1982	14560	3.0	Mar. 26, 1982	29000	2.6
Jan. 19, 1982	13500	2.9	Mar. 27, 1982	29000	2.6
			Mar. 28, 1982	29200	2.6

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEARS OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)	DEPTH AT SAMPLE LOCATION, TOTAL (FEET) (81903)	SAMPLING DEPTH (FEET) (00003)	STREAM VELOCITY, POINT (FPS) (81904)	SEDIMENT, SUSPENDED (MG/L) (80154)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
OCT												
11...	WATER TEMPERATURE, 14.0°C (1345-1505 HOURS); DISCHARGE, 39600 ft³/s.											
11...	1345	585	13.0	3.00	4.30	175	--	30	53	96	100	--
11...	1347	585	--	6.50	4.07	284	--	20	40	97	100	--
11...	1353	585	--	10.8	2.89	617	--	10	24	95	100	--
11...	1356	585	--	11.7	2.81	1010	--	6	15	90	100	--
11...	1358	585	--	12.2	2.51	735	--	8	18	86	100	--
11...	1400	435	15.0	3.50	5.02	233	--	25	48	98	100	--
11...	1401	435	--	7.50	4.91	345	--	17	38	98	100	--
11...	1402	435	--	10.7	4.70	498	--	13	31	98	100	--
11...	1403	435	--	12.5	4.00	818	--	8	21	93	100	--
11...	1404	435	--	13.5	4.15	974	--	7	21	94	100	--
11...	1405	435	--	14.1	3.70	1230	--	6	17	92	100	--
11...	1410	330	17.2	--	--	576	6	12	--	--	--	--
11...	1420	240	19.8	4.60	4.59	152	--	42	68	100	--	--
11...	1421	240	--	9.90	3.83	260	--	26	45	98	100	--
11...	1423	240	--	14.1	3.44	402	--	17	32	97	100	--
11...	1425	240	--	16.5	3.46	444	--	15	31	97	100	--
11...	1426	240	--	17.8	3.02	624	--	12	25	96	100	--
11...	1427	240	--	18.6	2.79	510	--	14	32	95	100	--
11...	1435	160	24.0	5.50	4.11	146	--	46	69	96	100	--
11...	1437	160	--	12.0	2.74	147	--	45	69	100	--	--
11...	1439	160	--	17.1	3.39	181	--	38	59	100	--	--
11...	1442	160	--	20.0	3.00	190	--	41	61	96	100	--
11...	1444	160	--	21.6	3.02	214	--	30	51	97	100	--
11...	1446	160	--	22.6	2.59	211	--	34	54	96	100	--
11...	1448	160	--	23.1	2.35	224	--	31	52	97	100	--
APR												
17...	WATER TEMPERATURE, 10.0°C (1435-1515 HOURS); DISCHARGE, 31000 ft³/s.											
17...	1435	560	19.8	4.60	5.72	269	--	14	27	91	100	--
17...	1436	560	--	9.90	5.61	295	--	13	30	79	100	--
17...	1437	560	--	14.1	5.17	313	--	13	29	80	100	--
17...	1438	560	--	16.5	5.09	242	--	17	33	88	100	--
17...	1439	560	--	17.8	4.70	347	--	12	28	74	100	--
17...	1440	560	--	18.6	4.70	2050	--	2	5	23	94	100
17...	1445	500	18.9	4.30	5.82	146	--	27	47	87	100	--
17...	1446	500	--	9.40	4.96	204	--	19	40	89	100	--
17...	1447	500	--	13.4	4.46	283	--	14	33	83	100	--
17...	1448	500	--	15.7	3.91	395	--	11	31	79	100	--
17...	1449	500	--	16.9	4.26	481	--	9	24	73	100	--
17...	1450	500	--	17.7	4.04	629	--	7	21	67	100	--
17...	1451	435	16.3	--	--	295	7	14	--	--	--	--
17...	1456	360	14.3	3.30	4.35	174	--	27	49	94	100	--
17...	1457	360	--	7.10	3.89	187	--	25	43	92	100	--
17...	1458	360	--	10.1	3.44	239	--	20	42	98	100	--
17...	1459	360	--	11.8	2.87	334	--	15	35	97	100	--
17...	1501	360	--	13.4	2.76	774	--	6	19	81	100	--
17...	1505	195	9.10	2.10	3.94	258	--	22	36	91	100	--
17...	1506	195	--	4.50	3.57	173	--	34	53	96	100	--
17...	1507	195	--	6.40	3.11	185	--	33	52	95	100	--
17...	1508	195	--	7.50	2.81	232	--	27	45	94	100	--
17...	1510	195	--	8.10	2.83	326	--	19	35	91	100	--
MAY												
29...	WATER TEMPERATURE, 21.0°C (1110-1215 HOURS); DISCHARGE, 31900 ft³/s.											
29...	1110	515	21.2	20.4	3.55	545	--	12	22	49	100	--
29...	1113	515	--	20.0	3.55	417	--	17	30	72	100	--
29...	1116	515	--	19.1	3.63	406	--	17	27	65	98	100
29...	1119	515	--	17.7	4.37	243	--	26	40	83	100	--
29...	1123	515	--	15.1	4.59	251	--	27	43	87	100	--
29...	1127	515	--	10.6	4.91	196	--	32	45	90	100	--
29...	1130	515	--	4.90	5.45	121	--	36	54	87	100	--
29...	1132	460	20.8	19.6	3.85	391	--	18	37	79	100	--
29...	1134	460	--	18.7	3.87	395	--	16	37	85	100	--
29...	1136	460	--	17.3	3.94	261	--	26	46	93	100	--
29...	1138	460	--	14.9	4.48	229	--	28	47	94	100	--
29...	1141	460	--	10.4	5.13	165	--	37	55	93	100	--
29...	1145	460	--	4.80	5.67	132	--	39	58	92	100	--
29...	1147	400	18.4	--	--	446	8	15	--	--	--	--
29...	1153	320	14.2	13.4	2.70	464	--	15	27	74	100	--
29...	1154	320	--	12.8	2.96	349	--	18	34	80	100	--
29...	1155	320	--	11.8	3.05	310	--	20	35	88	100	--
29...	1156	320	--	10.1	3.57	269	--	22	37	94	100	--
29...	1157	320	--	7.10	4.26	185	--	31	47	92	100	--
29...	1158	320	--	3.30	4.83	153	--	37	57	96	100	--
29...	1159	155	10.0	9.00	2.33	138	--	42	60	95	100	--
29...	1200	155	--	8.30	2.66	163	--	36	52	93	100	--
29...	1201	155	--	7.10	3.15	100	--	57	79	100	--	--
29...	1202	155	--	5.00	3.26	155	--	37	53	94	100	--
29...	1203	155	--	2.30	3.39	98	--	57	77	93	100	--

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEARS OCTOBER 1979 TO SEPTEMBER 1980

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)
JUL											
10...	WATER TEMPERATURE, 27.5°C (1205-1305 HOURS); DISCHARGE, 33500 ft³/s.										
10...	1205	500	24.2	5.60	5.45	91	--	52	78	100	--
10...	1207	500	--	12.1	5.09	124	--	39	63	100	--
10...	1211	500	--	20.2	3.78	115	--	40	62	100	--
10...	1213	500	--	21.8	3.28	402	--	13	27	73	100
10...	1215	500	--	22.8	2.59	520	--	10	20	76	100
10...	1217	500	--	23.0	2.20	496	--	12	23	70	100
10...	1221	455	23.6	5.50	5.17	71	--	60	92	100	--
10...	1223	455	--	11.8	4.80	123	--	37	63	100	--
10...	1225	455	--	16.9	4.37	201	--	25	48	97	100
10...	1227	455	--	19.7	3.87	258	--	18	40	95	100
10...	1228	455	--	21.2	3.55	160	--	28	48	98	100
10...	1229	455	--	22.2	2.72	531	--	9	25	87	100
10...	1230	455	--	22.7	2.59	637	--	8	19	80	100
10...	1232	385	20.6	--	--	338	11	17	--	--	--
10...	1243	270	12.2	2.80	4.33	164	--	30	48	91	100
10...	1244	270	--	6.10	4.04	161	--	33	47	91	100
10...	1245	270	--	8.70	3.63	272	--	19	31	79	100
10...	1246	270	--	10.2	3.20	326	--	16	29	63	100
10...	1247	270	--	11.0	3.22	378	--	14	25	73	100
10...	1250	155	10.2	2.40	4.09	96	--	64	78	100	--
10...	1251	155	--	5.10	3.61	108	--	54	69	96	100
10...	1252	155	--	7.30	3.20	123	--	47	60	91	100
10...	1253	155	--	8.50	2.89	165	--	40	57	93	100
10...	1254	155	--	9.20	2.55	252	--	24	36	68	100
AUG											
28...	WATER TEMPERATURE, 23.0°C (1150-1300 HOURS); DISCHARGE, 33700 ft³/s.										
28...	1150	440	20.8	4.80	4.87	133	--	53	74	95	100
28...	1152	440	--	10.4	4.48	150	--	26	50	95	100
28...	1153	440	--	14.9	3.81	187	--	23	43	95	100
28...	1154	440	--	17.3	3.63	241	--	18	42	95	100
28...	1155	440	--	18.7	3.55	268	--	19	43	95	100
28...	1157	440	--	19.6	3.24	312	--	17	39	95	100
28...	1200	360	16.4	3.80	--	331	8	14	--	--	--
28...	1206	260	12.0	2.80	5.02	175	--	30	63	97	100
28...	1208	260	--	6.00	4.70	197	--	24	56	96	100
28...	1209	260	--	8.60	4.46	269	--	18	51	96	100
28...	1210	260	--	10.0	4.11	319	--	14	43	96	100
28...	1212	260	--	10.8	4.07	303	--	15	46	96	100
28...	1214	110	11.0	2.50	3.87	88	--	53	83	100	--
28...	1216	110	--	5.50	3.81	99	--	47	75	95	100
28...	1217	110	--	7.90	3.42	136	--	33	65	97	100
28...	1218	110	--	9.20	3.26	170	--	27	50	88	100
28...	1220	110	--	9.90	3.09	244	--	20	41	72	100
28...	1240	510	24.7	5.60	4.91	71	--	51	74	92	100
28...	1242	510	--	12.1	4.50	118	--	32	47	91	100
28...	1243	510	--	17.3	3.68	168	--	23	38	88	100
28...	1244	510	--	20.2	3.61	311	--	12	24	76	100
28...	1245	510	--	21.8	3.02	381	--	11	21	77	100
28...	1246	510	--	22.8	2.81	643	--	8	15	78	100
28...	1248	510	--	23.3	2.57	594	--	7	15	79	100

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEARS OCTOBER 1980 TO SEPTEMBER 1981

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												
16...WATER TEMPERATURE, 14.0°C (1305-1425 HOURS); DISCHARGE, 36600 ft³/s.												
16...	1306	500	17.2	4.00	4.87	176	--	37	51	94	100	--
16...	1307	500	--	8.60	4.63	211	--	32	46	92	100	--
16...	1308	500	--	12.3	4.52	233	--	29	40	92	100	--
16...	1310	500	--	14.3	4.52	302	--	22	37	86	100	--
16...	1311	500	--	15.5	3.81	420	--	16	27	74	100	--
16...	1312	500	--	16.2	3.85	805	--	9	16	55	100	--
16...	1313	420	19.8	4.60	4.93	194	--	37	53	96	100	--
16...	1318	420	--	9.90	4.63	310	--	20	42	97	100	--
16...	1321	420	--	14.1	3.63	555	--	12	27	91	100	--
16...	1324	420	--	16.5	2.31	751	--	10	22	82	100	--
16...	1327	420	--	17.8	1.15	912	--	8	19	75	100	--
16...	1330	420	--	18.6	1.18	980	--	7	14	74	100	--
16...	1332	320	17.2	--	--	431	8	14	--	--	--	--
16...	1342	220	18.0	4.20	4.70	203	--	27	47	97	100	--
16...	1348	220	--	9.00	4.04	317	--	18	35	97	100	--
16...	1354	220	--	12.9	3.94	363	--	15	33	96	100	--
16...	1400	220	--	15.0	3.42	464	--	13	30	96	100	--
16...	1407	220	--	16.2	3.46	491	--	11	28	94	100	--
16...	1414	220	--	17.0	3.02	655	--	9	24	87	100	--
16...	1415	110	12.8	3.00	3.98	157	--	34	53	95	100	--
16...	1416	110	--	6.40	3.55	136	--	39	61	97	100	--
16...	1417	110	--	9.10	3.39	145	--	36	56	95	100	--
16...	1419	110	--	10.7	3.00	173	--	31	47	91	100	--
16...	1421	110	--	11.5	2.76	172	--	31	51	89	100	--
16...	1422	110	--	12.0	2.59	236	--	23	41	88	100	--
APR												
16... WATER TEMPERTATURE, 12.0°C (0900-1130 HOURS); DISCHARGE, 32700 ft³/s.												
16...	0900	150	13.4	3.10	3.89	198	--	43	63	96	100	--
16...	0905	150	--	6.70	3.26	288	--	36	57	95	100	--
16...	0910	150	--	9.60	3.13	465	--	19	35	85	100	--
16...	0912	150	--	11.2	2.63	587	--	15	30	80	100	--
16...	0915	150	--	12.1	2.69	848	--	10	25	74	100	--
16...	0919	150	--	12.6	1.65	713	--	12	25	78	100	--
16...	0925	240	11.4	2.60	4.48	325	--	34	55	94	100	--
16...	0930	240	--	5.70	4.37	342	--	25	43	93	100	--
16...	0935	240	--	8.10	4.04	579	--	16	29	75	100	--
16...	0940	240	--	9.50	3.72	607	--	18	30	81	99	100
16...	0945	240	--	10.4	3.39	852	--	13	27	71	100	--
16...	1000	360	15.0	--	--	533	5	8	--	--	--	--
16...	1030	430	18.8	4.30	5.28	253	--	35	53	96	100	--
16...	1033	430	--	9.40	4.91	378	--	30	48	97	100	--
16...	1036	430	--	13.4	3.83	439	--	15	37	85	100	--
16...	1040	430	--	15.7	3.57	712	--	10	29	74	100	--
16...	1044	430	--	16.9	3.39	748	--	11	27	76	100	--
16...	1048	430	--	17.7	2.96	842	--	10	27	75	100	--
16...	1055	490	20.8	4.80	5.35	201	--	41	58	95	100	--
16...	1059	490	--	10.4	5.09	232	--	33	55	95	100	--
16...	1103	490	--	14.9	4.54	340	--	25	45	89	100	--
16...	1108	490	--	17.3	4.37	422	--	20	38	84	98	100
16...	1111	490	--	18.7	4.04	513	--	18	34	88	100	--
16...	1115	490	--	19.6	3.68	633	--	16	29	84	100	--
JUN												
04... WATER TEMPERATURE, 20.5°C (1245-1345 HOURS); DISCHARGE, 32100 ft³/s.												
04...	1245	490	21.0	4.90	4.72	89	--	36	64	100	--	--
04...	1247	490	--	10.5	4.24	131	--	26	51	98	100	--
04...	1249	490	--	15.0	3.50	330	--	10	27	85	100	--
04...	1251	490	--	17.5	3.24	388	--	8	23	82	100	--
04...	1253	490	--	18.9	3.00	3160	--	1	3	32	99	100
04...	1254	490	--	19.8	2.29	1660	--	2	7	47	100	--
04...	1256	490	--	20.2	1.68	1260	--	3	8	45	98	100
04...	1259	420	18.8	4.30	5.24	160	--	23	49	98	100	--
04...	1300	420	--	9.40	4.41	148	--	23	48	100	--	--
04...	1302	420	--	13.4	3.89	259	--	13	37	96	100	--
04...	1304	420	--	15.7	3.28	289	--	10	32	97	100	--
04...	1306	420	--	16.9	3.33	374	--	--	29	99	100	--
04...	1312	335	16.4	--	--	246	12	17	--	--	--	--
04...	1325	245	14.2	3.30	4.44	140	--	23	54	96	100	--
04...	1326	245	--	7.10	3.98	163	--	20	46	97	100	--
04...	1327	245	--	10.1	3.89	227	--	15	38	95	100	--
04...	1328	245	--	11.8	3.28	291	--	11	34	91	100	--
04...	1329	245	--	12.8	3.46	505	--	6	21	82	100	--
04...	1330	245	--	13.4	3.35	465	--	7	24	88	100	--
04...	1335	150	12.6	2.90	4.00	68	--	44	77	93	100	--
04...	1336	150	--	6.30	3.83	97	--	34	61	96	100	--
04...	1337	150	--	9.00	3.33	89	--	35	62	95	100	--
04...	1338	150	--	10.5	2.94	156	--	21	41	86	100	--
04...	1339	150	--	11.3	2.68	168	--	19	36	76	100	--

06486000 MISSOURI RIVER AT SIOUX CITY,IA--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEARS OCTOBER 1980 TO SEPTEMBER 1981

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												
16...	WATER TEMPERATURE, 27.0°C (1200-1245 HOURS); DISCHARGE, 33400 ft³/s.											
16...	1201	470	17.2	4.00	4.87	73	--	46	65	94	100	--
16...	1202	470	--	8.60	4.28	67	--	54	72	90	100	--
16...	1203	470	--	12.3	4.26	134	--	27	38	82	100	--
16...	1205	470	--	15.5	3.59	228	--	16	25	60	100	--
16...	1206	470	--	16.2	3.13	268	--	14	22	55	100	--
16...	1210	380	16.8	--	--	234	11	18	--	--	--	--
16...	1216	270	16.8	3.90	4.74	140	--	27	44	95	100	--
16...	1218	270	--	8.40	4.41	218	--	17	35	95	100	--
16...	1220	270 n	--	12.0	3.98	233	--	16	36	95	100	
16...	1222	270	--	14.0	3.68	354	--	11	25	95	100	--
16...	1224	270	--	15.1	3.65	429	--	8	23	91	100	--
16...	1225	270	--	15.8	3.74	515	--	7	22	91	100	--
16...	1226	190	16.8	3.90	4.46	95	--	38	57	94	100	--
16...	1228	190	--	8.40	4.28	125	--	28	45	93	100	--
16...	1230	190	--	12.0	3.61	153	--	23	38	97	100	--
16...	1232	190	--	14.0	3.31	191	--	20	37	96	100	--
16...	1234	190	--	15.1	2.57	325	--	12	26	88	100	--
16...	1235	190		15.8	2.57	366	--	11	25	87	100	--
16...	1236	90.0	13.2	3.10	4.07	63	--	55	70	88	100	--
16...	1238	90.0	--	6.60	3.98	88	--	41	54	85	100	--
16...	1240	90.0	--	9.40	3.22	94	--	33	49	89	100	--
16...	1242	90.0	--	11.0	2.87	111	--	32	45	85	100	--
16...	1244	90.0	--	11.9	2.33	150	--	23	32	68	100	--
16...	1245	90.0	--	12.4	2.48	275	--	14	22	47	100	--
AUG												
27...	WATER TEMPERATURE, 23.0°C (1115-1240 HOURS); DISCHARGE, 33400 ft³/s.											
27...	1115	475	16.6	3.80	4.89	113	--	24	36	87	100	--
27...	1116	475	--	8.30	4.39	58	--	46	67	87	100	--
27...	1117	475	--	11.9	3.24	107	--	24	38	69	100	--
27...	1118	475	--	13.8	3.02	150	--	19	30	51	100	--
27...	1119	475	--	14.9	2.35	430	--	6	10	31	100	--
27...	1120	475	--	15.6	2.42	505	--	5	9	22	96	100
27...	1125	375	16.2	3.70	4.50	151	--	18	27	63	100	--
27...	1126	375	--	8.10	3.03	125	--	21	35	91	100	--
27...	1127	375	--	11.6	3.07	319	--	9	23	84	100	--
27...	1128	375	--	13.5	3.22	368	--	6	17	75	100	--
27...	1129	375	--	14.6	3.13	351	--	8	20	85	100	--
27...	1130	375	--	15.2	3.18	484	--	6	16	79	100	--
27...	1135	250	17.2	--	--	391	5	9	--	--	--	--
27...	1145	170	18.6	4.30	4.44	111	--	24	43	93	100	--
27...	1146	170	--	9.30	4.37	138	--	20	40	93	100	--
27...	1147	170	--	13.3	3.72	240	--	12	30	92	100	--
27...	1148	170	--	15.5	3.59	416	--	7	22	83	100	--
27...	1149	170	--	16.7	3.11	675	--	4	15	80	100	--
27...	1150	170	--	17.5	2.85	995	--	3	9	65	100	--
27...	1155	75.0	14.8	3.40	3.70	89	--	31	45	85	100	--
27...	1156	75.0	--	7.40	3.57	112	--	25	37	82	100	--
27...	1157	75.0	--	10.6	3.13	102	--	29	41	83	100	--
27...	1158	75.0	--	12.3	2.92	148	--	20	28	72	100	--
27...	1159	75.0	--	13.3	2.61	268	--	11	22	68	100	--
27...	1200	75.0	--	13.9	2.59	364	--	8	16	47	100	--

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEARS OCTOBER 1981 TO SEPTEMBER 1982

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)
OCT											
15...	WATER TEMPERATURE, 13.0°C (1140-1230 HOURS); DISCHARGE, 35100 ft³/s.										
15...	1140	430	13.6	3.10	4.67	195	--	20	33	85	100
15...	1141	430	--	6.80	4.54	186	--	20	32	86	100
15...	1142	430	--	9.70	3.89	300	--	12	25	72	100
15...	1143	430	--	11.3	4.33	422	--	9	19	56	100
15...	1144	430	--	12.2	3.76	467	--	8	17	60	100
15...	1145	430	--	12.8	3.94	603	--	6	14	60	100
15...	1151	315	13.6	3.10	4.63	202	--	19	37	90	100
15...	1152	315	--	6.80	4.30	312	--	12	28	92	100
15...	1153	315	--	9.70	4.00	346	--	10	26	87	100
15...	1154	315	--	11.3	4.09	467	--	10	24	83	100
15...	1155	315	--	12.2	3.46	452	--	8	21	88	100
15...	1156	315	--	12.8	3.24	490	--	8	21	85	100
15...	1157	230	15.8	--	--	333	8	11	--	--	--
15...	1207	130	--	14.4	3.63	224	--	18	42	94	100
15...	1208	130	--	16.8	3.44	267	--	13	34	91	100
15...	1209	130	--	18.2	2.76	305	--	12	36	91	100
15...	1210	130	--	19.0	2.72	453	--	8	25	79	100
15...	1215	50.0	20.6	4.80	3.83	108	--	27	46	90	100
15...	1216	50.0	--	10.3	3.94	96	--	35	57	95	100
15...	1217	50.0	--	14.7	3.68	81	--	40	68	95	100
15...	1218	50.0	--	17.2	3.00	94	--	36	60	96	100
15...	1219	50.0	--	18.5	2.96	93	--	36	69	88	100
15...	1220	50.0	--	19.4	2.57	90	--	37	62	89	100
APR											
15...	WATER TEMPERATURE, 10.0 (1245-1340 HOURS); DISCHARGE, 33100 ft³/s.										
15...	1245	475	20.6	4.80	6.00	198	--	35	53	100	--
15...	1246	475	--	10.3	6.00	295	--	24	39	95	100
15...	1247	475	--	14.7	4.91	410	--	14	30	90	100
15...	1248	475	--	17.2	4.70	678	--	11	21	69	100
15...	1249	475	--	18.5	4.37	674	--	10	20	75	100
15...	1250	475	--	19.4	4.37	819	--	7	17	65	100
15...	1300	415	19.6	4.50	6.00	290	--	22	41	89	100
15...	1301	415	--	9.80	5.56	364	--	20	39	96	100
15...	1302	415	--	14.0	5.56	346	--	20	38	93	100
15...	1303	415	--	16.3	4.80	513	--	17	29	91	100
15...	1304	415	--	17.6	5.02	552	--	13	27	86	100
15...	1305	415	--	18.4	4.59	708	--	9	22	90	100
15...	1306	250	12.6	2.90	4.48	154	--	40	55	97	100
15...	1307	250	--	6.30	4.37	215	--	29	45	99	100
15...	1308	250	--	9.00	3.61	320	--	22	36	97	100
15...	1309	250	--	10.5	3.28	315	--	16	30	98	100
15...	1310	250	--	11.3	3.28	377	--	15	31	98	100
15...	1315	365	17.4	--	--	203	10	16	--	--	--
15...	1326	100	9.00	2.10	3.83	175	--	41	56	100	--
15...	1327	100	--	4.50	3.39	186	--	35	49	99	100
15...	1328	100	--	6.40	3.28	242	--	29	45	98	100
15...	1329	100	--	7.50	2.74	271	--	29	41	97	100
15...	1330	100	--	8.10	2.74	328	--	--	--	--	--

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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												
03...	WATER TEMPERATURE, 16.0 C (1230-1130 HOURS); DISCHARGE, 31800 ft³/s.											
03...	1230	490	21.2	4.90	5.35	201	--	79	85	97	100	--
03...	1231	490	--	10.6	4.80	215	--	70	78	95	100	--
03...	1232	490	--	15.1	4.26	247	--	58	65	86	100	--
03...	1233	490	--	17.7	3.42	424	--	34	40	74	100	--
03...	1234	490	--	19.1	3.24	417	--	36	42	69	100	--
03...	1235	490	--	20.0	2.31	612	--	25	30	63	100	--
03...	1236	490	--	20.4	1.98	863	--	19	22	61	99	100
03...	1240	430	20.0	4.60	5.48	274	--	57	65	93	100	--
03...	1241	430	--	10.0	4.83	299	--	55	68	95	100	--
03...	1242	430	--	14.3	4.48	378	--	43	54	89	100	--
03...	1243	430	--	16.7	4.07	486	--	35	46	82	100	--
03...	1244	430	--	18.0	4.28	596	--	29	39	76	100	--
03...	1245	430	--	18.8	3.85	779	--	21	28	67	100	--
03...	1249	360	17.6	--	--	332	30	46	--	--	--	--
03...	1255	270	14.4	3.30	4.37	448	--	84	88	99	100	--
03...	1256	270	--	7.20	4.04	442	--	85	89	99	100	--
03...	1257	270	--	10.3	3.74	--	--	--	--	--	--	--
03...	1258	270	--	12.0	3.39	678	--	62	68	94	100	--
03...	1259	270	--	13.0	3.28	719	--	56	63	93	100	--
03...	1300	270	--	13.6	2.68	750	--	53	59	86	100	--
03...	1306	120	10.2	2.30	3.52	605	--	87	89	98	100	--
03...	1307	120	--	5.00	3.26	594	--	91	93	100	--	--
03...	1308	120	--	7.30	3.24	629	--	87	90	99	100	--
03...	1309	120	--	8.50	2.79	673	--	80	84	98	100	--
03...	1310	120	--	9.20	2.44	728	--	77	81	99	100	--
JUL												
15...	WATER TEMPERATURE, 25.0 C (1255-1345 HOURS); DISCHARGE, 32100 ft³/s.											
15...	1255	480	22.4	5.20	5.53	123	--	79	86	96	100	--
15...	1256	480	--	11.2	4.52	187	--	62	66	91	100	--
15...	1257	480	--	16.0	4.26	186	--	45	52	90	100	--
15...	1258	480	--	18.7	3.87	405	--	24	31	62	100	--
15...	1259	480	--	20.2	2.74	1220	--	8	12	40	98	100
15...	1300	480	--	21.1	1.79	219	--	36	45	75	100	--
15...	1301	480	--	21.6	1.20	1080	--	15	16	35	100	--
15...	1310	420	22.4	5.20	5.13	205	--	46	55	87	100	--
15...	1311	420	--	11.2	4.26	227	--	56	64	95	100	--
15...	1312	420	--	16.0	4.26	306	--	34	49	90	100	--
15...	1313	420	--	18.7	3.61	488	--	21	40	86	100	--
15...	1314	420	--	20.2	3.55	626	--	20	37	83	100	--
15...	1315	420	--	21.2	3.00	607	--	14	25	78	99	100
15...	1320	360	19.6	--	--	337	13	19	--	--	--	--
15...	1335	270	14.4	3.30	4.33	224	--	42	56	93	100	--
15...	1336	270	--	7.20	3.94	220	--	42	54	94	100	--
15...	1337	270	--	10.3	3.18	415	--	32	53	95	100	--
15...	1338	270	--	12.0	3.28	435	--	24	39	94	100	--
15...	1339	270	--	13.0	3.11	639	--	17	35	84	100	--
15...	1340	270	--	13.6	3.22	688	--	16	33	85	100	--
15...	1341	120	--	4.70	3.39	141	--	75	88	100	--	--
15...	1342	120	--	6.70	3.00	207	--	41	54	97	100	--
15...	1343	120	--	7.80	3.15	263	--	43	53	92	100	--
15...	1344	120	--	8.50	2.55	332	--	34	53	90	100	--
SEP												
02...	WATER TEMPERATURE, 24.0 C (1200-1300 HOURS); DISCHARGE, 32700 ft³/s.											
02...	1200	480	22.8	5.30	4.96	160	--	74	83	96	100	--
02...	1201	480	--	11.4	4.59	137	--	60	71	95	100	--
02...	1202	480	--	16.3	4.30	189	--	51	59	95	100	--
02...	1203	480	--	19.0	3.72	260	--	26	36	88	100	--
02...	1204	480	--	20.5	3.65	299	--	23	34	92	100	--
02...	1205	480	--	21.5	3.22	303	--	28	40	90	100	--
02...	1206	480	--	22.0	3.00	290	--	29	42	84	100	--
02...	1209	415	21.8	5.00	4.72	213	--	48	58	95	100	--
02...	1210	415	--	10.9	4.30	174	--	42	65	97	100	--
02...	1211	415	--	15.6	3.65	220	--	33	48	95	100	--
02...	1212	415	--	18.2	3.42	288	--	29	47	94	100	--
02...	1213	415	--	19.6	3.18	331	--	24	41	92	100	--
02...	1214	415	--	20.5	3.18	361	--	25	40	93	100	--
02...	1215	415	--	21.0	3.20	438	--	24	38	89	100	--
02...	1223	355	19.8	--	--	275	10	16	--	--	--	--
02...	1232	265	14.6	3.40	4.22	194	--	37	55	97	100	--
02...	1233	265	--	7.30	3.72	173	--	36	50	92	100	--
02...	1234	265	--	10.4	3.39	265	--	27	40	92	100	--
02...	1235	265	--	12.2	2.96	346	--	18	30	86	100	--
02...	1236	265	--	13.1	2.63	605	--	10	18	68	99	100
02...	1237	265	--	13.7	2.05	449	--	15	26	63	98	100
02...	1243	140	9.80	2.30	4.00	150	--	47	58	94	100	--
02...	1244	140	--	4.90	3.70	192	--	43	54	94	100	--
02...	1245	140	--	7.00	3.22	185	--	41	51	92	100	--
02...	1246	140	--	8.20	3.07	235	--	36	46	91	100	--
02...	1247	140	--	8.80	2.92	222	--	38	47	87	100	--

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	NUMBER OF SAMPLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
OCT 11...	1505	5	0	2	38	93	99	100	--	--	--
APR 17...	1515	5	--	0	16	87	98	99	99	100	--
MAY 29...	1213	5	--	0	15	85	99	100	--	--	--
JUL 10...	1304	5	--	0	16	82	98	99	99	100	--
AUG 28...	1258	5	0	1	19	88	98	99	100	--	--

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

OCT 16...	1423	5	0	1	17	84	99	100	--	--	--
APR 16...	1130	5	0	1	11	94	100	--	--	--	--
JUN 04...	1345	5	--	0	12	76	98	100	--	--	--
JUL 16...	1245	5	--	0	10	68	97	98	98	99	100
AUG 27...	1240	5	--	0	11	70	95	97	98	100	--

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

OCT 15...	1230	5	--	0	11	72	95	97	98	100	--
APR 15...	1340	5	0	1	26	98	100	--	--	--	--
JUN 3...	1330	5	0	1	21	91	99	100	--	--	--
JUL 15...	1320	5	0	1	16	87	99	100	--	--	--
SEP 2...	1300	5	0	1	18	82	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 (3.1 km) downstream from West Branch, and 3.6 mi (5.8 km) upstream from mouth.

DRAINAGE AREA.--65.1 mi² (169 km²).

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 (338.950 m) NGVD (city of Sioux City benchmark). Prior to May 20, 1954, nonrecording gage with supplementary water-stage recorder in operation above 5.0 ft (1.524 m), gage height and May 20, 1954 to Sept. 30, 1969, water-stage recorder at present site at datum 5.0 ft (1.524 m) higher.

REMARKS.--Records fair except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years (water years 1946-69, 1982), 14.7 ft³/s (0.416 m³/s)3.07 in/yr (78 mm/yr), 10,650 acre-ft/yr (13.1 hm³/yr); median of yearly mean discharges, 10 ft³/s (0.28 m³/s), 2.1 in/yr (53 mm/yr) 7,300 acre-ft/yr (9.00 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 7,780 ft³/s (220 m³/s) Sept. 10, 1949, gage height, 26.80 ft (8.169 m), present datum, from rating curve extended above 1,700 ft³/s (48.1 m³/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 (9.296 m), from floodmarks, present datum, discharge, 9,600 ft³/s (272 m³/s), on basis of contracted-opening measurement of peak flow by Corps of Engineers.

EXTREMES FOR CURRENT PERIOD.--June 1981 to September 1982. Peak discharges above base of 800 ft³/s (22.7 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 28, 1981	2215	1,210	34.3	11.76	3.584
June 29, 1981	1015	1,580	44.7	13.00	3.962
July 3, 1981	1215	*1,910	54.1	*13.99	4.264
Feb. 23, 1982	Unknown	*2,120	60.0	a*14.60	4.450

a From floodmark

Minimum daily discharge (June to September 1981), 0.28 ft³/s (0.008 m³/s) June 11-13.

Minimum daily discharge (water year 1982), 0.20 ft³/s (0.006 m³/s) Feb. 3-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									.30	5.8	3.7	.59
2									.30	4.3	4.1	.56
3									1.0	477	3.4	.53
4									.80	33	5.4	.50
5									.60	12	3.0	.44
6									.50	6.4	2.1	.59
7									.40	5.0	1.8	2.2
8									.35	4.5	1.8	1.8
9									.32	3.9	1.7	1.6
10									.30	3.6	1.6	1.4
11									.28	3.5	2.3	1.3
12									.28	3.2	2.0	1.2
13									.28	3.0	3.6	1.1
14									3.0	2.9	3.9	.97
15									2.0	4.1	1.9	.88
16									1.5	2.8	1.5	.84
17									1.2	4.1	1.2	.70
18									1.1	13	1.1	.70
19									1.0	9.4	1.1	.70
20									1.0	4.2	1.0	.66
21									.88	2.8	1.0	.59
22									.77	2.5	.92	.50
23									1.0	2.5	.77	.47
24									1.0	2.4	.73	.47
25									.59	2.4	1.4	.50
26									.47	2.3	1.2	1.0
27									.41	3.1	1.0	.70
28									121	2.8	.88	.66
29									397	2.5	.84	.63
30									17	2.4	.72	.59
31									---	2.5	.60	---
TOTAL									556.63	633.9	58.26	25.37
MEAN									18.6	20.4	1.88	.85
MAX									397	477	5.4	2.2
MIN									.28	2.3	.60	.44
CFSM									.29	.31	.03	.01
IN.									.32	.36	.03	.01
AC-FT									1100	1260	116	50

PERRY CREEK BASIN

06600000 PERRY CREEK AT 38th STREET, SIOUX CITY, IA

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.59	1.0	2.7	.40	.25	33	5.7	5.7	6.1	3.7	2.8	1.3
2	.56	1.3	2.2	.40	.25	29	5.7	5.6	4.8	3.7	2.8	1.1
3	.92	1.1	2.0	.40	.20	10	5.7	4.4	4.6	3.5	3.5	1.2
4	.59	1.1	2.1	.40	.20	9.0	5.8	4.3	4.2	3.4	4.2	1.2
5	.59	1.1	1.8	.40	.20	7.1	5.7	5.3	3.7	3.7	5.0	1.2
6	.59	.97	1.9	.40	.20	6.6	5.8	5.2	3.7	157	3.0	.94
7	.56	.97	1.9	.40	.20	6.3	7.0	4.9	3.2	11	2.8	1.2
8	.56	.88	1.3	.37	.20	5.7	6.6	5.3	3.2	6.1	2.7	1.1
9	.53	.81	2.0	.35	.20	5.5	6.5	5.7	3.4	48	2.5	1.2
10	.53	.77	.92	.35	.20	8.3	7.6	5.5	3.0	32	2.7	1.2
11	.56	.73	.97	.35	.20	25	7.6	4.5	2.8	5.8	2.3	1.1
12	.50	.66	1.0	.35	.20	9.2	6.3	6.2	2.8	4.7	2.1	1.9
13	.59	.73	.80	.35	.20	15	5.7	7.7	2.4	4.1	2.1	1.5
14	4.3	.70	.50	.35	.20	14	5.1	14	3.2	4.0	2.4	1.1
15	4.8	.70	.40	.35	.20	8.6	5.0	7.4	3.6	4.1	2.4	.99
16	4.0	.70	.50	.35	.20	6.9	4.8	5.4	2.9	3.9	2.2	.97
17	7.1	.66	.50	.35	.20	6.4	4.5	6.4	2.9	3.9	2.3	1.0
18	1.9	.63	.50	.35	.30	5.7	4.3	6.8	4.4	53	2.2	1.1
19	.92	.77	.50	.30	.50	31	4.1	6.4	2.9	8.6	2.4	1.0
20	.73	.73	.50	.30	1.0	18	4.1	22	2.8	12	2.1	1.3
21	.50	.66	.50	.30	10	6.9	4.3	7.7	2.7	14	2.1	1.1
22	.44	.59	.50	.30	50	6.1	4.5	5.6	3.2	5.8	1.7	1.1
23	.41	.53	.50	.30	451	5.9	5.1	5.4	3.4	4.5	1.6	1.2
24	.66	.47	.50	.30	34	5.7	4.7	6.1	3.5	4.0	2.8	1.2
25	.59	.56	.45	.30	16	4.8	4.9	22	3.2	3.7	3.0	1.3
26	.59	.56	.45	.30	9.7	4.1	4.9	36	3.3	3.6	2.4	1.3
27	.56	.50	.45	.25	8.5	4.5	4.8	11	3.2	3.4	2.0	1.3
28	.53	.44	.45	.25	15	5.0	4.7	7.3	3.4	3.2	1.9	1.3
29	.50	.47	.45	.25	---	5.5	5.3	6.2	3.3	2.9	2.2	1.4
30	.53	2.6	.45	.25	---	6.0	5.6	73	3.8	2.8	2.0	2.7
31	.77	---	.45	.25	---	5.7	---	21	---	2.7	1.2	---
TOTAL	37.50	24.39	30.14	10.32	599.50	320.5	162.4	340.0	103.6	426.8	77.4	37.50
MEAN	1.21	.81	.97	.33	21.4	10.3	5.41	11.0	3.45	13.8	2.50	1.25
MAX	7.1	2.6	2.7	.40	451	33	7.6	73	6.1	157	5.0	2.7
MIN	.41	.44	.40	.25	.20	4.1	4.1	4.3	2.4	2.7	1.2	.94
CFSM	.02	.01	.02	.005	.33	.16	.08	.17	.05	.21	.04	.02
IN.	.02	.01	.02	.01	.34	.18	.09	.19	.06	.24	.04	.02
AC-FT	74	48	60	20	1190	636	322	674	205	847	154	74

WTR YR 1982 TOTAL 2170.05 MEAN 5.95 MAX 451 MIN .20 CFSM .09 IN 1.24 AC-FT 4300

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 at downstream side of Chicago and Northwestern Railway Company bridge at east edge of Alton, 34.3 mi (55.2 km) upstream from West Branch Floyd River, and at mile 58.1 (93.5 km).

DRAINAGE AREA.--268 mi² (694 km²), revised.

PERIOD OF RECORD.--October 1955 to current year. Prior to December 1955, monthly discharge only, published in WSP 1730.

GAGE.--Water-stage recorder. Datum of gage is 1,269.55 ft (386.959 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station. Corps of Engineers rain-gage and gage-height satellite telemeter at station.

AVERAGE DISCHARGE.--27 years, 50.8 ft³/s (1.439 m³/s), 2.57 in/yr (65 mm/yr), 36,800 acre-ft/yr (45.4 hm³/yr); median of yearly mean discharges, 52 ft³/s (1.47 m³/s), 2.7 in/yr (69 mm/yr), 37,700 acre-ft/yr (46.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s (396 m³/s) Mar. 23, 1979, gage height, 18.4 ft (5.61 m); 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 (1,290 m³/s), from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft³/s (22.7 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 23	1115	1,500	42.5	14.35	4.374	July 6	Unknown	a*3,270	92.6	*16.39	4.996

Minimum daily discharge, 0.20 ft³/s (0.006 m³/s) Feb. 9-17.

a From floodmark

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	12	6.4	4.2	.60	120	56	32	364	67	53	34
2	4.9	15	9.9	4.0	.60	100	54	31	252	63	50	45
3	5.2	9.8	17	3.8	.50	90	35	30	206	61	45	46
4	7.5	10	14	3.6	.50	80	37	30	180	57	42	41
5	11	12	9.8	3.4	.40	75	49	31	160	135	40	37
6	12	9.7	14	3.2	.40	70	67	32	155	1750	38	34
7	9.5	9.4	17	3.0	.30	65	56	31	172	1010	36	33
8	8.5	9.0	13	2.8	.30	60	61	29	148	331	35	32
9	8.4	8.9	8.2	2.6	.20	60	59	28	135	292	29	31
10	8.4	8.3	10	2.4	.20	65	62	28	125	393	24	31
11	14	8.6	14	2.2	.20	79	70	29	115	306	21	30
12	11	8.6	15	2.0	.20	89	74	30	110	215	22	29
13	8.1	8.9	15	1.8	.20	111	69	37	101	175	24	42
14	11	8.8	14	1.6	.20	114	62	39	100	157	23	87
15	13	8.4	12	1.4	.20	117	61	81	114	144	22	73
16	9.2	6.9	10	1.3	.20	100	62	101	121	137	23	66
17	14	6.9	9.5	1.2	.20	89	60	105	114	119	23	60
18	17	8.9	9.0	1.1	.30	82	56	119	107	112	18	53
19	16	7.8	8.5	1.0	.45	94	54	158	99	103	18	46
20	14	3.9	8.0	1.0	6.0	182	50	133	92	98	18	41
21	13	6.3	7.5	1.0	88	184	46	118	87	112	17	36
22	12	7.5	7.0	.90	472	137	44	104	82	123	16	33
23	11	10	6.5	.90	1230	100	42	95	79	102	15	32
24	12	14	6.0	.90	919	89	39	89	77	92	18	31
25	15	14	5.7	.80	700	76	39	88	118	86	22	29
26	15	15	5.4	.80	400	64	38	191	105	79	23	28
27	13	9.9	5.2	.80	200	57	35	477	86	74	22	28
28	15	11	5.0	.70	150	54	33	349	78	69	22	27
29	14	9.5	4.8	.70	---	53	33	285	72	66	20	34
30	12	14	4.6	.70	---	54	33	440	71	61	20	44
31	11	---	4.4	.60	---	58	---	520	---	56	24	---
TOTAL	350.8	293.0	296.4	56.40	4171.15	2768	1536	3890	3825	6645	823	1213
MEAN	11.3	9.77	9.56	1.82	149	89.3	51.2	125	128	214	26.5	40.4
MAX	17	15	17	4.2	1230	184	74	520	364	1750	53	87
MIN	4.9	3.9	4.4	.60	.20	53	33	28	71	56	15	27
CFSM	.04	.04	.04	.007	.56	.34	.19	.47	.48	.81	.10	.15
IN.	.05	.04	.04	.01	.59	.39	.22	.55	.54	.93	.12	.17
AC-FT	696	581	588	112	8270	5490	3050	7720	7590	13180	1630	2410

CAL YR 1981	TOTAL	11652.10	MEAN 31.9	MAX 1240	MIN 1.9	CFSM .12	IN 1.64	AC-FT 23110			
WTR YR 1982	TOTAL	25867.75	MEAN 70.9	MAX 1750	MIN .20	CFSM .27	IN 3.63	AC-FT 51310			

06600300 WEST BRANCH FLOYD RIVER NEAR STRUBLE, IA

LOCATION (revised).--Lat 42°55'25", long 95°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 (0.2 km) west of U.S. Highway 75, 0.8 mi (1.3 km) downstream from Orange City slough, 2.2 mi (3.5 km) north- east of 21.4 mi (34.4 km) upstream from Floyd River, and at mile 45.2 (72.7 km), above mouth of Floyd River.

DRAINAGE AREA.--180 mi² (466 km²), revised.

PERIOD OF RECORD.--October 1955 to current year. Prior to December 1955, monthly discharge only, published in WSP 1730.

REVISED RECORDS.--WDR IOWA 1965: 1962 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,239.40 ft (377.769 m) NGVD (State Highway Commission bench mark). Prior to Jan. 5, 1978, at site 721 ft (22.0 m) right at old channel at same datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--27 years, 31.7 ft³/s (0.898 m³/s), 2.39 in/yr (61 mm/yr), 22,970 acre-ft/yr (28.3 hm³/yr); median of yearly mean discharges, 30 ft³/s (0.85 m³/s), 2.3 in/yr (58 mm/yr), 21,700 acre-ft/yr (26.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,060 ft³/s (228 m³/s) Mar. 28, 1962, gage height, 15.63 ft (4.764 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 8, 1953 reached a discharge of 30,500 ft³/s (864 m³/s), by computation of flow at bridge on State Highway 3, 11.3 mi (18.2 km) downstream, drainage area, 224 sq mi (580 km²).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 23	Unknown	*2,830	80.1	*a14.63	4.459	May 27	0330	621	17.6	7.82	2.384

Minimum daily discharge, 1.0 ft³/s (0.028 m³/s) Dec. 26 to Feb. 17.
a From floodmark

REVISIONS.--The peak stages and maximum (*) for some water years have been revised, as shown in the following table. They supersede figures published in reports for 1978-81.

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
EXTREMES FOR 1978 WATER YEAR											
Mar. 19	1900	2,550	72.2	13.41	4.087	July 21	1130	815	23.1	8.79	2.679
July 6	0200	*3,220	91.2	*14.19	4.325	July 22	1130	2,370	67.1	13.14	4.005
EXTREMES FOR 1979 WATER YEAR											
Mar. 20	----	830	23.5	ice jam	----	Mar. 30	1000	2,150	60.9	12.77	3.892
Mar. 22	2345	*6,880	195	*15.16	4.621	May 10	1200	962	27.2	9.26	2.822
Mar. 29	0400	1,360	38.5	10.66	3.249	July 30	0500	636	18.0	8.03	2.448
EXTREMES FOR 1980 WATER YEAR											
Oct. 31	1030	659	18.7	8.15	2.484	June 7	0400	1,140	32.3	9.95	3.033
May 30	0115	*2,390	67.7	*13.17	4.014	July 4	1115	432	12.2	7.11	2.167
June 5	0645	444	12.6	7.17	2.185						
EXTREMES FOR 1981 WATER YEAR											
June 14	0800	*1,310	37.1	10.87	3.313	July 4	0515	1,150	32.6	10.33	3.149

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	5.6	5.0	1.0	1.0	48	32	35	112	25	12	20
2	9.2	5.5	6.0	1.0	1.0	49	30	35	97	20	10	19
3	9.5	5.7	5.5	1.0	1.0	27	25	34	87	19	8.7	14
4	9.9	5.9	5.5	1.0	1.0	54	20	34	78	18	7.4	10
5	9.5	6.0	5.5	1.0	1.0	39	18	33	72	31	6.9	9.0
6	8.7	5.9	5.5	1.0	1.0	24	18	30	73	119	6.8	8.3
7	8.4	6.0	5.4	1.0	1.0	22	20	29	69	40	7.0	7.8
8	9.5	5.9	5.7	1.0	1.0	26	25	24	62	28	7.1	7.8
9	8.2	5.9	5.0	1.0	1.0	53	37	23	59	51	7.1	7.4
10	8.3	6.4	4.0	1.0	1.0	58	42	23	56	42	8.0	7.1
11	7.5	6.1	4.0	1.0	1.0	80	45	23	53	37	8.2	6.9
12	7.6	6.2	3.0	1.0	1.0	80	45	22	52	33	8.1	8.0
13	7.4	6.2	3.0	1.0	1.0	76	40	25	49	30	7.7	7.2
14	7.9	6.2	3.0	1.0	1.0	140	36	27	51	27	7.7	7.0
15	7.5	6.2	3.0	1.0	1.0	79	36	29	59	27	7.3	6.7
16	7.4	6.0	2.0	1.0	1.0	52	36	32	56	27	7.5	6.3
17	7.8	6.0	2.0	1.0	1.0	41	35	34	54	23	7.8	6.5
18	8.4	6.1	2.0	1.0	2.0	35	34	46	53	21	7.6	6.6
19	7.1	4.0	2.0	1.0	3.0	45	33	52	50	18	7.5	6.3
20	7.0	5.0	2.0	1.0	4.0	194	32	49	48	16	7.5	6.2
21	7.2	6.0	2.0	1.0	171	86	30	45	45	21	7.3	5.9
22	7.0	7.5	2.0	1.0	1300	62	30	43	45	20	7.4	5.9
23	7.0	6.6	2.0	1.0	2100	56	29	41	42	17	7.3	6.0
24	7.2	5.9	2.0	1.0	293	49	29	38	41	17	9.9	6.3
25	7.0	5.9	2.0	1.0	105	43	29	40	35	18	11	6.1
26	6.6	6.2	1.0	1.0	78	39	29	76	33	16	7.9	6.8
27	6.4	6.0	1.0	1.0	42	36	28	272	34	15	7.0	6.6
28	6.4	5.8	1.0	1.0	24	35	30	124	34	14	6.4	7.6
29	6.3	5.0	1.0	1.0	---	35	32	133	33	13	6.8	12
30	6.1	4.0	1.0	1.0	---	35	34	144	35	14	13	9.8
31	5.8	---	1.0	1.0	---	35	---	151	---	12	18	---
TOTAL	239.2	175.7	95.1	31.0	4139.0	1733	939	1746	1667	829	259.9	251.1
MEAN	7.72	5.86	3.07	1.00	148	55.9	31.3	56.3	55.6	26.7	8.38	8.37
MAX	9.9	7.5	6.0	1.0	2100	194	45	272	112	119	18	20
MIN	5.8	4.0	1.0	1.0	1.0	22	18	22	33	12	6.4	5.9
CFSM	.04	.03	.02	.006	.82	.31	.17	.31	.31	.15	.05	.05
IN.	.05	.04	.02	.01	.85	.36	.19	.36	.34	.17	.05	.05
AC-FT	474	349	189	61	8210	3440	1860	3460	3310	1640	516	498

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 (0.3 km) east of James, 14.3 mi (23.0 km) downstream from West Branch Floyd River, and at mile 9.5 (15.3 km).

DRAINAGE AREA.--886 mi² (2,295 km²).

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 (333.021 m) 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 (3.048 m) higher.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station. Corps of Engineers rain-gage and gage-height satellite telemeter at station.

AVERAGE DISCHARGE.--47 years (water years 1936-82), 181 ft³/s (5.126 m³/s), 2.77 in/yr (70 mm/yr), 131,000 acre-ft/yr (163 hm³/yr); median of yearly mean discharges, 150 ft³/s (4.25 m³/s), 2.3 in/yr (58 mm/yr), 109,000 acre-ft/yr (134 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,500 ft³/s (2,020 m³/s) June 8, 1953, gage height, 25.3 ft (7.71 m), from floodmarks, datum then in use, from rating curve extended above 16,000 ft³/s (453 m³/s) on basis of contracted-opening and flow-over-embankment measurement of peak flow; minimum daily, 0.90 ft³/s (0.025 m³/s) Jan. 10-22, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage and discharge since 1892, that of June 8, 1953, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 24	unknown	*5,220	148	a*19.10	5.822	July 11	0930	3,890	110	17.43	5.313
July 8	0415	3,130	88.6	16.42	5.005						

a From floodmark.

Minimum daily discharge, 9.0 ft³/s (0.25 m³/s) Feb. 6-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	49	72	14	10	500	170	94	1020	176	153	105
2	39	48	62	14	10	400	170	92	708	155	151	113
3	39	49	62	14	10	350	154	89	575	145	143	123
4	45	53	68	14	10	300	130	85	488	138	171	115
5	45	53	68	13	10	250	143	85	438	128	138	98
6	44	52	65	13	9.0	230	144	86	400	1080	129	88
7	42	52	67	13	9.0	210	182	87	379	2410	121	82
8	42	51	74	13	9.0	200	167	84	382	2250	114	76
9	43	49	66	13	9.0	210	175	84	353	1220	106	74
10	42	50	66	12	9.0	230	174	77	323	2270	102	73
11	42	51	60	12	9.0	266	204	74	297	2800	99	72
12	41	52	55	12	9.0	282	232	78	284	1020	94	84
13	44	52	50	12	9.0	303	200	84	265	753	90	100
14	49	51	46	12	9.0	339	182	85	255	637	90	125
15	51	50	42	12	9.0	349	173	103	266	567	85	162
16	49	49	38	11	9.0	307	168	127	264	502	84	147
17	60	49	34	11	9.0	271	162	158	271	444	82	129
18	64	49	30	11	9.0	239	156	196	262	458	82	118
19	60	50	28	11	10	285	147	215	244	378	81	109
20	57	52	26	11	20	540	136	322	227	357	76	99
21	56	50	24	11	100	557	132	287	210	354	73	92
22	56	62	22	11	500	415	133	252	196	359	71	84
23	56	60	20	11	2000	320	127	223	186	338	67	78
24	56	60	19	11	3730	287	120	206	192	291	73	75
25	57	60	18	10	1430	252	112	207	555	256	74	73
26	59	60	17	10	900	221	114	232	337	233	75	70
27	57	60	16	10	700	203	118	519	263	215	70	68
28	57	60	15	10	600	194	114	849	218	202	65	67
29	54	59	15	10	---	187	99	704	193	187	65	68
30	52	58	15	10	---	192	96	827	186	176	77	87
31	51	---	14	10	---	173	---	1360	---	161	79	---
TOTAL	1548	1600	1274	362	10157.0	9062	4534	7971	10237	20660	2980	2854
MEAN	49.9	53.3	41.1	11.7	363	292	151	257	341	666	96.1	95.1
MAX	64	62	74	14	3730	557	232	1360	1020	2800	171	162
MIN	39	48	14	10	9.0	173	96	74	106	128	65	67
CFSM	.06	.06	.05	.01	.41	.33	.17	.29	.39	.75	.11	.11
IN.	.06	.07	.05	.02	.43	.38	.19	.33	.43	.87	.13	.12
AC-FT	3070	3170	2530	718	20150	17970	8990	15810	20310	40980	5910	5660

CAL YR 1981 TOTAL 43812.0 MEAN 120 MAX 2350 MIN 14 CFSM .14 IN 1.84 AC-FT 86900
WTR YR 1982 TOTAL 73239.0 MEAN 201 MAX 3730 MIN 9.0 CFSM .23 IN 3.08 AC-FT 145300

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 (1.6 km) east of Hornick, 9.2 mi (14.8 km) upstream from Wolf Creek, and 13.5 mi (21.7 km) north of Onawa.

DRAINAGE AREA.--403 mi² (1,044 km²).

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 (318.766 m) NGVD. Prior to June 16, 1959, nonrecording gage at site 3.0 mi (4.8 km) upstream and June 16, 1959 to Sept. 30, 1969, recording gage at site 2.2 mi (3.5 km) upstream at datum 7.0 ft (2.134 m) higher.

REMARKS.--Records good except those for winter period, which are poor. West Fork ditch is a dredged channel which diverts flow of West Fork Little Sioux River at Holly Springs 5.5 mi (8.8 km) south, thence southeast 6.5 mi (10.5 km) to a point 1.2 mi (1.9 km) west of Kennebec, where Wolf Creek enters from left. From this point, ditch roughly parallels Little Sioux River and becomes known as Monona-Harrison ditch. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--38 years (water years 1940-69, 1975-82), 93.1 ft³/s (2.637 m³/s), 3.14 in/yr (80 mm/yr), 67,450 acre-ft/yr (83.2 hm³/yr); median of yearly mean discharges, 84 ft³/s (2.38 m³/s), 2.8 in/yr (71 hm/yr), 60,900 acre-ft/yr (75.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft³/s (351 m³/s) Mar. 28, 1962, gage height, 22.46 ft (6.846 m), site and datum then in use; maximum gage height, 25.2 ft (7.681 m), site and datum then in use, Mar. 30, 1960, from floodmark; minimum daily discharge, 0.2 ft³/s (0.006 m³/s) July 30, Aug. 17, 1956.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft³/s (51.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 23	unknown	*4,710	133	a*18.80	5.730	July 11	0845	2,710	766.7	15.15	4.618

a From floodmark.

Minimum daily discharge, 5.0 ft³/s (0.14 m³/s) Feb. 6-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	17	27	11	5.5	215	55	37	188	34	67	33
2	13	18	23	11	5.5	307	51	37	151	33	65	32
3	15	19	24	11	5.5	160	79	36	140	31	57	29
4	17	19	29	10	5.5	90	34	34	129	28	58	27
5	19	19	24	10	5.5	70	42	33	117	28	145	27
6	16	19	23	10	5.0	60	46	36	102	176	73	25
7	15	19	26	10	5.0	50	63	36	86	240	62	25
8	14	18	25	9.0	5.0	40	53	35	63	342	55	25
9	14	18	20	9.0	5.0	35	60	34	61	244	50	24
10	14	18	19	9.0	5.0	50	67	33	57	725	46	25
11	14	18	17	8.0	5.0	200	77	225	52	1930	43	27
12	14	20	15	8.0	5.0	100	94	66	48	396	40	54
13	14	20	17	8.0	5.0	114	91	46	46	249	39	94
14	18	20	19	7.5	5.0	128	69	49	44	207	38	78
15	26	20	18	7.5	5.0	115	61	194	45	192	38	57
16	23	19	17	7.5	5.0	91	58	176	44	164	36	44
17	27	19	16	7.0	5.0	83	57	144	40	150	38	39
18	32	21	15	7.0	10	72	54	187	44	194	37	36
19	26	21	15	6.5	15	117	47	224	42	277	36	33
20	23	20	14	6.5	40	535	45	373	39	177	34	31
21	20	20	14	6.0	160	270	44	158	36	160	32	30
22	17	20	14	6.0	1700	133	44	95	33	335	31	29
23	20	23	13	6.0	3730	103	44	82	31	203	30	29
24	18	24	13	6.0	1100	92	42	75	29	142	42	28
25	17	23	13	5.5	313	81	40	101	27	120	38	26
26	18	23	13	5.5	162	72	40	138	25	123	32	27
27	18	22	12	5.5	138	68	39	244	34	103	29	26
28	17	21	12	5.5	143	64	38	239	28	91	27	25
29	17	21	12	5.5	---	64	39	165	24	82	28	26
30	17	21	12	5.5	---	63	38	139	33	77	29	129
31	17	---	11	5.5	---	57	---	345	---	73	32	---
TOTAL	563	600	542	236.0	7598.5	3699	1611	3816	1838	7326	1407	1140
MEAN	18.2	20.0	17.5	7.61	271	119	53.7	123	61.3	236	45.4	38.0
MAX	32	24	29	11	3730	535	94	373	188	1930	145	129
MIN	13	17	11	5.5	5.0	35	34	33	24	28	27	24
CFSM	.05	.05	.04	.02	.67	.30	.13	.31	.15	.59	.11	.09
IN.	.05	.06	.05	.02	.70	.34	.15	.35	.17	.68	.13	.11
AC-FT	1120	1190	1080	468	15070	7340	3200	7570	3650	14530	2790	2260

CAL YR 1981 TOTAL 15521.0 MEAN 42.5 MAX 1530 MIN 10 CFSM .11 IN 1.43 AC-FT 30790
WTR YR 1982 TOTAL 30376.5 MEAN 83.2 MAX 3730 MIN 5.0 CFSM .21 IN 2.80 AC-FT 60250

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 (1.6 km) west of gaging station on Little Sioux River near Turin, 4 mi (6.4 km) southwest of Turin, 5.2 mi (8.4 km) northeast of Blencoe, and 12.5 mi (20.1 km) upstream from mouth.

DRAINAGE AREA.--900 mi² (2,331 km²).

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 (2.4 km) upstream. Prior to May 1942, published as "near Blencoe".

GAGE.--Water-stage recorder. Datum of gage is 1,015.00 ft (309.372 m) NGVD (Corps of Engineers bench mark). Prior to May 7, 1942, nonrecording gage at site 4.8 mi (7.7 km) downstream at datum 5.40 ft (1.646 m) 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 (1.524 m) higher.

REMARKS.--Records good except those for winter period, which are poor. Monona-Harrison ditch is a dug channel and and is a continuation of West Fork ditch, paralleling the Little Sioux River, and discharging into the Missouri River 1.5 mi (2.4 km) upstream from the mouth of the Little Sioux River. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years (water years 1959-82), 201 ft³/s (5.692 m³/s), 3.03 in/yr (77 mm/yr), 145,600 acre-ft/yr (180 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,900 ft³/s (564 m³/s) Feb. 10, 1971, gage height, 23.03 ft (7.020 m), datum then in use; minimum daily, 8.5 ft³/s (0.24 m³/s) Jan. 3-11, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 22	Unknown	*5,510	156	a*18.96	5.779	Feb. 23	0800	5,320	151	b18.74	5.712

a From floodmark.

b Observed.

Minimum daily discharge, 17 ft³/s (0.48 m³/s) Feb. 9-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	34	45	33	21	306	85	59	382	146	120	79
2	30	36	35	33	21	270	82	57	232	116	115	74
3	35	40	44	33	20	230	55	57	210	114	108	66
4	37	41	48	33	20	213	61	57	197	98	103	60
5	39	37	44	32	19	275	70	57	173	91	183	57
6	40	35	40	32	19	225	73	58	167	1080	146	55
7	38	35	43	32	18	175	87	63	149	936	119	52
8	36	34	45	32	18	121	85	59	140	573	110	52
9	36	31	43	31	17	91	83	58	135	403	107	52
10	34	32	34	31	17	123	98	58	128	1630	111	51
11	36	33	32	31	17	175	110	1110	123	1990	109	58
12	36	35	40	31	17	207	120	290	121	931	109	282
13	38	35	44	30	17	280	124	140	113	429	105	500
14	37	36	39	30	17	270	106	108	112	317	100	299
15	52	37	34	30	17	257	105	147	121	280	102	163
16	70	35	30	29	17	205	100	399	116	274	100	115
17	55	35	26	29	17	179	88	167	109	223	98	93
18	64	35	32	28	20	195	82	420	135	376	96	84
19	67	37	40	28	25	240	78	231	174	451	95	79
20	49	22	38	27	30	282	66	656	129	300	94	71
21	42	25	36	27	500	260	64	856	115	251	91	68
22	37	30	35	26	4320	237	64	378	107	316	90	69
23	34	36	34	26	4210	200	64	219	101	307	86	67
24	36	38	34	25	2150	154	65	166	96	215	89	66
25	39	40	34	25	689	134	64	191	92	190	116	64
26	39	38	34	24	668	116	60	704	95	158	86	64
27	41	34	34	24	306	123	59	624	93	280	75	64
28	38	35	34	23	300	110	59	410	100	176	69	62
29	39	30	33	23	---	100	59	396	92	149	75	63
30	40	38	33	22	---	108	61	295	146	139	83	215
31	37	---	33	22	---	95	---	320	---	129	80	---
TOTAL	1281	1039	1150	882	13527	5956	2377	8810	4203	13068	3170	3144
MEAN	41.3	34.6	37.1	28.5	483	192	79.2	284	140	422	102	105
MAX	70	41	48	33	4320	306	124	1110	382	1990	183	500
MIN	30	22	26	22	17	91	55	57	92	91	69	51
CFSM	.05	.04	.04	.03	.54	.21	.09	.32	.16	.47	.11	.12
IN.	.05	.04	.05	.04	.56	.25	.10	.36	.17	.54	.13	.13
AC-FT	2540	2060	2280	1750	26830	11810	4710	17470	8340	25920	6290	6240

CAL YR 1981	TOTAL	22963	MEAN	62.9	MAX	1280	MIN 20	CFSM .07	IN .95	AC-FT	45550
WTR YR 1982	TOTAL	58607	MEAN	161	MAX	4320	MIN 17	CFSM .18	IN 2.42	AC-FT	116200

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 (3.7 km) upstream from lake outlet and 3.8 mi (6.1 km) northwest of Milford.

DRAINAGE AREA.--125 mi² (324 km²).

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 (424.208 m) NGVD, 94.51 ft (28.807 m) above Iowa Lake Survey datum, and about 4.0 ft (1.2 m) 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 (425.44 m) NGVD. Lake is used for conservation and recreation. Area of lake is approximately 3,900 acres (1,580 hm²).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 6.18 ft (1.884 m) July 7, 1962; minimum observed, 0.20 ft (0.061 m) Sept. 20, 1959.

EXTREMES FOR CURRENT PERIOD.--

Water year	Date	Maximum gage height (ft)	Maximum gage height (m)	Date	Minimum gage height (ft)	Minimum gage height (m)
1976	Mar. 30, 1976	4.35	1.326	Sept. 30, 1976	2.38	0.725
1977	Apr. 21, 1977	2.59	.789	Sept. 28, 1977	1.70	.518
1978	July 23, 1978	4.75	1.448	Oct. 30, 1977	1.83	.558
1979	Sept.24, 1979	5.07	1.545	Nov. 30, 1978	3.22	.981
1980	Oct. 1, 1979	4.97	1.515	Aug. 13, 1980	3.75	1.143
1981	Oct. 1, 1980	4.03	1.228	June 7, 1981	3.27	.997
1982	June 8, 1982	5.17	1.576	Nov. 22, 1981	3.26	.994

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.74	3.41	3.60	3.66	3.66	3.81	4.27	4.11	---	3.73	3.31	2.71
2	3.70	3.41	3.60	3.67	3.66	3.81	4.26	4.11	---	3.72	3.29	2.68
3	3.69	3.41	3.60	3.67	3.66	3.82	4.25	4.09	---	3.70	3.26	2.65
4	3.68	3.40	3.60	3.67	3.66	3.84	4.25	4.06	---	3.69	3.22	2.64
5	3.65	3.40	3.60	3.67	3.66	3.86	4.24	4.08	---	3.67	3.22	2.61
6	3.65	3.40	3.60	3.67	3.66	3.86	4.24	4.05	---	3.65	3.19	2.59
7	3.62	3.40	3.60	3.67	3.65	3.86	4.23	4.04	---	3.65	3.16	2.56
8	3.62	3.40	3.60	3.67	3.65	3.86	4.21	4.01	3.80	3.63	3.13	2.55
9	3.61	3.50	3.60	3.67	3.65	3.86	4.19	4.01	3.78	3.60	3.10	2.52
10	3.62	3.55	3.60	3.67	3.65	3.87	4.19	4.00	3.81	3.59	3.09	2.48
11	3.60	3.53	3.61	3.67	3.65	3.89	4.19	4.00	3.81	3.59	3.07	2.46
12	3.59	3.54	3.60	3.67	3.66	4.03	4.15	3.99	3.79	3.58	3.07	2.44
13	3.59	3.53	3.61	3.67	3.66	4.09	4.15	4.00	3.76	3.55	3.06	2.48
14	3.58	3.51	3.65	3.67	3.66	4.10	4.15	4.00	3.75	3.54	3.05	2.50
15	3.56	3.51	3.65	3.67	3.74	4.11	4.16	4.00	3.70	3.54	3.03	2.49
16	3.55	3.50	3.65	3.67	3.74	4.13	4.16	4.00	3.70	3.51	3.02	2.47
17	3.54	3.51	3.65	3.67	3.75	4.14	4.16	3.96	3.68	3.49	3.00	2.45
18	3.53	3.51	3.65	3.67	3.76	4.15	4.16	3.95	3.71	3.47	2.99	2.44
19	3.52	3.54	3.65	3.67	3.76	4.16	4.17	---	3.68	3.45	2.98	2.52
20	3.52	3.67	3.65	3.66	3.77	4.17	4.16	---	3.66	3.44	2.96	2.52
21	3.52	3.63	3.65	3.66	3.78	4.17	4.16	---	3.64	3.44	2.94	2.50
22	3.51	3.60	3.65	3.66	3.78	4.17	4.15	---	3.63	3.43	2.93	2.49
23	3.51	3.61	3.65	3.66	3.78	4.17	4.18	---	3.61	3.42	2.92	2.46
24	3.50	3.60	3.65	3.66	3.79	4.17	4.19	---	3.64	3.40	2.90	2.44
25	3.49	3.60	3.65	3.66	3.80	4.16	4.18	---	3.65	3.37	2.89	2.44
26	3.47	3.59	3.65	3.66	3.80	4.20	4.15	---	3.69	3.38	2.87	2.43
27	3.46	3.59	3.65	3.66	3.80	4.19	4.15	---	3.78	3.38	2.84	2.44
28	3.45	3.59	3.65	3.66	3.80	4.19	4.14	---	3.76	3.38	2.81	2.41
29	3.44	3.58	3.65	3.66	3.81	4.27	4.13	---	3.76	3.36	2.77	2.40
30	3.42	3.59	3.65	3.66	---	4.30	4.12	---	3.75	3.35	2.74	2.39
31	3.41	---	3.65	3.66	---	4.28	---	---	---	3.34	2.71	---
MEAN	3.56	3.52	3.63	3.67	3.72	4.05	4.18	---	---	3.52	3.02	2.51
MAX	3.74	3.67	3.65	3.67	3.81	4.30	4.27	---	---	3.73	3.31	2.71
MIN	3.41	3.40	3.60	3.66	3.65	3.81	4.12	---	---	3.34	2.71	2.39

06604200 WEST OKOBOJI LAKE AT LAKESIDE LABORATORY NEAR MILFORD, IA

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.39	2.05	1.83	1.86	1.84	1.84	---	2.51	2.44	2.22	1.80	1.73
2	2.38	2.04	1.83	1.86	1.84	1.84	---	2.51	2.43	2.21	1.79	1.73
3	2.37	2.02	1.83	1.86	1.84	1.84	---	2.51	2.41	2.18	1.78	1.73
4	2.37	2.01	1.83	1.86	1.84	1.84	---	2.52	2.40	2.18	1.77	1.72
5	2.35	1.99	1.83	1.86	1.84	1.84	---	2.53	2.38	2.17	1.76	1.72
6	2.33	1.99	1.84	1.86	1.84	1.84	---	2.53	2.37	2.16	1.76	1.72
7	2.30	1.99	1.84	1.85	1.83	1.84	---	2.53	2.35	2.17	1.75	1.82
8	2.27	1.97	1.85	1.85	1.83	1.84	---	2.53	2.32	2.16	1.75	1.85
9	2.27	1.96	1.85	1.85	1.83	1.84	---	2.52	2.30	2.13	1.78	1.84
10	2.26	1.95	1.85	1.85	1.83	1.84	---	2.51	2.25	2.11	1.78	1.83
11	2.25	1.94	1.85	1.85	1.83	1.84	---	2.50	2.23	2.13	1.78	1.80
12	2.24	1.92	1.85	1.85	1.83	1.89	2.33	2.47	2.22	2.13	1.79	1.81
13	2.22	1.92	1.85	1.85	1.83	1.96	2.50	2.45	2.20	2.12	1.78	1.81
14	2.19	1.92	1.86	1.85	1.83	2.02	2.50	2.45	2.17	2.11	1.78	1.80
15	2.16	1.92	1.86	1.85	1.83	2.07	2.51	2.45	2.22	2.10	1.83	1.78
16	2.15	1.92	1.86	1.85	1.83	2.11	2.51	2.46	2.34	2.09	1.84	1.77
17	2.13	1.92	1.86	1.85	1.83	2.15	2.50	2.46	2.38	2.10	1.82	1.76
18	2.13	1.91	1.86	1.85	1.83	2.19	2.51	2.46	2.37	2.09	1.80	1.76
19	2.14	1.90	1.86	1.85	1.83	2.22	2.53	2.45	2.36	2.07	1.78	1.75
20	2.11	1.89	1.86	1.85	1.83	2.24	2.54	2.44	2.35	2.06	1.77	1.74
21	2.10	1.88	1.86	1.85	1.83	2.26	2.58	2.45	2.34	2.05	1.78	1.73
22	2.10	1.87	1.86	1.85	1.83	2.28	2.58	2.47	2.34	2.06	1.76	1.73
23	2.11	1.86	1.86	1.85	1.83	2.29	2.58	2.46	2.33	1.99	1.76	1.77
24	2.12	1.86	1.86	1.84	1.84	2.30	2.58	2.46	2.32	1.98	1.76	1.74
25	2.11	1.86	1.86	1.84	1.84	2.31	2.56	2.46	2.31	1.97	1.75	1.73
26	2.11	1.86	1.86	1.84	1.84	2.32	2.54	2.45	2.29	1.93	1.75	1.73
27	2.09	1.85	1.86	1.84	1.84	2.33	2.54	2.45	2.28	1.89	1.75	1.72
28	2.06	1.85	1.86	1.84	1.84	2.34	2.54	2.46	2.28	1.87	1.74	1.71
29	2.06	1.85	1.86	1.84	---	2.36	2.52	2.46	2.25	1.87	1.74	1.75
30	2.06	1.84	1.86	1.84	---	2.38	2.51	2.47	2.24	1.84	1.73	1.94
31	2.06	---	1.86	1.84	---	2.39	---	2.46	---	1.82	1.73	---
MEAN	2.19	1.92	1.85	1.85	1.83	2.09	---	2.48	2.32	2.06	1.77	1.77
MAX	2.39	2.05	1.86	1.86	1.84	2.39	---	2.53	2.44	2.22	1.84	1.94
MIN	2.06	1.84	1.83	1.84	1.83	1.84	---	2.44	2.17	1.82	1.73	1.71

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.04	1.98	2.38	2.52	2.55	2.55	2.80	3.49	3.60	3.85	4.60	4.15
2	1.98	1.98	2.38	2.52	2.55	2.55	2.81	3.48	3.60	3.86	4.60	4.14
3	1.95	1.98	2.39	2.52	2.55	2.55	2.82	3.49	3.60	3.86	4.56	4.13
4	1.91	1.98	2.39	2.52	2.55	2.55	2.84	3.49	3.59	3.95	4.53	4.12
5	1.90	1.96	2.39	2.52	2.56	2.56	2.85	3.50	3.59	4.07	4.49	4.10
6	1.88	1.97	2.38	2.52	2.56	2.56	2.91	3.50	3.59	4.23	4.47	4.10
7	1.92	1.97	2.39	2.53	2.55	2.56	3.04	3.50	3.58	4.37	4.45	4.09
8	1.95	2.01	2.39	2.52	2.55	2.55	3.12	3.50	3.56	4.40	4.43	4.08
9	1.94	2.31	2.39	2.52	2.54	2.55	3.15	3.51	3.55	4.41	4.41	4.06
10	1.96	2.33	2.39	2.52	2.54	2.55	3.16	3.51	3.52	4.40	4.39	4.05
11	1.94	2.35	2.39	2.52	2.54	2.55	3.16	3.52	3.53	4.39	4.37	4.03
12	1.93	2.35	2.39	2.52	2.54	2.56	3.16	3.55	3.52	4.37	4.35	4.04
13	1.92	2.35	2.39	2.53	2.54	2.57	3.16	3.56	3.51	4.37	4.33	4.07
14	1.93	2.36	2.40	2.53	2.55	2.59	3.19	3.55	3.50	4.37	4.31	4.08
15	1.92	2.36	2.40	2.53	2.55	2.60	3.19	3.54	3.50	4.36	4.38	4.06
16	1.90	2.37	2.40	2.53	2.55	2.60	3.18	3.54	3.50	4.35	4.37	4.05
17	1.88	2.36	2.43	2.53	2.54	2.61	3.20	3.54	3.51	4.34	4.35	4.04
18	1.87	2.38	2.45	2.54	2.54	2.62	3.32	3.54	3.50	4.32	4.35	4.01
19	1.86	2.39	2.45	2.55	2.54	2.63	3.37	3.53	3.51	4.30	4.32	4.00
20	1.85	2.35	2.45	2.55	2.54	2.65	3.38	3.53	3.70	4.32	4.28	3.99
21	1.86	2.35	2.45	2.55	2.54	2.66	3.38	3.52	3.69	4.42	4.26	3.96
22	1.84	2.37	2.45	2.55	2.54	2.68	3.39	3.52	3.70	4.66	4.25	3.94
23	1.85	2.36	2.45	2.55	2.55	2.69	3.39	3.51	3.71	4.74	4.24	3.91
24	1.85	2.36	2.49	2.55	2.55	2.70	3.43	3.51	3.71	4.75	4.25	3.90
25	1.84	2.37	2.49	2.56	2.55	2.71	3.43	3.51	3.78	4.74	4.22	3.88
26	1.85	2.37	2.49	2.56	2.55	2.73	3.43	3.52	3.79	4.74	4.25	3.85
27	1.86	2.36	2.49	2.55	2.55	2.75	3.45	3.56	3.80	4.72	4.24	3.85
28	1.85	2.36	2.49	2.55	2.55	2.76	3.47	3.59	3.81	4.68	4.22	3.81
29	1.85	2.37	2.49	2.55	---	2.77	3.47	3.61	3.84	4.67	4.20	3.80
30	1.89	2.38	2.49	2.55	---	2.78	3.49	3.62	3.86	4.64	4.18	3.79
31	1.98	---	2.50	2.55	---	2.79	---	3.62	---	4.62	4.17	---
MEAN	1.90	2.26	2.43	2.54	2.55	2.63	3.20	3.53	3.63	4.40	4.35	4.00
MAX	2.04	2.39	2.50	2.56	2.56	2.79	3.49	3.62	3.86	4.75	4.60	4.15
MIN	1.84	1.96	2.38	2.52	2.54	2.55	2.80	3.48	3.50	3.85	4.17	3.79

06604200 WEST OKOBOJI LAKE AT LAKESIDE LABORATORY NEAR MILFORD, IA

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.76	3.39	3.29	3.33	3.43	3.47	4.52	---	4.35	4.13	4.03	4.74
2	3.75	3.38	3.29	3.33	3.42	3.48	4.57	4.60	4.34	4.12	4.02	4.75
3	3.73	3.38	3.31	3.33	3.42	3.54	4.57	4.60	4.33	4.11	4.01	4.75
4	3.72	3.37	3.31	3.33	3.41	3.59	4.58	4.58	4.32	4.10	4.00	4.75
5	3.68	3.36	3.31	3.34	3.42	3.58	4.60	4.55	4.31	4.08	4.01	4.78
6	3.65	3.35	3.30	3.35	3.42	3.58	4.60	4.55	4.29	4.06	3.98	4.84
7	3.65	3.32	3.29	3.34	3.41	3.58	4.60	4.55	4.30	4.03	3.98	4.83
8	3.64	3.31	3.30	3.34	3.41	3.59	4.60	4.58	4.28	4.02	4.09	4.80
9	3.64	3.32	3.30	3.34	3.41	3.58	4.60	4.63	4.29	4.02	4.18	4.80
10	3.63	3.31	3.30	3.34	3.41	3.58	4.59	4.65	4.29	4.02	4.18	4.80
11	3.62	3.33	3.31	3.34	3.41	3.59	4.58	4.64	4.27	4.02	4.16	4.80
12	3.61	3.32	3.31	3.34	3.41	3.59	4.64	4.64	4.26	4.02	4.13	4.92
13	3.60	3.31	3.30	3.36	3.41	3.59	4.65	4.61	4.28	4.03	4.13	5.00
14	3.59	3.31	3.30	3.36	3.42	3.59	4.64	4.62	4.25	4.05	4.13	5.00
15	3.58	3.31	3.30	3.36	3.42	3.59	4.63	4.61	4.25	4.04	4.11	4.99
16	3.57	3.31	3.30	3.36	3.43	3.59	4.63	4.59	4.25	4.02	4.10	4.98
17	3.54	3.32	3.29	3.36	3.42	3.59	4.62	4.58	4.26	4.00	4.15	4.97
18	3.54	3.34	3.30	3.36	3.44	3.64	4.62	4.59	4.24	3.98	4.16	4.97
19	3.51	3.33	3.29	3.37	3.44	3.73	4.62	4.59	4.21	3.99	4.24	4.95
20	3.51	3.32	3.32	3.38	3.44	3.81	4.63	4.57	4.24	4.01	4.31	4.95
21	3.50	3.32	3.32	3.38	3.47	3.86	---	4.54	4.24	4.03	4.39	4.93
22	3.51	3.31	3.32	3.38	3.47	3.98	---	4.51	4.24	4.03	4.42	4.91
23	3.51	3.30	3.32	3.39	3.48	4.12	---	4.50	4.22	4.01	4.46	4.89
24	3.45	3.30	3.31	3.40	3.48	4.18	---	4.47	4.20	4.01	4.46	4.99
25	3.47	3.31	3.31	3.40	3.48	4.22	---	4.44	4.17	4.01	4.47	5.01
26	3.45	3.31	3.32	3.40	3.48	4.23	---	4.44	4.17	3.98	4.59	4.99
27	3.44	3.29	3.32	3.42	3.48	4.27	---	4.43	4.18	3.99	4.64	4.98
28	3.43	3.28	3.32	3.43	3.48	4.29	---	4.41	4.18	3.98	4.66	4.97
29	3.42	3.27	3.32	3.43	---	4.34	---	4.40	4.15	4.00	4.68	4.95
30	3.41	3.28	3.32	3.43	---	4.46	---	4.39	4.15	4.06	4.69	4.93
31	3.41	---	3.33	3.43	---	4.50	---	4.38	---	4.04	4.70	---
MEAN	3.57	3.32	3.31	3.37	3.44	3.82	---	---	4.25	4.03	4.27	4.90
MAX	3.76	3.39	3.33	3.43	3.48	4.50	---	---	4.35	4.13	4.70	5.01
MIN	3.41	3.27	3.29	3.33	3.41	3.47	---	---	4.15	3.98	3.98	4.74

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.93	4.58	4.80	4.58	4.42	4.33	4.45	4.45	4.53	4.29	3.85	4.15
2	4.89	4.60	4.79	4.57	4.41	4.32	4.45	4.45	4.55	4.26	3.85	4.14
3	4.87	4.60	4.78	4.56	4.40	4.31	4.51	4.43	4.56	4.26	3.83	4.15
4	4.83	4.60	4.77	4.55	4.40	4.31	4.55	4.42	4.60	4.26	3.85	4.17
5	4.79	4.65	4.76	4.55	4.43	4.31	4.56	4.41	4.75	4.24	3.85	4.15
6	4.75	4.65	4.75	4.54	4.42	4.31	4.60	4.39	4.79	4.23	3.84	4.18
7	4.70	4.65	4.74	4.53	4.42	4.30	4.62	4.38	4.80	4.21	3.83	4.21
8	4.70	4.66	4.75	4.52	4.41	4.30	4.65	4.35	4.78	4.19	3.83	4.20
9	4.65	4.66	4.74	4.51	4.40	4.31	4.66	4.33	4.75	4.02	3.84	4.19
10	4.61	4.65	4.74	4.51	4.40	4.32	4.65	4.32	4.74	4.16	3.90	4.15
11	4.60	4.65	4.73	4.50	4.40	4.32	4.65	4.32	4.70	4.15	3.89	4.13
12	4.56	4.67	4.72	4.49	4.40	4.32	4.65	4.30	4.66	4.14	3.87	4.13
13	4.54	4.67	4.71	4.48	4.38	4.34	4.65	4.33	4.66	4.12	3.98	4.12
14	4.50	4.67	4.70	4.47	4.38	4.34	4.64	4.31	4.70	4.11	4.00	4.11
15	4.48	4.68	4.70	4.46	4.37	4.36	4.63	4.30	4.69	4.11	4.00	4.08
16	4.47	4.67	4.69	4.49	4.36	4.40	4.61	4.30	4.65	4.09	4.06	4.07
17	4.45	4.68	4.68	4.49	4.35	4.40	4.60	4.33	4.61	4.07	4.07	4.04
18	4.43	4.68	4.68	4.48	4.35	4.40	4.59	4.33	4.60	4.08	4.07	4.02
19	4.44	4.69	4.67	4.47	4.35	4.40	4.60	4.32	4.57	4.06	4.10	4.00
20	4.43	4.70	4.66	4.46	4.34	4.40	4.60	4.31	4.53	4.08	4.14	4.04
21	4.43	4.79	4.65	4.45	4.34	4.40	4.58	4.30	4.50	4.06	4.15	4.10
22	4.44	4.80	4.64	4.45	4.35	4.39	4.58	4.30	4.48	4.03	4.14	4.10
23	4.42	4.80	4.65	4.46	4.35	4.39	4.58	4.29	4.47	4.01	4.12	4.08
24	4.40	4.80	4.65	4.46	4.35	4.38	4.55	4.27	4.45	3.98	4.10	4.06
25	4.40	4.81	4.64	4.45	4.36	4.37	4.55	4.26	4.43	3.97	4.10	4.05
26	4.38	4.81	4.63	4.44	4.35	4.39	4.53	4.25	4.43	3.95	4.20	4.02
27	4.37	4.81	4.61	4.45	4.35	4.42	4.50	4.24	4.39	3.93	4.20	4.01
28	4.36	4.80	4.60	4.44	4.35	4.42	4.50	4.23	4.37	3.93	4.18	3.99
29	4.35	4.80	4.60	4.43	4.33	4.45	4.48	4.27	4.33	3.90	4.17	3.98
30	4.44	4.80	4.59	4.43	---	4.45	4.47	4.48	4.30	3.89	4.17	3.98
31	4.59	---	4.59	4.43	---	4.45	---	4.53	---	3.87	4.16	---
MEAN	4.55	4.70	4.69	4.49	4.38	4.36	4.57	4.34	4.58	4.09	4.01	4.09
MAX	4.93	4.81	4.80	4.58	4.43	4.45	4.66	4.53	4.80	4.29	4.20	4.21
MIN	4.35	4.58	4.59	4.43	4.33	4.30	4.45	4.23	4.30	3.87	3.83	3.98

WTR YR 1980 MEAN 4.40 MAX 4.93 MIN 3.83

06604200 WEST OKOBOJI LAKE AT LAKESIDE LABORATORY NEAR MILFORD, IA

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.95	3.69	3.55	3.50	3.50	3.52	3.54	3.45	3.35	3.75	3.67	3.66
2	3.94	3.67	3.53	3.50	3.50	3.53	3.54	3.41	3.36	3.74	3.68	3.64
3	3.93	3.67	3.53	3.50	3.50	3.51	3.55	3.43	3.36	3.75	3.68	3.64
4	3.92	3.67	3.54	3.49	3.50	3.52	3.54	3.49	3.36	3.77	3.68	3.63
5	3.90	3.66	3.54	3.49	3.50	3.51	3.54	3.49	3.35	3.77	3.69	3.61
6	3.90	3.66	3.55	3.48	3.50	3.51	3.54	3.48	3.34	3.75	3.67	3.61
7	3.88	3.65	3.55	3.48	3.50	3.50	3.53	3.45	3.31	3.74	3.65	3.66
8	3.88	3.66	3.55	3.48	3.49	3.49	3.55	3.45	3.34	3.71	3.63	3.61
9	3.87	3.65	3.55	3.48	3.49	3.50	3.53	3.46	3.32	3.69	3.61	3.63
10	3.84	3.66	3.54	3.48	3.50	3.50	3.54	3.44	3.33	3.68	3.60	3.63
11	3.83	3.65	3.55	3.48	3.50	3.49	3.53	3.41	3.32	3.67	3.59	3.62
12	3.81	3.64	3.55	3.48	3.50	3.50	3.52	3.42	3.34	3.66	3.59	3.61
13	3.80	3.65	3.55	3.48	3.50	3.49	3.53	3.45	3.48	3.65	3.59	3.60
14	3.79	3.64	3.54	3.48	3.50	3.47	3.52	3.44	3.59	3.64	3.68	3.58
15	3.78	3.62	3.54	3.49	3.50	3.47	3.49	3.43	3.66	3.65	3.70	3.57
16	3.79	3.61	3.54	3.49	3.50	3.46	3.49	3.42	3.66	3.63	3.68	3.56
17	3.79	3.61	3.54	3.49	3.51	3.47	3.50	3.43	3.66	3.61	3.67	3.52
18	3.78	3.60	3.54	3.49	3.52	3.46	3.49	3.40	3.66	3.61	3.65	3.50
19	3.77	3.60	3.53	3.49	3.50	3.44	3.49	3.38	3.65	3.60	3.63	3.49
20	3.77	3.57	3.53	3.50	3.50	3.43	3.49	3.37	3.65	3.59	3.61	3.48
21	3.78	3.58	3.53	3.50	3.50	3.43	3.48	3.35	3.67	3.62	3.59	3.47
22	3.77	3.56	3.52	3.50	3.50	3.42	3.48	3.35	3.69	3.71	3.58	3.45
23	3.78	3.57	3.52	3.50	3.49	3.42	3.48	3.40	3.68	3.75	3.57	3.43
24	3.77	3.56	3.52	3.50	3.49	3.42	3.47	3.39	3.70	3.74	3.59	3.43
25	3.75	3.55	3.51	3.50	3.49	3.42	3.47	3.38	3.69	3.74	3.58	3.45
26	3.74	3.54	3.50	3.50	3.48	3.42	3.47	3.38	3.69	3.71	3.59	3.47
27	3.74	3.55	3.50	3.50	3.52	3.41	3.47	3.38	3.67	3.69	3.64	3.46
28	3.72	3.54	3.50	3.50	3.53	3.41	3.47	3.39	3.68	3.69	3.68	3.44
29	3.70	3.52	3.50	3.49	---	3.48	3.47	3.39	3.75	3.68	3.68	3.43
30	3.69	3.53	3.50	3.48	---	3.54	3.45	3.39	3.75	3.66	3.68	3.43
31	3.69	---	3.50	3.49	---	3.50	---	3.36	---	3.65	3.67	---
MEAN	3.81	3.61	3.53	3.49	3.50	3.47	3.51	3.41	3.54	3.69	3.64	3.54
MAX	3.95	3.69	3.55	3.50	3.53	3.54	3.55	3.49	3.75	3.77	3.70	3.66
MIN	3.69	3.52	3.50	3.48	3.48	3.41	3.45	3.35	3.31	3.59	3.57	3.43

WTR YR 1981 MEAN 3.56 MAX 3.95 MIN 3.31

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.40	3.37	3.36	3.36	3.49	3.69	4.22	4.38	5.05	4.66	4.42	4.31
2	3.38	3.36	3.35	3.37	3.51	3.71	4.26	4.37	5.05	4.64	4.40	4.30
3	3.41	3.36	3.34	3.38	3.50	3.72	4.27	4.36	5.02	4.61	4.37	4.29
4	3.46	3.36	3.34	3.38	3.50	3.74	4.31	4.38	5.00	4.59	4.49	4.27
5	3.47	3.35	3.35	3.38	3.50	3.74	4.33	4.39	4.98	4.58	4.51	4.26
6	3.46	3.34	3.35	3.38	3.51	3.75	4.32	4.38	5.05	4.76	4.49	4.25
7	3.45	3.34	3.35	3.38	3.51	3.75	4.33	4.38	5.11	4.84	4.47	4.23
8	3.43	3.34	3.35	3.38	3.51	3.75	4.34	4.37	5.12	4.85	4.43	4.21
9	3.42	3.30	3.34	3.38	3.51	3.75	4.35	4.36	5.09	4.91	4.39	4.21
10	3.42	3.29	3.34	3.38	3.51	3.75	4.36	4.35	5.07	4.97	4.36	4.28
11	3.40	3.30	3.34	3.38	3.51	3.77	4.36	4.37	5.05	4.97	4.33	4.32
12	3.40	3.29	3.33	3.38	3.51	3.79	4.38	4.40	5.04	4.96	4.30	4.50
13	3.41	3.28	3.35	3.39	3.51	3.81	4.40	---	5.00	4.95	4.29	4.60
14	3.42	3.29	3.36	3.40	3.52	3.83	4.41	---	5.01	4.92	4.28	4.61
15	3.41	3.29	3.36	3.40	3.51	3.85	4.43	---	5.05	4.91	4.26	4.60
16	3.40	3.29	3.36	3.39	3.51	3.88	4.44	---	5.03	4.89	4.25	4.58
17	3.44	3.29	3.35	3.39	3.51	3.90	4.45	---	5.02	4.86	4.24	4.58
18	3.45	3.30	3.35	3.40	3.52	3.91	4.45	---	5.01	4.85	4.22	4.57
19	3.44	3.32	3.35	3.40	3.52	3.97	4.46	---	4.98	4.82	4.22	4.56
20	3.44	3.29	3.35	3.40	3.52	4.04	4.46	---	4.94	4.78	4.21	4.53
21	3.43	3.27	3.35	3.41	3.52	4.06	4.45	---	4.91	4.79	4.18	4.51
22	3.41	3.26	3.35	3.44	3.54	4.08	4.46	---	4.89	4.77	4.15	4.49
23	3.39	3.28	3.35	3.47	3.58	4.10	4.45	---	4.85	4.73	4.14	4.47
24	3.39	3.28	3.35	3.48	3.60	4.11	4.44	---	4.84	4.68	4.22	4.45
25	3.40	3.29	3.36	3.48	3.62	4.13	4.45	---	4.83	4.65	4.23	4.43
26	3.39	3.28	3.36	3.48	3.63	4.14	4.44	---	4.80	4.63	4.21	4.41
27	3.38	3.28	3.36	3.48	3.64	4.15	4.42	---	4.78	4.59	4.20	4.39
28	3.38	3.28	3.36	3.48	3.65	4.16	4.41	---	4.75	4.56	4.16	4.37
29	3.38	3.27	3.36	3.48	---	4.17	4.40	---	4.74	4.53	4.16	4.39
30	3.37	3.31	3.36	3.48	---	4.18	4.39	---	4.70	4.48	4.19	4.42
31	3.38	---	3.36	3.48	---	4.21	---	---	---	4.45	4.26	---
MEAN	3.41	3.31	3.35	3.41	3.53	3.92	4.39	---	4.96	4.75	4.29	4.41
MAX	3.47	3.37	3.36	3.48	3.65	4.21	4.46	---	5.12	4.97	4.51	4.61
MIN	3.37	3.26	3.33	3.36	3.49	3.69	4.22	---	4.70	4.45	4.14	4.21

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 (1 m) downstream from bridge on county highway M38, 3.4 mi (5.5 km) west by southwest of Spencer, and at mile 4.1 (6.6 km).

DRAINAGE AREA.--426 mi² (1,103 km²).

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 (399.794 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 175 ft³/s (4.956 m³/s), 5.58 in/yr (142 mm/yr), 126,800 acre-ft/yr (156 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,520 ft³/s (128 m³/s) July 10, 1982, gage height, 9.68 ft (2.950 m); maximum gage height, 9.96 ft (3.036 m) Mar. 23, 1979, backwater from ice; 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 (3.929 m), discharge, 26,000 ft³/s (736 m³/s) on basis of contracted-opening measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,520 ft³/s (128 m³/s) July 10, gage height, 9.68 ft (2.950 m) at 0945 hours, no other peak above base of 1,700 ft³/s (48.1 m³/s); minimum daily, 4.6 ft³/s (0.13 m³/s) Jan. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	53	49	10	6.7	200	124	90	644	202	93	194
2	20	52	45	9.4	6.8	220	124	87	537	189	90	159
3	24	53	48	8.8	6.6	210	132	83	454	179	83	114
4	40	51	48	8.3	6.5	190	148	84	403	137	100	90
5	43	50	44	7.8	6.3	175	150	91	368	118	101	78
6	41	50	41	7.3	6.2	142	131	89	437	745	89	72
7	39	49	35	6.7	6.2	120	128	85	652	1270	85	68
8	37	50	30	6.2	6.1	105	123	81	583	823	79	65
9	37	46	26	5.8	6.1	94	124	75	486	1390	74	62
10	37	47	24	5.4	6.1	93	132	72	432	3470	71	67
11	35	47	25	5.0	6.2	124	150	72	390	1830	70	110
12	34	47	23	5.0	6.4	140	184	80	343	910	67	229
13	37	47	20	5.0	6.6	170	194	107	301	615	65	522
14	42	47	18	4.9	6.8	220	187	122	285	561	64	548
15	44	48	18	4.9	7.0	300	203	209	370	493	63	414
16	48	47	19	4.8	7.4	320	219	377	419	424	62	331
17	67	46	19	4.8	8.0	340	223	405	356	377	58	284
18	87	45	18	4.9	8.8	355	211	950	321	347	56	252
19	78	44	18	4.9	10	360	200	952	292	306	54	227
20	73	42	18	5.0	15	608	179	778	285	280	51	201
21	66	40	19	5.0	23	529	148	648	261	296	48	183
22	62	40	20	5.1	53	305	146	585	272	259	46	169
23	59	50	21	4.9	156	274	139	522	285	220	45	158
24	58	49	20	4.6	200	238	133	461	260	221	48	145
25	59	49	18	4.7	190	203	127	424	326	203	68	135
26	55	51	17	4.8	155	168	119	593	297	185	61	128
27	54	48	16	5.0	136	144	108	896	242	162	51	121
28	52	51	14	5.1	152	136	101	835	214	143	48	115
29	58	48	13	5.5	---	131	97	720	212	127	54	114
30	55	50	12	5.8	---	131	95	697	205	112	66	141
31	53	---	11	6.4	---	135	---	697	---	96	96	---
TOTAL	1515	1438	767	181.8	1210.8	6880	4479	11967	10932	16690	2106	5496
MEAN	48.9	47.9	24.7	5.86	43.2	222	149	386	364	538	67.9	183
MAX	87	53	49	10	200	608	223	952	652	3470	101	548
MIN	20	40	11	4.6	6.1	93	95	72	205	96	45	62
CFSM	.12	.11	.06	.01	.10	.52	.35	.91	.85	1.26	.16	.43
IN.	.13	.13	.07	.02	.11	.60	.39	1.05	.95	1.46	.18	.48
AC-FT	3010	2850	1520	361	2400	13650	8880	23740	21680	33100	4180	10900

CAL YR 1981 TOTAL 19078.9 MEAN 52.3 MAX 1070 MIN 7.3 CFSM .12 IN 1.67 AC-FT 37840
WTR YR 1982 TOTAL 63662.6 MEAN 174 MAX 3470 MIN 4.6 CFSM .41 IN 5.56 AC-FT 126300

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, Iowa, and at mile 123.7 (199.0 km).

DRAINAGE AREA.--1,548 mi² (4,009 km²).

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 (372.95 m) NGVD.

REMARKS.--Records good except those for periods of no gage height record Nov. 29 to Dec. 1, Dec. 4, Dec. 6, Dec. 15 to Jan. 4, Jan. 18-26, Feb. 1, 2, 8-22, Aug. 4-10 and for winter period, which are poor. Seeveral observations of water temperature were made during the year. Corps of Engineers rain-gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--10 years, 513 ft³/s (14.53 m³/s), 4.50 in/yr (114 mm/yr), 371,700 acre-ft/yr (458 hm³/yr); median of yearly mean discharges, 570 ft³/s (16.1 m³/s), 5.0 in/yr (127 mm/yr), 413,000 acre-ft/yr (509 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,620 ft³/s (244 m³/s) Apr. 29, 1975, gage height, 17.85 ft (5.441 m); maximum gage height, 18.4 ft (5.608 m), July 12, 1982; minimum daily discharge, 0.70 ft³/s (0.020 m³/s) Feb. 4, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	1730	1,940	54.9	10.64	3.243	July 12	1600	*8,390	238	*18.40	5.608
May 30	1745	2,620	74.2	12.42	3.786	Sep. 17	0115	2,420	68.5	12.01	3.661

Minimum daily discharge, 36 ft³/s (1.02 m³/s) Feb. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	248	143	65	39	1450	738	476	2440	662	450	441
2	94	237	117	65	41	1470	720	455	2290	625	411	750
3	95	231	116	65	40	1370	824	440	2150	590	378	722
4	106	227	129	65	38	1320	829	419	2010	554	430	547
5	146	227	215	63	39	1260	931	419	1810	517	434	443
6	171	218	164	62	38	1110	937	445	1640	809	380	381
7	174	206	223	58	40	960	876	456	1520	1540	375	340
8	164	197	239	54	38	870	878	445	1570	2020	365	312
9	155	189	207	50	37	820	848	418	1750	2810	340	289
10	154	180	164	47	36	740	804	395	1870	4660	335	275
11	150	179	126	44	36	811	828	374	1780	6820	316	271
12	141	177	181	44	37	880	896	366	1580	8170	300	548
13	137	173	221	43	38	940	962	398	1430	7100	286	1400
14	162	171	211	42	39	1030	974	495	1290	5070	270	1830
15	204	172	96	42	40	1100	976	637	1200	3660	253	2140
16	231	167	117	40	41	1180	1000	881	1180	2900	247	2350
17	274	161	134	41	42	1270	1010	1170	1250	2330	239	2390
18	396	159	124	41	45	1360	1040	1400	1260	1920	231	2140
19	490	157	116	42	52	1190	1040	1640	1200	1560	223	1760
20	470	162	110	42	78	1570	965	1880	1120	1320	213	1440
21	428	124	99	43	116	1880	886	2150	1040	1170	198	1220
22	380	117	96	43	260	1930	822	2420	953	1090	186	1080
23	340	190	88	41	790	1890	763	2540	880	1020	179	967
24	316	191	81	40	970	1660	725	2480	839	917	170	877
25	314	187	79	41	1100	1510	674	2360	858	829	171	804
26	307	187	76	42	980	1320	628	2300	861	745	187	749
27	295	188	73	43	1030	1070	588	2280	880	699	201	699
28	284	181	70	42	1220	932	559	2380	826	639	179	650
29	272	160	70	39	---	847	527	2480	766	583	181	625
30	266	152	70	38	---	805	501	2600	738	533	219	646
31	266	---	70	38	---	774	---	2580	---	484	291	---
TOTAL	7485	5515	4025	1465	7300	37319	24749	40179	40981	64346	8638	29086
MEAN	241	184	130	47.3	261	1204	825	1296	1366	2076	279	970
MAX	490	248	239	65	1220	1930	1040	2600	2440	8170	450	2390
MIN	94	117	70	38	36	740	501	366	738	484	170	271
CFSM	.16	.12	.08	.03	.17	.78	.53	.84	.88	1.34	.18	.63
IN.	.18	.13	.10	.04	.18	.90	.59	.97	.98	1.55	.21	.70
AC-FT	14850	10940	7980	2910	14480	74020	49090	79700	81290	127600	17130	57690

CAL YR 1981 TOTAL 84473 MEAN 231 MAX 1730 MIN 40 CFSM .15 IN 2.03 AC-FT 167600
WTR YR 1982 TOTAL 271088 MEAN 743 MAX 8170 MIN 36 CFSM .48 IN 6.51 AC-FT 537700

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, (15 m) upstream from bridge on State Highway 31, 0.3 mi (0.5 km) upstream from Bacon Creek, 0.5 mi (0.8 km) west of Correctionville, 0.8 mi (1.3 km) downstream from Pierson Creek, and at mile 56.0 (90.1 km).

DRAINAGE AREA.--2,500 mi² (6,475 km²).

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 (334.210 m) NGVD. May 28, 1918, to July 1, 1925 and Oct. 29, 1928 to July 15, 1929, nonrecording gage 0.2 mi (0.3 km) downstream at datum 1.25 ft (0.381 m) lower. July 16, 1929, to July 2, 1932, and June 15, 1936, to Nov. 7, 1938, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--55 years (water years 1919-24, 1929-31, 1937-82), 714 ft³/s (20.22 m³/s), 3.88 in/yr (99 mm/yr), 517,300 acre-ft/yr (638 hm³/yr); median of yearly mean discharge, 560 ft³/s (15.9 m³/s), 3.0 in/yr (76 mm/yr), 406,000 acre-ft/yr (501 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,800 ft³/s (844 m³/s) Apr. 7, 1965, gage height, 25.86 ft (7.882 m); minimum daily, 2.6 ft³/s (0.074 m³/s) July 17, 25, 1936, caused by construction dam above gage; minimum daily discharge excluding regulation, 4.0 ft³/s (0.11 m³/s) Oct. 9, 12, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23 or 24, 1891, reached a stage of 29.34 ft (8.943 m), present datum, from levels to floodmark by Soil Conservation Service (discharge not determined).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 25	0200	4,710	133	14.85	4.526	July 16	0045	*9,100	258	*19.26	5.870
May 27	0200	4,420	125	14.37	4.380						

Minimum daily discharge, 60 ft³/s (1.70 m³/s) Feb. 12-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	367	299	95	65	2000	1130	739	3350	1150	1070	401
2	110	365	266	95	65	2160	1090	708	3300	1070	988	459
3	115	361	245	95	65	2000	1040	679	3070	1010	915	603
4	135	355	223	95	65	1600	1020	655	2860	960	985	803
5	153	347	247	90	65	1400	1090	643	2690	903	973	743
6	160	333	249	90	65	1400	1110	637	2510	1920	836	628
7	174	328	342	90	65	2000	1210	633	2300	2640	824	551
8	201	321	320	90	65	3000	1190	639	2140	3470	831	497
9	218	301	324	85	65	3500	1150	635	2080	2890	780	458
10	221	289	271	85	65	3000	1160	637	2080	4700	718	445
11	215	286	269	85	65	2000	1160	1590	2100	5770	667	423
12	207	277	265	85	60	1600	1150	738	2130	6520	623	749
13	207	274	286	80	60	1400	1190	706	2090	7260	584	901
14	210	274	243	80	60	1300	1230	687	1930	7750	549	1340
15	235	271	120	80	60	1300	1260	872	1820	8670	524	1900
16	244	266	153	80	60	1300	1270	972	1710	8920	505	2170
17	295	262	198	75	60	1500	1300	1230	1620	7420	476	2430
18	361	256	180	75	60	1730	1300	1960	1600	5190	449	2600
19	400	258	170	75	60	2080	1300	2710	1620	3690	428	2600
20	469	251	160	75	80	2520	1310	2610	1620	3010	405	2280
21	529	232	150	75	500	2660	1270	2620	1550	2860	378	1920
22	529	200	140	70	3000	2530	1190	2610	1470	2590	357	1660
23	500	210	130	70	4000	2490	1110	2750	1380	2320	335	1470
24	476	231	120	70	4560	2460	1050	2920	1300	2090	321	1350
25	455	266	115	70	3000	2300	989	2970	1230	1890	310	1250
26	434	294	110	70	2500	2030	945	3270	1240	1710	293	1160
27	427	288	105	70	2200	1840	888	4020	1280	1620	281	1100
28	417	279	100	70	2000	1590	843	3810	1290	1480	282	1040
29	400	269	100	70	---	1390	805	3470	1270	1350	303	1000
30	391	281	100	70	---	1270	769	3340	1210	1240	320	1220
31	378	---	100	70	---	1190	---	3330	---	1150	351	---
TOTAL	9376	8592	6100	2475	23035	60540	33519	55790	57840	105213	17661	36151
MEAN	302	286	197	79.8	823	1953	1117	1800	1928	3394	570	1205
MAX	529	367	342	95	4560	3500	1310	4020	3350	8920	1070	2600
MIN	110	200	100	70	60	1190	769	633	1210	903	281	401
CFSM	.12	.11	.08	.03	.33	.78	.45	.72	.77	1.36	.23	.48
IN.	.14	.13	.09	.04	.34	.90	.50	.83	.86	1.57	.26	.54
AC-FT	18600	17040	12100	4910	45690	120100	66480	110700	114700	208700	35030	71710

CAL YR 1981	TOTAL	125951	MEAN	345	MAX	2450	MIN 66	CFSM .14	IN 1.87	AC-FT	249800
WTR YR 1982	TOTAL	416292	MEAN	1141	MAX	8920	MIN 60	CFSM .46	IN 6.19	AC-FT	825700

06607200 MAPLE RIVER AT MAPLETON, IA

LOCATION(revised).--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 (1.6 km) downstream from Simmons Creek, 1.1 mi (1.8 km) southwest of inter- section of state. Highways 175 and 141 in Mapleton, 2.1 mi (3.4 km) upstream from McCleery Creek, and 16.0 mi (25.7 km) upstream from mouth.

DRAINAGE AREA.--669 mi² (1,732 km²).

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 (330.970 m) NGVD. See WSP 1730 for history of changes prior to Sept. 20, 1956.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--41 years, 228 ft³/s (6.457 m³/s), 4.63 in/yr (118 mm/yr), 165,200 acre-ft/yr (204 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft³/s (589 m³/s) Sept. 12, 1978, gage height, 16.74 ft (5.102 m); maximum gage height, 22.1 ft (6.74 m) June 12, 1950; no flow Sept. 21, 22, 1945 caused by temporary dam above gage; minimum daily discharge excluding regulation, 2.5 ft³/s (0.071 m³/s) Feb. 17-20, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
July 6	2000	*7,950	225	*10.84	3.304	July 18	2400	7,570	214	10.53	3.210

Minimum daily discharge, 7.0 ft³/s (0.20 m³/s) Feb. 12-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	36	53	12	8.0	250	138	80	423	200	296	325
2	25	39	39	11	8.0	298	110	77	369	150	281	171
3	27	46	35	11	8.0	201	110	73	344	130	243	140
4	37	48	57	11	8.0	92	118	76	316	120	233	131
5	43	44	50	11	8.0	150	142	84	293	110	340	117
6	37	40	44	10	7.5	140	148	103	280	6000	292	114
7	32	36	49	10	7.5	120	163	103	262	2690	228	106
8	25	36	50	10	7.5	110	150	91	255	951	213	107
9	23	35	43	10	7.5	130	150	79	272	776	192	105
10	21	34	33	10	7.5	180	169	74	258	1220	192	107
11	20	35	34	9.0	7.5	300	178	577	227	1660	186	130
12	20	36	44	9.0	7.0	495	191	305	227	928	178	1900
13	20	36	50	9.0	7.0	360	185	221	201	738	176	1760
14	24	35	43	9.0	7.0	318	154	209	187	831	173	845
15	30	36	22	9.0	7.0	266	133	233	218	748	168	583
16	35	34	30	8.5	7.0	216	126	272	203	508	163	450
17	42	32	40	8.5	7.0	191	135	605	178	464	157	379
18	50	34	35	8.5	8.0	168	128	815	181	3560	147	332
19	44	34	30	8.5	20	404	128	1230	176	3310	155	305
20	44	33	28	8.5	600	1140	123	1440	160	872	155	280
21	40	31	26	8.5	2500	632	113	1040	140	2100	160	257
22	37	30	24	8.5	3350	347	110	506	123	1270	163	247
23	35	44	22	8.5	3050	278	105	406	128	727	160	245
24	36	46	20	8.5	1710	242	97	351	150	598	368	237
25	36	45	19	8.5	510	210	95	339	633	554	195	218
26	40	43	18	8.0	300	182	95	588	486	490	147	210
27	36	42	17	8.0	270	168	90	1830	422	642	123	201
28	36	38	16	8.0	250	160	83	790	562	479	110	193
29	35	33	15	8.0	---	157	83	963	400	367	171	238
30	35	46	14	8.0	---	161	84	770	300	348	150	479
31	36	---	13	8.0	---	158	---	488	---	315	148	---
TOTAL	1025	1137	1013	284.0	12695.0	8224	3834	14818	8374	33856	6063	10912
MEAN	33.1	37.9	32.7	9.16	453	265	128	478	279	1092	196	364
MAX	50	48	57	12	3350	1140	191	1830	633	6000	368	1900
MIN	20	30	13	8.0	7.0	92	83	73	123	110	110	105
CFSM	.05	.06	.05	.01	.68	.40	.19	.71	.42	1.63	.29	.54
IN.	.06	.06	.06	.02	.71	.46	.21	.82	.47	1.88	.34	.61
AC-FT	2030	2260	2010	563	25180	16310	7600	29390	16610	67150	12030	21640

CAL YR 1981 TOTAL 22220.0 MEAN 60.9 MAX 824 MIN 13 CFSM .09 IN 1.24 AC-FT 44070
WTR YR 1982 TOTAL 102235.0 MEAN 280 MAX 6000 MIN 7.0 CFSM .42 IN 5.68 AC-FT 202800

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 (1.6 km) east of gaging station on Monona-Harrison ditch near Turin, 2.5 mi (4.0 km) downstream from Maple River, 3.8 mi (6.1 km) south of Turin, 6.2 mi (10.0 km) northeast of Blencoe, and at mile 13.5 (21.7 km).

DRAINAGE AREA.--3,526 mi² (9,132 km²). Prior to Jan. 15, 1958, 4,426 mi² (11,463 km²), combined area above this station and Monona-Harrison ditch station 1.0 mi (1.6 km) west.

PERIOD OF RECORD.--January 1958 to current year. April 1939 to May 1942 at site 4.7 mi (7.6 km) downstream published as "near Blencoe", June 1942 to January 1958 at site 1,200 ft (370 m) east on old river channel; records not equivalent owing to diversion into Monona-Harrison ditch through equalizer ditch 1.5 mi (2.4 km) upstream.

GAGE.--Water-stage recorder. Datum of gage is 1,019.850 ft (310.850 m) NGVD (Corps of Engineers bench mark). Prior to July 15, 1958, nonrecording gages near present site at different datums. July 15 to Sept. 3, 1958, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--24 years (water years 1959-82), 1,097 ft³/s (31.07 m³/s), 4.22 in/yr (107 mm/yr), 794,800 acre-ft/yr (980 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 30,000 ft³/s (850 m³/s) Feb. 19, 1971, gage height, 27.44 ft (8.364 m), backwater from ice; minimum daily, 17 ft³/s (0.48 m³/s) Jan. 18-20, Jan. 28 to Feb. 1, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (127 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 22	1745	14,700	416	22.11	6.739	July 7	0200	10,500	297	19.94	6.078
May 19	1200	4,700	133	14.79	4.508	July 18	2330	*15,000	425	*22.21	6.770
May 20	2215	5,200	147	15.36	4.682	July 21	2145	5,650	160	15.86	4.834
May 27	1815	6,460	183	16.71	5.093	Sep. 12	2100	5,000	142	14.65	4.465

Minimum daily discharge, 100 ft³/s (2.83 m³/s) Feb. 13-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	154	402	360	180	120	2200	1340	868	3850	1350	1420	929
2	154	403	340	180	120	2300	1190	830	3830	1290	1370	942
3	162	403	336	170	120	2100	1180	814	3570	1230	1310	937
4	173	403	314	170	120	1900	1170	793	3270	1180	1260	1060
5	176	398	300	170	120	1700	1250	741	3050	1120	1480	1210
6	182	383	314	160	120	1600	1290	757	2820	6360	1410	1170
7	196	367	320	160	110	1600	1420	753	2630	6700	1240	1140
8	194	363	383	160	110	2200	1360	741	2410	4000	1220	1140
9	211	348	384	160	110	3500	1340	773	2260	3610	1200	1110
10	228	349	358	160	110	4000	1360	797	2210	4260	1170	1120
11	240	335	342	150	110	3000	1360	1960	2280	7230	1120	1100
12	246	331	347	150	110	1900	1350	1500	2380	7360	1090	3010
13	237	335	330	150	100	1730	1340	936	2320	8000	1050	3740
14	220	334	320	150	100	1670	1390	897	2130	8280	1020	2310
15	241	327	210	150	100	1730	1410	914	2050	8840	996	2400
16	261	312	250	150	100	1830	1450	1140	1910	9390	968	2650
17	282	307	320	140	100	1850	1360	1280	1770	9360	939	2820
18	317	309	300	140	100	1870	1430	2220	1760	12200	910	2980
19	373	309	280	140	110	2100	1370	3440	1760	9860	897	3050
20	411	297	260	140	150	3240	1360	3880	1790	4420	867	2890
21	473	280	250	140	1000	3130	1370	3970	1710	4540	842	2570
22	529	260	240	140	5000	2960	1330	2890	1600	4220	819	2240
23	528	282	230	140	5920	2710	1270	2910	1510	3030	793	2020
24	525	303	220	130	4910	2610	1220	3060	1450	2650	966	1850
25	498	303	220	130	3800	2490	1120	3270	1540	2380	889	1740
26	474	312	210	130	3000	2280	1050	3590	1630	2170	792	1670
27	464	339	210	130	2400	2090	1020	5510	1670	2140	745	1610
28	448	336	200	130	2200	1930	934	4950	1480	1990	736	1550
29	446	321	200	130	---	1730	954	5010	1430	1740	801	1510
30	453	340	190	130	---	1560	910	4320	1440	1610	914	1740
31	413	---	190	120	---	1420	---	3900	---	1510	826	---
TOTAL	9909	10091	8728	4580	30470	68930	37898	69414	65510	144020	32060	56208
MEAN	320	336	282	148	1088	2224	1263	2239	2184	4646	1034	1874
MAX	529	403	384	180	5920	4000	1450	5510	3850	12200	1480	3740
MIN	154	260	190	120	100	1420	910	741	1430	1120	736	929
CFSM	.09	.10	.08	.04	.31	.63	.36	.64	.62	1.32	.29	.53
IN.	.10	.11	.09	.05	.32	.73	.40	.73	.69	1.52	.34	.59
AC-FT	19650	20020	17310	9080	60440	136700	75170	137700	129900	285700	63590	111500

CAL YR 1981 TOTAL 154314 MEAN 423 MAX 2540 MIN 100 CFSM .12 IN 1.63 AC-FT 306100
WTR YR 1982 TOTAL 537818 MEAN 1473 MAX 12200 MIN 100 CFSM .42 IN 5.67 AC-FT 1067000

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 (0.6 km) downstream from Cobb Creek, 0.5 mi (0.8 km) upstream from Mogger Ditch, and 13.1 mi (21.1 km) upstream from mouth.

DRAINAGE AREA.--407 mi² (1,054 km²).

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 (315.934 m) NGVD. Prior to Oct. 11, 1954, nonrecording gage at same site and datum with supplementary water-stage recorder operating above 8.2 ft (2.50 m) gage height Mar. 2, 1946, to Sept. 24, 1953. Prior to Feb. 1954, on left bank at downstream side of bridge.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--42 years, 121 ft³/s (3.427 m³/s), 4.04 in/yr (103 mm/yr), 87,660 acre-ft/yr (108 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,500 ft³/s (637 m³/s) June 12, 1950, gage height, 28.17 ft (8.586 m); minimum daily, 2.0 ft³/s (0.057 m³/s) Jan. 2-10, 1945.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s (142 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	2230	6,260	177	14.90	4.592
May 29	0815	9,000	255	17.74	5.409
Sept. 12	0745	*13,500	382	*22.04	6.718

Minimum daily discharge, 8.7 ft³/s (0.25 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.3	13	25	12	10	108	58	46	224	183	74	153
2	8.7	15	27	12	10	117	53	44	186	122	73	88
3	10	18	23	11	10	102	54	43	174	111	71	65
4	15	20	21	11	10	79	59	41	156	97	93	56
5	18	19	19	11	10	70	70	47	141	85	164	52
6	17	17	19	11	9.0	70	68	66	131	1380	98	48
7	14	15	17	11	9.0	80	64	59	123	422	80	47
8	11	14	14	11	9.0	90	62	49	158	148	74	46
9	11	14	13	11	9.0	100	59	46	182	126	70	49
10	11	13	12	11	9.0	120	59	44	140	414	73	51
11	10	12	12	11	9.0	360	62	48	119	186	73	98
12	10	17	12	11	9.0	518	59	315	115	123	69	7490
13	11	15	14	11	9.0	280	55	121	104	107	77	994
14	14	15	15	11	9.0	170	48	84	102	101	78	393
15	11	14	17	11	9.0	130	46	74	578	120	71	251
16	14	14	16	11	10	106	203	60	183	125	70	195
17	12	14	15	11	15	97	125	76	119	98	68	173
18	14	15	14	11	23	80	84	289	113	892	63	156
19	15	14	13	11	100	878	70	249	114	269	61	134
20	15	12	13	11	500	356	68	1130	100	141	57	117
21	12	11	13	11	1970	141	62	710	96	219	52	107
22	12	10	13	10	1140	108	58	218	100	159	52	102
23	9.9	11	13	10	865	99	57	125	96	108	51	98
24	10	12	13	10	211	89	56	103	96	96	128	91
25	14	12	13	10	121	81	52	220	1160	90	147	88
26	14	12	13	10	107	72	51	328	265	88	75	80
27	14	12	13	10	106	65	51	951	151	95	56	77
28	14	12	13	10	111	62	50	236	125	89	50	72
29	13	12	12	10	---	63	52	2950	110	82	587	184
30	14	12	12	10	---	66	51	524	328	64	618	271
31	12	---	12	10	---	65	---	302	---	72	120	---
TOTAL	389.9	416	471	333	5419.0	4822	1966	9598	5789	6412	3493	11826
MEAN	12.6	13.9	15.2	10.7	194	156	65.5	310	193	207	113	394
MAX	18	20	27	12	1970	878	203	2950	1160	1380	618	7490
MIN	8.7	10	12	10	9.0	62	46	41	96	64	50	46
CFSM	.03	.03	.04	.03	.48	.38	.16	.76	.47	.51	.28	.97
IN.	.04	.04	.04	.03	.50	.44	.18	.88	.53	.59	.32	1.08
AC-FT	773	825	934	661	10750	9560	3900	19040	11480	12720	6930	23460

CAL YR 1981 TOTAL 9512.9 MEAN 26.1 MAX 591 MIN 5.6 CFSM .06 IN .87 AC-FT 18870
WTR YR 1982 TOTAL 50934.9 MEAN 140 MAX 7490 MIN 8.7 CFSM .34 IN 4.66 AC-FT 101000

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 (3 m) downstream from Illinois Central Railroad bridge at Logan, 0.4 mi (0.6 km) downstream from Elk Grove Creek, 10.5 mi (16.9 km) upstream from Willow Creek, and 15.8 mi (25.4 km) upstream from mouth.

DRAINAGE AREA.--871 mi² (2,256 km²).

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 (307.659 m) NGVD (Chicago and Northwestern Railway Company bench mark). See WSP 1918 for history of changes prior to Oct. 18, 1960.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--50 years (water years 1919-24, 1939-82), 303 ft³/s (8.581 m³/s), 4.72 in/yr (120 mm/yr), 219,500 acre-ft/yr (271 hm³/yr); median of yearly mean discharge, 270 ft³/s (7.65 m³/s), 4.2 in/yr (107 mm/yr), 196,000 acre-ft/yr (242 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,000 ft³/s (708 m³/s) Feb. 19, 1971, gage height, 22.65 ft (6.904 m), from floodmark; maximum gage height, 25.22 ft (7.687 m) Mar. 1, 1965, backwater from ice; minimum daily discharge, 1.5 ft³/s (0.042 m³/s) July 16, 1938.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s (142 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	2245	14,400	408	17.76	5.413
Mar. 19	1515	6,540	185	12.29	3.746
May 29	Unknown	*16,400	464	a*18.93	5.770

a From floodmark

Minimum daily discharge, 21 ft³/s (0.59 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	31	60	35	28	350	212	139	900	331	242	821
2	21	34	64	35	28	353	191	133	750	261	231	405
3	25	39	56	34	28	340	203	128	725	247	220	256
4	51	48	66	34	28	330	185	125	659	229	221	207
5	97	59	67	34	28	320	191	320	596	208	642	184
6	62	55	61	33	28	310	187	340	545	989	305	170
7	47	50	62	33	28	290	185	260	593	2690	258	163
8	41	48	63	33	27	270	185	190	559	2640	235	161
9	38	44	63	33	27	250	189	170	573	980	222	159
10	31	44	61	32	27	270	187	150	527	1050	227	158
11	28	44	56	32	27	350	189	180	410	1200	207	156
12	28	40	58	32	27	1690	197	1200	387	1380	215	2340
13	28	40	64	32	27	1220	197	900	362	619	244	2100
14	27	40	64	32	27	640	191	530	343	484	210	1180
15	28	40	60	32	27	460	197	430	1740	436	213	704
16	33	38	56	31	28	396	1730	370	808	385	210	506
17	36	37	52	31	30	340	540	570	500	345	201	426
18	31	40	50	31	35	297	336	1000	426	509	191	371
19	30	39	48	31	250	2800	267	560	395	2680	185	320
20	32	36	46	31	4800	1770	240	1050	360	1560	176	276
21	32	34	45	30	4200	1040	217	3000	322	759	164	248
22	30	40	44	30	3000	586	198	1200	292	1080	156	228
23	30	42	43	30	2500	458	187	650	266	793	171	225
24	29	47	42	30	1000	402	176	550	257	521	165	216
25	32	49	41	30	480	352	169	770	438	436	273	199
26	31	48	40	29	400	307	165	980	516	382	191	189
27	32	47	39	29	390	278	156	650	293	347	159	184
28	36	49	38	29	350	259	146	1000	264	324	146	173
29	33	46	37	29	---	241	147	10000	238	315	150	220
30	33	49	36	29	---	247	144	2700	374	284	833	251
31	31	---	35	29	---	243	---	1200	---	271	413	---
TOTAL	1085	1297	1617	975	17875	17459	7704	31445	15418	24735	7676	13196
MEAN	35.0	43.2	52.2	31.5	638	563	257	1014	514	798	248	440
MAX	97	59	67	35	4800	2800	1730	10000	1740	2690	833	2340
MIN	21	31	35	29	27	241	144	125	238	208	146	156
CFSM	.04	.05	.06	.04	.73	.65	.30	1.16	.59	.92	.29	.51
IN.	.05	.06	.07	.04	.76	.75	.33	1.34	.66	1.06	.33	.56
AC-FT	2150	2570	3210	1930	35460	34630	15280	62370	30580	49060	15230	26170

CAL YR 1981 TOTAL 27026 MEAN 74.0 MAX 2220 MIN 19 CFSM .09 IN 1.15 AC-FT 53610
WTR YR 1982 TOTAL 140482 MEAN 385 MAX 10000 MIN 21 CFSM .44 IN 6.00 AC-FT 278600

06610000 MISSOURI RIVER AT OMAHA, NB

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 (84 m) downstream from Interstate 480 Highway bridge in Omaha, and at mile 615.9 (991.0 km).

DRAINAGE AREA.--322,800 mi² (836,100 km²), 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 958.24 ft (292.072 m) NGVD. See WSP 1730 for history of changes prior to Sept. 30, 1936.

REMARKS.--Records good. Flow regulated by upstream main-stem reservoirs. National Weather Service gage-height telemeter at station. Corps of Engineers rain-gage and gage-height satellite telemeter at station.

AVERAGE DISCHARGE.--54 years, 29,860 ft³/s (846 m³/s), 21,630,000 acre-ft/yr (26,700 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 396,000 ft³/s (11,200 m³/s) Apr. 18, 1952, gage height, 30.20 ft (9.205 m); minimum, about 2,200 ft³/s (62 m³/s) Jan. 6, 1937; minimum gage height observed, -2.77 ft (-0.844 m) Jan. 10, 1957, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 63,000 ft³/s (1,780 m³/s) Feb. 23, maximum gage height, 11.24 ft (3.426 m) May 29; minimum daily discharge, 10,000 ft³/s (283 m³/s) Jan. 12; minimum gage height, -1.85 ft (-0.564 m) Jan. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36400	36900	18900	15300	17600	26300	35200	34800	41200	37700	35800	35400
2	36400	36500	19000	15100	16900	25900	35600	33800	39400	37600	35800	37200
3	37200	36600	19200	14300	16800	25600	35500	33300	39300	36000	35900	35900
4	37100	36100	18900	14700	16600	23900	36000	34200	36100	35600	36300	35500
5	36600	36000	18700	15600	16100	20800	34500	35100	36000	35700	39400	36500
6	36000	35900	17900	15800	16600	19500	34600	36600	34800	41200	38100	36800
7	35400	34400	17200	15900	16800	18900	35400	36300	35800	53000	37100	36400
8	35300	32500	17100	15400	17400	18800	35500	34900	36300	48000	35900	35600
9	34500	29200	17100	15000	18800	17700	35200	33300	35800	42200	35300	35700
10	34000	27800	17200	14000	18700	17100	35000	32500	34700	43400	36000	35900
11	34000	24600	17100	12200	18100	17400	34600	34700	34000	46900	35200	35900
12	33500	21900	17000	10000	17700	21200	33900	41500	34200	47200	36200	45500
13	33800	19900	17100	11800	17700	22500	34600	40200	33900	43200	36400	47500
14	34500	19400	16800	13400	17800	20000	34500	37300	33400	40400	36000	41100
15	35200	19100	16800	14000	18100	19700	36100	36100	40700	40400	35100	38100
16	35700	19200	16400	14600	18200	19100	39100	34900	40400	42800	33900	37300
17	35800	18900	16200	13700	18600	19200	38200	35200	36200	41700	34200	37100
18	35700	18800	15000	12800	18700	20200	37700	37000	33800	43000	34300	37100
19	36200	18700	14500	14300	19200	27600	37000	38400	33000	49300	34300	37300
20	36400	18700	14000	16600	23100	32200	36500	39100	33700	44600	34200	37700
21	36200	18700	13500	17400	31500	33600	36400	43700	36200	41900	34200	38200
22	35800	18500	15000	17300	32300	33300	36400	43100	36200	43900	33200	38000
23	35900	18300	15800	16700	38500	33000	35800	37500	35200	42200	33100	38100
24	36300	18200	17400	15000	37300	33800	35000	32400	34300	39000	34500	38700
25	36100	18300	16900	13600	28300	34200	34600	33800	36200	37600	36700	38300
26	35800	18200	16300	14200	26100	33800	34400	40800	37400	36900	37400	37500
27	35300	18300	16200	14700	25400	33600	35100	49800	37300	36400	36800	36900
28	35900	18500	16200	16800	25800	33600	35700	49700	37100	36900	36100	37100
29	36900	18200	16300	18300	---	33800	36000	50200	36300	36400	35700	37800
30	36900	18600	16200	18200	---	34100	35500	44300	36900	36200	38100	39200
31	36200	---	15800	18100	---	34400	---	40600	---	36100	37700	---
TOTAL	1107000	724900	517700	464800	604700	804800	1069600	1185100	1085800	1273400	1108900	1135300
MEAN	35710	24160	16700	14990	21600	25960	35650	38230	36190	41080	35770	37840
MAX	37200	36900	19200	18300	38500	34400	39100	50200	41200	53000	39400	47500
MIN	33500	18200	13500	10000	16100	17100	33900	32400	33000	35600	33100	35400
AC-FT	2196000	1438000	1027000	921900	1199000	1596000	2122000	2351000	2154000	2526000	2200000	2252000

CAL YR 1981	TOTAL	10546100	MEAN	28890	MAX	47200	MIN	12900	AC-FT	20920000
WTR YR 1982	TOTAL	11082000	MEAN	30360	MAX	53000	MIN	10000	AC-FT	21980000

06610000 MISSOURI RIVER AT OMAHA, NB--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Water quality samples were collected from Interstate 80 highway bridge 2.0 mi (3.2 km) downstream from gaging station. Samples for particle-size distribution were collected from boat cross-section 3.6 mi (5.8 km) upstream from gaging station.

PERIOD OF RECORD.--Water years 1969-76, 1978 to current year. Daily sediment loads for April 1939 to September 1971 are in reports of Corps of Engineers.

PERIOD OF DAILY RECORD.--
CHEMICAL ANALYSES: July 1969 to June 1972.
SPECIFIC CONDUCTANCE: October 1972 to September 1976, January 1978 to September 1981.
WATER TEMPERATURES: October 1971 to September 1976, January 1978 to September 1981.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 950 micromhos Dec. 4,5, 1980; minimum daily, 335 micromhos Mar. 22, 1978.
WATER TEMPERATURES: Maximum daily, 32.0°C July 24, 1972; minimum daily, 0.0°C on many days during winter periods.
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 (962,000 tonnes) May 19, 1974; minimum daily, 3,990 tons (3,620 tonnes Jan. 14, 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV										
09...	1100	28000	775	8.1	10.0	18	10.2	88	700	200
JAN										
04...	0930	12000	935	8.3	.0	5.5	13.4	96	100	180
MAR										
01...	1330	26500	575	8.0	2.0	130	12.0	86	600	K14000
MAY										
03...	1230	33200	775	8.5	16.0	17	7.7	81	100	K28
JUL										
19...	1130	49700	700	7.5	26.0	930	5.4	66	46000	38000
SEP										
01...	1145	33500	800	8.3	24.0	33	7.6	89	K1600	600

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 LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
NOV									
09...	250	60	25	74	38	2.2	4.7	160	250
JAN									
04...	300	74	29	83	37	2.3	5.4	200	260
MAR									
01...	210	52	20	50	33	1.6	8.0	150	170
MAY									
03...	280	67	27	75	36	2.1	5.2	170	240
JUL									
19...	250	65	21	57	33	1.7	6.2	166	180
SEP									
01...	250	64	22	76	39	2.3	5.7	159	250

DATE	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, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
NOV									
09...	12	.6	6.1	550	529	.75	41600	.32	.100
JAN									
04...	13	.5	8.9	599	594	.81	19400	.29	.190
MAR									
01...	13	.5	9.6	435	414	.59	31100	1.6	.740
MAY									
03...	13	.6	6.0	542	536	.74	48600	.10	.090
JUL									
19...	13	.5	11	470	454	.64	63100	2.7	.100
SEP									
01...	12	.5	7.5	555	533	.75	50200	.38	<.060

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

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	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)
NOV									
09...	.13	8.70	.030	.15	.060	.050	349	26400	17
JAN									
04...	.24	.79	.030	.18	.040	.060	--	--	--
MAR									
01...	.95	2.00	.120	.58	.140	.190	--	--	--
MAY									
03...	.12	.82	.070	.25	.040	.080	374	33500	26
JUL									
19...	.13	7.70	.070	13	.640	4.20	--	--	--
SEP									
01...	.08	1.40	.020	.46	.090	.150	409	37000	50

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
NOV										
09...	1100	4	2	100	51	1	1	10	<10	4
MAR										
01...	1330	7	4	200	77	2	2	20	<10	11
JUL										
19...	1130	18	3	900	130	<1	2	60	10	37
SEP										
01...	1145	4	3	<100	75	1	<1	<10	<10	3

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)
NOV										
09...	<3	12	12	3700	16	11	4	160	2	.1
MAR										
01...	<3	44	6	15000	260	15	1	640	21	.3
JUL										
19...	<1	120	16	77000	230	48	12	4600	23	.5
SEP										
01...	<1	21	10	4700	28	<1	<1	260	9	.2

DATE	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV									
09...	<.1	7	3	2	2	<1	<1	60	13
MAR									
01...	--	20	3	1	2	<1	<1	100	10
JUL									
19...	.1	130	4	2	1	<1	<1	370	29
SEP									
01...	.2	11	2	2	2	<1	<1	60	40

DATE	TIME	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, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L) (09511)	URANIUM NATURAL DISSOLVED (UG/L AS U) (22703)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)
MAY										
03...	1230	<12	3.0	7.0	3.5	6.7	3.4	.08	5.4	2.0
SEP										
01...	1145	<13	7.2	<6.9	4.8	<6.5	4.6	.17	4.4	4.9

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

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												
03...	WATER TEMPERATURE, 24.5°C (0935-1240 HOURS); MEAN DAILY DISCHARGE, 38200 ft³/s.											
03...	0935	180	7.50	6.70	2.07	541	--	26	33	93	100	--
03...	0938	180	--	6.20	2.31	437	--	31	39	93	100	--
03...	0940	180	--	5.40	2.63	326	--	36	43	93	100	--
03...	0942	180	--	3.80	3.15	226	--	57	65	97	100	--
03...	0944	180	--	1.80	3.33	187	--	77	87	100	--	--
03...	1010	280	12.0	10.8	3.07	519	--	27	41	96	100	--
03...	1012	280	--	10.0	3.01	450	--	29	45	97	100	--
03...	1014	280	--	8.60	3.36	340	--	40	55	98	100	--
03...	1016	280	--	6.00	3.86	270	--	49	63	99	100	--
03...	1018	280	--	2.80	4.48	215	--	58	71	100	--	--
03...	1050	380	12.1	--	--	426	13	25	--	--	--	--
03...	1110	480	15.1	14.2	4.26	1020	--	13	24	96	100	--
03...	1112	480	--	13.6	4.04	889	--	15	25	88	100	--
03...	1114	480	--	12.6	4.33	726	--	17	34	97	100	--
03...	1116	480	--	10.8	3.94	657	--	19	33	98	100	--
03...	1118	480	--	7.60	4.91	419	--	30	48	98	100	--
03...	1120	480	--	3.50	4.80	267	--	46	65	98	100	--
03...	1135	580	19.1	18.1	1.87	986	--	14	30	96	100	--
03...	1137	580	--	17.3	2.82	780	--	19	43	99	100	--
03...	1139	580	--	16.0	3.43	588	--	24	42	99	100	--
03...	1141	580	--	13.7	3.83	457	--	29	52	99	100	--
03...	1143	580	--	9.60	4.54	350	--	38	60	100	--	--
03...	1145	580	--	4.40	4.54	290	--	46	71	100	--	--
03...	1210	680	20.0	18.8	3.72	534	--	26	41	90	100	--
03...	1212	680	--	18.0	3.58	484	--	28	43	91	100	--
03...	1214	680	--	16.7	4.04	392	--	33	49	95	100	--
03...	1216	680	--	14.3	4.18	305	--	45	62	98	100	--
03...	1218	680	--	10.0	4.70	284	--	54	71	98	100	--
03...	1220	680	--	4.60	5.24	177	--	67	85	100	--	--
SEP												
14...	WATER TEMPERATURE, 21.0°C (1000-1230 HOURS); MEAN DAILY DISCHARGE, 33900 ft³/s.											
14...	1000	190	7.70	6.90	2.42	352	--	57	68	84	100	--
14...	1002	190	--	6.40	2.63	342	--	61	71	98	100	--
14...	1004	190	--	5.50	3.04	289	--	71	81	100	--	--
14...	1006	190	--	3.80	3.25	265	--	75	84	100	--	--
14...	1008	190	--	1.80	3.30	276	--	76	86	99	100	--
14...	1040	290	10.5	9.40	2.74	479	--	43	57	99	100	--
14...	1042	290	--	8.80	2.90	497	--	42	55	98	100	--
14...	1044	290	--	7.60	3.07	457	--	45	56	98	100	--
14...	1046	290	--	5.20	3.58	343	--	58	69	99	100	--
14...	1048	290	--	2.40	3.86	275	--	70	81	99	100	--
14...	1100	390	13.3	12.5	1.58	1020	--	18	29	78	98	100
14...	1102	390	--	12.0	1.58	1090	--	18	27	81	100	--
14...	1104	390	--	11.1	2.24	840	--	24	35	89	100	--
14...	1106	390	--	9.50	2.96	625	--	34	48	96	100	--
14...	1108	390	--	6.60	4.04	436	--	44	60	99	100	--
14...	1110	390	--	3.10	4.26	468	--	54	70	99	100	--
14...	1130	490	16.0	--	--	570	15	29	--	--	--	--
14...	1148	590	16.6	15.6	4.37	956	--	19	34	98	100	--
14...	1150	590	--	11.9	4.86	450	--	44	60	98	100	--
14...	1152	590	--	14.9	4.59	833	--	41	56	99	100	--
14...	1154	590	--	13.8	4.76	526	--	38	55	98	100	--
14...	1158	590	--	8.30	5.02	412	--	45	64	100	--	--
14...	1200	590	--	3.80	5.40	317	--	58	73	98	100	--
14...	1215	690	19.2	18.1	2.39	965	--	21	30	85	100	--
14...	1217	690	--	17.3	3.26	658	--	31	44	90	100	--
14...	1219	690	--	16.0	3.61	448	--	44	57	99	100	--
14...	1221	690	--	13.7	3.83	363	--	53	65	99	100	--
14...	1223	690	--	9.60	4.59	380	--	50	62	99	100	--
14...	1225	690	--	4.40	5.08	259	--	70	83	100	--	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

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)
OCT											
06...	WATER TEMPERATURE, 15.5°C (0945-1150 HOURS); MEAN DAILY DISCHARGE, 39600 ft³/s.										
06...	0945	100	17.3	16.4	2.63	729	--	17	26	73	100
06...	0948	100	--	15.7	3.50	602	--	21	32	74	100
06...	0951	100	--	14.5	4.37	469	--	32	40	88	100
06...	0954	100	--	12.4	4.37	315	--	36	49	93	100
06...	0957	100	--	8.70	4.63	272	--	43	55	97	100
06...	1000	100	--	4.00	4.80	202	--	55	75	99	100
06...	1020	250	18.4	17.3	4.37	2100	--	8	18	83	100
06...	1023	250	--	16.6	4.26	1350	--	12	26	90	100
06...	1026	250	--	15.3	4.30	1180	--	12	27	93	100
06...	1029	250	--	13.1	4.74	702	--	3	39	100	--
06...	1032	250	--	9.20	5.35	570	--	27	45	99	100
06...	1035	250	--	4.20	5.02	337	--	44	60	100	--
06...	1055	400	13.6	--	--	565	4	12	--	--	--
06...	1115	500	11.4	10.4	3.07	814	--	22	34	87	100
06...	1118	500	--	9.50	3.94	629	--	26	40	88	100
06...	1121	500	--	8.10	4.15	555	--	30	49	96	100
06...	1124	500	--	5.70	4.63	491	--	35	49	90	100
06...	1127	500	--	2.60	4.59	313	--	48	64	98	100
06...	1140	600	8.60	7.70	1.33	493	--	33	40	59	100
06...	1143	600	--	7.20	1.66	--	--	--	--	--	--
06...	1146	600	--	6.10	2.42	980	--	16	24	62	100
06...	1148	600	--	4.30	3.18	324	--	46	58	95	100
06...	1149	600	--	2.00	4.26	288	--	51	64	95	100
APR											
27...	WATER TEMPERATURE, 15.5°C (0945-1400 HOURS); MEAN DAILY DISCHARGE, 33300 ft³/s.										
27...	0945	100	10.4	9.40	2.96	595	--	19	31	82	100
27...	0947	100	--	8.70	3.18	298	--	33	48	97	100
27...	0949	100	--	7.40	3.36	259	--	38	54	97	100
27...	0951	100	--	5.20	3.61	214	--	45	62	98	100
27...	0953	100	--	2.40	3.28	138	--	67	87	100	--
27...	0955	250	12.0	10.8	3.58	729	--	23	37	94	100
27...	0957	250	--	10.0	3.39	615	--	28	44	97	100
27...	0959	250	--	8.60	3.90	520	--	31	47	98	100
27...	1001	250	--	6.00	4.04	411	--	38	54	98	100
27...	1003	250	--	2.80	4.22	459	--	41	54	94	100
27...	1100	400	13.2	--	--	473	8	16	--	--	--
27...	1300	520	15.8	14.9	3.86	693	--	25	44	100	--
27...	1302	520	--	14.2	3.94	651	--	23	44	99	100
27...	1305	520	--	13.2	3.83	562	--	28	48	99	100
27...	1308	520	--	11.3	4.43	516	--	28	51	100	--
27...	1312	520	--	7.90	4.76	389	--	45	65	100	--
27...	1315	520	--	3.70	5.02	290	--	51	75	100	--
27...	1340	600	13.8	13.0	3.90	355	--	43	64	98	100
27...	1343	600	--	12.4	4.18	342	--	43	65	98	100
27...	1346	600	--	11.5	3.94	356	--	41	62	97	100
27...	1349	600	--	9.90	3.65	353	--	44	64	98	100
27...	1355	600	--	6.90	3.83	345	--	47	67	99	100
27...	1358	600	--	3.20	4.65	242	--	60	79	100	--
JUN											
15...	WATER TEMPERATURE, 22.5 (1030-1320 HOURS); MEAN DAILY DISCHARGE, 35100 ft³/s.										
15...	1030	120	7.10	6.40	2.26	509	--	33	43	89	100
15...	1033	120	--	5.90	2.39	401	--	45	56	95	100
15...	1036	120	--	5.00	2.77	285	--	55	66	96	100
15...	1039	120	--	3.60	3.25	243	--	68	77	100	--
15...	1042	120	--	1.60	3.50	223	--	76	85	100	--
15...	1110	240	10.7	9.60	3.83	634	--	23	34	96	100
15...	1113	240	--	8.90	4.37	607	--	28	38	97	100
15...	1116	240	--	7.60	4.15	373	--	36	53	98	100
15...	1119	240	--	5.40	4.15	359	--	42	58	99	100
15...	1122	240	--	2.50	4.43	263	--	53	75	98	100
15...	1150	360	16.4	--	--	572	18	32	--	--	--
15...	1210	480	15.5	14.6	4.15	430	--	26	49	99	100
15...	1213	480	--	14.0	4.43	471	--	24	44	99	100
15...	1216	480	--	12.9	4.48	351	--	36	55	98	100
15...	1219	480	--	11.0	4.70	411	--	29	47	94	100
15...	1221	480	--	7.80	5.08	344	--	32	51	99	100
15...	1224	480	--	3.60	5.35	254	--	43	61	99	100
15...	1250	600	19.6	18.4	2.61	554	--	26	40	97	100
15...	1253	600	--	17.6	3.25	480	--	39	47	98	100
15...	1256	600	--	16.3	3.58	367	--	41	57	98	100
15...	1300	600	--	14.0	4.04	350	--	44	61	98	100
15...	1305	600	--	9.80	4.26	308	--	48	64	99	100
15...	1310	600	--	4.50	4.97	216	--	62	78	97	100

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
OCT											
19...	WATER TEMPERATURE, 11.0°C (1020-1400 HOURS); MEAN DAILY DISCHARGE, 31800 ft³/s.										
19...	1020	200	5.90	5.10	2.72	257	--	35	54	91	100
19...	1022	200	--	4.80	2.82	206	--	43	59	95	100
19...	1024	200	--	4.10	2.39	196	--	48	62	97	100
19...	1026	200	--	3.00	3.07	166	--	50	67	97	100
19...	1028	200	--	1.40	3.25	159	--	54	68	97	100
19...	1100	300	10.0	9.00	3.07	803	--	11	21	75	100
19...	1102	300	--	8.30	3.07	591	--	15	28	76	100
19...	1104	300	--	7.10	3.37	--	--	--	--	--	--
19...	1106	300	--	5.00	3.65	320	--	28	43	94	100
19...	1108	300	--	2.30	4.00	230	--	39	55	96	100
19...	1140	400	12.5	--	--	560	6	13	--	--	100
19...	1230	500	13.8	13.0	3.54	--	--	--	--	--	--
19...	1232	500	--	12.4	4.32	720	--	13	28	95	100
19...	1234	500	--	11.5	4.28	700	--	12	26	95	100
19...	1236	500	--	9.90	4.54	588	--	15	30	97	100
19...	1238	500	--	6.90	4.89	531	--	20	37	97	100
19...	1240	500	--	3.20	4.89	373	--	25	39	98	100
19...	1300	600	15.1	14.2	4.02	920	--	10	23	91	100
19...	1302	600	--	13.6	4.22	971	--	9	23	87	100
19...	1306	600	--	12.6	4.54	585	--	15	35	95	100
19...	1308	600	--	10.8	4.97	446	--	20	40	96	100
19...	1310	600	--	7.60	5.54	313	--	28	49	98	100
19...	1312	600	--	3.50	5.67	349	--	23	41	94	100
19...	1330	700	16.1	15.2	.78	673	--	20	28	65	100
19...	1332	700	--	14.5	1.06	361	--	32	43	79	100
19...	1334	700	--	13.4	1.85	406	--	31	42	87	100
19...	1336	700	--	11.5	3.47	248	--	43	59	96	100
19...	1338	700	--	8.00	3.65	244	--	45	57	95	100
19...	1340	700	--	3.70	4.59	215	--	45	63	97	100
APR											
26...	WATER TEMPERATURE, 9.0°C (1420-1540 HOURS); MEAN DAILY DISCHARGE, 34200 ft³/s.										
26...	1420	200	8.30	7.50	2.18	628	--	42	54	84	100
26...	1422	200	--	6.90	2.58	591	--	41	55	92	100
26...	1424	200	--	6.00	3.07	361	--	70	79	97	100
26...	1426	200	--	4.20	3.13	460	--	54	68	100	--
26...	1428	200	--	1.90	2.74	377	--	68	81	97	100
26...	1435	325	11.9	10.7	2.42	1370	--	20	25	69	100
26...	1437	325	--	9.90	2.90	672	--	36	46	92	100
26...	1439	325	--	8.50	3.65	616	--	38	49	90	100
26...	1441	325	--	6.00	3.86	516	--	46	57	96	100
26...	1443	325	--	2.80	4.15	480	--	51	60	97	100
26...	1450	450	13.3	--	--	2760	25	83	--	--	--
26...	1510	575	18.5	17.2	4.15	903	--	27	44	100	--
26...	1512	575	--	16.6	4.37	917	--	27	46	98	100
26...	1514	575	--	15.4	5.02	822	--	30	45	98	100
26...	1516	575	--	13.2	5.19	514	--	47	63	99	100
26...	1518	575	--	9.20	5.89	415	--	56	69	99	100
26...	1520	575	--	4.30	5.67	411	--	58	73	99	100
26...	1530	680	17.3	16.3	3.07	396	--	62	74	100	--
26...	1532	680	--	15.6	3.28	410	--	60	71	99	100
26...	1534	680	--	14.4	3.83	366	--	68	76	99	100
26...	1536	680	--	12.4	3.43	363	--	68	78	100	--
26...	1538	680	--	8.60	4.15	363	--	65	76	100	--
26...	1540	680	--	4.00	4.59	316	--	70	82	100	--
JUN											
21...	WATER TEMPERATURE, 22.5 (1105-1320 HOURS); MEAN DAILY DISCHARGE, 47200 ft³/s.										
21...	1107	240	10.4	9.40	2.74	1980	--	82	84	99	100
21...	1109	240	--	8.70	2.82	2290	--	88	91	99	100
21...	1111	240	--	7.40	3.18	2250	--	89	92	99	100
21...	1113	240	--	5.20	3.54	2210	--	92	94	100	--
21...	1115	240	--	2.40	3.90	2260	--	91	94	100	--
21...	1130	360	15.8	14.9	3.58	2920	--	72	75	97	100
21...	1134	360	--	14.2	3.68	2770	--	77	81	99	100
21...	1138	360	--	13.2	3.58	2720	--	79	82	99	100
21...	1141	360	--	11.3	3.97	2590	--	81	85	99	100
21...	1143	360	--	7.90	4.65	2530	--	85	89	100	--
21...	1145	360	--	3.70	4.91	2300	--	91	95	99	100
21...	1200	480	17.6	--	--	2730	30	75	--	--	--
21...	1230	600	21.4	20.6	3.33	3790	--	58	64	98	100
21...	1233	600	--	20.1	3.68	3700	--	58	65	98	100
21...	1235	600	--	19.3	3.61	3340	--	65	71	98	100
21...	1238	600	--	17.8	4.26	2880	--	73	79	99	100
21...	1240	600	--	15.3	4.48	2590	--	82	87	99	100
21...	1242	600	--	10.7	5.29	2330	--	90	94	100	--
21...	1245	600	--	4.90	5.83	2330	--	90	92	100	--
21...	1300	720	19.2	18.1	1.52	2130	--	94	96	100	--
21...	1303	720	--	17.3	3.25	2290	--	95	96	100	--
21...	1306	720	--	16.0	4.70	2090	--	96	97	100	--
21...	1309	720	--	13.7	4.48	2140	--	97	96	100	--
21...	1312	720	--	9.60	4.76	2150	--	95	97	100	--
21...	1315	720	--	4.40	4.82	2100	--	94	96	100	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 THAN .004 MM SED. SUSP. FALL DIAM. (70338)	% FINER THAN .062 MM SED. SUSP. FALL DIAM. (70342)	% FINER THAN .125 MM SED. SUSP. FALL DIAM. (70343)	% FINER THAN .250 MM SED. SUSP. FALL DIAM. (70344)	% FINER THAN .500 MM SED. SUSP. FALL DIAM. (70345)	% FINER THAN 1.00 MM SED. SUSP. FALL DIAM. (70346)
JUL												
26...	WATER TEMPERATURE, 24.0°C (1055-1245 HOURS); MEAN DAILY DISCHARGE, 63300 ft³/s											
26...	1030	225	15.1	14.3	3.07	643	--	50	62	62	94	100
26...	1032	225	--	13.7	3.25	905	--	35	46	89	100	--
26...	1034	225	--	12.7	3.72	825	--	38	50	94	100	--
26...	1036	225	--	10.9	3.86	920	--	35	54	100	--	--
26...	1038	225	--	7.60	3.90	415	--	68	78	98	100	--
26...	1040	225	--	3.50	4.11	399	--	71	80	97	100	--
26...	1055	325	15.1	14.3	4.80	1280	--	24	32	78	100	--
26...	1057	325	--	13.7	5.19	850	--	35	45	87	100	--
26...	1059	325	--	12.7	5.24	743	--	39	48	85	100	--
26...	1101	325	--	10.9	5.51	717	--	39	49	92	100	--
26...	1103	325	--	7.60	5.67	603	--	46	57	95	100	--
26...	1105	325	--	3.50	5.09	545	--	49	59	94	100	--
26...	1115	425	13.1	--	--	740	18	30	--	--	--	--
26...	1145	525	19.0	17.9	6.00	1280	--	24	34	87	100	--
26...	1147	525	--	17.1	6.76	726	--	41	54	98	100	--
26...	1149	525	--	15.8	6.43	617	--	48	60	97	100	--
26...	1151	525	--	13.6	6.87	662	--	46	58	98	100	--
26...	1153	525	--	9.50	6.65	714	--	61	72	98	100	--
26...	1155	525	--	4.40	6.91	516	--	58	70	98	100	--
26...	1208	600	23.0	22.2	5.15	973	--	32	43	94	100	--
26...	1210	600	--	21.6	5.02	1070	--	29	42	97	100	--
26...	1212	600	--	20.7	5.56	663	--	42	54	96	100	--
26...	1214	600	--	19.2	6.09	720	--	41	53	97	100	--
26...	1216	600	--	16.4	5.72	637	--	46	59	98	100	--
26...	1218	600	--	11.5	6.32	566	--	49	61	97	100	--
26...	1220	600	--	5.30	6.48	488	--	60	70	96	100	--
26...	1225	700	25.4	24.5	3.07	999	--	31	44	91	100	--
26...	1227	700	--	23.9	3.58	835	--	37	49	90	100	--
26...	1229	700	--	22.9	3.94	738	--	43	55	93	100	--
26...	1231	700	--	21.2	4.11	701	--	44	61	96	100	--
26...	1233	700	--	18.1	4.60	579	--	51	66	100	--	--
26...	1235	700	--	12.7	5.08	490	--	61	75	96	100	--
26...	1238	700	--	5.80	5.94	380	--	75	88	100	--	--
SEP												
13...	WATER TEMPERATURE, 25.0°C (1100-1225 HOURS); MEAN DAILY DISCHARGE, 32600 ft³/s.											
13...	1100	100	13.7	12.9	4.33	1440	--	64	78	98	100	--
13...	1102	100	--	12.3	2.85	1540	--	59	74	98	100	--
13...	1104	100	--	11.4	2.58	1270	--	70	81	98	100	--
13...	1106	100	--	9.80	2.95	1100	--	79	88	98	100	--
13...	1108	100	--	6.80	2.74	1100	--	78	86	99	100	--
13...	1110	100	--	3.20	3.04	971	--	86	91	98	100	--
13...	1125	200	14.8	13.9	3.68	2060	--	41	48	82	99	100
13...	1127	200	--	13.3	5.99	1700	--	51	57	87	100	--
13...	1129	200	--	12.3	6.15	1450	--	58	65	89	99	100
13...	1131	200	--	10.6	6.26	1340	--	64	71	93	99	100
13...	1133	200	--	7.40	6.29	--	--	--	--	--	--	--
13...	1135	200	--	3.40	6.91	988	--	85	88	98	100	--
13...	1150	300	15.0	--	--	1620	19	40	--	--	--	--
13...	1215	400	19.8	18.6	6.33	2050	--	40	47	95	100	--
13...	1217	400	--	17.8	6.76	1470	--	39	48	97	100	--
13...	1219	400	--	16.5	6.76	1370	--	37	47	96	100	--
13...	1221	400	--	14.1	6.97	917	--	56	66	95	100	--
13...	1223	400	--	9.90	7.19	997	--	56	65	98	100	--
13...	1225	400	--	4.60	7.62	782	--	68	76	97	100	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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												
25...	WATER TEMPERATURE, 12.0°C (1040-1245 HOURS); MEAN DAILY DISCHARGE, 58100 ft³/s.											
25...	1040	120	13.5	12.7	2.48	250	--	37	54	92	100	--
25...	1042	120	--	12.1	2.16	317	--	26	37	89	100	--
25...	1044	120	--	11.2	2.35	293	--	30	47	100	--	--
25...	1046	120	--	9.60	2.29	180	--	45	59	94	100	--
25...	1048	120	--	6.60	3.01	200	--	50	65	94	100	--
25...	1050	120	--	3.10	2.63	181	--	40	57	92	100	--
25...	1105	240	17.8	16.8	3.94	1840	--	5	10	69	100	--
25...	1107	240	--	16.0	4.48	1430	--	6	13	76	100	--
25...	1109	240	--	14.8	5.02	653	--	13	26	87	100	--
25...	1111	240	--	12.7	5.19	595	--	15	27	93	100	--
25...	1113	240	--	8.90	5.40	558	--	18	31	90	100	--
25...	1115	240	--	4.10	5.45	426	--	28	42	97	100	--
25...	1125	360	18.9	--	--	812	5	9	--	--	--	--
25...	1150	480	17.0	17.9	5.67	1030	--	7	18	98	100	--
25...	1152	480	--	17.1	5.89	737	--	12	26	100	--	--
25...	1154	480	--	15.8	6.43	436	--	19	37	98	100	--
25...	1156	480	--	13.6	6.54	368	--	24	42	99	100	--
25...	1158	480	--	9.50	6.87	311	--	37	49	98	100	--
25...	1200	480	--	4.40	7.41	301	--	32	46	94	100	--
25...	1216	600	21.3	20.5	.87	888	--	13	28	92	100	--
25...	1220	600	--	20.0	.89	182	--	53	70	95	100	--
25...	1224	600	--	19.3	1.00	216	--	41	58	92	100	--
25...	1228	600	--	17.8	2.96	480	--	19	38	95	100	--
25...	1232	600	--	15.3	2.50	206	--	43	56	94	100	--
25...	1236	600	--	10.7	4.34	218	--	41	57	100	--	--
25...	1240	600	--	4.90	2.96	232	--	48	64	98	100	--
APR												
30...	WATER TEMPERATURE, 12.0°C (1335-1415 HOURS); DISCHARGE, 43100 ft³/s.											
30...	1335	620	19.3	18.1	2.66	494	--	43	58	95	100	--
30...	1336	620	--	17.4	3.46	575	--	36	50	98	100	--
30...	1337	620	--	16.0	4.72	439	--	47	63	95	100	--
30...	1338	620	--	13.7	4.80	381	--	54	73	99	100	--
30...	1339	620	--	9.60	4.98	345	--	62	78	97	100	--
30...	1340	620	--	4.40	4.61	401	--	52	65	92	100	--
30...	1345	520	16.0	15.1	5.43	1500	--	14	30	97	100	--
30...	1346	520	--	14.4	5.09	1060	--	19	40	99	100	--
30...	1347	520	--	13.3	5.43	597	--	34	57	96	100	--
30...	1348	520	--	11.4	6.00	536	--	36	57	97	100	--
30...	1349	520	--	8.00	6.21	474	--	44	62	95	100	--
30...	1350	520	--	3.70	6.54	317	--	62	96	100	--	--
30...	1355	430	12.8	--	--	726	9	20	--	--	100	--
30...	1400	300	11.0	3.00	5.13	862	--	24	36	83	100	--
30...	1401	300	--	9.20	5.28	655	--	29	46	91	100	--
30...	1402	300	--	7.90	5.63	548	--	28	53	95	100	--
30...	1403	300	--	5.50	5.91	461	--	43	58	92	100	--
30...	1404	300	--	2.50	5.91	476	--	41	56	93	100	--
30...	1405	180	12.5	11.2	4.48	1420	--	14	20	66	100	--
30...	1406	180	--	10.4	4.37	1140	--	17	24	65	100	--
30...	1407	180	--	8.80	4.74	919	--	21	30	67	100	--
30...	1408	180	--	6.20	5.13	578	--	36	48	83	100	--
30...	1410	180	--	2.90	5.45	387	--	50	64	98	100	--
JUN												
06...	WATER TEMPERATURE, 21.0°C (1255-1345 HOURS); DISCHARGE, 46400 ft³/s.											
06...	1255	590	22.0	5.10	5.28	283	--	60	75	100	--	--
06...	1256	590	--	11.0	5.06	250	--	57	69	96	100	--
06...	1257	590	--	15.7	4.35	327	--	47	61	97	100	--
06...	1258	590	--	18.3	3.76	226	--	60	71	97	100	--
06...	1301	590	--	19.8	3.48	241	--	54	70	97	100	--
06...	1303	590	--	20.7	2.85	426	--	33	49	96	100	--
06...	1305	590	--	21.2	2.74	433	--	31	51	92	100	--
06...	1307	490	20.2	4.70	5.72	319	--	42	50	96	100	--
06...	1308	490	--	10.1	5.48	380	--	35	52	98	100	--
06...	1309	490	--	14.4	5.09	452	--	29	48	98	100	--
06...	1310	490	--	16.8	4.83	592	--	22	42	98	100	--
06...	1311	490	--	18.2	4.67	1050	--	15	25	94	100	--
06...	1312	490	--	19.0	4.44	795	--	15	28	90	100	--
06...	1314	400	16.7	--	--	454	8	19	--	--	--	--
06...	1322	300	16.0	3.70	4.72	369	--	39	54	98	100	--
06...	1323	300	--	8.00	3.94	654	--	22	33	84	100	--
06...	1324	300	--	11.4	3.35	860	--	18	26	83	100	--
06...	1325	300	--	13.3	2.89	1340	--	10	18	75	100	--
06...	1326	300	--	14.4	2.24	1260	--	11	19	70	99	100
06...	1327	300	--	15.1	1.89	1500	--	10	18	73	100	--
06...	1330	175	13.8	3.22	4.59	377	--	39	51	96	100	--
06...	1331	175	--	6.90	4.41	332	--	47	60	98	100	--
06...	1332	175	--	9.90	3.94	478	--	30	45	96	100	--
06...	1333	175	--	11.5	3.61	594	--	25	42	95	100	--
06...	1334	175	--	12.4	3.33	748	--	20	29	87	100	--
06...	1335	175	--	13.0	2.96	794	--	20	29	86	100	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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												
18...	WATER TEMPERATURE, 25.0°C (1210-1300 HOURS); DISCHARGE, 43000 ft³/s											
18...	1210	615	18.0	17.8	1.98	305	--	35	50	93	100	--
18...	1212	615	--	17.0	3.87	243	--	42	58	100	--	--
18...	1214	615	--	15.8	4.65	281	--	37	54	98	100	--
18...	1216	615	--	13.5	4.93	187	--	54	73	100	--	--
18...	1218	615	--	9.40	5.04	180	--	55	71	100	--	--
18...	1220	615	--	4.40	5.19	172	--	59	77	100	--	--
18...	1225	530	18.1	17.0	.80	1610	--	7	15	79	100	--
18...	1227	530	--	16.3	.89	1450	--	7	13	81	100	--
18...	1229	530	--	15.1	1.59	2510	--	4	8	85	100	--
18...	1231	530	--	13.0	4.70	656	--	17	31	97	100	--
18...	1233	530	--	9.00	5.54	580	--	31	50	98	100	--
18...	1235	530	--	4.20	5.39	307	--	34	55	100	--	--
18...	1236	430	17.0	--	--	546	9	18	--	--	--	--
18...	1245	300	12.6	11.3	4.52	600	--	17	31	93	100	--
18...	1246	300	--	10.5	4.59	508	--	20	34	96	100	--
18...	1247	300	--	9.00	4.89	480	--	22	36	95	100	--
18...	1248	300	--	6.30	4.87	377	--	27	44	96	100	--
18...	1249	300	--	2.90	5.09	299	--	33	50	98	100	--
18...	1250	180	13.8	13.0	3.11	--	--	--	--	--	--	--
18...	1251	180	--	12.4	3.22	613	--	17	28	89	100	--
18...	1252	180	--	11.5	3.72	343	--	30	44	98	100	--
18...	1253	180	--	9.90	3.81	312	--	31	47	96	100	--
18...	1254	180	--	6.90	4.04	253	--	40	53	98	100	--
18...	1255	180	--	3.20	4.11	215	--	45	58	100	--	--
AUG												
29...	WATER TEMPERATURE, 23.5°C (1210-1310 HOURS); DISCHARGE, 43900 ft³/s.											
29...	1210	635	20.0	18.8	2.63	453	--	84	90	99	100	--
29...	1212	635	--	18.0	3.24	456	--	84	90	99	100	--
29...	1213	635	--	16.7	4.02	428	--	84	90	99	100	--
29...	1215	635	--	14.3	4.39	425	--	84	90	98	100	--
29...	1217	635	--	10.0	4.61	401	--	88	94	100	--	--
29...	1219	635	--	4.60	4.91	373	--	90	94	100	--	--
29...	1225	525	16.0	15.1	4.28	1600	--	25	32	88	99	100
29...	1226	525	--	14.4	5.04	1120	--	35	43	94	100	--
29...	1227	525	--	13.3	5.35	942	--	42	52	97	100	--
29...	1228	525	--	11.4	5.63	701	--	56	67	99	100	--
29...	1229	525	--	8.00	5.72	731	--	56	67	99	100	--
29...	1231	525	--	3.70	5.89	502	--	73	81	99	100	--
29...	1233	430	20.2	--	--	828	16	37	--	--	--	--
29...	1240	350	15.2	14.3	1.87	1700	--	25	35	92	100	--
29...	1241	350	--	13.7	3.07	1410	--	29	37	91	100	--
29...	1242	350	--	12.7	4.09	1350	--	29	38	91	100	--
29...	1243	350	--	10.9	4.52	897	--	43	53	97	100	--
29...	1244	350	--	7.60	5.02	835	47	57	98	100	--	--
29...	1245	350	--	3.50	4.70	598	62	71	99	100	--	--
29...	1250	200	14.1	13.3	3.07	823	47	56	98	100	--	--
29...	1252	200	--	12.7	3.28	856	48	59	96	100	--	--
29...	1253	200	--	11.8	3.55	725	54	64	96	100	--	--
29...	1254	200	--	10.0	4.11	628	59	69	98	100	--	--
29...	1256	200	--	7.00	4.26	546	72	80	99	100	--	--
29...	1258	200	--	3.20	4.44	564	69	76	99	100	--	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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												
10...	WATER TEMPERATURE, 15.0°C (1240-1325 HOURS); DISCHARGE 41200 ft³/s.											
10...	1240	620	19.4	18.3	.80	322	--	36	49	80	100	--
10...	1241	620	--	17.5	1.59	396	--	28	41	76	100	--
10...	1242	620	--	16.2	4.26	446	--	24	39	78	100	--
10...	1244	620	--	13.9	4.83	215	--	50	65	96	100	--
10...	1245	620	--	9.70	4.80	213	--	50	66	98	100	--
10...	1246	620	--	4.50	5.56	207	--	51	66	96	100	--
10...	1247	520	17.5	16.5	4.04	912	--	14	32	98	100	--
10...	1248	520	--	15.8	4.24	956	--	12	27	97	100	--
10...	1249	520	--	14.6	4.87	681	--	18	35	99	100	--
10...	1251	520	--	12.5	5.02	557	--	21	39	98	100	--
10...	1252	520	--	8.80	5.89	513	--	22	44	99	100	--
10...	1253	520	--	4.00	5.89	313	--	35	58	98	100	--
10...	1254	435	15.1		--	549	9	20	--	--	--	--
10...	1308	340	16.7	13.0	4.28	1710	--	7	16	77	100	--
10...	1309	340	--	9.00	4.94	586	--	19	36	94	100	--
10...	1310	340	--	4.20	5.06	1010	--	11	21	64	98	100
10...	1312	170	11.0	9.90	3.22	714	--	17	31	91	100	--
10...	1314	170	--	9.20	3.28	791	--	15	29	91	100	--
10...	1316	170	--	7.90	3.57	624	--	19	34	92	100	--
10...	1318	170	--	5.50	3.61	399	--	28	46	96	100	--
10...	1320	170	--	2.50	3.89	329	--	33	52	97	100	--
APR												
16...	WATER TEMPERATURE, 10.0°C (1215-1430 HOURS); DISCHARGE, 34700ft³/s.											
16...	1215	150	9.10	8.10	2.48	930	--	13	20	87	100	--
16...	1216	150	--	7.50	2.50	731	--	17	27	92	100	--
16...	1217	150	--	6.40	2.70	711	--	17	28	88	100	--
16...	1218	150	--	4.50	2.74	460	--	27	39	94	100	--
16...	1220	150	--	2.10	3.18	428	--	29	42	94	100	--
16...	1230	525	15.7	14.8	3.72	709	--	16	28	92	100	--
16...	1232	525	--	14.1	4.26	586	--	19	33	96	100	--
16...	1234	525	--	13.1	4.35	527	--	20	36	95	100	--
16...	1238	525	--	11.2	4.70	397	--	28	42	97	100	--
16...	1240	525	--	7.80	5.26	376	--	29	42	97	100	--
16...	1242	525	--	3.60	5.04	331	--	33	44	97	100	--
16...	1355	605	19.0	17.9	3.83	582	--	22	36	97	100	--
16...	1356	605	--	17.1	4.00	486	--	25	40	97	100	--
16...	1357	605	--	15.8	4.11	385	--	31	48	98	100	--
16...	1358	605	--	13.6	4.28	400	--	29	44	97	100	--
16...	1359	605	--	9.50	4.52	246	--	48	62	98	100	--
16...	1400	605	--	4.40	5.13	211	--	55	68	94	100	--
16...	1410	440	12.5		--	466	10	23	--	--	--	--
16...	1415	310	12.6	11.3	4.11	978	--	12	21	84	100	--
16...	1416	310	--	10.5	4.44	785	--	14	25	91	100	--
16...	1417	310	--	9.00	4.80	640	--	17	31	91	100	--
16...	1418	310	--	6.30	4.80	519	--	22	36	93	100	--
16...	1419	310	--	2.90	5.17	179	--	61	68	98	100	--
MAY												
30...	WATER TEMPERATURE, 22.0°C (1110-1200 HOURS); DISCHARGE, 32900 ft³/s.											
30...	1110	700	14.8	3.40	3.59	324	--	97	98	100	--	--
30...	1111	700	--	7.40	3.15	341	--	93	97	100	--	--
30...	1112	700	--	10.6	3.37	357	--	90	95	100	--	--
30...	1113	700	--	12.3	3.02	358	--	89	94	100	--	--
30...	1115	700	--	13.3	2.76	386	--	84	90	98	100	--
30...	1117	700	--	13.9	2.53	384	--	83	90	98	100	--
30...	1120	600	17.4	4.00	4.76	446	--	81	87	98	100	--
30...	1121	600	--	8.70	4.37	455	--	75	81	98	100	--
30...	1122	600	--	12.4	4.09	603	--	58	68	97	100	--
30...	1123	600	--	14.5	3.65	686	--	51	58	97	100	--
30...	1124	600	--	15.7	3.39	715	--	47	55	98	100	--
30...	1126	600	--	16.4	3.39	788	--	44	52	96	100	--
30...	1128	495	14.8	--	--	804	12	42	--	--	--	--
30...	1140	380	11.6	2.70	4.48	503	--	64	70	98	100	--
30...	1141	380	--	5.80	4.17	562	--	59	67	97	100	--
30...	1142	380	--	8.30	3.87	651	--	52	60	95	100	--
30...	1143	380	--	9.70	3.20	801	--	43	54	94	100	--
30...	1145	380	--	10.4	3.39	885	--	39	48	93	100	--
30...	1146	250	11.4	2.60	4.44	380	--	80	86	98	100	--
30...	1147	250	--	5.70	4.11	450	--	71	78	100	--	--
30...	1148	250	--	8.10	3.55	486	--	65	71	97	100	--
30...	1149	250	--	9.50	3.09	548	--	57	65	95	100	--
30...	1151	250	--	10.4	3.57	618	--	52	60	95	100	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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												
09...	WATER TEMPERATURE, 29.5°C (1225-1325 HOURS); DISCHARGE 32800 ft³/s.											
09...	1225	660	20.4	4.70	4.76	167	--	66	84	100	--	--
09...	1226	660	--	10.2	4.09	208	--	54	70	100	--	--
09...	1227	660	--	14.6	3.55	231	--	50	65	97	100	--
09...	1228	660	--	17.0	3.42	203	--	55	69	95	100	--
09...	1229	660	--	18.4	3.08	319	--	36	50	88	100	--
09...	1230	660	--	19.2	2.96	384	--	31	44	82	100	--
09...	1236	580	19.0	4.40	4.85	165	--	70	85	100	--	--
09...	1238	580	--	9.50	4.37	204	--	53	69	100	--	--
09...	1240	580	--	13.6	4.15	292	--	38	58	97	100	--
09...	1242	580	--	15.8	3.55	285	--	40	59	98	100	--
09...	1244	580	--	17.1	3.13	452	--	26	46	98	100	--
09...	1245	580	--	17.9	2.72	531	--	23	39	98	100	--
09...	1246	500	16.6	--	--	445	13	27	--	--	--	--
09...	1300	380	13.2	3.10	4.26	198	--	55	73	100	--	--
09...	1301	380	--	6.60	3.94	283	--	39	53	98	100	--
09...	1302	380	--	9.40	2.98	406	--	29	44	97	100	--
09...	1303	380	--	11.0	3.09	512	--	24	39	97	100	--
09...	1304	380	--	11.9	3.09	912	--	13	24	89	100	--
09...	1310	250	11.6	2.70	3.83	215	--	50	63	100	--	--
09...	1311	250	--	5.80	3.59	234	--	47	57	97	100	--
09...	1312	250	--	8.30	3.22	318	--	36	48	95	100	--
09...	1313	250	--	9.70	2.96	371	--	31	43	93	100	--
09...	1314	250	--	10.4	2.61	395	--	28	42	93	100	--
AUG												
26...	WATER TEMPERATURE, 26.0°C (1215-1355 HOURS); DISCHARGE, 34100 ft³/s.											
26...	1255	680	26.0	6.00	4.33	90	--	75	88	100	--	--
26...	1257	680	--	13.0	4.33	104	--	64	86	95	100	--
26...	1259	680	--	18.6	3.63	104	--	66	91	100	--	--
26...	1301	680	--	21.7	3.07	122	--	58	77	100	--	--
26...	1303	680	--	23.4	3.00	144	--	51	63	94	100	--
26...	1305	680	--	24.5	2.74	174	--	41	54	90	100	--
26...	1307	680	--	25.0	2.34	207	--	34	47	83	100	--
26...	1310	580	17.4	4.00	4.83	173	--	40	61	98	100	--
26...	1312	580	--	8.70	4.65	177	--	39	60	100	--	--
26...	1314	580	--	12.4	3.87	326	--	22	38	94	100	--
26...	1316	580	--	14.5	3.63	518	--	14	27	92	100	--
26...	1318	580	--	15.7	2.92	780	--	10	20	93	100	--
26...	1319	580	--	16.4	3.18	785	--	10	18	91	100	--
26...	1320	500	18.0	--	--	397	9	19	--	--	--	--
26...	1328	370	12.0	2.80	4.70	200	--	33	49	95	100	--
26...	1331	370	--	6.00	4.22	278	--	24	40	97	100	--
26...	1332	370	--	8.60	3.81	392	--	18	35	97	100	--
26...	1333	370	--	10.0	3.98	400	--	18	35	96	100	--
26...	1335	370	--	10.8	3.87	407	--	16	31	94	100	--
26...	1336	240	11.2	2.60	4.07	141	--	46	62	94	100	--
26...	1337	240	--	5.60	3.81	163	--	40	55	97	100	--
26...	1340	240	--	8.00	3.55	213	--	33	50	95	100	--
26...	1343	240	--	9.30	1.85	440	--	17	28	88	100	--
26...	1344	240	--	10.1	1.26	408	--	19	32	90	100	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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												
15...	WATER TEMPERATURE, 15.0°C (1225-1315 HOURS); DISCHARGE, 37100 ft³/s.											
15...	1225	675	20.8	4.80	5.13	125	--	42	63	100	--	--
15...	1227	675	--	10.4	4.70	120	--	44	64	95	100	--
15...	1229	675	--	14.9	3.98	127	--	40	55	92	100	--
15...	1231	675	--	17.3	3.68	174	--	30	42	95	100	--
15...	1233	675	--	18.7	2.81	205	--	26	40	87	100	--
15...	1235	675	--	19.6	2.31	417	--	12	22	73	100	--
15...	1236	595	16.2	3.70	5.74	229	--	21	40	92	100	--
15...	1237	595	--	8.10	5.59	213	--	24	42	98	100	--
15...	1238	595	--	11.6	5.06	330	--	17	37	97	100	--
15...	1240	595	--	13.5	4.72	426	--	13	32	96	100	--
15...	1241	595	--	14.6	4.72	615	--	9	25	97	100	--
15...	1242	595	--	15.2	4.33	826	--	7	19	98	100	--
15...	1245	480	16.2	--	--	586	5	8	--	--	--	--
15...	1252	370	12.6	2.90	5.48	248	--	22	38	95	100	--
15...	1253	370	--	6.30	5.02	481	--	11	26	80	100	--
15...	1254	370	--	9.00	4.70	664	--	8	22	78	100	--
15...	1255	370	--	10.5	4.28	1060	--	5	14	75	100	--
15...	1257	370	--	11.3	4.02	947	--	8	18	76	100	--
15...	1300	250	12.0	2.80	4.30	219	--	54	68	97	100	--
15...	1301	250	--	6.00	3.96	228	--	41	55	97	100	--
15...	1302	250	--	8.60	3.22	252	--	32	49	96	100	--
15...	1303	250	--	10.0	2.89	339	--	16	33	94	100	--
15...	1305	250	--	10.8	2.40	443	--	13	28	90	100	--
APR												
15...	WATER TEMPERATURE, 11.0°C (1210-1530 HOURS); DISCHARGE, 37100 ft³/s.											
15...	1211	250	11.2	2.60	4.44	234	--	40	65	100	--	--
15...	1215	250	--	5.60	4.04	317	--	31	53	98	100	--
15...	1220	250	--	8.00	3.72	482	--	17	32	92	100	--
15...	1225	250	--	9.30	3.35	528	--	16	31	89	100	--
15...	1230	250	--	10.1	2.96	807	--	11	22	90	100	--
15...	1256	380	11.2	2.60	5.02	252	--	28	53	97	100	--
15...	1300	380	--	5.60	4.91	412	--	23	42	97	100	--
15...	1305	380	--	8.00	5.13	329	--	36	51	99	100	--
15...	1310	380	--	9.30	4.63	396	--	24	43	97	100	--
15...	1315	380	--	10.1	4.48	492	--	18	35	98	100	--
15...	1343	550	19.2	--	--	709	5	8	--	--	--	--
15...	1430	610	13.6	3.10	5.56	208	--	50	72	100	--	--
15...	1435	610	--	6.80	5.24	278	--	35	56	97	100	--
15...	1439	610	--	9.70	5.02	478	--	28	44	98	100	--
15...	1443	610	--	11.3	4.80	471	--	22	39	97	100	--
15...	1446	610	--	12.2	4.80	493	--	19	36	96	100	--
15...	1451	610	--	12.8	4.91	504	--	20	37	96	100	--
15...	1502	690	16.6	3.80	4.48	184	--	65	86	100	--	--
15...	1505	690	--	8.30	4.26	179	--	55	73	96	100	--
15...	1510	690	--	11.9	3.50	237	--	40	56	100	--	--
15...	1514	690	--	13.8	3.50	220	--	50	72	100	--	--
15...	1518	690	--	14.9	3.39	281	--	34	50	100	--	--
15...	1521	690	--	15.6	3.28	254	--	36	57	96	100	--
JUN												
03...	WATER TEMPERATURE, 22.0°C (1055-1245 HOURS); DISCHARGE, 31700 ft³/s.											
03...	1055	250	10.4	2.40	3.68	147	--	33	50	96	100	--
03...	1056	250	--	5.20	3.39	162	--	33	52	98	100	--
03...	1058	250	--	7.40	3.35	190	--	27	45	95	100	--
03...	1100	250	--	8.70	3.15	201	--	27	42	92	100	--
03...	1103	250	--	9.40	3.15	312	--	17	31	91	100	--
03...	1120	400	12.6	2.90	4.26	248	--	20	37	96	100	--
03...	1122	400	--	6.30	4.07	293	--	18	34	97	100	--
03...	1124	400	--	9.00	3.78	424	--	13	30	97	100	--
03...	1126	400	--	10.5	3.78	427	--	13	29	97	100	--
03...	1128	400	--	11.3	3.39	538	--	11	27	95	100	--
03...	1145	500	17.2	--	--	385	9	14	--	--	--	--
03...	1210	580	18.4	4.30	4.41	131	--	39	61	100	--	--
03...	1212	580	--	9.20	4.02	178	--	28	52	98	100	--
03...	1214	580	--	13.1	3.57	255	--	20	45	96	100	--
03...	1215	580	--	15.3	3.24	294	--	18	38	97	100	--
03...	1216	580	--	16.6	3.18	373	--	14	35	98	100	--
03...	1218	580	--	17.3	2.29	1090	--	5	12	84	100	--
03...	1230	660	19.2	4.40	3.89	129	--	44	69	100	--	--
03...	1232	660	--	96.0	4.02	130	--	39	46	94	100	--
03...	1234	660	--	13.7	3.42	152	--	36	62	98	100	--
03...	1236	660	--	16.0	3.15	177	--	31	54	100	--	--
03...	1238	660	--	17.3	3.00	228	--	24	47	95	100	--
03...	1240	660	--	18.1	2.59	246	--	23	46	96	100	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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												
15...	WATER TEMPERATURE, 29.0°C (1230-1315 HOURS); DISCHARGE, 33,300 ft³/s.											
15...	1231	615	20.2	4.70	4.44	65	--	35	70	100	--	--
15...	1232	615	--	10.1	4.13	138	--	53	72	100	--	--
15...	1233	615	--	14.4	3.50	141	--	51	66	100	--	--
15...	1235	615	--	16.8	3.31	184	--	39	59	100	--	--
15...	1237	615	--	18.2	3.00	422	--	17	32	93	100	--
15...	1239	615	--	19.0	2.27	414	--	18	32	91	100	--
15...	1241	515	16.2	3.70	5.13	156	--	44	61	97	100	--
15...	1242	515	--	8.10	4.63	204	--	35	53	95	100	--
15...	1244	515	--	11.6	4.22	294	--	24	42	95	100	--
15...	1245	515	--	13.5	3.83	533	--	14	27	86	100	--
15...	1247	515	--	14.6	3.72	560	--	13	26	87	100	--
15...	1249	515	--	15.2	3.52	685	--	11	22	92	100	--
15...	1255	430	14.2	--	--	249	16	28	--	--	--	--
15...	1256	325	12.2	2.80	4.22	160	--	45	62	98	100	--
15...	1257	325	--	6.10	3.87	167	--	39	55	100	--	--
15...	1259	325	--	8.70	3.35	269	--	27	43	97	100	--
15...	1301	325	--	10.2	2.83	422	--	17	35	97	100	--
15...	1303	325	--	11.0	2.68	543	--	14	27	94	100	--
15...	1305	175	9.60	2.20	3.33	153	--	43	56	94	100	--
15...	1307	175	--	4.80	3.24	230	--	30	42	95	100	--
15...	1309	175	--	6.90	2.57	198	--	35	47	100	--	--
15...	1311	175	--	8.00	2.74	325	--	22	36	92	100	--
15...	1315	175	--	8.60	2.03	473	--	15	26	81	100	--
AUG												
26...	WATER TEMPERATURE, 24.0°C (1150-1230 HOURS); DISCHARGE, 33800 ft³/s.											
26...	1150	610	20.0	4.60	4.65	155	--	68	85	98	100	--
26...	1151	610	--	10.0	3.94	179	--	61	75	100	--	--
26...	1152	610	--	14.3	3.91	203	--	54	67	96	100	--
26...	1153	610	--	16.7	3.68	211	--	53	65	96	100	--
26...	1154	610	--	18.0	2.98	305	--	44	55	96	100	--
26...	1155	610	--	18.8	3.11	325	--	35	50	95	100	--
26...	1200	530	16.6	3.80	4.87	180	--	50	62	97	100	--
26...	1201	530	--	8.30	4.65	218	--	40	58	97	100	--
26...	1202	530	--	11.9	4.89	294	--	31	49	97	100	--
26...	1203	530	--	13.8	4.00	359	--	26	46	97	100	--
26...	1204	530	--	14.9	3.63	486	--	18	38	95	100	--
26...	1205	530	--	15.6	3.72	450	--	20	40	98	100	--
26...	1210	450	16.8	--	--	672	6	12	--	--	--	--
26...	1215	335	11.2	2.60	4.65	185	--	33	50	100	--	--
26...	1216	335	--	5.60	4.15	268	--	24	47	97	100	--
26...	1217	335	--	8.00	4.09	410	--	15	35	97	100	--
26...	1218	335	--	9.30	4.20	423	--	15	32	97	100	--
26...	1219	335	--	10.1	4.11	422	--	15	36	97	100	--
26...	1225	200	12.8	3.00	4.13	142	--	39	52	94	100	--
26...	1226	200	--	6.40	3.81	172	--	32	43	94	100	--
26...	1228	200	--	10.7	1.59	230	--	19	35	95	100	--
26...	1229	200	--	11.5	3.14	--	--	--	--	--	--	--
26...	1230	200	--	12.0	2.91	--	--	--	--	--	--	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 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												
14...	WATER TEMPERATURE, 14.0°C (1235-1330 HOURS); DISCHARGE, 32900 ft³/s.											
14...	1235	640	18.8	4.30	4.48	107	--	44	65	95	100	--
14...	1236	640	--	9.40	4.33	103	--	46	65	100	--	--
14...	1237	640	--	13.4	3.68	--	--	--	--	--	--	--
14...	1238	640	--	15.7	3.26	117	--	42	66	96	100	--
14...	1239	640	--	16.9	2.72	221	--	22	36	83	100	--
14...	1240	640	--	17.7	1.79	188	--	26	42	78	100	--
14...	1245	560	16.2	3.70	4.87	221	--	23	43	92	100	--
14...	1246	560	--	8.10	4.67	238	--	20	44	95	100	--
14...	1247	560	--	11.6	3.98	302	--	16	38	97	100	--
14...	1248	560	--	13.5	4.28	399	--	12	32	97	100	--
14...	1249	560	--	14.6	3.72	477	--	11	30	96	100	--
14...	1250	560	--	15.2	4.00	--	--	--	--	--	--	--
14...	1251	465	14.2	--	--	465	8	12	--	--	--	--
14...	1301	350	11.6	2.70	4.70	330	--	15	33	96	100	--
14...	1302	350	--	5.80	5.17	440	--	11	27	93	100	--
14...	1303	350	--	8.30	4.41	544	--	9	25	94	100	--
14...	1304	350	--	9.70	4.11	549	--	10	24	95	100	--
14...	1305	350	--	10.4	4.17	883	--	6	16	92	100	--
14...	1306	220	10.8	2.50	4.37	217	--	21	40	95	100	--
14...	1307	220	--	5.40	3.94	302	--	16	36	91	100	--
14...	1308	220	--	7.70	3.57	270	--	17	36	90	100	--
14...	1309	220	--	9.00	3.15	406	--	12	28	83	100	--
14...	1310	220	--	9.70	3.33	436	--	11	27	89	100	--
APR												
14...	WATER TEMPERATURE, 9.0°C (1200-1310 HOURS); DISCHARGE, 34400ft³/s.											
14...	1200	615	19.0	4.40	4.91	190	--	69	84	100	--	--
14...	1201	615	--	9.50	4.37	237	--	54	70	100	--	--
14...	1202	615	--	13.6	3.94	353	--	37	54	97	100	--
14...	1203	615	--	15.8	3.28	537	--	25	37	98	100	--
14...	1204	615	--	17.1	2.74	544	--	25	37	94	100	--
14...	1205	615	--	17.9	3.28	560	--	24	37	94	100	--
14...	1215	530	16.8	3.90	4.48	416	--	30	42	99	100	--
14...	1216	530	--	8.40	4.04	440	--	27	40	93	100	--
14...	1217	530	--	12.0	4.04	437	--	28	40	94	100	--
14...	1218	530	--	14.0	3.28	461	--	26	37	94	100	--
14...	1219	530	--	15.1	2.85	459	--	27	40	96	100	--
14...	1220	530	--	15.8	3.28	526	--	23	37	95	100	--
14...	1231	435	12.2	--	--	551	11	22	--	--	--	--
14...	1246	305	10.8	2.50	5.45	294	--	40	53	100	--	--
14...	1247	305	--	5.40	5.45	373	--	31	41	98	100	--
14...	1248	305	--	7.70	5.13	447	--	27	39	98	100	--
14...	1249	305	--	9.00	4.37	543	--	23	33	94	100	--
14...	1250	305	--	9.70	4.91	487	--	25	38	96	100	--
14...	1306	185	10.0	2.30	3.78	290	--	40	56	100	--	--
14...	1307	185	--	5.00	4.04	372	--	34	47	92	100	--
14...	1308	185	--	7.10	3.39	405	--	32	43	94	100	--
14...	1309	185	--	8.30	3.28	527	--	25	37	94	100	--
14...	1310	185	--	9.00	3.28	582	--	22	27	86	100	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
JUN											
02...	WATER TEMPERATURE 18.0 C (1335-1420 HOURS); DISCHARGE, 39,000 ft³/s.										
02...	1335	675	13.4	3.10	4.26	861	--	95	98	99	100
02...	1336	675	--	6.70	4.26	878	--	96	99	100	--
02...	1337	675	--	9.60	2.98	888	--	96	99	100	--
02...	1338	675	--	11.2	2.03	851	--	98	100	--	--
02...	1339	675	--	12.1	2.55	884	--	94	98	100	--
02...	1340	675	--	12.6	2.68	851	--	97	100	--	--
02...	1345	585	20.6	4.80	4.70	972	--	85	91	99	100
02...	1346	585	--	10.3	4.15	1030	--	82	86	99	100
02...	1347	585	--	14.7	3.87	1170	--	74	80	99	100
02...	1348	585	--	17.2	3.78	1480	--	61	68	97	100
02...	1349	585	--	18.5	3.18	1550	--	56	63	98	100
02...	1350	585	--	19.4	2.13	--	--	--	--	--	--
02...	1355	495	19.4	--	--	1130	40	68	--	--	--
02...	1405	350	14.2	3.30	4.15	1040	--	82	86	99	100
02...	1406	350	--	7.10	3.89	1070	--	79	85	99	100
02...	1407	350	--	10.1	3.65	1250	--	71	78	99	100
02...	1408	350	--	11.8	3.74	1270	--	70	77	98	100
02...	1409	350	--	12.8	3.18	1440	--	62	70	98	100
02...	1410	350	--	13.4	3.20	1540	--	59	65	96	100
02...	1415	200	12.8	3.00	3.96	977	--	84	88	99	100
02...	1416	200	--	6.40	3.89	954	--	89	93	100	--
02...	1417	200	--	9.10	3.50	1030	--	83	88	99	100
02...	1418	200	--	10.7	3.28	1130	--	75	80	94	100
02...	1419	200	--	11.5	2.98	1130	--	76	82	97	100
02...	1420	200	--	12.0	2.92	1250	--	68	73	92	100
JUL											
14...	WATER TEMPERATURE 26.0 C (1215-1360 HOURS); DISCHARGE 40,300 ft³/s.										
14...	1215	655	18.8	4.30	4.52	618	--	94	98	100	--
14...	1216	655	--	9.40	3.72	663	--	91	97	100	--
14...	1217	655	--	13.4	3.65	676	--	91	97	100	--
14...	1218	655	--	15.7	3.63	663	--	90	98	100	--
14...	1219	655	--	16.9	3.46	677	--	91	98	100	--
14...	1220	655	--	17.7	3.11	664	--	91	96	100	--
14...	1230	575	18.6	4.30	4.85	726	--	83	89	99	100
14...	1231	575	--	9.30	4.35	758	--	79	86	99	100
14...	1232	575	--	13.3	4.30	975	--	66	75	97	100
14...	1233	575	--	15.5	4.09	1020	--	60	69	97	100
14...	1234	575	--	16.7	3.68	1110	--	56	63	94	100
14...	1235	575	--	17.5	3.57	1290	--	50	58	95	100
14...	1240	445	15.4	--	--	964	28	64	--	--	--
14...	1250	330	12.2	2.80	4.96	815	--	76	82	99	100
14...	1251	330	--	6.10	4.61	886	--	74	81	99	100
14...	1252	330	--	8.70	4.20	935	--	65	74	98	100
14...	1253	330	--	10.2	4.26	956	--	65	73	98	100
14...	1254	330	--	11.0	3.87	1100	--	59	69	97	100
14...	1255	200	12.6	2.90	4.37	683	--	88	93	100	--
14...	1256	200	--	6.30	4.11	679	--	87	92	100	--
14...	1257	200	--	9.00	4.07	767	--	79	85	99	100
14...	1258	200	--	10.5	3.98	858	--	73	80	99	100
14...	1259	200	--	11.3	3.52	926	--	70	74	96	100
SEP											
01...	WATER TEMPERATURE 24.0 C (1220-1300 HOURS); DISCHARGE 33,500 ft³/s.										
01...	1220	625	19.8	4.60	4.63	341	--	85	94	100	--
01...	1221	625	--	9.90	4.50	350	--	86	95	100	--
01...	1222	625	--	14.1	4.15	437	--	73	84	100	--
01...	1223	625	--	16.5	3.52	446	--	72	80	97	100
01...	1224	625	--	17.8	3.20	522	--	60	69	100	--
01...	1225	625	--	18.6	2.70	580	--	57	65	98	100
01...	1230	545	18.0	4.20	4.65	456	--	63	72	98	100
01...	1231	545	--	9.00	4.37	449	--	65	74	98	100
01...	1232	545	--	12.9	3.87	469	--	62	73	98	100
01...	1233	545	--	15.0	3.59	640	--	51	63	98	100
01...	1234	545	--	16.2	3.39	646	--	49	61	97	100
01...	1235	545	--	17.0	2.68	839	--	36	50	98	100
01...	1238	465	15.4	--	--	633	14	46	--	--	--
01...	1248	380	12.2	2.80	4.70	440	--	58	70	100	--
01...	1249	380	--	6.10	4.39	467	--	55	68	98	100
01...	1250	380	--	8.70	4.48	544	--	40	63	100	--
01...	1251	380	--	10.2	4.13	513	--	40	64	99	100
01...	1252	380	--	11.0	4.07	649	--	40	54	98	100
01...	1255	180	8.80	2.00	3.81	323	--	81	87	90	100
01...	1256	180	--	4.40	3.07	341	--	75	80	96	100
01...	1257	180	--	6.30	3.09	405	--	67	76	96	100
01...	1258	180	--	7.30	2.39	388	--	71	79	90	100
01...	1259	180	--	7.90	2.76	436	--	66	74	97	100

MISSOURI RIVER MAIN STEM

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

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 06...	1150	4	0	2	45	99	100	--	--	--
APR 27...	1400	5	0	1	28	94	98	99	99	100
JUN 15...	1320	5	0	2	45	96	99	99	100	--
AUG 03...	1240	6	0	1	45	99	100	--	--	--
SEP 14...	1230	6	0	1	70	97	100	--	--	--

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

OCT 19...	1400	6	0	1	41	97	99	100	--	--
APR 26...	1540	5	--	0	13	85	97	99	99	100
JUN 21...	1320	5	0	2	90	94	98	99	100	--
JUL 26	1245	6	0	1	45	95	98	99	100	--

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

OCT 25...	1245	5	0	2	41	93	98	99	99	100
APR 30...	1415	4	0	2	42	100	--	--	--	--
JUN 06...	1345	4	0	1	39	91	98	99	99	100
JUL 18...	1300	4	1	1	46	100	--	--	--	--
AUG 29...	1308	4	0	24	37	97	99	100	--	--

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

OCT 10...	1325	4	0	1	48	97	99	99	99	100
APR 16...	1430	5	0	1	43	97	99	100	--	--
MAY 30...	1200	4	0	1	48	99	100	--	--	--
JUL 09...	1324	5	0	1	40	99	100	--	--	--
AUG 26...	1355	5	0	2	46	99	100	--	--	--

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL,WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

OCT 15...	1315	5	0	1	25	96	100	--	--	--
APR 15...	1530	4	0	1	30	95	99	99	99	100
JUN 03...	1245	5	0	1	24	98	100	--	--	--
JUL 15...	1315	5	0	1	20	99	100	--	--	--
AUG 26...	1230	5	0	1	21	98	100	--	--	--

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

OCT 14...	1330	5	0	2	29	100	--	--	--	--
APR 14...	1320	5	--	0	25	93	97	99	100	--
JUN 02...	1350	4	0	1	30	100	--	--	--	--
JUL 14...	1240	4	0	1	26	97	99	99	100	--
SEP 01...	1312	5	0	1	50	93	97	99	100	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB

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 (1.1 km) upstream from Waubonsie Highway Bridge at Nebraska City, and at mile 562.6 (905.2 km).

DRAINAGE AREA .--410,000 mi² (1,062,000 km²), approximately. The 3,959 mi² (10,254 km²) in Great Divide basin are not included.

PERIOD OF RECORD.--August 1929 to current year. Gage-height records collected in this vicinity from August 1878 to December 1899 are contained in reports of Missouri River Commission.

REVISED RECORDS.--WSP 761: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 905.36 ft (275.954 m) NGVD, supplementary adjustment of 1954. See WSP 1918 or 1919 for history of changes prior to Apr. 1, 1963.

REMARKS.--Records good. Flow regulated by upstream main-stem reservoirs. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--53 years, 35,660 ft³/s (1,010 m³/s), 25,840,000 acre-ft/yr (31,900 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 414,000 ft³/s (11,700 m³/s) Apr. 19, 1952; maximum gage height, 27.66 ft (8.431 m) Apr. 18, 1952; minimum discharge, 1,600 ft³/s (45.3 m³/s) Dec. 31, 1946 (discharge measurement); minimum gage height observed, -0.28 ft (-0.085 m) Dec. 24, 1960, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 113,000 ft³/s (3,200 m³/s) May 21, gage height, 18.57 ft (5.660 m); minimum daily, 11,500 ft³/s (326 m³/s) Jan. 12,13; minimum gage height not determined, occurred during period of no gage-height record Jan. 4-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37800	42800	27200	18800	20800	39900	39400	38400	69300	43000	38600	41500
2	37300	42400	26600	18700	20500	39300	38700	39200	64600	43000	39100	39900
3	37900	42600	26700	18200	20200	38900	39100	38900	58500	42300	39200	39300
4	38400	41400	26700	18500	19500	37000	39300	38600	54700	41100	38500	38700
5	37800	40600	25900	18000	19000	33000	39500	39800	53600	40700	39100	38800
6	37700	39000	24900	18000	19500	29500	39200	40900	51500	42600	39900	39500
7	37800	37800	24200	18000	20000	26700	39600	41200	49800	53000	45000	39700
8	37800	35400	24000	18000	20400	24800	39800	40300	49300	57900	43000	38900
9	37600	33200	24000	17000	21100	23600	39500	38800	50400	54500	41000	38600
10	37200	30300	23900	15000	21600	23700	39000	38500	47700	52600	45000	38900
11	37400	28800	23500	13000	20900	24000	39000	39100	46200	64100	44600	39200
12	37500	26800	23700	11500	20300	26100	38500	43900	44800	64200	44800	44300
13	37600	25400	23300	11500	20600	31500	40800	45200	44000	57000	55600	56100
14	38800	24000	23200	14500	20700	31700	40900	43100	42500	54000	61600	53300
15	39800	23900	22900	16500	20800	29400	41400	43300	88900	48900	56200	49100
16	40700	24000	22800	17000	21200	28500	42800	42000	93000	48500	47800	45700
17	40800	24000	20100	17000	21800	27700	40900	43100	70000	52000	43900	44700
18	40700	23700	17000	15500	23000	27400	40300	44900	57200	51800	41800	44600
19	40400	23200	16400	15900	28300	35700	39800	48300	53800	53400	39800	43900
20	40700	23900	15700	18400	36600	49300	39500	55700	50500	53600	38600	42900
21	40900	23600	15200	20300	47300	45000	39100	97500	48500	49900	38200	41800
22	40300	23600	15200	20700	41400	43500	39000	84700	47300	47900	38300	41400
23	40500	22200	17000	19800	60600	41700	38200	62200	45700	47800	37500	42000
24	40100	22600	20200	18900	72600	42300	38100	53800	45200	44700	39900	41200
25	40000	22800	21600	17300	53400	41900	37400	54500	43600	42200	41400	41400
26	40600	23000	21600	16600	45800	41600	37100	64700	45800	40700	40800	41400
27	40500	23600	21600	17500	41200	41400	36600	84200	44500	39500	40300	41000
28	40000	23900	21400	19500	40200	40700	36600	81900	44500	39000	39500	40800
29	40100	23800	20200	21000	---	40300	36800	76000	42600	39000	39200	41100
30	40000	24800	19800	21400	---	41100	37500	75100	41800	38400	41200	42000
31	40700	---	20000	21000	---	40800	---	66600	---	38600	43100	---
TOTAL	1215400	867100	676500	543000	839300	1088000	1173400	1644400	1589800	1485900	1322500	1271700
MEAN	39210	28900	21820	17520	29980	35100	39110	53050	52990	47930	42660	42390
MAX	40900	42800	27200	21400	72600	49300	42800	97500	93000	64200	61600	56100
MIN	37200	22200	15200	11500	19000	23600	36600	38400	41800	38400	37500	38600
AC-FT	2411000	1720000	1342000	1077000	1665000	2158000	2327000	3262000	3153000	2947000	2623000	2522000

CAL YR 1981	TOTAL	11794400	MEAN	32310	MAX	57400	MIN	13700	AC-FT	23390000
WTR YR 1982	TOTAL	13717000	MEAN	37580	MAX	97500	MIN	11500	AC-FT	27210000

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 (1.1 km) upstream from g

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1951 to September 1976.
WATER TEMPERATURES: May 1951 to September 1976.
SEDIMENT DISCHARGE: October 1971 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 994 micromhos Dec. 17, 1962; minimum daily, 273 micromhos June 17, 1964.
WATER TEMPERATURES: Maximum daily, 31° C July 26, 1977; minimum, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,220 mg/L May 19, 1974; minimum daily mean, 137 mg/L Jan. 14, 1975.
SEDIMENT LOADS: Maximum daily, 1,590,000 tons (1,440,000 tonnes) May 19, 1974; minimum daily, 4,050 tons (3,670 tonnes) Jan. 17, 1972.

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

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												
05...	WATER TEMPERATURE, 15.5°C (1140-1445 HOURS); DISCHARGE, 40200 ft³/s.											
05...	1140	680	18.2	17.1	2.33	161	--	84	91	100	--	--
05...	1143	680	--	16.4	1.76	119	--	97	98	99	100	--
05...	1146	680	--	15.2	2.42	113	--	87	97	100	--	--
05...	1149	680	--	13.0	2.35	98	--	90	98	100	--	--
05...	1152	680	--	9.10	2.63	104	--	91	100	--	--	--
05...	1155	680	--	4.20	3.39	104	--	91	100	--	--	--
05...	1210	580	12.8	12.0	2.96	315	--	42	58	88	100	--
05...	1213	580	--	11.5	2.52	284	--	41	58	94	100	--
05...	1216	580	--	10.7	3.28	268	--	45	61	96	100	--
05...	1219	580	--	9.10	3.94	229	--	51	64	98	100	--
05...	1222	580	--	6.40	4.26	186	--	57	74	99	100	--
05...	1225	580	--	3.00	5.13	174	--	69	81	100	--	--
05...	1255	430	14.2	--	--	1010	3	7	--	--	--	
05...	1330	280	13.4	12.6	5.02	1020	--	12	32	97	100	--
05...	1333	280	--	12.1	5.56	1040	--	12	30	97	100	--
05...	1336	280	--	11.2	5.67	944	--	13	30	97	100	--
05...	1339	280	--	9.60	6.32	752	--	16	36	99	100	--
05...	1342	280	--	6.70	6.54	644	--	17	38	98	100	--
05...	1345	280	--	3.10	7.23	840	--	16	32	95	100	--
05...	1420	30.0	16.7	15.7	3.18	532	--	23	43	95	100	--
05...	1423	30.0	--	15.0	3.83	472	--	23	46	97	100	--
05...	1426	30.0	--	13.9	4.04	395	--	31	53	98	100	--
05...	1429	30.0	--	12.0	4.04	358	--	31	55	99	100	--
05...	1432	30.0	--	8.40	4.59	361	--	31	51	99	100	--
05...	1435	30.0	--	3.90	5.24	418	--	32	57	98	100	--
APR												
26...	WATER TEMPERATURE, 15.0°C (1000-1600 HOURS); DISCHARGE, 40900 ft³/s.											
26...	1000	65.0	17.0	16.0	4.03	656	--	38	47	94	100	--
26...	1002	65.0	--	15.3	3.34	633	--	40	52	99	100	--
26...	1004	65.0	--	14.2	3.22	592	--	36	47	92	100	--
26...	1006	65.0	--	12.1	4.28	650	--	38	55	100	--	--
26...	1008	65.0	--	8.50	5.09	469	--	54	67	100	--	--
26...	1010	65.0	--	3.90	5.56	378	--	61	76	100	--	--
26...	1026	165	13.5	12.6	5.24	913	--	20	27	97	100	--
26...	1028	165	--	12.1	5.35	1160	--	18	30	99	100	--
26...	1030	165	--	11.2	5.56	1150	--	18	28	93	100	--
26...	1032	165	--	9.60	5.87	925	--	25	38	98	100	--
26...	1034	165	--	6.70	6.05	609	--	41	55	99	100	--
13...	1219	400	--	16.5	6.76	1370	--	37	47	96	100	--
26...	1145	315	13.4	--	--	837	9	21	--	--	--	--
26...	1300	415	12.8	12.0	3.07	840	--	32	44	87	100	--
26...	1305	415	--	11.5	3.13	995	--	29	40	84	99	100
26...	1310	415	--	10.7	3.86	708	--	39	51	92	100	--
26...	1315	415	--	9.10	4.28	863	--	32	47	94	100	--
26...	1320	415	--	6.40	4.69	512	--	47	63	100	--	--
26...	1330	415	--	3.00	4.97	384	--	70	83	100	--	--
26...	1500	515	15.6	14.7	2.96	424	--	63	75	100	--	--
26...	1505	515	--	14.0	3.19	362	--	66	75	99	100	--
26...	1510	515	--	13.0	3.68	417	--	64	76	100	--	--
26...	1515	515	--	11.1	3.68	383	--	70	80	98	100	--
26...	1520	515	--	7.80	4.24	362	--	73	86	100	--	--
26...	1525	515	--	3.60	4.41	255	--	89	100	--	--	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

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												
14...	WATER TEMPERATURE, 23.0°C (1030-1335 HOURS); DISCHARGE, 38900 ft³/s.											
14...	1030	84.0	14.6	13.7	3.07	2350	--	22	24	87	100	--
14...	1035	84.0	--	13.1	3.50	1580	--	33	37	90	100	--
14...	1040	84.0	--	12.2	4.00	1230	--	41	48	94	100	--
14...	1045	84.0	--	10.4	3.90	824	--	61	69	99	100	--
14...	1050	84.0	--	7.30	4.91	830	--	66	75	100	--	--
14...	1055	84.0	--	3.40	5.35	636	--	77	86	100	--	--
14...	1110	204	12.9	12.0	5.02	1690	--	36	43	92	100	--
14...	1115	204	--	11.6	5.13	1480	--	43	50	96	99	100
14...	1120	204	--	10.8	4.91	1385	--	44	52	98	100	--
14...	1125	204	--	9.20	5.29	1130	--	54	63	99	100	--
14...	1130	204	--	6.40	5.67	1020	--	59	68	99	100	--
14...	1135	204	--	3.00	6.11	857	--	69	76	100	--	--
14...	1150	324	14.3	--	--	770	17	32	--	--	--	--
14...	1225	444	14.1	13.3	3.39	812	--	74	79	97	100	--
14...	1230	444	--	12.7	3.22	818	--	74	80	97	100	--
14...	1235	444	--	11.8	3.83	758	--	79	82	98	100	--
14...	1240	444	--	10.0	4.15	784	--	77	84	98	100	--
14...	1245	444	--	7.00	4.43	696	--	85	89	100	--	--
14...	1250	444	--	3.20	5.02	627	--	90	94	100	--	--
14...	1300	564	17.4	16.4	2.90	531	--	97	100	--	--	--
14...	1305	564	--	15.7	3.22	545	--	98	100	--	--	--
14...	1310	564	--	14.5	3.01	523	--	98	100	--	--	--
14...	1315	564	--	12.4	3.39	532	--	97	99	100	--	--
14...	1320	564	--	8.70	3.50	511	--	98	98	100	--	--
14...	1325	564	--	4.00	4.26	541	--	98	100	--	--	--
AUG												
02...	WATER TEMPERATURE, 26.0°C (1100-1345 HOURS); DISCHARGE, 38300 ft³/s.											
02...	1100	140	14.5	13.6	3.79	633	--	29	34	96	99	100
02...	1102	140	--	13.0	3.94	771	--	25	37	98	100	--
02...	1104	140	--	12.1	4.15	753	--	27	41	97	100	--
02...	1106	140	--	10.4	4.91	499	--	36	51	98	100	--
02...	1108	140	--	7.20	5.02	426	--	46	63	99	100	--
02...	1110	140	--	3.40	5.35	334	--	57	71	100	--	--
02...	1130	250	12.6	11.3	4.54	840	--	24	40	98	100	--
02...	1132	250	--	10.5	5.19	671	--	31	48	99	100	--
02...	1134	250	--	9.00	4.86	622	--	34	54	100	--	--
02...	1136	250	--	6.30	5.56	525	--	42	58	100	--	--
02...	1138	250	--	2.90	5.89	285	--	72	86	100	--	--
02...	1210	360	15.1	--	--	936	9	14	--	--	--	--
02...	1240	470	14.5	13.6	3.15	414	--	43	54	87	100	--
02...	1242	470	--	13.0	3.36	364	--	53	66	92	100	--
02...	1244	470	--	12.1	3.61	332	--	53	65	92	100	--
02...	1246	470	--	10.4	3.94	275	--	62	74	96	100	--
02...	1248	470	--	7.20	4.37	318	--	60	73	97	100	--
02...	1250	470	--	3.40	4.59	291	--	61	70	96	100	--
02...	1320	580	18.6	17.5	1.95	249	--	78	82	95	100	--
02...	1322	580	--	16.7	2.74	219	--	87	95	100	--	--
02...	1324	580	--	15.5	2.90	204	--	95	98	100	--	--
02...	1326	580	--	13.3	3.36	222	--	95	97	99	100	--
02...	1328	580	--	9.30	3.79	208	--	94	100	--	--	--
02...	1330	580	--	4.30	4.39	201	--	93	98	99	100	--
SEP												
13...	WATER TEMPERATURE, 20.0°C (1030-1315 HOURS); DISCHARGE, 36200 ft³/s.											
13...	1030	150	11.0	9.90	4.70	830	--	23	36	95	100	--
13...	1032	150	--	9.20	5.08	686	--	29	40	96	100	--
13...	1034	150	--	7.90	5.35	573	--	35	47	94	100	--
13...	1036	150	--	5.50	5.45	426	--	41	58	100	--	--
13...	1038	150	--	2.50	5.78	336	--	60	72	100	--	--
13...	1100	260	14.3	13.5	.96	2380	--	8	14	74	99	100
13...	1102	260	--	12.9	2.42	2090	--	10	17	79	100	--
13...	1104	260	--	11.9	4.04	1140	--	19	30	89	99	100
13...	1108	260	--	10.2	4.59	904	--	22	36	92	100	--
13...	1110	260	--	7.20	4.80	591	--	31	47	98	100	--
13...	1112	260	--	3.30	5.45	524	--	40	56	99	100	--
13...	1130	370	14.4	--	--	999	7	17	--	--	--	--
13...	1200	480	14.4	13.6	1.11	1010	--	19	23	48	98	100
13...	1201	480	--	13.0	1.11	1070	--	21	26	64	100	--
13...	1202	480	--	12.0	1.33	800	--	25	33	54	98	100
13...	1203	480	--	3.30	4.11	254	--	71	83	98	100	--
13...	1204	480	--	10.3	4.59	463	--	42	52	82	100	--
13...	1206	480	--	7.20	5.19	262	--	68	84	98	100	--
13...	1230	590	18.3	4.20	4.18	412	--	49	57	81	100	--
13...	1231	590	--	9.20	3.83	--	--	--	--	--	--	--
13...	1232	590	--	13.0	3.33	206	--	90	97	99	100	--
13...	1234	590	--	15.2	3.22	221	--	84	93	98	100	--
13...	1236	590	--	16.5	2.82	204	--	89	98	100	--	--
13...	1238	590	--	17.2	2.53	162	--	86	94	96	100	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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)
OCT							
18...	WATER TEMPERATURE, 10.0°C (1105-1420 HOURS); DISCHARGE, 37600 ft³/s.						
18...	1105	140	17.3	16.3	1.87	177	--
18...	1107	140	--	15.6	2.90	170	--
18...	1109	140	--	14.4	3.17	163	--
18...	1111	140	--	12.3	3.33	160	--
18...	1113	140	--	8.60	3.86	168	--
18...	1115	140	--	4.00	4.07	161	--
18...	1145	260	11.7	10.5	4.11	545	--
18...	1148	260	--	9.80	4.37	544	--
18...	1151	260	--	8.40	4.76	464	--
18...	1152	260	--	5.90	4.91	271	--
18...	1155	260	--	2.70	4.97	191	--
18...	1226	380	12.3	--	--	729	10
18...	1300	500	12.5	11.3	4.80	962	--
18...	1303	500	--	10.4	5.24	907	--
18...	1306	500	--	9.00	5.40	632	--
18...	1309	500	--	6.30	5.62	423	--
18...	1312	500	--	2.90	6.00	257	--
18...	1340	600	12.9	12.1	4.22	1430	--
18...	1346	600	--	10.8	4.22	954	--
18...	1347	600	--	11.6	4.91	1060	--
18...	1349	600	--	9.20	5.08	542	--
18...	1352	600	--	6.50	5.29	480	--
18...	1355	600	--	3.00	5.62	305	--

DATE	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. FALL DIAM. % FINER THAN 2.00 MM (70347)
OCT						
18...	65	84	99	100	--	--
18...	67	82	97	100	--	--
18...	65	80	96	100	--	--
18...	74	89	100	--	--	--
18...	65	83	95	100	--	--
18...	70	86	98	100	--	--
18...	19	34	98	100	--	--
18...	21	40	98	100	--	--
18...	24	41	98	100	--	--
18...	43	59	100	--	--	--
18...	58	74	100	--	--	--
18...	17	--	--	--	--	--
18...	11	23	96	100	--	--
18...	13	26	96	100	--	--
18...	18	34	98	100	--	--
18...	26	44	98	100	--	--
18...	42	59	99	100	--	--
18...	8	16	92	100	--	--
18...	13	24	90	100	--	--
18...	14	24	89	100	--	--
18...	20	40	93	100	--	--
18...	23	40	99	100	--	--
18...	35	50	99	100	--	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	LOCATION, CROSS SECTION (FT FM L BANK) (00009)	AT SAMPLE LOCATION, TOTAL (FEET) (81903)	SAMPLING DEPTH (FEET) (00003)	STREAM VELOCITY, POINT (FPS) (81904)	SEDIMENT, SUSPENDED (MG/L) (80154)	SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
APR							
25...	WATER TEMPERATURE, 12.0°C (1140-1420 HOURS); DISCHARGE, 51300 ft³/s.						
25...	1140	100	21.1	20.3	3.28	9110	--
25...	1142	100	--	19.9	3.50	2550	--
25...	1144	100	--	19.0	3.68	1080	--
25...	1146	100	--	17.6	4.22	1040	--
25...	1148	100	--	15.0	5.19	593	--
25...	1150	100	--	10.6	5.61	571	--
25...	1152	100	--	4.92	5.67	429	--
25...	1210	225	14.9	14.9	3.28	183	--
25...	1212	225	--	14.2	6.00	1310	--
25...	1214	225	--	13.2	6.21	1030	--
25...	1216	225	--	11.3	6.47	826	--
25...	1218	225	--	7.90	7.21	605	--
25...	1220	225	--	3.70	7.54	506	--
25...	1250	350	14.1	--	--	1180	12
25...	1310	475	14.5	13.6	3.18	903	--
25...	1312	475	--	13.0	3.28	947	--
25...	1314	475	--	12.1	3.61	725	--
25...	1316	475	--	10.4	4.04	606	--
25...	1318	475	--	7.20	4.59	521	--
25...	1320	475	--	3.40	4.80	524	--
25...	1330	600	20.4	19.2	1.11	397	--
25...	1334	600	--	17.0	1.22	383	--
25...	1336	600	--	14.6	1.22	377	--
25...	1338	600	--	10.2	1.44	392	--
25...	1340	600	--	4.70	2.31	375	--

DATE	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. FALL DIAM. % FINER THAN 2.00 MM (70347)
APR						
25...	4	4	12	29	88	100
25...	12	17	37	66	100	--
25...	30	34	66	93	98	100
25...	34	41	91	100	--	--
25...	52	61	94	100	--	--
25...	57	65	97	100	--	--
25...	73	80	98	100	--	--
25...	20	30	96	100	--	--
25...	28	38	99	100	--	--
25...	34	45	99	100	--	--
25...	41	53	99	100	--	--
25...	57	71	99	100	--	--
25...	67	75	98	100	--	--
25...	28	--	--	--	--	--
25...	39	49	94	100	--	--
25...	38	46	96	100	--	--
25...	48	57	97	100	--	--
25...	57	97	100	--	--	--
25...	67	75	100	--	--	--
25...	61	70	100	--	--	--
25...	94	98	100	--	--	--
25...	95	98	100	--	--	--
25...	94	100	--	--	--	--
25...	95	98	100	--	--	--
25...	94	98	100	--	--	--
25...	91	95	99	100	--	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

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 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												
25...	WATER TEMPERATURE, 24.5°C (1135-1405 HOURS); DISCHARGE, 70700 ft³/s.											
25...	1135	200	22.2	21.4	1.51	1390	--	35	43	64	81	100
25...	1136	200	--	20.9	2.51	736	--	68	79	96	98	100
25...	1137	200	--	20.0	4.48	1110	--	43	52	75	91	100
25...	1139	200	--	18.5	4.91	781	--	61	68	89	97	100
25...	1141	200	--	15.9	4.80	691	--	68	77	97	100	--
25...	1143	200	--	11.1	5.89	666	--	70	79	98	100	--
25...	1145	200	--	5.10	6.58	649	--	71	80	96	98	100
25...	1215	320	17.6	16.6	5.24	1750	--	29	37	74	98	100
25...	1217	320	--	15.8	5.67	1580	--	31	37	74	98	100
25...	1219	320	--	14.7	5.67	1190	--	42	51	86	100	--
25...	1221	320	--	12.6	6.26	1120	--	46	55	89	100	--
25...	1223	320	--	8.80	6.54	998	--	48	58	92	100	--
25...	1225	320	--	4.10	7.41	869	--	56	65	95	100	--
25...	1235	440	18.1	--	--	2010	12	23	--	--	--	--
25...	1315	560	18.8	17.7	3.18	1580	--	32	43	97	98	100
25...	1317	560	--	16.9	3.83	1182	--	44	56	86	97	100
25...	1319	560	--	15.7	4.59	970	--	52	61	93	100	--
25...	1321	560	--	13.4	4.70	1068	--	49	62	92	100	--
25...	1323	560	--	9.40	5.51	740	--	67	77	97	100	--
25...	1325	560	--	4.30	6.11	769	--	71	80	100	--	--
25...	1330	680	18.6	17.5	3.54	753	--	91	96	99	100	--
25...	1332	680	--	16.7	3.54	956	--	89	93	97	98	100
25...	1334	680	--	15.5	3.94	580	--	90	96	100	--	--
25...	1336	680	--	13.3	3.79	574	--	91	97	100	--	--
25...	1338	680	--	9.30	4.18	571	--	90	97	100	--	--
25...	1400	680	--	4.30	4.54	547	--	92	96	99	100	--
SEP												
12...	WATER TEMPERATURE, 25.0°C (1210-1445 HOURS); DISCHARGE, 57100 ft³/s.											
12...	1210	120	18.5	17.4	4.54	599	--	16	29	93	100	--
12...	1212	120	--	16.6	4.97	534	--	19	31	92	100	--
12...	1213	120	--	15.3	4.97	432	--	21	31	92	100	--
12...	1215	120	--	13.1	5.40	392	--	26	39	98	100	--
12...	1217	120	--	9.20	5.62	305	--	30	43	92	99	100
12...	1219	120	--	4.30	5.93	178	--	47	62	93	100	--
12...	1255	230	17.1	16.4	4.92	2400	--	5	8	66	97	100
12...	1257	230	--	15.4	5.34	2166	--	5	10	69	97	100
12...	1259	230	--	14.2	5.56	1250	--	8	15	75	98	100
12...	1301	230	--	12.1	5.77	609	--	14	26	81	99	100
12...	1305	230	--	3.90	5.66	308	--	29	42	92	100	--
12...	1307	230	--	16.0	6.48	1330	--	8	22	94	100	--
12...	1333	340	17.0	--	--	514	10	16	--	--	--	--
12...	1400	450	16.2	15.2	3.79	310	--	32	46	88	100	--
12...	1402	450	--	14.6	3.68	292	--	33	49	87	100	--
12...	1404	450	--	13.5	4.37	229	--	45	62	94	100	--
12...	1406	450	--	11.6	4.43	262	--	35	48	90	100	--
12...	1408	450	--	8.10	4.37	162	--	51	65	100	--	--
12...	1410	450	--	3.70	4.91	162	--	52	65	94	100	--
12...	1425	560	19.8	18.6	2.85	229	--	61	74	93	100	--
12...	1427	560	--	17.8	2.91	153	--	66	78	100	--	--
12...	1429	560	--	16.5	3.28	165	--	72	85	100	--	--
12...	1431	560	--	14.1	3.83	166	--	70	82	100	--	--
12...	1433	560	--	9.90	3.94	124	--	74	85	100	--	--
12...	1435	560	--	4.60	4.48	126	--	72	85	100	--	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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												
24...	WATER TEMPERATURE, 12.5°C (1155-1445 HOURS); DISCHARGE 60600 ft³/s.											
24...	1155	140	20.0	18.8	1.94	655	--	28	37	71	96	100
24...	1157	140	--	18.0	4.28	719	--	24	32	65	95	100
24...	1159	140	--	16.7	5.35	497	--	31	41	76	100	--
24...	1201	140	--	14.3	5.02	364	--	44	56	94	100	--
24...	1203	140	--	10.0	5.46	335	--	44	55	94	100	--
24...	1205	140	--	4.60	5.93	317	--	50	58	95	100	--
24...	1222	270	19.1	18.0	3.54	2000	--	7	10	60	100	--
24...	1225	270	--	17.2	4.15	1640	--	9	13	68	100	--
24...	1227	270	--	15.9	3.72	1080	--	12	18	80	100	--
24...	1229	270	--	13.6	5.24	797	--	17	25	79	100	--
24...	1231	270	--	9.60	5.62	518	--	26	36	86	100	--
24...	1233	270	--	4.40	6.43	430	--	29	44	91	100	--
24...	1250	400	18.3	--	--	1310	4	7	--	--	--	--
24...	1308	530	15.0	14.1	5.78	5040	--	3	7	97	100	--
24...	1310	530	--	13.5	5.87	1740	--	8	15	99	100	--
24...	1312	530	--	12.5	5.35	925	--	12	28	100	--	--
24...	1313	530	--	10.7	5.99	547	--	26	41	96	100	--
24...	1314	530	--	7.50	6.54	529	--	28	46	98	100	--
24...	1315	530	--	3.50	6.54	480	--	29	43	90	100	--
24...	1328	660	21.0	20.2	2.63	273	--	38	51	85	100	--
24...	1330	660	--	19.8	2.85	233	--	43	56	87	100	--
24...	1332	660	--	18.9	3.07	182	--	54	68	95	100	--
24...	1334	660	--	17.5	3.43	141	--	63	79	100	--	--
24...	1336	660	--	15.0	3.94	150	--	60	75	100	--	--
24...	1338	660	--	10.5	3.94	146	--	61	73	100	--	--
24...	1340	660	--	4.90	4.71	184	--	47	59	96	100	--
APR												
24...	WATER TEMPERATURE, 15.0°C (1300-1335 HOURS); DISCHARGE, 51300 ft³/s.											
24...	1300	640	19.2	4.40	4.80	462	--	84	90	100	--	--
24...	1302	640	--	9.60	4.20	476	--	80	87	99	100	--
24...	1304	640	--	13.7	3.94	479	--	79	85	99	100	--
24...	1306	640	--	16.0	3.72	548	--	72	79	97	100	--
24...	1308	640	--	17.3	3.46	543	--	69	76	97	100	--
24...	1309	640	--	18.1	3.28	615	--	64	72	98	100	--
24...	1310	510	16.7	3.80	5.78	651	--	67	75	97	100	--
24...	1311	510	--	8.30	5.19	740	--	57	67	88	100	--
24...	1312	510	--	11.9	4.80	819	--	51	59	84	100	--
24...	1313	510	--	13.9	3.72	1000	--	39	48	70	100	--
24...	1314	510	--	15.0	3.65	1250	--	33	40	64	100	--
24...	1315	510	--	15.7	3.35	1310	--	31	38	65	100	--
24...	1318	390	14.5	--	--	1030	16	32	--	--	--	--
24...	1320	280	15.8	3.70	6.72	967	--	41	51	89	100	--
24...	1321	280	--	7.90	6.32	978	--	40	51	98	100	--
24...	1322	280	--	11.3	5.35	1230	--	32	41	92	100	--
24...	1323	280	--	13.2	5.45	1390	--	28	37	90	100	--
24...	1324	280	--	14.2	4.80	1330	--	31	41	91	100	--
24...	1325	280	--	14.9	4.91	449	--	91	92	99	100	--
24...	1326	190	17.0	3.90	6.91	638	--	54	62	97	100	--
24...	1327	190	--	8.50	6.72	545	--	66	78	99	100	--
24...	1329	190	--	12.1	6.00	790	--	48	60	94	100	--
24...	1331	190	--	14.2	5.89	1070	--	35	45	90	100	--
24...	1333	190	--	15.3	6.00	989	--	38	45	84	100	--
24...	1335	190	--	16.0	5.13	970	--	41	51	85	100	--
JUN												
05...	WATER TEMPERATURE, 21.0°C (1300-1410 HOURS); DISCHARGE, 51000 ft³/s.											
05...	1300	145	14.2	13.4	5.45	547	--	35	42	99	100	--
05...	1301	145	--	12.8	5.45	510	--	38	46	100	--	--
05...	1302	145	--	11.8	6.11	521	--	40	48	98	100	--
05...	1303	145	--	10.1	5.89	367	--	54	62	100	--	--
05...	1304	145	--	7.10	6.70	329	--	60	68	100	--	--
05...	1305	145	--	3.30	6.80	284	--	66	74	100	--	--
05...	1315	235	15.8	14.9	5.67	1140	--	19	25	89	100	--
05...	1316	235	--	14.2	5.67	821	--	25	37	94	100	--
05...	1317	235	--	13.2	5.89	785	--	26	37	95	100	--
05...	1318	235	--	11.3	6.32	587	--	33	47	99	100	--
05...	1319	235	--	7.90	6.54	556	--	34	46	97	100	--
05...	1320	235	--	3.70	6.96	403	--	54	66	100	--	--
05...	1330	320	18.3	--	--	1120	6	15	--	--	--	--
05...	1345	420	18.0	17.0	3.22	1170	--	19	29	83	99	100
05...	1346	420	--	16.2	4.48	1190	--	17	29	92	100	--
05...	1347	420	--	15.2	4.80	1080	--	21	33	91	100	--
05...	1348	420	--	12.9	5.35	899	--	22	35	98	100	--
05...	1349	420	--	9.00	6.43	551	--	36	50	100	--	--
05...	1350	420	--	4.20	6.81	357	--	58	70	100	--	--
05...	1355	540	15.0	14.1	2.85	1030	--	20	28	90	100	--
05...	1356	540	--	13.5	3.61	842	--	25	34	99	100	--
05...	1357	540	--	12.5	4.22	733	--	27	37	98	100	--
05...	1358	540	--	10.7	5.02	534	--	37	48	98	100	--
05...	1359	540	--	7.50	5.67	367	--	54	62	99	100	--
05...	1400	540	--	3.50	6.11	328	--	62	68	99	100	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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												
17...WATER TEMPERATURE, 26.0°C (1230-1325 HOURS); DISCHARGE, 49100 ft³/s.												
17...	1230	160	15.8	14.9	4.63	1040	--	40	49	99	100	--
17...	1231	160	--	14.2	4.93	1190	--	35	41	95	100	--
17...	1232	160	--	13.2	4.98	923	--	42	50	98	100	--
17...	1233	160	--	11.3	4.91	673	--	34	44	98	100	--
17...	1234	160	--	7.92	5.22	565	--	72	78	100	--	--
17...	1236	160	--	3.70	5.45	570	--	68	75	98	100	--
17...	1245	600	17.0	16.0	1.50	1890	--	29	31	50	93	100
17...	1247	600	--	15.3	3.37	760	--	73	77	93	100	--
17...	1249	600	--	14.2	3.65	732	--	78	82	96	100	--
17...	1251	600	--	12.1	3.78	661	--	83	87	98	100	--
17...	1253	600	--	8.50	4.30	633	--	87	90	99	100	--
17...	1255	600	--	3.90	5.06	610	--	85	89	99	100	--
17...	1300	455	14.5	--	--	1260	22	33	--	--	--	--
17...	1306	350	13.9	13.1	5.39	2330	--	21	27	91	100	--
17...	1307	350	--	12.5	5.82	1630	--	31	38	92	100	--
17...	1308	350	--	11.8	5.82	1360	--	31	37	87	97	100
17...	1309	350	--	10.0	6.50	1360	--	35	43	91	98	100
17...	1310	350	--	7.00	6.61	1130	--	41	48	92	97	100
17...	1311	350	--	3.20	7.60	927	--	54	63	97	100	--
17...	1315	260	15.9	15.0	5.11	1420	--	30	37	93	100	--
17...	1316	260	--	14.3	5.35	1620	--	26	33	92	100	--
17...	1317	260	--	13.2	5.63	1370	--	32	40	94	100	--
17...	1318	260	--	11.3	5.72	984	--	44	51	93	100	--
17...	1319	260	--	7.90	6.17	909	--	47	55	98	100	--
17...	1321	260	--	3.70	6.32	838	--	50	59	99	100	--
AUG												
28... WATER TEMPERATURE, 23.5°C (1330-1430 HOURS); DISCHARGE 49700 ft³/s.												
28...	1330	625	20.2	4.70	4.20	439	--	89	94	100	--	--
28...	1332	625	--	10.1	3.76	476	--	85	92	99	100	--
28...	1334	625	--	14.4	3.35	464	--	88	95	100	--	--
28...	1336	625	--	16.8	3.00	468	--	87	93	99	100	--
28...	1338	625	--	18.2	2.76	490	--	81	88	99	100	--
28...	1340	625	--	19.0	2.50	485	--	86	93	100	--	--
28...	1345	490	15.0	3.50	6.28	717	--	57	69	98	100	--
28...	1346	490	--	7.50	5.72	732	--	56	68	98	100	--
28...	1348	490	--	10.7	4.74	908	--	45	57	95	99	100
28...	1349	490	--	12.5	4.54	1040	--	39	50	88	99	100
28...	1350	490	--	13.5	4.33	1080	--	37	46	89	99	100
28...	1352	490	--	14.1	4.00	1380	--	30	40	90	99	100
28...	1353	390	15.8	--	--	1190	15	30	--	--	--	--
28...	1403	265	16.2	3.70	6.53	519	--	74	83	100	--	--
28...	1404	265	--	8.10	5.95	777	--	53	66	97	99	100
28...	1406	265	--	11.6	5.02	922	--	44	57	97	100	--
28...	1407	265	--	13.5	4.76	1110	--	38	50	94	98	100
28...	1408	265	--	14.6	4.54	1180	--	35	50	94	99	100
28...	1410	265	--	15.2	4.39	1390	--	29	40	88	98	100
28...	1412	165	16.4	3.30	5.61	440	--	87	93	100	--	--
28...	1413	165	--	8.20	5.19	475	--	81	88	99	100	--
28...	1415	165	--	11.7	4.63	557	--	71	80	98	100	--
28...	1417	165	--	13.7	4.09	697	--	56	66	96	100	--
28...	1419	165	--	14.8	4.00	655	--	60	70	95	99	100
28...	1420	165	--	15.4	3.84	662	--	57	67	92	99	100

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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, 16.0°C (1340-1430 HOURS); DISCHARGE, 45000 ft³/s.											
09...	1340	590	15.2	3.50	5.37	327	--	52	67	100	--	--
09...	1342	590	--	7.60	4.91	303	--	50	66	98	100	--
09...	1344	590	--	10.9	4.74	462	--	37	47	100	--	--
09...	1346	590	--	12.7	4.20	584	--	34	45	98	100	--
09...	1348	590	--	13.7	3.83	590	--	30	44	94	100	--
09...	1350	590	--	14.3	3.46	736	--	26	33	90	100	--
09...	1352	475	17.7	4.10	5.78	541	--	31	47	98	100	--
09...	1353	475	--	8.80	5.45	552	--	30	49	98	100	--
09...	1355	475	--	12.6	4.93	1520	--	15	28	95	100	--
09...	1357	475	--	14.7	4.24	659	--	30	49	99	100	--
09...	1358	475	--	15.8	2.92	771	--	22	39	98	100	--
09...	1359	475	--	16.6	2.27	1010	--	17	31	93	100	--
09...	1400	360	11.8	2.70	--	1020	5	14	--	--	--	--
09...	1409	255	13.7	3.20	6.11	421	--	33	51	98	100	--
09...	1410	255	--	6.90	5.69	516	--	27	45	96	100	--
09...	1411	255	--	9.90	5.28	756	--	19	32	93	100	--
09...	1412	255	--	11.5	5.22	1250	--	12	25	87	100	--
09...	1413	255	--	12.4	4.83	1580	--	10	20	79	100	--
09...	1414	255	--	13.0	4.83	2310	--	7	15	82	100	--
09...	1415	165	15.4	3.60	5.67	--	--	--	--	--	--	--
09...	1416	165	--	7.70	5.32	391	--	33	51	92	100	--
09...	1417	165	--	11.0	4.91	371	--	35	53	92	100	--
09...	1418	165	--	12.8	4.85	439	--	30	47	85	100	--
09...	1419	165	--	13.9	4.48	614	--	22	37	85	99	100
09...	1420	165	--	14.5	4.37	619	--	22	36	77	100	--
APR												
15...	WATER TEMPERATURE, 10.0°C (1330-1430 HOURS); DISCHARGE, 45500 ft³/s.											
15...	1330	530	19.3	4.40	4.44	238	--	76	86	95	100	--
15...	1332	530	--	9.60	3.72	235	--	80	92	100	--	--
15...	1334	530	--	13.7	3.33	237	--	80	92	98	100	--
15...	1336	530	--	16.0	3.11	225	--	83	95	98	100	--
15...	1338	530	--	17.3	2.07	246	--	75	84	98	100	--
15...	1340	530	--	18.1	2.55	270	--	69	77	95	100	--
15...	1345	390	13.4	3.10	6.24	405	--	46	58	98	100	--
15...	1346	390	--	6.70	5.93	630	--	31	44	98	100	--
15...	1347	390	--	9.60	5.45	931	--	22	35	96	100	--
15...	1348	390	--	11.2	4.96	1200	--	17	29	92	100	--
15...	1349	390	--	12.1	4.54	1780	--	11	20	85	100	--
15...	1350	390	--	12.6	4.48	1870	--	11	17	89	100	--
15...	1351	280	16.8	--	--	2260	3	10	--	--	--	--
15...	1400	180	15.3	3.50	5.67	604	--	31	42	93	100	--
15...	1402	180	--	7.60	5.13	519	--	37	52	98	100	--
15...	1404	180	--	10.9	5.24	722	--	28	40	93	100	--
15...	1406	180	--	12.7	4.85	773	--	25	38	95	100	--
15...	1408	180	--	13.7	4.70	847	--	23	35	92	100	--
15...	1410	180	--	14.3	4.28	1014	--	19	31	94	100	--
15...	1411	60.0	19.0	9.50	2.94	334	--	55	67	98	100	--
15...	1412	60.0	--	13.6	4.37	436	--	44	59	93	100	--
15...	1413	60.0	--	15.8	3.85	440	--	41	54	87	100	--
15...	1414	60.0	--	17.1	2.94	500	--	38	51	92	100	--
15...	1415	60.0	--	17.9	3.11	540	--	34	47	86	100	--
15...	1416	60.0	--	4.40	5.15	321	--	56	67	97	100	--
MAY												
27...	WATER TEMPERATURE, 21.5°C (1310-1405 HOURS); DISCHARGE, 45700 ft³/s.											
27...	1312	565	18.6	4.30	4.63	134	--	76	87	100	--	--
27...	1315	565	--	9.30	3.76	157	--	72	88	100	--	--
27...	1318	565	--	13.3	3.20	154	--	72	86	96	100	--
27...	1321	565	--	15.5	3.20	155	--	78	89	100	--	--
27...	1324	565	--	16.7	2.85	164	--	72	84	95	100	--
27...	1329	565	--	17.5	2.98	152	--	78	89	97	100	--
27...	1330	455	13.4	3.10	5.24	229	--	54	66	100	100	--
27...	1331	455	--	6.70	4.85	270	--	46	60	98	100	--
27...	1332	455	--	9.60	4.37	272	--	45	54	94	100	--
27...	1334	455	--	11.2	4.48	388	--	32	47	94	100	--
27...	1335	455	--	12.1	4.20	410	--	30	44	86	98	100
27...	1337	455	--	12.6	4.22	638	--	19	30	91	100	--
27...	1338	330	14.4	--	--	717	7	17	--	--	--	--
27...	1344	200	16.0	3.70	5.59	232	--	45	56	97	100	--
27...	1345	200	--	8.00	5.39	373	--	28	38	95	100	--
27...	1347	200	--	11.4	5.13	500	--	22	31	95	100	--
27...	1349	200	--	13.3	4.59	640	--	17	26	94	100	--
27...	1351	200	--	14.4	4.30	808	--	13	19	82	100	--
27...	1353	200	--	15.1	3.78	922	--	13	19	88	100	--
27...	1355	90.0	16.2	3.70	5.56	195	--	49	60	95	100	--
27...	1357	90.0	--	8.10	5.13	188	--	53	64	95	100	--
27...	1359	90.0	--	11.6	4.63	205	--	49	57	94	100	--
27...	1401	90.0	--	13.5	4.37	255	--	40	48	87	100	--
27...	1403	90.0	--	14.6	4.30	256	--	39	48	88	100	--
27...	1405	90.0	--	15.2	4.57	377	--	27	36	75	100	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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												
08...WATER TEMPERATURE, 28.0°C (1235-1325 HOURS); DISCHARGE, 38400 ft³/s.												
08...	1235	535	15.2	3.50	4.54	235	--	88	94	99	100	--
08...	1236	535	--	7.60	4.09	245	--	86	93	100	--	--
08...	1237	535	--	10.9	3.87	266	--	79	85	98	100	--
08...	1238	535	--	12.7	3.35	274	--	78	84	96	100	--
08...	1239	535	--	13.7	3.28	280	--	74	81	95	100	--
08...	1240	535	--	14.3	3.18	326	--	66	73	92	100	--
08...	1245	410	13.6	3.10	4.91	279	--	72	80	98	100	--
08...	1246	410	--	6.80	4.61	308	--	66	74	100	--	--
08...	1247	410	--	9.70	4.07	334	--	62	72	98	100	--
08...	1248	410	--	11.3	3.37	480	--	45	54	98	100	--
08...	1249	410	--	12.2	3.46	597	--	36	46	93	100	--
08...	1250	410	--	12.8	3.50	864	--	38	46	92	100	--
08...	1253	315	14.2	--	--	753	14	29	--	--	--	--
08...	1302	215	12.4	2.90	5.63	351	--	58	66	98	100	--
08...	1303	215	--	6.20	5.48	407	--	51	59	98	100	--
08...	1304	215	--	8.90	5.45	491	--	43	53	98	100	--
08...	1305	215	--	10.3	5.13	565	--	38	49	98	100	--
08...	1306	215	--	11.2	4.76	719	--	29	38	94	100	--
08...	1307	85.0	15.4	3.60	5.06	223	--	86	92	100	--	--
08...	1308	85.0	--	7.70	4.30	262	--	75	82	98	100	--
08...	1309	85.0	--	11.0	3.94	286	--	69	77	97	100	--
08...	1310	85.0	--	12.8	3.87	338	--	60	66	97	100	--
08...	1311	85.0	--	13.9	3.46	389	--	53	62	96	100	--
08...	1312	85.0	--	14.5	3.24	553	--	38	44	90	100	--
AUG												
27... WATER TEMPERATURE, 26.0°C (1235-1335 HOURS); DISCHARGE, 37300 ft³/s.												
27...	1235	550	16.2	3.70	4.63	192	--	54	64	95	100	--
27...	1237	550	--	8.10	4.07	139	--	78	93	100	--	--
27...	1239	550	--	11.6	3.55	162	--	76	88	96	100	--
27...	1240	550	--	13.5	3.31	143	--	77	89	96	100	--
27...	1241	550	--	14.6	2.89	164	--	70	84	94	100	--
27...	1243	550	--	15.2	2.59	190	--	63	75	89	100	--
27...	1248	430	12.0	2.80	5.04	196	--	53	69	98	100	--
27...	1249	430	--	6.00	4.48	221	--	46	60	96	100	--
27...	1250	430	--	8.60	4.33	293	--	35	50	97	100	--
27...	1252	430	--	10.0	4.28	317	--	33	50	96	100	--
27...	1255	430	--	10.8	4.11	459	--	24	36	92	100	--
27...	1256	320	13.4	--	--	550	8	19	--	--	--	--
27...	1305	200	13.2	3.10	6.11	243	--	41	58	100	--	--
27...	1306	200	--	6.60	5.78	388	--	26	44	97	100	--
27...	1307	200	--	9.40	5.74	417	--	24	41	96	100	--
27...	1308	200	--	11.0	5.37	658	--	16	25	90	100	--
27...	1309	200	--	11.9	5.24	1560	--	7	14	66	100	--
27...	1310	200	--	12.4	4.93	--	--	--	--	--	--	--
27...	1312	115	13.2	3.10	5.15	191	--	50	62	100	--	--
27...	1314	115	--	6.60	4.91	314	--	32	43	95	100	--
27...	1316	115	--	9.40	4.20	345	--	30	44	95	100	--
27...	1318	115	--	11.0	4.40	408	--	--	25	37	92	100
27...	1322	115	--	11.9	4.15	409	--	25	39	91	100	--
27...	1325	115	--	12.4	3.94	437	--	24	37	91	100	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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												
14...	WATER TEMPERATURE, 15.0°C (1240-1325 HOURS); DISCHARGE, 38600 ft³/s.											
14...	1240	575	17.4	4.00	4.52	99	--	76	90	100	--	--
14...	1241	575	--	8.70	3.61	103	--	74	90	100	--	--
14...	1242	575	--	12.4	3.24	105	--	74	89	95	100	--
14...	1243	575	--	14.5	3.20	108	--	72	89	95	100	--
14...	1244	575	--	15.7	2.85	116	--	67	82	93	100	--
14...	1245	575	--	16.4	2.68	140	--	56	65	82	100	--
14...	1248	440	12.4	2.90	5.78	220	--	36	50	95	100	--
14...	1250	440	--	8.90	4.98	421	--	19	32	90	100	--
14...	1251	440	--	10.3	4.67	551	--	14	26	92	100	--
14...	1252	440	--	11.2	4.44	803	--	10	21	89	100	--
14...	1303	315	13.8	--	--	836	5	10	--	--	--	--
14...	1304	215	14.0	3.20	5.69	320	--	24	43	100	--	--
14...	1305	215	--	7.00	5.59	599	--	12	28	98	100	--
14...	1306	215	--	10.0	4.83	665	--	12	28	98	100	--
14...	1307	215	--	11.7	4.74	781	--	10	22	98	100	--
14...	1308	215	--	12.6	4.52	959	--	8	16	97	100	--
14...	1310	215	--	13.2	4.33	1200	--	12	23	93	100	--
14...	1311	115	13.4	3.10	5.15	301	--	26	46	96	100	--
14...	1313	115	--	6.70	4.41	300	--	25	43	93	100	--
14...	1315	115	--	9.60	4.30	414	--	19	34	86	100	--
14...	1317	115	--	11.2	4.33	459	--	17	30	89	100	--
14...	1319	115	--	12.1	4.20	646	--	13	26	87	100	--
14...	1320	115	--	12.6	3.83	885	--	9	18	91	100	--
APR												
14...	WATER TEMPERATURE, 14.0°C (1335-1445 HOURS); DISCHARGE, 41300 ft³/s.											
14...	1336	570	18.2	4.20	4.59	159	--	69	89	98	100	--
14...	1338	570	--	9.10	3.91	79	--	72	95	100	--	--
14...	1340	570	--	13.0	3.15	203	--	73	93	97	100	--
14...	1341	570	--	15.2	3.13	201	--	61	78	95	100	--
14...	1343	570	--	16.4	3.07	237	--	71	88	97	100	--
14...	1344	570	--	17.1	3.07	360	--	41	54	64	93	100
14...	1351	450	13.8	3.20	5.30	273	--	45	65	96	100	--
14...	1353	450	--	6.90	4.96	307	--	34	56	98	100	--
14...	1356	450	--	9.90	3.96	561	--	24	43	93	100	--
14...	1359	450	--	11.5	3.33	592	--	20	37	93	100	--
14...	1401	450	--	12.4	3.31	646	--	18	34	92	100	--
14...	1403	450	--	13.0	3.07	706	--	16	31	87	100	--
14...	1406	310	12.4	--	--	1140	4	7	--	--	--	--
14...	1415	200	13.2	3.10	5.41	387	--	30	50	98	100	--
14...	1416	200	--	6.60	5.13	514	--	24	42	98	100	--
14...	1417	200	--	9.40	4.72	570	--	23	42	98	100	--
14...	1418	200	--	11.0	4.67	540	--	23	41	97	100	--
14...	1419	200	--	11.9	4.02	800	--	15	28	94	100	--
14...	1420	200	--	12.4	4.09	881	--	14	27	96	100	--
14...	1421	80.0	16.2	3.70	4.89	241	--	64	76	100	--	--
14...	1425	80.0	--	8.10	4.54	230	--	48	68	99	100	--
14...	1430	80.0	--	11.6	3.81	288	--	43	62	96	100	--
14...	1435	80.0	--	13.5	3.98	862	--	24	40	72	100	--
14...	1437	80.0	--	14.6	3.57	612	--	22	39	75	100	--
14...	1440	80.0	--	15.2	2.16	743	--	18	27	53	96	100
JUN												
02...	WATER TEMPERATURE, 22.0°C (1340-1430 HOURS); DISCHARGE 35700 ft³/s.											
02...	1341	590	17.2	4.00	4.17	192	--	93	94	98	100	--
02...	1343	590	--	8.60	3.78	191	--	94	99	100	--	--
02...	1345	590	--	12.3	3.59	186	--	95	97	100	--	--
02...	1346	590	--	14.3	3.31	187	--	94	100	--	--	--
02...	1347	590	--	15.5	3.02	189	--	94	100	--	--	--
02...	1349	590	--	16.2	2.44	190	--	94	98	98	100	--
02...	1351	500	12.2	2.80	4.24	253	--	86	94	98	100	--
02...	1353	500	--	6.10	4.30	310	--	71	82	98	100	--
02...	1355	500	--	8.70	3.87	344	--	67	77	96	100	--
02...	1357	500	--	10.2	3.50	411	--	56	64	90	100	--
02...	1359	500	--	11.0	2.31	635	--	37	45	82	100	--
02...	1400	340	12.6	--	--	615	21	40	--	--	--	--
02...	1406	240	14.8	3.40	5.17	516	--	42	53	98	100	--
02...	1408	240	--	7.40	4.54	619	--	35	47	98	100	--
02...	1410	240	--	10.6	4.30	593	--	37	49	98	100	--
02...	1412	240	--	12.3	3.44	587	--	38	50	98	100	--
02...	1413	240	--	13.3	3.13	1040	--	21	31	97	100	--
02...	1414	240	--	13.9	3.00	1159	--	20	28	93	100	--
02...	1420	120	15.4	3.60	5.19	388	--	46	56	99	100	--
02...	1421	120	--	7.70	4.37	452	--	41	51	98	100	--
02...	1422	120	--	11.0	4.54	507	--	36	46	96	100	--
02...	1423	120	--	12.8	3.76	540	--	35	43	95	100	--
02...	1424	120	--	13.9	3.52	1090	--	17	22	80	100	--
02...	1425	120	--	14.5	3.28	898	--	21	29	80	100	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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												
14...	WATER TEMPERATURE, 29.0°C (1355-1440 HOURS); DISCHARGE 34500 ft³/s.											
14...	1355	550	18.2	4.20	4.20	106	--	83	87	100	--	--
14...	1357	550	--	9.10	3.74	100	--	90	92	100	--	--
14...	1359	550	--	13.0	3.52	107	--	92	98	100	--	--
14...	1401	550	--	15.2	3.33	105	--	93	98	100	--	--
14...	1402	550	--	16.4	3.42	96	--	88	94	100	--	--
14...	1405	550	--	17.1	2.92	105	--	90	96	100	--	--
14...	1406	425	13.8	3.20	4.63	139	--	72	88	98	100	--
14...	1408	425	--	6.90	4.17	142	--	69	84	100	--	--
14...	1410	425	--	9.90	3.76	224	--	46	61	95	100	--
14...	1412	425	--	11.5	3.24	281	--	37	51	79	100	--
14...	1413	425	--	12.4	3.03	392	--	27	41	70	100	--
14...	1415	425	--	13.0	3.00	508	--	22	31	61	100	--
14...	1416	310	14.2	--	--	497	11	24	--	--	--	--
14...	1426	190	13.2	3.10	5.06	470	--	23	37	98	100	--
14...	1428	190	--	6.60	4.78	472	--	22	34	96	100	--
14...	1430	190	--	9.40	4.54	533	--	20	33	96	100	--
14...	1432	190	--	11.0	4.07	868	--	13	22	96	100	--
14...	1434	190	--	11.9	3.98	741	--	15	26	95	100	--
14...	1435	190	--	12.4	3.65	1330	--	8	18	92	100	--
14...	1436	90.0	14.4	3.30	4.54	220	--	46	57	97	100	--
14...	1437	90.0	--	7.20	4.63	236	--	42	53	98	100	--
14...	1438	90.0	--	10.3	4.07	292	--	35	45	93	100	--
14...	1439	90.0	--	12.0	3.78	357	--	29	38	83	100	--
14...	1440	90.0	--	13.0	3.68	525	--	20	31	77	100	--
14...	1441	90.0	--	13.6	3.13	616	--	17	25	85	100	--
AUG												
25...	WATER TEMPERATURE, 24.0°C (1235-1315 HOURS); DISCHARGE, 38600 ft³/s.											
25...	1235	525	17.8	4.10	4.26	132	--	84	93	98	100	--
25...	1236	525	--	8.90	3.42	130	--	88	97	100	--	--
25...	1237	525	--	12.7	3.22	137	--	84	94	100	--	--
25...	1238	525	--	14.8	3.09	134	--	86	95	96	100	--
25...	1239	525	--	16.0	2.72	144	--	84	93	97	100	--
25...	1240	525	--	16.8	2.50	146	--	82	91	96	100	--
25...	1245	380	15.6	3.60	4.76	110	--	54	74	95	100	--
25...	1246	380	--	7.80	4.48	179	--	37	56	94	100	--
25...	1247	380	--	11.1	3.65	175	--	38	54	94	100	--
25...	1248	380	--	13.0	3.22	283	--	24	42	87	100	--
25...	1249	380	--	14.0	2.59	384	--	18	31	77	100	--
25...	1250	380	--	14.7	2.13	494	--	17	34	84	100	--
25...	1254	275	13.2	--	--	690	6	10	--	--	--	--
25...	1300	175	13.6	3.10	5.82	164	--	32	47	94	100	--
25...	1301	175	--	6.80	5.09	271	--	24	40	--	100	--
25...	1302	175	--	9.70	4.50	382	--	19	35	95	100	--
25...	1303	175	--	11.3	4.39	693	--	10	20	90	99	100
25...	1304	175	--	12.2	4.70	685	--	8	18	92	100	--
25...	1305	175	--	12.8	3.94	1820	--	4	13	80	99	100
25...	1310	75.0	13.8	3.20	5.09	98	--	62	72	95	100	--
25...	1311	75.0	--	6.90	4.87	113	--	55	66	92	100	--
25...	1312	75.0	--	9.90	4.59	186	--	33	39	89	100	--
25...	1313	75.0	--	11.5	4.33	227	--	28	40	81	100	--
25...	1314	75.0	--	12.4	3.94	281	--	26	37	82	100	--
25...	1316	75.0	--	13.0	2.63	336	--	20	32	82	100	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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												
13...	WATER TEMPERATURE, 14.0°C (1255-1400 HOURS); DISCHARGE, 37800 ft³/s.											
13...	1255	650	18.4	4.30	4.02	73	--	86	94	95	100	--
13...	1256	650	--	9.20	3.55	79	--	78	93	97	100	--
13...	1257	650	--	13.1	3.55	74	--	80	95	100	--	--
13...	1258	650	--	15.3	3.37	81	--	78	94	100	--	--
13...	1259	650	--	16.6	3.13	74	--	82	94	95	100	--
13...	1300	650	--	17.3	2.48	72	--	84	96	--	100	--
13...	1306	520	13.0	3.20	4.96	106	--	60	76	93	100	--
13...	1308	520	--	6.90	4.41	154	--	42	58	90	100	--
13...	1310	520	--	9.90	4.07	196	--	32	48	83	100	--
13...	1312	520	--	11.5	3.89	247	--	27	46	80	100	--
13...	1314	520	--	12.4	3.37	299	--	23	--	41	100	--
13...	1316	520	--	13.0	2.63	336	--	20	37	63	100	--
13...	1331	360	10.4	--	--	290	18	28	--	--	--	--
13...	1340	270	11.8	2.70	6.54	315	--	21	41	98	100	--
13...	1341	270	--	5.90	6.17	447	--	15	35	97	100	--
13...	1342	270	--	8.40	6.06	734	--	9	25	98	100	--
13...	1343	270	--	9.80	6.00	864	--	8	22	98	100	--
13...	1344	270	--	10.6	5.67	2170	--	3	12	93	100	--
13...	1345	150	14.4	3.30	4.52	322	--	19	36	97	100	--
13...	1346	150	--	7.20	4.37	424	--	14	34	98	100	--
13...	1347	150	--	10.3	4.52	516	--	12	27	98	100	--
13...	1348	150	--	12.0	3.65	1030	--	6	14	93	100	--
13...	1349	150	--	13.0	3.65	--	--	--	--	--	--	--
13...	1350	150	--	13.6	3.13	--	--	--	--	--	--	--
APR												
13...	WATER TEMPERATURE, 9.0°C (1240-1520 HOURS); DISCHARGE, 41000 ft³/s.											
13...	1240	550	18.2	4.20	4.80	174	--	91	100	--	--	--
13...	1241	550	--	9.10	3.83	184	--	92	100	--	--	--
13...	1242	550	--	13.0	3.61	176	--	92	100	--	--	--
13...	1243	550	--	15.2	3.28	175	--	91	100	--	--	--
13...	1244	550	--	1.64	3.39	191	--	91	100	--	--	--
13...	1245	550	--	17.1	2.96	200	--	88	100	--	--	--
13...	1255	400	12.8	3.00	4.74	246	--	68	82	99	100	--
13...	1256	400	--	6.40	4.74	289	--	58	73	98	100	--
13...	1257	400	--	9.10	4.41	387	--	43	58	62	100	--
13...	1258	400	--	10.7	3.96	385	--	44	58	88	100	--
13...	1259	400	--	11.5	3.65	607	--	29	43	92	100	--
13...	1300	400	--	12.0	3.00	470	--	38	51	80	99	100
13...	1311	275	13.0	--	--	649	12	26	--	--	--	--
13...	1320	175	13.8	3.20	5.82	285	--	55	69	99	100	--
13...	1321	175	--	6.90	5.45	429	--	38	54	99	100	--
13...	1322	175	--	9.90	4.00	562	--	29	40	96	100	--
13...	1323	175	--	11.5	4.78	626	--	25	36	98	100	--
13...	1324	175	--	12.4	4.70	710	--	22	32	87	100	--
13...	1325	175	--	13.0	4.59	688	--	23	33	94	100	--
13...	1330	75.0	13.4	3.10	5.30	350	--	51	58	98	100	--
13...	1245	550	--	17.1	2.96	200	--	88	100	--	--	--
13...	1332	75.0	--	9.60	4.70	388	--	41	53	93	100	--
13...	1333	75.0	--	11.2	4.70	586	--	27	36	85	100	--
13...	1334	75.0	--	12.1	4.56	574	--	27	35	80	100	--
13...	1335	75.0	--	12.6	4.37	693	--	24	32	79	99	100

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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												
01...	WATER TEMPERATURE 18.0 C (1415-1520 HOURS); DISCHARGE, 71000 ft³/s.											
01...	1415	485	20.2	4.70	5.82	1600	--	93	97	99	100	--
01...	1417	485	--	10.1	5.48	1750	--	85	89	99	100	--
01...	1419	485	--	14.4	4.85	1890	--	80	85	99	100	--
01...	1421	485	--	16.8	3.96	2280	--	67	72	97	100	--
01...	1423	485	--	18.2	3.50	2310	--	67	72	98	100	--
01...	1425	485	--	19.0	3.44	2870	--	53	58	90	100	--
01...	1430	370	23.0	5.30	6.34	1710	--	86	90	99	100	--
01...	1431	370	--	11.5	5.78	1800	--	81	86	100	--	--
01...	1432	370	--	16.4	5.13	2110	--	71	77	99	100	--
01...	1433	370	--	19.2	4.98	3640	--	42	45	77	99	100
01...	1434	370	--	20.7	4.37	6510	--	23	25	75	95	100
01...	1435	370	--	21.6	3.78	--	--	--	--	--	--	--
01...	1436	370	--	22.2	3.68	--	--	--	--	--	--	--
01...	1440	265	20.4	--	--	2150	33	51	--	--	--	--
01...	1455	165	23.6	5.50	6.87	1720	--	85	89	100	--	--
01...	1456	165	--	11.8	5.52	2070	--	72	80	98	100	--
01...	1457	165	--	16.9	5.02	2500	--	59	64	94	100	--
01...	1458	165	--	19.7	4.13	3220	--	49	55	87	99	100
01...	1459	165	--	21.2	3.68	--	--	--	--	--	--	--
01...	1500	165	--	22.2	3.28	--	--	--	--	--	--	--
01...	1501	165	--	22.7	2.31	--	--	--	--	--	--	--
01...	1505	65.0	22.8	5.30	5.76	1590	--	89	92	99	100	--
01...	1506	65.0	--	11.4	5.74	1670	--	86	90	98	100	--
01...	1507	65.0	--	16.3	4.91	1660	--	87	90	99	100	--
01...	1511	65.0	--	19.0	4.33	1820	--	82	86	95	100	--
01...	1513	65.0	--	20.5	4.37	1990	--	76	81	94	100	--
01...	1514	65.0	--	21.5	3.46	2030	--	73	78	90	99	100
01...	1515	65.0	--	22.0	3.13	2440	--	63	69	87	100	--
JUL												
13	WATER TEMPERATURE 26.0 C (1415-1455 HOURS); DISCHARGE, 57000 ft³/s.											
13...	1415	550	20.8	4.80	4.82	2560	--	98	99	100	--	--
13...	1416	550	--	10.4	4.48	2570	--	98	99	100	--	--
13...	1417	550	--	14.9	3.96	2590	--	98	99	100	--	--
13...	1418	550	--	17.3	3.31	2630	--	98	100	--	--	--
13...	1419	550	--	18.7	3.09	2640	--	97	98	100	--	--
13...	1420	550	--	19.6	2.87	2680	--	96	98	99	100	--
13...	1425	410	15.6	--	--	3150	58	81	--	--	--	--
13...	1430	310	19.4	4.50	6.39	2540	--	93	95	100	--	--
13...	1431	310	--	9.70	6.02	2710	--	88	91	99	100	--
13...	1432	310	--	13.9	4.91	3170	--	78	81	97	100	--
13...	1433	310	--	16.2	4.11	3580	--	69	72	92	99	100
13...	1434	310	--	17.5	3.48	3660	--	67	70	92	99	100
13...	1435	310	--	18.3	--	--	--	--	--	--	--	--
13...	1440	185	17.0	3.90	5.67	2610	--	89	91	99	100	--
13...	1441	185	--	8.50	5.41	2740	--	86	88	97	100	--
13...	1442	185	--	12.1	5.48	2910	--	80	83	97	100	--
13...	1443	185	--	14.2	5.45	3270	--	72	75	90	100	--
13...	1444	185	--	15.3	5.45	3000	--	80	83	94	99	100
13...	1445	185	--	16.0	5.04	3050	--	78	80	96	100	--
13...	1450	60.0	18.4	4.30	5.60	2340	--	97	98	100	--	--
13...	1451	60.0	--	9.20	5.45	2400	--	96	97	100	--	--
13...	1452	60.0	--	13.1	4.80	2430	--	93	95	99	100	--
13...	1453	60.0	--	15.3	4.76	2480	--	91	93	99	100	--
13...	1454	60.0	--	16.6	4.63	2550	--	90	93	99	100	--
13...	1455	60.0	--	17.3	4.28	2570	--	88	91	98	100	--
AUG												
31...	WATER TEMPERATURE 23.0 C (1320-1425 HOURS); DISCHARGE, 43300 ft³/s.											
31...	1320	550	20.6	4.80	4.02	1970	--	99	100	--	--	--
31...	1322	550	--	10.3	3.50	2040	--	99	99	100	--	--
31...	1324	550	--	14.7	3.28	1990	--	99	100	--	--	--
31...	1326	550	--	17.2	3.28	1960	--	99	100	--	--	--
31...	1328	550	--	18.5	2.89	--	--	99	100	--	--	--
31...	1330	550	--	19.4	2.50	2080	--	97	98	99	100	--
31...	1335	405	--	3.60	4.33	2210	--	96	98	100	--	--
31...	1336	405	--	7.80	4.33	2210	--	96	98	100	--	--
31...	1337	405	--	11.1	3.50	2250	--	95	96	99	100	--
31...	1338	405	--	13.0	2.89	2330	--	91	93	97	100	--
31...	1339	405	--	14.0	2.37	2370	--	90	93	97	100	--
31...	1340	405	--	14.7	1.65	--	--	--	--	--	--	--
31...	1345	280	13.4	--	--	2850	38	77	--	--	--	--
31...	1355	160	17.8	4.10	5.24	2360	--	89	91	99	100	--
31...	1356	160	--	8.90	5.28	2500	--	83	85	99	100	--
31...	1357	160	--	12.7	4.11	2800	--	74	79	98	100	--
31...	1358	160	--	14.8	2.63	3560	--	59	62	88	100	--
31...	1359	160	--	13.2	2.07	3330	--	65	68	89	100	--
31...	1400	160	--	16.8	1.92	--	--	--	--	--	--	--
31...	1405	80.0	17.2	4.00	5.37	2150	--	94	95	99	100	--
31...	1406	80.0	--	8.60	4.59	2250	--	91	93	100	--	--
31...	1407	80.0	--	12.3	4.48	2400	--	88	90	99	100	--
31...	1408	80.0	--	14.3	4.11	2510	--	84	86	97	100	--
31...	1409	80.0	--	15.5	3.53	2700	--	78	81	96	100	--
31...	1410	80.0	--	16.2	3.22	2970	--	69	71	94	100	--

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB--Continued

WATER-QUALITY RECORDS

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

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 05...	1445	4	0	1	16	39	60	80	93	100	--
APR 26...	1600	5	0	1	18	60	82	93	99	100	--
JUN 14...	1335	5	0	1	21	57	72	83	95	100	--
AUG 02...	1345	5	0	1	14	45	68	86	96	100	--
SEP 13...	1315	5	--	0	18	57	83	94	98	99	100

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

OCT 18...	1420	5	0	1	37	72	89	95	98	100	--
APR 25...	1420	5	1	7	50	77	89	97	99	100	--
JUL 25...	1405	5	0	1	11	44	75	88	97	100	--
SEP 12...	1445	5	0	1	38	81	89	95	98	99	100

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

OCT 24...	1405	5	0	1	22	45	70	89	97	99	100
APR 24...	1315	5	0	1	67	76	86	95	100	--	--
JUN 05...	1410	5	0	1	33	71	89	97	99	100	--
JUL 17...	1325	5	0	1	53	80	90	97	100	--	--
AUG 28...	1430	5	--	0	7	30	56	75	88	95	100

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

OCT 09...	1430	5	0	1	24	77	95	99	100	--	--
APR 15...	1430	5	--	0	19	45	65	82	94	99	100
MAY 27...	1357	5	--	0	17	63	82	94	99	100	--
JUL 08...	1322	5	0	1	21	61	84	94	99	100	--
AUG 27...	1335	5	0	1	21	55	75	90	98	100	--

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

OCT 14...	1321	5	0	1	23	66	76	87	97	100	--
APR 14...	1445	5	--	0	10	31	61	84	95	99	100
JUN 02...	1430	5	--	0	18	60	78	91	97	99	100
JUL 14...	1440	5	--	0	12	66	91	98	100	--	--
AUG 25...	1250	5	--	0	11	42	70	87	97	99	100

PARTICLE SIZE DISTRIBUTION OF BED MATERIAL, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

OCT 13...	1400	5	--	0	18	61	72	79	85	93	100
APR 13...	1345	5	2	2	17	45	68	85	94	99	100
JUN 01...	1520	5	1	1	21	70	89	98	99	99	100
JUL 13...	1435	5	0	1	13	60	84	95	98	99	100
AUG 31...	1425	5	0	1	16	56	78	91	97	100	--

06807320 WEST NISHNABOTNA RIVER AT HARLAN, IA

LOCATION.--Lat 41°38'41", long 95°18'50", in NW1/4 NE1/4 sec. 19, T.79 N., R.38 W., Shelby County, Hydrologic Unit 10240002, in southeast part of City of Harlan, in city owned brick pumphouse on right bank, 50 ft (15 m) landward of levee, 250 ft (76 m) downstream from State Highway 44, 1.4 mi (2.3 km) downstream from confluence with West Fork, 80.1 mi (128.9 km) upstream from confluence with East Nishnabotna River, and at mile 95.5 (153.8 km) above mouth of Nishnabotna River.

DRAINAGE AREA.--316 mi² (818 km²).

PERIOD OF RECORD.--Oct. 1, 1977 to Sept. 30, 1982 (discontinued). Occasional low-flow measurements, water years 1957-77.

GAGE.--Water-stage recorder. Datum of gage is 1,162.894 ft (354.450 m) NGVD.

REMARKS.-- Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 116 ft³/s (3.285 m³/s), 4.99 in/yr (127 mm/yr), 84,000 acre-ft/yr (104 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 ft³/s (411 m³/s) Sept. 13, 1978, gage height, 26.18 ft (7.980 m); minimum daily, 4.1 ft³/s (0.12 m³/s) June 6, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	2230	*8,490	240	*20.32	6.194	Aug. 30	0300	1,600	45.3	10.81	3.295
Mar. 19	1215	7,210	204	18.90	5.761						

Minimum daily discharge, 5.3 ft³/s (0.15 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	15	35	14	9.0	188	100	62	350	195	105	132
2	5.3	18	32	14	9.0	205	100	59	288	170	97	103
3	42	30	30	14	9.0	161	91	59	271	156	97	90
4	143	26	29	13	9.0	140	102	59	252	143	155	84
5	60	19	28	13	9.0	125	113	75	238	135	264	79
6	29	16	34	13	9.0	110	94	110	230	660	125	75
7	19	16	29	12	9.0	100	97	106	218	269	113	73
8	17	15	33	12	9.0	90	81	90	233	209	105	70
9	15	15	32	12	9.0	84	92	80	237	191	103	69
10	14	15	30	11	9.0	90	97	70	197	253	116	67
11	13	16	29	11	9.0	500	92	100	189	199	110	62
12	13	15	28	11	9.0	964	95	140	186	183	105	134
13	14	15	27	10	9.0	547	88	95	174	177	128	185
14	20	16	26	10	9.0	228	79	98	181	187	121	119
15	19	15	24	10	9.0	166	81	130	505	148	132	91
16	16	15	22	10	10	150	105	125	274	145	125	81
17	38	15	20	10	10	135	103	120	232	137	114	84
18	35	15	18	10	15	121	88	130	215	162	105	81
19	21	17	16	10	100	3420	89	150	214	156	98	75
20	18	16	15	10	2000	541	84	350	200	145	90	68
21	16	15	15	10	3940	246	75	500	188	141	80	65
22	16	14	15	10	2170	203	75	300	185	152	75	64
23	15	18	15	10	1120	179	74	200	179	139	68	69
24	18	19	15	10	325	160	71	174	174	132	68	66
25	18	17	15	10	200	139	70	160	172	125	65	59
26	18	17	15	10	190	126	73	800	166	120	60	59
27	16	17	14	10	180	121	63	1200	162	121	56	57
28	15	15	14	10	199	114	63	600	160	122	53	54
29	14	14	14	10	---	114	64	500	166	123	188	59
30	14	14	14	10	---	121	63	700	197	120	584	57
31	14	---	14	10	---	110	---	600	---	112	145	---
TOTAL	732.9	500	697	340	10594.0	9698	2562	7942	6633	5427	3850	2441
MEAN	23.6	16.7	22.5	11.0	378	313	85.4	256	221	175	124	81.4
MAX	143	30	35	14	3940	3420	113	1200	505	660	584	185
MIN	5.3	14	14	10	9.0	84	63	59	160	112	53	54
CFSM	.08	.05	.07	.04	1.20	.99	.27	.81	.70	.55	.39	.26
IN.	.09	.06	.08	.04	1.25	1.14	.30	.93	.78	.64	.45	.29
AC-FT	1450	992	1380	674	21010	19240	5080	15750	13160	10760	7640	4840

CAL YR 1981 TOTAL 10794.5 MEAN 29.6 MAX 714 MIN 4.1 CFSM .09 IN 1.27 AC-FT 21410
WTR YR 1982 TOTAL 51415.9 MEAN 141 MAX 3940 MIN 5.3 CFSM .45 IN 6.05 AC-FT 102000

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 (1.0 km) west of Hancock school, and 3.0 mi (4.8 km) downstream from Jim Creek, 59.6 mi (95.9 km) upstream from confluence with East Nishnabotna River, and at mile 75.1 mi (120.8 km) above mouth of Nishnabotna River.

DRAINAGE AREA.--609 mi² (1,577 km²).

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,085.83 ft (330.96 1 m) NGVD. Prior to Sept. 15, 1980, on downstream end of right pier at same datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers rain-gage and gage-height satellite telemeters at station.

AVERAGE DISCHARGE.--23 years, 258 ft³/s (7.307 m³/s), 5.75 in/yr (146 mm/yr), 186,900 acre-ft/yr (230 hm³/yr); median of yearly mean discharges, 230 ft³/s (6.51 m³/s), 5.1 in/yr (130 mm/yr), 167,000 acre-ft/yr (206 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,400 ft³/s (748 m³/s) Sept. 13, 1972, gage height, 22.12 ft (6.742 m); minimum daily, 2.2 ft³/s (0.062 m³/s) Feb. 8, 9, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	0230	*13,900	394	*15.84	4.828	Mar. 19	1700	11,200	317	13.94	4.249

Minimum daily discharge, 14 ft³/s (0.40 m³/s) Oct. 1, 2, Feb. 6-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	35	60	18	15	381	219	124	821	367	175	425
2	14	43	55	18	15	406	212	119	734	371	170	278
3	25	40	52	18	15	340	206	114	690	351	155	220
4	116	51	50	17	15	300	204	111	635	288	157	195
5	86	47	49	17	15	260	219	134	581	258	1670	178
6	49	38	47	17	14	220	196	195	550	1380	454	170
7	36	34	52	17	14	200	200	205	512	1060	323	186
8	30	34	50	17	14	180	192	175	482	591	268	256
9	28	31	52	16	14	160	184	152	550	511	235	199
10	26	31	48	16	14	180	190	141	446	950	274	207
11	25	30	47	16	14	537	183	196	399	689	238	182
12	25	33	49	16	14	2150	181	241	385	503	216	188
13	26	33	45	16	14	1340	179	183	374	446	230	663
14	30	31	42	16	14	615	163	196	359	419	227	371
15	38	33	38	15	14	436	158	244	905	394	214	259
16	33	32	34	15	16	376	178	232	819	371	214	214
17	36	30	30	15	18	341	203	225	542	343	191	242
18	51	31	26	15	30	293	174	235	616	365	183	229
19	42	33	24	15	200	5410	161	307	467	482	178	188
20	35	32	22	15	4000	2080	158	763	437	355	164	168
21	31	31	20	15	8640	771	143	1330	392	312	153	159
22	27	30	20	15	4540	553	138	750	365	298	149	155
23	25	37	20	15	3070	471	137	580	342	275	141	160
24	26	39	20	15	964	449	133	511	325	262	142	156
25	30	41	20	15	500	373	131	497	314	244	139	141
26	30	39	19	15	400	320	131	2070	312	230	130	137
27	33	38	19	15	380	295	130	2360	308	223	123	134
28	33	35	19	15	380	273	125	1230	298	218	117	128
29	31	32	19	15	---	268	127	1030	280	207	123	138
30	31	30	18	15	---	271	128	1500	303	201	1390	157
31	33	---	18	15	---	250	---	1270	---	185	445	---
TOTAL	1095	1054	1084	490	23353	20499	5083	17420	14543	13149	8988	6483
MEAN	35.3	35.1	35.0	15.8	834	661	169	562	485	424	290	216
MAX	116	51	60	18	8640	5410	219	2360	905	1380	1670	663
MIN	14	30	18	15	14	160	125	111	280	185	117	128
CFSM	.06	.06	.06	.03	1.37	1.09	.28	.92	.80	.70	.48	.36
IN.	.07	.06	.07	.03	1.43	1.25	.31	1.06	.89	.80	.55	.40
AC-FT	2170	2090	2150	972	46320	40660	10080	34550	28850	26080	17830	12860

CAL YR 1981	TOTAL	18978	MEAN	52.0	MAX	1260	MIN	14	CFSM	.09	IN 1.16	AC-FT	37640
WTR YR 1982	TOTAL	113241	MEAN	310	MAX	8640	MIN	14	CFSM	.51	IN 6.92	AC-FT	224600

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 (0.5 km) downstream from Deer Creek, 0.5 mi (0.8 km) west of Randolph, and 16.0 mi (25.7 km) upstream from confluence with East Nishnabotna River and at mile 31.5 (50.7 km) above mouth of Nishnabotna River.

DRAINAGE AREA.--1,326 mi² (3,434 km²).

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 (284.375 m) NGVD, unadjusted. Prior to Aug. 26, 1955, nonrecording gage with supplementary water-stage recorder operating above 8.4 ft (2.56 m) June 30, 1949 to Aug. 25, 1955 at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--34 years, 541 ft³/s (15.32 m³/s), 5.54 in/yr (141 mm/yr), 392,000 acre-ft/yr (483 hm³/yr); median of yearly mean discharges, 480 ft³/s (13.6 m³/s), 4.9 in/yr (124 mm/yr), 348,000 acre-ft/yr (429 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,500 ft³/s (1,010 m³/s) June 21, 1967, gage height, 22.60 ft (6.888 m); maximum gage height, 24.8 ft (7.56 m) Mar. 5, 1949, from graph based on gage readings (backwater from ice); minimum daily discharge, 10 ft³/s (0.28 m³/s) Dec. 17-21, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of about 24 ft (7.3 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,500 ft³/s (184 m³/s) and maximum (*):

		Discharge		Gage height				Discharge		Gage height	
Date	Time	(ft³/s)	(m³/s)	(ft)	(m)	Date	Time	(ft³/s)	(m³/s)	(ft)	(m)
Feb. 21	0215	10,700	303	18.40	5.608	May 21	1000	8,150	231	16.80	5.121
Mar. 19	2345	8,320	236	17.01	5.185	June 15	0315	*27,600	782	*23.51	7.166

Minimum daily discharge, 51 ft³/s (1.44 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	110	382	96	94	710	564	465	1870	1280	572	1010
2	51	172	306	96	92	689	648	453	1630	1620	546	936
3	71	163	237	96	92	648	627	450	1510	1290	525	780
4	155	145	216	96	92	360	624	452	1400	1050	500	711
5	195	129	208	96	92	320	618	2220	1280	954	1270	674
6	192	118	198	96	92	300	610	1170	1210	1460	1620	656
7	126	109	189	96	92	280	598	1080	1240	2200	811	639
8	101	100	184	96	90	260	602	853	1370	1380	679	641
9	89	92	182	96	90	250	594	710	1590	1130	619	698
10	84	90	175	96	90	350	597	648	1270	1660	1260	684
11	82	90	180	94	90	572	599	758	1150	1610	823	656
12	79	89	173	94	90	1300	585	1150	1100	1240	1060	645
13	77	90	173	94	90	1690	574	864	1090	1050	1900	940
14	77	92	167	94	90	1260	559	972	1120	991	793	1230
15	77	91	153	94	90	784	730	954	13600	954	2010	941
16	74	87	140	94	95	648	1800	985	3610	936	907	776
17	83	88	125	94	125	573	709	1020	2110	882	793	1770
18	116	88	110	94	200	513	623	1060	2120	853	742	1650
19	101	89	105	94	1000	4270	571	906	1720	937	709	902
20	103	88	100	94	7000	5450	534	1440	1490	1040	684	750
21	88	85	98	94	9000	1880	512	5280	1380	877	670	691
22	79	88	96	94	5980	1250	494	3320	1300	809	655	663
23	78	96	95	94	4140	1070	489	1900	1230	755	639	643
24	75	100	96	94	2150	1010	485	1660	1170	736	683	626
25	79	102	96	94	1140	964	479	2420	1130	704	666	609
26	81	104	96	94	847	840	473	2300	1100	678	649	585
27	81	102	96	94	763	780	453	3860	1100	658	637	565
28	81	101	96	94	747	742	495	2780	1110	640	624	551
29	85	98	96	94	---	726	505	2470	1020	631	978	566
30	84	146	96	94	---	734	473	2930	1170	614	1370	633
31	83	---	96	94	---	707	---	2400	---	593	1700	---
TOTAL	2879	3142	4761	2934	34553	31930	18324	49930	55190	32222	20094	23821
MEAN	92.9	105	154	94.6	1234	1030	611	1611	1840	1039	906	794
MAX	195	172	382	96	9000	5450	1800	5280	13600	2200	2010	1770
MIN	51	85	96	94	90	250	453	450	1020	593	500	551
CFSM	.07	.08	.12	.07	.93	.78	.46	1.22	1.39	.70	.60	.60
IN.	.08	.09	.13	.08	.97	.90	.51	1.40	1.55	.90	.79	.67
AC-FT	5710	6230	9440	5820	68540	63330	36350	99040	109500	63910	55720	47250

CAL YR 1981	TOTAL	54312	MEAN 149	MAX 1160	MIN 51	CFSM .11	IN 1.52	AC-FT 107700		
WTR YR 1982	TOTAL	287780	MEAN 788	MAX 13600	MIN 51	CFSM .59	IN 8.07	AC-FT 570800		

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 (2.6 km) upstream from Turkey Creek, 5.2 mi (8.4 km) southwest of junction of U.S. Highway 6 and State Highway 83 in Atlantic, 69.1 mi (112.2 km) upstream from confluence with West Nishnabotna River, and at mile 84.6 (136.1 km) above mouth of Nishnabotna River.

DRAINAGE AREA.--436 mi² (1,129 km²).

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,105.83 ft (337.057 m) NGVD. Prior to Oct. 1, 1970, at site 2.2 mi (3.5 km) upstream at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. Corps of Engineers rain-gage and gage-height satellite telemeters at station.

AVERAGE DISCHARGE.--22 years, 203 ft³/s (5.749 m³/s), 6.32 in/yr (161 mm/yr), 147,100 acre-ft/yr (181 hm³/yr); median of yearly mean discharges, 190 ft³/s (5.38 m³/s), 5.9 in/yr (150 mm/yr), 138,000 acre-ft/yr (170 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,700 ft³/s (756 m³/s) Sept. 12, 1972, gage height, 22.81 ft (6.952 m); minimum daily, 2.5 ft³/s (0.071 m³/s) July 10, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	1745	6,730	191	*12.40	3.780	May 26	1300	8,620	244	10.99	3.350
Mar. 19	1345	*10,300	292	11.99	3.655	Aug. 30	0515	4,860	138	8.75	2.667
May 20	1900	5,470	155	9.15	2.789						

Minimum daily discharge, 16 ft³/s (0.45 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	32	60	23	20	221	222	123	648	277	144	255
2	16	35	55	23	20	247	222	116	580	435	135	161
3	26	50	52	23	20	178	239	115	555	849	126	130
4	49	57	48	23	20	150	208	123	512	328	123	115
5	47	55	46	23	20	130	229	418	470	267	592	109
6	29	60	45	22	20	120	192	376	440	1050	199	105
7	22	59	45	22	20	110	222	473	468	998	147	103
8	21	49	45	22	20	105	196	316	411	456	133	101
9	21	41	45	22	20	100	199	261	432	373	118	100
10	22	34	45	22	20	120	202	231	356	997	141	98
11	23	34	45	21	20	300	202	265	325	469	134	95
12	22	34	45	21	20	1000	208	303	321	350	120	101
13	23	35	45	21	20	700	189	306	325	306	150	479
14	25	34	42	21	20	434	165	385	296	383	126	196
15	25	36	39	21	20	311	162	493	466	298	129	147
16	22	37	36	20	21	337	225	525	473	280	133	121
17	50	35	33	20	23	310	254	431	351	261	124	193
18	52	37	30	20	30	254	205	478	1260	251	114	404
19	35	42	28	20	150	4030	180	447	441	275	113	182
20	29	36	26	20	1700	1440	174	2180	346	266	107	144
21	25	34	24	20	1440	660	151	2870	295	518	100	126
22	25	32	24	20	1110	435	148	1660	275	428	96	117
23	25	38	24	20	864	391	146	1000	255	250	92	111
24	26	42	24	20	485	450	146	789	241	222	87	104
25	26	42	24	20	250	378	138	825	233	200	86	98
26	27	39	24	20	200	316	133	5370	229	183	85	98
27	27	38	24	20	200	292	128	2220	227	186	82	94
28	26	37	24	20	200	272	127	1280	218	179	80	93
29	26	34	24	20	---	280	135	1030	208	165	106	157
30	26	32	24	20	---	284	128	911	228	165	2040	171
31	26	---	24	20	---	250	---	900	---	158	317	---
TOTAL	861	1200	1119	650	6973	14605	5475	27220	11885	11823	6279	4508
MEAN	27.8	40.0	36.1	21.0	249	471	183	878	396	381	203	150
MAX	52	60	60	23	1700	4030	254	5370	1260	1050	2040	479
MIN	16	32	24	20	20	100	127	115	208	158	80	93
CFSM	.06	.09	.08	.05	.57	1.08	.42	2.01	.91	.87	.47	.34
IN.	.07	.10	.10	.06	.59	1.25	.47	2.32	1.01	1.01	.54	.38
AC-FT	1710	2380	2220	1290	13830	28970	10860	53990	23570	23450	12450	8940

CAL YR 1981	TOTAL	13826	MEAN	37.9	MAX	693	MIN 10	CFSM .09	IN 1.18	AC-FT	27420
WTR YR 1982	TOTAL	92598	MEAN	254	MAX	5370	MIN 16	CFSM .58	IN 7.90	AC-FT	183700

06809500 EAST NISHNABOTNA RIVER AT RED OAK, IA

LOCATION (revised).--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 (0.3 km) upstream from Red Oak Creek, 38.0 mi (61.1 km) upstream from confluence with West Nishnabotna River, and at mile 53.5 (86.1 km), above mouth of Nishnabotna River.

DRAINAGE AREA.--894 mi² (2,315 km²).

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 (306.461 m) NGVD. Prior to July 5, 1925, nonrecording gage at present site at datum 4.60 ft (1.402 m) higher. May 29, 1936, to Nov. 13, 1952, nonrecording gage with supplementary water-stage recorder in operation above 3.2 ft (0.975 m) 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 (0.8 km) upstream at datum 5.00 ft (1.524 m) higher. June 14, 1966, to Sept. 30, 1969, at present site at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--52 years (water years 1919-24, 1937-82), 371 ft³/s (10.507 m³/s), 5.64 in/yr (143 mm/yr), 268,800 acre-ft/yr (331 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft³/s (1,080 m³/s) Sept. 13, 1972, gage height, 27.43 ft (8.361 m); maximum gage height, 28.23 ft (8.605 m) June 13, 1947, present datum; minimum daily discharge, 6 ft³/s (0.17 m³/s) Aug. 18, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (127 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	0715	Unknown		*a19.94	6.078
Feb. 21	0415	*13,600	385	19.22	5.858
Mar. 19	2015	9,530	270	16.50	5.029
May 26	1900	7,290	206	14.74	4.493
June 15	0500	13,000	368	18.86	5.749

a Ice jam

Minimum daily discharge, 36 ft³/s (1.02 m³/s) Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	64	197	68	56	383	430	348	1330	654	366	620
2	36	79	218	68	56	398	412	340	1160	635	352	451
3	42	88	163	68	56	377	417	326	1100	1150	337	358
4	65	96	155	68	56	138	412	423	1040	776	331	306
5	91	116	139	68	54	214	422	2150	961	627	1240	282
6	90	102	134	66	54	288	420	1180	896	627	958	266
7	67	86	137	66	54	249	399	1080	869	1610	517	256
8	54	78	135	66	54	284	417	787	916	867	441	256
9	48	72	135	66	54	250	392	644	957	712	400	253
10	47	67	129	66	54	261	390	578	807	684	470	248
11	46	65	120	64	52	368	395	571	716	1180	460	243
12	47	66	123	64	52	1510	387	766	679	716	416	236
13	46	63	119	64	52	1320	380	686	680	624	490	451
14	49	62	116	64	52	819	355	754	661	621	457	684
15	50	62	102	64	52	570	376	992	6610	655	457	385
16	49	64	75	62	55	515	624	1070	1980	581	425	309
17	48	61	95	62	65	560	646	944	1140	548	400	476
18	102	60	140	62	120	467	534	923	1200	516	372	743
19	100	60	110	62	600	3680	463	860	1200	543	358	506
20	76	56	100	62	6500	2690	434	876	859	597	343	372
21	60	50	95	60	8850	1360	401	3500	760	537	328	320
22	52	55	90	60	4400	946	382	2670	692	831	317	300
23	51	62	85	60	3450	784	379	1690	676	569	306	276
24	50	66	82	60	1220	765	371	1340	646	503	306	276
25	[illegible]	71	80	60	675	776	370	1250	616	476	298	258
26	51	71	78	58	499	618	367	4310	594	460	295	243
27	52	65	76	58	441	573	359	3380	590	441	292	238
28	53	61	74	58	399	535	350	2130	562	410	284	234
29	52	59	72	58	---	504	353	1790	534	400	290	238
30	50	93	71	58	---	506	359	1620	544	385	2220	346
31	50	---	70	56	---	492	---	1690	---	379	1040	---
TOTAL	1762	2120	3515	1946	28082	23200	12396	41668	31975	20314	15566	10430
MEAN	56.8	70.7	113	62.8	1003	748	413	1344	1066	655	502	348
MAX	102	116	218	68	8850	3680	646	4310	6610	1610	2220	743
MIN	36	50	70	56	52	138	350	326	534	379	234	234
CFSM	.06	.08	.13	.07	1.12	.84	.46	1.50	1.19	.73	.56	.39
IN.	.07	.09	.15	.08	1.17	.97	.52	1.73	1.33	.85	.65	.43
AC-FT	3490	4210	6970	3860	55700	46020	24590	82650	63420	40290	30880	20690

CAL YR 1981 TOTAL 33388 MEAN 91.5 MAX 988 MIN 24 CFSM .10 IN 1.39 AC-FT 66230
WTR YR 1982 TOTAL 192974 MEAN 529 MAX 8850 MIN 36 CFSM .59 IN 8.03 AC-FT 382800

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 (2.1 km) downstream from confluence of East Nishnabotna and West Nishnabotna Rivers, 2 mi (3.2 km) northeast of Hamburg, and at mile 13.8 (22.2 km).

DRAINAGE AREA.--2,806 mi² (7,268 km²).

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 (272.543 m) NGVD. See WSP 1730 for history of changes prior to Nov. 16, 1950.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station. Corps of Engineers rain-gage and gage-height satellite telemeters at station.

AVERAGE DISCHARGE.--55 years (water years 1923, 1929-82), 1,035 ft³/s (29.31 m³/s), 5.01 in/yr (127 mm/yr), 749,900 acre-ft/yr (925 hm³/yr); median of yearly mean discharges, 930 ft³/s (26.3 m³/s), 4.5 in/yr (114 mm/yr), 674,000 acre-ft/yr (831 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,500 ft³/s (1,570 m³/s) June 24, 1947, gage height, 26.03 ft (7.934 m), present site and datum, from floodmark; maximum gage height, 27.46 ft (8.370 m) Mar. 7, 1979 (backwater from ice); minimum daily discharge, 4.5 ft³/s (0.13 m³/s) Aug. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 9,000 ft³/s (255 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 22	0845	17,000	484	23.17	7.062	June 15	1615	*29,100	776	*27.25	2.306
Apr. 16	0745	10,800	306	20.63	6.288	Aug. 15	0945	10,700	303	20.73	6.319
May 21	1645	11,800	334	21.37	6.514						

Minimum daily discharge, 102 ft³/s (2.89 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	233	790	190	180	1930	1370	1010	4160	2480	1070	2680
2	102	357	698	190	180	1860	1320	979	3400	3200	1040	2050
3	151	377	569	190	170	1770	1270	953	3130	2590	1010	1670
4	277	350	487	190	170	1600	1230	931	2950	2690	960	1430
5	302	288	460	190	170	1390	1200	3580	2780	2110	1110	1290
6	326	300	440	190	170	1200	1190	3430	2620	2670	3070	1220
7	272	285	425	190	170	1100	1190	2960	2510	3100	1500	1170
8	217	254	426	190	170	1000	1190	2240	3830	3290	1200	1140
9	190	258	407	190	170	900	1180	1830	4400	2320	1090	1130
10	171	250	393	190	170	800	1120	1600	2950	2310	2320	1150
11	167	237	418	190	170	1000	1100	1540	2480	2850	1640	1070
12	168	234	396	190	170	1240	1080	2020	2260	2600	2180	1080
13	175	229	387	190	170	2170	1060	1930	2130	2110	5140	1680
14	184	229	372	190	170	2780	1020	1870	2120	2050	2510	2010
15	180	228	352	190	170	2370	994	2190	20500	2070	7860	1880
16	163	222	180	190	180	1900	5350	2190	15600	1920	3320	1290
17	172	221	300	190	250	1720	2390	2250	7660	1800	1700	3630
18	185	218	450	190	400	1630	1890	2370	5400	1730	1400	4910
19	231	213	350	190	2000	2920	1640	2160	5190	1660	1300	2390
20	243	221	300	190	10000	5740	1440	2950	4230	1710	1250	1710
21	215	204	290	180	15300	4410	1300	10300	2130	1770	1190	1480
22	185	207	280	180	16300	3260	1210	9550	3140	1510	1120	1380
23	162	217	270	180	9400	2650	1140	5370	2750	1570	1090	1340
24	156	228	260	180	6580	2370	1110	4080	2470	1450	2770	1290
25	158	227	250	180	3890	2310	1080	4030	2320	1330	2450	1250
26	171	227	240	180	2760	1970	1050	5570	2230	1270	2040	1210
27	174	222	230	180	2200	1710	1010	9420	2220	1220	1980	1170
28	185	224	220	180	2030	1590	1080	6600	2250	1190	1850	1120
29	178	224	210	180	---	1520	1170	5320	2050	1160	1850	1100
30	155	324	200	180	---	1470	1040	4590	2000	1130	9720	1190
31	151	---	190	180	---	1420	---	5460	---	1100	5510	---
TOTAL	5874	7508	11240	5780	73860	61700	41414	111273	123860	61960	74240	49110
MEAN	189	250	363	186	2638	1990	1380	3589	4129	1999	2395	1637
MAX	326	377	790	190	16300	5740	5350	10300	20500	3290	9720	4910
MIN	102	204	180	180	170	800	994	931	2000	1100	960	1070
CFSM	.07	.09	.13	.07	.94	.71	.49	1.28	1.47	.71	.85	.58
IN.	.08	.10	.15	.08	.98	.82	.55	1.48	1.64	.82	.98	.65
AC-FT	11650	14890	22290	11460	146500	122400	82140	220700	245700	122900	147300	97410

CAL YR 1981 TOTAL 121101 MEAN 332 MAX 1920 MIN 102 CFSM .12 IN 1.61 AC-FT 240200
WTR YR 1982 TOTAL 627819 MEAN 1720 MAX 20500 MIN 102 CFSM .61 IN 8.32 AC-FT 1245000

06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1979 to September 1981.
WATER TEMPERATURES: April 1979 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 815 micromhos Sept. 16,18, 19, 28,30, 1979; minimum daily, 155 micromhos, July 20, 1981.
WATER TEMPERATURES: Maximum daily, 32.0°C July 14, 1980; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (FTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV										
10...	1230	340	585	8.3	5.0	18	13.0	102	1200	2900
JAN										
04...	1140	900	645	8.1	.0	3.5	7.2	49	K77000	29000
MAR										
09...	1030	1240	550	7.8	.0	60	13.4	96	1600	4200
MAY										
11...	1100	1470	500	8.1	17.5	140	12.2	134	K4800	4800
JUL										
12...	1015	2700	430	7.9	23.0	2800	6.4	79	55000	40000
SEP										
03...	1500	1670	450	7.9	23.5	110	7.3	85	22000	25000

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 LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
NOV									
10...	260	67	23	19	13	.6	7.0	240	41
JAN									
04...	300	80	25	20	12	.5	4.2	260	44
MAR									
09...	240	64	19	12	10	.4	6.7	210	39
MAY									
11...	230	61	19	12	10	.4	5.3	190	39
JUL									
12...	190	52	15	14	13	.5	3.8	180	29
SEP									
03...	220	58	17	11	10	.4	5.2	182	31

DATE	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, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
NOV									
10...	30	.4	13	358	345	.49	329	1.5	.240
JAN									
04...	32	.3	16	375	378	.51	911	2.8	.540
MAR									
09...	13	.3	13	315	294	.43	1060	3.1	.810
MAY									
11...	13	.5	12	316	276	.43	1250	6.3	.150
JUL									
12...	12	.4	13	273	248	.37	1990	8.8	.100
SEP									
03...	13	.3	16	378	261	.51	1700	5.1	1.40

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

0681000 NISHNABOTNA RIVER ABOVE HAMBURG, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, ORTHO DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	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)
NOV									
10...	.31	1.10	.200	.77	.160	.250	62	57	88
JAN									
04...	.70	1.60	.080	.40	.080	.130	11	27	93
MAR									
09...	1.0	2.00	.090	.43	.110	.140	--	--	--
MAY									
11...	.19	2.40	.140	1.1	.180	.360	--	--	--
JUL									
12...	.13	1.30	.140	4.0	.140	1.30	--	--	--
SEP									
03...	1.8	2.00	.160	1.8	.190	.590	797	3590	91

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
NOV										
10...	1230	5	4	200	150	<1	1	<10	<10	3
MAR										
09...	1030	6	2	300	180	1	<1	<10	<10	7
JUL										
12...	1015	22	3	1100	130	<1	<1	90	<10	13
SEP										
03...	1500	10	3	300	150	1	<1	<10	<10	8

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)
NOV										
10...	<3	8	8	1900	21	23	1	210	130	.1
MAR										
09...	<3	26	5	8300	20	9	<1	710	320	.1
JUL										
12...	<1	120	9	88000	30	--	--	4800	1	.4
SEP										
03...	<1	31	7	17000	16	5	<1	1100	6	.3

DATE	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV									
10...	<.1	5	3	1	1	<1	<1	220	35
MAR									
09...	.1	14	3	3	4	<1	1	100	<3
JUL									
12...	.1	32	4	2	2	1	<1	400	10
SEP									
03...	.1	21	2	2	2	<1	<1	30	10

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 (3 m) downstream from bridge on county highway H42, 0.1 mi (0.2 km) downstream from Little Tarkio Creek, and 0.5 mi (0.8 km) west of Stanton.

DRAINAGE AREA.--49.3 mi² (127.7 km²).

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 (336.703 m) NGVD.

REMARKS.--Records poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years, 27.6 ft³/s (0.782 m³/s), 7.60 in/yr (193 mm/yr), 20,000 acre-ft/yr (24.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,500 ft³/s (637 m³/s) June 9, 1967, gage height, 28.56 ft (8.705 m), from rating curve extended above 1,600 ft³/s (45.3 m³/s) on basis of slope-area measurement of peak flow; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	1630	1,770	50.1	13.25	4.039	May 21	0615	1,730	49.0	13.33	4.063
Mar. 19	0745	1,680	47.6	13.12	3.999	June 8	1515	2,560	72.5	14.45	4.404
Apr. 16	0115	4,410	125	16.49	5.026	June 15	0345	*10,100	286	*21.23	6.471
May 4	2300	6,380	181	18.34	5.590						

Minimum daily discharge, 0.97 ft³/s (0.027 m³/s) Oct. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	9.0	73	4.2	4.6	18	23	23	76	61	13	42
2	1.1	16	31	4.8	4.6	18	24	20	76	53	9.8	34
3	2.4	21	25	4.8	4.8	8.8	20	19	76	48	7.7	28
4	8.3	16	23	4.8	4.7	11	18	563	69	40	27	24
5	5.4	9.7	21	5.0	4.8	12	18	1410	64	38	30	18
6	4.4	6.2	19	4.8	4.8	10	19	708	67	131	23	20
7	3.3	5.8	17	4.5	4.3	8.7	20	248	58	48	19	22
8	2.7	6.8	17	5.0	4.1	8.4	20	192	382	42	16	19
9	2.6	13	16	5.0	4.0	8.0	19	156	112	41	15	13
10	2.7	4.5	15	3.7	3.8	22	19	128	79	40	100	10
11	2.5	9.7	14	3.4	3.6	30	16	130	70	38	37	5.6
12	2.2	8.4	13	4.1	3.8	42	15	139	65	36	45	15
13	2.4	5.2	13	5.0	4.1	35	13	114	64	33	92	83
14	2.6	4.6	13	5.2	4.5	28	13	159	93	34	50	72
15	2.7	5.4	8.6	5.5	5.0	42	250	229	3000	33	129	46
16	2.1	5.2	4.9	5.2	9.4	94	894	131	161	33	68	38
17	2.2	5.8	6.8	4.8	33	46	144	148	117	29	52	172
18	3.6	3.9	7.4	5.1	214	36	94	107	100	31	44	105
19	2.6	6.1	5.7	5.3	730	675	72	82	90	44	45	71
20	1.4	5.8	5.9	5.5	1050	150	57	106	77	29	34	60
21	1.2	3.5	9.4	5.2	358	89	45	957	68	30	32	55
22	1.1	4.2	9.4	5.5	139	69	44	192	63	27	53	50
23	.97	11	7.4	6.1	70	62	41	134	58	25	29	53
24	.98	8.4	6.8	5.2	32	61	37	113	55	24	38	43
25	1.8	4.9	6.5	4.8	20	56	34	180	55	23	27	40
26	2.5	6.1	6.8	4.7	18	44	33	223	55	21	27	37
27	2.7	5.0	6.5	4.9	17	39	27	127	53	23	25	34
28	2.7	3.7	6.1	5.3	17	36	29	110	50	20	22	29
29	2.5	3.3	5.3	5.3	---	33	33	110	45	18	77	34
30	2.7	35	5.5	5.1	---	31	26	133	72	21	70	28
31	5.4	---	4.8	4.9	---	24	---	91	---	16	63	---
TOTAL	83.15	253.2	423.8	152.7	2772.9	1846.9	2117	7182	5470	1130	1319.5	1300.6
MEAN	2.68	8.44	13.7	4.93	99.0	59.6	70.6	232	182	36.5	42.6	43.4
MAX	8.3	35	73	6.1	1050	675	894	1410	3000	131	129	172
MIN	.97	3.3	4.8	3.4	3.6	8.0	13	19	45	16	7.7	5.6
CFSM	.05	.17	.28	.10	2.01	1.21	1.43	4.71	3.69	.74	.86	.88
IN.	.06	.19	.32	.12	2.09	1.39	1.60	5.42	4.13	.85	1.00	.98
AC-FT	165	502	841	303	5500	3660	4200	14250	10850	2240	2620	2580

CAL YR 1981	TOTAL	2079.42	MEAN	5.70	MAX	73	MIN	.00	CFSM	.12	IN 1.57	AC-FT 4120
WTR YR 1982	TOTAL	24051.75	MEAN	65.9	MAX	3000	MIN	.97	CFSM	1.34	IN 18.15	AC-FT 47710

06813500 MISSOURI RIVER AT RULO, NB

LOCATION.--Lat 40°03'14", long 95°25'12", in NW1/4 NW1/4 sec.17, T.1 N., R.18 E., Richardson County, Hydrologic Unit 10240005, on downstream end of middle pier of bridge on U.S. Highway 159 at Rulo, 3.2 mi (5.1 km) upstream from Big Nemaha River, and at mile 498.0 (801.3 km).

DRAINAGE AREA.--414,900 mi² (1,074,600 km²), approximately. The 3,959 mi² (10,254 km²) 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 (24 m) upstream January 1886 to December 1899 published in reports of Missouri River Commission September 1929 to September 1950 in files of Kansas City office of Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 837.23 ft (255.188 m) NGVD. Prior to Sept. 13, 1950, nonrecording gage at site 80 ft (24 m) upstream at same datum.

REMARKS.--Records good. Flow regulated by upstream main-stem reservoirs. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--33 years, 39,570 ft³/s (1,121 m³/s), 28,670,000 acre-ft/yr (35,400 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 358,000 ft³/s (10,100 m³/s) Apr. 22, 1952, gage height, 25.60 ft (7.803 m); minimum daily, 4,420 ft³/s (125 m³/s) Jan. 13, 1957; minimum gage height, 0.65 ft (0.198 m) Jan. 7, 1971, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1881 reached a stage of 22.9 ft (6.98 m), from floodmark, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 126,000 ft³/s (3,570 m³/s) June 16, gage height, 19.73 ft (6.014 m); minimum daily, 11,600 ft³/s (329 m³/s) Jan. 13; minimum gage height, 2.53 ft (0.771 m) Jan. 13, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38800	43500	29300	21600	22700	43700	42400	39500	71300	45600	40500	49300
2	38300	48000	30200	20100	22300	43900	42400	40000	72400	47800	40200	44500
3	38800	42800	28600	19800	21700	43100	41700	39500	63900	47700	40300	42800
4	40800	41900	27800	18900	21300	41500	42400	39300	58400	45500	39900	41100
5	40100	41600	26700	18600	20900	37800	42400	41900	55900	43900	39200	39900
6	39500	41000	26400	19500	20600	33100	41400	46700	53900	44300	42600	40200
7	39300	39200	25000	19200	21300	29900	41300	46600	52600	51600	46900	41000
8	39000	37800	25100	18800	21700	27500	40900	43300	51200	64500	44700	40100
9	39700	35200	24900	18900	22400	26000	40700	41600	64000	58600	41000	39300
10	39200	33200	25400	16500	23700	25000	40600	40300	55100	53200	44000	39100
11	39100	30700	25100	14500	24100	25900	40700	40000	51100	59500	46700	38900
12	39200	28700	25600	13000	23000	26700	39700	44000	47800	69700	45300	38600
13	39400	26900	25400	11600	22300	31400	39500	51800	46300	61600	60000	51800
14	39700	25400	25600	11900	22700	36900	40600	48200	44400	60700	75000	56400
15	40900	24200	25300	14100	23300	34900	41300	49800	73800	55100	73500	50700
16	41400	24000	25200	16900	26100	33500	52600	47900	121000	54000	60900	44900
17	41900	23900	24300	17200	28000	32700	48000	46000	101000	54200	49600	43000
18	42000	23900	20900	17300	32800	32000	43700	48700	74800	55300	46200	51800
19	42000	23900	18600	15900	46300	42000	42800	49300	65500	54100	43600	46600
20	41500	23800	17800	16200	58400	58000	42400	55200	60900	56400	41800	44300
21	41600	24700	16700	19000	59800	54000	41400	106000	55600	54400	42200	43300
22	42000	24800	16000	22100	60300	51000	41000	111000	52900	50200	40800	42600
23	41500	25000	16300	22500	71000	49600	40600	86900	50000	49400	39700	42600
24	41000	23700	18300	21500	76800	47900	39800	70300	48100	47000	40600	42500
25	41000	24000	21600	19900	63600	46900	39800	69600	46300	44400	46200	41700
26	41500	23800	23300	17800	53100	45800	39100	78200	46200	42400	44600	42000
27	41500	23500	23800	17300	47100	44900	38800	89000	48000	41200	43800	41800
28	40200	23800	24800	18500	43900	44200	38900	97000	49700	40200	41800	41400
29	40500	23800	24700	20700	---	43200	39800	108000	46800	40800	40000	41800
30	41400	24500	23400	22800	---	43300	40100	98800	43200	41100	64600	42700
31	41600	---	22500	23200	---	43600	---	90000	---	41000	57200	---
TOTAL	1254400	901200	734600	565800	1001200	1219900	1246800	1904400	1772100	1575400	1463400	1306700
MEAN	40460	30040	23700	18250	35750	39350	41560	61430	59070	50820	47210	43560
MAX	42000	48000	30200	23200	76800	58000	52600	111000	121000	69700	75000	56400
MIN	38300	23500	16000	11600	20500	25000	38800	39300	43200	40200	39200	38600
AC-FT	2488000	1788000	1457000	1122000	1986000	2420000	2473000	3777000	3515000	3125000	2903000	2592000

CAL YR 1981	TOTAL	12066800	MEAN	33060	MAX	56100	MIN	13500	AC-FT	23930000
WTR YR 1982	TOTAL	14945900	MEAN	40950	MAX	121000	MIN	11600	AC-FT	29650000

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 (0.8 km) downstream from North Branch, 1.2 mi (1.9 km) east of city square of Clarinda, and 7.5 mi (12.1 km) upstream from East Nodaway River.

DRAINAGE AREA.--762 mi² (1,973 km²).

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 (292.718 m) NGVD. Prior to July 5, 1925, and May 28, 1936, to Mar. 26, 1957, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Clarinda municipal water supply is taken from Nodaway River, 500 ft (152 m) above station. Average daily pumpage was 1.86 ft³/s (0.053 m³/s).

COOPERATION.--Average pumpage furnished by Clarinda water works.

AVERAGE DISCHARGE.--52 years (1918-24, 1936-82), 332 ft³/s (9.402 m³/s), 5.92 in/yr (150 mm/yr), 240,500 acre-ft/yr (297 hm³/yr); median of yearly mean discharges, 260 ft³/s (7.36 m³/s), 4.6 in/yr (117 mm/yr), 188,000 acre-ft/yr (232 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,100 ft³/s (881 m³/s) June 13, 1947, gage height, 25.3 ft (7.71 m), from floodmark, from rating curve extended above 15,000 ft³/s (425 m³/s) on basis of an overflow profile and extended channel rating; minimum daily, 1.0 ft³/s (0.028 m³/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 (7.74 m), from floodmarks, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft³/s (142 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	2145	13,400	379	13.11	3.996
Mar. 19	0900	11,700	331	12.20	3.719
Apr. 16	0600	19,000	533	15.80	4.816
May 5	0600	14,900	422	13.85	4.221
May 21	1015	6,920	196	9.00	2.743
June 15	Unknown	*29,100	824	a*19.70	6.005
Aug. 5	1330	8,180	232	9.93	3.027

a From floodmark

Minimum daily discharge, 26 ft³/s (0.74 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	68	467	62	51	379	604	474	1440	736	128	1530
2	27	103	322	62	51	383	536	449	1280	652	98	693
3	40	140	222	62	51	346	559	422	1280	1600	81	424
4	79	133	178	62	51	120	536	395	1190	792	93	327
5	65	119	158	62	50	200	536	7670	1090	541	3870	285
6	56	107	155	60	50	240	494	4790	1050	1280	1750	270
7	41	91	150	60	50	230	474	3270	994	1600	470	270
8	35	79	137	60	50	220	515	1720	2390	681	312	246
9	37	73	126	60	50	210	494	1230	2570	519	234	232
10	40	72	118	60	50	216	482	988	1620	453	545	218
11	38	71	121	58	48	691	453	882	1160	402	406	204
12	34	69	123	58	48	882	453	1100	1060	376	261	190
13	36	68	116	58	48	904	433	1250	1020	350	681	1830
14	36	66	100	58	52	666	402	1930	971	623	357	1280
15	33	65	60	58	56	581	376	3940	19700	429	1710	806
16	30	60	32	56	80	1400	8710	2740	14100	336	600	465
17	33	55	30	56	150	1180	3650	1910	2860	280	339	1950
18	33	55	80	56	500	686	1750	2130	1850	261	243	2790
19	29	55	70	56	1000	5700	1270	1500	1420	306	207	1080
20	34	52	66	56	5000	2900	1020	1230	1190	322	198	648
21	32	53	66	54	7220	1780	834	5020	994	466	160	498
22	29	56	64	54	3470	1200	751	3480	866	691	167	418
23	31	57	64	54	2920	1020	715	2110	761	299	151	383
24	32	55	64	54	1150	965	652	1720	696	216	234	372
25	32	56	64	54	647	1030	595	1780	628	190	164	326
26	29	57	64	52	410	855	541	5690	586	171	144	290
27	28	52	64	52	372	761	494	3610	554	178	128	280
28	30	54	64	52	376	720	490	2470	519	169	111	274
29	31	47	62	52	---	652	554	2320	478	157	231	280
30	31	185	62	52	---	676	532	1920	470	139	3400	286
31	46	---	62	51	---	652	---	1810	---	126	1200	---
TOTAL	1133	2273	3531	1761	24051	28445	29905	71950	66787	15341	18673	19145
MEAN	36.5	75.8	114	56.8	859	918	997	2321	2226	495	602	638
MAX	79	185	467	62	7220	5700	8710	7670	19700	1600	3870	2790
MIN	26	47	30	51	48	120	376	395	470	126	81	190
CFSM	.05	.10	.15	.08	1.13	1.21	1.31	3.05	2.92	.65	.79	.84
IN.	.06	.11	.17	.09	1.17	1.39	1.46	3.51	3.26	.75	.91	.93
AC-FT	2250	4510	7000	3490	47710	56420	59320	142700	132500	30430	37040	37970

CAL YR 1981 TOTAL 33721 MEAN 92.4 MAX 1590 MIN 21 CFSM .12 IN 1.65 AC-FT 66890
WTR YR 1982 TOTAL 282995 MEAN 775 MAX 19700 MIN 26 CFSM 1.02 IN 13.82 AC-FT 561300

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 (91 m) upstream from gage. Samples at higher stages are collected from bridge at gage. Random water temperatures are on file for the 1979 water year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 600 micromhos Aug. 22, 1982; minimum daily, 130 micromhos June 15, 1976.
WATER TEMPERATURES: Maximum daily, 30.5°C Aug. 23, 1978; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 23,800 mg/L Apr. 17, 1978; minimum daily mean, 5 mg/L Dec. 14, 1977, Feb. 24, 1978.
SEDIMENT LOADS: Maximum daily, 1,500,000 tons (1,360,000 tonnes) June 16, 1983; minimum daily, 0.23 ton (0.21 tonne) Dec. 14, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 600 micromhos Aug. 22; minimum daily, 160 micromhos Feb. 21.
WATER TEMPERATURES: Maximum daily, 28.0°C Aug. 20; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 23,400 mg/L June 15; minimum daily mean, 5 mg/L Oct. 25.
SEDIMENT LOADS: Maximum daily, 1,500,000 tons (1,360,000 tonnes) June 16; minimum daily, 0.43 ton (0.39 tonne) Oct. 25.

SPECIFIC CONDUCTANCE, LABORATORY (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	420	420	340	440	370	360	400	450	480	450	520	280
2	430	400	460	360	380	350	400	440	490	410	510	300
3	430	420	430	360	370	350	400	450	480	340	510	370
4	400	360	440	360	370	350	400	450	500	340	510	420
5	390	450	430	350	360	360	400	210	500	420	490	440
6	400	460	450	360	360	370	400	270	500	430	260	590
7	410	460	460	360	340	390	400	290	500	290	340	460
8	410	440	460	---	360	390	400	380	510	360	410	460
9	410	480	450	340	360	400	400	420	310	440	440	440
10	410	420	460	360	370	400	400	420	380	450	380	430
11	400	470	450	360	360	320	400	440	460	490	410	450
12	400	390	380	370	340	320	390	420	490	510	460	460
13	430	400	450	380	350	280	390	400	500	510	320	240
14	440	460	450	360	440	280	390	380	510	510	390	270
15	430	470	450	360	500	310	380	340	200	350	250	310
16	420	460	420	390	410	300	210	360	230	470	340	370
17	420	390	390	380	320	300	260	380	360	490	430	400
18	420	440	390	370	280	340	320	380	430	510	470	270
19	440	450	440	350	260	230	350	390	470	510	490	320
20	440	420	400	370	200	220	370	430	490	460	490	380
21	430	400	400	350	160	320	390	310	480	430	440	410
22	440	400	420	460	170	350	420	310	470	330	500	420
23	440	420	420	380	210	370	440	390	480	410	470	440
24	440	420	410	380	230	370	440	420	480	460	340	430
25	460	420	400	390	240	370	440	420	480	490	440	430
26	440	400	370	370	320	380	440	360	490	510	460	440
27	440	390	370	380	350	380	440	280	500	510	460	440
28	430	410	---	430	370	380	440	380	490	510	460	440
29	440	370	370	420	---	400	440	400	490	510	460	460
30	430	390	370	420	---	400	450	410	490	510	280	510
31	420	---	370	400	---	400	---	410	---	510	250	---

06817000 NODAWAY RIVER AT CLARINDA, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

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

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	60	4.2	47	8.6	940	1190	32	5.4	23	3.2	370	379
2	60	4.4	56	16	403	350	28	4.7	26	3.6	405	419
3	32	3.5	43	16	192	115	25	4.2	28	3.9	380	355
4	65	14	31	11	121	58	22	3.7	30	4.1	75	24
5	61	11	58	19	79	34	19	3.2	43	5.8	40	22
6	52	7.9	35	10	57	24	19	3.1	38	5.1	60	39
7	24	2.7	26	6.4	54	22	28	4.5	40	5.4	52	32
8	27	2.6	24	5.1	45	17	38	6.2	35	4.7	55	33
9	44	4.4	23	4.5	36	12	30	4.9	30	4.1	63	36
10	31	3.3	21	4.1	28	8.9	27	4.4	36	4.9	180	105
11	26	2.7	13	2.5	28	9.1	37	5.8	42	5.4	1700	1090
12	34	3.1	16	3.0	24	8.0	38	6.0	23	3.0	2280	5430
13	39	3.8	17	3.1	28	8.8	46	7.2	18	2.3	2630	6420
14	45	4.4	20	3.6	29	8.8	35	5.5	15	2.1	1810	3250
15	53	4.7	29	5.1	21	5.7	33	5.2	27	4.1	1600	2510
16	46	3.7	19	3.1	13	1.1	54	8.2	80	17	4270	16100
17	52	4.6	21	3.1	15	1.2	40	6.0	111	45	3550	11600
18	17	1.5	18	2.7	11	2.4	27	4.1	231	312	5550	85400
19	11	.86	16	2.4	22	4.2	47	7.1	880	2380	16500	237000
20	16	1.5	12	1.7	20	3.6	33	5.0	4830	65200	8350	65400
21	15	1.3	10	1.4	33	5.9	21	3.1	6400	125000	2620	12600
22	15	1.2	12	1.8	18	3.1	32	4.7	4980	46700	1160	3760
23	12	1.0	23	3.5	29	5.0	55	8.0	4400	34700	775	2130
24	8	.69	15	2.2	42	7.3	49	7.1	2060	6400	558	1450
25	5	.43	13	2.0	36	6.2	23	3.4	640	1120	320	890
26	7	.55	17	2.6	25	4.3	31	4.4	362	401	385	889
27	12	.91	12	1.7	37	6.4	43	6.0	338	339	475	976
28	22	1.8	13	1.9	34	5.9	26	3.7	326	331	380	739
29	26	2.2	19	2.4	29	4.9	14	2.0	---	---	312	549
30	38	3.2	220	110	25	4.2	20	2.8	---	---	338	617
31	34	4.2	---	---	35	5.9	26	3.6	---	---	306	539
TOTAL	---	106.34	---	260.5	---	1942.9	---	153.2	---	283006.7	---	460783

06817000 NODAWAY RIVER AT CLARINDA, IA--Continued

WATER-QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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	258	421	148	189	681	2650	678	1350	63	22	3620	15000
2	223	323	115	139	532	1840	1100	1940	61	16	1370	2560
3	297	448	108	123	527	1820	4910	21700	59	13	582	666
4	303	439	80	85	450	1450	2220	4750	60	15	330	291
5	236	342	11300	259000	335	986	770	1120	7380	120000	288	222
6	180	240	6800	87900	300	850	3120	15600	5080	28700	330	241
7	167	214	4400	38800	300	805	4550	19700	1420	1800	220	160
8	185	257	1900	7890	3010	39400	1620	2980	660	556	179	119
9	156	208	950	3150	3950	28400	1020	1430	450	284	168	105
10	155	202	770	2050	950	4160	401	490	2690	4200	165	97
11	163	199	605	1440	381	1190	329	357	1120	1120	145	80
12	150	183	892	2650	292	836	281	285	540	381	150	77
13	112	131	1050	3540	278	766	238	225	3000	5520	7370	41000
14	90	98	2650	13800	276	724	2370	5670	880	848	3800	13100
15	91	92	4120	43800	23400	1250000	2200	2550	3290	16700	1500	3260
16	8870	231000	2870	21200	11900	1500000	461	418	1360	2200	547	687
17	6940	68400	1960	10100	3350	579000	302	228	410	375	2720	14600
18	2650	12500	2590	14900	1750	8740	250	176	265	174	3270	26200
19	1300	4460	1600	6480	1200	4600	310	256	210	117	1180	3440
20	840	2310	890	2960	877	2820	538	468	190	102	492	861
21	562	1270	5070	73900	700	1880	2200	2770	143	62	319	429
22	438	888	3780	35500	530	1240	4230	7890	295	133	235	265
23	377	728	1490	8490	448	921	172	139	165	67	210	217
24	327	576	980	4550	399	750	306	178	1340	1150	233	234
25	290	466	2180	10500	358	607	238	122	170	75	202	178
26	287	419	6480	99600	322	509	178	82	95	37	182	143
27	240	320	5150	50200	302	452	163	78	67	23	168	127
28	195	258	2110	14100	260	364	158	72	52	16	158	117
29	242	362	1620	10100	243	314	154	65	650	405	157	119
30	192	276	1180	6120	278	353	110	41	8290	80700	188	145
31	---	---	1100	5380	---	---	72	24	3280	10600	---	---
TOTAL	---	328030	---	838636	---	3438427	---	93154	---	276411	---	124740

TOTAL LOAD FOR YEAR: 5845650.64 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
FEB 02...	1500	.0	51	45	6.3	--	--
MAR 17...	1525	.0	987	3120	8310	52	53
APR 21...	1030	--	860	669	1550	46	51
MAY 05...	0730	18.0	13700	16200	599000	48	52
JUN 10...	0900	--	1090	948	2790	44	50
15...	0600	19.0	17300	19700	920000	43	50
JUL 23...	1015	25.0	316	3800	3240	74	82
AUG 31...	1000	--	1220	2890	9520	56	71

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)
FEB 02...	--	--	--	--	--	--	22
MAR 17...	55	73	99	99	100	--	--
APR 21...	53	64	88	89	94	100	--
MAY 05...	56	66	98	100	--	--	--
JUN 10...	53	64	88	90	99	100	--
15...	55	63	98	99	100	--	--
JUL 23...	66	98	--	--	--	--	100
AUG							

06817000 NODAWAY RIVER AT CLARINDA, IA--Continued

WATER-QUALITY RECORDS

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)
NOV 03...	1600	153	5	3	5	17	55
FEB 02...	1500	51	3	2	3	13	36
JUL 23...	1015	316	5	2	3	13	37
AUG 31...	1000	1220	3	3	7	71	99

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)
NOV 03...	70	77	88	91	98	100
FEB 02...	43	56	65	77	92	100
JUL 23...	59	72	82	92	96	100
AUG 31...	99	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 (3.5 km) upstream from Turkey Creek, 4.6 mi (7.4 km) southwest of Diagonal, and 4.9 mi (7.9 km) downstream from Gard Creek.

DRAINAGE AREA.--217 mi² (562 km²).

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 (333.838 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years, 126 ft³/s (3.568 m³/s), 7.89 in/yr (200 mm/yr), 91,290 acre-ft/yr (113 hm³/yr); median of yearly mean discharges, 110 ft³/s (3.12 m³/s), 6.9 in/yr (175 mm/yr), 79,700 acre-ft/yr (98.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,420 ft³/s (182 m³/s) Oct. 12, 1973, gage height, 23.24 ft (7.084 m); minimum daily, 0.21 ft³/s (0.006 m³/s) Jan. 14, 15, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1967 reached a stage of 23.16 ft (7.059 m), from floodmark by local resident, discharge, 6,360 ft³/s (180 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	1945	4,010	114	18.00	5.486	May 21	1700	4,820	137	19.86	6.053
Mar. 19	1200	*5,360	152	*21.05	6.416	May 25	0830	4,100	116	18.27	5.569
Apr. 17	0230	4,880	138	20.04	6.108	May 29	1200	3,120	88.4	15.89	4.843
May 6	2330	5,050	143	20.38	6.212	June 8	2245	4,550	129	19.28	5.877
May 15	0915	4,480	127	19.11	5.825	Aug. 30	Unknown	3,760	106	17.41	5.307

Minimum daily discharge, 6.4 ft³/s (0.18 m³/s) Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	15	318	11	9.5	107	99	69	295	68	30	163
2	6.4	111	156	11	9.5	123	93	62	222	258	26	127
3	7.3	105	78	11	9.5	86	112	57	197	473	23	81
4	14	190	61	11	9.5	82	105	57	170	406	23	58
5	20	71	51	11	9.5	78	80	2080	146	158	30	46
6	10	45	48	11	9.5	74	84	3320	135	1090	240	50
7	10	34	45	11	9.5	70	93	1850	134	965	71	200
8	7.9	30	39	11	9.0	68	85	480	1300	255	44	70
9	11	26	35	11	9.0	66	87	300	2110	161	34	50
10	9.8	25	32	11	9.0	75	106	214	404	131	186	40
11	9.4	24	33	11	9.0	500	118	168	224	113	164	35
12	11	22	31	11	9.0	758	92	170	164	82	55	34
13	9.9	17	29	11	9.0	500	80	301	141	63	84	35
14	11	16	29	11	9.5	199	68	793	114	54	50	50
15	11	17	9.0	11	10	245	67	3410	385	55	91	40
16	12	19	16	10	15	1330	2910	740	387	64	50	71
17	11	17	20	10	50	351	2720	693	182	52	35	55
18	11	16	14	10	500	207	497	562	141	43	30	515
19	9.2	16	12	10	1800	3870	294	312	119	63	26	169
20	11	18	11	10	3340	1740	215	567	97	76	24	147
21	15	17	11	10	2910	396	161	3520	85	71	22	107
22	9.9	13	11	10	1340	237	129	1820	71	55	21	84
23	8.2	14	11	10	886	190	115	575	64	43	20	84
24	8.7	15	11	10	299	175	113	387	56	36	19	80
25	8.4	12	11	10	156	189	104	664	70	33	20	71
26	8.5	13	11	10	118	154	104	3150	57	32	20	65
27	8.8	12	11	10	110	120	93	849	50	50	19	55
28	8.4	11	11	10	109	103	76	434	48	218	18	50
29	8.7	9.4	11	10	---	93	86	2190	44	68	550	49
30	9.1	26	11	10	---	155	81	760	48	50	2350	47
31	11	---	11	10	---	138	---	464	---	42	313	---
TOTAL	314.0	976.4	1188.0	325	11773.0	12479	9067	31018	7660	5328	4688	2728
MEAN	10.1	32.5	38.3	10.5	420	403	302	1001	255	172	151	90.9
MAX	20	190	318	11	3340	3870	2910	3520	2110	1090	2350	515
MIN	6.4	9.4	9.0	10	9.0	66	67	57	44	32	18	34
CFSM	.05	.15	.18	.05	1.94	1.86	1.39	4.61	1.18	.79	.70	.42
IN.	.05	.17	.20	.06	2.02	2.14	1.55	5.32	1.31	.91	.80	.47
AC-FT	623	1940	2360	645	23350	24750	17980	61520	15190	10570	9300	5410

CAL YR 1981 TOTAL 9979.7 MEAN 27.3 MAX 1060 MIN 3.0 CFSM .13 IN 1.71 AC-FT 19790
WTR YR 1982 TOTAL 87544.4 MEAN 240 MAX 3870 MIN 6.4 CFSM 1.11 IN 15.01 AC-FT 173600

06819190 EAST FORK ONE HUNDRED AND TWO RIVER NEAR BEDFORD, IA

LOCATION.--Lat 40°38'01", long 94°44'41", in NE1/4 NE1/4 sec.9, T.67 N., R.34 W., Taylor County, Hydrologic Unit 10240013, on left bank at downstream side of bridge of county highway J55, 0.4 mi (0.6 km) upstream from Daugherty Creek, and 2.8 mi (4.5 km) southwest of junction of U.S. Highways 2 and 148 in Bedford.

DRAINAGE AREA.--92.1 mi² (238.5 km²).

PERIOD OF RECORD.--September 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,057.51 ft (322.329 m) NGVD (levels by Corps of Engineers). Prior to Oct. 1, 1968, at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records fair except those for winter period, which are poor. Slight regulation at low flow by low dam used for water supply in Bedford. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years, 53.9 ft³/s (1.526 m³/s), 7.95 in/yr (202 mm/yr), 39,050 acre-ft/yr (48.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,980 ft³/s (283 m³/s) Oct. 11, 1973, gage height, 20.72 ft (6.315 m); maximum gage height, 20.95 ft (6.386 m) Jan. 12, 1960, present datum; no flow at times in 1966-68, 1972, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base 2,000 ft³/s (56.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	1815	2,990	84.7	10.27	3.130
Mar. 19	1015	5,660	160	14.78	4.505
May 6	1230	2,430	68.8	9.16	2.792
May 15	0045	5,130	145	13.97	4.258
May 21	0900	5,960	169	*15.22	4.639
May 25	2245	2,770	78.4	9.84	2.999
June 8	2045	4,860	138	13.54	4.127
July 6	1215	2,130	60.5	8.50	2.591
Aug. 14	2000	2,280	64.6	8.83	2.691
Aug. 30	0245	*6,280	178	14.52	4.426
Sept.17	1645	3,580	101	10.23	3.118

Minimum daily discharge, 0.28 ft³/s (0.008 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.37	42	257	6.0	6.0	26	28	20	93	20	2.5	113
2	.28	76	69	6.0	6.0	30	29	18	74	72	2.2	53
3	3.3	104	42	6.0	6.0	20	31	17	62	36	2.5	38
4	3.8	46	32	6.0	5.0	15	24	15	53	18	2.2	23
5	1.5	24	26	6.0	5.0	10	27	249	44	13	1.5	16
6	.67	11	25	6.0	5.0	10	28	1140	40	904	1.6	30
7	.35	7.2	22	6.0	5.0	10	38	336	36	213	2.5	34
8	.36	5.5	16	6.0	5.0	10	37	121	1240	61	2.4	21
9	1.9	3.5	13	6.0	5.0	15	39	71	1400	39	2.5	17
10	2.3	3.5	13	6.0	5.0	30	47	53	194	31	54	16
11	1.1	3.6	12	6.0	5.0	269	45	41	88	28	29	15
12	.82	3.0	12	6.0	5.0	239	36	81	56	21	178	21
13	1.2	3.3	13	6.0	5.0	147	28	158	42	17	548	602
14	5.0	2.7	12	6.0	6.0	83	23	928	34	15	401	314
15	6.1	4.6	7.0	6.0	7.0	159	23	1770	238	19	638	94
16	2.7	4.8	5.0	6.0	10	827	670	299	168	17	139	44
17	2.6	3.8	5.0	6.0	50	159	216	273	54	13	56	1290
18	2.6	6.4	5.0	6.0	100	190	83	179	39	12	30	650
19	2.1	5.2	5.0	6.0	500	2720	59	87	31	9.5	23	152
20	2.3	4.4	5.0	6.0	1890	402	44	1070	26	10	16	75
21	1.8	6.0	6.0	6.0	807	156	33	3590	22	8.0	12	53
22	1.5	5.9	6.0	6.0	354	100	30	561	19	5.5	9.0	43
23	2.3	7.7	6.0	6.0	213	81	27	264	16	4.6	7.3	37
24	2.6	5.8	6.0	6.0	72	73	24	171	14	4.0	283	33
25	2.6	6.1	6.0	6.0	35	90	23	509	44	3.8	48	28
26	2.8	8.9	6.0	6.0	28	63	22	1290	19	3.6	24	23
27	3.3	7.3	6.0	7.0	24	53	17	286	18	4.0	16	21
28	3.6	6.0	6.0	8.0	25	46	19	131	20	8.9	12	19
29	3.7	6.0	6.0	7.0	---	43	25	861	14	4.3	298	16
30	3.2	306	6.0	6.0	---	46	21	256	21	3.3	3180	14
31	4.2	---	6.0	6.0	---	34	---	167	---	2.8	270	---
TOTAL	72.95	730.2	662.0	190.0	4189.0	6156	1796	15012	4219	1621.3	6291.2	3905
MEAN	2.35	24.3	21.4	6.13	150	199	59.9	484	141	52.3	203	130
MAX	6.1	306	257	8.0	1890	2720	670	3590	1400	904	3180	1290
MIN	.28	2.7	5.0	6.0	5.0	10	17	15	14	2.8	1.5	14
CFSM	.03	.26	.23	.07	1.63	2.16	.65	5.26	1.53	.57	2.20	1.41
IN.	.03	.29	.27	.08	1.69	2.49	.73	6.06	1.70	.65	2.54	1.58
AC-FT	145	1450	1310	377	8310	12210	3560	29780	8370	3220	12480	7750

CAL YR 1981	TOTAL	4958.70	MEAN	13.6	MAX	430	MIN	.28	CFSM	.15	IN 2.00	AC-FT 9840
WTR YR 1982	TOTAL	44844.65	MEAN	123	MAX	3590	MIN	.28	CFSM	1.34	IN 10.11	AC-FT 88950

06897950 ELK CREEK NEAR DECATUR CITY, IA
(Hydrologic bench-mark station)

LOCATION.--Lat 40°43'18", long 93°56'12", near the southeast 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 (305 m) downstream from West Elk Creek, 5.2 mi (8.4 km) upstream from mouth, and 5.7 mi (9.2 km) southwest of Decatur City.

DRAINAGE AREA.--52.5 mi² (136 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 924.70 ft (281.849 m) NGVD. Oct. 1, 1967, to Sept. 30, 1974, at datum 10.00 ft (3.05 m) higher.

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

AVERAGE DISCHARGE.--15 years, 30.3 ft³/s (0.858 m³/s), 7.84 in/yr (199 mm/yr), 21,950 acre-ft/yr (27.1 hm³/yr); median of yearly discharges, 23 ft³/s (0.65 m³/s), 5.9 in/yr (150 mm/yr), 16,700 acre-ft/yr (20.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,400 ft³/s (464 m³/s) June 2, 1980, gage height, 28.22 ft (8.601 m), from rating curve extended above 5,300 ft³/s (150 m³/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 (5.593 m), datum in use prior to Oct. 1, 1974, discharge, 17,800 ft³/s (504 m³/s), estimated from rating curve extended above 5,300 ft³/s (150 m³/s) on basis of step-backward computation. Flood of Aug. 6, 1959, reached a stage between 20.5 and 22.5 ft (6.25 and 6.86 m), datum in use prior to Oct. 1, 1974, 300 ft (91 m) downstream, from information by assistant county engineer, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	1300	*12,600	357	*26.06	7.943
Apr. 16	1400	4,310	122	20.00	6.096
May 6	0730	5,780	164	21.40	6.523
May 14	2300	5,070	144	20.75	6.325
May 17	0100	776	22.0	14.45	4.404
May 21	1300	1,440	40.8	16.02	4.883
May 29	0700	1,640	46.4	16.40	4.999
June 8	1800	3,990	113	19.65	5.989
June 15	1800	1,920	54.4	16.90	5.151
June 25	2000	1,190	33.7	15.50	4.724
July 6	2200	8,690	246	23.65	7.209

Minimum daily discharge, 0.03 ft³/s (0.001 m³/s) Oct. 20, Jan.13-19, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.84	7.0	10	1.1	.11	27	6.4	44	21	6.8	5.5	15
2	.58	9.8	5.9	.96	.09	16	40	47	18	26	4.6	9.8
3	.47	21	8.4	.82	.08	10	35	41	18	240	3.6	7.1
4	.47	9.2	10	.54	.07	14	23	44	18	66	2.2	6.0
5	.38	3.8	9.4	.42	.07	11	72	107	17	22	18	5.0
6	.24	6.4	10	.29	.06	9.6	41	2180	16	36	7.0	11
7	.16	7.5	11	.19	.05	8.0	48	211	16	450	5.2	12
8	.12	6.7	11	.14	.05	7.4	46	118	332	88	3.2	8.6
9	.15	7.1	11	.10	.05	6.4	44	91	265	24	1.4	7.2
10	.26	6.7	10	.06	.04	22	76	75	82	15	26	6.2
11	.27	8.3	11	.04	.05	215	45	68	24	96	8.8	5.4
12	.24	8.8	11	.04	.05	241	29	72	18	52	4.5	4.4
13	.29	9.2	12	.03	.07	176	22	90	17	22	6.6	3.8
14	.14	9.6	11	.03	.23	163	20	702	16	14	7.3	3.5
15	.06	10	9.6	.03	.45	149	29	444	307	10	32	3.1
16	.08	12	8.2	.03	.90	891	629	100	118	16	9.0	2.8
17	.08	12	6.6	.03	2.1	136	84	268	18	11	5.0	8.0
18	.08	11	5.2	.03	3.4	208	35	51	27	8.0	4.4	43
19	.06	10	4.6	.03	5.0	4870	29	34	23	11	4.2	20
20	.03	9.6	4.2	.04	11	1180	26	44	16	10	3.0	13
21	.06	9.1	3.8	.03	36	180	27	536	9.4	9.4	2.4	9.8
22	.07	10	3.5	.05	96	76	24	98	6.6	8.2	1.7	8.0
23	.08	9.9	3.6	.07	50	35	24	45	4.7	7.4	1.3	7.4
24	.10	9.9	3.1	.06	37	17	22	27	4.0	6.6	22	7.3
25	.14	9.6	2.7	.05	27	13	22	29	12	6.2	12	7.1
26	.14	12	2.4	.05	23	9.2	20	179	10	5.8	6.0	7.0
27	.12	11	2.0	.04	21	7.4	19	58	7.8	5.7	6.3	8.1
28	.09	11	1.7	.07	27	6.4	29	26	6.4	5.7	6.1	8.4
29	.12	12	2.1	.13	---	5.4	47	446	5.6	5.2	4.8	8.5
30	.12	12	1.8	.22	---	11	44	140	9.0	5.5	4.4	8.6
31	.12	---	1.4	.14	---	8.8	---	44	---	5.7	14	---
TOTAL	6.16	292.2	208.2	5.86	340.92	8729.6	1657.4	6459	1462.5	1295.2	242.5	275.1
MEAN	.20	9.74	6.72	.19	12.2	282	55.2	208	48.8	41.8	7.82	9.17
MAX	.84	21	12	1.1	96	4870	629	2180	332	450	32	43
MIN	.03	3.8	1.4	.03	.04	5.4	6.4	26	4.0	5.2	1.3	2.8
CFSM	.004	.19	.13	.004	.23	5.37	1.05	3.96	.93	.80	.15	.18
IN.	.00	.21	.15	.00	.24	6.19	1.17	4.58	1.04	.92	.17	.19
AC-FT	12	580	413	12	676	17320	3290	12810	2900	2570	481	546

CAL YR 1981	TOTAL	2938.70	MEAN	8.05	MAX	500	MIN	.03	CFSM	.15	IN 2.08	AC-FT 5830
WTR YR 1982	TOTAL	20974.64	MEAN	57.5	MAX	4870	MIN	.03	CFSM	1.10	IN 14.86	AC-FT 41600

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 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
DEC											
01...	1500	12	329	7.9	1.0	12.4	89	>20000	>28000	150	45
FEB											
23...	1700	50	365	7.9	1.0	--	--	1500	K37000	160	46
APR											
07...	1815	44	410	8.0	5.0	12.5	95	5800	19000	190	55
MAY											
18...	1700	48	430	7.9	24.0	8.0	96	--	8400	210	61
JUN											
17...	1630	17	445	8.1	22.0	8.6	100	--	3900	210	63
AUG											
11...	0900	9.0	340	7.3	12.0	9.8	92	K80000	K79000	150	45

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
DEC										
01...	10	7.6	9	.3	7.8	120	37	10	.2	7.7
FEB										
23...	11	7.6	9	.3	6.6	120	37	8.9	.2	9.6
APR										
07...	12	8.9	9	.3	4.3	140	53	8.6	.3	11
MAY										
18...	13	9.7	9	.3	5.3	166	44	8.8	.2	14
JUN										
17...	13	9.0	8	.3	5.3	188	39	8.9	.2	12
AUG										
11...	10	6.7	8	.2	7.7	131	27	11	.3	11

DATE	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 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)
DEC										
01...	229	198	.31	7.6	1.1	1.1	.350	.380	.49	1.4
FEB										
23...	214	199	.29	29.0	2.0	1.8	.640	.560	.72	1.6
APR										
07...	250	238	.34	29.6	1.2	1.2	.210	.260	.33	1.2
MAY										
18...	264	256	.36	34.4	1.4	1.4	.150	.180	.23	1.4
JUN										
17...	275	263	.37	12.6	1.2	1.2	.080	.080	.10	1.6
AUG										
11...	240	197	.33	5.8	1.5	1.5	.230	.200	.26	1.6

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
DEC										
01...	2.20	1.2	.170	.380	211	7.0	100	13	2.9	--
FEB										
23...	2.10	.67	.070	.220	237	32	95	--	--	10
APR										
07...	1.80	.83	.040	.270	138	16	97	--	--	7.1
MAY										
18...	2.50	.64	.050	.210	156	20	99	--	--	9.6
JUN										
17...	1.40	.40	.110	.130	76	3.6	98	--	--	8.9
AUG										
11...	2.20	.31	.040	.100	162	3.9	99	--	--	17

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

06897950 ELK CREEK NEAR DECATUR CITY, IA--Continued

WATER-QUALITY RECORDS

DATE	TIME	CYANIDE TOTAL (MG/L AS CN) (00720)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
DEC 01...	1500	<.01	8	2	<1	200	78	<1	<1	10	<1
APR 07...	1815	<.01	1	1	<3	200	110	<1	<3	10	2

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
DEC 01...	<3	19	<10	8400	150	4	<10	9	480	210	.7
APR 07...	<9	7	<30	4900	34	2	<30	17	230	100	.3

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC 01...	.5	<10	1	<1	<1	<1	150	<6.0	40	<3
APR 07...	.1	<30	2	2	<1	<1	200	<10	30	15

DATE	TIME	ARSENIC LIUM, ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39333)	TOTAL DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39351)	BARIUM, DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39363)	TOTAL DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39368)	CADMIUM DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39373)	TOTAL ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39383)	MIUM, SULFAN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39389)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39393)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39519)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39251)
AUG 11...	0900	<.1	<1.0	<.1	<.1	<.1	.1	<.1	<.1	<1	<1.0

DATE	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39413)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39343)	MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39758)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	PER-THANE IN BOTTOM MATERIL (UG/KG) (81886)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39403)	SILVEX, TOTAL (UG/L) (39760)	2,4-D, TOTAL (UG/L) (39730)	2, 4-DP TOTAL (UG/L) (82183)	2,4,5-T TOTAL (UG/L) (39740)
AUG 11...	<.1	<.1	<.1	<.1	<.1	<1.00	<10	<.01	.07	<.01	<.01

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (00050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (00060)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L) (09511)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L) (80020)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)
AUG 11...	0900	<5.2	15	8.3	7.6	8.5	7.3	.11	.33	10

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 (5 m) downstream from bridge on U.S. Highway 69 at Davis City, 2.6 mi (4.2 km) upstream from Dickersons Branch, and 5.2 mi (8.4 km) upstream from Iowa-Missouri State line.

DRAINAGE AREA.--701 mi² (1,816 km²).

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 (266.407 m) 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 (0.61 m) higher.

REMARKS.-- Records good except those for winter period, which are fair. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--47 years (water years 1919-24,1942-82), 365 ft³/s (10.34 m³/s), 7.07 in/yr (180 mm/yr), 264,400 acre-ft/yr (326 hm³/yr); median of yearly mean discharges, 310 ft³/s (8.78 m³/s), 6.0 in/yr (150 mm/yr), 225,000 acre-ft/yr (277 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,300 ft³/s (688 m³/s) June 10, 1974, gage height, 19.43 ft (5.922 m), from rating curve extended above 17,000 ft³/s (481 m³/s) on basis of velocity-area study; minimum daily, 0.1 ft³/s (0.003 m³/s) June 25, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 8, 1885, reached a stage of 22.8 ft (6.95 m), datum in use prior to Feb. 9, 1967, from floodmark, discharge, 30,000 ft³/s (850 m³/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (127 m³/s) and maximum (*):

		Discharge		Gage height				Discharge		Gage height	
Date	Time	(ft³/s)	(m³/s)	(ft)	(m)	Date	Time	(ft³/s)	(m³/s)	(ft)	(m)
Mar. 19	1600	*10,600	300	*11.84	3.609	May 15	0400	5,260	149	7.93	2.417
Apr. 17	0930	4,840	137	7.57	2.307	May 22	0845	6,880	195	9.22	2.810
May 6	1445	8,940	253	10.72	3.267	July 7	1315	4,580	130	7.34	2.237

Minimum daily discharge, 8.6 ft³/s (0.24 m³/s) Oct. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	22	91	16	12	220	326	226	962	194	120	720
2	14	73	141	15	11	180	435	208	720	899	110	851
3	11	123	155	15	12	150	752	194	600	606	98	582
4	11	156	118	14	12	130	401	184	537	2260	89	304
5	11	117	80	14	12	110	335	466	471	977	158	204
6	11	82	64	15	12	100	331	6160	415	445	1740	167
7	8.9	58	53	14	12	95	377	6840	381	4080	2150	149
8	9.2	47	50	15	12	90	405	3710	984	2620	714	149
9	18	40	43	15	12	88	420	1090	2310	817	363	131
10	20	33	40	15	13	110	554	733	1700	708	349	112
11	16	28	37	14	13	300	778	554	758	1350	405	100
12	14	25	35	14	14	1690	554	456	498	885	354	93
13	14	24	31	15	15	2260	415	410	401	477	245	89
14	16	25	26	15	26	1430	317	878	358	878	187	797
15	14	24	20	15	66	998	270	4580	381	824	308	1100
16	14	22	14	14	120	3450	1430	3730	878	537	445	456
17	12	22	13	14	170	2390	4600	2200	1850	358	456	708
18	12	23	13	14	260	1030	3390	1490	864	261	257	2610
19	9.4	23	12	13	600	6810	1090	1010	525	308	180	1540
20	8.6	22	12	13	980	6530	720	752	410	1020	149	714
21	9.4	22	13	13	1300	2950	554	4280	344	498	125	386
22	9.6	24	13	12	2900	1130	451	6470	295	647	112	312
23	9.2	23	14	13	2500	771	386	3880	257	817	100	260
24	9.4	22	15	13	2020	635	349	1300	230	349	291	227
25	9.8	23	15	12	871	548	313	927	238	242	140	204
26	12	22	16	12	514	487	286	1010	482	194	96	183
27	12	22	15	11	350	415	257	3120	201	170	89	169
28	12	22	14	11	280	349	249	2220	234	158	78	158
29	12	22	14	11	---	317	226	2250	187	278	98	147
30	16	27	15	11	---	340	222	2940	164	204	1410	136
31	14	---	16	12	---	358	---	1590	---	143	1500	---
TOTAL	387.5	1218	1208	420	13119	36461	21193	65858	18635	24204	12916	13758
MEAN	12.5	40.6	39.0	13.5	469	1176	706	2124	621	781	417	459
MAX	20	156	155	16	2900	6810	4600	6840	2310	4080	2150	2610
MIN	8.6	22	12	11	11	88	222	184	164	143	78	89
CFSM	.02	.06	.06	.02	.67	1.68	1.01	3.03	.89	1.11	.60	.66
IN.	.02	.06	.06	.02	.70	1.93	1.12	3.49	.99	1.28	.69	.73
AC-FT	769	2420	2400	833	26020	72320	42040	130600	36960	48010	25620	27290

CAL YR 1981 TOTAL 40288.2 MEAN 110 MAX 4470 MIN 8.0 CFSM .16 IN 2.14 AC-FT 79910
WTR YR 1982 TOTAL 209377.5 MEAN 574 MAX 6840 MIN 8.6 CFSM .82 IN 11.11 AC-FT 415300

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 (3 m) downstream from bridge on county highway A, 200 ft (61 m) upstream from unnamed creek, 1.3 mi (2.1 km) downstream from Brush Creek, and 6.5 mi (10.5 km) southeast of post office at Leon.

DRAINAGE AREA.--104 mi² (269 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 906.26 ft (276.228 m) NGVD.

REMARKS.--Records good except those for winter period and those for periods of missing gage height Apr. 12 to May 2, June 11-21,25,26, Aug. 5,6,8-10, Sept. 9-26, 28-30 which are fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years, 72.5 ft³/s (2.053 m³/s), 9.47 in/yr (241 mm/yr), 52,530 acre-ft/yr (64.8 hm³/yr); median of yearly mean discharges, 57 ft³/s (1.61 m³/s), 7.4 in/yr (190 mm/yr), 41,300 acre-ft/yr (51 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,600 ft³/s (1,376 m³/s) Aug. 6, 1959, gage height, 25.27 ft (7.702 m), from rating curve extended above 5,600 ft³/s (159 m³/s) on basis of contracted-opening and flow-over-embankment measurement at gage height 25.27 ft (7.702 m); 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 above base of 4,500 ft³/s (127 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	1000	*7,990	226	*19.37	5.904	May 6	1100	6,600	187	17.63	5.374

Minimum daily discharge, 0.50 ft³/s (0.014 m³/s) Oct. 22,27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	21	65	1.4	1.2	36	28	27	120	17	6.1	13
2	1.5	28	27	1.4	1.2	31	289	33	60	229	7.2	10
3	1.5	52	14	1.4	1.3	23	256	32	39	110	8.2	6.5
4	1.4	35	9.6	1.5	1.3	21	78	16	30	62	9.6	5.5
5	1.4	13	8.0	1.5	1.3	19	62	769	24	40	26	4.8
6	1.4	6.9	7.8	1.4	1.3	18	67	3840	19	50	11	7.3
7	1.3	6.8	7.8	1.4	1.4	17	82	584	16	320	7.5	6.4
8	1.3	5.8	6.9	1.5	1.4	16	81	142	261	69	8.1	5.6
9	1.3	5.7	6.6	1.5	1.3	15	77	59	179	41	14	4.7
10	1.2	5.7	6.1	1.4	1.4	14	155	57	41	136	32	5.3
11	1.2	6.2	5.8	1.5	1.5	180	204	45	22	48	23	4.3
12	1.4	5.2	5.4	1.4	1.7	325	89	40	17	34	10	3.9
13	1.2	5.5	4.8	1.4	1.9	271	57	38	14	29	8.9	4.9
14	1.2	5.4	4.3	1.3	3.4	83	44	1520	12	48	12	53
15	1.0	5.7	3.9	1.3	5.4	110	41	1070	108	32	30	48
16	.85	5.8	3.4	1.3	12	1120	934	440	113	86	13	10
17	.85	5.3	2.7	1.2	19	123	439	190	32	51	8.0	335
18	.69	5.5	2.2	1.2	22	97	79	78	76	30	6.1	343
19	.69	5.5	2.0	1.2	54	3730	52	52	45	57	5.4	34
20	.64	5.9	1.8	1.2	160	418	41	39	26	58	4.7	18
21	.60	5.2	1.7	1.3	430	118	33	973	19	55	4.3	13
22	.50	5.6	1.7	1.2	500	74	30	221	16	47	4.0	11
23	.77	5.7	1.8	1.3	170	56	29	71	14	25	3.8	9.6
24	.50	5.5	1.7	1.3	106	47	26	48	12	16	40	9.1
25	.60	5.6	1.6	1.4	77	41	26	58	43	14	21	9.0
26	.60	6.0	1.6	1.4	60	34	24	163	24	11	12	9.2
27	.50	5.7	1.5	1.4	52	30	20	66	23	8.2	8.6	9.2
28	.77	5.9	1.5	1.3	45	26	20	39	76	8.0	7.2	8.9
29	.66	5.6	1.4	1.3	---	25	21	1410	24	7.5	9.0	8.1
30	.60	26	1.4	1.2	---	76	22	540	17	6.9	73	11
31	.97	---	1.5	1.2	---	39	---	280	---	6.3	18	---
TOTAL	30.69	312.7	212.5	41.7	1734.0	7233	3406	12940	1522	1751.9	451.7	1021.3
MEAN	.99	10.4	6.85	1.35	61.9	233	114	417	50.7	56.5	14.6	34.0
MAX	1.6	52	65	1.5	500	3730	934	3840	261	320	73	343
MIN	.50	5.2	1.4	1.2	1.2	14	20	16	12	6.3	3.8	3.9
CFSM	.01	.10	.07	.01	.60	2.24	1.10	4.01	.49	.54	.14	.33
IN.	.01	.11	.08	.01	.62	2.59	1.22	4.63	.54	.63	.16	.37
AC-FT	61	620	421	83	3440	14350	6760	25670	3020	3470	896	2030

CAL YR 1981	TOTAL	18254.85	MEAN 50.0	MAX 5360	MIN .50	CFSM .48	IN 6.53	AC-FT 36210		
WTR YR 1982	TOTAL	30657.49	MEAN 84.0	MAX 3840	MIN .50	CFSM .81	IN 10.97	AC-FT 60810		

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 (5 m) downstream from bridge on county highway S43, 0.4 mi (0.6 km) downstream from Wolf Creek, and 5.0 mi (8.0 km) southeast of Chariton.

DRAINAGE AREA.--182 mi² (471 km²).

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 917.96 ft (279.794 m) NGVD (levels by U.S. Weather Bureau from a Corps of Engineers bench mark).

REMARKS.--Records good except those for winter period and those below 20 ft³/s (0.57 m³/s), which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years, 110 ft³/s (3.115 m³/s), 8.21 in/yr (209 mm/yr), 79,700 acre-ft/yr (98.3 hm³/yr); median of yearly mean discharges, 86 ft³/s (2.44 m³/s), 6.4 in/yr (163 mm/yr), 62,300 acre-ft/yr (77.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,600 ft³/s (470 m³/s) July 4, 1981, gage height, 23.14 ft (7.053 m); no flow Aug. 1, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1960 reached a stage of about 23 ft (7.0 m), discharge, about 15,000 ft³/s (425 m³/s) and flood of June 5, 1947 reached a stage of 21.65 ft (6.599 m), from floodmark, discharge, 11,000 ft³/s (312 m³/s). A discharge of 0.08 ft³/s (0.002 m³/s) was measured on Oct. 30, 1963.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s (45.3 m³/s) revised and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	2045	2,880	81.6	18.54	5.651	May 29	2245	1,900	53.8	17.33	5.282
Apr. 17	0445	2,220	62.9	17.83	5.435	July 3	1830	3,360	95.2	18.97	5.782
May 7	2230	2,020	57.2	17.55	5.349	July 16	1945	*4,650	132	*19.85	6.050
May 21	1415	2,020	57.2	17.55	5.349	Aug. 30	0715	2,370	67.1	18.02	5.492

Minimum daily discharge, 1.2 ft³/s (0.034 m³/s) Oct. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	19	132	9.1	7.3	50	75	25	525	68	15	155
2	4.2	67	89	9.6	7.2	48	122	25	130	119	12	115
3	4.2	401	80	10	7.0	47	266	24	87	2490	10	78
4	4.2	161	58	9.6	6.9	42	165	22	67	2130	10	36
5	4.2	97	38	9.2	6.8	38	108	37	52	1290	418	21
6	4.2	60	29	8.9	6.8	36	84	1010	42	198	460	18
7	2.7	35	27	8.6	7.0	34	84	1890	39	93	175	41
8	4.2	23	24	8.3	7.2	33	95	1710	35	269	55	30
9	4.2	16	20	8.2	7.0	31	108	829	136	200	30	21
10	4.2	11	17	8.0	7.2	37	152	131	95	76	32	19
11	4.2	9.8	16	7.8	7.0	309	305	80	75	69	64	14
12	4.4	9.5	15	7.9	7.1	402	316	58	46	59	76	10
13	4.6	9.3	14	7.7	10	559	205	50	33	53	39	10
14	20	9.2	13	7.5	20	369	151	83	25	55	23	27
15	12	9.1	12	7.4	32	272	200	632	93	50	749	312
16	4.9	9.1	11	7.2	82	906	924	556	211	2500	826	234
17	3.0	9.3	10	6.9	200	539	1840	700	132	2620	213	342
18	2.2	7.9	9.4	7.1	480	424	1270	423	197	1570	83	1130
19	1.2	8.3	8.9	7.3	1000	1640	683	182	124	1380	47	626
20	2.9	11	9.2	7.2	1500	1720	126	88	102	714	47	676
21	2.9	10	8.8	7.0	1400	1420	85	1220	57	1250	32	189
22	2.9	9.2	9.6	7.4	1200	522	69	1030	38	506	18	66
23	2.9	12	9.7	7.8	1020	140	58	1270	28	245	14	45
24	2.9	15	9.0	7.4	325	99	48	775	20	81	15	37
25	2.9	20	8.4	7.2	110	81	42	181	18	51	21	32
26	2.9	13	8.6	7.4	80	68	39	376	68	37	15	28
27	2.9	14	9.0	7.0	66	57	35	341	79	30	13	25
28	2.6	11	8.8	7.2	56	49	30	186	177	28	12	22
29	2.4	8.9	8.6	7.0	---	43	28	1320	48	25	13	20
30	2.4	22	9.0	7.2	---	150	25	1330	55	21	320	17
31	3.8	---	9.4	7.2	---	109	---	735	---	19	306	---
TOTAL	131.4	1117.6	731.4	243.3	7665.5	10274	7738	17319	2834	18296	4163	4396
MEAN	4.24	37.3	23.6	7.85	274	331	258	559	94.5	590	134	147
MAX	20	401	132	10	1500	1720	1040	1890	525	2620	826	1130
MIN	1.2	7.9	8.4	6.9	6.8	31	25	22	18	19	10	10
CFSM	.02	.21	.13	.04	1.51	1.82	1.42	3.07	.52	3.24	.74	.01
IN.	.03	.23	.15	.05	1.57	2.10	1.58	3.54	.58	3.74	.85	.90
AC-FT	261	2220	1450	483	15200	20380	15350	34350	5620	36290	8260	8720

CAL YR 1981 TOTAL 42703.97 MEAN 117 MAX 9990 MIN .97 CFSM .64 IN 8.73 AC-FT 84700
WTR YR 1982 TOTAL 74909.20 MEAN 205 MAX 2620 MIN 1.2 CFSM 1.13 IN 15.31 AC-FT 148600

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 (6 m) downstream from bridge on county highway S50, 1.3 mi (2.1 km) downstream from Jordan Creek and 4.3 mi (6.9 km) northwest of Promise City.

DRAINAGE AREA.--168 mi² (435 km²).

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 (278.496 m) NGVD (Corps of Engineers bench mark).

REMARKS.--Records good except for winter period, which are fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years, 118 ft³/s (3.342 m³/s), 9.54 in/yr (242 mm/yr) 85,490 acre-ft/yr (105 hm³/yr); median of yearly mean discharges, 96 ft³/s (2.72 m³/s), 7.8 in/yr (200 mm/yr) 69,600 acre-ft/yr (86 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,000 ft³/s (793 m³/s) July 4, 1981, gage height, 29.95 ft (9.129 m); 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 (7.77 m), from floodmarks, discharge, about 18,000 ft³/s (510 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (56.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	----	2,140	60.6	ice jam		May 29	1945	6,680	189	20.27	6.178
Mar. 16	0800	2,510	71.1	14.43	4.398	June 9	1200	2,030	57.5	12.99	3.959
Mar. 19	1930	9,420	267	21.97	6.696	July 16	1600	*10,000	283	*22.32	6.803
Apr. 16	2230	3,330	94.3	16.37	4.990	July 19	1100	6,640	188	20.24	6.169
May 6	1815	2,450	69.4	14.25	4.343	July 21	0730	4,050	115	17.84	5.438
May 21	0800	2,010	56.9	12.93	3.941	Sept 17	2230	2,850	80.7	15.24	4.645

Minimum daily discharge, 2.0 ft³/s (0.057 m³/s) Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	37	329	12	12	41	68	18	193	33	12	100
2	2.2	544	105	12	12	38	229	16	122	644	10	58
3	2.1	1130	54	13	12	34	520	16	107	1070	8.8	35
4	2.6	352	39	13	11	32	136	15	96	125	8.4	19
5	2.7	107	30	12	11	31	80	17	79	77	820	14
6	2.5	68	26	13	10	31	75	1150	72	75	450	26
7	2.2	47	25	12	9.7	30	106	521	71	79	150	82
8	2.2	36	22	12	9.8	29	97	98	264	67	48	41
9	2.3	26	18	12	9.6	33	101	52	1650	58	26	23
10	3.3	21	15	12	9.8	52	118	37	298	174	35	17
11	2.0	17	14	11	10	400	133	31	116	339	48	13
12	2.4	16	13	11	10	723	79	28	88	77	37	9.6
13	2.6	15	12	12	11	684	57	31	77	51	29	62
14	221	15	11	12	15	188	43	437	66	437	20	790
15	97	14	10	12	24	453	48	1430	193	297	140	360
16	29	14	9.4	12	46	1700	910	466	356	6410	580	180
17	12	13	8.7	11	80	333	1140	149	81	2480	190	520
18	7.1	12	9.2	11	305	146	181	123	398	787	70	1190
19	5.1	12	9.8	11	840	5540	92	67	258	5200	36	600
20	4.3	15	9.5	12	1900	3600	65	46	78	1860	28	220
21	3.6	14	11	12	980	294	48	1430	46	2510	20	110
22	4.0	12	12	12	779	135	41	364	32	900	14	32
23	3.2	14	13	13	534	97	36	111	25	300	11	26
24	3.1	14	13	12	237	80	33	74	21	94	15	24
25	3.1	14	13	11	100	68	31	240	121	56	34	21
26	3.6	14	12	11	76	57	27	595	251	35	22	19
27	3.4	14	11	10	58	49	22	179	152	27	13	17
28	3.0	12	10	11	46	43	19	81	198	22	10	15
29	3.5	11	10	11	---	424	19	4620	38	18	22	14
30	3.4	56	11	11	---	440	18	1940	23	16	800	13
31	5.2	---	12	12	---	153	---	472	---	14	300	---
TOTAL	446.0	2686	897.6	364	6157.9	15958	4572	14854	5570	24332	4007.2	4650.6
MEAN	14.4	89.5	29.0	11.7	220	515	152	479	186	785	129	155
MAX	221	1130	329	13	1900	5540	1140	4620	1650	6410	820	1190
MIN	2.0	11	8.7	10	9.6	29	18	15	21	14	8.4	9.6
CFSM	.09	.53	.17	.07	1.31	3.07	.91	2.85	1.11	4.67	.77	.92
IN.	.10	.59	.20	.08	1.36	3.53	1.01	3.29	1.23	5.39	.89	1.03
AC-FT	885	5330	1780	722	12210	31650	9070	29460	11050	48260	7950	9220

CAL YR 1981 TOTAL 54026.8 MEAN 148 MAX 21200 MIN 1.7 CFSM .88 IN 11.96 AC-FT 107200
WTR YR 1982 TOTAL 84495.3 MEAN 231 MAX 6410 MIN 2.0 CFSM 1.38 IN 18.71 AC-FT 167600

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 (2.9 km) north of Rathbun and 3.9 mi (6.3 km) upstream from Walnut Creek and at mile 142.3 (229.0 km).

DRAINAGE AREA.--549 mi² (1,421 km²).

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 (2 m) wide and 12 ft (4 m) high, into forechamber of an 11-ft (3 m) diameter horseshoe conduit through the dam. No dead storage. Maximum design discharge through gates is 5,000 ft³/s (142 m³/s). Uncontrolled notch spillway is concrete overflow section 500 ft (152 m) in length, located about 3,000 ft (914 m) 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 (282 m), contents 545,621 acre-ft (673 hm³), surface area, 20,974 acres (8,488 hm²). Conservation pool level is at elevation 904.0 ft (275.54 m), contents 199,830 acre-ft (246 hm³), surface area, 10,989 acres (4,447 hm²). Reservoir is used for flood control, low-flow augumentation, conservation and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 514,000 acre-ft (634 hm³) July 22, 23, 1982; maximum elevation, 924.46 ft (281.775 m) July 22, 1982; minimum daily contents, 100 acre-ft (0.123 hm³) Oct. 1-15, Nov. 17-21, 1969; minimum elevation, 855.40 ft (260.726 m) Oct. 6-10, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 514,000 acre-ft (634 hm³) July 22,23; maximum elevation 924.46 ft (281.775 m) July 22; minimum daily contents, 200,000 acre-ft (247 hm³) Jan. 1,2; minimum elevation, 903.99 ft (275.536 m) Dec. 23-27.

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 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	249000	230000	230000	200000	202000	252000	296000	289000	345000	341000	486000	435000
2	246000	232000	231000	200000	202000	250000	295000	287000	346000	340000	482000	434000
3	243000	237000	231000	201000	202000	249000	300000	285000	346000	363000	479000	431000
4	241000	243000	232000	201000	202000	247000	296000	283000	345000	372000	476000	429000
5	238000	244000	232000	201000	202000	245000	295000	282000	344000	382000	479000	426000
6	236000	243000	232000	201000	202000	243000	295000	281000	342000	386000	480000	424000
7	233000	242000	232000	201000	202000	241000	293000	284000	341000	386000	480000	425000
8	231000	238000	232000	202000	202000	239000	292000	287000	340000	385000	478000	425000
9	228000	236000	230000	202000	202000	237000	291000	290000	343000	384000	475000	422000
10	229000	233000	228000	202000	202000	234000	290000	291000	347000	382000	472000	420000
11	228000	231000	226000	201000	202000	234000	288000	290000	346000	383000	471000	418000
12	228000	229000	223000	201000	202000	236000	288000	288000	346000	382000	468000	417000
13	228000	228000	221000	202000	202000	240000	288000	287000	345000	380000	465000	417000
14	231000	228000	219000	202000	202000	243000	286000	286000	344000	385000	462000	423000
15	232000	228000	216000	202000	202000	244000	285000	289000	345000	388000	461000	425000
16	232000	229000	214000	202000	202000	247000	286000	294000	347000	422000	467000	425000
17	232000	229000	212000	201000	205000	251000	295000	297000	348000	450000	469000	424000
18	233000	228000	210000	202000	209000	253000	302000	299000	349000	462000	467000	433000
19	232000	229000	208000	202000	213000	260000	305000	300000	350000	482000	465000	436000
20	231000	230000	207000	202000	221000	280000	308000	300000	350000	501000	461000	437000
21	231000	229000	207000	202000	234000	296000	305000	299000	349000	509000	458000	437000
22	231000	229000	206000	202000	244000	300000	303000	303000	348000	514000	455000	435000
23	231000	229000	205000	202000	251000	301000	302000	306000	347000	514000	452000	432000
24	230000	229000	205000	202000	255000	301000	300000	308000	345000	511000	449000	430000
25	230000	228000	205000	202000	256000	299000	299000	309000	344000	508000	448000	428000
26	230000	229000	205000	202000	256000	296000	298000	313000	344000	505000	445000	425000
27	230000	229000	205000	202000	255000	293000	295000	315000	343000	502000	442000	422000
28	230000	229000	206000	202000	253000	293000	294000	316000	343000	499000	439000	419000
29	229000	228000	205000	202000	---	293000	292000	320000	343000	495000	436000	417000
30	229000	228000	205000	202000	---	295000	290000	335000	342000	492000	436000	415000
31	229000	---	206000	202000	---	298000	---	343000	---	489000	436000	---
MAX	249000	244000	232000	202000	256000	301000	308000	343000	350000	514000	486000	437000
MIN	228000	228000	205000	200000	202000	234000	285000	281000	340000	340000	436000	415000

WTR YR 1982 MAX 514000 MIN 200000

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 (183 m) downstream from outlet of Rathbun Dam, 1.8 mi (2.9 km) north of Rathbun and 3.7 mi (6.0 km) upstream from Walnut Creek and at mile 142.1 (228.6 km).

DRAINAGE AREA.--549 mi² (1,421 km²).

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 (258.446 m) NGVD. Prior to Nov. 16, 1960, nonrecording gage and Nov. 17, 1960, to Sept. 30, 1969, recording gage, at site 3.1 mi (5.0 km) downstream at datum 4.65 ft (1.42 m) lower.

REMARKS.--Records good. Flow regulated by Rathbun Reservoir (station 06903880) since Nov. 21, 1969. Records of discharge include diversion of 13 ft³/s (0.37 m³/s) Oct. 1 to Nov. 5; 11 ft³/s (0.31 m³/s) Nov. 6 to Aug. 26; 17 ft³/s (0.48 m³/s) Aug. 27; and 18 ft³/s (0.51 m³/s) Aug. 28 to Sept. 30 from reservoir through fish ponds on left bank downstream from dam. Diverted flow returns to stream 0.1 mi (0.2 km) downstream from gage. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station. Rathbun Regional Water Association permit No. 3663 allows withdrawal from Rathbun Dam discharge immediately downstream from gage for maximum rate of 4,200 gpm (9.36 ft³/s) and maximum quantity of 638 million gallons per year (1,955 acre-ft).

AVERAGE DISCHARGE.--26 years, 327 ft³/s (9.261 m³/s) 8.09 in/yr (205 mm/yr), 236,900 acre-ft/yr (292 hm³/yr); median of yearly mean discharges, 250 ft³/s (7.08 m³/s) 6.2 in/yr (160 mm/yr), 181,000 acre-ft/yr (220 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,800 ft³/s (617 m³/s) Mar. 31, 1960, gage height, 25.3 ft (7.71 m), from floodmark, site and datum then in use; no flow Oct. 26, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,540 ft³/s (43.6 m³/s) Aug. 15, gage height, 13.15 ft (4.008 m); maximum gage height, 17.80 ft (5.425 m) July 16, backwater from Walnut Creek; minimum daily discharge, 23 ft³/s (0.65 m³/s) May 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	30	29	32	31	968	280	824	24	707	1510	1220
2	1200	39	28	32	31	1120	524	823	190	401	1510	1220
3	1200	286	29	31	31	1120	471	816	492	24	1510	1220
4	1200	315	27	30	32	1120	710	819	613	24	1510	1220
5	1200	1070	27	30	31	1120	823	818	613	24	846	1220
6	1200	1210	27	30	31	946	824	816	613	24	244	558
7	1200	1200	27	30	31	978	823	816	613	410	1000	289
8	1130	1190	416	30	31	1110	824	819	275	813	1510	815
9	465	1200	1160	30	31	915	825	821	24	971	1510	1210
10	31	1200	1160	30	32	1100	825	821	24	759	944	1220
11	30	1200	1150	30	32	1050	827	819	227	667	949	831
12	31	574	1150	30	31	738	831	818	413	813	1250	43
13	29	28	1140	30	31	658	830	816	413	788	1510	24
14	39	27	1160	31	31	792	830	664	259	24	1510	24
15	31	28	1160	30	31	796	833	24	24	24	809	24
16	31	27	1160	31	30	855	567	24	24	24	205	405
17	31	27	1140	31	30	812	149	23	275	24	434	679
18	31	27	750	31	30	755	167	267	413	24	1260	315
19	33	27	399	31	31	555	446	433	413	24	1500	267
20	33	27	411	31	30	1110	673	431	413	24	1500	644
21	29	27	392	32	31	450	835	160	413	24	1500	918
22	27	27	389	31	30	430	833	159	530	445	1490	1210
23	28	27	175	31	31	475	829	108	613	1260	1490	1200
24	28	27	33	31	228	792	831	39	613	1510	1250	1200
25	28	27	33	31	785	1160	824	41	613	1510	1150	1200
26	28	27	32	32	780	1220	829	45	613	1510	1480	1200
27	27	27	32	31	778	1120	829	39	546	1510	1400	1200
28	27	27	32	31	778	765	829	224	413	1510	1220	1200
29	27	27	32	31	---	451	828	597	423	1510	1210	1210
30	26	28	31	31	---	212	826	796	537	1510	830	1210
31	28	---	31	31	---	113	---	24	---	1510	1250	---
TOTAL	10650	10003	13732	954	4060	25806	21375	14744	11669	20402	37291	25196
MEAN	344	333	444	30.8	145	832	713	476	389	658	1203	840
MAX	1210	1210	1160	32	785	1220	835	824	613	1510	1510	1220
MIN	26	27	27	30	30	113	149	23	24	24	205	24
AC-FT	21140	19840	27300	1890	8050	51190	42400	29240	23150	40470	73970	49980

CAL YR 1981 TOTAL 158002 MEAN 433 MAX 1230 MIN 22 AC-FT 313400
WTR YR 1982 TOTAL 195920 MEAN 537 MAX 1510 MIN 23 AC-FT 388600

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 (2 m) downstream from bridge on county highway J45, 0.7 mi (1.1 km) downstream from Hickory Creek, 5.0 mi (8.0 km) west of Moulton, 8.0 mi (12.9 km) upstream from Iowa-Missouri border, 20.8 mi (33.5 km) downstream from Rathbun dam, and at mile 121.5 (195.5 km).

DRAINAGE AREA.--740 mi² (1,917 km²).

PERIOD OF RECORD.--August 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 800.00 ft (243.840 m) NGVD (Corps of Engineers benchmark).

REMARKS.--Records good except those for winter periods, which are fair. Flow regulated by Rathbun Reservoir (station 06903880) 20.8 mi (33.5 km) upstream. Several observations of water temperature were made during the year. Corps of Engineers rain-gage and gage-height telemeters at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,200 ft³/s (317 m³/s) July 16, 1982, gage height, 36.83 ft (11.23 m); minimum daily, 19 ft³/s (0.538 m³/s) Oct. 26, 1979 (corrected).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of about 45 ft (13.7 m), discharge unknown, from information by Corps of Engineers.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 11,200 ft³/s (317 m³/s) July 16, gage height, 36.83 ft (11.23 m); minimum daily, 36 ft³/s (1.02 m³/s) Oct. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1230	79	449	61	51	870	904	971	492	685	1900	1360
2	1260	837	204	60	52	1100	941	964	206	936	1880	1230
3	1260	2570	153	60	50	1180	544	954	490	5770	1880	1200
4	1260	2050	120	59	49	1190	871	950	776	4090	1880	1190
5	1260	1060	101	58	51	1160	903	950	788	2810	3060	1190
6	1260	1280	94	57	54	1140	888	987	768	896	1140	1730
7	1250	1220	92	56	56	1140	886	992	767	269	853	1010
8	1240	1160	89	54	57	1130	989	982	783	926	1770	871
9	969	1160	957	53	56	1110	980	960	1780	1100	1910	1090
10	200	1200	1260	52	52	1180	976	953	1040	1330	1800	1250
11	55	1210	1260	52	52	2100	961	949	265	1080	1240	1230
12	43	1080	1260	51	54	1980	949	948	510	1400	1200	897
13	36	211	1260	50	56	2070	925	951	567	1180	1800	893
14	843	93	1260	51	60	1250	902	1010	539	4780	1700	3450
15	508	90	1290	50	74	1300	895	1110	455	2980	2500	2950
16	150	96	1280	50	270	1970	2120	1240	581	7510	2130	905
17	87	85	1280	48	640	1650	3290	627	256	8720	2000	1280
18	84	85	1250	50	740	1020	1250	386	629	4500	1750	2720
19	67	87	705	52	990	4170	666	642	1120	7610	1580	981
20	59	86	500	52	1300	5650	694	564	700	7850	1600	916
21	54	85	490	56	1200	2390	1020	432	543	3470	1580	916
22	51	77	480	52	900	1030	1050	157	524	1330	1570	1200
23	48	90	480	54	733	691	1050	128	690	1400	1570	1290
24	46	79	217	49	385	926	1040	116	722	2010	1620	1270
25	48	85	100	52	749	1340	1020	147	722	2030	1010	1260
26	46	81	90	50	848	1370	1010	870	810	2000	1480	1250
27	46	83	82	50	831	1200	998	510	750	1960	1580	1240
28	46	77	74	52	827	273	994	204	648	1950	1280	1240
29	46	71	68	53	---	149	985	2720	554	1930	1170	1230
30	46	113	64	55	---	629	988	3420	504	1920	1340	1230
31	45	---	62	53	---	607	---	1450	---	1910	1610	---
TOTAL	13643	16580	17071	1652	11237	44965	31689	28244	19979	88332	51383	40469
MEAN	440	553	551	53.3	401	1450	1056	911	666	2849	1658	1349
MAX	1260	2570	1290	61	1300	5650	3290	3420	1780	8720	3060	3450
MIN	36	71	62	48	49	149	544	116	206	269	853	871
AC-FT	27060	32890	33860	3280	22290	89190	62860	56020	39630	175200	101900	80270

CAL YR 1981 TOTAL 245207 MEAN 672 MAX 8380 MIN 23 AC-FT 486400
WTR YR 1982 TOTAL 365244 MEAN 1001 MAX 8720 MIN 36 AC-FT 724500

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 1982

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft^3/s)
		Upper Iowa River Basin					
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-	03-13-82	699.02	1,000
		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-	08-05-81 02-22-82	c6.10 8.57	c900 650
		Paint Creek Basin					
05388600	Paint Creek near Waterville, Ia.	Lat 43°10'24", long 91°15'42", near center sec.36, T.97 N., R.4 W., Allamakee County, at bridge on county highway, 3 mi southeast of Waterville.	56.0	1953-	02-22-82	7.19	700
05388700	Little Paint Creek tributary near Waterville, Ia.	Lat 43°14'23", long 91°15'07", in SE1/4 sec.1, T.97 N., R.4 W., Allamakee County, at culvert on county highway, 3.5 mi northeast of Waterville.	1.09	1953-	08-29-82	2.46	160
		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-	03-31-82	88.28	198
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-	08-30-82	9.29	1,450
		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-	02-22-82	8.00	1,400
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-	02-22-82	15.33	700
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-	02-22-82	7.97	1,250
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-	03-13-82	14.38	6,220
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-	1982	a	(+)
		Maquoketa River Basin					
05417000	Maquoketa River near Manchester, Ia.	Lat 42°27'22", long 91°25'56", in NW1/4 NE1/4 sec.9, T.88 N., R.5 W., Delaware County on left bank, 0.6 mi downstream from Sand Creek, 1.5 mi upstream from Spring Branch 2.3 mi southeast of Manchester, and at mile 100.5.	305	1933-73, 1976-	03-13-82	8.29	2,040
05417530	Plum Creek at Earlville, Ia.	Lat 42°28'13", long 91°14'53", in NE1/4 sec.1, T.88 N., R.4 W., Delaware County, at bridge on U.S. Highway 20, 1.5 mi southeast of Earlville.	41.1	1966-	06-15-82	85.65	1,500
05417590	Kitty Creek near Langworthy, Ia.	Lat 42°12'04", long 91°12'27", in NW1/4 sec.4, T.85 N., R.3 W., Jones County, at bridge o U.S. Highway 151, 1 mi north-	14.4	1966-	06-15-82	87.12	1,100

Annual maximum discharge at crest-stage partial-record stations during water year 1982--Continued

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft³/s)
		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-	08-29-82	3.89	89
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-	03-18-82 05-22-82	b4.57 4.25	(+) 225
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-	03-18-82	8.64	910
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-	03-18-82	86.88	1,940
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-	03-18-82	b85.42	(+)
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-	05-22-82	85.45	720
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-	05-22-82	87.58	400
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-	05-22-82	5.41	90
0541200	Pine Creek near Winthrop, Ia.	Lat 42°28'11", long 91°47'01", in SW/4 sec.34, T.89 N., R.8 W., Buchanan County, at railroad bridge, 500 ft upstream from U.S. Highway 20, and 2.5 mi northwest of Winthrop.	28.3	1950-	05-22-82	13.25	950
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-	02-22-82	5.52	14
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-	02-22-82	16.69	1,200
05421600	Buffalo Creek near Winthrop, Ia.	Lat 42°28'07", long 91°43'04γin 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-	02-22-82	88.22	1,400
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-	03-15-82	87.58	(+)
		Iowa River Basin					
05448400	Westmain drainage ditch 1 & 2 near Britt, Ia.	Lat 43°06'09", long 93°47'04", in SW1/4 sec.27, T.96 N., R.25 W., Hancock County, at bridge on U.S. Highway 18, near east city limits of Britt.	21.2	1966-	06-07-82	82.37	145
05448600	East Branch Iowa River above Hayfield, Ia.	Lat 43°09'21", long 93°41'21", near S1/4 corner sec.4, T.96 N., R.24 W., Hancock County, at bridge on county highway, 1.5 mi southeast of Hayfield.	2.23	1953-	06-07-82	1.91	71
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-	02-23-82 06-07-82	b10.81 9.83	(+) 87
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-	02-23-82 06-07-82	b9.93 8.68	(+) 315

Annual maximum discharge at crest-stage partial-record stations during water year 1982--Continued

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft³/s)
		Iowa River Basin--Continued					
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-	03-20-82	b7.47	(+)
05451955	Stein Creek near Clutier, Ia.	Lat 42°04'46", long 92°18'00", in NE1/4 sec.24, T.84 N., R.13 W., Tama County, at bridge on State Highway 318, 5 mi east of Clutier.	23.4	1971-	06-15-82	77.92	11,400
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-	06-15-82	87.22	(+)
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-	07-18-82	22.99	1,700
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-	07-18-82	27.48	2,300
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-	1982	a	(+)
05453900	Rapid Creek tributary near Oasis, Ia.	Lat 41°41'14", long 91°26'37", near SW corner sec.33, T.80 N., R.5 W., Johnson County, at bridge on county highway X16, 3 mi southwest of Oasis.	0.97	1951-	07-18-82	16.15	420
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-	07-18-82	25.50	900
05455100	Old Mans Creek near Iowa City, Ia.	Lat 41°36'23", long 91°36'56", in NW1/4 sec.36, T.79 N., R.7 W., Johnson County, at bridge on county highway W62, 3 mi southwest of Iowa City.	201	1950-64, 1965-	06-15-82	15.25	13,500
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-	07-18-82	26.44	3,300
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-	06-15-82	14.28	3,800
05455210	North English River at Guernsey, Ia.	Lat 41°38'42", long 92°21'26", 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-	06-15-82	87.43	8,600
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-	07-18-82	81.79	2,000
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-	07-18-82	13.77	2,200
05455350	South English River tributary No. 2 near Montezuma, Ia.	Lat 41°34'02", long 92°27'01", near SW corner sec.11, T.78 N., R.14 W., Poweshiek County, at box culvert on county highway, 4 mi southeast of Montezuma.	0.523	1953-	07-18-82	13.31	300
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	06-15-82	88.53	2,600
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-	1982	a	<1,200
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-	02-23-82 03-20-82	b56.89 55.73	(+) 1,450
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	1956-	03-20-82	90.32	320

Annual maximum discharge at crest-stage partial-record stations during water year 1982--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)
		Iowa River Basin--Continued					
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-	03-20-82 06-24-82	b86.96 84.46	(+) 233
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-	02-23-82 03-16-82	b91.01 89.94	(+) 635
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-	03-15-82 03-20-82	b94.39 93.33	(+) 860
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-	06-15-82	85.90	1,200
05464145	Twelve Mile Creek near Traer, Ia.	Lat 42°13'50", long 92°27'56", in SE1/4 sec.27, T.86 N., R.14 W., Tama County, at bridge on U.S. Highway 63, 2.5 mi north of Traer.	43.8	1966-	02-22-82	87.24	1,500
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-	06-15-82	96.17	10,800
05464318	East Blue Creek at Center Point, Ia.	Lat 42°12'44", long 91°47'21", in SW1/4 sec.33, T.86 N., R.8 W., Linn County, at bridge on State Highway 150, 1.5 mi north of Center Point.	17.6	1966-	06-15-82	83.79	2,100
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-	06-15-82	84.48	4,400
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-	08-07-82	88.08	3,450
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-	07-19-82	90.40	2,300
		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-	02-23-82 07-18-82	b87.68 86.78	(+) 860
05469990	Keigley bridge near Story City, Ia.	Lat 42°09'01", long 93°37'13", in NW1/4 sec.26, T.85 N., R.24 W., Story County, at bridge on U.S. Highway 69, 3 mi south of Story City.	31.0	1966-	07-18-82	89.92	940
05472090	North Skunk River near Baxter, Ia.	Lat 41°49'13", long 93°03'41", in NE1/4 sec.21, T.81 N., R.19 W., Jasper County, at bridge on State Highway 223, 4.5 mi east of Baxter.	52.2	1966-	07-04-82	83.32	(+)
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-	07-18-82	92.32	3,000
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-	07-16-82	87.37	1,350
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-	02-23-82	89.24	1,000
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-	02-23-82	89.24	15,000

Annual maximum discharge at crest-stage partial-record stations during water year 1982--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)
		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-	02-23-82 03-20-82	b91.09 86.89	 108
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-	02-23-82 06-13-82	b88.93 85.05	 430
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-	08-05-82	89.05	1,100
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-	05-27-82	87.01	2,250
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-	05-04-82	8.95	580
05482800	Happy Run at Churdan, Ia.	Lat 42°10'16", long 94°29'39', in SW1/4 sec.17, T.85 N., R.31 W., Greene County, at bridge on county highway, 1 mi northwest of Churdan.	7.58	1952-	05-04-82	6.41	100
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-	05-04-82	9.84	960
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-	05-26-83	85.60	(+)
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-	03-19-82	23.07	(+)
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-	07-15-82	12.29	(+)
05487600	South White Breast Creek near Osceola, Ia.(Disc)	Lat 40°57'36", long 93°41'28", near SW corner sec.12, T.71 N., R.25 W., Clarke County, at bridge on county highway, 6 mi southeast of Osceola.	28.0	1953-81	07-04-81	14.88	9,200
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-	07-04-81 05-06-82	18.27 15.87	15,300C 5,000
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-	07-03-82	88.51	12,700
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-	07-16-82	87.10	550
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-	07-03-82	90.20	21,000
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-	03-18-82	89.87	3,100

Annual maximum discharge at crest-stage partial-record stations during water year 1982--Continued

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft^3/s)
		Fox River Basin					
05494100	South Fox Creek tributary near West Grove, Ia.	Lat 40°43'31", long 92°37'33", near S1/4 corner sec.31, T.69 N., R.15 W., Davis County, at culvert on State Highway 2, 3.5 mi west of West Grove.	0.55	1953-	03-19-82	9.21	490
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-	07-19-82	90.40	(+)
		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-	02-23-82	b7.71	(+)
06483420	Schutte Creek near Sibley, Ia.(Disc)	Lat 43°28'34", long 95°46'38", near NW corner sec.23, T.100 N., R.42 W., Osceola County, at culvert on county highway, 6 mi northwest of Sibley.	1.43	1952-81	---	---	---
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-	02-23-82	b8.68	(+)
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-	02-23-82	b7.29	(+)
06483450	Wagner Creek near Ashton, Ia.(Disc)	Lat 43°20'45", long 95°46'08", on south line sec.35, T.99 N., R.42 W., Osceola County, at bridge on county highway A34, 3 mi northeast of Ashton.	7.09	1952-81	---	---	---
06483460	Otter Creek near Ashton, Ia.	Lat 43°20'07", long 95°45'43", in SE1/4 sec.2, T.98 N., R.42 W., Osceola County, at bridge on county highway L36, 2 mi northeast of Ashton.	88.0	1952-	02-23-82	b10.11	(+)
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-	02-23-82	85.29	430
		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-	07-06-82	9.89	(+)
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-	02-23-82	b34.48	(+)
		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-	02-23-82	86.25	(+)
06600080	Willow Creek at Hospers, Ia.(Disc)	Lat 43°04'38", long 95°54'16", in NE1/4 sec.3, T.95 N., R.43 W., Sioux County, at bridge on State Highway 60, at north edge of Hospers.	37.9	1966-81	---	---	---
		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-	07-06-82	94.11	(+)
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-	02-23-82	b78.85	(+)
06602240	Big Whiskey Creek near Lawton, Ia.	Lat 42°28'30", long 96°15'01", in NW1/4 sec.6, T.88 N., R.46 W., Woodbury County, at bridge on U.S. Highway 20, 3.5 mi west of Lawton.	51.3	1966-	1982	a	(+)

Annual maximum discharge at crest-stage partial-record stations during water year 1982--Continued

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft^3/s)
		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-	02-23-82	b84.99	(+)
06605340	Prairie Creek near Spencer, Ia.	Lat 43°05'16", long 95°09'40", in SE&1/4 sec.36, T.96 N., R.37 W., Clay County, at bridge on U.S. Highway 71, 4 mi south of Spencer.	22.3	1956-	07-09-82	90.19	1,320
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.	78.5	1966-	02-23-82 07-09-82	b90.52 89.92	(+) 2,200
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-	02-23-82	b88.05	(+)
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-	03-19-82	85.48	98
06607197	Simmons Creek at Mapleton, Ia.(Disc)	Lat 42°10'20", long 95°48'50", in SE1/4 sec.14, T.85 N., R.43 W., Monona County, at bridge on State Highway 141, 1.2 mi northwest of Mapleton.	18.4	1966-81	---	---	---
		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-	1982	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-	05-29-82	78.61	(+)
		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-	1982	a	(+)
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 mi^2.	131	1952-	06-05-53	16.34	2,780
					05-24-64	27.15	13,100
					03-01-65	28.41	15,100
					05-23-66	22.08	6,100
					06-15-67	18.03	2,650
					06-23-68	16.01	1,550
					07-09-69	19.36	4,350
					1970	a	<1,200
					1971	a	<1,200
					09-11-72	31.23	20,300
					09-26-73	28.45	15,700
					05-16-74	16.89	3,000
					08-29-75	16.58	c2,900
					06-14-76	17.46	3,350
					05-21-77	18.93	4,250
					09-13-78	31.28	20,700
					03-29-79	23.51	7,600
					06-06-80	27.56	13,800
					05-04-81	22.77	6,800
					02-20-82	23.74	8,200
					08-29-52	21.33	18,500
					1953	a	<1,600
					08-22-54	9.28	2,700
					07-09-55	12.30	4,800
					05-13-56	10.56	3,400
					06-16-57	17.07	10,500
					07-02-58	23.26	23,500
					06-28-59	12.11	4,700
					08-05-60	10.38	3,300
					07-27-61	12.62	5,000
					05-26-62	15.34	8,200
		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-	1982	a	(+)
06807470	Indian Creek near Emerson, Ia.	Lat 41°01'50", long 95°22'51", in NW1/4 sec.19, T.72 N., R.39 W., Montgomery County, at bridge on U.S. Highway 34, 1 mi east of Emerson.	37.3	1966-	06-15-82	92.63	15,800
06807720	Middle Silver Creek near Avoca, Ia.	Lat 41°28'33", long 95°28'06", near N1/4 corner sec.17, T.77 N., R.40 W., Pottawattamie County, at bridge on State Highway 83, 7 mi west of Avoca.	3.21	1955-	02-20-82	9.35	750

Annual maximum discharge at crest-stage partial-record stations during water year 1982--Continued

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Gage height (feet)	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-	02-21-82	10.90	1,250
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-	02-21-82	5.46	950
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-	02-20-82	83.14	(+)
		Tarkio River Basin					
06811760	Tarkio River near Elliot, Ia.	Lat 41°06'06", long 95°06'09", near NE corner sec.28, T.73 N., R.37 W., Montgomery County, at bridge on county highway, 4.5 mi southeast of Elliot.	10.7	1952-	06-15-82	13.57	2,500
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-	06-15-82	12.82	2,500
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-	1982	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-	08-29-82	94.63	1,600
		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-	06-15-82	81.19	(+)
		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-	03-19-82	91.34	1,800
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-	1982	a	(+)
		Chariton River Basin					
06903980	Chariton River near Udell, Ia.	Lat 40°46'53", long 92°50'12, in NE1/4 sec.17, T.69 N., R.17 W., Appanoose County, at bridge on county highway, 5.0 mi west of Udell.	631	1972-	07-16-82	860.22	8,000
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-	07-16-82	80.45	7,000
06904040	Chariton River at Coal City, Ia.	Lat 40°35'35", long 92°42'40", in NE1/4 sec.20, T.67 N., R.16 W., Appanoose County, at bridge on county highway, at Coal City.	816	1972-	07-05-82	823.97	7,400

\+ Discharge not determined.
a Peak stage did not reach bottom of gage.
b Ice affected.
c Revised

DISCHARGE MEASUREMENTS MADE AT MISCELLANEOUS SITES DURING WATER YEAR 1982

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Upper Iowa River Basin				
Bear Creek	Upper Iowa River	NE1/4 sec.2, T.99 N., R.6 W., Allamakee County, at bridge on State Highway 76, 3.0 mi (4.8 km) south of Dorchester.	118	1941-81	11-17-81 05-07-82 06-15-82 07-29-82	68.0 107 93.1 75.0
		Iowa River Basin				
Old Mans Creek	Iowa River	SW1/4 sec. 10,T.79 N., R.10 W.,Iowa County, at bridge on State Highway 149, at north edge of Williamsburg.	41.7	------	06-15-82	16,100
Blue Creek	Cedar River	SW1/4 sec. 6, T.85 N., R.8 W., Linn County, at bridge on county road E2W, 2 mi. (3.2 km) northwest of Center Point.	31.2	------	06-15-82	10,700
East Blue Creek	Blue Creek	NW1/4 sec. 8, T.85 N., R.8 W., Linn County, at bridge on county road E2W, 1 mi. (1.6 km) northwest of Center Point.	27.4	------	06-15-82	7,300
		Des Moines River Basin				
Cedar Creek	Des Moines River	NE1/4 sec. 28, T.74 N., R.18 W., Marion County, at bridge on State Highway 5, 1 mi (1.6 km) north of Marysville.	241	------	07-03-82	64,700
North Cedar Creek	Cedar Creek	NE1/4 sec.20, T.74 N., R.18 W., Marion County at bridge on State Highway 5, 2 mi. (3.2 km) north of Marysville.	123	------	07-03-82	35,900
English Creek	Des Moines River	SW1/4 sec.16, T.75 N., R.19 W., Marion County, at bridge on county road G76, 4 mi. (6.4 km) east of Melcher.	46.3	------	07-17-82	16,100
English Creek	Des Moines River	NE1/4 sec.16, T.75 N., R.19 W., Marion County, at bridge on new State Highway 92, 3 mi. (4.8 km) southeast of Knoxville.	91	------	07-17-82	28,000
		Boyer River Basin				
Boyer River (06609400)	Missouri River	Lat 42°00'08", long 95°23'07", in NE1/4 sec. 16, T.83 N., R.39 W., Crawford County, at bridge on county road, 2.0 mi (3.2 km) southwest of Denison.	517	1957-81	08-23-82	102

Carroll County

420335N09452.5.1. Local number 84-35-25bdad1. City of Carroll, test hole 1. Drilled observation artesian well in Dakota Sandstone of Early Cretaceous age, diam 8 in, depth 120 ft, cased to 100. Lsd 1,275 ft above msl. MP top of casing, 4.0 ft above lsd. Highest water level 34.55 below lsd, Sept. 8, 1945; lowest 85.50 below lsd, July 15, 1981. Records available: 1939-49, 1952 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Dec. 8, 1981	74.97	Mar. 23, 1982	72.00	May 25, 1982	71.80	Aug. 3, 1982	81.41

Cerro Gordo County

430456N0932536.1. Local number 95-22-3abba1. Knut Olson. Drilled domestic and stock artesian well in limestone of Devonian age, diam 4 in, depth 134 ft, casing information not available. Lsd 1,258 ft above msl. MP top of casing, 1.40 ft above lsd. Highest water level 14.34 below lsd, July 3, 1945; lowest 24.87 below lsd, Feb. 14, 1979. Records available: 1941-71, 1973 to current year.

Nov. 19, 1981	24.23	Feb. 16, 1982	24.75	May 6, 1982	24.07	July 30, 1982	24.35

430806N0931645.1. Local number 96-21-13bccb1. Mason City & Clear Lake RR. Drilled unused artesian well in dolomite in Cedar Valley Limestone of Devonian age, diam 5 in, depth 198 ft, casing information not available. Lsd 1,165 ft above msl. MP top of well curb, 1.30 ft above lsd. Highest water level 1.44 below lsd, Feb. 12, 1982; lowest 17.26 below lsd, Nov. 18, 1955. Records available: 1940-71, 1973 to current year.

Nov.19, 1981	4.90	Feb. 12, 1982	1.44	May 6, 1982	5.05	July 30, 1982	5.46

430858N0932810.1. Local number 96-22-20cadc1. W. Baine and H. Elder. Drilled unused water-table well in glacial drift, diam 5 in, depth 126 ft, casing information not available. Lsd 1,249 ft above msl. MP hole in side of casing, 0.87 ft above lsd (since Feb. 1980). Highest water level 29.65 below lsd, Mar. 25, 1942; lowest 51.37 below lsd, Aug. 4, 1977. Records available: 1940-71, 1973 to current year.

Nov.19, 1981	41.71	Mar. 26, 1982	43.05	May 6, 1982	42.73

Clayton County

424023N0912912.1.* Local number 91-5-30bbbb. Harold Knight. Dug unused water-table well in glacial drift, diam 36 in, depth 36 ft, casing unknown. Lsd 1,233 ft above msl. MP hole in pump base at lsd. Highest water level 15.52 below lsd, Aug. 5, 1975; lowest 30.68 below lsd, Jan. 12, 1959. Records available: 1957 to current year.

Nov. 18, 1981	21.19	Apr. 6, 1982	20.00	July 21, 1982	19.30	Sept. 6, 1982	19.70
Feb. 25, 1982	21.60	Apr. 22	19.60	July 28	19.45	Sept. 20	20.20
Mar. 10	21.80	May 12	19.34	Aug. 6	19.60		
Mar. 23	19.24	June 29	19.70	Aug 20	20.10		

*Replaces 424101N0913200.1 which was destroyed.

424057N0913200.1. Local number 91-6-22acac1. City of Strawberry Point, well 2. Drilled unused artesian well in dolomite of Silurian age and dolomite of Upper Ordovician age, diam 16 to 10 in, depth 492 ft, cased 16-in 0-130, 12-in 130-161, lined 10-in 229-370. Lsd 1,219 ft above msl. MP top of recorder platform, 2.10 ft above lsd. Highest water level 114.38 below lsd, May 9, 1973; lowest 133.18 below lsd, Feb. 4, 1968. Records available: 1963 to current year.

Water level at noon, from recorder graph, water year October 1 to September 30
1981-82

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	126.48	125.77	125.48	125.85	127.08	126.10	123.03	121.98	120.64	122.12	122.70	124.43
10	126.57	125.78	125.06	126.50	127.14	125.95	122.90	121.32	120.97	121.77	122.98	124.45
15	126.79	125.95	125.00	126.07	126.61	125.42	122.30	121.13	120.99	122.03	123.45	124.82
20	125.95	126.12	125.15	126.80	126.64	124.33	121.78	121.27	121.17	122.00	123.57	124.40
25	125.65	125.76	125.50	126.80	126.77	123.74	121.42	120.85	121.61	121.95	124.72	124.65
Eom	126.05	126.02	125.44	126.77	126.28	123.40	121.98	120.54	122.09	122.07	124.45	124.82

425940N0911947.1. Local number 95-4-32dddd1. Milton and Willis Meier. Drilled stock artesian well in St. Peter Sandstone of Middle Ordovician age, diam 6 in, reported depth 380 ft, Casing information not available. Lsd 1,090 ft above msl. MP plug in pumpbase, 1.00 ft above lsd. Highest water level 82.56 below lsd, Oct. 8, 1974; lowest 126.56 below lsd, Jan. 13, 1969. Records available: 1957 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 25, 1982	95.90	May 12, 1982	91.34	July 28, 1982	88.93		

Des Moines County

404844N0911427.1. Local number 69-3-6aabal. Iowa Ordnance Plant, well 3. Drilled unused artesian well in St. Peter Sandstone of Middle Ordovician age, diam 16 in, depth 1,209 ft, cased 0-855. Lsd 717 ft above msl. MP top of platform, 1.61 ft above lsd. Highest water level 123.52 below lsd, Apr. 15, 1982; lowest 201.75 below lsd, Aug. 15, 1978. Records available: 1950 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 16, 1981	128.74	Feb. 21, 1982	127.09	May 15, 1982	126.01	Aug. 12, 1982	125.94
Jan. 23, 1982	127.39	Apr. 15	123.52	July 3	125.68	Sept. 14	125.59

404753N0911425.1. Local number 69-3-6ddcdl. Iowa Ordnance Plant, well 2. Drilled unused artesian well in limestone of Devonian and Mississippian age, diam 19 in, depth 675 ft, cased 0-75. Lsd 699 ft above msl. MP top of platform, 1.91 ft above lsd. Highest water level 74.46 below lsd, Apr. 18, 1975; lowest 83.19 below lsd, Apr. 26, 1950. Records available: 1950 to current year.

Oct. 16, 1981	81.19	Feb. 21, 1982	80.59	May 15, 1982	80.32	Aug. 12, 1982	80.27
Jan. 23, 1982	80.74	Apr. 15	80.32	July 3	80.07	Sept. 14	80.09

Emmet County

432927N0943455.1. Local number 100-32-11dddd1. Okamanpedan Lake Reserve State Park. Drilled public-supply artesian well in Dakota Sandstone of Early Cretaceous age, diam 6 in, depth 277 ft, casing information not available. Lsd 1,233 ft above msl. MP plug in pumpbase, 0.61 ft above lsd. Highest water level 59.60 below lsd, Dec. 19, 1946; lowest 77.86 below lsd, Aug. 27, 1979. Records available: 1939 to current year.

Nov. 3, 1981	70.32	Jan. 26, 1982	69.95	June 1, 1982	69.57	Aug. 23, 1982	69.69

Grundy County

422605N0925600.1 Local number 88-18-15dbbb1. Town of Wellsburg. Drilled public-emergency-supply artesian well in limestone and dolomite of Upper Devonian age*, diam 12 in. depth 280 ft, cased to 128. Lsd 1,060 ft above msl. MP edge of vent pipe, 1.25 ft above lsd. Highest water level 34.50 below lsd, May 3, 1982. lowest 96.81 below lsd, Sept. 27, 1960. Records available: 1960-71, 1973 to current year.

Nov. 16, 1981	34.87	Feb. 9, 1982	34.75	May 3, 1982	34.50	July 27, 1982	35.10

*Aquifer age corrected, 1982.

Henry County

405810N0913305.2. Local number 71-6-9abac2. City of Mount Pleasant, well 4. Drilled municipal artesian well in Jordan Sandstone of Late Cambrian age, diam 20 to 19 in, depth 1,860 ft, cased 20-in 0-623. Lsd 725* ft above msl. MP hole in pumpbase, 2.25 ft above lsd. Highest water level 132.00 below lsd, May 5, 1946; lowest non pumping 198.75 below lsd, June 7, 1978. Records available: 1946-50, 1953-57, 1959 to current year. Water levels affected by pumping.

Dec. 3, 1981	p212.75	Mar. 4, 1982	p217.75	May 25, 1982	p212.75	Aug. 24, 1982	p211.75

p Well being pumped.
* Elevation corrected.

410848N0913948.1. Local number 73-7-9aabdl. Town of Wayland. Dug unused water-table well in glacial drift, diam 4 ft, depth 52 ft, casing information not available. Lsd 735 ft above msl. MP top of cement cover, 0.21 ft above lsd.. Highest water level 2.30 below lsd, Sept. 1, 1965; lowest 14.69 below lsd, Feb. 2, 1977. Records available: 1960 to current year.

Oct. 19, 1981	8.48	Mar. 16, 1982	8.03	June 22, 1982	9.63	Aug. 24, 1982	9.81
Nov. 16	9.02						

Jasper County

414205N0925920.1. Local number 80-18-31abbb1. P. W. Beukema. Dug stock water-table well in glacial drift, diam 36 in, depth 37 ft, cribbed with brick. Lsd 940 ft above msl. MP top of cement platform, 0.70 ft above lsd. Highest water level 2.67 below lsd, June 10, 1947; lowest 27.15 below lsd, Dec. 18, 1948. Records available: 1940 to current year.

Nov. 4, 1981	14.99	Jan. 27, 1982	18.46	Apr. 21, 1982	5.74	July 14, 1982	5.07

Johnson County

414107N0913229.1. Local number 79-6-4aaaa1. Forest View Trailer Court. Drilled unused artesian well in limestone of Silurian age, diam 6 in, depth 280 ft, cased to 96 ft. Lsd 735 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 96.93 ft below lsd, Mar. 23, 1979; lowest 146.01 ft below lsd, July 17, 1971. Records available: 1971 to current year.

Water level at noon, from recorder graph, water year October 1 to September 30 1981-82

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	126.60	123.03	e110.10	102.38	101.15	99.80	99.11	114.80	124.59	126.32	127.41	127.42
10	126.70	123.45	108.06	101.99	101.05	99.25	98.95	117.17	125.70	127.48	127.06	127.54
15	126.60	121.00	106.50	100.97	100.72	99.30	98.83	119.66	126.14	127.05	127.94	127.49
20	125.95	122.57	105.50	e100.60	100.17	99.15	e103.00	121.36	125.95	126.92	127.77	127.20
25	123.68	117.32	104.63	101.33	100.92	99.39	106.27	122.30	e126.10	126.72	127.93	126.69
Eom	122.16	112.82	103.43	100.91	100.45	99.40	110.60	123.56	126.26	126.37	128.13	127.25

e Estimated.

414315N0912520.1. Local number 80-5-22cbcb1. Chicago, Rock Island & Pacific RR. Co. Drilled unused water-table well in glacial drift, diam 1 1/4 in, depth 20 ft, screened 18-20 ft. Lsd 753 ft above msl. MP top of casing 4.20 ft above lsd. Highest water level 5.78 below lsd, Sept. 20, 1977; lowest dry, Dec. 2-31, 1955, Nov. 8 to Dec. 31, 1964. Records available: 1941-56, 1958 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 20, 1981	6.40	Jan. 27, 1982	12.46	Apr. 19, 1982	7.81	July 20, 1982	9.38
Nov. 24	9.52	Feb. 22	12.51	May 18	10.09	Aug. 23	10.22
Dec. 22	9.58	Mar. 17	9.34	June 21	9.61	Sept.20	11.47

414315N0912520.2. Local number 80-5-22cbcb2. Chicago, Rock Island & Pacific RR. Co. Drilled unused artesian well in limestone of Devonian age, diam 5 in, depth 82 ft cased. Lsd 753 ft above msl. MP top of casing 2.50 ft above lsd. Highest water level 8.15 below lsd, Apr. 21, 1952; lowest 21.05 below lsd, Sept. 26, 1957. Records available: 1941 to current year.

Oct. 20, 1981	14.59	Jan. 27, 1982	16.47	Apr. 19, 1982	14.93	July 20, 1982	12.51
Nov. 24	16.20	Feb. 22	15.94	May 18	16.10	Aug. 23	15.76
Dec. 22,	16.10	Mar. 17	15.24	June 21	15.15	Sept.20	15.92

Linn County

415422N0914226.1. Local number 82-7-18cdcd1. Lester Petrak. Dug unused water-table well in glacial drift, diam 4 ft, depth 14 ft, cribbed with brick. Lsd 835 ft above msl. MP base of recorder shelter, 0.25 ft above lsd. Highest water level 1.09 below lsd, Aug. 4, 1968; lowest e11.75 below lsd, Feb. 8, 1977. Records available: 1959 to current year.

Water level at noon, from recorder graph, water year October 1 to September 30 1981-82

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	4.82	4.05	4.58	5.95	e8.45	5.17	4.36	4.88	5.18	5.32	5.58	6.67
10	e5.00	4.37	4.87	e6.60	e8.63	5.29	4.66	4.49	5.36	4.90	5.32	5.13
15	----	4.53	5.03	e7.20	8.82	4.82	4.43	4.85	3.42	4.76	5.66	4.48
20	4.40	4.71	5.15	7.84	8.42	3.53	4.36	5.06	e4.75	4.19	6.24	4.66
25	4.47	4.89	5.35	e8.01	5.10	4.23	4.71	4.60	5.11	4.97	6.46	5.07
Eom	4.73	4.77	5.61	e8.29	5.09	4.08	4.93	4.96	5.12	5.29	6.45	5.46

e Estimated.

415816N0913934.1. Local number 83-7-28add a1. The Kacena Co., Inc. Drilled unused artesian well in limestone of Silurian age, diam 10 in, depth 420 ft, cased to 75. Lsd 735 ft above msl. MP top of recorder platform, 2.95 ft below lsd. Highest water level 51.10 below lsd, Feb. 25, 1963; lowest 101.40 below lsd, July 27, 1981. Records available: 1962 to current year.

Water level at noon, from recorder graph, water year October 1 to September 30 1981-82

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	97.91	95.88	94.93	92.38	91.88	91.25	90.23	89.92	-----	90.11	91.19	91.06
10	97.70	95.83	e94.65	92.95	91.58	90.75	90.26	90.05	-----	90.10	91.25	90.36
15	97.55	95.18	e94.25	91.92	91.05	e91.00	89.90	-----	-----	90.47	91.16	90.55
20	96.88	95.42	e93.90	92.03	90.98	90.75	e90.30	-----	-----	90.59	91.51	90.09
25	96.53	94.75	93.62	91.82	91.80	91.03	90.00	90.70	-----	90.78	91.27	89.75
Eom	96.42	94.27	92.82	91.60	91.33	90.52	90.29	90.48	90.55	90.91	90.94	89.40

e Estimated

Linn County--Continued

415725N0914104.1. Local number 83-7-32acdc1. Floyd Felter. 22nd Ave. SW. and 11th St. SW., Cedar Rapids. Drilled unused artesian well in limestone of Silurian age, diam 5 in, depth 282 ft, casing depth unknown. Lsd 805 ft above msl. MP plug in well cover, at lsd. Highest water level 75.88 below lsd, Jan. 26, 1942; lowest 107.00 below lsd, Sept. 16, 1976. Records available: 1940 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 20, 1981	98.14	Jan. 20, 1982	92.58	Apr. 19, 1982	92.59	July 20, 1982	93.36
Nov. 24	95.86	Feb. 22	95.38	May 18	93.38	Aug. 23	95.46
Dec. 22	95.33	Mar. 17	94.78	June 21	91.31	Sept. 20	92.64

420526N0913707.1. Local number 84-7-13bcbb1. U.S. Geol. Survey. Drilled observation water-table well in glacial drift, diam 1 1/4 in. depth 17 ft, screened 15-17. Lsd 882 ft above msl. MP top of casing, 0.75 ft above lsd. Highest water level 0.93 below lsd, May 18, 1982; lowest 12.90 below lsd, Dec. 3 1956. Records available: 1948 to current year.

Oct. 20, 1981	3.64	Jan. --, 1982	e2.80	Apr. 19, 1982	1.91	July 20, 1982	1.74
Nov. 24	3.37	Feb. 25	2.29	May 18	0.93	Aug. 23	4.18
Dec. 22	3.37	Mar. 17	1.71	June 21	2.59	Sept. 20	5.43

e Estimated

Lyon County

432140N0955953.1. Local number 99-44-26ddddl. State of Iowa. Drilled unused water-table well in glacial drift, diam 20 in, depth 38 ft, lined with tile. Lsd 1,400 ft above msl. MP plug in well cover, 2.01 ft above lsd. Highest water level 0.41 above lsd, May 9, 1979; lowest 9.74 below lsd, Oct. 24, 1940. Records available 1940-43, 1947 to current year.

Dec. 3, 1981	3.27	Mar. 8, 1982	3.35*	June 30, 1982	1.82	Sept. 22, 1982	0.95

* Water frozen in well

432553N0961055.1. Local number 99-45-5abac1. City of Rock Rapids. Drilled unused artesian well in Dakota sandstone of Early Cretaceous age, diam 10 in, depth 375 ft, cased to 296. Lsd 1,368 ft above msl. MP plug in cover over casing, 1.00 ft above lsd. Highest water level 100.08 below lsd, July 27, 1964; lowest 114.33 below lsd, Oct. 22, 1981. Records available: 1960 to current year.

Oct. 22, 1981	114.33	Mar. 5, 1982	113.81	May 18, 1982	113.83	Aug. 12, 1982	114.20
Dec. 3,	113.82	Apr. 7	113.76	June 30	113.98	Sept. 22	114.00
Jan. 12, 1982	113.80						

Madison County

411727N0934830.1. Local number 75-26-23aaac1. Town of St. Charles, No. 1. Drilled unused artesian well in limestone of Mississippian age, diam 10 in, depth 1,058 ft, cased 0-657. Lsd 1,067 ft above msl. MP plug in well cover, 1.20 ft above lsd. Highest water level 261.62 below lsd, Nov. 20, 1962; lowest 270.54 below lsd, Sept. 30, 1982. Records available: 1962 to current year. Records prior to April 1970 are from recording gage; subsequent records are periodic tape measurements.

Mar. 1, 1982	270.28	July 27, 1982	270.37	Sept. 30, 1982	270.54		

Marion County

411323N0931426.1. Local number 74-21-11dbcd2. Town of Melcher. Drilled unused water-table well in glacial drift, diam 18 in, depth 12.2 ft, lined with tile. Lsd 948 ft above msl. MP top of well cover, 0.75 ft above lsd. Highest water level 0.12 below lsd, Apr. 24, 1976; lowest 16.27 below lsd, Oct. 22, 1953. Records available 1950 to current year.

Oct. 10, 1981	6.05	Jan. 10, 1982	5.70	Apr. 10, 1982	2.98	July 10, 1982	4.35
Oct. 23,	6.40	Jan. 25	5.65	Apr. 23	3.31	July 23	3.30
Nov. 10	4.97	Feb. 10	6.15	May 10	2.74	Aug. 10	3.35
Dec. 10	4.80	Feb. 22	3.13	May 24	2.21	Aug. 23	4.75
Dec. 28	4.65	Mar. 10	2.72	June 10	2.28	Sept. 10	4.70
		Mar. 24	2.75	June 24	5.25	Sept. 23	3.37

Marshall County

420355N0925347.1. Local number 84-18-24cdca1. City of Marshalltown. Drilled unused artesian well in glacial sand and gravel of Pleistocene age, diam 8 in, depth 200 ft, cased to 190, screened 190-200. Lsd 871 ft above msl. MP top of casing, at lsd. Highest water level 4.92 below lsd, July 13, 1951; lowest 54.95 below lsd, May 8, 1981. Records available: 1949-71, 1973 to current year.

Nov. 5, 1981	39.14	Feb. 19, 1982	35.08	Apr. 21, 1982	26.69	July 14, 1982	33.24

Montgomery County

405835N0950129.1. Local number 71-36-6dada1. State of Iowa. Drilled observation water-table well in glacial drift, diam 1 1/4 in, depth 38 ft, screened 36-38. Lsd 1,081 ft above msl. MP top of casing, 3.02 ft above lsd. Highest water level 2.52 below lsd, May 31, 1951; lowest 30.99 below lsd, Apr. 26, 1950. Records available: 1950 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 8, 1981	14.38	Feb. 10, 1982	13.00	May 6, 1982	12.64	Aug. 30, 1982	13.30
Nov. 5	13.96	Mar. 18	12.80	June 9	11.95	Sept. 9	13.47
Nov. 18	13.80	Mar. 24	12.69	June 17	11.77		
Dec. 16	13.18	Apr. 20	12.56	July 21	12.48		

Muscatine County

412120N0910804.4. Local number 76-2-30cbaa1. U.S. Geol. Survey. Drilled observation water-table well in alluvial sand and gravel, diam 6 in, depth 27 ft, screened 24-27. Lsd 546 ft above msl. MP base of recorder shelter 3.7 ft above lsd. Highest water level 8.51 below lsd, May 16, 1973; lowest 15.39 below lsd, Aug 10, 1980. Records available: 1966 to current year.

Water level at noon, from recorder graph, water year October 1 to September 30
1981-82

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	14.23	13.43	13.41	13.50	13.90	14.02	13.17	13.14	13.00	13.38	11.88	11.27
10	14.20	13.41	13.36	e13.57	13.97	14.06	13.15	13.10	13.03	13.19	10.90	11.33
15	14.18	13.38	13.31	e13.64	14.02	14.00	13.16	13.15	13.11	13.12	10.79	11.40
20	e13.90	13.38	13.31	13.69	14.07	13.86	13.18	13.14	13.18	11.82	11.00	e11.48
25	e13.60	13.42	13.36	13.75	14.04	13.53	13.16	13.08	13.34	11.61	11.07	e11.58
Eom	13.45	13.40	13.43	13.82	14.01	13.26	13.15	13.03	13.36	11.74	11.20	e11.68

e Estimated

Page County

404257N0951512.1. Local number 68-38-7ccaa1. William Brayman. Drilled unused water-table well in glacial drift, diam 12 in, depth 44 ft, lined with tile. Lsd 1,087 ft above msl. MP top of 3/4-in pipe inserted through board cover, 1.50 ft above lsd. Highest water level 1.44 below lsd, June 23, 1947; lowest 20.96 below lsd, Nov. 24, 1958. Records available: 1934 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 6, 1981	10.51	Mar. 17, 1982	6.99	June 10, 1982	9.48	Aug. 31, 1982	4.86
Feb. 2, 1982	12.68	Apr. 21	10.67	July 22	11.16		

Sac County

423013N0951753.1. Local number 89-38-26abaa1. City of Schaller. Drilled public-emergency-supply artesian well in Dakota Sandstone of Early Cretaceous age, diam 10 to 8 in, depth 352 ft, cased to 352, perforated 304-352. Lsd 1,376 ft above msl. MP edge of pump breather pipe, 1.80 ft above lsd. Highest water level 210.04 below lsd, Mar. 25, 1948; lowest 240.10 below lsd, May 24, 1977. Records available: 1940 to current year.

Nov. 5, 1981	231.37	Jan. 28, 1982	231.30	June 2, 1982	231.47	Aug. 23, 1982	233.03

Webster County

421837N0940836.1. Local number 87-28-29cccd1. Ransom Helms. Drilled unused water-table well in glacial drift, diam 12 in, depth 42 ft, lined with tile. Lsd 1,165 ft above msl. MP top of casing, 0.75 ft above lsd Highest water level 0.05 below lsd, Aug. 1, 1972; lowest 13.62 below lsd, Mar. 12, 1956. Records available: 1942-56, 1958 to current year.

Oct. 21, 1981	3.78	Jan. 21, 1982	5.15	Apr. 20, 1982	2.23	July 21, 1982	2.94
Nov. 20	4.54	Feb. 18	5.51	May 19	1.67	Aug. 20	4.56
Dec. 22	4.32	Mar. 22	1.80	June 22	2.70	Sept. 21	3.87

423013N0942147.1. Local number 89-30-23ccbb1. Johnson Township Consolidated School, Barnum. Drilled unused artesian well in sandstone of Cretaceous age, diam 4 in, reported depth 208 ft, cased to bottom, perforated 203-208, measured depth 203 ft. Lsd 1,174 ft above msl. MP top of casing at lsd.* Highest water level 30.86 below lsd, July 2, 1945; lowest 52.60 below lsd, Feb. 26, 1980. Records available: 1942-45, 1947 to current year.

Dec. 7, 1981	44.60	Feb. 25, 1982	44.87	June 2, 1982	44.67	Sept. 21, 1982	44.52

*MP changed Dec. 1981.

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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