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Water Resources Data
Iowa
Water Year 2000

Volume 1. Surface Water—Mississippi River Basin

Water-Data Report IA-00-1

U.S. Department of the Interior
U.S. Geological Survey

Prepared in cooperation with the
Iowa Department of Natural Resources
(Geological Survey Bureau),
Iowa Department of Transportation, and with
Federal agencies

CALENDAR FOR WATER YEAR 2000

1999

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U.S. Department of the Interior
U.S. Geological Survey

Water Resources Data Iowa Water Year 2000

Volume 1. Surface Water—Mississippi River Basin

By G.M. Nalley, J.G. Gorman, R.D. Goodrich, V.E. Miller, M.J. Turco, and S.M. Linhart

Water-Data Report IA-00-1

Prepared in cooperation with the Iowa Department of Natural Resources (Geological Survey Bureau), Iowa Department of Transportation, and with Federal agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

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Iowa City, Iowa 52244

2001

PREFACE

This volume of the annual hydrologic data 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 local, State, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. The authors had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines.

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13. ABSTRACT *(Maximum 200 words)*
Water resources data for Iowa for the 2000 water year consists of records of stage, discharge, and water quality of streams; stage, and/or contents of lakes and reservoirs; ground water levels and water quality of ground-water wells. This report volume contains discharge records for 90 gaging stations; stage or contents for 6 lakes and reservoirs and 6 streams; water quality for 1 stream-gaging station; sediment records for 9 stream-gaging stations; and precipitation record for 7 precipitation stations. Also included are data for 61 crest-stage partial record stations. Additional water data were collected at various sites, but are not part of the systematic data collection program and are published as miscellaneous discharge and miscellaneous water-quality analyses.

14. SUBJECT TERMS
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[Letter after station name designates types of data: (d) discharge, (c) chemical, (p) precipitation, (s) sediment, (t) temperature, (e) elevations, gage heights, or contents]

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DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

The following continuous-record surface-water discharge or stage-only stations (gaging stations) in Iowa have been discontinued. Daily streamflow or stage records were collected and published for the period of record, expressed in water years, shown for each station. Discontinued project stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back side of the title page of this report.

[(d), discharge station; (e), elevation (stage only) station; *, currently operated as crest-stage partial-record station]

Station name	Station number	Drainage area (mi^2)	Period of record
Upper Iowa River near Decorah, Ia. (d)	05388000	568	1913-14; 1919-27, 1933-51
Paint Creek at Waterville, Ia. (d)	05388500	42.8	1952-73
Yellow River at Ion, Ia. (d)	05389000	221	1934-51
Turkey River at Spillville, Ia. (d)	05411600	177	1957-73; 1978-91
Big Springs near Elkader, Ia. (d)	05411950	103	1938; 1982-83; 1988-95
Turkey River at Elkader, Ia. (d)	05412000	891	1932-42
Unnamed Creek near Luana, Ia. (d)	05412056	1.15	1986-92
Silver Creek near Luana, Ia (d)	05412060	4.39	1986-98
Little Maquoketa River near Durango, Ia. (d)	05414500*	130	1934-82
Maquoketa River near Manchester, Ia. (d)	05417000	305	1933-73
Maquoketa River near Delhi, Ia. (d)	05417500	347	1933-40
Bear Creek near Monmouth, Ia. (d)	05417700	61.3	1957-76
Maquoketa River above North Fork Maquoketa River near Maquoketa, Ia. (d)	05418000	938	1913-14
North Fork Maquoketa River at Fulton, Ia. (d)	05418450	516	1977-91
Elk River near Almont, Ia. (d)	05420300	55.9	1995-97
Wapsipinicon River near Elma, Ia. (d)	05420560	95.2	1958-92
Wapsipinicon River at Stone City, Ia. (d)	05421500	1,324	1903-14
Crow Creek at Eldridge, Ia. (d)	05422420	2.20	1977-82
Crow Creek at Mt. Joy, Ia. (d)	05422450	6.90	1977-82
Pine Creek near Muscatine, Ia. (d)	05448150	38.9	1975-82
Eagle Lake Inlet near Britt, Ia. (e)	05448285	3.83	1975-80
Eagle Lake Outlet near Britt, Ia. (e)	05448290	11.3	1975-80
West Branch (West Fork) Iowa River near Klemme, Ia. (d)	05448500	112	1948-58
East Branch (East Fork) Iowa River near Klemme, Ia. (d)	05449000	133	1948-76; 1977-95
Iowa River near Iowa Falls, Ia. (d)	05450000	665	1911-14
Upper Pine Lake at Eldora, Ia. (e)	05450500	14.9	1936-70
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Iowa River near Belle Plaine, Ia. (d)	05452500	2,455	1939-59
Lake Macbride near Solon, Ia. (e)	05453500	27.0	1937-71
Ralston Creek at Iowa City, Ia. (d)	05455000	3.01	1924-87
Cedar River at Mitchell, Ia. (d)	05457500	826	1933-42
Shell Rock River near Northwood, Ia. (d)	05459000	300	1945-86
Shell Rock River at Marble Rock, Ia. (d)	05460500	1,318	1933-53
Shell Rock River at Greene, Ia. (d)	05461000	1,357	1933-42
Flood Creek near Powersville, Ia (d)	05461390	127	1996-98
Shell Rock River near Clarksville, Ia. (d)	05461500	1,626	1915-27; 1932-34
Black Hawk Creek at Hudson, Ia. (d)	05463500	303	1952-95
Fourmile Creek near Lincoln, Ia. (d)	05464130	13.8	1962-67; 1969-74; 1976-80
Half Mile Creek near Gladbrook, Ia. (d)	05464133	1.33	1962-67; 1969-74; 1976-80
Fourmile Creek near Traer, Ia. (d)	05464137	19.5	1962-74; 1975-80
Wolf Creek near Dysart, Ia (d)	05464220	299	1996-98
Prairie Creek at Fairfax, Ia. (d)	05464640	178	1966-82
Lake Keomah near Oskaloosa, Ia. (e)	05472000	3.06	1936-71
Skunk River at Coppock, Ia. (d)	05473000	2,916	1913-44
Big Creek near Mount Pleasant, Ia. (d)	05473500	106	1955-79

DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS—Continued

Station name	Station number	Drainage area (mi^2)	Period of record
Des Moines River at Estherville (d)	05476500*	1,372	1951-95
East Fork Des Moines River near Burt, Ia. (d)	05478000	462	1951-74
Des Moines River near Fort Dodge, Ia. (d)	05479500	3,753	1911-13
Lizard Creek near Clare, Ia. (d)	05480000	257	1940-82
Des Moines River near Boone, Ia. (d)	05481500	5,511	1920-68
North Raccoon River near Newell, Ia. (d)	05482135*	233	1982-95
Storm Lake at Storm Lake, Ia. (e)	05482140	28.3	1970-75
Big Cedar Creek near Varina, Ia. (d)	05482170	80.0	1960-91
East Fork Hardin Creek near Churdan, Ia. (d)	05483000	24.0	1953-91
Hazelbrush Creek near Maple River, Ia. (d)	05483343	9.22	1990-94
Springbrook Lake near Guthrie Center, Ia. (e)	05483460	5.18	1936-71
Raccoon River at Des Moines, Ia. (e)	05485000	3,628	1902-03
Lake Ahquabi near Indianola, Ia. (e)	05487000	4.93	1936-71
White Breast Creek near Knoxville, Ia. (d)	05488000	380	1945-62
Muchakinock Creek near Eddyville, Ia. (d)	05489190	70.2	1975-79
Lake Wapello near Drakesville, Ia. (e)	05490000	7.75	1936-71
Sugar Creek near Keokuk, Ia. (d)	05491000	105	1922-31; 1958-73
Fox River at Cantril, Ia. (d)	05494500	161	1940-51
Rock River at Rock Rapids, Ia. (d)	06483270	788	1959-74
Dry Creek at Hawarden, Ia. (d)	06484000	48.4	1948-69
West Branch Floyd River near Struble, Ia. (d)	06600300*	108	1955-95
Monona-Harrison Ditch near Blencoe, IA (d)	06602410	4,440	1939-42
Loon Creek near Orleans, Ia. (d)	06603920	31.0	1971-74
Spirit Lake Outlet at Orleans, Ia. (e)	06604100	75.6	1971-74
Milford Creek at Milford, Ia. (d)	06604400	146	1971-74
Little Sioux River at Spencer, Ia. (d)	06605100	990	1936-42
Little Sioux River at Gillett Grove, Ia. (d)	06605600	1,334	1958-73
Little Sioux River near Kennebeck, Ia. (d)	06606700	2,738	1939-69
Odebolt Creek near Arthur, Ia. (d)	06607000	39.3	1957-75
Maple River at Turin, Ia. (d)	06607300	725	1939-41
Little Sioux River near Blencoe, Ia. (d)	06607510	4,440	1939-42
Steer Creek near Magnolia, Ia. (d)	06609200	9.26	1963-69
Thompson Creek near Woodbine, Ia. (d)	06609590	6.97	1963-69
Willow Creek near Logan, Ia. (d)	06609600	129	1972-75
Indian Creek at Council Bluffs, Ia. (d)	06610500	6.92	1954-76
Mosquito Creek near Earling, Ia. (d)	06610520	32.0	1965-79
Waubonsie Creek near Bartlett, Ia. (d)	06806000	30.4	1946-69
West Nishnabotna River at Harlan, Ia. (d)	06807320	316	1977-82
West Nishnabotna River at (near) White Cloud, Ia. (d)	06807500	967	1918-24
Mule Creek near Malvern, Ia. (d)	06808000	10.6	1954-69
Spring Valley Creek near Tabor, Ia. (d)	06808200	7.6	1955-64
Davids Creek near Hamlin, Ia. (d)	06809000	26.0	1952-73
Tarkio River at Stanton, Ia. (d)	06811840*	49.3	1958-91
Tarkio River at Blanchard, Ia. (d)	06812000	200	1934-40
West Nodaway River at Villisca, Ia. (d)	06816500	342	1918-25
Platte River near Diagonal, Ia. (d)	06818750*	217	1969-91
East Fork One Hundred and Two River near Bedford, Ia. (d)	06819190	92.1	1959-83
Elk River near Decatur City, Ia. (d)	06897950*	52.5	1968-94
Weldon River near Leon, Ia. (d)	06898400	104	1959-91
Honey Creek near Russell, Ia. (d)	06903500	13.2	1952-62
Chariton River near Centerville, Ia. (d)	06904000	708	1938-59

DISCONTINUED SURFACE-WATER-QUALITY STATIONS

The following water-quality stations have been discontinued in Iowa. Continuous daily records of water temperature, specific conductance, or sediment and monthly or periodic samples of chemical quality or biological data were collected and published for the period of record shown for each station.

[Type of record: Chem.–chemical quality, Cond.–specific conductance, Temp.–water temperature, Sed.–sediment, Bio.–biological; *, periodic data available subsequent to period of daily record]

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record
Upper Iowa River at Decorah, Ia.	05387500	511	Sed. Temp.	1963-68 1963-83
Upper Iowa River near Dorchester, Ia.	05388250	770	Sed., Temp.*, Cond.*	1975-81
Paint Creek at Waterville, Ia.	05388500	42.8	Temp. Sed.	1952-56 1952-57
Unnamed Creek near Luana	05412070	1.15	Chem.	1986-92
Turkey River at Garber, Ia.	05412500	1,545	Temp.*, Sed.*	1957-62
Mississippi River at Dubuque, Ia.	05414700	81,600	Chem.	1969-73
Maquoketa River near Maquoketa, Ia	05418500	1,553	Sed., Temp., Cond.	1978-82; 1995-97
Elk River near Almont, Ia	05420300	55.9	Sed., Temp., Cond.	1995-97
Mississippi River at Clinton, Ia	05420500	85,600	Sed.	1995-97
Wapsipinicon River near Tripoli, Ia	05420860	343	Chem.	1996-98
Wapsipinicon River at Independence, Ia.	05421000	1,048	Cond.* Temp.*, Sed.*	1968-70 1967-70
Crow Creek at Bettendorf, Ia.	05422470	17.8	Cond.*, Temp.*, Sed.	1978-82
Iowa River near Rowan, Ia.	05449500	429	Temp.*, Sed.* Chem.	1957-62 1996-98
Iowa River at Marshalltown, Ia	05451500	1,532	Temp., Sed.	1988-95
Iowa River at Iowa City, Ia.	05454500	3,271	Chem.. Temp.*, Sed. Cond.	1906-07; 1944-54 1944-87 1968-87
Ralston Creek at Iowa City, Ia.	05455000	3.01	Cond Sed. Temp.	1968-87 1952-87 1967-87
Flood Creek near Powersville, Ia	05461390	127	Chem.	1996-98
Shell Rock River at Shell Rock, Ia.	05462000	1,746	Temp.*	1953-68
Cedar River at Cedar Falls, Ia	05463050	4,734	Chem.	1975-79; 1984; 1986-1995
Cedar River near (at) Gilbertville, Ia.	05464020	5,234	Chem.	1971; 1975-81
Fourmile Creek near Lincoln, Ia.	05464130	13.78	Chem., Temp., Sed.	1969-74
Half Mile Creek near Gladbrook, Ia.	05464133	1.33	Chem., Temp., Sed.	1969-74
Fourmile Creek near Traer, Ia.	05464137	19.51	Chem., Temp., Sed.	1969-74
Wolf Creek near Dysart, Ia	05464220	299	Chem.	1996-98
Cedar River near Palo, Ia.	05464450	6,380	Chem.	1975-79
Cedar River at Cedar Rapids, Ia.	05464500	6,510	Chem.* Temp.* Sed.	1906-07; 1944-54 1944-54 1943-54
Cedar River near Bertram, Ia.	05464760	6,955	Chem.	1975-81
Iowa River at Wapello, Ia	05465500	12, 499	Chem.	1977-95
Mississippi River at Burlington, Ia.	05469720	114,000	Chem.	1969-73
South Skunk River at Colfax, Ia	05471050	803	Cond.*, Temp.*, Sed.	1989-93
Skunk River at Augusta, Ia	05474000	4,303	Chem.	1977-95
Mississippi River at Keokuk, Ia.	05474500	119,000	Chem.	1974-87
Des Moines River at Fort Dodge, Ia.	05480500	4,190	Chem.	1972-73
Des Moines River at 2nd Avenue at Des Moines, Ia.	05482000	6,245	Chem. Temp.*, Sed.	1954-55 1954-61
East Fork Hardin Creek near Churdan, Ia.	05483000	24.0	Temp.*, Sed.*	1952-57
Hazelbrush Creek near Maple River, Ia	05483343	9.22	Cond., Temp., Sed.	1991-94
Middle Raccoon River near Bayard, Ia.	05483450	375	Cond.*, Temp.*, Sed.	1979-85
Middle Raccoon River at Panora, Ia.	05483600	440	Cond.*, Temp.*, Sed.	1979-85

DISCONTINUED SURFACE-WATER-QUALITY STATIONS—Continued

Station name	Station number	Drainage area (mi^2)	Type of record	Period of record
Raccoon River at Van Meter, Ia	05484500	3,441	Chem. Bio.	1974-79; 1986-94 1974-79
Raccoon River at Des Moines, Ia.	05485000	3,590	Chem., Temp.	1945-47
Des Moines River below Raccoon River at Des Moines, Ia.	05485500	9,879	Chem.* Temp.*, Sed.	1944-45 1944-47
Des Moines River below Des Moines, Ia.	05485520	9,901	Chem.	1971; 1974-81
Middle River near Indianola, Ia.	05486490	503	Temp.*, Sed.	1962-67
White Breast Creek near Dallas, Ia.	05487980	342	Chem. Temp.*, Sed.	1969-73 1967-73
Big Sioux River at Sioux City, Ia.	06485950	9,410	Chem.	1969-73
Missouri River at Sioux City, Ia.	06486000	314,600	Chem.	1972-86
Floyd River at James, Ia.	06600500	886	Temp.*, Sed., Cond.*	1968-73
Floyd River at Sioux City, Ia.	06600520	921	Chem.	1969-73
Missouri River at Decatur, Neb.	06601200	316,160	Chem.	1974-81
Spirit Lake near Orleans, Ia.	06604000	75.6	Temp.	1968-75
Little Sioux River at Correctionville, Ia.	06606600	2,500	Chem.* Temp.* Sed.	1954-55 1951-62 1950-62
Little Sioux River near Kennebec, Ia.	06606700	2,738	Temp. Sed.	1951-55 1950-57
Little Sioux River at River Sioux, Ia.	06607513	3,600	Chem.	1969-73
Soldier River near Mondamin, Ia.	06608505	440	Chem.	1970-73
Steer Creek near Magnolia, Ia.	06609200	9.26	Temp., Sed., Cond.	1963-69
Thompson Creek near Woodbine, Ia.	06609590	6.97	Temp., Sed., Cond.	1963-69
Willow Creek near Logan, Ia.	06609600	129	Cond., Temp. Sed.	1972-75 1971-75
Missouri River at Omaha, Nebr.	06610000	322,800	Cond.*	1969-86
Mule Creek near Malvern, Ia.	06808000	10.6	Temp. Sed.	1958-69 1954-69
Davids Creek near Hamlin, Ia.	06809000	26.0	Temp.* Sed.	1952-53; 1965-68 1952-68
East Nishnabotna River at Red Oak, Ia.	06809500	894	Temp.*, Sed., Cond.*	1962-73
Nishnabotna River above Hamburg, Ia.	06810000	2,806	Chem. Temp.*, Cond. Bio.	1979-93 1979-81 1979-81
Nodaway River at Clarinda	06817000	762	Cond.*, Temp.*, Sed.	1976-92
Platte River near Diagonal, Ia.	06818750	217	Chem.	1969-73
Elk Creek near Decatur City, Ia.	06897950	52.5	Bio. Chem.	1970-72 1968-94
Thompson River at Davis City, Ia.	06898000	701	Chem. Temp.*, Sed., Cond.*	1967-73 1968-73
Weldon River near Leon, Ia.	06898400	104	Chem.	1968-73
Chariton River near Chariton, Ia.	06903400	182	Temp.*, Sed., Cond.*	1969-73
Honey Creek near Russell, Ia.	06903500	13.2	Sed.	1952-62
Chariton River near Rathbun, Ia.	06903900	549	Temp.*, Sed.*, Cond.*	1962-69

INTRODUCTION

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

Water resources data for water year 2000 for Iowa consists of records of stage, discharge, and water quality of streams; stage and contents of lakes and reservoirs; and water levels and water quality of ground water. This report, in two volumes, contains stage or discharge records for 126 gaging stations; stage or contents records for 9 lakes and reservoirs; water-quality records for 4 gaging stations; sediment records for 12 gaging stations; and water levels for 167 ground-water observation wells. Also included are peak-flow data for 93 crest-stage partial-record stations, water-quality data from 45 municipal wells, and precipitation data collected at 6 gaging stations and 2 precipitation sites. Additional water data were collected at various sites not included in the systematic data-collection program, and are published here 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 local, State, and Federal agencies in Iowa.

Records of discharge or 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 published in an annual series; during 1961-65 and 1966-70, they were published in 5-year series. 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 they may be purchased from Books and Open-File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225.

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 or in conjunction with streamflow records.

Beginning with the 1971 water year, water data for streamflow, water quality, and ground water is published in official U.S. Geological Survey reports on a State-boundary basis. These official reports carry an identification number consisting of the two-letter State postal 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-00-1." These water-data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

Additional information 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 agreements with the U.S. Geological Survey in Iowa during water year 2000 are:

Iowa Department of Natural Resources (Geological Survey Bureau)
Iowa Department of Transportation
Iowa Highway Research Board

Iowa State University
University of Iowa, Institute of Hydraulic Research
University of Iowa, Hygienic Laboratory
University of Iowa

Appanoose County Board of Supervisors
Buchanan County emergency Management
Davis County Board of Supervisors
Freemont County Board of Supervisors
Lake Delhi Recreation Association
Limestone Bluffs RC&d
Van Buren County Board of Supervisors

City of Ames
City of Bloomfield
City of Cedar Rapids
City of Clear Lake
City of Coralville
City of Decorah Water Department
City of Des Moines Water Works
City of Iowa City
City of Milford
City of Ottumwa Water and Hydro Plant
City of Waterloo Water Pollution Control Plant
City of Bettendorf
City of Burlington
City of Charles City
City of Clinton
City of Davenport
City of Des Moines
City of Fort Dodge
City of Marshalltown
City of Mt. Pleasant
City of Sioux City
City of West Des Moines

Assistance in the form of funds or services was given by the U.S. Army Corps of Engineers in collecting streamflow records for 72 stream gaging stations. Assistance also was furnished by NOAA-National Weather Service, U.S. Department of Commerce, and Biological Resources Division (BRD) of U.S. Geological Survey.

The following organizations aided in collecting records: Milford Municipal Utilities, Central Iowa Energy Cooperative, Union Electric Company.

Organizations that supplied data are acknowledged in the station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

For water year 2000 (October 1, 1999 to September 30, 2000) climatological conditions were drier than normal and warmer than normal. Recorded precipitation for the year ranged from 11.62 inches below normal in the West-central Iowa Climatological District to 0.69 inches greater than normal in the Northeast Iowa Climatological District (fig. 1). Precipitation recorded for the State averaged 27.16 inches, which was 5.95 inches below normal, or 82 percent of the normal 33.11 inches for 1961-90 (table 1). Overall, water year 2000 was the 21st driest and the 6th warmest for 127 years of record. [In this summary of hydrologic conditions, all data and statistics pertaining to precipitation and temperature in Iowa were provided by Harry Hillaker, State Climatologist, Iowa Department of Agriculture and Land Stewardship, (oral and written commun., 2000)]

October was the 10th driest in 127 years of record. Statewide average precipitation was 2.53 inches, which was 31 percent of normal. Climatological Districts reported below average precipitation, ranging from 15 percent of normal in the Central and Southwest Districts to 43 percent of normal in the North Central and Southeast Districts. For the three index surface-water stations in Iowa, mean monthly discharge for 05464500 Cedar River at Cedar Rapids (East-central District), 05480500

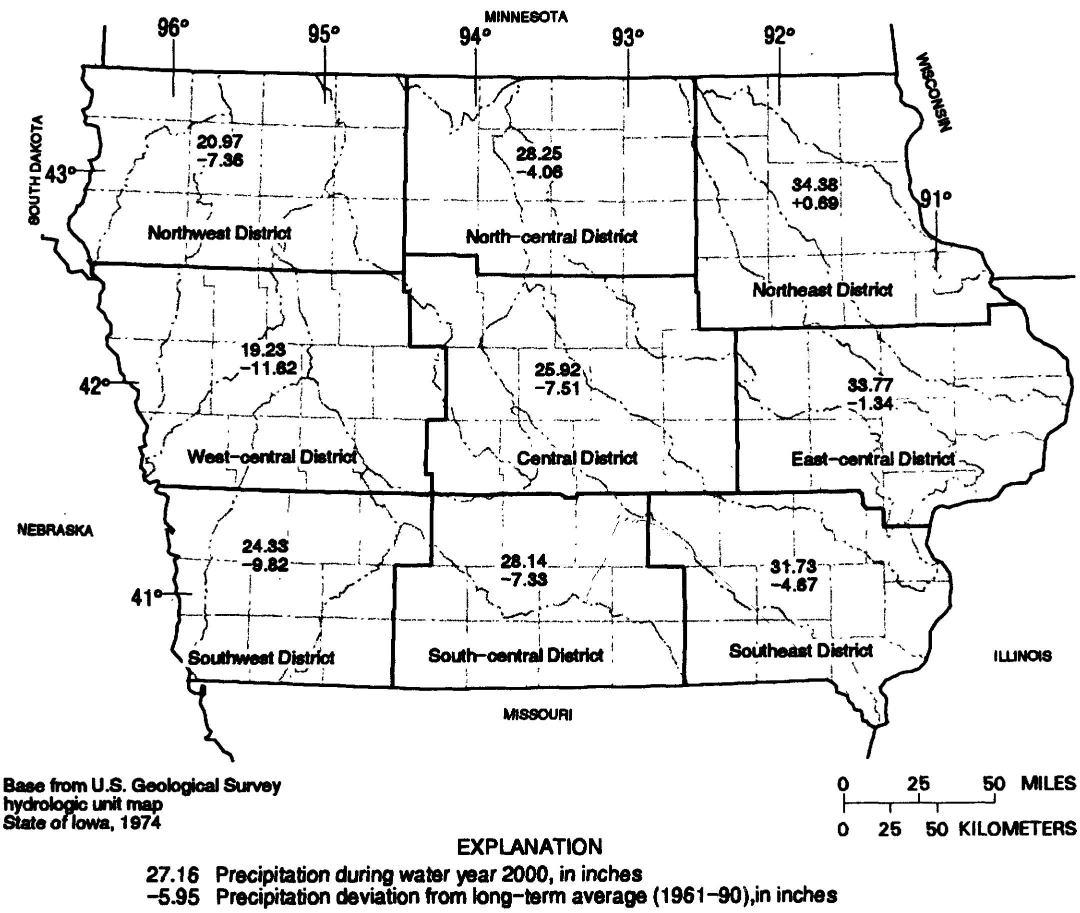

Figure 1. Precipitation record for the National Weather Service's designated Climatological Districts for water year 2000 (source: Harry Hillaker, State Climatologist, Iowa Department of Agriculture and Land Stewardship, written commun., 2000).

Table 1. Monthly and annual precipitation during the 2000 water year as a percentage of normal precipitation (1961-90).
[Source: Harry Hillaker, State Climatologist, Iowa Department of Agriculture and Land Stewardship, written commun., 2000]

National Weather Service Climatological District	1999			2000									
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Annual
Northwest	38	27	41	121	168	54	61	119	81	84	93	26	74
North-central	43	46	56	113	128	68	65	108	151	113	79	37	87
Northeast	39	77	54	113	99	51	83	143	216	92	99	62	102
West-central	19	67	78	70	169	53	49	61	99	82	45	29	62
Central	15	66	43	89	133	41	46	100	136	118	58	44	78
East-central	42	50	64	100	165	40	107	111	175	101	57	111	96
Southwest	15	66	47	27	182	50	55	46	139	135	47	33	71
South-central	30	74	48	55	159	31	55	46	189	87	76	72	79
Southeast	43	26	90	98	173	40	75	76	208	97	46	91	87
Statewide	31	56	59	88	150	47	66	90	152	101	67	56	82

Des Moines River at Fort Dodge (Central District), and 06810000 Nishnabotna River above Hamburg (Southwest District) was in the normal range (fig. 2). For the remainder of this section, these stations will be referred to as "Cedar Rapids," "Fort Dodge," and "Hamburg," respectively. The location of all active continuous-record gaging stations in Iowa is shown in figure 3, and the location of all active crest-stage gaging stations is shown in figure 4.

November of this water year was the warmest reported for 127 years of record while precipitation statewide was 56 percent of normal. Climatological District reports ranged from 26 percent of normal in the Southeast District to 77 percent of normal in the Northeast District. Mean monthly discharge at Cedar Rapids and Hamburg was normal while discharge at Fort Dodge was below the normal range.

December precipitation was 59 percent of normal at 0.75 inches with all Climatological Districts reporting precipitation below normal. Average snowfall for the month was 6.2 inches. Cedar Rapids, Fort Dodge, and Hamburg index stations all experienced normal mean monthly discharge.

Precipitation increased slightly during January, averaging 88 percent of normal, with total precipitation of 0.76 inches. Precipitation ranged from 27 percent of normal in the Southwest Climatological District to 121 percent of normal in the Northwest District. Snowfall for the month was 8.3 inches which was 1.5 inches above normal. Index stations at Cedar Rapids, Fort Dodge, and Hamburg reported mean daily discharge in the normal range for the month.

Above average precipitation was experienced during February with the average precipitation of 1.38 inches being 150 percent of normal. Average precipitation was 99 percent of normal in the Northeast District and 182 percent of normal in the Southwest Climatological District. Snowfall for the month was 6.4 inches while above average temperatures made this the 10th warmest February for 128 years of record. Normal monthly mean discharge was experienced at Cedar Rapids, Fort Dodge, and Hamburg.

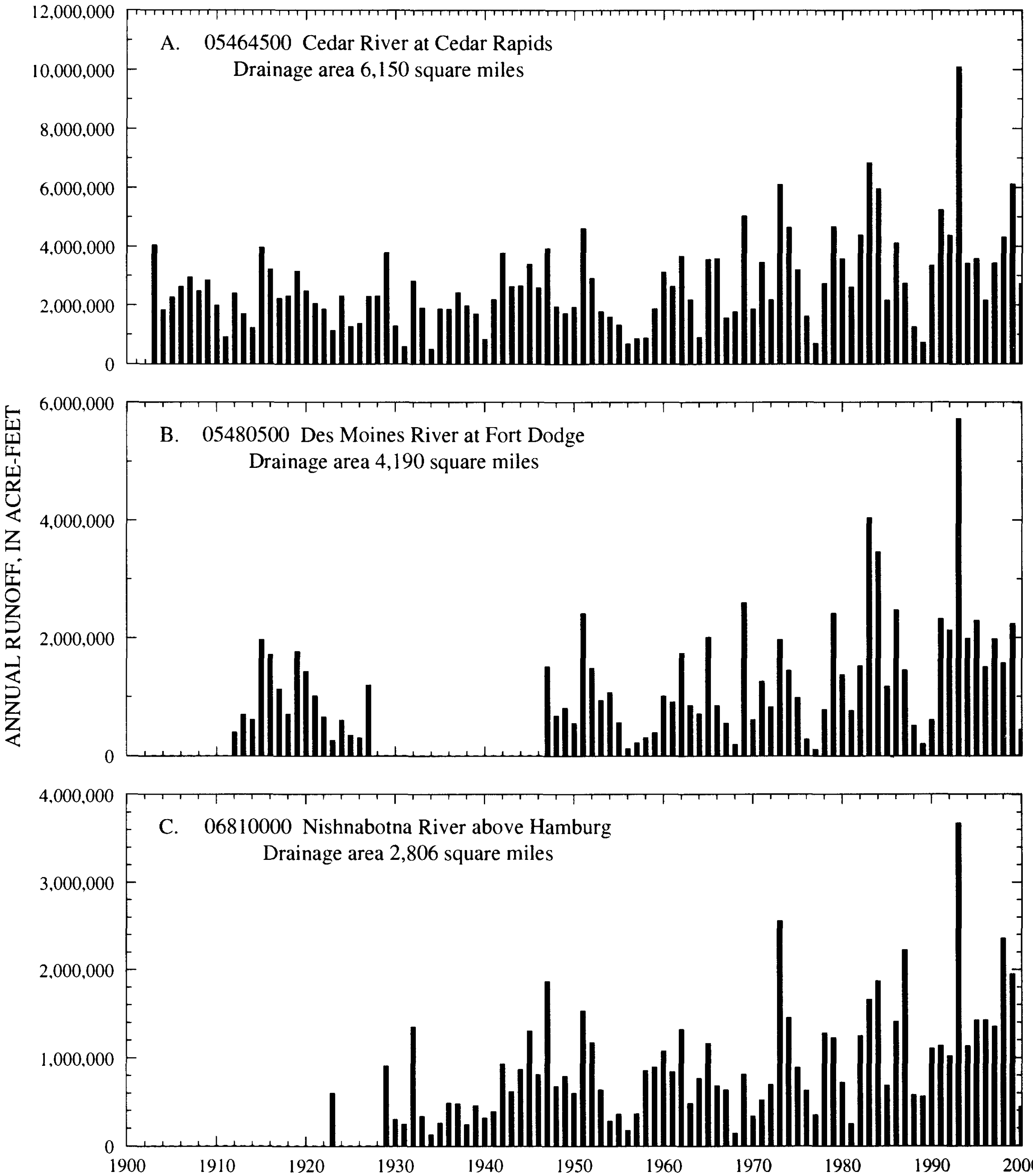

Figure 2. Annual runoff for period of record at index stations.

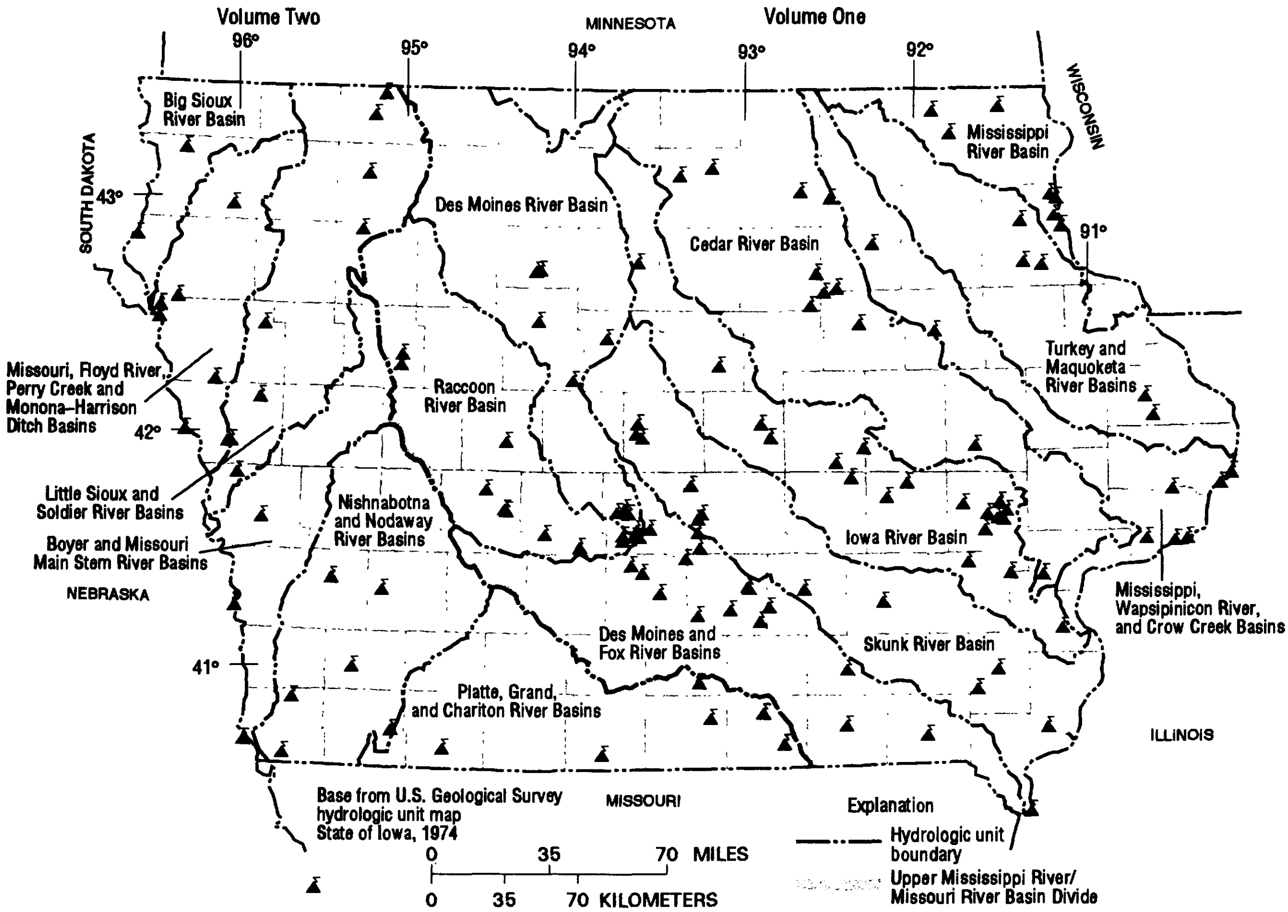

Figure 3. Location of active continuous-record gaging stations in Iowa, water year 2000. [See drainage basin maps in indicated volume for gaging-station identification.]

Temperatures for March averaged 43.2 degrees making this the 7th warmest March in 128 years of record. Precipitation was well below normal with a statewide average of 1.03 inches which was 47 percent of normal. All Climatological Districts reported precipitation below normal with a range of 31 percent of normal in the South Central District to 68 percent of normal in the North Central District. Monthly snowfall averaged 1.8 inches. Discharge at all three index stations was below normal for the month.

April precipitation remained below normal with an average statewide precipitation of 2.09 inches recorded. Precipitation ranged from 46 percent of normal in the Central District to 107 percent of normal in the East Central District. Average snowfall for the state was 2.0 inches. Mean monthly discharge for all index stations, Cedar Rapids, Fort Dodge, and Hamburg was below normal.

The statewide average precipitation for May was 3.60 inches, which was 90 percent of normal. Range of precipitation was 46 percent of normal in the Southwest and South Central Districts to 119 percent of normal in the Northwest District. Mean monthly discharge was below normal at index stations Cedar Rapids, Fort Dodge, and Hamburg.

During June, statewide average precipitation was above normal, averaging 6.71 inches or 152 percent of normal. Differences for Climatological Districts were 81 percent of normal in the Northwest District to 216 percent of normal in the Northeast District. All index stations were in the below normal range for the fouth consecutive month.

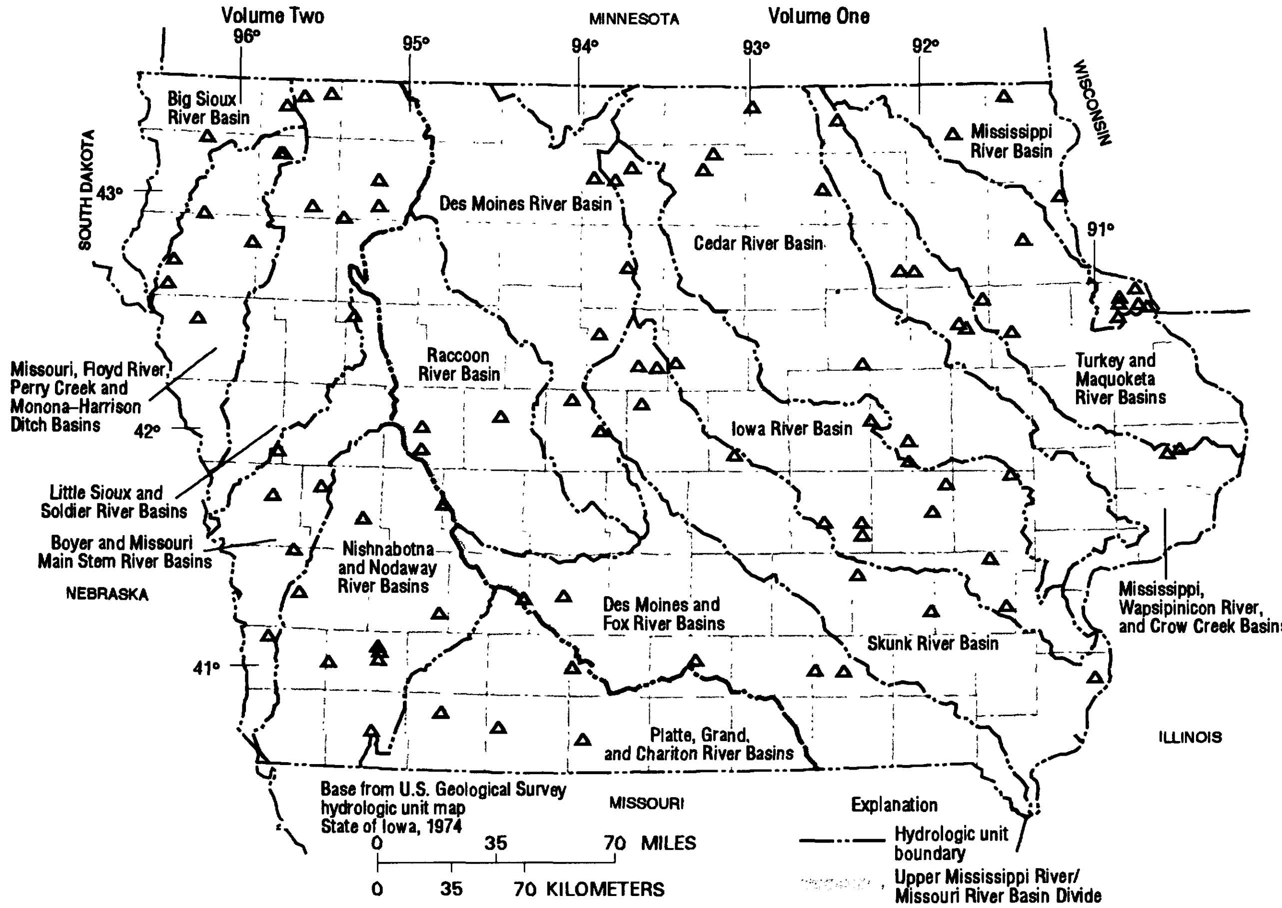

Figure 4. Location of active crest-stage gaging stations in Iowa, water year 2000. [See drainage basin maps in indicated volume for gaging-station identification.]

Total July statewide precipitation averaged 4.18 inches or 101 percent of nomal. Range of precipitation was 82 percent of normal in the West Central District and 135 percent of normal in the Southwest District. Index stations at Cedar Rapids and Fort Dodge reported above normal mean monthly discharge while mean monthly discharge for Hamburg remained below normal for the month.

For August statewide average precipitation was below normal. Total precipitaion of 2.72 inches was reported which was 67 percent of normal. For the month, the West Central Climatological District reported monthly mean precipitation 45 percent of normal while precipitation was 99 percent of normal in the Northeast District. Mean monthly discharge at index stations Cedar Rapids and Fort Dodge was normal, while Hamburg experienced mean monthly discharge in the below normal range.

Dry conditions continued into September with an average statewide precipitation of 2.15 inches, which was 56 percent of normal. Climatological District precipitation ranged from 29 percent of normal in the West Central District to 111 percent of normal in the East Central District. This was the 29th driest September for 128 years of record. Normal mean monthly discharge was experienced at Cedar Rapids and Fort Dodge and in the below normal range at Hamburg .

The water-year 2000 runoff at Cedar Rapids was 2,724,000 acre-feet, which is equal to the mean annual runoff for the period of record, 2,724,000 acre-feet. The water-year 2000 runoff at Fort Dodge was 443,200 acre-feet, which is 828,800 less than the mean for the period of record, 1,272,000 acre-feet. The water-year 2000 runoff at Hamburg was 443,400 acre-feet,which is 476,400 less than the mean for the period of record, 919,800 acre-feet.

Suspended Sediment

Daily suspended-sediment discharge data (hereafter referred to as sediment discharge in this report) were collected at 12 streamflow-gaging stations in Iowa during the 2000 water year. Four stations have 22 years or more of record: 05389500 Mississippi River at McGregor, 05465500 Iowa River at Wapello, 05474000 Skunk River at Augusta, and 05481650 Des Moines River near Saylorville; three stations on the Missouri River have 14 years of record: 06486000 Missouri River at Sioux City, Iowa, 06610000 Missouri River at Omaha, Nebraska, and 06807000 Missouri River at Nebraska City, Nebraska; two stations in northeast Iowa have 9 years of record: 05389400 Bloody Run Creek near Marquette and 05411400 Sny Magill Creek near Clayton; and three stations in central Iowa have 5 years of record: 05471040 Squaw Creek near Colfax, 05487540 Walnut Creek near Prairie City, and 05487550 Walnut Creek near Vandalia. The locations of active sediment and surface water-quality stations are shown in figure 5.

The peak daily sediment discharge on 6 of 12 stations occurred between June 13-27, after a significant rain event. Three others peaked May 31.

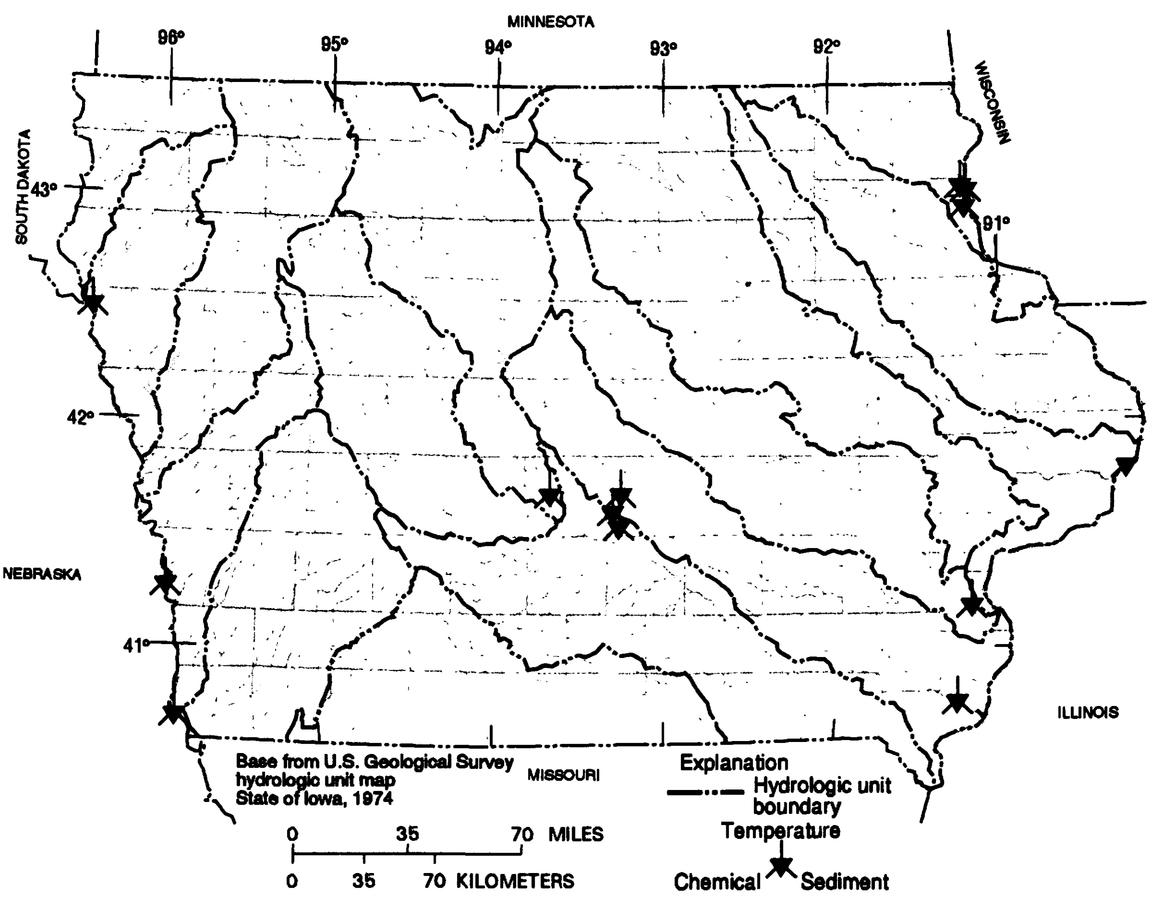

Figure 5. Location of active sediment and surface-water quality stations in Iowa, water year 2000.

Mississippi River at McGregor, which has most of its drainage basin in Minnesota and Wisconsin, had an annual sediment discharge of 799,000 tons, which was the fourth lowest sediment discharge in 25 years of record, and 47.5 percent of the average mean sediment discharge (fig. 6).

The sediment station on the Des Moines River near Saylorville in central Iowa is downstream from a major flood-control reservoir (Saylorville Reservoir). The annual sediment discharge at this station for water year 2000 was 27,760 tons. This represents 11.3 percent of the 23-year mean sediment discharge. The mean annual sediment discharge since dam completion is 246,000 tons (fig. 6).

Sediment discharges for Iowa River at Wapello and Skunk River at Augusta in southeast Iowa were indicative of the below-normal precipitation in central and eastern Iowa. The Iowa River basin drainage includes parts of the Southeast, East-central, Central, Northeast, and North-central Climatological Districts, and drains an area nearly three times as large as the Skunk Basin. These districts had about 85 percent of normal precipitation. Wapello had an annual sediment discharge of 1.32 million tons. This represents 48.9 percent of the 22-year mean sediment discharge of 2.71 million tons (fig. 6). The headwaters of the Skunk River basin are in central Iowa and flow is southeasterly to the confluence with the Mississippi River. A substantial part of the drainage basin is located in the Southeast Climatological District. The annual precipitation for this district was 79 percent of normal for water year 2000. The 2000 annual sediment discharge for Skunk River at Augusta was 787,000 tons, which is 28.6 percent of the 25-year mean sediment discharge of 2.75 million tons (fig. 6).

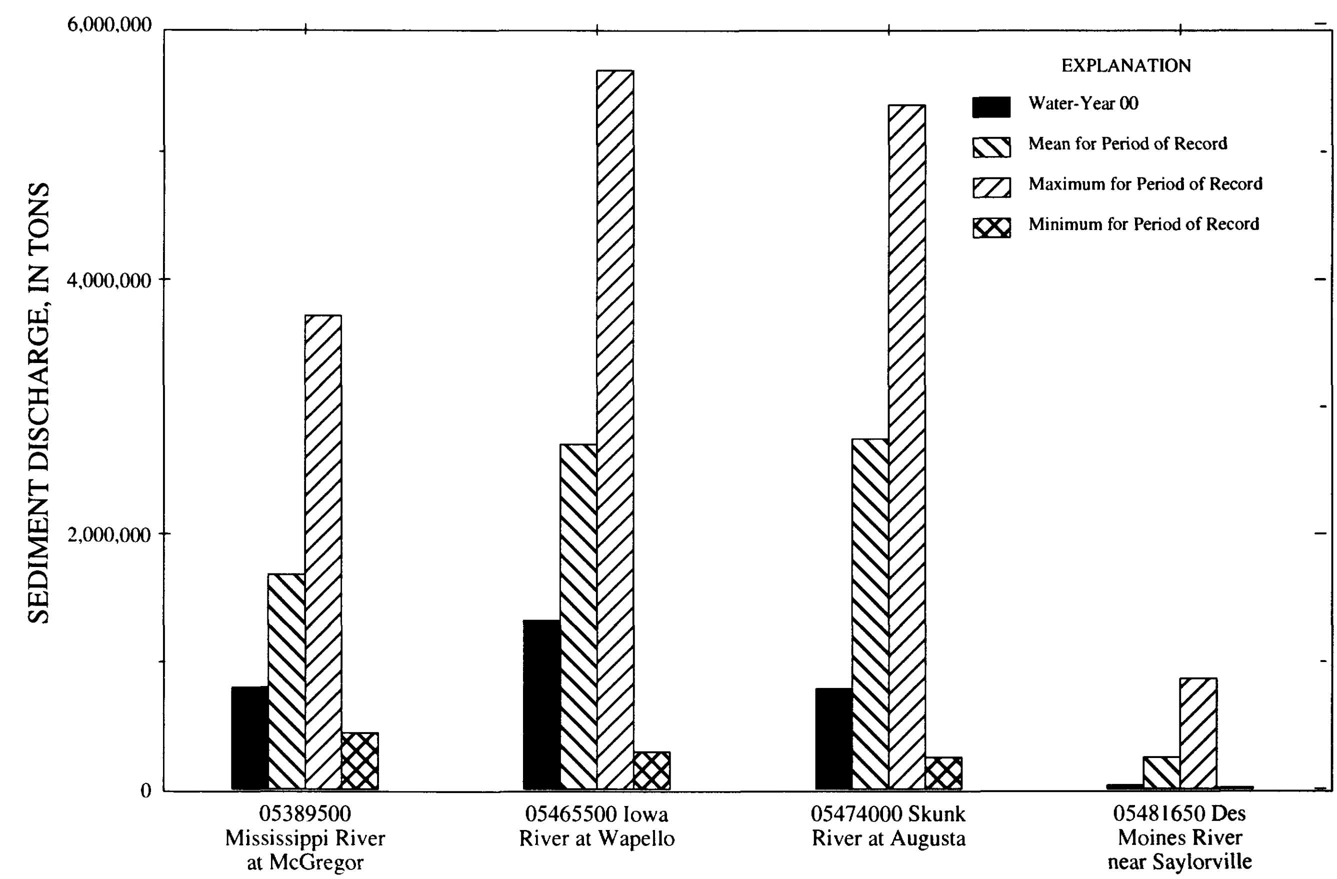

Figure 6. Comparison of annual sediment discharge for water year 2000 with mean, previous maximum, and previous minimum annual sediment discharges for periods of record at four long-term daily sediment stations in Iowa.

The 2000 annual sediment discharge for the two small drainage area stations located in northeast Iowa reflect the effect of precipitation patterns on small drainage basins. The annual sediment discharge for Bloody Run Creek near Marquette (05489400) was 1,536 tons, of which approximately 55.4 percent was measured during the month of February. The annual runoff was 35.1 percent of the 9-year mean sediment discharge of 4,372 tons. The annual sediment discharge for Sny Magill Creek near Clayton (05411400) was 2,443 tons. This runoff represents 51.2 percent of the 9-year mean sediment discharge of 4,771 tons. Forty-two percent of Sny Magill's annual sediment discharge was measured in February, and approximately 39 percent of the yearly total was measured on February 23. These stations are paired in a study on sediment-reduction techniques, with the Sny Magill Basin having the techniques implemented and the Bloody Run Basin not implemented.

The annual sediment discharge for the three stations located in central Iowa with less than approximately 20 square miles of drainage reflect precipitation patterns on small drainage basins. The 2000 sediment discharge for Squaw Creek near Colfax (05471040) was 9,361 tons. Eighty percent of Squaw Creek's annual sediment discharge was measured on May 30. The 2000 sediment discharge for Walnut Creek near Prairie City (05487540) was 678 tons, while Walnut Creek near Vandalia (05487550) was 2,903 tons of annual sediment discharge. Vandalia has a drainage area approximately three times the size of Prairie City, but had about 4.3 times the amount of sediment discharge of Prairie City.

The three Missouri River stations (fig. 5) have large drainage areas, which the sediment discharges reflect. The annual sediment discharge at Sioux City was 6.97 million tons, which was 56.4 percent of the 14-year mean of 12.4 million tons. The sediment discharge at Omaha was 9.75 million tons, which was 45 percent of the 14-year mean of 21.6 million tons. The annual sediment discharge at Nebraska City was 14.2 million tons, which was 42 percent of the 14-year mean of 33.6 million tons.

Ground-Water-Level Observation Network

The ground-water monitoring network in Iowa provides a historical record of the water-level changes in the Nation's most important aquifers. The locations of the 167 wells monitored on a quarterly, monthly, or intermittent basis in Iowa during water year 2000 are shown in figure 7.

In this report, records of water levels are presented for a network of observation wells. However, many other water levels are measured through Federal, State, and local agency cooperative projects and entered into computer storage. Information for specific projects may be obtained from the District Chief, Iowa District, or via the world wide web using the following universal resource locator address: <URL:http://iowa.usgs.gov/>.

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

Tables of water-level data are presented by counties arranged in alphabetical order. The principal identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well.

Water-level records are obtained from direct measurements with a steel tape or from an airline. The water-level measurements in this report are given in feet with reference to land-surface datum. Land-surface datum is a datum plane that is approximately at land surface at each well. The measuring point is the height above or below the land-surface datum and the point where the water level is measured. Both the measuring point and land-surface datum are provided for each well.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement to a depth of water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining 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 reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

Ground-water supplies in Iowa are withdrawn from unconsolidated and bedrock aquifers. There are three types of unconsolidated aquifers: (1) alluvial aquifers, which consist of sand-and-gravel deposits associated with present-day fluvial systems; (2) glacial-drift aquifers, which consist of shallow, discontinuous, permeable lenses of sand and gravel interbedded with less-permeable glacial drift; and (3) buried-channel aquifers. Buried-channel aquifers are formed in areas where coarse sand and gravel were deposited in bedrock valleys and overlain by a thick layer of glacial drift.

Six wells completed in an unconsolidated aquifer recorded a new historical water level during the 2000 water year. One well recorded a high historical water level (table 2). Five wells recorded low historical water levels (table 3).

Table 2. Historical high water level measured during the 2000 water year in a well completed in an unconsolidated aquifer.
[Water-level measurements are in feet below land surface]

County	Well number	Aquifer type	New historical high water level	Date measured	Previous historical high water level	Date measured
Pottawattamie	411359095171901	Buried Channel	122.74	05/11/2000	123.19	08/11/1999

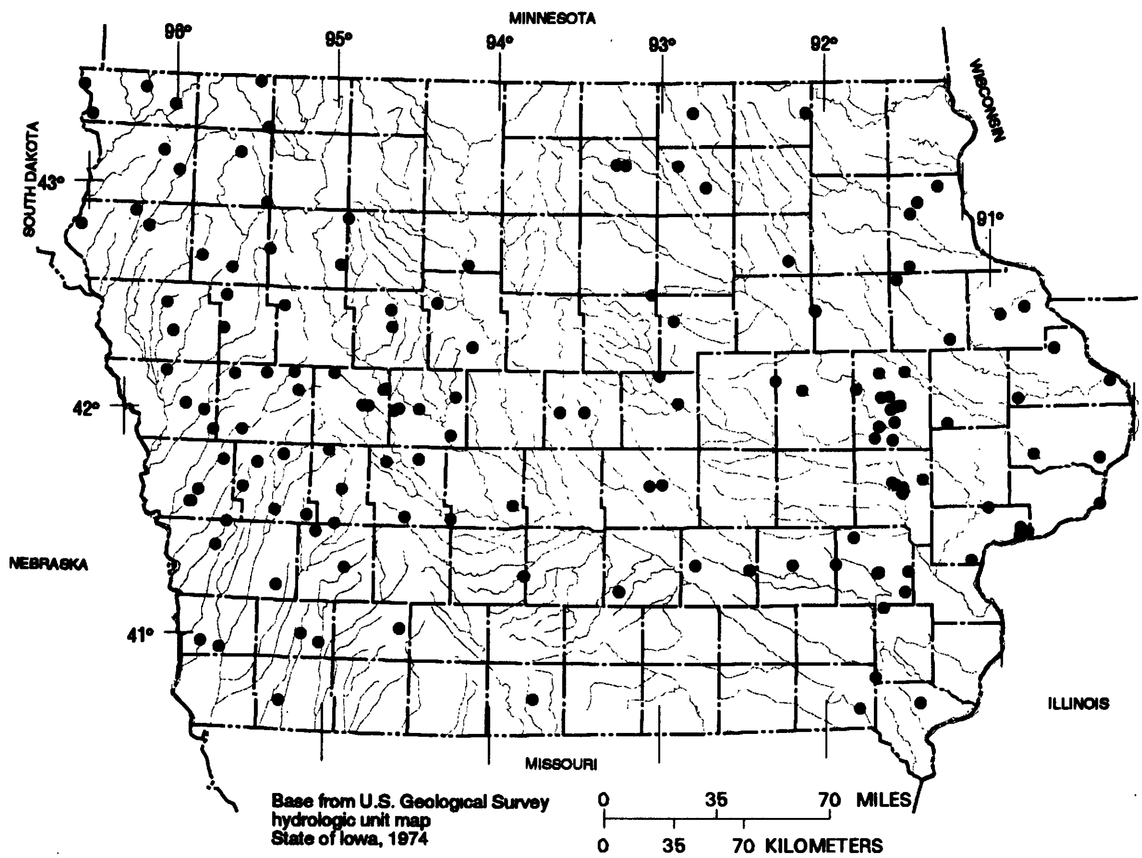

Figure 7. Location of wells in the ground-water-level observation network in Iowa, water year 2000.

Table 3. Historical low water level measured during the 2000 water year in wells completed in unconsolidated aquifers.

[Water-level measurements are in feet below land surface]

County	Well number	Aquifer type	New historical low water level	Date measured	Previous historical low water level	Date measured
Adams	410248094324801	Glacial Drift	5.42	10/12/1999	3.08	12/06/1996
Crawford	421106095125501	Buried Channel	67.29	08/07/2000	66.41	08/09/1999
Floyd	430200092435301	Glacial Drift	7.40	02/14/2000	6.61	11/04/1996
Shelby	413953095302601	Glacial Drift	19.93	08/07/2000	19.38	11/04/1998
Story	420137093361501	Glacial Drift	76.06	08/08/2000	75.97	11/02/1995

The five major bedrock-aquifer units in Iowa are the Cambrian-Ordovician, Silurian-Devonian, Mississippian, Pennsylvanian, and Dakota. The Cambrian-Ordovician aquifer system consists of aquifers in sandstone of Early Cambrian age and dolomite and sandstone of Late Cambrian to Early Ordovician age. The Dresbach is the basal aquifer of the Cambrian-Ordovician aquifer system and is present locally in northeastern and east-central Iowa. Overlying the Dresbach aquifer is the more aerially extensive Jordan-St. Peter aquifer. A confining shale unit separates the Jordan-St. Peter aquifer from the Galena aquifer, the uppermost aquifer in the Cambrian-Ordovician aquifer system. Overlying the Cambrian-Ordovician aquifer system is the Silurian-Devonian aquifer, which yields water from fractures in Silurian dolomite and Devonian limestone. Overlying the Silurian-Devonian aquifer is the Mississippian aquifer, which is composed of limestone and dolomite of Mississippian age and underlies about 60 percent of Iowa. Overlying the Mississippian aquifer are discontinuous lenses of sandstone in the Cherokee and Kansas City Groups of Pennsylvanian age, which form small, localized aquifers. The Dakota aquifer is the youngest bedrock-aquifer unit in the State and yields water from sandstone of Cretaceous age in northwest and western Iowa.

Twenty-seven wells completed in bedrock aquifers recorded new historical water levels during the 2000 water year. Twenty-one wells recorded historical low water levels (table 4), and six wells recorded historical high water levels (table 5).

Table 4. Historical high water level measured during the 2000 water year in wells completed in bedrock aquifers.

[Water-level measurements are in feet below land surface
readings above land surface indicated by "+"]

County	Well number	Aquifer type	New historical high water level	Date measured	Previous historical high water level	Date measured
Carroll	421058094582701	Cretaceous	179.65	08/08/2000	187.70	03/25/1948
Clayton	425736091260303	Cambrian-Ordovician	182.82	08/25/1999	183.04	05/18/1998
Ida	423107095383201	Mississippian	178.60	02/22/2000	180.25	08/09/1999
Linn	420200091363001	Cambrian-Ordovician	93.00	08/18/2000	260	04/21/1998
Mahaska	412020092471002	Cambrian-Ordovician	99.67	05/16/2000	215.38	05/11/1989
Woodbury	422830096000511	Cretaceous	198.60	11/09/1999	198.70	08/10/1999

Table 5. Historical low water level measured during the 2000 water year in wells completed in bedrock aquifers.

[Water-level measurements are in feet below land surface]

County	Well number	Aquifer type	New historical low water level	Date measured	Previous historical low water level	Date measured
Calhoun	422339094375101	Cambrian-Ordovician	296	08/09/2000	287	02/10/1999
Cherokee	424132095480211	Cretaceous	156.77	08/07/2000	156.20	01/10/1990
Clayton	425433091285002	Cambrian-Ordovician	13.37	02/15/2000	10.86	08/25/1999
Clayton	425736091260303	Cambrian-Ordovician	185.57	05/01/2000	185.21	02/01/1989
Clinton	414921090450401	Silurian	97	05/15/2000 08/15/2000	95	08/07/1998
Decatur	404422093445602	Cambrian-Ordovician	443.10	05/11/2000 08/09/2000	442.66	08/12/1999
Henry	405010091424901	Mississippian	78.03	02/22/2000	77.21	10/27/1989
Howard	432158092065801	Cambrian-Ordovician	355	05/09/2000	340	08/02/1999
Johnson	414132091345502	Silurian	252.77	07/31/2000	252.30	07/30/1998
Johnson	414132091345503	Silurian	310	07/27/2000	309	07/28/1999
Lee	404306091270201	Cambrian-Ordovician	269.12	08/14/2000	266.61	08/06/1999
Madison	411727093483001	Mississippian	281.01	08/09/2000	280.26	08/19/1999
Mitchell	432156092484102	Devonian	12.44	02/14/2000	11.92	01/31/1994
Mitchell	432156092484103	Devonian	13.32	02/14/2000	12.65	05/07/1996
Mitchell	432156092484104	Devonian	16.52	05/09/2000	15.92	05/07/1996
Mitchell	432156092484105	Devonian	22.16	05/09/2000	21.81	11/04/1996
O'Brien	425610095250611	Cretaceous	37.26	08/08/2000	36.85	12/15/1980
Plymouth	424850096074801	Cambrian-Ordovician	102.64	08/07/2000	102.10	08/06/1980
Plymouth	425249096125001	Cretaceous	125.45	08/08/2000	124.71	11/02/1998
Shelby	413255095070401	Cretaceous	43.03	02/24/2000	42.86	09/24/1981
Sioux	430913096033201	Cretaceous	196.72	08/08/2000	196.30	11/07/1991

Surface-Water Quality

Surface-water-quality data were collected in Iowa during water year 2000 at two National Stream-Quality Accounting Network (NASQAN) stations. The NASQAN stations in Iowa are the Mississippi River at Clinton (station number 05420500) and Missouri River at Omaha (06610000) (fig. 5). The combined drainage area of the two stations is approximately 408,000 sq. miles. Land use throughout the two drainage basins is primarily agricultural. Fourteen water samples were collected at Missouri River at Omaha, and eleven water samples were collected at Mississippi River at Clinton during the 2000 water year.

Nearly all the samples collected at the two stations contained detectable concentrations of agricultural chemicals. Detections of dissolved nitrite plus nitrate as nitrogen (hereafter referred to as nitrate) were common during the 2000 water year, with all samples containing concentrations greater than the detection level of 0.05 mg/L (milligrams per liter). Nitrate concentrations at Clinton ranged from 0.330 mg/L on April 17 to 3.51 mg/L, June 29. However, the sample taken on September 11, bottle that includes the analysis for the nitrogen compounds, was ruined and unable to be analyzed. Nitrate concentrations at Omaha ranged from 0.062 mg/L August 15 to 1.13 mg/L, June 27. Nitrate concentrations in water samples did not exceed 10 mg/L, which is the U.S. Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL) for public drinking water (USEPA, 1990 Maximum contaminant levels, subpart B of part 141, National primary drinking-water regulations: U.S. Code of Federal Regulations, Title 40, Parts 100 to 149, revised as of July 1, 1990, p. 553-677).

Pesticide analyses were completed for 25 water samples collected at the two NASQAN stations. Atrazine and metolachlor, two of the most commonly used herbicides in Iowa, were detected throughout the year at both NASQAN stations. Acetochlor and cyanazine were detected at least 10 times at Omaha and 9 times at Clinton.. The largest herbicide concentration was 1.51 ug/L (micrograms per liter) of atrazine in the water sample collected from the Mississippi River on June 6. The largest overall concentration of acetochlor, alachlor, atrazine, cynazine, and metolachlor in a single event was also on the Mississippi River on June 6. This water sample had 0.469 ug/L of acetochlor, 0.097 ug/L of alachlor, 1.51 ug/L of atrazine, 0.088 ug/L of cyanazine, and 0.435 ug/L of metolachlor. No concentrations for any herbicide exceeded USEPA MCL's (USEPA,1992, Fact sheet: EPA 570/9-91-012FS, December 1992). Herbicide concentrations were generally larger in samples collected during May, June, and July than in samples collected at other times during water year 2000. Water samples collected in September through February had the lowest overall concentrations of the five herbicides during the 2000 water year.

Ground-Water Quality

The Iowa ground-water-quality monitoring program has been operated since 1982 by the U.S. Geological Survey in cooperation with the University of Iowa Hygienic Laboratory and the Iowa Department of Natural Resources, Geological Survey Bureau. The purpose of the program is twofold: (1) provide consistent and representative data describing the chemical water quality of the principal aquifers of the State; and (2) determine possible trends in both water quality and spatial distribution of water quality.

The ground-water-quality monitoring program was initiated to continue a program begun in 1950 by the State Health Department that consisted of periodic, nonspecific sampling of untreated water from municipal supply wells. Each year, approximately 250 wells, primarily municipal supply, were randomly-selected for sampling between April and November. Between 1985 and 1989, the emphasis of the program was on the analysis of nitrate and herbicide concentrations in samples from wells less than 200 feet in depth. Because of the random pattern of sampling both spatially (different wells each year) and seasonally (different times during the year), trends in ground-water quality were difficult to determine from the data. Therefore, in 1990, to provide year-to-year continuity of data and a more statistically sound basis for the study of long-term water-quality trends, a sampling strategy based on a random selection of wells weighted by aquifer vulnerability was implemented. Aquifer vulnerability was determined by the frequency of atrazine detections in water samples collected from wells in the respective aquifers. In 1990 and 1991, a fixed network of 50 wells was selected to be sampled annually, and approximately 200 wells continued to be selected on a rotational basis.

In 1992, the investigation of water-quality trends became the primary focus of the program, and a 10-year work plan was designed to eliminate spatial and seasonal variance, yet allow flexibility within the schedule to address additional data needs.

For sampling site selection in 1992, the well inventory was divided into categories based on aquifer type and again on well depth for surficial aquifers, and into categories designated "vulnerable to contamination" and "not vulnerable to contamination" based on the map *Groundwater Vulnerability Regions of Iowa* (Hoyer, B.E., and Hallberg, G.R., 1991, Special Map Series 11: Iowa Department of Natural Resources, scale 1:500,000) for bedrock aquifers. Vulnerability was determined by the combination and interpretation of factors including geologic and soil data, thickness of Quaternary cover, proximity to agricultural injection wells and sinkholes through which contaminants can be introduced to the aquifer, and evaluation of historical ground water and well contamination. A total of 90 sites were selected for sampling from a well inventory comprising approximately 1,640 public supply wells. From the 90 sites in the fixed network, 45 wells from two surficial aquifer types were selected to be sampled annually. The other 45 wells (from the bedrock aquifers) were selected to be sampled on a rotational schedule based on aquifer vulnerability to contamination. The wells determined to be vulnerable to contamination would be sampled every 2 years and those wells categorized as not vulnerable to contamination would be sampled every 4 years. All 90 wells were sampled in the first 2 years (1992 and 1993) and the sampling rotation began in 1994. The sampling effort during the 2000 water year is the ninth year of this 10-year program to determine possible ground-water-quality trends.

Ground-Water Monitoring Network

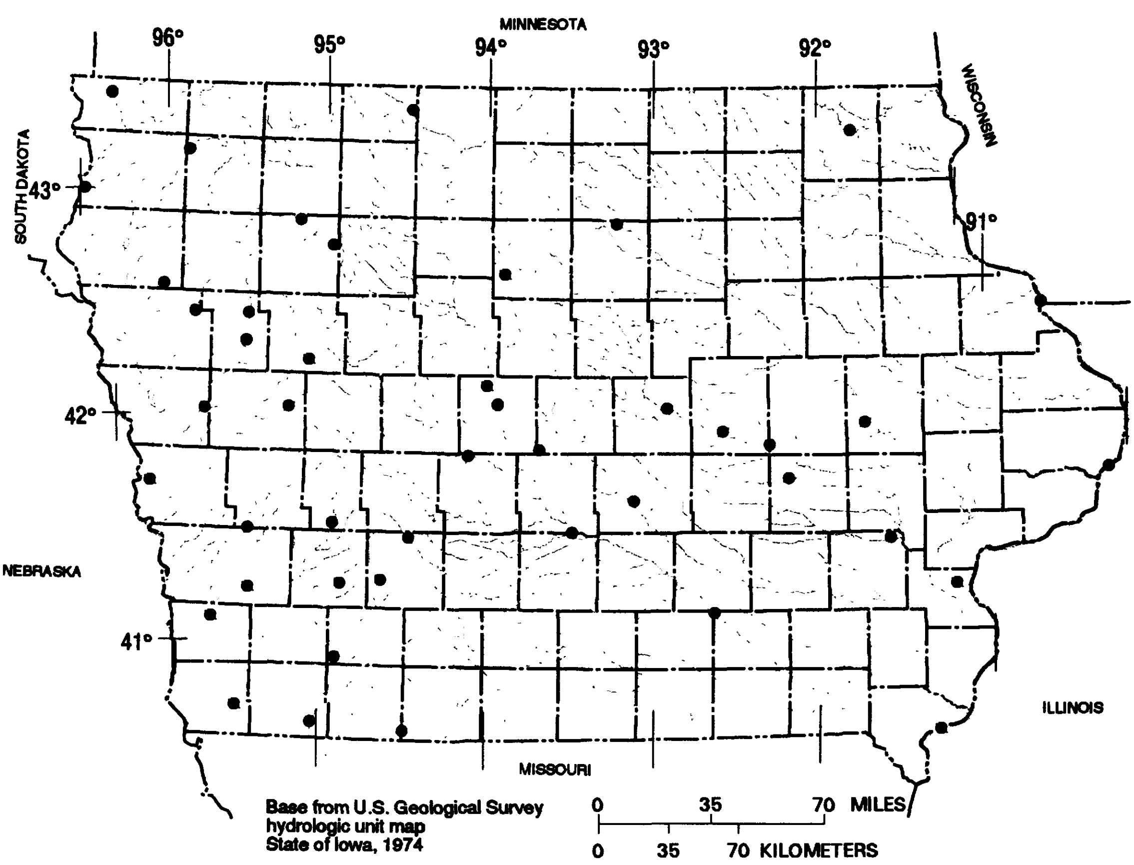

Figure 8. Location of active ground-water-quality monitoring wells in Iowa.

During the 2000 water year, a total of 45 ground-water samples were collected from municipal wells located in two types of surficial aquifers throughout the State (fig. 8). These wells were sampled as part of the Iowa ground-water-quality monitoring (GWM) program to determine water-quality trends. Aquifer types include: (1) alluvial aquifers comprising sand and gravel associated with present-day fluvial systems and (2) glacial drift and buried-channel aquifers associated with previous glaciation. Samples were collected during June, July, and August 2000. All samples were analyzed by the University of Iowa Hygienic Laboratory. All samples were analyzed for common ions, nutrients, herbicides , and volatile organic compounds (VOC). Results for all constituent analyses are published in this report. Discussion of analytical results will be limited to the nitrogen species nitrate and ammonia, and herbicides.

A summary of results for nutrient and herbicide analyses are listed by compound in table 6. Nitrate or ammonia was detected in 41 of the 45 samples analyzed for these compounds, and one or more herbicides were detected in 7 of the 45 samples. The laboratory minimum reporting level (MRL) for ammonia and nitrate is 0.10 mg/L. The MRL's for the herbicides listed below are 0.10 µg/L. The MRL is the lowest concentration reliably measured by the laboratory.

Table 6. Summary of nitrogen species and herbicides detected in samples from the Ground-Water-Quality Monitoring project, water year 2000
[µg/L, micrograms per liter; mg/L, milligrams per liter; <, less than detection limit]

Compound	Number of samples analyzed	Number of samples in which compound was detected	Median value	Maximum concentration detected
Acetochlor	45	0	<0.10 µg/L	<0.10 µg/L
Ammonia	45	28	.10 mg/L	6.6 mg/L
Alachlor	45	0	< .10 µg/L	< .10 µg/L
Atrazine	45	5	< .10 µg/L	.34 µg/L
Butylate	45	0	< .10 µg/L	< .10 µg/L
Cyanazine	45	0	< .10 µg/L	< .10 µg/L
Deethylatrazine	45	2	< .10 µg/L	.15 µg/L
Deisopropylatrazine	45	1	< .10 µg/L	.14 µg/L
Metolachlor	45	3	< .10 µg/L	1.60 µg/L
Metribuzin	45	0	< .10 µg/L	< .10 µg/L
Nitrate	45	25	< .60 mg/L	20.0 mg/L
Prometone	45	0	< .10 µg/L	< .10 µg/L
Trifluralin	45	0	< .10 µg/L	< .10 µg/L

Concentrations of nitrate greater than 3.0 mg/L generally can be attributed to human activities, whereas concentrations less than 3.0 mg/L may indicate ambient concentrations from naturally occurring soil nitrogen or geologic deposits (Madison, R.J., and Brunett, J.O., 1984, Overview of the occurrence of nitrate in ground water of the United States, *in* National Water Summary 1984 -- Water quality trends: U.S. Geological Survey Water-Supply Paper 2275, p. 93-105). Nitrate concentrations were greater than 3.0 mg/L in 14 of 45 samples. Concentrations in seven samples exceeded 10 mg/L, which is the U.S. Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL) for public drinking water. Of the 25 samples that contained detectable concentrations of nitrate, 92 percent were from wells completed in alluvial aquifers and 8 percent were from glacial drift and buried-channel aquifers. The median concentration of the 25 samples with detections was 3.8 mg/L. The median concentration of all samples was 0.6 mg/L. However, when all the wells are separated into categories based on well depth, the median nitrate concentrations vary from 2.1 mg/L in wells less than 50 feet deep to 1.8 mg/L in wells from 50 to 100 feet deep to <0.10 mg/L in wells greater than 100 feet deep. The maximum nitrate concentration was 20.0 mg/

L. Twenty-three samples had detectable ammonia concentrations. Of these samples, 32 percent were collected from alluvial aquifers and 48 percent were from glacial drift and buried-channel aquifers.

Nine commonly used herbicides and two atrazine degradation products were sampled for during the 2000 water year. Water from 7 of the 45 wells sampled for herbicides contained detectable concentrations of one or more herbicides or herbicide degradation products. No sample contained herbicide concentrations that exceeded the MCL or proposed MCL of any of the analytes. Five of the seven samples contained atrazine or its degradates, deethylatrazine and deisopropylatrazine. Metolachlor was also detected in three of the samples. No detectable amounts of prometone, cyanazine, metribuzin, butylate, trifluralin, alachlor, or acetochlor were found in any of the samples. Six samples with detectable herbicide concentrations were from wells completed in alluvial aquifers and one sample was from the glacial drift aquifers.

Trends in Ground-Water Quality

In 2000, the herbicide detection frequency in all wells less than 100 feet deep was 20 percent. The detection frequency in the previous seven years is shown in figure 9. Variance in detection frequency may reflect several factors including changes in agricultural practices concerning use of herbicides, and climatic conditions.

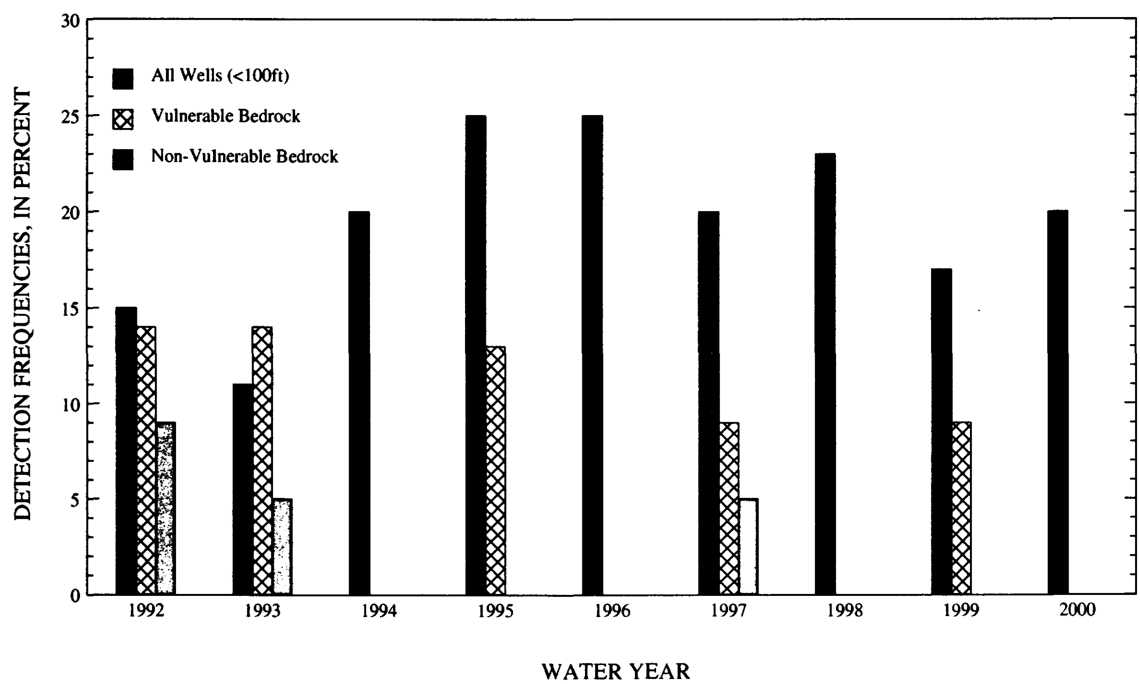

Figure 9. Herbicide detection frequencies in all wells less than 100 feet deep since 1992.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities.

National Stream-Quality Accounting Network (NASQAN) monitors the water quality of large rivers within four of the Nation's largest river basins--the Mississippi, Columbia, Colorado, and Rio Grande. The network consists of 39 stations. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) provides continuous measurement and assessment of the chemical climate of precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to accomplish the following objectives: (1) provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of approximately 200 precipitation chemistry monitoring sites. (2) provide the mechanism to evaluate the effectiveness of the significant reduction in SO2 emissions that began in 1995 as implementation of the Clean Air Act Amendments (CAAA) occurred. (3) provide the scientific basis and nationwide evaluation mechanism for implementation of the Phase II CAAA emission reductions for SO2 and NOx scheduled to begin in 2000.

Data from the network, as well as information about individual sites, are available through the world wide web at:

`http://nadp.sws.uiuc.edu/`

The National Trends Network (NTN) is a 200-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of wet atmospheric deposition, which includes snow, rain, sleet, and hail. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, representative part of the Nation's ground- and surface-water resources; provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 53 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key federal, State, and local water resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies.

Additional information about the NAWQA Program is available through the world wide web at:

`http://wwwrvares.er.usgs.gov/nawqa/nawqa_home.html`

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

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

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 2000 water year that began October 1, 1999 and ended September 30, 2000. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data was collected are shown in figures 3-5, 7, 9, 10. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report was collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

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

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary, with respect to the stream to which it is immediately tributary, is indicated by an indention in the "List of Stations" in the front of this report. Each indention represents one rank. This downstream order and system of indention shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 05388250, which appears just to the left of the station name, includes the two-digit Part number "05" plus the six-digit downstream-order number "388250." The Part number designates the major river basin; for example, Part "05" is the Mississippi River Basin.

Latitude-Longitude System

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

Latitude and longitude coordinates for wells:

1. 414315091252001
2. 414315091252002
3. 414316091251901

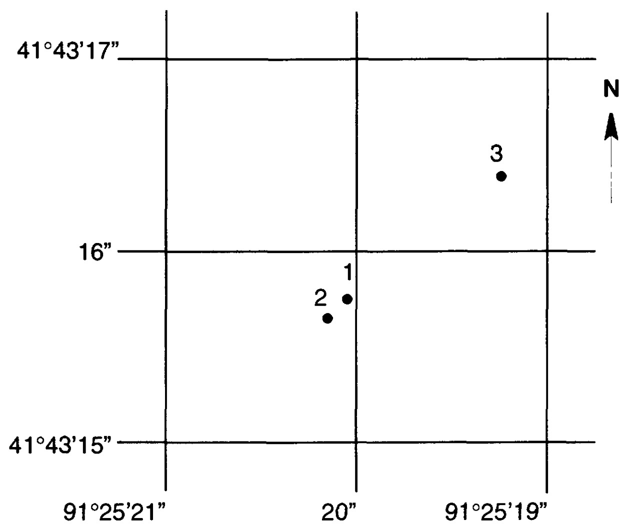

Figure 10. Latitude-longitude well number.

Numbering System For Wells

Each well is identified by means of (1) a 15-digit number that is based on the grid system of latitude and longitude, and (2) a local number that is provided for continuity with older reports and for other use as dictated by local needs. For maximum utility, latitude and longitude code numbers are determined to seconds in order that each well may have a unique number. The first six digits denote degrees, minutes, and seconds of north latitude; the next seven digits are degrees, minutes, and seconds of west longitude; and the last two numbers are a sequential number assigned in the order in which the wells are located in a 1-second quadrangle.

The local well numbers are in accordance with the Bureau of Land Management's system of land subdivision. Each well number is made up of three segments. The first segment indicates the township, the second the range, and the third the section in which the well is located (fig. 11). The letters after the section number, which are assigned in a counter-clockwise direction (beginning with "A" in the northeast quarter), represent subdivisions of the section. The first letter denotes a 160-acre tract, the second a 40-acre tract, the third a 10-acre tract, and the fourth a 2.5 acre tract. Numbers are added as suffixes to distinguish wells in the same tract. Thus, the number 96-20-3CDBD1 designates the well in the SE 1/4 NW 1/4 SE 1/4 SW 1/4 sec.3, T.96 N., R.20 W.

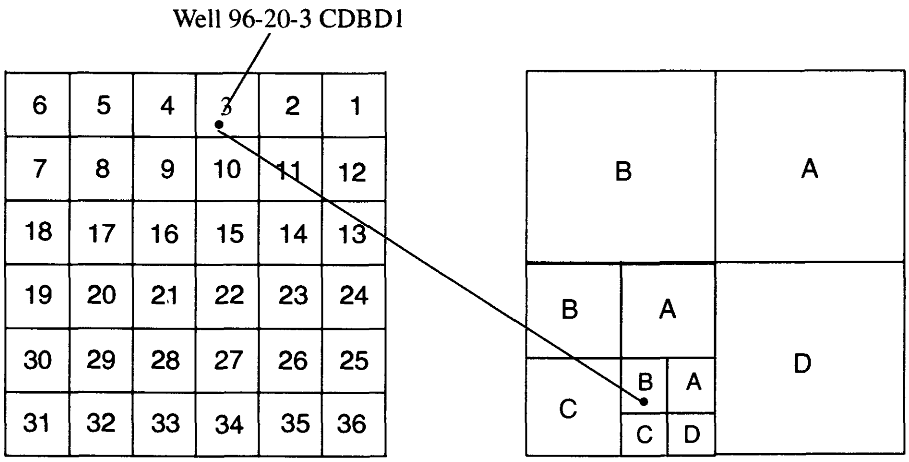

Figure 11. Local well-numbering system.

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations." Location of all complete-record surface water stations which are given in this report are shown in figure 3.

Partial records are obtained through discrete measurements without using a continuous stage-recording device, and generally pertain only to a characteristic of either high, medium or low flow. The location of all active, crest-stage gaging stations are shown in figure 4.

Data Collection and Computation

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

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

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

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

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

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

For some gaging stations, there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For these periods, the daily discharges are estimated from the recorded range in stage, discharge computed before and after the missing record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

Streamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1991 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table, and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preference.

The records published for each continuous-record surface-water discharge station (gaging station) consist of four parts, the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration.

Station Manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

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

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

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

REVISED RECORDS.-- Because of new information, published records occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage sea level (see "Definition of Terms"), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

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

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

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

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

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

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

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

Headings for AVERAGE DISCHARGE, EXTREMES FOR PERIOD OF RECORD, and EXTREMES FOR CURRENT YEAR have been deleted, and the information contained in these paragraphs is now presented in the tabular summaries following the discharge table or in the REMARKS paragraph, as appropriate. EXTREMES FOR PERIOD OF RECORD are now presented only for stations with significant flow regulation and where extremes occurred in pre-regulation periods. No changes have been made to the data presentations of lake contents or reservoir storage.

Data Table of Daily Mean Values

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations, monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Statistics of Monthly Mean Data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those figures. The designated period will be expressed as "FOR PERIOD OF RECORD, BY WATER YEAR (WY)," for unregulated streams for the water years listed in the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. For significantly regulated streams, the first and last water years of the range of years will be given for the post-regulation period.

Summary Statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year, but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "PERIOD OF RECORD," for unregulated streams, will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. For significantly regulated streams, the period selected will be designated as "WATER YEARS ___ - ___," for the post regulation period. All of the calculations for the statistical characteristics designated ANNUAL (See line headings below.), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations, the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations, the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (See address on back of title page of this report.)

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.--The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

Acre-foot (AC-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.

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

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.--The discharge that is exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.--The discharge that is exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.--The discharge that is exceeded 90 percent of the time for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

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

Accuracy of the Records

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

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

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

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published.

Other Records Available

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

Records of Surface-Water Quality

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

Classification of Records

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

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data is obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 5.

Arrangement of Records

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

On-Site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, alkalinity and dissolved oxygen, are made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures are followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures of onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. C2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed on p. 54-56 of this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District Office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain the representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals depends on flow conditions and other factors, which must be evaluated by the collector.

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

Water Temperature and Specific Conductance

Water temperatures are measured at most of the water-quality stations. The measurement of temperature and specific conductance is performed during each regular site visit (usually at a six week interval) to streamgaging stations. Records of stream temperature indicate significant thermal characteristics of the stream when analyzed over a long period of record. Large streams have small daily temperature variations, while shallow streams may have a daily range of several degrees and may closely follow the changes in air temperature. Furthermore, some streams may be affected by waste-heat discharge.

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

Sediment

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

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

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

In addition to the records of the quantities of suspended-sediment, records of the periodic measurements of the particle-size distribution of the suspended-sediment and bed material are included. Miscellaneous suspended-sediment samples were collected during flood events have been included with the station's water quality data or in the section "Analyses of samples at miscellaneous sites".

Laboratory Measurements

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

Data Presentation

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

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

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

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

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

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

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

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

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

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

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

Remarks Codes

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

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

Water Quality-Control Data

Data generated from quality-control (QC) samples are a requisite for evaluating the quality of the sampling and processing techniques as well as data from the actual samples themselves. Without QC data, environmental sample data cannot be adequately interpreted because the errors associated with the sample data are unknown. The various types of QC samples collected by this district are described in the following section. Procedures have been established for the storage of water-quality-control data within the USGS. These procedures allow for storage of all derived QC data and are identified so that they can be related to corresponding environmental samples.

Blank Samples

Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated by the overall data-collection process. The blank solution used to develop specific types of blank samples is a solution that is free of the analytes of interest. Any measured value signal in a blank sample for an analyte (a specific component measured in a chemical analysis) that was absent in the blank solution is believed to be due to contamination. There are many types of blank samples possible, each designed to segregate a different part of the overall data-collection process. The types of blank samples collected in this District are:

Field blank - a blank solution that is subjected to all aspects of sample collection, field processing preservation, transportation, and laboratory handling as an environmental sample.

Trip blank - a blank solution that is put in the same type of bottle used for an environmental sample and kept with the set of sample bottles before and after sample collection.

Equipment blank - a blank solution that is processed through all equipment used for collecting and processing an environmental sample (similar to a field blank but normally done in the more controlled conditions of the office).

Sampler blank - a blank solution that is poured or pumped through the same field sampler used for collecting an environmental sample.

Filter blank - a blank solution that is filtered in the same manner and through the same filter apparatus used for an environmental sample.

Splitter blank - a blank solution that is mixed and separated using a field splitter in the same manner and through the same apparatus used for an environmental sample.

Preservation blank - a blank solution that is treated with the sampler preservatives used for an environmental sample.

Reference Samples

Reference material is a solution or material prepared by a laboratory whose composition is certified for one or more properties so that it can be used to assess a measurement method. Samples of reference material are submitted for analysis to ensure that an analytical method is accurate for the known properties of the reference material. Generally, the selected reference material properties are similar to the environmental sample properties.

Replicate Samples

Replicate samples are a set of environmental samples collected in a manner such that the samples are thought to be essentially identical in composition. Replicate is the general case for which a duplicate is the special case consisting of two samples. Replicate samples are collected and analyzed to establish the amount of variability in the data contributed by some part of the collection and analytical process. There are many types of replicate samples possible, each of which may yield slightly different results in a dynamic hydrologic setting, such as a flowing stream. The types of replicate samples collected in this District are:

Sequential samples - a type of replicate sample in which the samples are collected one after the other, typically over a short time.

Split sample - a type of replicate sample in which a sample is split into subsamples contemporaneous in time and space.

Spike Samples

Spike samples are samples to which known quantities of a solution with one or more well-established analyte concentrations have been added. These samples are analyzed to determine the extent of matrix interference or degradation on the analyte concentration during sample processing and analysis.

Dissolved Trace-Element Concentrations

NOTE.--Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter (µg/L) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's to 100's of nanograms per liter (ng/L). Data above the µg/L level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols at some stations in water year 1994.

Change in National Trends Network Procedures

Sample handling procedures at all National Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study is available from the NADP/NTN Coordination Office, Colorado State University, Fort Collins, CO 80523 (Telephone: 303-491-5643).

Records of Ground-Water Levels

Ground-water level data from a network of observation wells in Iowa is published in this report. This data provides a limited historical record of water-level changes in the State's most important aquifers. Locations of the observation wells in this network in Iowa are shown in figure 6. Information about the availability of the data in the water-level files and reports of the U.S. Geological Survey may be obtained from the Iowa District Office (see address on back of title page).

Data Collection and Computation

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

Tables of water-level data are arranged alphabetically by counties. The site identification number, based on latitude and longitude, for a given well is the 15-digit numeric value that appears in the upper left corner of the station description. The secondary identification number is the local well number, an alphanumeric value, derived from the township, range, and section location of the well (fig. 7).

Water-level records are obtained from direct measurements with a chalked steel tape, electric line, airline, or from the graph of a water-level recorder. The water-level measurements in this report are in feet with reference to land-surface datum. Land-surface datum is a plane that is approximately at land surface at each well. The elevation of the land-surface datum is given in the well description. The height of the measuring point above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (EOM).

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

Data Presentation

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

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

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

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

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

DATUM.--This entry includes the land-surface elevation and the measuring point at the well. The elevation of the land-surface datum is described in feet above (or below) sea level; it is reported with a precision depending on the method of determination. The measuring point is described physically and in relation to land surface.

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

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

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

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

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

Hydrographs are included for 59 wells which are representative of hydrologic conditions in the important aquifers in Iowa.

Only water-level data from a national network of observation wells are given in this report. This data is intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in Iowa are shown in figure 7.

Records of Ground-Water Quality

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

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

Most methods for collecting and analyzing water samples are described in the "U.S. Geological Survey Techniques of Water-Resources Investigations" manuals listed on a following page. The values reported in this report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis.

All samples were obtained by trained personnel. The wells sampled were pumped long enough to assure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material comprising the casings. The samples collected represent raw water.

Data Presentation

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

Explanation of Quality of Ground-Water Data Tables -- Descriptive Headings

STATION NUMBER	LOCAL WELL NUMBER	DATE	LOCAL WELL NAME	COUNTY	SAMPLE DATE	SAMPLE TIME	AQUI-FER CODE	DEPTH OF WELL, TOTAL (FT)
411441094401602	075N33W32CDDD	1943	BRIDGEWATER 1	ADAIR	08-11-92	1130	111ALVM	49

STATION NUMBER: 15-digit number based on grid system of latitude and longitude.
LOCAL WELL NUMBER: Refers to the Bureau of Land Management System of land subdivision.
DATE: The date that construction on the well was completed.
LOCAL WELL NAME: Name used by community to identify well.
COUNTY: The name of the county where the well is located.
SAMPLE DATE: Date the well was sampled.
SAMPLE TIME: Time the sample was collected.
AQUIFER CODE: Refers to the lithologic unit in which the well is completed. Derived from two digits of the GEOLOGIC UNIT, the principal unit which provides the majority of water to the well.

11 - Quaternary	33- Mississippian	36 - Ordovician
21 - Cretaceous	34 - Devonian	37 - Cambrian
32 - Pennsylvanian	35 - Silurian	

The third digit and remaining alphabetic characters refer to the more specific lithologic unit which the well is tapping. The following examples are commonly used units:

Code	General	Specific
111ALVM	Quaternary	(alluvium)
217DKOT	Cretaceous	(Dakota sandstone)
344CDVL	Devonian	(Cedar Valley limestone)

DEPTH OF WELL, TOTAL (FT): Total depth of well in feet.

ACCESS TO USGS WATER DATA

The USGS provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the world wide web (WWW). This data may be accessed at:

`http://www.usgs.gov`

Some water-quality and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division District Offices (See address on the back of the title page.)

The Iowa District maintains a web site highlighting many of the District's activities. Many of the continuous stream gages presented in these reports have near-real-time data available, and all gages have historic data available. This data may be accessed at:

`http://ia.water.usgs.gov`

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, 325,851 gallons, or 1,233 cubic meters.

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a "filtered" sample.

Annual runoff is the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters

Cubic foot per second per square mile [CFSM, $(ft^3/s)/mi^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area.

Inch (IN., in.) as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were uniformly distributed on it.

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

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. This group includes coliforms that inhabit the intestine of warm-blooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35 °C. In the laboratory, these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus 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 warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory, they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5 °C plus or minus 0.2 °C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Enterococcus bacteria are commonly found in the feces of humans and other warm-blooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria that produce pink to red colonies with black or reddish-brown precipitate after incubation at 41 °C on mE agar and subsequent transfer to EIA medium. Enterococci include *Streptococcus feacalis, Streptococcus feacium, Streptococcus avium,* and their variants.

Escherichia coli (E. coli) are bacteria present in the intestine and feces of warm-blooded animals. *E. coli* are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 °C on mTEC medium. Their concentrations are expressed as number of colonies per 100 mL of sample.

Base flow is flow in a channel sustained by ground-water discharge in the absence of direct runoff.

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

Bottom material: See "Bed material."

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

Colloid is any substance with particles in such a fine state of subdivision dispersed in a medium (for example, water) that they do not settle out; but not in so fine a state of subdivision that they can be said to be truly dissolved.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Confined aquifer is a term used to describe an aquifer containing water between two relatively impermeable boundaries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases the water level can rise above the ground surface, yielding a flowing well.

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.

Continuous-record station is a site that meets either of the following conditions:

1. Stage or streamflow are recorded at some interval on a continuous basis. The recording interval is usually 15 minutes, but may be less or more frequent.
2. Water-quality, sediment, or other hydrologic measure-ments are recorded at least daily.

Control designates a feature in the channel downstream from a gaging station that physically influences the water-surface elevation and thereby determines the stage-discharge relation at the station. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, an artificial structure, or a uniform cross section over a long reach of the channel.

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

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

Cubic foot per second-day (CFS-DAY, Cfs-day, [(ft^3/s)/d]) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.9835 acre-feet, 646,317 gallons, or 2,447 cubic meters.

Daily record is a summary of streamflow, sediment, or water-quality values computed from data collected with sufficient frequency to obtain reliable estimates of daily mean values.

Daily record station is a site for which daily records of streamflow, sediment, or water-quality values are computed.

Datum, as used in this report, is an elevation above mean sea level to which all gage height readings are referenced.

Discharge, or flow, is the volume of water (or more broadly, volume of fluid including solid- and dissolved-phase material), that passes a given point in a given period of time.

> **Annual 7-day minimum** is the lowest mean discharge for 7 consecutive days in a year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)
>
> **Instantaneous discharge** is the discharge at a particular instant of time.
>
> **Mean discharge** (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Dissolved refers to that material in a representative water sample that passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved oxygen (DO) content of water in equilibrium with air is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved solids, with small temperature changes having the more significant offset. Photosynthesis and respiration may cause diurnal variations in dissolved-oxygen concentration in water from some streams.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During that analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to reflect the change. Alternatively, alkalinity concentration (as mg/L $CaCO_3$) can be converted to carbonate concentration by multiplying by 0.60.

Drainage area of a site on a stream is that area, measured in a horizontal plane, that has a common outlet at the site for its surface runoff. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the Earth's surface that is occupied by a drainage system with a common outlet for its surface runoff (see "Drainage area").

Flow-duration percentiles are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

Gage datum is the elevation of the zero point of the reference gage from which gage height is determined as compared to sea level (see "Datum"). This elevation is established by a system of levels from known benchmarks, by approximation from topographic maps, or by geographical positioning system.

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

Gaging station is a site on a stream, canal, lake, or reservoir where systematic observations of stage, discharge, or other hydrologic data are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is computed.

Ground-water level is the elevation of the water table or another potentiometric surface at a particular location.

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 the equivalent concentration of calcium carbonate ($CaCO_3$).

Hydrologic benchmark 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 benchmark station may be used to separate effects of natural from human-induced changes in other basins that have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped benchmark basin.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as defined by the former Office of Water Data Coordination and delineated on the State Hydrologic Unit Maps by the U.S. Geological Survey. Each hydrologic unit is identified by an 8-digit number.

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

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

Membrane filter is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

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

Micrograms per kilogram (UG/KG, µg/kg) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter.

Microsiemens per centimeter (US/CM, µS/cm) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of Units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

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

Miscellaneous site, or miscellaneous station, is a site where streamflow, sediment, and/or water-quality data are collected once, or more often on a random or discontinuous basis.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of 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. *See NOAA web site: http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88*

Nephelometric turbidity unit (NTU) is the measurement for reporting turbidity that is based on use of a standard suspension of Formazin. Turbidity measured in NTU uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

Open or screened interval is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

Organic carbon (OC) is a measure of organic matter present in aqueous solution, suspension, or bottom sediments. May be reported as dissolved organic carbon (DOC), suspended organic carbon (SOC), or total organic carbon (TOC).

Organism is any living entity.

Organochlorine compounds are any chemicals that contain carbon and chlorine. Organochlorine compounds that are important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property.

Partial-record station is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

Particle size is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method utilizes the principle of Stokes Law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, Sedigraph) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

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

Classification	Size (mm)	Method of analysis
Clay	0.00024 - 0.004	Sedimentation
Silt	0.004 - 0.062	Sedimentation
Sand	0.062 - 2.0	Sedimentation/sieve
Gravel	2.0 - 64.0	Sieve

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

Percent composition or **percent of total** 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, weight, or volume.

Periodic station is a site where stage, discharge, sediment, chemical, or other hydrologic measurements are made one or more times during a year, but at a frequency insufficient to develop a daily record.

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

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7 are termed "acidic," and solutions with a pH greater than 7 are termed "basic." Solutions with a pH of 7 are neutral. The presence and concentration of many dissolved chemical constituents found in water are, in part, influenced by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms are also influenced, in part, by the hydrogen-ion activity of water.

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).

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

Polychlorinated naphthalenes (PCN's) are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (PCB's) and have been identified in commercial PCB preparations.

Radioisotopes are isotopic forms of an element that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight, but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus; for example, ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, and the natural mixture has an atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron. There are 275 isotopes of the 81 stable elements, in addition to more than 800 radioactive isotopes.

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

Recurrence interval, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or non-exceedance of a specified low flow). The terms "return period" and "recurrence interval" do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous exceedance. Similarly, the 7-day 10-year low flow ($7Q_{10}$) is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is, once in 10 years, on average); almost two-thirds of the non-exceedances of the $7Q_{10}$ occur less than 10 years after the previous non-exceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous non-exceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10-percent chance in any year that the annual minimum 7-day-mean flow will be less than the $7Q_{10}$.

Replicate samples are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

River mile is the distance of a point on a river measured in miles from the river's mouth along the low-water channel.

River mileage is the linear distance along the meandering path of a stream channel determined in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council.

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

Sea level refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929. *See: http://www.co-ops.nos.noaa.gov/ glossary/gloss_n.html#NGVD*

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

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along or very close to the bed. In this report, bed load is considered to consist of particles in transit from the bed to an elevation equal to the top of the bed-load sampler nozzle (usually within 0.25 ft of the streambed).

Bed-load discharge (tons per day) is the quantity of sediment moving as bed load, reported as dry weight, that passes a cross section in a given time.

Suspended sediment is the sediment that 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). The entire sample is used for the analysis.

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

Suspended-sediment discharge (tons/day) is the quantity of sediment moving in suspension, reported as dry weight, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027.

Suspended-sediment load is a term that refers to material in suspension. The term needs to be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It is not synonymous with either suspended-sediment discharge or concentration.

Seven-day 10-year low flow (7Q10, $7Q_{10}$) is the minimum flow averaged over 7 consecutive days that is expected to occur on average, once in any 10-year period. The 7Q10 has a 10-percent chance of occurring in any given year.

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

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage: See "Gage height."

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

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

Surface area of a lake or impoundment is that area encompassed by the boundary of the lake or impoundment as shown on USGS topographic maps, or on other available maps or photographs. The computed surface areas reflect the water levels of the lakes or impoundments at the times when the information for the maps or photographs was obtained.

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

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

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

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

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

Synoptic Studies are short-term investigations of specific water-quality conditions during selected seasonal or hydrologic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

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

Tons per day (T/DAY, tons/d) is the rate representing a mass of 1 ton of a constituent in streamflow passing a cross section in 1 day. It is equivalent to 2,000 pounds per day, or 0.9072 metric tons per day.

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

Total discharge is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to constituents other than water, this term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total load refers to all of a constituent in transport. When referring to sediment, it includes suspended load plus bed load.

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

Turbidity is a measurement of the collective optical properties of a water sample that cause light to be scattered and absorbed rather than transmitted in straight lines; the higher the intensity of scattered light, the higher the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU) or Formazin turbidity units (FTU) depending on the method and equipment used.

Volatile organic compounds (VOC's) are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and subsequently analyzed by gas chromatography. Many VOC's are manmade chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They are often components of fuels, solvents, hydraulic fluids, paint thinners, and dry cleaning agents commonly used in urban settings. VOC contamination of drinking-water supplies is a human health concern because many are toxic and are known or suspected human carcinogens (U.S. Environmental Protection Agency, 1996).

Water level is the water-surface elevation or stage of the free surface of a body of water above or below any datum (see "Gage height"), or the surface of water standing in a well, usually indicative of the position of the water table or other potentiometric surface.

Water table is the surface of a ground-water body at which the water is at atmospheric pressure.

Water-table aquifer is an unconfined aquifer within which is found the water table.

Water year in U.S. Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1999, is called the "1999 water year."

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

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

Well is an excavation (pit, hole, tunnel), generally cylindrical in form and often walled in, drilled, dug, driven, bored, or jetted into the ground to such a depth as to penetrate water-yielding geologic material and allow the water to flow or to be pumped to the surface.

Wet weight refers to the weight of animal tissue or other substance including its contained water.

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

The U.S.G.S. publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, section A of book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S.G.S., Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be made in the form of a check or money order payable to the "U.S. Geological Survey." Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and mention the "U.S. Geological Survey Techniques of Water-Resources Investigations."

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

1-D1. *Water temperature—influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J.F. Ficke, and G. F. Smoot: USGS–TWRI book 1, chap. 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, chap. D2. 1976. 24 pages.

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

2-D1. *Application of surface geophysics to ground-water investigations*, by A.A. R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS–TWRI book 2, chap. D1. 1974. 116 pages.

2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI book 2, chap. D2. 1988. 86 pages.

Section E. Subsurface Geophysical Methods

2-E1. *Application of borehole geophysics to water-resources investigations*, by W.S. Keys and L.M. MacCary: USGS–TWRI book 2, chap. E1. 1971. 126 pages.

2-E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI book 2, chap. E2. 1990. 150 pages.

Section F. Drilling and Sampling Methods

2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W.E. Teasdale: USGS–TWRI book 2, chap. F1. 1989. 97 pages.

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

3-A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI book 3, chap. 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, chap. A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS–TWRI book 3, chap. A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS-TWRI book 3, chap. A4. 1967. 44 pages.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS–TWRI book 3. chap. A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams,* by R.W. Carter and Jacob Davidian: USGS–TWRI book 3, chap. A6. 1968. 13 pages.

3-A7. *Stage measurement at gaging stations,* by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations,* by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A8. 1969. 65 pages.

3-A9. *Measurement of time of travel in streams by dye tracing,* by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS–TWRI book 3, chap. A9. 1989. 27 pages.

3-A10. *Discharge ratings at gaging stations,* by E.J. Kennedy: USGS–TWRI book 3, chap. A10. 1984. 59 pages.

3-A11. *Measurement of discharge by the moving-boat method,* by G.F. Smoot and C.E. Novak: USGS–TWRI book 3, chap. A11. 1969. 22 pages.

3-A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS–TWRI book 3, chap. A12. 1986. 34 pages.

3-A13. *Computation of continuous records of streamflow,* by E.J. Kennedy: USGS–TWRI book 3, chap. A13. 1983. 53 pages.

3-A14. *Use of flumes in measuring discharge,* by F.A. Kilpatrick and V.R. Schneider: USGS–TWRI book 3, chap. A14. 1983. 46 pages.

3-A15. *Computation of water-surface profiles in open channels,* by Jacob Davidian: USGS–TWRI book 3, chap. A15. 1984. 48 pages.

3-A16. *Measurement of discharge using tracers,* by F.A. Kilpatrick and E.D. Cobb: USGS–TWRI book 3, chap. A16. 1985. 52 pages.

3-A17. *Acoustic velocity meter systems,* by Antonius Laenen: USGS–TWRI book 3, chap. A17. 1985. 38 pages.

3-A18. *Determination of stream reaeration coefficients by use of tracers,* by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS–TWRI book 3, chap. A18. 1989. 52 pages.

3-A19. *Levels at streamflow gaging stations,* by E.J. Kennedy: USGS–TWRI book 3, chap. A19. 1990. 31 pages.

3-A20. *Simulation of soluable waste transport and buildup in surface waters using tracers,* by F.A. Kilpatrick: USGS–TWRI book 3, chap. A20. 1993. 38 pages.

3-A21 *Stream-gaging cableways,* by C. Russell Wagner: USGS–TWRI book 3, chap. A21. 1995. 56 pages.

Section B. Ground-Water Techniques

3-B1. *Aquifer-test design, observation, and data analysis,* by R.W. Stallman: USGS–TWRI book 3, chap. B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction,* by G.D. Bennett: USGS–TWRI book 3, chap. 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, chap. B3. 1980. 106 pages.

3-B4. *Regression modeling of ground-water flow,* by R.L. Cooley and R.L. Naff: USGS–TWRI book 3, chap. B4. 1990. 232 pages.

3-B4. *Supplement 1. Regression modeling of ground-water flow --Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems,* by R.L. Cooley: USGS–TWRI book 3, chap. B4. 1993. 8 pages.

3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction,* by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS–TWRI book 3, chap. B5. 1987. 15 pages.

3-B6. *The principle of superposition and its application in ground-water hydraulics,* by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS–TWRI book 3, chap. B6. 1987. 28 pages.

3-B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow,* by E.J. Wexler: USGS–TWRI book 3, chap. B7. 1992. 190 pages.

3-B8. *System and boundary conceptualization in ground-water flow simulation,* by T.E. Reilly: USGS–TWRI book 3, chap. B8. 2001. 29 pages.

Section C. Sedimentation and Erosion Techniques

3-C1. *Fluvial sediment concepts,* by H.P. Guy: USGS–TWRI book 3, chap. 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, chap. C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS–TWRI book 3, chap. C3. 1972. 66 pages.

Book 4. Hydrologic Analysis and Interpretation

Section A. Statistical Analysis

4-A1. *Some statistical tools in hydrology,* by H.C. Riggs: USGS–TWRI book 4, chap. A1. 1968. 39 pages.

4-A2. *Frequency curves,* by H.C. Riggs: USGS–TWRI book 4, chap. A2. 1968. 15 pages.

Section B. Surface Water

4-B1. *Low-flow investigations,* by H.C. Riggs: USGS–TWRI book 4, chap. B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply,* by H.C. Riggs and C.H. Hardison: USGS–TWRI book 4, chap. B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics,* by H.C. Riggs: USGS–TWRI book 4, chap. B3. 1973. 15 pages.

Section D. Interrelated Phases of the Hydrologic Cycle

4-D1. *Computation of rate and volume of stream depletion by wells,* by C.T. Jenkins: USGS–TWRI book 4, chap. D1. 1970. 17 pages.

Book 5. Laboratory Analysis

Section A. Water Analysis

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments,* by M.J. Fishman and L.C. Friedman, editors: USGS–TWRI book 5, chap. A1. 1989. 545 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, chap. A2. 1971. 31 pages.

5-A3. *Methods for the determination of organic substances in water and fluvial sediments,* edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS–TWRI book 5, chap. A3. 1987. 80 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples,* by L.J. Britton and P.E. Greeson, editors: USGS–TWRI book 5, chap. A4. 1989. 363 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, chap. A5. 1977. 95 pages.

5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments,* by L.C. Friedman and D.E. Erdmann: USGS–TWRI book 5, chap. A6. 1982. 181 pages.

Section C. Sediment Analysis

5-C1. *Laboratory theory and methods for sediment analysis,* by H.P. Guy: USGS–TWRI book 5, chap. C1. 1969. 58 pages.

Book 6. Modeling Techniques

Section A. Ground Water

6-A1. *A modular three-dimensional finite-difference ground-water flow model,* by M.G. McDonald and A.W. Harbaugh: USGS–TWRI book 6, chap. A1. 1988. 586 pages.

6-A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model,* by S.A. Leake and D.E. Prudic: USGS–TWRI book 6, chap. A2. 1991. 68 pages.

6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual,* by L.J. Torak: USGS–TWRI book 6, chap. A3. 1993. 136 pages.

6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions,* by R.L. Cooley: USGS–TWRI book 6, chap. A4. 1992. 108 pages.

6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details,* by L.J. Torak: USGS–TWRI book 6, chap. A5, 1993. 243 pages.

6-A6. A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction, by Eric D. Swain and Eliezer J. Wexler. 1996. 125 pages.

Book 7. Automated Data Processing and Computations

Section C. Computer Programs

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, chap. C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water,* by L.F. Konikow and J.D. Bredehoeft: USGS–TWRI book 7, chap. 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, chap. C3. 1981. 110 pages.

Book 8. Instrumentation

Section A. Instruments for Measurement of Water Level

8-A1. *Methods of measuring water levels in deep wells,* by M.S. Garber and F.C. Koopman: USGS–TWRI book 8, chap. A1. 1968. 23 pages.

8-A2. *Installation and service manual for U.S. Geological Survey manometers,* by J.D. Craig: USGS–TWRI book 8, chap. A2. 1983. 57 pages.

Section B. Instruments for Measurement of Discharge

8-B2. *Calibration and maintenance of vertical-axis type current meters,* by G.F. Smoot and C.E. Novak: USGS–TWRI book 8, chap. B2. 1968. 15 pages.

Book 9. Handbooks for Water-Resources Investigations

Section A. National Field Manual for the Collection of Water-Quality Data

9-A1. *National Field Manual for the Collection of Water-Quality Data: Preparations for Water Sampling,* by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A1. 1998. 47 p.

9-A2. *National Field Manual for the Collection of Water-Quality Data: Selection of Equipment for Water Sampling,* edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A2. 1998. 94 p.

9-A3. *National Field Manual for the Collection of Water-Quality Data: Cleaning of Equipment for Water Sampling,* edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A3. 1998. 75 p.

9-A4. *National Field Manual for the Collection of Water-Quality Data: Collection of Water Samples,* edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A4. 1999. 156 p.

9-A5. *National Field Manual for the Collection of Water-Quality Data: Processing of Water Samples,* edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A5. 1999, 149 p.

9-A6. *National Field Manual for the Collection of Water-Quality Data: Field Measurements,* edited by F.D. Wilde and D.B. Radtke: USGS–TWRI book 9, chap. A6. 1998. Variously paginated.

9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators,*edited by D.N. Myers and F.D. Wilde: USGS–TWRI book 9, chap. A7. 1997 and 1999. Variously paginated.

9-A8. *National Field Manual for the Collection of Water-Quality Data: Bottom-material samples,* by D.B. Radtke: USGS–TWRI book 9, chap. A8. 1998. 48 pages.

9-A9. *National Field Manual for the Collection of Water-Quality Data: Safety in Field Activities,* by S.L. Lane and R.G. Fay: USGS–TWRI book 9, chap. A9. 1998. 60 pages.

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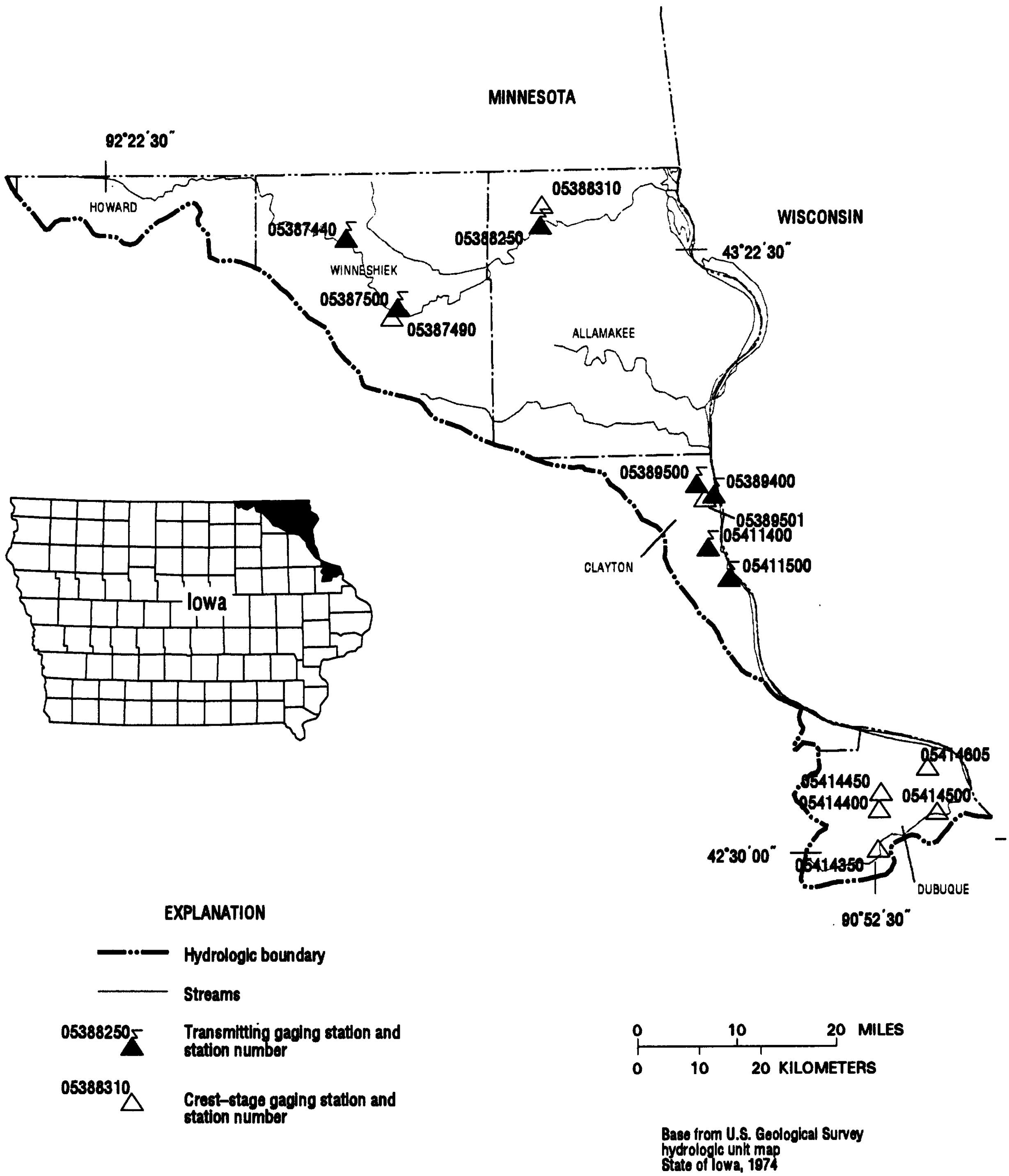


MINNESOTA
WISCONSIN
92°22'30"
43°22'30"
42°30'00"
90°52'30"
HOWARD
WINNESHIEK
ALLAMAKEE
CLAYTON
DUBUQUE
05387440
05388250
05388310
05387500
05387490
05389500
05389400
05389501
05411400
05411500
05414605
05414450
05414400
05414500
05414350
Iowa
EXPLANATION
Hydrologic boundary
Streams
05388250
Transmitting gaging station and station number
05388310
Crest-stage gaging station and station number
0 10 20 MILES
0 10 20 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05387440 Upper Iowa River at Bluffton, IA 52
05387500 Upper Iowa River at Decorah, IA. 54
05388250 Upper Iowa River near Dorchester, IA .56
05389400 Bloody Run Creek near Marquette, IA. .58
05389500 Mississippi River at McGregor, IA. 64
05411400 Sny Magill Creek near Clayton, IA. 70
05411500 Mississippi River at Clayton, IA 76

Crest Stage Gaging Stations

05387490 Dry Run Creek near Decorah, IA 322
05388310 Waterloo Creek near Dorchester, IA 322
05389501 Mississippi River Tributary at McGregor, IA. 322
05414350 Little Maquoketa River near Graf, IA 322
05414400 Middle Fork Little Maquoketa River near Rickardsville, IA. 322
05414450 North Fork Little Maquoketa River near Rickardsville, IA 322
05414500 Little Maquoketa River near Durango, IA. 323
05414605 Bloody Run Tributary near Sherrill, IA 323

05387440 UPPER IOWA RIVER AT BLUFFTON, IA

LOCATION.--Lat 43°24'25", long 91°53'56", in SW$^{1}/_{4}$ SW$^{1}/_{4}$ NE$^{1}/_{4}$ sec.10, T.99 N., R.9 W., Winneshiek County, Hydrologic Unit 07060002, on left bank 10 ft downstream of bridge on County Highway W20, 0.5 miles upstream of Silver Creek, and 9.3 mi upstream from Decorah.

DRAINAGE AREA.--367 mi^2.

PERIOD OF RECORD.--September 1957 to July 1977; low-flow measurement site: October 20, 1999 to September 30, 2000.

GAGE.--Water-stage recorder. Datum of gage is 945.50 ft. above sea level.

REMARKS.--Records good. U.S. Geological Survey satellite and telephone modem data collection platform at station.

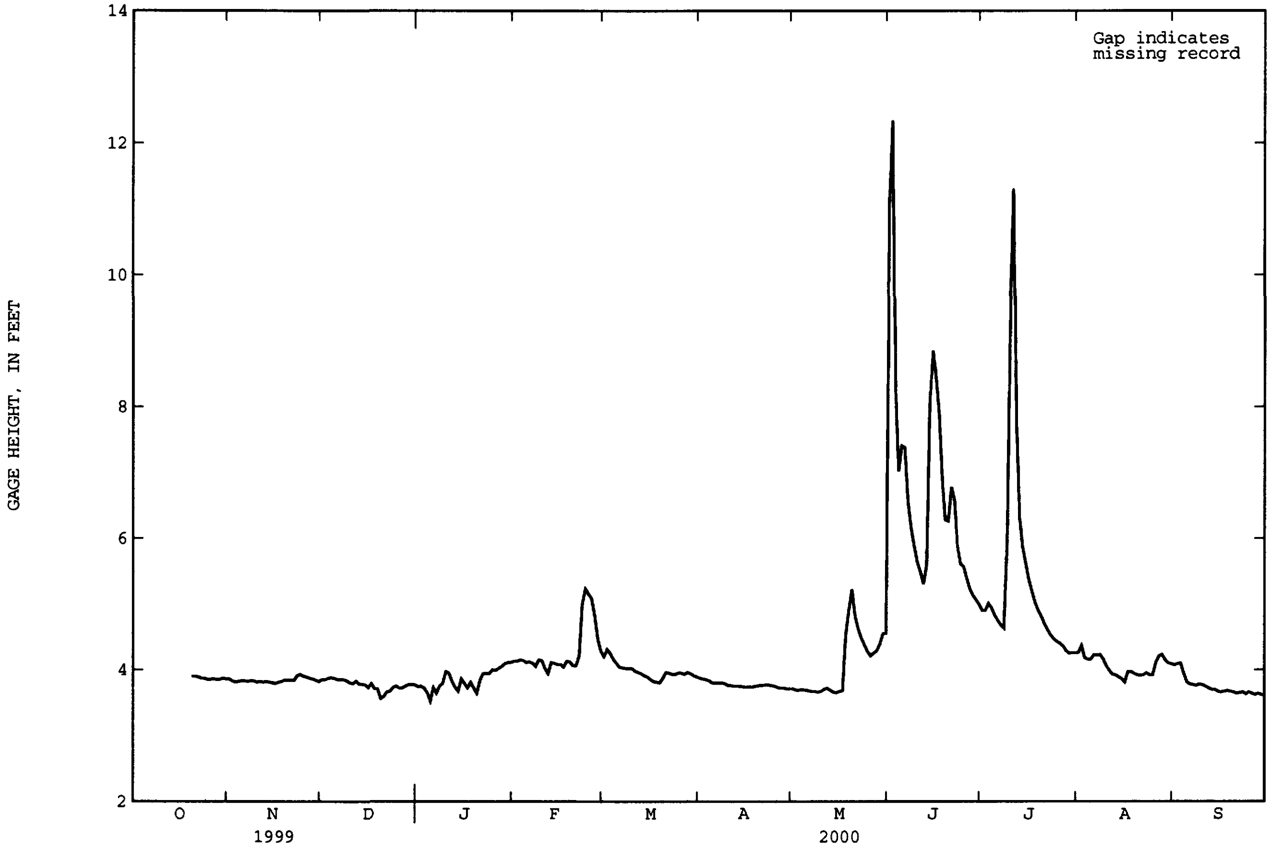
EXTREMES FOR CURRENT WATER YEAR.--Maximum gage height 13.53 ft June 1; minimum gage height 3.36 ft Jan. 20.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 27, 1961, discharge 20,200 ft^3/s; Flood of June 21, 1954, discharge 13,600 ft^3/s; on basis of peak flow at Decorah gage, downstream 11.0 miles.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	3.86	3.85	3.74	4.13	4.20	3.87	3.71	11.07	4.90	4.26	4.07
2	---	3.83	3.85	3.75	4.13	4.31	3.86	3.69	12.34	4.90	4.37	4.09
3	---	3.81	3.87	3.72	4.15	4.25	3.85	3.69	8.29	5.01	4.18	4.10
4	---	3.82	3.88	3.65	4.14	4.16	3.83	3.70	7.02	4.94	4.16	3.94
5	---	3.83	3.87	3.52	4.11	4.10	3.80	3.69	7.41	4.83	4.16	3.81
6	---	3.83	3.85	3.73	4.12	4.04	3.80	3.68	7.38	4.75	4.23	3.78
7	---	3.82	3.85	3.64	4.10	4.03	3.80	3.67	6.56	4.68	4.22	3.77
8	---	3.83	3.85	3.75	4.05	4.02	3.80	3.67	6.16	4.63	4.23	3.76
9	---	3.83	3.83	3.79	4.15	4.02	3.79	3.66	5.88	5.94	4.16	3.78
10	---	3.81	3.80	3.97	4.14	4.02	3.76	3.67	5.64	9.46	4.06	3.77
11	---	3.82	3.79	3.95	4.02	3.98	3.76	3.70	5.49	11.31	3.99	3.75
12	---	3.81	3.83	3.82	3.94	3.96	3.75	3.72	5.30	7.75	3.93	3.72
13	---	3.82	3.78	3.73	4.11	3.94	3.75	3.69	5.59	6.32	3.92	3.70
14	---	3.81	3.78	3.67	4.10	3.91	3.75	3.66	8.06	5.87	3.89	3.70
15	---	3.80	3.77	3.86	4.08	3.89	3.74	3.65	8.85	5.62	3.86	3.67
16	---	3.79	3.73	3.79	4.08	3.85	3.74	3.67	8.46	5.37	3.81	3.66
17	---	3.81	3.79	3.72	4.04	3.82	3.74	3.68	7.91	5.19	3.97	3.67
18	---	3.82	3.71	3.81	4.13	3.81	3.74	4.52	6.90	5.02	3.97	3.68
19	---	3.84	3.71	3.72	4.12	3.80	3.75	4.91	6.28	4.90	3.94	3.67
20	3.90	3.84	3.56	3.64	4.06	3.87	3.76	5.22	6.26	4.81	3.92	3.66
21	3.90	3.84	3.59	3.84	4.06	3.96	3.76	4.82	6.78	4.70	3.91	3.64
22	3.89	3.84	3.66	3.94	4.21	3.95	3.77	4.62	6.58	4.61	3.92	3.65
23	3.87	3.91	3.67	3.94	5.00	3.93	3.77	4.49	5.87	4.53	3.95	3.66
24	3.87	3.93	3.73	3.94	5.23	3.93	3.76	4.38	5.61	4.47	3.92	3.63
25	3.85	3.90	3.75	4.00	5.15	3.95	3.75	4.28	5.57	4.43	3.92	3.66
26	3.85	3.89	3.72	3.99	5.08	3.95	3.73	4.21	5.39	4.40	4.11	3.64
27	3.86	3.87	3.72	4.02	4.82	3.93	3.72	4.25	5.23	4.36	4.21	3.62
28	3.85	3.86	3.75	4.05	4.46	3.96	3.72	4.29	5.13	4.29	4.23	3.64
29	3.85	3.84	3.77	4.09	4.28	3.94	3.71	4.39	5.06	4.25	4.15	3.62
30	3.87	3.82	3.77	4.11	---	3.91	3.71	4.55	4.99	4.26	4.10	3.61
31	3.86	---	3.77	4.11	---	3.89	---	4.55	---	4.26	4.09	---
MEAN	3.87	3.84	3.77	3.84	4.28	3.98	3.77	4.07	6.77	5.31	4.06	3.74
MAX	3.90	3.93	3.88	4.11	5.23	4.31	3.87	5.22	12.34	11.31	4.37	4.10
MIN	3.85	3.79	3.56	3.52	3.94	3.80	3.71	3.65	4.99	4.25	3.81	3.61

05387440 UPPER IOWA RIVER AT BLUFFTON, IA--Continued



05387500 UPPER IOWA RIVER AT DECORAH, IA

LOCATION.--Lat 43°18'19", long 91°47'48", in $NW^1/_4$ $NE^1/_4$ $SW^1/_4$ sec.16, T.98 N., R.8 W., Winneshiek County, Hydrologic Unit 07060002, on right bank 1,200 ft upstream of bridge on College Street, 0.8 miles downstream from Dry Run Creek Cutoff, and 3.0 miles upstream from Trout Run.

DRAINAGE AREA.--511 mi^2.

PERIOD OF RECORD.--Discharge records from August 1951 to September 1983; Stage only records from October 20, 1999 to September 30.

GAGE.--Water-stage recorder. Datum of gage is 850.00 ft. above sea level.

REMARKS.--Records good. U.S. Geological Survey satellite and telephone modem data collection platform at station.

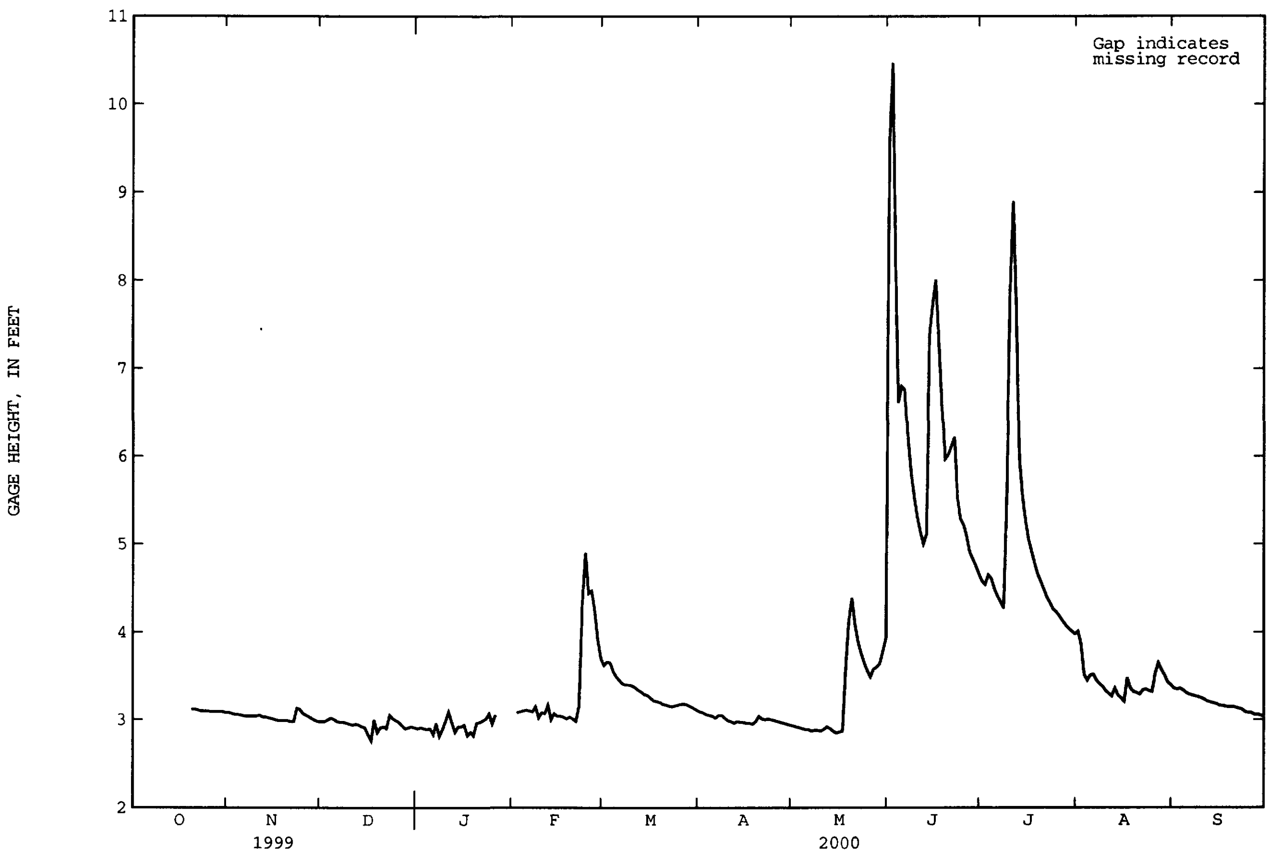
EXTREMES FOR CURRENT WATER YEAR.--Maximum gage height 12.31 ft June 1; minimum gage height 2.62 Dec. 16, 17.

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 miles downstream, discharge, 28,500 ft^3/s.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	3.08	2.98	2.90	---	3.62	3.09	2.93	9.55	4.58	4.01	3.36
2	---	3.07	2.98	2.91	3.08	3.66	3.08	2.92	10.47	4.54	3.86	3.35
3	---	3.06	3.00	2.90	3.09	3.65	3.06	2.91	8.23	4.65	3.52	3.36
4	---	3.06	3.02	2.89	3.10	3.55	3.05	2.90	6.61	4.61	3.45	3.34
5	---	3.05	3.00	2.90	3.11	3.49	3.04	2.89	6.80	4.49	3.51	3.31
6	---	3.04	2.98	2.83	3.10	3.45	3.02	2.89	6.76	4.41	3.52	3.29
7	---	3.04	2.97	2.96	3.09	3.41	3.05	2.87	6.21	4.34	3.45	3.28
8	---	3.04	2.97	2.81	3.15	3.40	3.05	2.88	5.82	4.27	3.41	3.27
9	---	3.04	2.96	2.89	3.02	3.40	3.02	2.88	5.54	5.63	3.38	3.26
10	---	3.04	2.95	2.99	3.08	3.39	2.99	2.87	5.31	7.89	3.33	3.25
11	---	3.05	2.94	3.09	3.07	3.37	2.98	2.89	5.14	8.90	3.30	3.23
12	---	3.03	2.95	2.97	3.17	3.34	2.96	2.92	5.00	7.74	3.27	3.21
13	---	3.03	2.94	2.86	3.00	3.32	2.98	2.90	5.11	5.97	3.36	3.20
14	---	3.02	2.92	2.92	3.07	3.29	2.97	2.87	7.39	5.54	3.28	3.19
15	---	3.01	2.91	2.92	3.04	3.28	2.97	2.85	7.74	5.26	3.25	3.18
16	---	3.00	2.83	2.94	3.04	3.25	2.96	2.86	8.01	5.05	3.21	3.16
17	---	2.99	2.76	2.82	3.03	3.22	2.96	2.87	7.31	4.91	3.48	3.16
18	---	2.99	3.00	2.86	3.01	3.21	2.95	3.58	6.59	4.77	3.36	3.15
19	---	2.99	2.85	2.82	3.03	3.20	2.98	4.13	5.97	4.65	3.32	3.15
20	3.12	2.99	2.91	2.96	3.01	3.18	3.04	4.39	6.02	4.57	3.31	3.15
21	3.12	2.98	2.92	2.97	2.98	3.17	3.01	4.09	6.12	4.48	3.29	3.14
22	3.11	2.98	2.90	2.99	3.16	3.16	3.00	3.89	6.22	4.39	3.34	3.13
23	3.10	3.13	3.05	3.01	4.34	3.15	3.01	3.76	5.52	4.33	3.35	3.12
24	3.10	3.12	3.01	3.07	4.90	3.16	3.00	3.65	5.29	4.26	3.33	3.09
25	3.10	3.07	2.99	2.95	4.44	3.17	2.99	3.56	5.22	4.23	3.32	3.08
26	3.09	3.05	2.97	3.05	4.47	3.18	2.98	3.49	5.09	4.18	3.53	3.08
27	3.09	3.03	2.93	---	4.24	3.18	2.97	3.58	4.91	4.13	3.65	3.06
28	3.09	3.01	2.90	---	3.91	3.17	2.96	3.60	4.83	4.08	3.57	3.06
29	3.09	2.99	2.91	---	3.70	3.15	2.95	3.64	4.75	4.04	3.51	3.05
30	3.09	2.98	2.92	---	---	3.13	2.94	3.78	4.66	4.01	3.43	3.04
31	3.08	---	2.91	---	---	3.11	---	3.93	---	3.98	3.40	---
MEAN	3.10	3.03	2.94	2.93	3.37	3.30	3.00	3.30	6.27	4.93	3.43	3.19
MAX	3.12	3.13	3.05	3.09	4.90	3.66	3.09	4.39	10.47	8.90	4.01	3.36
MIN	3.08	2.98	2.76	2.81	2.98	3.11	2.94	2.85	4.66	3.98	3.21	3.04

05387500 UPPER IOWA RIVER AT DECORAH, IA--Continued



05388250 UPPER IOWA RIVER NEAR DORCHESTER, IA

LOCATION.--Lat 43°25'16", long 91°30'31", in $SW^1/_4$ $NW^1/_4$ sec.1, T.99 N., R.6 W., Allamakee County, Hydrologic Unit 07060002, on right bank at upstream side of bridge on State Highway 76, 650 ft. upstream from Mineral Creek, 0.5 mi upstream from Bear Creek, 3.5 mi south of Dorchester, and 18.1 mi upstream from mouth.

DRAINAGE AREA.--770 mi^2.

PERIOD OF RECORD.--September 1936 to September 1938 and October 1939 to June 1975(discharge measurements only), October 1938 to September 1939, July 1975 to current year.

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey satellite and telephone modem data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1941, reached a stage of 21.8 ft., from flood profile, discharge, 30,400 ft^3/s on basis of slope-area determination of peak flow.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	391	313	279	e200	e130	743	305	241	8210	1260	643	499
2	415	313	285	e220	e140	682	299	239	11700	1360	890	480
3	414	310	287	e200	e150	704	295	233	10000	1430	752	483
4	395	309	294	e180	e140	655	289	229	4170	1260	627	470
5	387	308	287	e170	e150	605	285	227	3950	1190	619	447
6	373	306	278	e190	e160	564	283	225	3910	1110	703	429
7	366	304	271	e170	e180	532	278	226	3370	1030	628	422
8	373	305	268	e190	e210	512	284	230	2690	974	597	418
9	371	310	264	e210	e240	498	278	232	2300	1450	571	405
10	361	315	261	e230	e270	488	269	225	2020	4610	548	397
11	350	310	258	e210	e260	472	269	233	1820	6440	532	392
12	351	308	253	e170	e250	458	264	267	1670	7250	519	379
13	349	308	251	e160	e260	442	260	254	1610	3240	551	364
14	339	305	249	e150	e240	422	258	239	4240	2440	586	367
15	339	296	253	e160	e220	413	252	229	4740	2090	519	357
16	346	292	247	e180	e210	400	248	232	5990	1820	491	348
17	344	290	e200	e160	e210	375	249	249	4580	1630	650	343
18	334	290	e150	e170	e200	366	249	322	3790	1470	671	338
19	333	290	e160	e150	e180	363	255	955	2910	1360	556	339
20	330	287	e160	e140	e170	353	280	1000	2810	1270	524	e350
21	332	283	e170	e150	e250	343	282	1040	2700	1180	502	e340
22	329	281	e180	e170	312	337	267	853	2960	1070	501	e360
23	319	337	e170	e160	1200	332	261	725	2350	978	556	e360
24	317	384	e160	e140	2350	338	260	626	2030	884	510	e360
25	318	342	e160	e150	1480	338	255	553	1870	837	488	e330
26	317	320	e170	e140	1410	332	249	504	1830	814	511	e330
27	314	309	e180	e130	1290	339	248	530	1620	772	696	e320
28	316	297	e170	e120	1060	334	246	577	1520	730	622	e310
29	330	287	e210	e130	865	328	243	565	1440	694	595	e340
30	328	280	e200	e140	---	320	240	614	1340	666	546	e340
31	318	---	e180	e120	---	312	---	763	---	650	520	---
TOTAL	10799	9189	6905	5160	14187	13700	8000	13637	106140	53959	18224	11417
MEAN	348	306	223	166	489	442	267	440	3538	1741	588	381
MAX	415	384	294	230	2350	743	305	1040	11700	7250	890	499
MIN	314	280	150	120	130	312	240	225	1340	650	488	310
AC-FT	21420	18230	13700	10230	28140	27170	15870	27050	210500	107000	36150	22650
CFSM	.45	.40	.29	.22	.64	.57	.35	.57	4.59	2.26	.76	.49
IN.	.52	.44	.33	.25	.69	.66	.39	.66	5.13	2.61	.88	.55

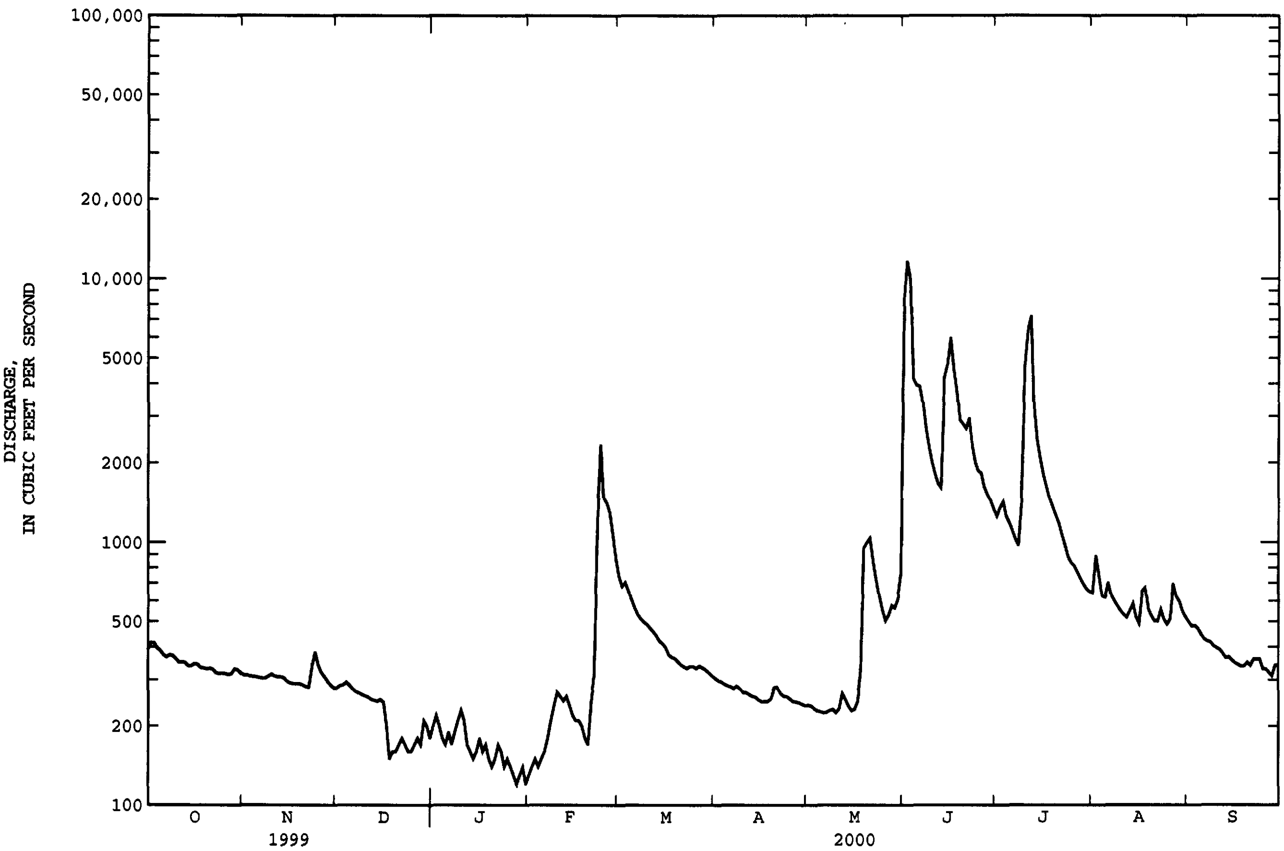
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	421	446	362	267	414	1041	1043	809	907	704	593	458
MAX	2045	1476	1421	836	1400	1922	3973	2066	3538	3318	3702	1334
(WY)	1987	1983	1983	1983	1984	1983	1993	1991	2000	1993	1993	1986
MIN	116	125	99.9	96.7	112	386	225	175	123	92.9	112	77.5
(WY)	1990	1990	1990	1977	1978	1981	1977	1977	1977	1939	1989	1939

05388250 UPPER IOWA RIVER NEAR DORCHESTER, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1939 - 2000a	
ANNUAL TOTAL	295962		271317			
ANNUAL MEAN	811		741		625	
HIGHEST ANNUAL MEAN					1726	1993
LOWEST ANNUAL MEAN					178	1977
HIGHEST DAILY MEAN	5170	Jul 22	11700	Jun 2	15100	Aug 17 1993
LOWEST DAILY MEAN	120	Jan 13	120	Jan 28b	30	Sep 23 1939
ANNUAL SEVEN-DAY MINIMUM	130	Jan 9	130	Jan 26	49	Sep 20 1939
INSTANTANEOUS PEAK FLOW			13300	Jun 2	22000	Aug 17 1993
INSTANTANEOUS PEAK STAGE			17.53	Jun 2	20.00	Aug 17 1993
ANNUAL RUNOFF (AC-FT)	587000		538200		453100	
ANNUAL RUNOFF (CFSM)	1.05		.96		.81	
ANNUAL RUNOFF (INCHES)	14.30		13.11		11.04	
10 PERCENT EXCEEDS	1740		1550		1350	
50 PERCENT EXCEEDS	542		336		373	
90 PERCENT EXCEEDS	180		170		142	

a Revised.
b Also Jan. 31.
e Estimated.



05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA

LOCATION.--Lat 43°02'27", long 91°12'23", in Basil Giard Claim #1, sec.16, T.95 N., R.3 W., Clayton County, Hydrologic Unit 07060001, on right bank 50 ft downstream from State Highway 18 bridge, 1.5 miles upstream from mouth at Mississippi River, and 1.5 miles west of Marquette.

DRAINAGE AREA.--34.1 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 624.818 ft above mean sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	23	19	16	16	24	16	17	93	25	20	23
2	20	22	19	17	16	21	16	18	45	26	21	23
3	19	21	20	16	16	20	16	19	36	28	20	26
4	19	21	19	16	16	19	16	20	33	24	20	26
5	21	21	18	15	15	17	16	19	43	25	23	25
6	22	21	18	16	15	16	16	20	35	25	22	24
7	22	21	19	15	15	18	17	19	31	23	20	23
8	23	21	19	15	15	21	16	19	29	24	20	23
9	23	21	18	16	15	21	16	19	26	47	20	23
10	23	21	18	19	16	21	16	20	25	e55	20	23
11	22	20	17	17	15	20	16	21	24	e37	20	24
12	23	20	18	16	14	20	16	21	24	e32	21	22
13	23	20	17	e14	16	20	16	19	42	e28	22	20
14	23	19	18	e13	16	20	16	19	58	e26	22	21
15	23	19	18	e15	16	20	16	20	37	e25	23	20
16	24	20	17	16	16	19	16	20	33	e24	23	19
17	23	21	17	15	16	19	16	30	30	e23	52	19
18	23	21	16	16	16	19	16	61	29	18	27	19
19	23	21	17	e14	16	20	19	48	27	17	25	19
20	23	20	e15	e13	16	20	34	27	32	17	24	20
21	23	20	e13	e14	16	20	25	24	28	18	24	18
22	22	20	e14	e15	19	20	21	23	26	19	24	19
23	22	30	e12	e15	142	17	19	23	26	19	24	21
24	23	22	e13	e13	88	18	19	22	27	20	23	27
25	23	20	e15	e14	40	17	17	21	27	20	23	27
26	22	20	16	e13	32	17	17	22	29	20	24	28
27	22	20	16	e12	28	18	17	28	25	20	24	25
28	23	19	16	e13	25	17	17	24	25	20	25	24
29	24	19	16	e14	25	17	17	23	24	20	24	22
30	23	19	17	e15	---	16	17	24	25	20	24	22
31	23	---	16	17	---	16	---	35	---	21	24	---
TOTAL	690	623	521	465	727	588	528	745	994	766	728	675
MEAN	22.3	20.8	16.8	15.0	25.1	19.0	17.6	24.0	33.1	24.7	23.5	22.5
MAX	24	30	20	19	142	24	34	61	93	55	52	28
MIN	18	19	12	12	14	16	16	17	24	17	20	18
AC-FT	1370	1240	1030	922	1440	1170	1050	1480	1970	1520	1440	1340
CFSM	.65	.61	.49	.44	.73	.56	.52	.70	.97	.72	.69	.66
IN.	.75	.68	.57	.51	.79	.64	.58	.81	1.08	.83	.79	.74

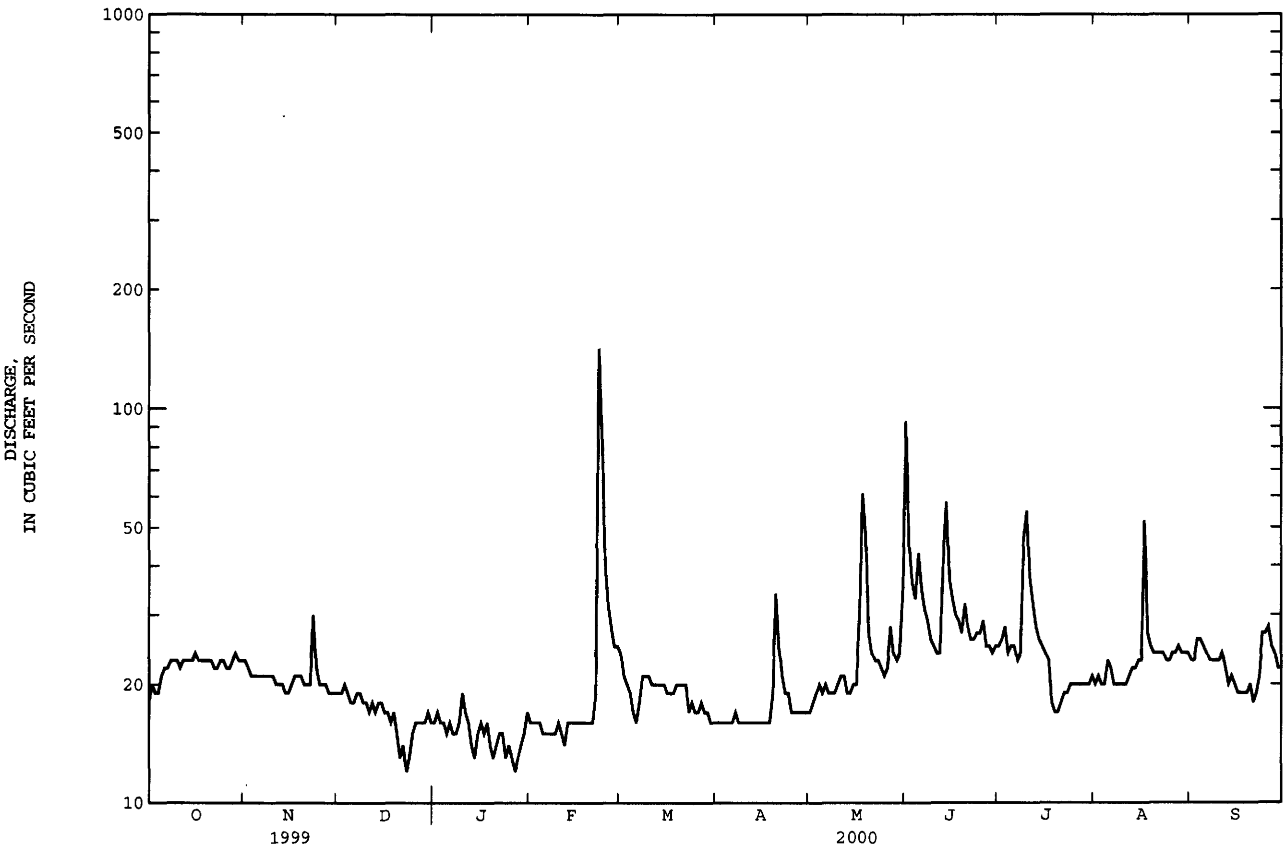
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	21.1	22.4	18.5	16.8	23.1	31.0	28.1	31.1	32.2	29.0	26.7	22.7
MAX	30.9	35.3	26.0	22.3	33.6	87.6	55.3	65.7	55.4	54.2	48.9	36.4
(WY)	1994	1992	1992	1992	1994	1993	1993	1993	1993	1993	1993	1993
MIN	14.9	13.5	11.2	11.3	13.6	19.0	15.2	17.3	16.4	15.9	12.9	13.7
(WY)	1998	1998	1998	1998	1998	2000	1997	1997	1997	1997	1997	1997

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1992 - 2000	
ANNUAL TOTAL	10262		8050			
ANNUAL MEAN	28.1		22.0		25.2	
HIGHEST ANNUAL MEAN					42.1	1993
LOWEST ANNUAL MEAN					17.2	1997
HIGHEST DAILY MEAN	293	May 17	142	Feb 23	550	Mar 31 1993
LOWEST DAILY MEAN	12	Dec 23	12	Dec 23a	7.3	Feb 17 1997
ANNUAL SEVEN-DAY MINIMUM	14	Dec 20	13	Jan 23	8.3	Feb 11 1997
INSTANTANEOUS PEAK FLOW			386	Feb 23	1820	Feb 18 1997
INSTANTANEOUS PEAK STAGE			5.98	Feb 23	7.68	Feb 18 1997
ANNUAL RUNOFF (AC-FT)	20350		15970		18280	
ANNUAL RUNOFF (CFSM)	.82		.64		.74	
ANNUAL RUNOFF (INCHES)	11.19		8.77		10.05	
10 PERCENT EXCEEDS	39		28		37	
50 PERCENT EXCEEDS	23		20		21	
90 PERCENT EXCEEDS	18		16		14	

a Also Jan. 27.
e Estimated.



05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1991 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1991 to current year.
WATER TEMPERATURES: October 1991 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1991 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, 670 microsiemens Sept. 27, 1994; minimum daily, 140 microsiemens Oct. 14, 1997.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 17, 1998; minimum daily, 0.0°C Jan. 7, 18-21, 1994, Jan. 5,7,8, Feb. 21, 1997.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,780 mg/L Mar. 31, 1993; minimum daily mean, 1 mg/L Oct. 30, 1994.
SEDIMENT LOADS: Maximum daily, 4,500 tons Mar. 31, 1993; minimum daily, 0.08 tons Oct. 30, 1994, Nov. 23-24, 1997, and Dec. 8, 1997.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 656 microsiemens Oct. 18; minimum daily, 303 microsiemens Oct. 6.
WATER TEMPERATURES: Maximum daily, 18.0°C May 26; minimum daily, 6.0°C Nov. 25 and Dec. 3.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 858 mg/L Feb. 23; minimum daily mean, 3 mg/L Nov. 13-16 and Mar. 14.
SEDIMENT LOADS: Maximum daily, 636 tons Feb. 23; minimum daily, 0.16 tons Nov. 15.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	TIME	TEMPERATURE WATER (DEG C) (00010)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
05...	1330	11.2	22	11	.65	56
NOV						
16...	1330	6.7	22	4	.23	61
DEC						
15...	1200	4.8	18	8	.38	38
FEB						
14...	1130	4.0	17	24	1.1	59
MAR						
23...	0838	7.2	17	15	.67	61
MAY						
02...	1615	18.6	19	20	1.0	93
JUN						
08...	1350	17.4	27	71	5.2	49
JUL						
25...	1445	17.1	20	35	1.9	59
AUG						
17...	1130	16.8	69	304	56	99
SEP						
07...	1100	14.2	23	46	2.8	56

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	323	---	630	---	608	588	---	488	548	---	420	---
2	458	484	434	---	596	571	---	479	433	---	---	---
3	453	---	421	551	611	589	437	490	---	473	---	---
4	332	---	---	548	497	---	479	443	---	618	505	423
5	276	---	---	552	---	---	444	471	424	536	---	462
6	303	---	420	539	---	492	465	---	463	527	---	510
7	580	---	428	520	549	521	463	---	423	516	499	454
8	613	---	459	---	578	541	---	456	483	---	---	522
9	532	505	488	---	589	572	---	445	532	---	549	---
10	500	---	531	587	586	589	501	525	---	626	519	---
11	651	---	---	531	579	---	509	512	---	476	533	466
12	645	---	---	528	---	---	522	502	427	509	---	500
13	620	---	480	517	---	477	447	---	428	547	---	431
14	653	---	456	520	568	462	494	---	503	530	533	486
15	625	---	470	---	589	432	---	505	441	---	499	541
16	461	542	605	---	461	482	---	457	484	---	523	---
17	615	---	624	574	557	468	467	447	---	463	454	---
18	656	---	---	525	588	---	498	500	---	480	504	358
19	583	---	---	545	---	---	447	457	506	466	---	458
20	643	---	480	588	---	306	485	---	534	453	---	494
21	502	---	517	566	579	313	517	---	482	492	439	355
22	598	416	546	---	592	439	---	520	456	---	525	408
23	---	439	460	---	595	456	---	542	448	---	486	---
24	---	451	538	552	---	447	512	517	---	480	428	---
25	639	449	---	507	605	---	451	547	---	505	514	360
26	637	560	---	573	549	---	452	564	508	512	---	502
27	---	---	529	534	---	453	530	---	495	471	---	454
28	---	---	514	579	579	449	525	---	450	473	477	494
29	---	485	534	---	599	489	---	480	434	---	523	356
30	---	486	484	---	---	427	---	523	467	---	489	---
31	---	---	556	603	---	464	---	520	---	---	471	---

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	---	8.0	---	10.0	13.0	---	16.0	15.0	---	17.5	---
2	11.0	8.2	7.0	---	10.0	13.0	---	16.0	16.0	---	---	---
3	11.0	---	6.0	7.0	11.0	12.0	15.0	15.0	---	15.0	---	---
4	13.0	---	---	8.0	12.0	---	14.0	17.0	---	15.0	14.0	14.0
5	14.0	---	---	8.0	---	---	14.0	16.0	15.0	16.0	---	15.0
6	15.0	---	7.0	9.0	---	13.0	13.0	---	14.0	16.0	---	16.0
7	14.0	---	7.0	10.0	13.0	12.0	12.0	---	15.0	16.0	13.0	---
8	13.0	---	8.0	---	12.0	13.0	---	17.0	15.0	---	---	15.0
9	10.0	10.3	9.0	---	11.0	13.0	---	17.0	14.0	---	12.0	---
10	9.0	---	8.0	11.0	12.0	12.0	13.0	16.0	---	17.0	10.0	---
11	12.0	---	---	10.0	10.0	---	14.0	15.0	---	17.0	11.0	16.0
12	11.0	---	---	9.0	---	---	14.0	16.0	14.0	16.0	---	15.0
13	12.0	---	8.0	9.0	---	13.0	13.0	---	13.0	15.0	---	16.0
14	12.0	---	8.0	10.0	11.0	12.0	14.0	---	14.0	14.0	12.0	14.0
15	13.0	---	9.0	---	12.0	12.0	---	16.0	15.0	---	13.0	13.0
16	10.0	6.1	9.0	---	12.0	11.0	---	17.0	16.0	---	14.0	---
17	9.0	---	8.0	10.0	11.0	12.0	15.0	15.0	---	15.0	15.0	---
18	14.0	---	---	11.0	10.0	---	14.0	16.0	---	14.0	16.0	12.0
19	9.0	---	---	10.0	---	---	15.0	15.0	15.0	15.0	---	13.0
20	14.0	---	8.0	9.0	---	12.0	16.0	---	15.0	16.0	---	14.0
21	15.0	---	9.0	10.0	12.0	12.0	16.0	---	16.0	14.0	15.0	13.0
22	13.0	8.0	10.0	---	13.0	13.0	---	14.0	14.0	---	15.0	13.0
23	---	7.0	9.0	---	13.0	14.0	---	15.0	13.0	---	14.0	---
24	---	8.0	8.0	11.0	---	13.0	15.0	16.0	---	13.0	13.0	---
25	14.0	6.0	---	11.0	12.0	---	16.0	16.0	---	12.0	12.0	12.0
26	13.0	7.0	---	10.0	12.0	---	14.0	18.0	13.0	13.0	---	12.0
27	---	---	9.0	8.0	---	13.0	15.0	---	12.0	14.0	---	14.0
28	---	---	8.0	9.0	11.0	14.0	15.0	---	14.0	14.0	11.0	14.0
29	---	8.0	10.0	---	12.0	13.0	---	17.0	13.0	---	12.0	13.0
30	---	9.0	8.0	---	---	12.0	---	16.0	14.0	---	13.0	---
31	---	---	9.0	9.0	---	14.0	---	16.0	---	---	14.0	---

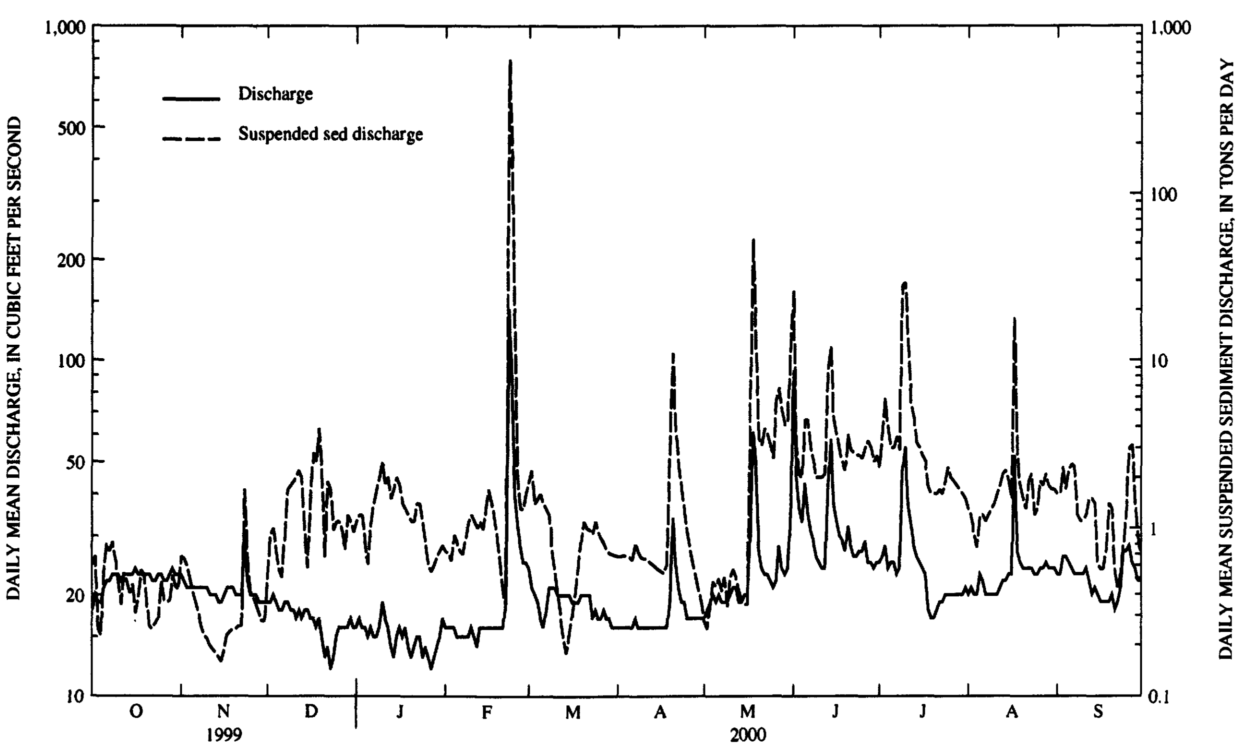
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	12	.61	11	.68	10	.51	24	1.1	16	.73	29	1.9
2	13	.68	11	.66	18	.92	27	1.2	17	.71	37	2.2
3	5	.25	10	.60	20	1.0	27	1.2	15	.64	26	1.4
4	5	.23	9	.50	15	.77	18	.80	22	.91	29	1.5
5	10	.57	8	.42	11	.57	15	.61	20	.82	34	1.6
6	14	.81	6	.36	10	.51	25	1.1	18	.73	32	1.4
7	12	.73	5	.31	18	.93	35	1.4	17	.70	27	1.3
8	13	.83	5	.26	34	1.7	41	1.7	22	.87	22	1.2
9	10	.66	4	.23	37	1.8	47	2.0	26	1.1	13	.77
10	8	.47	4	.22	39	1.9	48	2.5	28	1.2	10	.55
11	6	.35	4	.20	42	2.0	40	1.8	27	1.1	7	.41
12	9	.54	4	.19	46	2.2	46	2.0	26	1.0	5	.30
13	8	.48	3	.18	42	2.0	41	1.5	25	1.1	4	.22
14	7	.41	3	.17	20	.96	49	1.7	23	.99	3	.18
15	7	.46	3	.16	12	.58	50	2.0	29	1.3	4	.23
16	5	.31	3	.19	34	1.5	42	1.8	40	1.7	6	.30
17	6	.39	4	.23	62	2.8	35	1.4	34	1.4	8	.41
18	9	.56	4	.24	54	2.5	31	1.3	26	1.1	11	.59
19	8	.53	4	.25	85	3.9	33	1.2	20	.84	16	.83
20	6	.34	5	.25	53	2.1	31	1.1	15	.64	21	1.1
21	4	.26	5	.26	19	.67	30	1.1	10	.41	19	1.0
22	4	.25	5	.26	50	1.9	35	1.4	6	.34	18	.98
23	5	.27	21	1.7	52	1.7	35	1.4	858	636	20	.93
24	5	.29	12	.72	28	.98	30	1.1	675	173	23	1.1
25	8	.48	8	.42	26	1.1	21	.79	130	15	20	.95
26	6	.37	7	.39	26	1.1	17	.60	23	2.1	18	.87
27	6	.36	6	.35	23	.96	17	.55	17	1.3	17	.82
28	6	.37	6	.31	18	.75	17	.60	19	1.3	16	.75
29	8	.52	5	.28	27	1.2	18	.68	24	1.6	16	.71
30	7	.45	6	.28	24	1.1	18	.73	---	---	16	.70
31	7	.43	---	---	22	.95	18	.79	---	---	16	.69
TOTAL	---	14.26	---	11.27	---	43.56	---	39.15	---	850.63	---	27.89

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	16	.68	6	.28	89	26	34	2.3	25	1.3	25	1.6
2	16	.68	5	.25	25	3.0	49	3.7	20	1.2	26	1.6
3	16	.69	7	.35	22	2.1	78	5.9	17	.90	33	2.3
4	16	.68	9	.48	22	2.0	59	3.9	15	.77	24	1.7
5	16	.67	9	.45	39	4.4	45	3.0	19	1.2	32	2.2
6	15	.65	9	.50	46	4.4	46	3.0	21	1.2	37	2.4
7	18	.82	8	.42	36	3.0	56	3.5	20	1.1	36	2.3
8	16	.73	10	.51	32	2.5	46	2.9	21	1.2	19	1.2
9	16	.67	7	.34	28	2.0	177	28	24	1.3	18	1.1
10	15	.66	9	.50	29	2.0	192	29	26	1.4	17	1.1
11	15	.66	10	.57	31	2.0	128	13	29	1.6	19	1.2
12	15	.63	9	.51	32	2.1	65	5.6	32	1.8	25	1.5
13	14	.61	8	.43	61	8.8	59	4.5	35	2.1	26	1.5
14	14	.59	7	.37	75	12	46	3.2	37	2.2	24	1.4
15	13	.57	7	.35	45	4.5	44	3.0	31	1.9	12	.62
16	13	.55	6	.35	40	3.5	42	2.7	25	1.5	11	.57
17	12	.54	51	5.9	36	2.9	40	2.5	133	18	11	.57
18	14	.61	233	53	32	2.5	38	1.8	37	2.7	14	.73
19	58	3.2	80	12	30	2.2	36	1.6	27	1.8	27	1.4
20	118	11	47	3.4	41	3.6	35	1.6	23	1.5	24	1.3
21	58	3.9	47	3.1	38	2.9	34	1.6	21	1.3	11	.56
22	44	2.5	63	3.9	40	2.8	33	1.7	29	1.9	8	.43
23	34	1.8	58	3.6	39	2.7	32	1.6	32	2.1	9	.54
24	26	1.3	52	3.1	37	2.7	35	1.9	20	1.2	11	.79
25	20	.95	45	2.6	36	2.6	42	2.3	21	1.3	18	1.3
26	17	.76	95	5.6	39	3.0	37	2.0	29	1.9	40	3.0
27	14	.62	89	6.8	50	3.3	34	1.9	28	1.8	46	3.1
28	11	.51	78	5.1	46	3.0	32	1.8	32	2.1	23	1.5
29	9	.43	65	4.1	38	2.5	30	1.7	27	1.8	14	.86
30	7	.35	67	4.4	41	2.7	28	1.6	26	1.7	12	.71
31	---	---	118	12	---	---	27	1.5	26	1.7	---	---
TOTAL	---	39.01	---	135.26	---	123.7	---	144.3	---	65.47	---	41.08
YEAR		1535.58										



05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA--Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.--December 1991 to current year.

INSTRUMENTATION.--Tipping bucket rain gage.

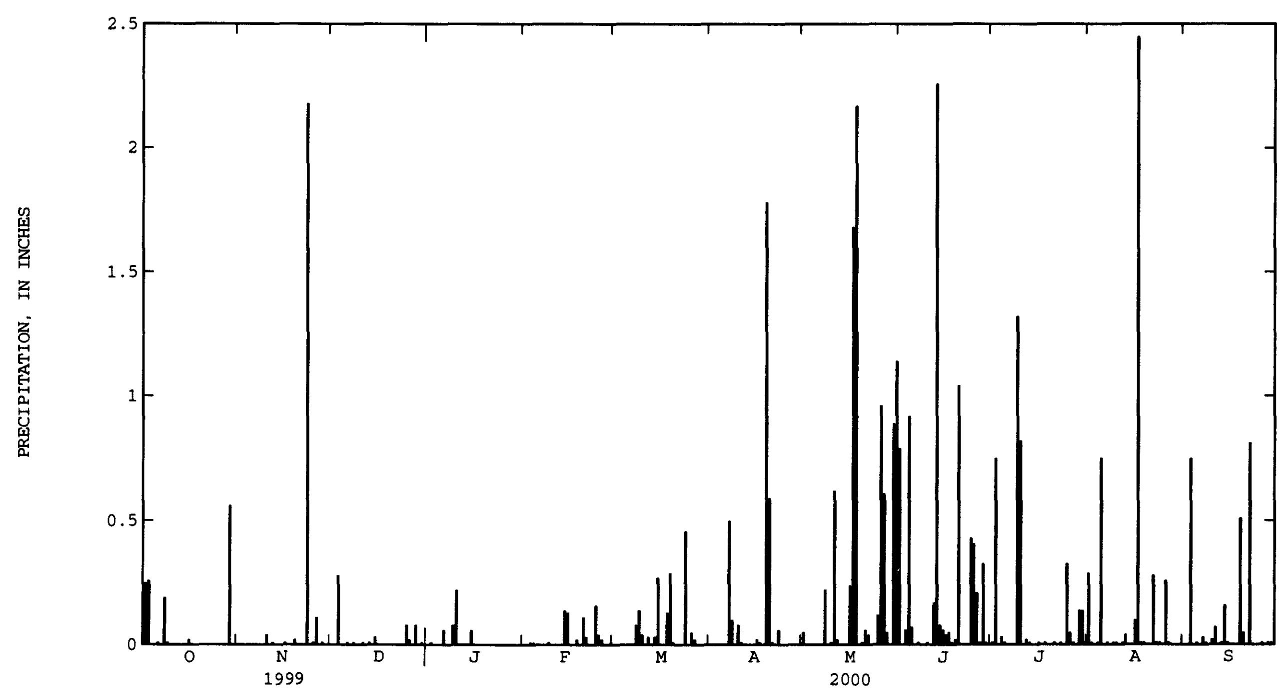
REMARKS.--Water years 1992-1995 in files at the District office. Records good except for winter period, which is poor due to intermittent snow accumulation and subsequent melting.

EXTREME FOR PERIOD OF RECORD.--Maximum daily accumulation, 2.92 in., June 20, 1994.

EXTREME FOR CURRENT YEAR.--Maximum daily accumulation, 2.40 in., May 16.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	.00	.00	.00	.00	.00	.00	.05	.79	.01	.29	.00
2	.25	.00	.00	.01	.00	.00	.00	.00	.00	.75	.01	.00
3	.26	.00	.28	.00	.01	.00	.00	.00	.06	.00	.00	.75
4	.00	.00	.00	.00	.01	.00	.00	.00	.92	.03	.01	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.07	.01	.75	.01
6	.01	.00	.01	.06	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.50	.00	.01	.00	.01	.03
8	.19	.00	.01	.00	.00	.08	.10	.22	.00	.00	.00	.01
9	.01	.00	.00	.08	.01	.14	.00	.00	.00	1.32	.01	.00
10	.00	.04	.00	.22	.00	.04	.08	.01	.01	.82	.01	.02
11	.00	.00	.01	.00	.00	.00	.01	.62	.00	.00	.00	.07
12	.00	.01	.00	.00	.00	.03	.00	.02	.17	.02	.01	.00
13	.00	.00	.01	.00	.00	.00	.00	.00	2.26	.01	.04	.01
14	.00	.00	.00	.00	.14	.03	.00	.00	.08	.00	.00	.16
15	.00	.00	.03	.06	.13	.27	.00	.00	.06	.00	.00	.01
16	.02	.01	.00	.00	.00	.00	.02	.24	.04	.01	.10	.00
17	.00	.00	.00	.00	.00	.00	.01	1.68	.05	.00	2.45	.00
18	.00	.00	.00	.00	.02	.13	.00	2.17	.01	.01	.01	.00
19	.00	.02	.00	.00	.00	.29	1.78	.00	.02	.00	.01	.51
20	.00	.00	.00	.00	.11	.01	.59	.01	1.04	.00	.00	.05
21	.00	.00	.00	.00	.03	.00	.01	.06	.00	.01	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.28	.81
23	.00	2.18	.00	.00	.00	.00	.06	.00	.00	.01	.01	.00
24	.00	.00	.00	.00	.16	.46	.00	.00	.43	.00	.01	.00
25	.00	.01	.08	.00	.04	.00	.00	.12	.41	.33	.00	.00
26	.00	.11	.02	.00	.02	.05	.00	.96	.21	.05	.26	.01
27	.00	.00	.00	.00	.00	.02	.00	.61	.01	.01	.01	.00
28	.00	.01	.08	.00	.00	.00	.00	.05	.33	.00	.00	.01
29	.56	.00	.00	.00	.01	.00	.00	.00	.01	.14	.00	.01
30	.00	.00	.01	.00	---	.00	.00	.89	.00	.14	.00	.00
31	.00	---	.00	.00	---	.00	---	1.14	---	.01	.00	---
TOTAL	1.51	2.39	0.54	0.43	0.69	1.55	3.16	8.89	6.99	3.69	4.28	2.47
MEAN	.05	.08	.02	.01	.02	.05	.11	.29	.23	.12	.14	.08
MAX	.56	2.18	.28	.22	.16	.46	1.78	2.17	2.26	1.32	2.45	.81
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00



05389500 MISSISSIPPI RIVER AT MCGREGOR, IA

LOCATION.--Lat 43°01'29", long 91°10'21", in $SE^1/_4$ $SE^1/_4$ sec.22, T.95 N., R.3 W., Clayton County, Hydrologic Unit 07060001, on right bank in city park at east end of Main Street in McGregor, 2.6 mi upstream from Wisconsin River, 4.3 mi downstream from Yellow River, and at mile 633.4 upstream from Ohio River.

DRAINAGE AREA.--67,500 mi^2, approximately.

WATER-DISCHARGE RECORDS

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Minor flow regulation caused by navigation dams. U.S. Geological Survey satellite and telephone modem data collection platform at station.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25200	24800	24600	e21000	e20400	58000	39800	32700	46300	58300	29500	21900
2	26200	26300	23100	e20000	e21400	63000	40000	29800	65800	51800	27000	16100
3	26500	27700	22900	e21000	e21200	64300	37800	27400	69000	48300	26100	e11500
4	26700	25800	23100	e18000	e21200	64100	34000	26100	72100	44100	26200	e17100
5	26700	22600	23100	e17000	e21000	63700	31500	25700	74900	42300	26100	20700
6	28000	22400	22700	e19000	e20900	61100	30200	25800	75900	39800	26700	25900
7	29000	22800	20500	e18000	e20700	58600	29300	25700	77100	36500	26500	21700
8	29000	23900	19300	e19000	e19500	56600	30400	25500	78000	32700	24500	19900
9	28800	25600	19900	e20000	e19600	55500	31700	24900	77100	33000	20100	20400
10	28400	26400	23000	e19000	e19800	52700	30500	24800	76500	39000	18400	19900
11	28300	26700	23500	e18000	e19900	49600	28700	23600	75100	51100	19000	19600
12	28300	26700	21800	e17000	e19900	45700	27500	26600	71600	61500	20500	22100
13	27800	27000	20800	e18000	e19900	45000	27800	30400	67200	69500	21300	26000
14	27100	26700	19600	e19000	e20000	45500	29900	30200	62300	74100	23500	31800
15	23800	23600	19800	e20000	e20000	46000	30200	30800	56600	75800	24400	36500
16	21500	19300	14100	e19000	e20100	46100	29700	33200	56200	76100	24500	36400
17	21600	17900	e11000	e19000	e20100	45800	28300	35400	57700	75600	26200	30600
18	21800	18400	e10000	e19500	e19900	44400	27800	43700	57600	73000	28800	27600
19	22800	19900	e10000	e19600	e19700	42100	27600	47900	54500	68300	32900	19500
20	23400	21200	e9500	e19400	e19300	38800	29600	49500	49500	62300	39900	e13700
21	23300	21100	e9000	e18400	e19000	36900	31500	50700	51400	57900	40300	e13100
22	23300	21400	e9500	e18400	e18700	35300	32700	51400	55600	54200	38800	e12400
23	23000	23800	e10000	e18200	e18900	32600	35500	51000	59800	49600	34400	e16300
24	22800	28000	e11000	e17900	e19900	30400	40400	50400	62700	43700	27000	11500
25	22600	28700	e10000	e17800	e25600	30500	45600	49400	66200	36300	24500	14100
26	23200	26600	e11000	e17200	37700	30700	47600	47800	69000	31800	24400	13400
27	24700	25500	e13000	e17300	41000	32200	47700	45300	71600	31500	24400	13400
28	24600	25500	e15000	e17400	45800	33800	46500	43000	72100	32400	25000	12500
29	24500	26300	e19000	e17500	50400	35800	43600	39300	70600	33200	26000	e14700
30	24600	27000	e17000	e17600	---	38300	37400	37000	65900	33300	26600	e14000
31	23600	---	e19000	e17800	---	39600	---	35900	---	32100	25500	---
TOTAL	781100	729600	525800	576000	681500	1422700	1030800	1120900	1965900	1549100	829000	594300
MEAN	25200	24320	16960	18580	23500	45890	34360	36160	65530	49970	26740	19810
MAX	29000	28700	24600	21000	50400	64300	47700	51400	78000	76100	40300	36500
MIN	21500	17900	9000	17000	18700	30400	27500	23600	46300	31500	18400	11500
AC-FT	1549000	1447000	1043000	1142000	1352000	2822000	2045000	2223000	3899000	3073000	1644000	1179000
CFSM	.37	.36	.25	.28	.35	.68	.51	.54	.97	.74	.40	.29
IN.	.43	.40	.29	.32	.38	.78	.57	.62	1.08	.85	.46	.33

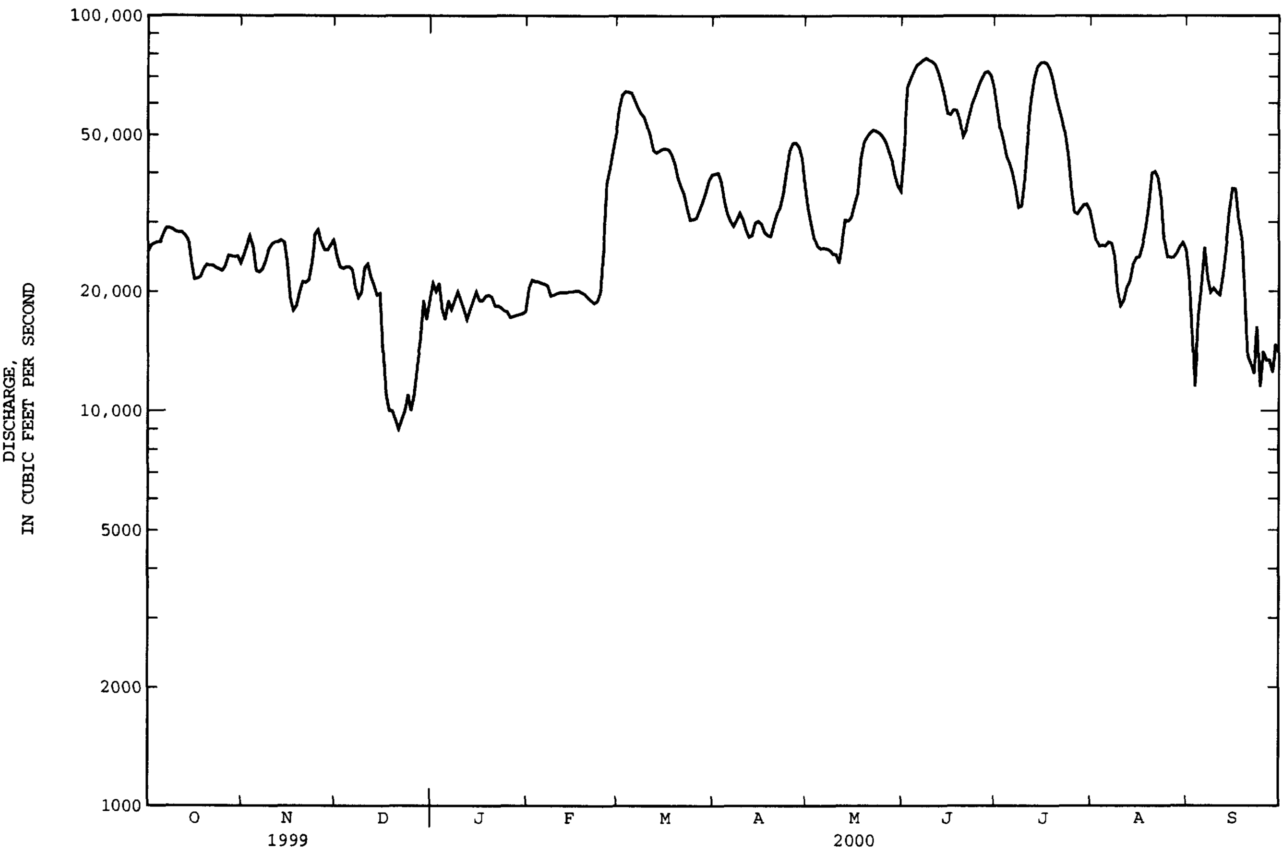
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	28780	29350	22280	19260	20080	39660	75010	60990	49370	41170	28240	28760
MAX	114600	64840	59200	35700	48540	103800	164800	119200	112600	142200	84430	72890
(WY)	1987	1983	1992	1983	1984	1983	1965	1975	1993	1993	1993	1986
MIN	9874	10870	9506	7665	9934	13190	27780	18240	13420	11220	10330	10650
(WY)	1937	1938	1937	1940	1940	1940	1990	1977	1988	1988	1964	1940

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1936 - 2000	
ANNUAL TOTAL	15485700		11806700			
ANNUAL MEAN	42430		32260		36970	
HIGHEST ANNUAL MEAN					64720	1993
LOWEST ANNUAL MEAN					17400	1977
HIGHEST DAILY MEAN	110000	May 26	78000	Jun 8	276000	Apr 24 1965
LOWEST DAILY MEAN	9000	Dec 21	9000	Dec 21	6200	Dec 9 1936
ANNUAL SEVEN-DAY MINIMUM	9860	Dec 17	9860	Dec 17	6490	Dec 7 1936
INSTANTANEOUS PEAK FLOW			78400	Jun 8		
INSTANTANEOUS PEAK STAGE			13.25	Jun 8a	25.38	Apr 24 1965
ANNUAL RUNOFF (AC-FT)	30720000		23420000		26780000	
ANNUAL RUNOFF (CFSM)	.63		.48		.55	
ANNUAL RUNOFF (INCHES)	8.53		6.51		7.44	
10 PERCENT EXCEEDS	80500		58400		75500	
50 PERCENT EXCEEDS	35100		26600		27600	
90 PERCENT EXCEEDS	21500		17800		13200	

a Also June 9.
e Estimated.



05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected from right bank dock 0.3 mi downstream from discharge station. Prior to April 1981, and March 7 to Sept. 30, 1997, samples collected at bridge on U.S. Highway 18, 1.2 mi upstream from gage.

PERIOD OF RECORD.--July 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.--
SPECIFIC CONDUCTANCE: Maximum daily, 633 microsiemens Nov. 3, 1996; minimum daily, 190 microsiemens Sept. 29, 1980.
WATER TEMPERATURES: Maximum daily, 30.0°C July 7, 1977; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,350 mg/L Mar. 19, 1986; minimum daily mean, 1 mg/L on many days in 1977-92 and 1999.
SEDIMENT LOADS: Maximum daily, 363,000 tons Mar. 19, 1986; minimum daily, 31 tons Dec. 25, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 580 microsiemens Oct. 15; minimum daily, 302 microsiemens Jan 24.
WATER TEMPERATURES: Maximum daily, 18.0°C, May 10; minimum daily, 6.0°C Nov. 29.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 111 mg/L June 13; minimum daily mean, 5 mg/L Nov. 3-5, 22, and Nov. 26.
SEDIMENT LOADS: Maximum daily, 20,000 tons June 13; minimum daily, 205 tons Dec. 20.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	TIME	TEMPER-ATURE WATER (DEG C) (00010)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (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						
05...	1130	13.4	26500	10	716	78
NOV						
17...	1030	7.4	20800	14	786	98
MAR						
21...	1330	--	38300	13	1340	97
MAY						
02...	1400	--	32000	67	5790	97
JUN						
14...	1145	20.6	64200	116	20100	98
JUL						
26...	1310	--	30300	35	2860	99
SEP						
06...	1230	--	26500	15	1070	98
06...	1300	--	26500	23	1650	100

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	398	---	407	---	308	314	---	392	---	---	---	385
2	---	---	---	---	---	---	---	---	392	---	408	---
3	405	---	404	388	309	315	422	390	---	409	---	---
4	394	---	---	---	---	---	---	---	---	---	408	382
5	403	---	---	389	---	---	420	346	382	411	---	---
6	388	---	404	---	---	318	---	---	---	---	---	380
7	---	---	404	389	308	---	422	---	378	410	408	---
8	400	---	410	---	---	376	---	390	---	---	---	364
9	---	---	---	---	310	---	---	---	382	---	407	---
10	404	---	406	388	---	371	420	386	---	410	---	---
11	396	---	---	---	306	---	---	---	---	---	408	346
12	---	442	---	388	---	---	422	386	---	412	---	---
13	396	---	402	---	---	364	---	---	---	---	---	350
14	---	---	---	386	318	---	419	---	---	408	408	---
15	580	---	436	---	---	365	---	386	---	---	---	340
16	---	---	---	---	314	---	---	---	---	---	410	---
17	---	440	433	388	---	385	422	388	---	408	---	---
18	486	---	---	---	316	---	---	---	---	---	408	336
19	---	443	---	390	---	---	420	385	---	411	---	---
20	---	---	434	---	---	350	---	---	---	---	---	---
21	---	---	---	306	315	---	423	---	---	408	406	330
22	---	436	436	---	---	384	---	382	---	---	---	---
23	---	---	---	---	316	---	---	---	410	---	408	330
24	---	438	---	302	---	387	423	379	---	410	---	---
25	---	---	---	---	316	---	---	---	---	---	410	365
26	---	436	---	308	---	---	384	386	409	410	---	---
27	---	---	434	---	---	384	---	---	---	---	---	437
28	---	---	---	305	314	---	388	---	409	410	409	---
29	---	404	387	---	---	---	---	379	---	---	---	400
30	---	---	---	---	---	386	---	---	408	---	---	---
31	---	---	386	309	---	---	---	374	---	408	408	---

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	---	7.0	---	12.0	15.0	---	17.5	---	---	---	15.0
2	---	---	---	---	---	---	---	---	15.0	---	13.0	---
3	9.0	---	8.0	7.5	13.0	14.0	14.0	15.0	---	14.0	---	---
4	13.0	---	---	---	---	---	---	---	---	---	14.0	16.0
5	10.0	---	---	9.5	---	---	13.0	16.0	16.0	14.0	---	---
6	12.0	---	9.0	---	---	15.0	---	---	---	---	---	15.0
7	---	---	9.0	10.5	15.0	---	14.0	---	15.0	13.0	13.0	---
8	10.5	---	10.0	---	---	16.0	---	17.0	---	---	---	14.0
9	---	---	---	---	13.0	---	---	---	16.0	---	12.0	---
10	9.0	---	10.0	10.5	---	15.0	15.0	18.0	---	14.0	---	---
11	14.0	---	---	---	13.0	---	---	---	---	---	13.0	14.0
12	---	8.0	---	10.5	---	---	15.0	17.0	---	15.0	---	---
13	15.0	---	11.0	---	---	17.0	---	---	---	---	---	15.0
14	---	---	---	9.0	13.0	---	14.0	---	---	16.0	14.0	---
15	14.0	---	10.0	---	---	16.0	---	16.0	---	---	---	16.0
16	---	---	---	---	15.0	---	---	---	---	---	15.0	---
17	---	9.0	9.0	10.5	---	15.0	16.0	16.5	---	16.0	---	---
18	12.0	---	---	---	12.0	---	---	---	---	---	16.0	15.0
19	---	7.0	---	10.5	---	---	16.0	16.0	---	17.0	---	---
20	---	---	10.0	---	---	16.0	---	---	---	---	---	---
21	---	---	---	12.0	14.0	---	17.0	---	---	16.0	17.0	13.0
22	---	8.0	9.0	---	---	15.0	---	15.0	---	---	---	---
23	---	---	---	---	14.0	---	---	---	14.0	---	16.0	14.0
24	---	8.0	---	13.0	---	14.0	16.0	17.0	---	13.0	---	---
25	---	---	---	---	16.0	---	---	---	---	---	15.0	15.0
26	---	7.0	---	12.0	---	---	16.0	16.0	14.0	14.0	---	---
27	---	---	10.0	---	---	15.0	---	---	---	---	---	13.0
28	---	---	---	11.0	14.0	---	17.0	---	13.0	13.0	14.0	---
29	---	6.0	10.0	---	---	---	---	15.0	---	---	---	12.0
30	---	---	---	---	---	14.0	---	---	15.0	---	---	---
31	---	---	9.0	11.0	---	---	---	15.5	---	12.0	15.0	---

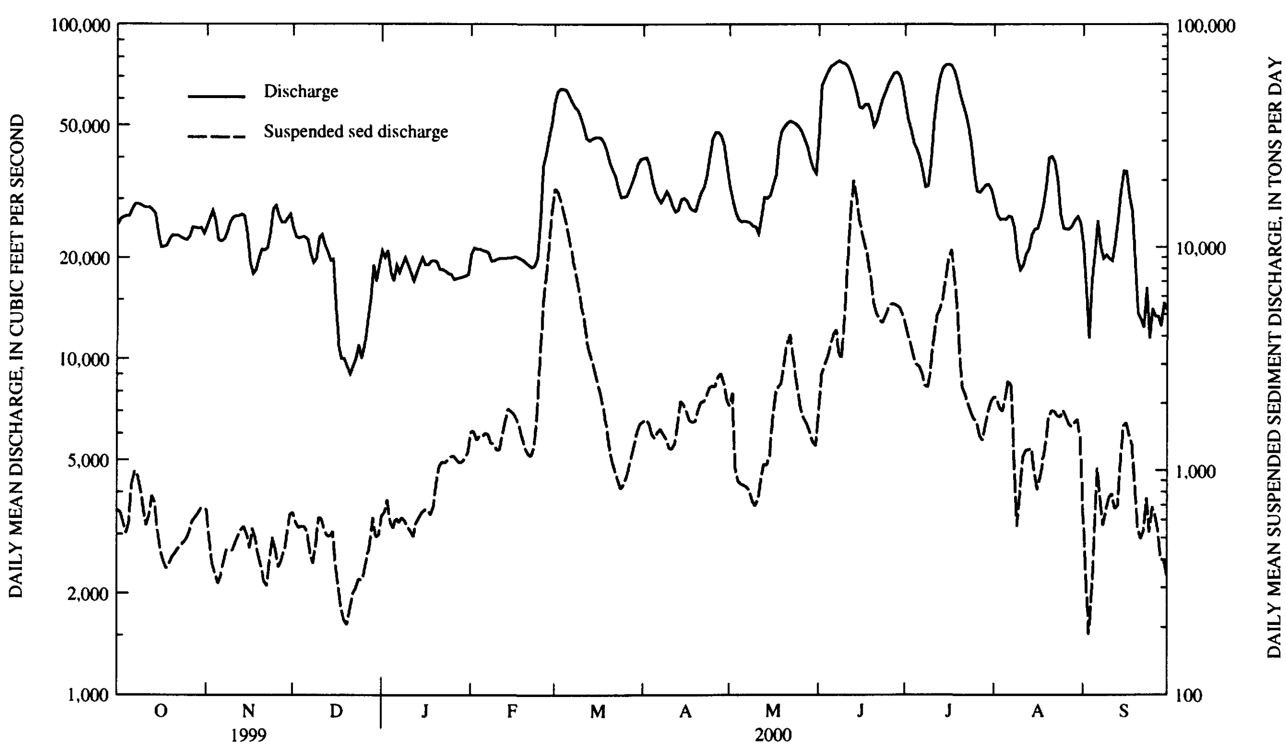
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	10	665	10	667	10	649	11	624	27	1490	116	18300
2	9	651	7	488	9	585	12	648	26	1500	105	17900
3	8	583	5	381	9	556	13	737	24	1370	93	16200
4	7	525	5	346	9	562	12	583	25	1430	83	14300
5	8	587	5	313	9	562	12	551	25	1420	74	12600
6	12	876	6	346	9	533	12	616	26	1470	65	10800
7	13	990	6	395	8	428	12	583	26	1450	58	9190
8	12	948	7	441	7	384	12	616	25	1320	52	7880
9	11	823	6	441	9	472	11	594	25	1320	46	6860
10	9	676	6	438	10	614	11	564	23	1230	41	5790
11	7	569	7	476	10	608	11	535	23	1240	36	4840
12	8	630	7	510	9	544	11	505	27	1450	32	3960
13	10	768	7	543	9	512	12	583	31	1670	29	3470
14	10	718	8	564	10	508	12	616	35	1890	25	3110
15	8	537	8	521	10	534	12	648	34	1840	23	2800
16	7	432	9	450	10	376	13	667	33	1790	20	2490
17	7	395	11	552	10	297	13	667	31	1680	18	2200
18	6	364	10	502	9	243	12	632	29	1560	16	1890
19	6	383	8	418	8	216	13	688	26	1380	14	1590
20	6	410	7	378	8	205	17	890	24	1250	12	1300
21	7	426	6	322	10	243	21	1040	23	1180	11	1110
22	7	446	5	305	11	282	22	1090	23	1160	11	1020
23	7	461	6	398	11	297	22	1080	25	1280	10	911
24	8	477	7	504	11	327	23	1110	33	1770	10	829
25	8	495	6	441	12	324	24	1150	44	3040	11	866
26	8	532	5	371	12	356	25	1160	54	5540	11	934
27	9	592	6	396	12	421	24	1120	67	7480	12	1050
28	9	616	6	442	12	486	23	1080	83	10300	13	1180
29	10	642	7	522	12	616	23	1090	102	14100	14	1330
30	10	674	9	636	11	505	24	1140	---	---	15	1520
31	11	676	---	---	10	513	25	1200	---	---	15	1630
TOTAL	---	18567	---	13507	---	13758	---	24807	---	75600	---	159850

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	APRIL MEAN CONCEN-TRATION (MG/L)	APRIL LOAD (TONS/DAY)	MAY MEAN CONCEN-TRATION (MG/L)	MAY LOAD (TONS/DAY)	JUNE MEAN CONCEN-TRATION (MG/L)	JUNE LOAD (TONS/DAY)	JULY MEAN CONCEN-TRATION (MG/L)	JULY LOAD (TONS/DAY)	AUGUST MEAN CONCEN-TRATION (MG/L)	AUGUST LOAD (TONS/DAY)	SEPTEMBER MEAN CONCEN-TRATION (MG/L)	SEPTEMBER LOAD (TONS/DAY)
1	15	1660	22	1950	14	1800	28	4460	27	2140	11	637
2	16	1700	28	2230	15	2700	29	4010	29	2120	8	350
3	16	1630	14	1020	16	2940	29	3720	27	1900	6	186
4	16	1460	13	897	16	3200	27	3230	26	1850	6	277
5	16	1400	13	870	18	3550	26	3000	30	2130	9	532
6	18	1490	12	860	20	4070	27	2920	35	2550	15	1020
7	19	1540	12	843	21	4270	28	2730	33	2390	13	751
8	18	1460	12	807	16	3380	27	2400	17	1110	11	568
9	16	1390	11	724	15	3150	27	2370	10	564	12	665
10	15	1260	10	695	25	5220	26	2820	16	793	14	758
11	16	1250	12	746	43	8770	28	3930	22	1150	15	783
12	18	1330	13	932	74	14300	30	4920	22	1230	11	675
13	22	1650	13	1070	111	20000	28	5290	22	1240	10	692
14	25	2050	13	1060	100	16800	29	5730	20	1250	13	1110
15	24	1980	14	1170	87	13200	35	7160	15	988	16	1580
16	23	1840	19	1700	75	11400	43	8880	12	820	17	1640
17	22	1680	23	2190	65	10100	48	9750	13	934	17	1440
18	22	1650	20	2380	56	8720	39	7600	14	1100	18	1310
19	22	1660	19	2460	49	7130	30	5450	15	1350	16	857
20	23	1860	22	3000	42	5600	20	3430	16	1740	15	555
21	24	2030	27	3680	36	5040	15	2380	17	1860	14	495
22	23	2040	29	4060	31	4720	15	2190	18	1840	16	536
23	23	2160	24	3360	28	4580	15	2000	19	1760	17	748
24	21	2350	20	2730	29	4880	16	1820	24	1740	17	528
25	20	2400	16	2190	29	5270	18	1720	28	1860	18	685
26	19	2380	14	1820	30	5540	19	1660	26	1740	17	628
27	20	2620	14	1710	29	5560	17	1440	24	1610	15	543
28	22	2730	14	1620	28	5460	16	1370	23	1570	12	401
29	21	2490	14	1470	28	5340	18	1600	23	1640	10	397
30	21	2070	13	1340	28	4990	21	1850	24	1700	9	340
31	---	---	13	1290	---	---	24	2040	20	1380	---	---
TOTAL	---	55210	---	52874	---	201680	---	113870	---	48049	---	21687
YEAR		799459										



05411400 SNY MAGILL CREEK NEAR CLAYTON, IA

LOCATION.--Lat 42°56'55", long 91°11'10", in $SW^1/_4$ $NE^1/_4$ $NW^1/_4$ sec. 22, T.94 N., R.3 W. Clayton County, Hydrologic Unit 07060003, on right bank 130 ft downstream from bridge on county highway, 4.9 mi northwest of Clayton, and 0.9 mi upstream of county highway X56.

DRAINAGE AREA.--27.6 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 622.704 ft.

REMARKS.--Records good except those for estimated daily discharges and discharges greater than 600 ft^3/s, which are poor. U.S. Geological Survey rain gage and data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	17	16	14	e13	16	14	13	45	19	18	16
2	20	17	16	14	e14	15	13	13	32	24	19	16
3	19	18	17	14	e14	14	13	13	28	25	18	18
4	19	18	17	14	e15	14	13	13	28	22	17	16
5	18	18	17	13	16	14	13	12	36	21	20	15
6	18	17	16	14	16	14	13	12	30	21	19	14
7	18	17	16	13	15	14	14	13	28	20	17	15
8	19	18	16	14	15	14	14	13	27	20	17	15
9	19	18	15	14	15	15	13	13	25	36	17	15
10	19	18	15	17	14	14	13	13	24	42	16	15
11	18	17	15	15	14	14	14	14	23	29	16	15
12	18	18	15	14	13	14	13	14	23	26	16	15
13	18	18	14	e12	14	14	13	13	39	25	16	14
14	18	17	15	e13	13	14	13	12	58	24	16	14
15	19	17	15	15	14	15	13	12	33	23	16	14
16	19	18	14	15	14	14	13	13	28	23	15	14
17	18	18	14	14	13	14	13	27	24	22	34	14
18	18	18	13	15	14	14	13	66	23	22	21	14
19	18	18	14	e13	14	15	17	41	22	22	18	15
20	18	17	13	e11	13	15	51	28	30	21	17	16
21	18	17	e11	e12	14	15	25	24	23	21	17	14
22	17	17	e12	e13	19	14	20	22	21	19	19	17
23	17	32	e10	e13	100	14	19	21	21	18	19	15
24	18	22	e12	e12	64	16	17	19	22	18	18	13
25	18	19	e13	e13	30	15	16	18	22	19	17	13
26	18	19	14	e12	25	15	15	18	22	19	20	12
27	18	18	14	e11	20	e15	15	34	20	19	19	12
28	18	17	14	e12	18	e16	14	24	21	18	18	11
29	20	17	14	e13	17	e15	14	22	21	18	18	11
30	19	16	14	e13	---	e15	14	23	20	19	18	10
31	18	---	13	e14	---	e14	---	36	---	19	17	---
TOTAL	568	546	444	416	590	451	475	629	819	694	563	428
MEAN	18.3	18.2	14.3	13.4	20.3	14.5	15.8	20.3	27.3	22.4	18.2	14.3
MAX	20	32	17	17	100	16	51	66	58	42	34	18
MIN	17	16	10	11	13	14	13	12	20	18	15	10
AC-FT	1130	1080	881	825	1170	895	942	1250	1620	1380	1120	849
CFSM	.66	.66	.52	.49	.74	.53	.57	.74	.99	.81	.66	.52
IN.	.77	.74	.60	.56	.80	.61	.64	.85	1.10	.94	.76	.58

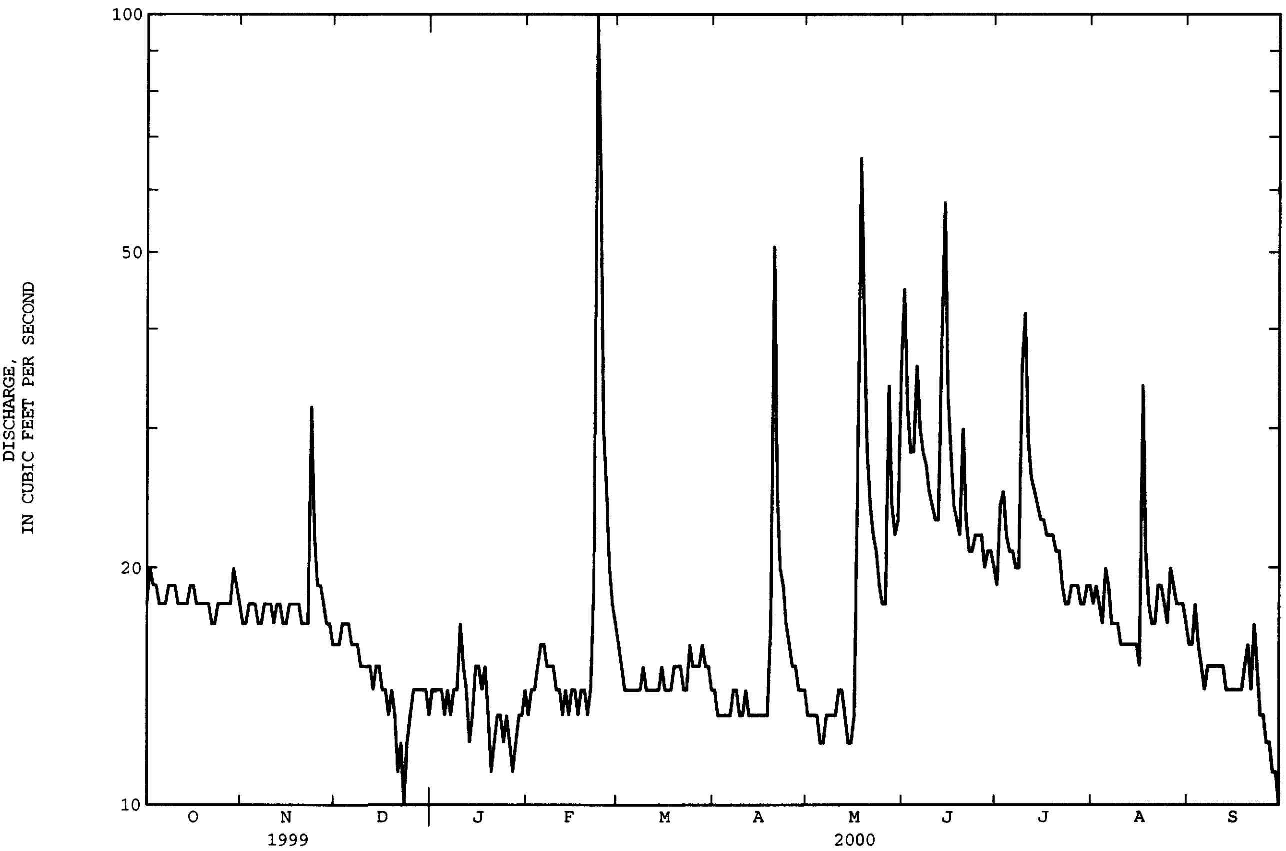
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	15.9	17.9	14.4	12.5	17.5	24.3	28.2	29.9	31.2	26.9	21.9	17.3
MAX	27.1	27.0	18.1	15.3	29.1	54.7	61.2	68.3	51.3	52.4	46.5	32.4
(WY)	1994	1994	1994	1994	1994	1993	1993	1993	1993	1993	1993	1993
MIN	8.75	11.6	8.97	8.26	10.4	14.5	13.4	14.9	13.8	16.3	12.0	9.36
(WY)	1997	1998	1998	1998	1993	2000	1997	1997	1992	1992	1992	1996

05411400 SNY MAGILL CREEK NEAR CLAYTON, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1992 - 2000	
ANNUAL TOTAL	9461		6623			
ANNUAL MEAN	25.9		18.1		21.5	
HIGHEST ANNUAL MEAN					36.6	1993
LOWEST ANNUAL MEAN					14.7	1997
HIGHEST DAILY MEAN	284	May 17	100	Feb 23	313	Mar 31 1993
LOWEST DAILY MEAN	10	Dec 23	10	Dec 23a,b	6.3	Sep 30 1996
ANNUAL SEVEN-DAY MINIMUM	12	Dec 18	12	Sep 24	7.1	Sep 29 1996
INSTANTANEOUS PEAK FLOW			278	Feb 23	1300	Aug 23 1993
INSTANTANEOUS PEAK STAGE			5.82	Feb 23	8.60	Aug 23 1993
INSTANTANEOUS LOW FLOW			6.0	Feb 12	3.0	Jan 10 1998
ANNUAL RUNOFF (AC-FT)	18770		13140		15580	
ANNUAL RUNOFF (CFSM)	.94		.66		.78	
ANNUAL RUNOFF (INCHES)	12.75		8.93		10.58	
10 PERCENT EXCEEDS	38		24		35	
50 PERCENT EXCEEDS	19		16		17	
90 PERCENT EXCEEDS	15		13		11	

a Ice affected.
b Also Sept. 30.
e Estimated.



05411400 SNY MAGILL CREEK NEAR CLAYTON, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1991 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1991 to current year.
WATER TEMPERATURES: April 1991 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1991 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, 660 microsiemens Oct. 23, 1996; minimum daily, 266 microsiemens Mar. 16, 1993.
WATER TEMPERATURES: Maximum daily, 33.0°C June 21, 1997; minimum daily, 0.0°C Dec. 22, 1998.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,180 mg/L Mar. 30, 1998; minimum daily mean, 0 mg/L Mar. 21, 22, 1993.
SEDIMENT LOADS: Maximum daily, 3,310 tons Mar. 30, 1998; minimum daily, 0.01 tons Mar. 22, 1993.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 623 microsiemens Mar. 13; minimum daily, 336 microsiemens Feb. 23.
WATER TEMPERATURES: Maximum daily, 24.0°C June 9; minimum daily, 1.6°C Jan. 18.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,390 mg/L Feb. 23; minimum daily mean, 1 mg/L Nov. 11.
SEDIMENT LOADS: Maximum daily, 947 tons Feb. 23; minimum daily, 0.07 tons Dec. 24.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	TIME	TEMPERATURE WATER (DEG C) (00010)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
05...	1600	11.1	18	21	1.0	81
NOV						
16...	1005	3.7	18	8	.38	62
DEC						
15...	1340	4.2	15	9	.36	65
FEB						
14...	1420	2.6	14	5	.19	65
MAR						
22...	1050	6.9	14	12	.45	56
MAY						
02...	1525	16.8	13	32	1.1	76
JUN						
12...	1630	15.4	24	64	4.2	83
JUL						
24...	1630	18.3	18	13	.65	91
SEP						
07...	0835	12.4	14	69	2.7	53

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	431	514	---	---	552	---	459	537	---	---	---
2	---	418	459	---	427	511	---	459	499	---	---	517
3	435	452	428	467	420	511	452	433	---	419	---	490
4	427	446	---	453	438	---	513	449	487	476	467	---
5	437	460	---	---	---	---	463	436	578	416	414	---
6	430	458	523	459	---	530	442	---	484	449	---	---
7	429	449	529	450	466	526	420	---	---	---	---	431
8	446	427	494	---	---	503	---	---	510	---	---	462
9	---	432	497	---	---	432	---	468	466	429	---	---
10	435	430	432	502	446	519	438	475	494	494	---	456
11	431	480	---	473	---	---	527	492	---	413	---	494
12	465	551	---	494	---	---	541	457	455	502	422	480
13	428	---	480	494	---	623	431	---	456	496	---	471
14	---	---	483	---	434	502	454	---	---	467	---	421
15	421	501	507	---	428	450	---	524	---	---	---	457
16	---	549	432	---	---	511	---	529	448	---	---	---
17	423	---	468	---	443	544	543	354	---	511	486	506
18	---	488	---	437	423	465	479	472	---	450	---	494
19	429	527	---	---	---	---	464	572	402	491	426	469
20	---	---	569	---	---	---	428	546	489	507	---	477
21	425	---	544	545	---	466	459	---	484	515	424	453
22	424	538	434	---	416	438	---	582	455	---	---	422
23	433	555	440	---	336	---	---	550	---	---	---	---
24	---	531	444	457	366	---	465	---	470	423	---	463
25	---	558	---	429	552	---	483	487	---	517	---	458
26	437	532	---	426	---	---	476	---	433	---	---	454
27	469	---	419	571	---	---	---	420	434	---	---	418
28	435	---	481	---	472	414	495	---	485	---	---	---
29	422	513	423	478	432	---	---	---	423	---	---	---
30	424	455	421	430	---	---	---	564	---	422	---	---
31	---	---	486	437	---	---	---	449	---	---	---	---

05411400 SNY MAGILL CREEK NEAR CLAYTON, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	13.0	10.0	---	---	10.0	---	15.0	21.0	---	---	---
2	---	13.0	10.0	---	3.0	10.0	---	15.0	17.0	---	---	22.0
3	13.0	12.0	12.0	4.0	3.0	10.0	13.0	14.0	---	21.0	---	22.0
4	13.0	13.0	---	5.0	3.0	---	---	15.0	15.0	20.0	22.0	---
5	14.0	13.0	---	---	---	---	13.0	14.0	20.0	21.0	19.0	---
6	14.0	13.0	8.0	4.0	---	10.0	13.0	---	21.0	20.0	---	---
7	15.0	13.0	8.0	5.0	3.0	11.0	13.0	---	---	---	---	14.2
8	15.0	14.0	6.0	---	---	12.0	---	---	23.0	---	---	18.0
9	---	14.0	8.0	---	---	10.0	---	15.0	24.0	21.0	---	---
10	15.0	12.0	8.0	4.0	3.0	10.0	13.0	16.0	23.0	19.0	---	---
11	14.0	14.0	---	5.0	---	---	13.0	15.0	---	22.0	---	---
12	10.5	13.0	---	5.0	---	---	13.0	15.0	15.4	22.0	17.0	---
13	18.0	---	5.0	5.0	---	10.0	13.0	---	19.0	22.0	---	19.0
14	---	---	5.0	---	3.0	10.0	13.0	---	---	22.0	---	19.0
15	16.0	13.0	5.0	---	5.0	10.0	---	16.0	---	---	---	19.0
16	---	13.0	6.0	---	---	10.0	---	15.0	20.0	---	---	---
17	16.0	---	5.0	---	4.0	10.0	13.0	15.0	---	23.0	17.0	18.0
18	---	13.0	---	1.6	3.0	10.0	13.0	14.0	---	23.0	---	17.0
19	15.0	13.0	---	---	---	---	13.0	15.0	20.0	23.0	21.0	17.0
20	---	---	2.0	---	---	---	11.0	17.0	20.0	22.0	---	16.0
21	15.0	---	2.0	3.0	---	7.3	12.0	---	21.0	22.0	20.0	15.0
22	13.0	13.0	2.0	---	7.0	6.9	---	18.0	21.0	---	---	12.0
23	13.0	13.0	2.0	---	6.0	---	---	18.0	---	---	---	---
24	---	10.0	2.0	3.0	8.0	---	13.0	---	21.0	18.3	---	12.0
25	---	11.0	---	3.0	10.0	---	14.0	18.0	---	20.0	---	12.0
26	11.0	11.0	---	3.0	---	---	14.0	---	21.0	---	---	14.0
27	15.0	---	3.0	3.0	---	---	---	15.0	21.0	---	---	14.0
28	15.0	---	5.0	---	8.0	8.5	15.0	---	21.0	---	---	---
29	15.0	10.0	6.0	3.0	10.0	---	---	---	21.0	---	---	---
30	15.0	11.0	6.0	3.0	---	---	---	17.0	---	22.0	---	---
31	---	---	6.0	3.0	---	---	---	16.0	---	---	---	---

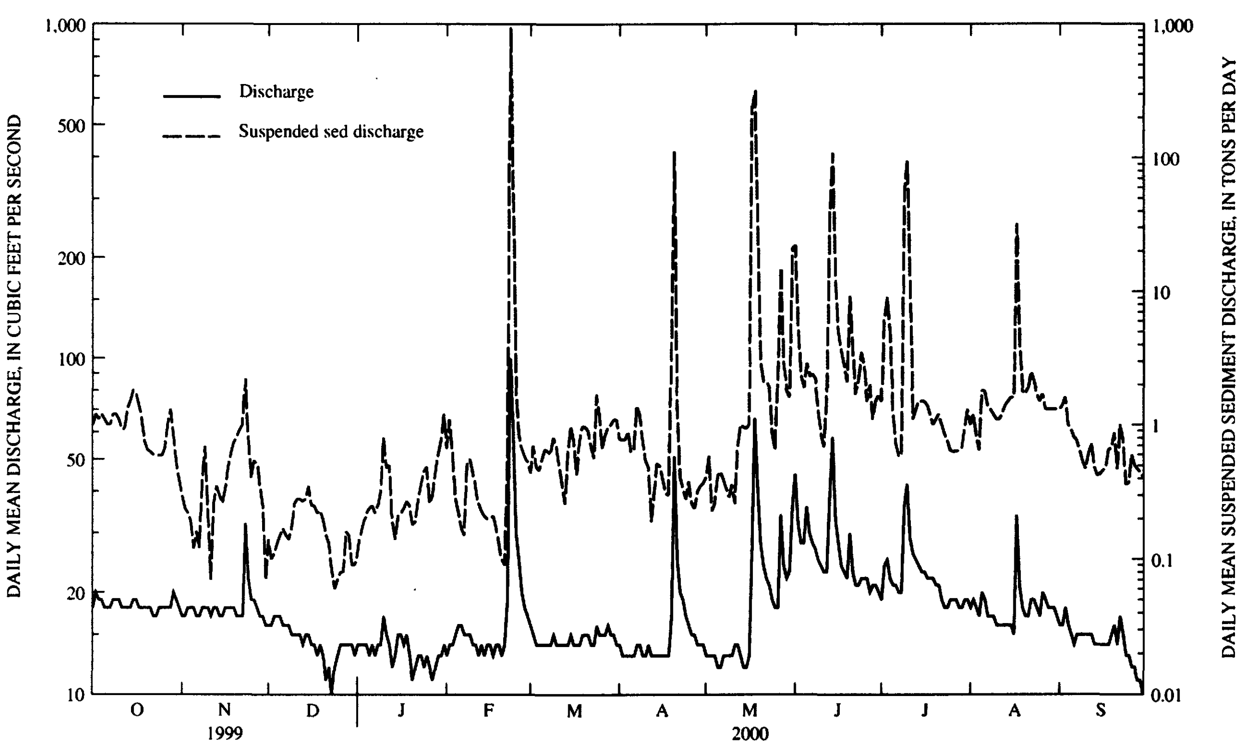
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	20	1.0	6	.30	3	.14	3	.11	19	.67	10	.44
2	23	1.2	5	.24	2	.10	4	.15	28	1.1	17	.70
3	22	1.1	5	.22	2	.11	5	.18	16	.60	13	.49
4	23	1.2	4	.19	3	.13	6	.22	7	.28	12	.46
5	22	1.1	2	.12	3	.15	7	.24	5	.22	15	.56
6	21	1.0	3	.16	4	.17	7	.25	4	.17	18	.66
7	21	1.0	3	.12	3	.15	6	.22	4	.15	17	.64
8	23	1.2	8	.38	3	.14	7	.25	13	.51	16	.61
9	23	1.2	14	.69	4	.17	8	.32	14	.56	20	.81
10	21	1.1	4	.22	6	.26	17	.80	12	.44	18	.70
11	19	.93	1	.07	7	.28	12	.48	9	.34	14	.51
12	19	.93	5	.26	7	.28	13	.50	8	.26	9	.35
13	26	1.3	7	.35	7	.27	6	.19	6	.23	7	.26
14	32	1.5	6	.30	7	.28	4	.14	6	.21	17	.63
15	35	1.8	6	.26	9	.35	5	.21	5	.20	24	.99
16	32	1.7	7	.33	7	.25	6	.22	5	.20	20	.78
17	28	1.4	10	.48	7	.25	6	.24	6	.21	11	.43
18	21	1.1	12	.61	7	.22	7	.27	4	.17	20	.76
19	15	.75	15	.74	6	.23	7	.25	3	.13	24	.98
20	14	.65	17	.82	6	.20	6	.18	3	.10	24	.96
21	13	.63	19	.91	5	.15	6	.19	2	.09	23	.91
22	13	.60	22	1.0	4	.13	8	.28	5	.47	18	.69
23	13	.59	25	2.2	3	.08	10	.35	2390	947	15	.57
24	12	.59	14	.85	2	.06	14	.45	308	58	38	1.7
25	12	.59	8	.40	2	.07	14	.49	24	2.0	28	1.2
26	14	.67	11	.55	2	.08	8	.26	13	.85	16	.66
27	21	1.0	10	.51	2	.08	10	.30	13	.66	18	.84
28	28	1.3	8	.37	4	.16	14	.45	12	.58	21	.97
29	16	.86	5	.25	4	.15	17	.60	12	.54	21	1.0
30	10	.51	2	.07	2	.09	22	.77	---	---	21	1.1
31	8	.39	---	---	2	.09	33	1.2	---	---	21	1.1
TOTAL	---	30.89	---	13.97	---	5.27	---	10.76	---	1016.94	---	23.46

05411400 SNY MAGILL CREEK NEAR CLAYTON, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	22	.79	11	.41	183	22	28	1.5	20	1.0	30	1.3
2	22	.78	17	.59	58	5.2	84	6.4	22	1.2	32	1.4
3	22	.78	7	.23	30	2.3	128	9.1	18	.84	33	1.6
4	26	.90	8	.26	25	1.9	81	4.8	14	.65	24	1.0
5	18	.63	13	.42	29	2.9	22	1.3	31	1.8	23	.92
6	19	.66	13	.45	29	2.3	13	.74	36	1.8	21	.81
7	36	1.4	11	.39	32	2.4	11	.59	29	1.4	20	.77
8	32	1.2	10	.34	30	2.2	11	.59	28	1.3	16	.64
9	22	.79	8	.29	19	1.3	423	56	27	1.2	13	.53
10	16	.55	10	.36	13	.85	779	95	26	1.1	12	.47
11	13	.49	7	.26	11	.69	134	11	26	1.1	15	.61
12	5	.19	19	.70	25	1.6	16	1.1	29	1.2	18	.73
13	9	.31	29	1.0	228	37	20	1.3	32	1.4	13	.49
14	15	.52	29	.96	576	109	24	1.5	35	1.5	11	.42
15	14	.50	29	.94	130	12	24	1.5	38	1.6	12	.43
16	11	.39	30	1.0	63	4.8	24	1.5	38	1.6	12	.46
17	9	.31	2070	237	54	3.6	24	1.4	280	32	13	.48
18	8	.30	1890	321	44	2.8	20	1.2	72	4.0	18	.66
19	72	4.5	252	33	36	2.1	17	1.0	37	1.8	17	.67
20	538	112	38	2.9	110	9.2	20	1.1	35	1.7	20	.87
21	19	1.3	32	2.1	56	3.6	22	1.2	41	1.9	12	.47
22	7	.41	35	2.1	31	1.7	20	1.0	49	2.5	22	1.0
23	7	.34	33	1.9	39	2.2	18	.87	41	2.1	19	.76
24	6	.28	17	.88	58	3.5	15	.76	36	1.7	10	.36
25	9	.38	14	.65	46	2.7	13	.65	32	1.5	11	.37
26	6	.26	51	2.6	26	1.5	12	.63	31	1.7	18	.60
27	6	.24	153	15	38	2.0	13	.64	25	1.3	16	.50
28	8	.32	40	2.7	19	1.1	13	.64	26	1.3	15	.47
29	9	.35	29	1.8	27	1.5	13	.67	26	1.3	15	.44
30	10	.37	27	1.6	32	1.7	18	.97	27	1.3	15	.41
31	---	---	193	21	---	---	26	1.3	29	1.3	---	---
TOTAL	---	132.24	---	654.83	---	247.64	---	207.95	---	78.09	---	20.64
YEAR		2442.68										



05411400 SNY MAGILL CREEK NEAR CLAYTON, IA--Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.--April 1992 to current year.

INSTRUMENTATION.--Tipping bucket rain gage.

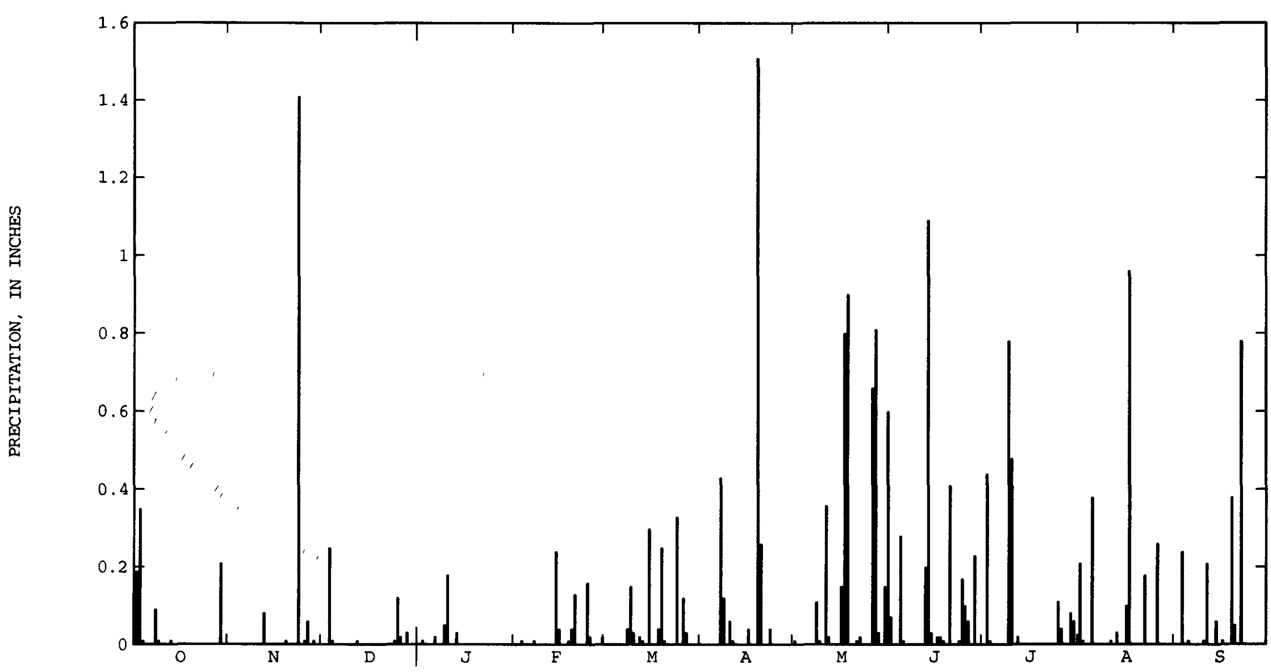
REMARKS.--Water years 1992-1995 in files at the District office. Records good except for winter period, which is poor due to intermittent snow accumulation and subsequent melting.

EXTREME FOR PERIOD OF RECORD.--Maximum daily accumulation, 2.42 in., Mar. 30, 1998.

EXTREME FOR CURRENT YEAR.--Maximum daily accumulation, 1.51 in., Apr. 19.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	.00	.00	.00	.00	.00	.00	.01	.07	.00	.21	.00
2	.19	.00	.00	.01	.00	.00	.00	.00	.00	.44	.01	.00
3	.35	.00	.25	.00	.01	.00	.00	.00	.00	.01	.00	.24
4	.01	.00	.01	.00	.00	.00	.00	.00	.28	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.38	.01
6	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.01	.00	.43	.00	.00	.00	.00	.00
8	.09	.00	.00	.00	.00	.04	.12	.11	.00	.00	.00	.00
9	.01	.00	.00	.05	.00	.15	.00	.01	.00	.78	.00	.00
10	.00	.00	.00	.18	.00	.03	.06	.00	.00	.48	.00	.01
11	.00	.00	.00	.00	.00	.00	.01	.36	.00	.00	.01	.21
12	.00	.08	.01	.00	.00	.02	.00	.02	.20	.02	.00	.00
13	.01	.00	.00	.03	.00	.01	.00	.00	1.09	.00	.03	.00
14	.00	.00	.00	.00	.24	.00	.00	.00	.03	.00	.00	.06
15	.00	.00	.00	.00	.04	.30	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.04	.15	.02	.00	.10	.01
17	.00	.00	.00	.00	.00	.00	.00	.80	.02	.00	.96	.00
18	.00	.00	.00	.00	.01	.04	.00	.90	.01	.00	.00	.00
19	.00	.01	.00	.00	.04	.25	1.51	.00	.00	.00	.00	.38
20	.00	.00	.00	.00	.13	.01	.26	.00	.41	.00	.00	.05
21	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.18	.78
23	.00	1.41	.00	.00	.00	.00	.04	.00	.01	.00	.00	.00
24	.00	.00	.01	.00	.16	.33	.00	.00	.17	.00	.00	.00
25	.00	.01	.12	.00	.02	.00	.00	.00	.10	.11	.00	.00
26	.00	.06	.02	.00	.00	.12	.00	.66	.06	.04	.26	.00
27	.00	.00	.00	.00	.00	.03	.00	.81	.00	.00	.00	.00
28	.00	.01	.03	.00	.00	.00	.00	.03	.23	.00	.00	.00
29	.21	.00	.00	.00	.02	.00	.00	.00	.00	.08	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.15	.00	.06	.00	.00
31	.00	---	.00	.00	---	.00	---	.60	---	.00	.00	---
TOTAL	1.00	1.58	0.45	0.29	0.68	1.33	2.47	4.64	2.71	2.02	2.14	1.75
MEAN	.03	.05	.01	.01	.02	.04	.08	.15	.09	.07	.07	.06
MAX	.35	1.41	.25	.18	.24	.33	1.51	.90	1.09	.78	.96	.78
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00



05411500 MISSISSIPPI RIVER AT CLAYTON, IA

LOCATION.--Lat 42°54'13", long 91°08'45", NE$^1/_4$ NW$^1/_4$ sec.1, T.93 N., R.3 W., Clayton County, Hydrologic Unit 07060003, 6 miles below the Wisconsin River.

DRAINAGE AREA.--79,200 mi^2.

PERIOD OF RECORD.--April 1930 to June 1936, January 1992 to current year.

GAGE.--Water-stage recorder. Datum of gage is 602.60 ft.

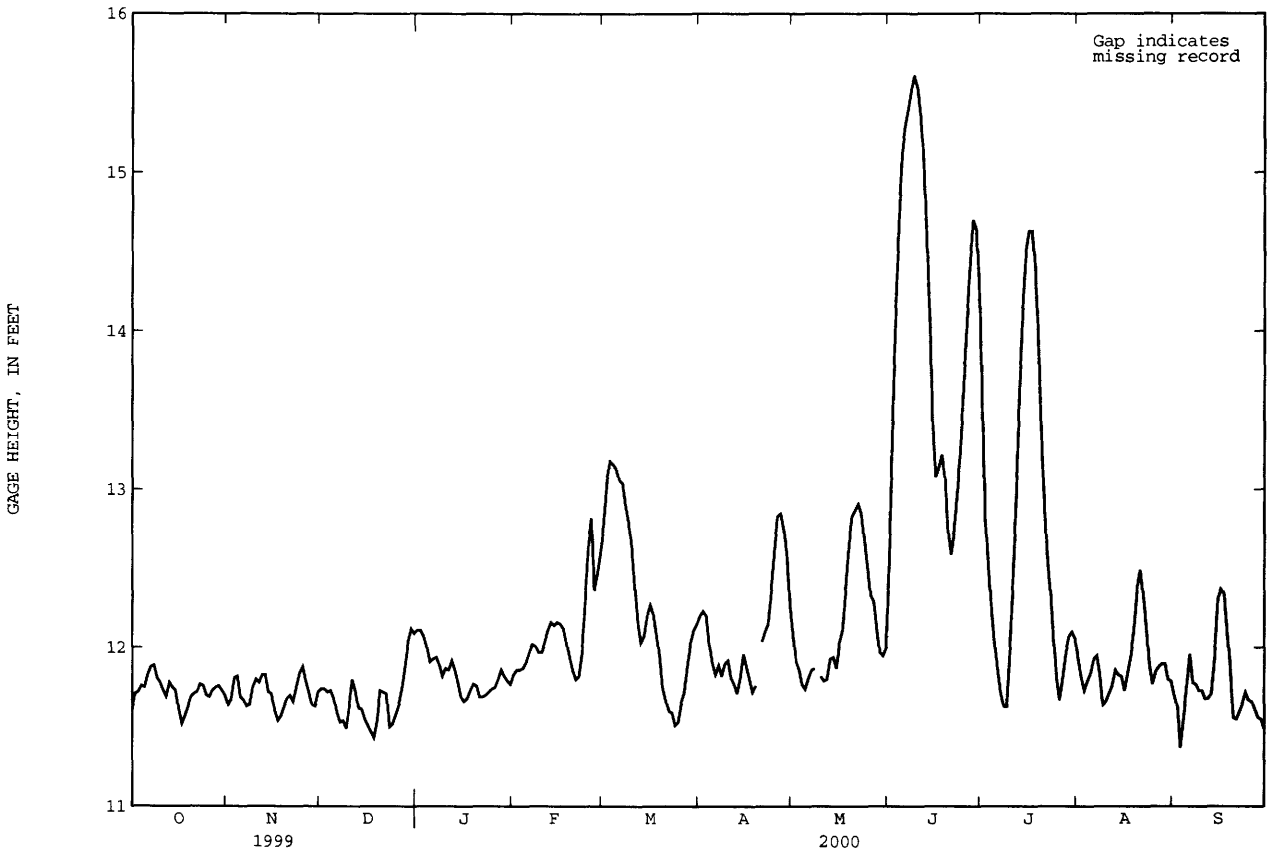
REMARKS.--Records good. U.S. Geological Survey satellite data collection platform with telephone modem at station.

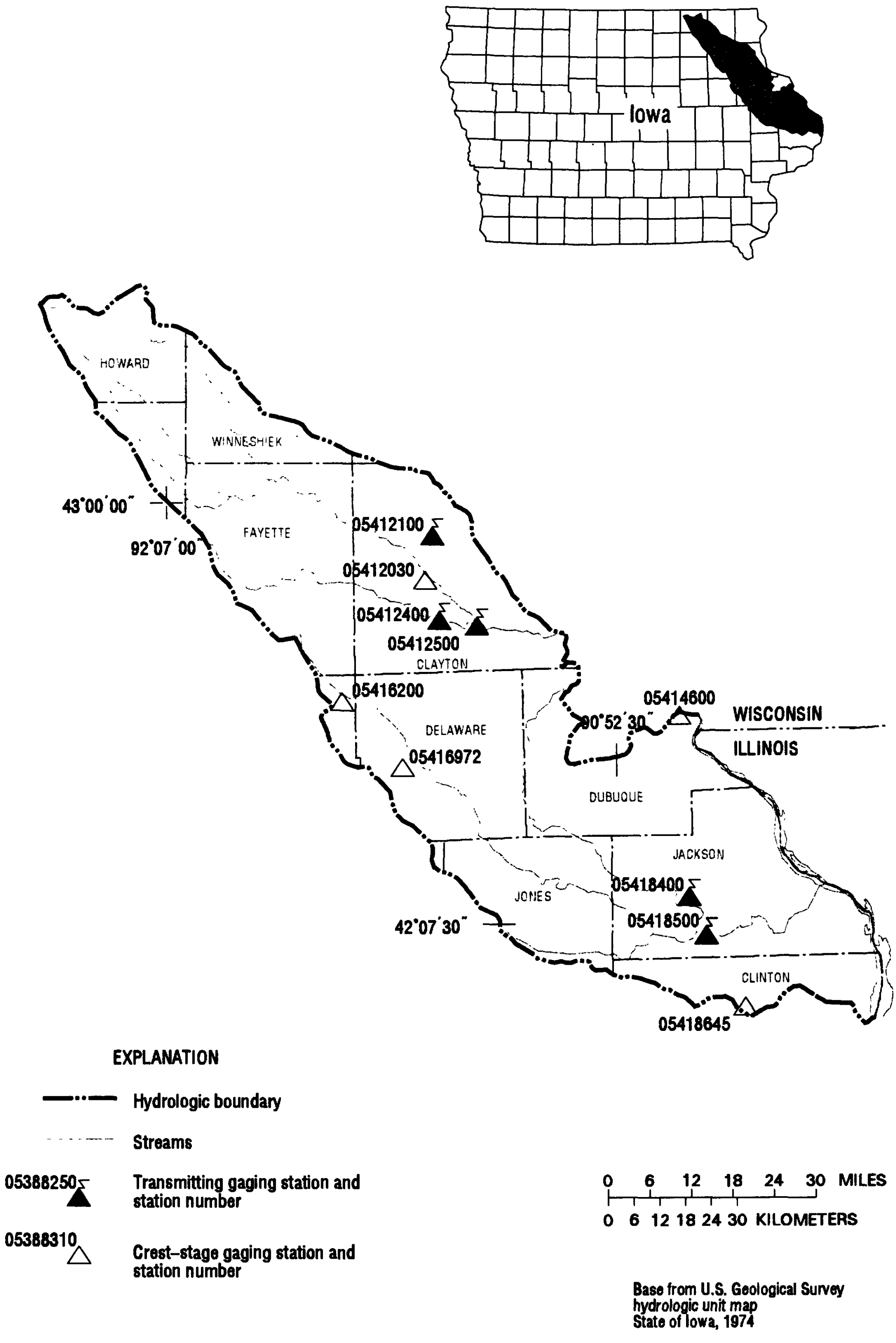
EXTREMES FOR CURRENT WATER YEAR.--Maximum gage height 15.70 ft June 9; minimum gage height 11.30 ft Sept. 3.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.61	11.64	11.74	12.11	11.83	12.79	12.20	12.08	12.52	13.54	11.92	11.70
2	11.71	11.67	11.74	12.11	11.86	13.07	12.23	11.91	13.37	12.81	11.81	11.63
3	11.72	11.81	11.72	12.07	11.86	13.18	12.20	11.86	14.12	12.52	11.73	11.37
4	11.76	11.82	11.73	12.00	11.87	13.16	12.02	11.77	14.67	12.24	11.79	11.56
5	11.75	11.69	11.68	11.91	11.91	13.13	11.90	11.74	15.11	12.03	11.84	11.75
6	11.83	11.67	11.59	11.93	11.97	13.06	11.83	11.81	15.29	11.86	11.93	11.96
7	11.88	11.63	11.53	11.94	12.02	13.04	11.89	11.86	15.40	11.72	11.95	11.78
8	11.89	11.64	11.54	11.89	12.01	12.90	11.82	11.87	15.53	11.63	11.83	11.77
9	11.81	11.75	11.49	11.82	11.97	12.80	11.90	---	15.61	11.63	11.64	11.73
10	11.78	11.80	11.63	11.87	11.97	12.63	11.92	11.82	15.52	12.00	11.66	11.73
11	11.73	11.78	11.80	11.86	12.03	12.38	11.81	11.79	15.35	12.44	11.71	11.68
12	11.69	11.83	11.73	11.92	12.11	12.16	11.77	11.80	15.06	12.97	11.76	11.68
13	11.78	11.83	11.62	11.86	12.16	12.03	11.71	11.93	14.59	13.62	11.86	11.71
14	11.75	11.72	11.61	11.78	12.14	12.07	11.81	11.94	14.07	14.14	11.83	11.94
15	11.73	11.71	11.55	11.69	12.16	12.20	11.96	11.87	13.39	14.50	11.82	12.31
16	11.61	11.60	11.51	11.66	12.15	12.27	11.88	12.03	13.08	14.63	11.73	12.37
17	11.52	11.54	11.47	11.68	12.12	12.21	11.80	12.11	13.14	14.63	11.84	12.34
18	11.57	11.57	11.43	11.73	12.03	12.09	11.72	12.37	13.22	14.40	11.95	12.11
19	11.63	11.63	11.54	11.77	11.94	11.95	11.76	12.65	13.07	13.95	12.11	11.89
20	11.69	11.68	11.73	11.76	11.86	11.75	---	12.83	12.74	13.37	12.37	11.56
21	11.71	11.70	11.72	11.69	11.80	11.67	12.04	12.87	12.59	12.91	12.49	11.55
22	11.72	11.66	11.71	11.69	11.82	11.60	12.10	12.91	12.74	12.57	12.33	11.60
23	11.77	11.75	11.50	11.70	11.97	11.59	12.15	12.85	12.99	12.35	12.13	11.65
24	11.76	11.84	11.52	11.72	12.30	11.51	12.37	12.68	13.25	12.06	11.89	11.72
25	11.70	11.88	11.58	11.74	12.64	11.53	12.63	12.51	13.65	11.81	11.77	11.67
26	11.69	11.79	11.64	11.75	12.82	11.65	12.83	12.33	14.05	11.67	11.85	11.66
27	11.73	11.72	11.74	11.80	12.36	11.72	12.85	12.29	14.43	11.81	11.88	11.61
28	11.75	11.64	11.88	11.86	12.47	11.89	12.75	12.12	14.70	11.97	11.90	11.56
29	11.76	11.63	12.04	11.82	12.61	12.03	12.57	11.97	14.64	12.07	11.90	11.55
30	11.73	11.72	12.12	11.79	---	12.11	12.27	11.95	14.27	12.10	11.80	11.49
31	11.70	---	12.09	11.77	---	12.15	---	12.00	---	12.06	11.79	---
MEAN	11.72	11.71	11.67	11.83	12.10	12.27	12.09	12.15	14.07	12.71	11.90	11.75
MAX	11.89	11.88	12.12	12.11	12.82	13.18	12.85	12.91	15.61	14.63	12.49	12.37
MIN	11.52	11.54	11.43	11.66	11.80	11.51	11.71	11.74	12.52	11.63	11.64	11.37

05411500 MISSISSIPPI RIVER AT CLAYTON, IA--Continued




Iowa
HOWARD
WINNESHIEK
FAYETTE
CLAYTON
DELAWARE
DUBUQUE
JACKSON
JONES
CLINTON
WISCONSIN
ILLINOIS
43°00'00"
92°07'00"
42°07'30"
90°52'30"
05412100
05412030
05412400
05412500
05416200
05416972
05414600
05418400
05418500
05418645
EXPLANATION
Hydrologic boundary
Streams
05388250
Transmitting gaging station and station number
05388310
Crest-stage gaging station and station number
0 6 12 18 24 30 MILES
0 6 12 18 24 30 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05412100	Roberts Creek above St. Olaf, IA	80
05412400	Volga River at Littleport, IA	82
05412500	Turkey River at Garber, IA	84
05418400	North Fork Maquoketa River near Fulton, IA	86
05418500	Maquoketa River near Maquoketa, IA	88

Crest Stage Gaging Stations

05412030	French Hollow Creek near Elkader, IA	322
05414600	Little Maquoketa River Tributary at Dubuque, IA	323
05416200	Lamont Creek Tributary near Lamont, IA	323
05416972	Sand Creek near Manchester, IA	323
05418645	Williams Creek near Charlotte, IA	323

05412100 ROBERTS CREEK ABOVE SAINT OLAF, IA

LOCATION.--Lat 42°55'49", long 91°23'03", in SW$^1/_4$ NW$^1/_4$ sec.25, T.94 N., R.5 W., Clayton County, Hydrologic Unit 07060004, on left downstream bank at bridge on road X28, 0.1 mi north of county road B65, on north edge of Saint Olaf.

DRAINAGE AREA.--70.7 mi^2.

PERIOD OF RECORD.--September 1957 to July 1977 (operated as a low-flow station only), March 1986 to current year.

GAGE.--Water-stage recorder. Datum of gage is 826.73 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.5	3.3	5.9	e1.5	e.85	e22	4.6	4.5	182	44	8.5	6.3
2	e4.7	3.2	5.6	e1.7	e.75	e17	4.3	3.5	123	44	14	5.6
3	e6.5	3.5	6.3	e1.4	e.80	e11	4.0	2.9	82	e78	10	7.6
4	e4.6	3.9	7.7	e1.2	e.90	e10	3.6	2.3	70	e52	7.1	21
5	3.5	4.1	6.6	e1.1	e.85	e7.8	3.5	1.7	116	e47	9.8	8.7
6	3.7	4.0	4.6	e1.0	e.90	8.5	3.6	1.1	95	e41	22	6.5
7	3.6	3.8	4.2	e.90	e.95	8.2	4.1	.80	77	e39	10	5.9
8	3.6	3.6	5.0	e1.0	e1.0	8.7	6.4	.71	63	e36	7.3	5.8
9	4.5	3.6	4.8	e1.1	e1.1	9.5	5.1	1.4	51	e85	6.6	4.7
10	4.5	4.1	4.0	e1.4	e1.2	9.4	4.9	1.3	40	e177	5.2	4.2
11	3.3	3.7	3.1	e1.8	e1.0	7.0	4.3	.85	33	e99	4.2	4.0
12	3.0	3.5	5.6	e1.5	e.85	6.2	4.5	3.1	29	e65	3.8	3.7
13	3.2	3.6	2.7	e1.2	e.95	5.9	4.0	2.9	33	e56	4.6	3.4
14	3.2	3.8	5.1	e1.0	e1.0	5.7	4.0	1.1	146	e48	6.0	3.3
15	3.3	3.1	4.3	e.85	e1.1	6.5	3.4	.54	89	e43	3.5	2.9
16	3.7	2.7	e1.5	e.95	e1.0	7.1	3.0	.44	72	e37	2.6	2.5
17	3.5	3.2	e.95	e1.1	e.95	5.2	3.0	2.2	57	e34	90	2.4
18	3.0	3.5	e1.0	e.95	e.85	5.2	2.8	120	44	29	49	2.2
19	2.8	3.8	e1.1	e1.1	e.80	6.1	6.2	219	36	28	24	2.1
20	3.1	3.4	e1.2	e.90	e.80	6.4	44	82	105	26	17	3.8
21	3.4	3.3	e.90	e.85	e1.3	7.8	44	56	104	23	14	3.8
22	3.2	2.9	e.75	e.80	e1.8	8.0	32	48	58	20	13	4.0
23	4.2	23	e.60	e.75	e30	7.1	26	36	43	18	15	9.4
24	2.9	29	e.90	e.65	e350	8.9	21	29	42	17	10	6.1
25	3.0	10	e1.1	e.70	e90	16	17	23	43	16	8.0	2.9
26	3.3	7.4	e1.4	e.65	e65	11	14	21	217	16	8.0	2.2
27	3.8	6.6	e1.2	e.65	e40	9.2	12	36	76	16	18	2.0
28	3.7	5.7	e.95	e.70	e27	7.9	9.9	39	63	13	10	2.0
29	4.1	4.9	e1.1	e.80	e23	6.6	7.8	33	59	12	8.4	1.7
30	4.3	3.6	e1.2	e.90	---	5.8	5.7	31	49	11	7.6	1.2
31	4.0	---	e1.3	e.95	---	5.1	---	39	---	10	7.1	---
TOTAL	114.7	167.8	92.65	32.05	646.70	266.8	312.7	843.34	2297	1280	424.3	141.9
MEAN	3.70	5.59	2.99	1.03	22.3	8.61	10.4	27.2	76.6	41.3	13.7	4.73
MAX	6.5	29	7.7	1.8	350	22	44	219	217	177	90	21
MIN	2.8	2.7	.60	.65	.75	5.1	2.8	.44	29	10	2.6	1.2
AC-FT	228	333	184	64	1280	529	620	1670	4560	2540	842	281
CFSM	.05	.08	.04	.01	.32	.12	.15	.38	1.08	.58	.19	.07
IN.	.06	.09	.05	.02	.34	.14	.16	.44	1.21	.67	.22	.07

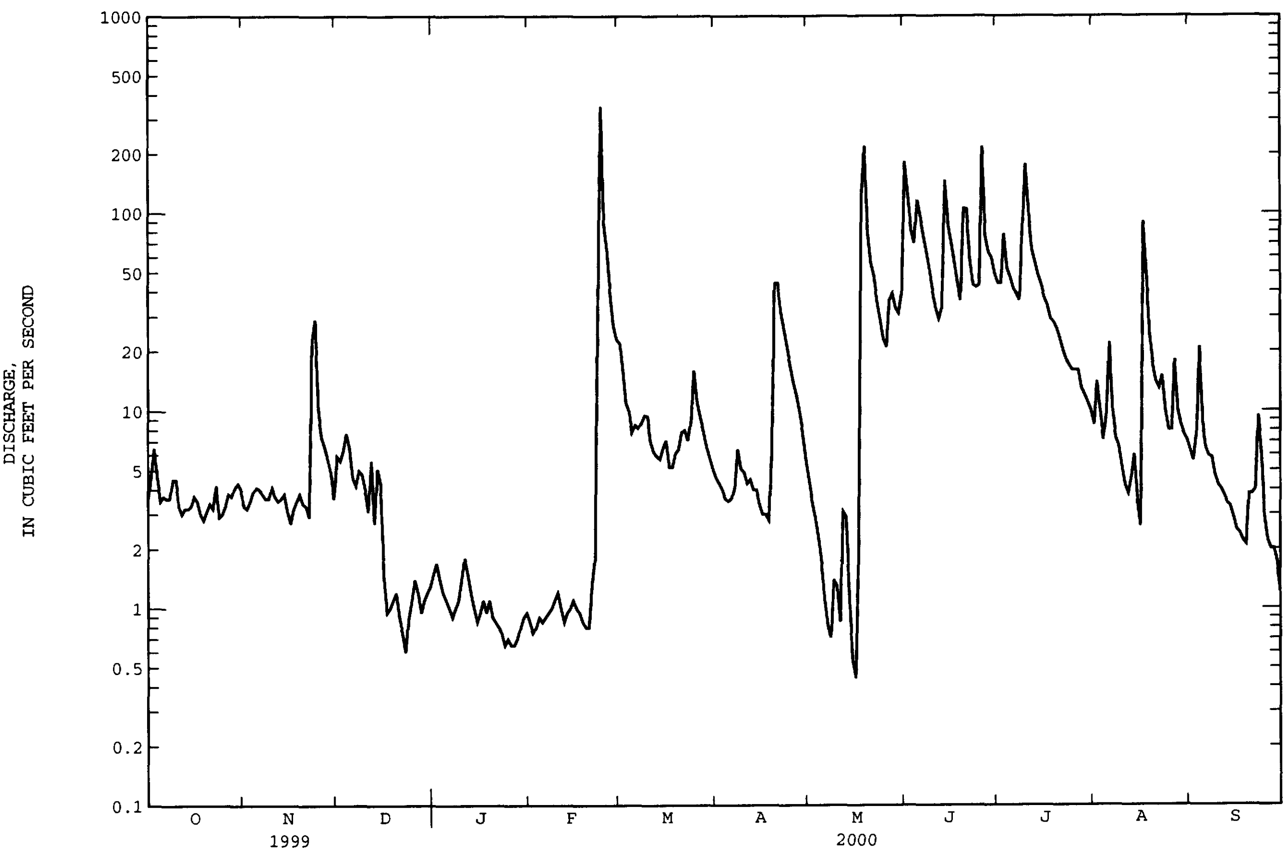
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	12.0	17.9	13.3	7.82	19.3	54.1	52.6	37.6	55.5	28.2	17.2	14.2
MAX	52.8	82.5	65.7	38.9	63.5	198	167	164	313	192	87.4	49.9
(WY)	1998	1992	1992	1992	1997	1993	1993	1999	1991	1993	1993	1993
MIN	.075	.003	.000	.11	.15	8.61	1.63	.86	.29	.098	.86	.53
(WY)	1990	1990	1990	1991	1991	2000	1989	1989	1989	1989	1988	1989

05412100 ROBERTS CREEK ABOVE SAINT OLAF, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1986 - 2000	
ANNUAL TOTAL	12846.05		6619.94			
ANNUAL MEAN	35.2		18.1		28.0	
HIGHEST ANNUAL MEAN					85.6	1993
LOWEST ANNUAL MEAN					4.36	1989
HIGHEST DAILY MEAN	1800	May 17	350	Feb 24	7090	Jun 15 1991
LOWEST DAILY MEAN	.60	Dec 23	.44	May 16	.00	Jul 25 1989
ANNUAL SEVEN-DAY MINIMUM	.92	Dec 18	.70	Jan 22	.00	Jul 25 1989
INSTANTANEOUS PEAK FLOW			1030	Feb 23	19600	Jun 15 1991
INSTANTANEOUS PEAK STAGE			14.80	Feb 23	27.88	Jun 15 1991
INSTANTANEOUS LOW FLOW			.37	May 17		
ANNUAL RUNOFF (AC-FT)	25480		13130		20290	
ANNUAL RUNOFF (CFSM)	.50		.26		.40	
ANNUAL RUNOFF (INCHES)	6.76		3.48		5.38	
10 PERCENT EXCEEDS	83		49		60	
50 PERCENT EXCEEDS	9.9		4.6		10	
90 PERCENT EXCEEDS	3.2		.95		.84	

e Estimated



05412400 VOLGA RIVER AT LITTLEPORT, IA

LOCATION.--Lat 42°45'15", long 91°22'10", in $NE^1/_4$ $NE^1/_4$ $SE^1/_4$ sec.25, T.92 N., R.5 W., Clayton County, Hydrologic Unit 07060004, on left bank 10 ft. downstream of bridge on County Highway X21, 6 miles upstream of confluence with the Turkey River, and 8.0 miles southeast of Elkader.

DRAINAGE AREA.--348 mi^2.

PERIOD OF RECORD.--September 1957 to July 1977 as miscellaneous low-flow site. September 19, 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 677.00 ft. above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 17, 1999 reached a stage of 25.36 ft, approximate discharge 30,000 cfs. (from indirect measurement at Mederville, 2.5 miles upstream of Littleport)

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	97	101	e48	e32	281	121	251	944	414	135	98
2	123	94	102	e55	e36	251	118	235	959	367	169	96
3	124	93	105	e60	e38	225	116	220	663	386	152	119
4	130	93	108	e44	e40	209	113	208	549	358	131	117
5	124	95	103	e38	e36	198	110	198	610	326	148	100
6	119	92	99	e42	e42	186	107	189	627	302	167	91
7	117	90	97	e48	e48	179	119	181	560	277	139	88
8	116	91	96	e50	e55	171	139	176	485	256	129	88
9	115	93	94	e60	e60	165	136	174	423	336	121	88
10	114	91	93	e65	e70	154	135	168	365	768	114	87
11	111	89	91	e55	e65	146	144	172	331	1000	108	85
12	111	89	93	e50	76	137	144	270	309	677	103	84
13	110	89	91	e46	80	134	140	236	317	516	106	75
14	107	88	92	e42	81	130	137	226	1050	430	114	88
15	110	85	92	e46	79	129	135	201	1400	363	127	80
16	112	87	82	e50	e70	131	131	194	896	319	119	77
17	107	86	e60	e46	e60	124	132	192	701	289	235	74
18	106	88	e46	e48	e65	121	129	275	580	260	215	73
19	107	86	e50	e40	e60	127	208	441	496	238	216	73
20	106	85	e44	e42	e55	131	1570	551	530	221	175	84
21	107	85	e42	e42	e65	133	1250	420	695	204	152	79
22	107	85	e48	e44	e80	132	840	358	541	190	141	90
23	103	166	e46	e42	496	132	647	314	446	177	136	116
24	102	166	e44	e40	853	146	524	280	443	167	127	99
25	103	141	e42	e36	688	154	439	251	489	163	119	91
26	101	129	e46	e34	583	148	387	232	952	170	118	84
27	100	122	e50	e30	489	148	348	266	900	175	118	77
28	100	113	e46	e27	372	145	316	288	614	156	114	74
29	106	107	e50	e30	312	139	288	339	519	148	111	72
30	103	101	e55	e32	---	132	266	384	441	143	103	69
31	99	---	e50	e29	---	125	---	485	---	140	102	---
TOTAL	3418	3016	2258	1361	5086	4863	9389	8375	18835	9936	4264	2616
MEAN	110	101	72.8	43.9	175	157	313	270	628	321	138	87.2
MAX	130	166	108	65	853	281	1570	551	1400	1000	235	119
MIN	99	85	42	27	32	121	107	168	309	140	102	69
AC-FT	6780	5980	4480	2700	10090	9650	18620	16610	37360	19710	8460	5190
CFSM	.32	.29	.21	.13	.50	.45	.90	.78	1.80	.92	.40	.25
IN.	.37	.32	.24	.15	.54	.52	1.00	.90	2.01	1.06	.46	.28

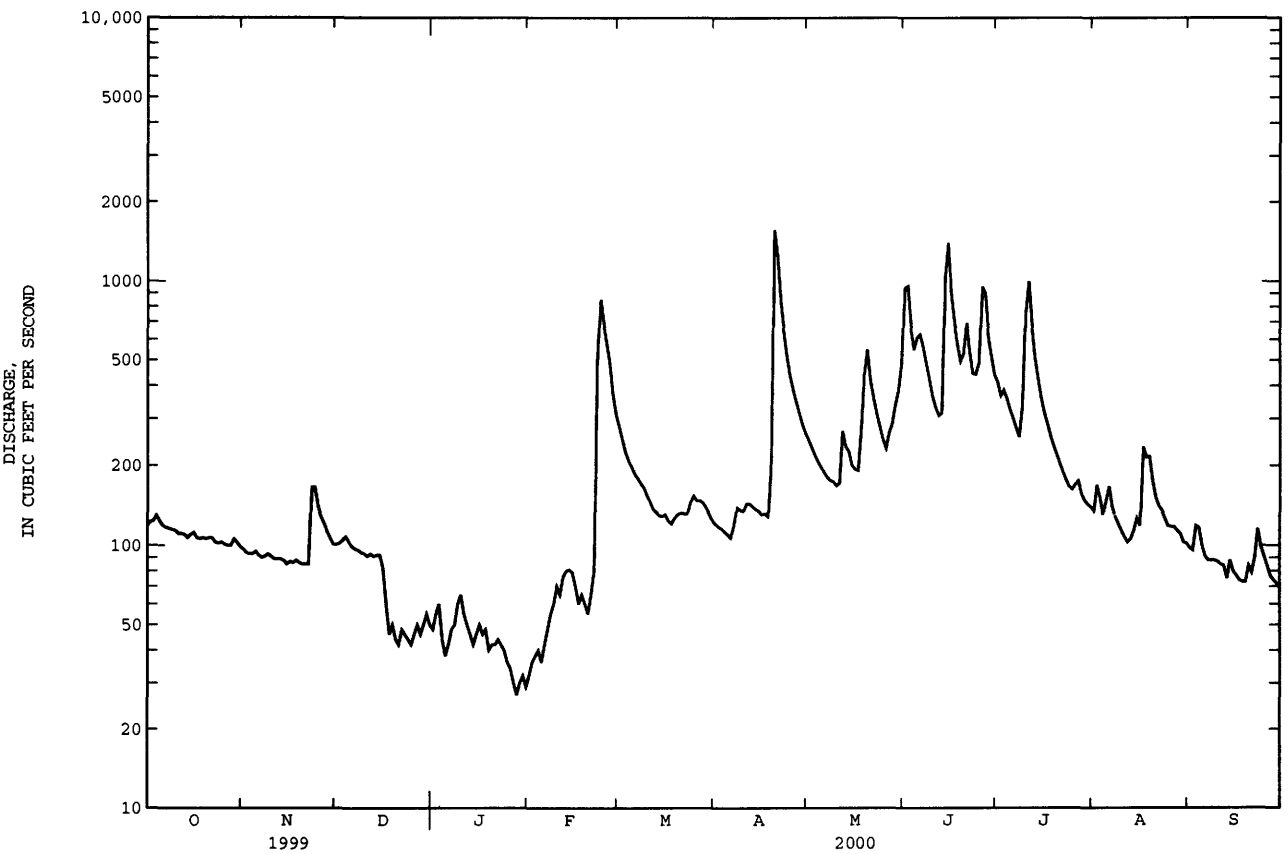
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	110	101	72.8	43.9	175	157	313	270	628	321	138	87.2
MAX	110	101	72.8	43.9	175	157	313	270	628	321	138	87.2
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
MIN	110	101	72.8	43.9	175	157	313	270	628	321	138	87.2
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000

05412400 VOLGA RIVER AT LITTLEPORT, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR	
ANNUAL TOTAL			73417	
ANNUAL MEAN			201	
HIGHEST DAILY MEAN	166	Nov 23	1570	Apr 20
LOWEST DAILY MEAN	42	Dec 21	27	Jan 28
ANNUAL SEVEN-DAY MINIMUM	45	Dec 20	31	Jan 26
INSTANTANEOUS PEAK FLOW			2640	Apr 20
INSTANTANEOUS PEAK STAGE			9.70	Apr 20
ANNUAL RUNOFF (AC-FT)			145600	
ANNUAL RUNOFF (CFSM)			.58	
ANNUAL RUNOFF (INCHES)			7.85	
10 PERCENT EXCEEDS	132		486	
50 PERCENT EXCEEDS	101		119	
90 PERCENT EXCEEDS	50		48	

e Estimated



05412500 TURKEY RIVER AT GARBER, IA

LOCATION.--Lat 42°44'24", long 91°15'42", in $SE^1/_4$ $NW^1/_4$ sec.36, T.92 N., R.4 W., Clayton County, Hydrologic Unit 07060004, on right bank 10 ft. upstream from bridge on county highway C43, 800 ft. upstream from Wayman Creek, 1,000 ft. southeast of Garber, 2,000 ft. downstream from Elk Creek, 1 mi downstream from Volga River, and 21.2 mi upstream from mouth.

DRAINAGE AREA.--1,545 mi^2.

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; WDR IA-95-1: location.

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, that of May 17, 1999.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	664	508	485	e280	e170	1370	564	819	2950	1810	850	752
2	672	502	489	e300	e180	1220	550	772	4790	1690	902	726
3	684	498	504	e340	e200	1140	541	731	6600	2070	882	755
4	680	494	517	e300	e190	1080	523	698	4900	1870	803	785
5	657	487	512	e270	e220	1010	510	670	3720	1730	813	686
6	641	479	494	e290	e240	945	499	646	3420	1630	892	640
7	626	473	486	e280	e270	897	528	626	3310	1530	852	615
8	620	470	483	e300	e300	863	567	609	2750	1420	788	604
9	622	468	482	e320	e360	838	559	618	2380	1650	745	595
10	616	468	471	e360	e420	803	539	598	2090	4330	705	586
11	600	462	461	e340	e400	768	541	609	1900	5850	673	581
12	589	460	459	e320	e380	729	540	988	1780	4660	645	566
13	589	460	462	e280	e380	708	532	730	1770	3630	643	526
14	577	456	458	e240	e380	683	525	685	3740	2990	1170	542
15	571	453	e440	e260	e350	673	522	624	8560	e2650	995	517
16	566	453	e400	e270	e320	666	504	614	7160	e2190	837	492
17	553	451	e360	e240	e340	632	500	613	7300	e1850	1210	485
18	547	453	e320	e250	e320	613	494	998	5580	e1680	2090	475
19	543	453	e300	e230	e290	624	731	1760	4010	1520	1500	474
20	540	451	e290	e210	e280	627	3050	1780	3520	1410	1160	497
21	535	446	e300	e230	e360	621	2560	1800	3690	1300	1010	480
22	536	444	e320	e250	483	611	1940	1570	3430	1210	910	498
23	526	640	e290	e220	1630	600	1620	1400	2850	1130	904	589
24	522	746	e260	e210	3920	630	1400	1310	2580	1060	1030	559
25	521	645	e240	e210	3280	661	1240	1180	2500	1020	960	516
26	515	589	e260	e200	2670	646	1120	1080	3080	1020	872	e480
27	511	562	e290	e190	2410	654	1030	1160	2990	1020	892	e460
28	509	535	e260	e160	1980	654	975	1220	2370	963	977	e440
29	526	515	e290	e180	1580	637	911	1280	2180	928	919	443
30	529	495	e320	e200	---	615	853	1490	1970	900	838	433
31	514	---	e290	e160	---	585	---	2200	---	879	788	---
TOTAL	17901	15016	11993	7890	24303	23803	26968	31878	109870	59590	29255	16797
MEAN	577	501	387	255	838	768	899	1028	3662	1922	944	560
MAX	684	746	517	360	3920	1370	3050	2200	8560	5850	2090	785
MIN	509	444	240	160	170	585	494	598	1770	879	643	433
MED	566	472	400	250	360	666	554	819	3200	1630	892	534
AC-FT	35510	29780	23790	15650	48200	47210	53490	63230	217900	118200	58030	33320
CFSM	.37	.32	.25	.16	.54	.50	.58	.67	2.37	1.24	.61	.36
IN.	.43	.36	.29	.19	.59	.57	.65	.77	2.65	1.43	.70	.40

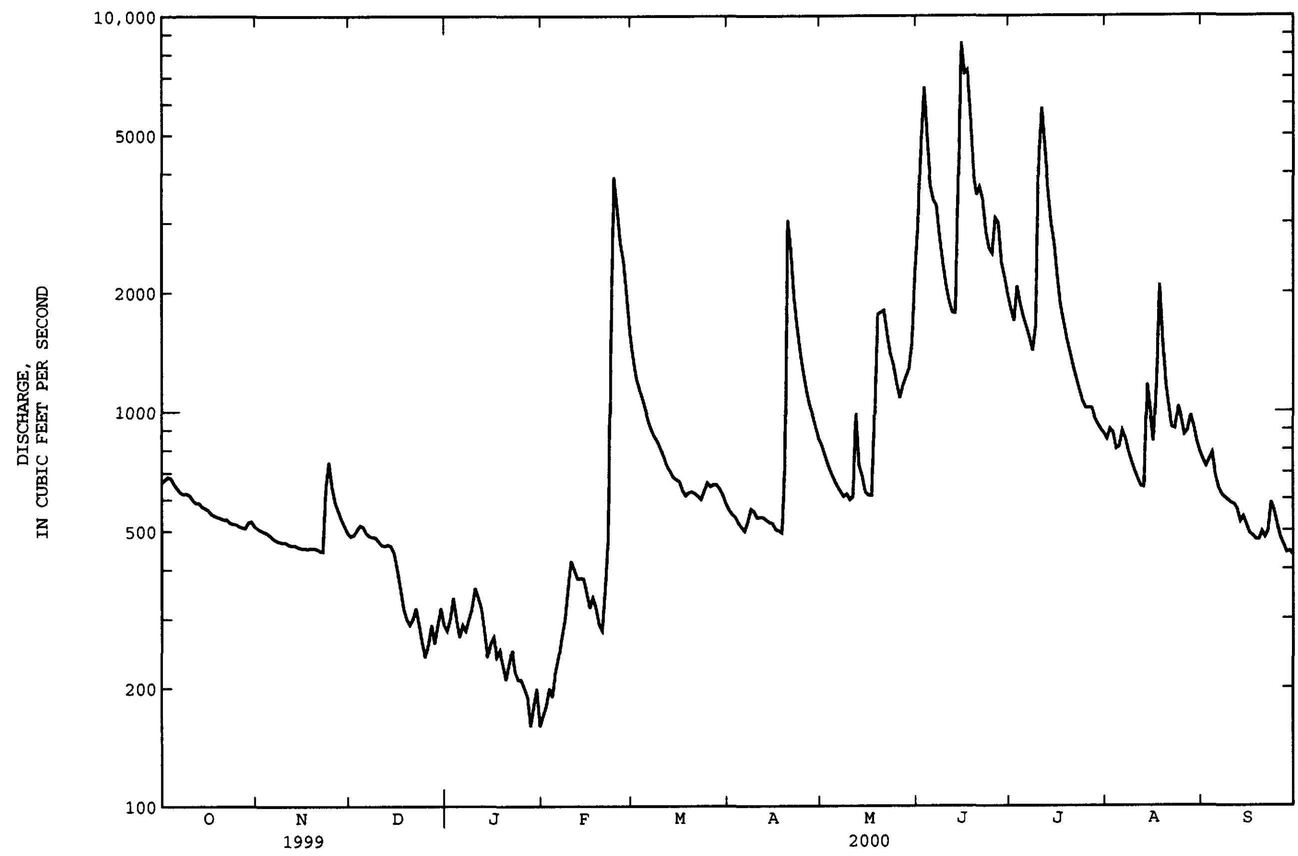
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	577	618	483	511	833	2026	1717	1336	1416	994	860	641
MAX	2527	2834	2889	3306	4265	4832	6382	5176	5316	5772	5119	3011
(WY)	1987	1962	1983	1916	1922	1979	1951	1999	1947	1993	1993	1938
MIN	88.2	92.2	78.5	62.0	60.9	188	288	95.7	103	121	140	108
(WY)	1950	1950	1959	1940	1959	1934	1957	1934	1934	1936	1964	1958

05412500 TURKEY RIVER AT GARBER, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1913 - 2000	
ANNUAL TOTAL	645556		375264			
ANNUAL MEAN	1769		1025		1004	
HIGHEST ANNUAL MEAN					2905	1993
LOWEST ANNUAL MEAN					249	1934
HIGHEST DAILY MEAN	43400	May 17	8560	Jun 15	43400	May 17 1999
LOWEST DAILY MEAN	240	Dec 25	160	Jan 28	49	Jan 28 1940
ANNUAL SEVEN-DAY MINIMUM	270	Dec 23	177	Jan 27	51	Jan 25 1940
INSTANTANEOUS PEAK FLOW			9610	Jun 15	53900	May 17 1999
INSTANTANEOUS PEAK STAGE			16.94	Jun 15	30.91	May 17 1999
ANNUAL RUNOFF (AC-FT)	1280000		744300		727700	
ANNUAL RUNOFF (CFSM)	1.14		.66		.65	
ANNUAL RUNOFF (INCHES)	15.54		9.04		8.83	
10 PERCENT EXCEEDS	3490		2250		2120	
50 PERCENT EXCEEDS	951		615		528	
90 PERCENT EXCEEDS	360		290		170	

e Estimated



05418400 NORTH FORK MAQUOKETA RIVER NEAR FULTON, IA

LOCATION.--Lat 42°09'52", long 90°40'44", in SW$^1/_4$ SW$^1/_4$ SE$^1/_4$ sec.16, T.85 N., R.2 E., Jackson County, Hydrologic Unit 07060006, on right downstream bank at County Highway E17, 0.25 mile upstream from Prairie Creek, and 7.0 mi northeast of Maquoketa.

DRAINAGE AREA.--505 mi^2.

PERIOD OF RECORD.--April 29, 1998 to current year.

GAGE.--Water-stage recorder. Datum of gage is 679.00 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--A flood, Aug. 18, 1981, reached a stage of 17.26 ft, discharge, 10,700 ft^3/s, at site and datum 3.5 miles downstream, in use prior to Oct. 1, 1991.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	271	248	219	e110	e90	346	187	308	1150	544	266	185
2	263	241	219	e130	e85	312	188	297	1420	526	262	184
3	262	240	227	e110	e110	287	187	280	798	740	252	225
4	268	243	224	e80	e100	275	181	261	642	706	237	247
5	266	243	219	e65	e95	265	180	252	620	564	327	217
6	263	239	207	e70	e110	253	180	243	659	503	330	193
7	257	235	206	e60	e100	244	184	240	589	467	284	184
8	256	239	205	e70	e120	240	199	333	544	443	264	183
9	255	243	204	e85	e150	232	200	485	458	440	256	176
10	255	244	202	e100	e130	218	194	323	427	625	252	180
11	250	236	198	e90	e140	211	195	283	428	788	251	289
12	244	231	197	e85	e150	207	190	273	567	606	244	354
13	248	233	196	e80	e170	205	184	395	1960	524	245	301
14	243	234	194	e75	e190	204	183	338	5530	464	235	268
15	245	230	194	e95	206	203	185	289	2750	430	222	240
16	307	229	189	e90	209	205	187	276	1540	402	213	210
17	308	228	e130	e85	192	194	206	288	1160	386	243	199
18	255	230	e95	e110	193	189	194	287	967	372	316	193
19	247	232	e120	e90	e180	200	371	464	844	366	298	191
20	244	225	e100	e75	e180	212	1010	464	803	370	240	203
21	244	224	e85	e80	226	209	1190	363	838	340	221	207
22	244	222	e95	e90	279	202	845	328	731	317	214	227
23	239	237	e90	e80	759	198	675	304	650	310	213	566
24	236	282	e110	e70	1100	207	580	283	688	304	211	359
25	239	285	e120	e80	894	216	481	260	784	290	203	280
26	242	254	e130	e85	649	208	422	248	903	281	200	252
27	241	246	e110	e65	538	205	385	277	848	289	200	240
28	242	232	e95	e75	433	204	369	322	678	282	194	230
29	247	221	e120	e85	373	197	349	335	637	276	191	222
30	255	215	e110	e95	---	192	322	306	591	282	188	218
31	252	---	e100	e85	---	188	---	335	---	273	187	---
TOTAL	7888	7141	4910	2645	8151	6928	10403	9740	31204	13510	7459	7223
MEAN	254	238	158	85.3	281	223	347	314	1040	436	241	241
MAX	308	285	227	130	1100	346	1190	485	5530	788	330	566
MIN	236	215	85	60	85	188	180	240	427	273	187	176
AC-FT	15650	14160	9740	5250	16170	13740	20630	19320	61890	26800	14790	14330
CFSM	.50	.47	.31	.17	.56	.44	.69	.62	2.06	.86	.48	.48
IN.	.58	.53	.36	.19	.60	.51	.77	.72	2.30	1.00	.55	.53

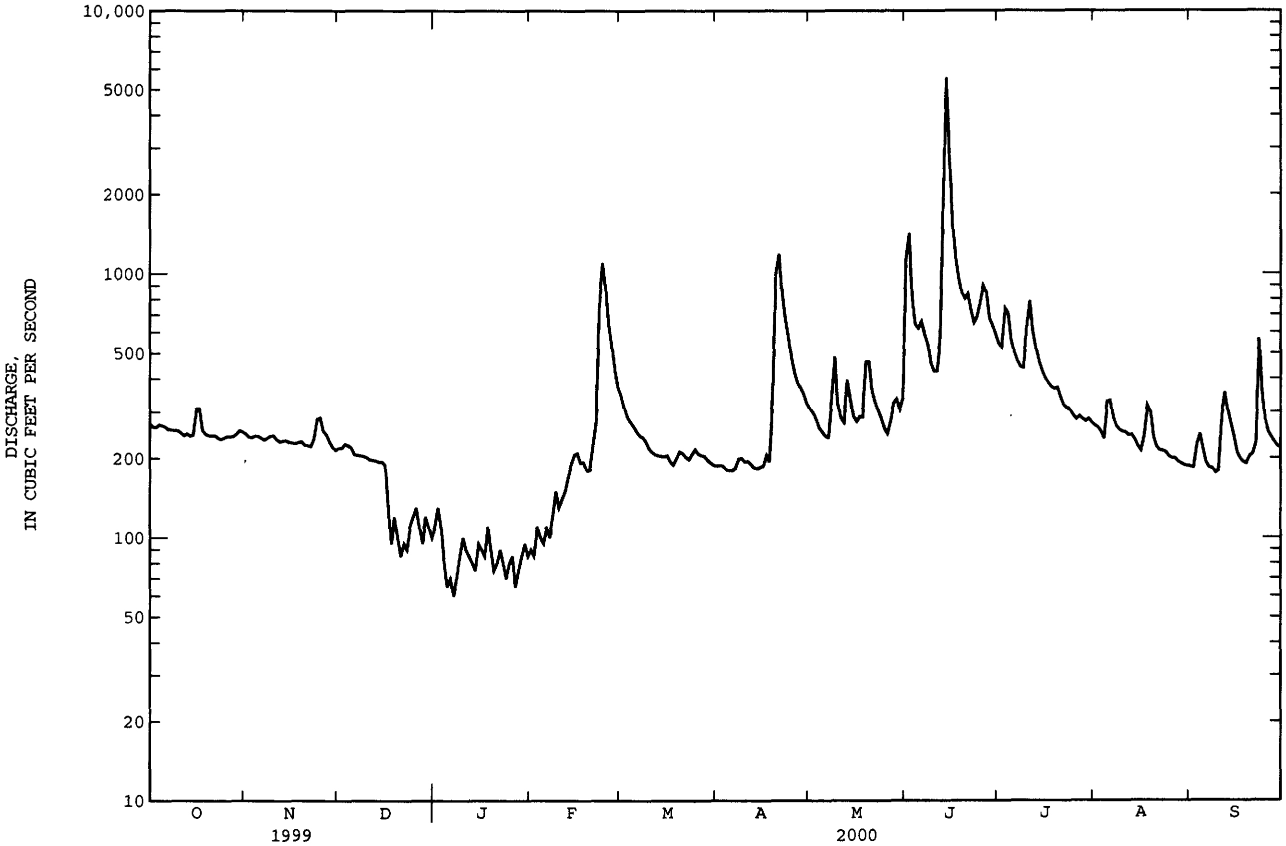
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	372	313	199	106	394	270	602	671	957	479	319	282
MAX	490	388	239	126	510	316	857	1179	1040	556	385	310
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	2000	1999	1999	1998
MIN	254	238	158	85.3	281	223	347	314	872	436	241	241
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	1998	2000	2000	2000

05418400 NORTH FORK MAQUOKETA RIVER NEAR FULTON, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1998 - 2000	
ANNUAL TOTAL	176976		117202			
ANNUAL MEAN	485		320		422	
HIGHEST ANNUAL MEAN					524	1999
LOWEST ANNUAL MEAN					320	2000
HIGHEST DAILY MEAN	7400	May 18	5530	Jun 14	7400	May 18 1999
LOWEST DAILY MEAN	85	Jan 6	60	Jan 7	60	Jan 7 2000
ANNUAL SEVEN-DAY MINIMUM	99	Dec 18	76	Jan 4	76	Jan 4 2000
INSTANTANEOUS PEAK FLOW			6820	Jun 14	10700	May 18 1999
INSTANTANEOUS PEAK STAGE			13.32	Jun 14	16.46	May 18 1999
ANNUAL RUNOFF (AC-FT)	351000		232500		305700	
ANNUAL RUNOFF (CFSM)	.96		.63		.84	
ANNUAL RUNOFF (INCHES)	13.04		8.63		11.35	
10 PERCENT EXCEEDS	810		596		741	
50 PERCENT EXCEEDS	324		240		310	
90 PERCENT EXCEEDS	136		100		150	

e Estimated



05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA

LOCATION.--Lat 42°05'00", long 90°37'58", in SW $^1/_4$ NE $^1/_4$ sec.17, T.84 N., R.3 E., Jackson County, Hydrologic Unit 07060006, on right downstream bank at State Highway 62 bridge, 900 ft. upstream from Prairie Creek, 2.0 mi northeast of Maquoketa, 2.2 mi downstream from North Fork, and 26.7 mi upstream from mouth.

DRAINAGE AREA.--1,553 mi^2.

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

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

GAGE.--Water-stage recorder. Datum of gage is 625.96 ft. above sea level. Prior to July 14, 1924, nonrecording gage, and July 15, 1924 to Sept. 30, 1972, recording gage at site 300 ft. upstream from State Highway 62 bridge at datum 10.00 ft. higher. On Aug. 3, 1995 the gage was moved to the current location.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diurnal fluctuation caused by power plant 4 mi upstream of station. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--A flood, probably in 1903, reached a stage of 23.5 ft., discharge, 43,000 ft.3/s, at datum in use prior to Oct. 1, 1972.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	668	616	613	e360	e280	1020	593	1040	1670	2070	773	541
2	657	599	607	e400	e260	934	585	975	4580	1860	781	557
3	654	588	633	e360	e340	857	574	935	4150	2910	744	576
4	654	591	659	e300	e300	811	567	911	2450	3450	714	628
5	667	603	662	e240	e290	766	560	899	2120	3090	775	583
6	659	598	615	e260	e340	771	560	799	1830	2580	945	562
7	632	590	598	e230	e300	726	561	856	1770	2250	879	525
8	632	591	599	e250	e380	705	567	770	1660	2070	794	475
9	653	593	600	e280	e460	708	573	1180	1530	1950	776	511
10	637	597	601	e300	e400	681	574	976	1370	2140	736	497
11	629	590	587	e280	e420	661	583	893	1460	2980	696	520
12	636	583	589	e270	e440	634	581	825	2040	2990	659	681
13	621	585	585	e250	e480	616	546	958	3970	2550	622	654
14	608	588	582	e240	e500	608	553	2140	12500	2140	622	727
15	625	577	584	e290	e550	609	571	1470	12000	1850	635	685
16	694	573	578	e270	576	611	587	1270	6660	1570	615	644
17	726	574	e500	e260	553	609	608	1060	4250	1440	626	618
18	670	579	e460	e320	554	606	578	1040	2930	1220	668	608
19	644	582	e380	e260	552	604	686	1210	2700	1160	699	586
20	623	578	e300	e230	542	607	1640	1350	2420	1100	631	589
21	617	573	e260	e260	538	614	3420	1510	2360	1040	616	585
22	617	575	e290	e280	593	639	3690	1340	2470	958	609	684
23	602	585	e270	e250	1210	623	2680	1270	2070	920	604	1160
24	612	622	e320	e220	1810	613	2140	1080	2220	875	586	963
25	609	731	e360	e240	1870	643	1790	1020	4110	908	580	822
26	612	726	e400	e270	1740	659	1560	968	3510	820	573	743
27	605	715	e340	e220	1520	665	1370	883	3480	867	581	685
28	604	689	e300	e230	1260	650	1250	988	3330	892	561	682
29	603	661	e380	e250	1100	621	1180	1060	2650	825	553	713
30	604	618	e340	e300	---	623	1100	1070	2230	787	549	539
31	618	---	e320	e260	---	607	---	1120	---	777	530	---
TOTAL	19692	18270	14912	8430	20158	21101	32827	33866	102490	53039	20732	19343
MEAN	635	609	481	272	695	681	1094	1092	3416	1711	669	645
MAX	726	731	662	400	1870	1020	3690	2140	12500	3450	945	1160
MIN	602	573	260	220	260	604	546	770	1370	777	530	475
AC-FT	39060	36240	29580	16720	39980	41850	65110	67170	203300	105200	41120	38370
CFSM	.41	.39	.31	.18	.45	.44	.70	.70	2.20	1.10	.43	.42
IN.	.47	.44	.36	.20	.48	.51	.79	.81	2.46	1.27	.50	.46

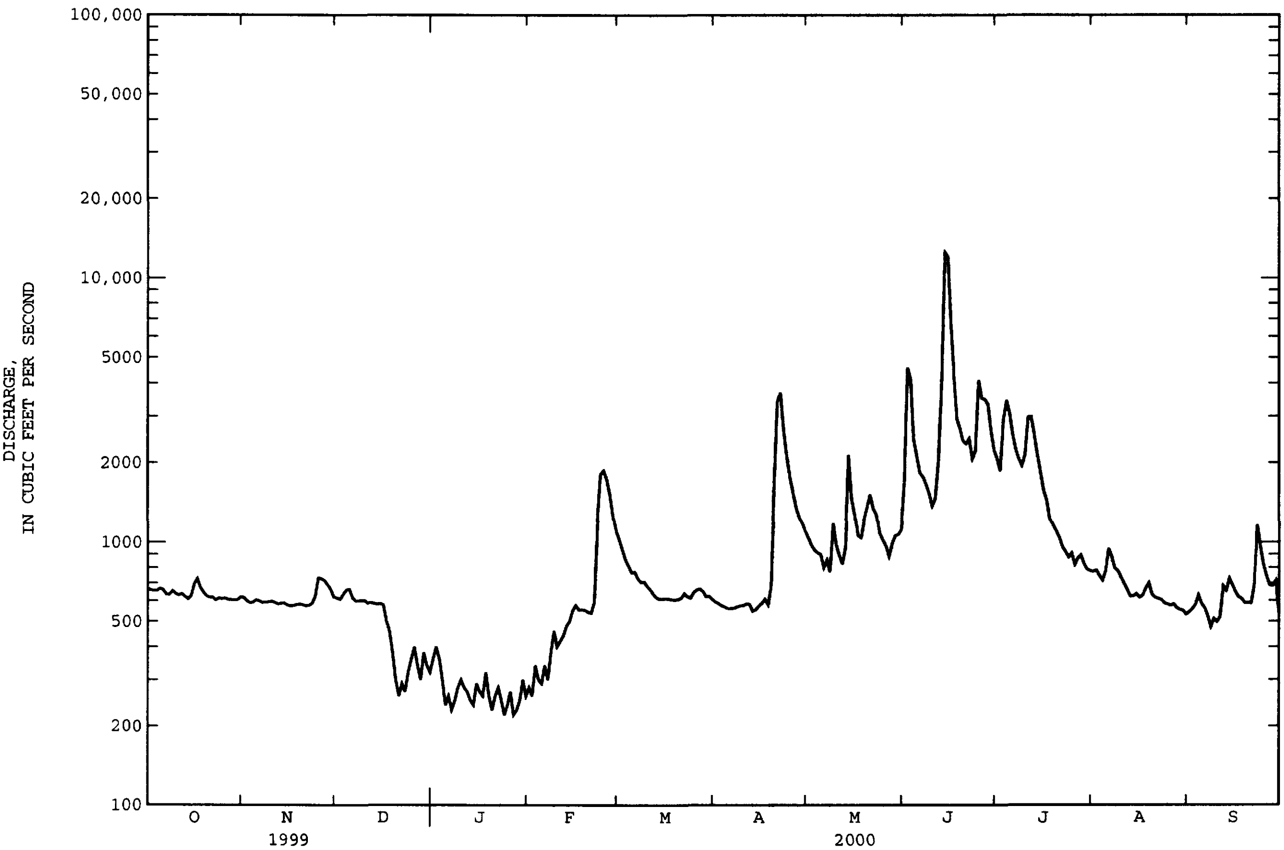
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2000, BY WATER YEAR (WY)

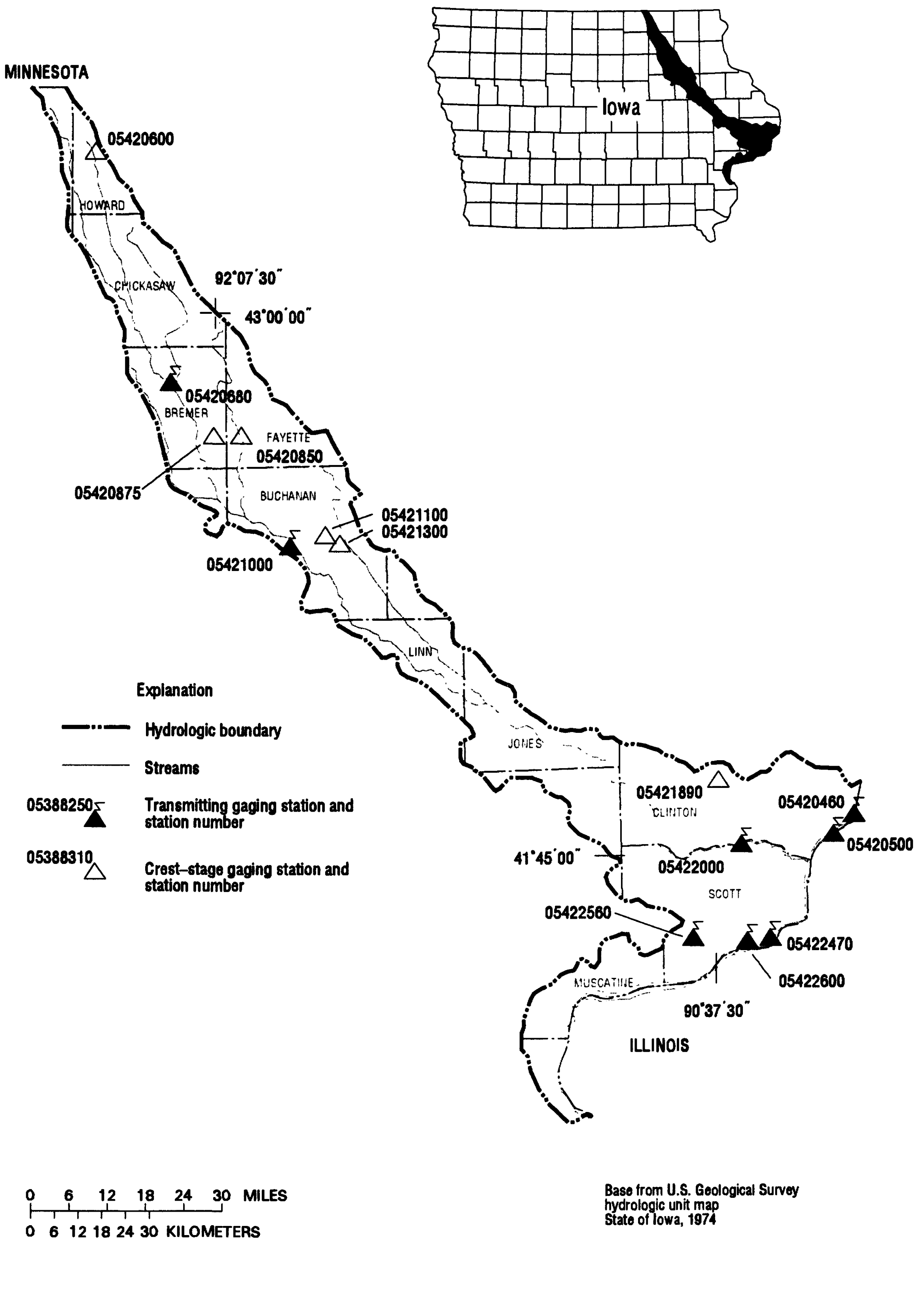
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	735	791	658	684	1105	1845	1385	1256	1492	1075	833	881
MAX	2486	4983	2397	2851	4161	4798	4843	4267	6670	8835	3340	3074
(WY)	1987	1962	1983	1960	1971	1993	1973	1974	1947	1993	1924	1981
MIN	210	198	177	150	196	241	305	198	170	177	227	182
(WY)	1957	1959	1959	1940	1936	1934	1934	1934	1934	1936	1958	1958

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued.

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1914 - 2000	
ANNUAL TOTAL	500811		364860			
ANNUAL MEAN	1372		997		1060	
HIGHEST ANNUAL MEAN					2874	1993
LOWEST ANNUAL MEAN					306	1958
HIGHEST DAILY MEAN	14900	May 19	12500	Jun 14	34800	Jun 27 1944
LOWEST DAILY MEAN	210	Jan 6	220	Jan 24a	105	Feb 11 1936
ANNUAL SEVEN-DAY MINIMUM	249	Jan 4	240	Jan 23	105	Feb 11 1936
INSTANTANEOUS PEAK FLOW			14800	Jun 14	48000	Jun 27 1944
INSTANTANEOUS PEAK STAGE			25.16	Jun 14	24.70	Jun 27 1944
ANNUAL RUNOFF (AC-FT)	993400		723700		768200	
ANNUAL RUNOFF (CFSM)	.88		.64		.68	
ANNUAL RUNOFF (INCHES)	12.00		8.74		9.28	
10 PERCENT EXCEEDS	2530		2080		2000	
50 PERCENT EXCEEDS	959		626		656	
90 PERCENT EXCEEDS	380		300		300	

a Also Jan. 27.
e Estimated.





Iowa
MINNESOTA
05420600
HOWARD
CHICKASAW
92°07'30"
43°00'00"
05420680
BREMER
FAYETTE
05420850
05420875
BUCHANAN
05421100
05421300
05421000
LINN
JONES
05421890
CLINTON
05420460
05420500
41°45'00"
05422000
SCOTT
05422560
05422470
05422600
MUSCATINE
90°37'30"
ILLINOIS
Explanation
Hydrologic boundary
Streams
05388250
Transmitting gaging station and station number
05388310
Crest-stage gaging station and station number
0 6 12 18 24 30 MILES
0 6 12 18 24 30 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05420460 Beaver Slough at 3rd Street at Clinton, IA 92
05420500 Mississippi River at Clinton, IA 94
05420680 Wapsipinicon River nr Tripoli, IA. 100
05421000 Wapsipinicon River at Independence, IA 104
05422000 Wapsipinicon River near De Witt, IA. 106
05422470 Crow Creek at Bettendorf, IA 108
05422560 Duck Creek at 110th Ave at Davenport, IA 110
05422600 Duck Creek at Duck Creek Golf Course, Davenport, IA. 112

Crest Stage Gaging Stations

05420600 Little Wapsipinicon River Tributary near Riceville, IA 323
05420850 Little Wapsipinicon River near Oran, IA. 323
05420875 Buck Creek near Oran, IA 323
05421100 Pine Creek Tributary near Winthrop, IA 324
05421300 Wapsipinicon River Tributary at Winthrop, IA 324
05421890 Silver Creek at Welton, IA 324

05420460 BEAVER SLOUGH AT THIRD STREET CLINTON, IA

LOCATION.--Lat 41°49'38", long 90°11'25", in $SW^1/_4$ $SE^1/_4$ $NW^1/_4$ sec.18, T.81 N., R.7 E., Clinton County, Hydrologic Unit 07080101, at river end of 3rd street, at downstream end of ADM repair dock, 10.3 miles upstream from Wapsipinicon River, 4.8 miles upstream from Camanche gage, 5.9 miles downstream from Lock and Dam 13, and at mile 516.6 upstream from Ohio River.

DRAINAGE AREA.--85,600 mi^2, approximately, at Fulton-Lyons Bridge at Clinton.

PERIOD OF RECORD.--October 1992 to current year.

GAGE.--Water-stage recorder. Datum of gage is 562.68 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Minor flow regulation caused by navigation dams. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8330	8000	7640	8000	e6200	14200	10600	12800	13200	23000	10400	8600
2	7770	8050	7800	8100	e6400	15600	10700	11700	17600	22200	10100	8070
3	7730	8140	8140	8160	e6400	16600	10700	10200	20100	21500	9340	6780
4	7890	8000	8300	8530	e6200	17700	10400	9180	21500	19300	8350	5640
5	7980	7610	8490	7570	e6900	18100	9980	8810	23200	16600	8120	5450
6	7870	7240	8210	6810	e6900	18700	9410	8460	23900	15400	8030	6370
7	8280	7340	7870	7060	e6900	17200	8600	8190	24200	14200	8560	7060
8	8260	7730	7680	7640	e6900	17200	8900	8160	24600	12700	8860	7820
9	8190	8070	7640	8120	e7000	17100	9270	8160	24800	11900	8760	7700
10	8400	7910	7610	8300	e7000	16700	9060	8420	25300	11800	8210	7360
11	8510	8120	7410	8030	e7100	16000	9020	8370	26000	13800	6740	7800
12	8720	8260	7480	7110	e7100	14800	8370	8720	26900	15700	6490	8350
13	8420	8280	7640	6850	e7100	14000	8330	9870	27600	17400	6740	8560
14	8490	8280	7750	6420	e7600	13600	7840	9680	28500	20000	6760	8530
15	7940	8330	7820	5980	e7600	13200	7940	9570	28800	21000	7750	10200
16	7360	7660	7500	5840	e7600	13100	8230	9450	27600	22500	8530	11200
17	7360	7130	6320	6070	e7600	13200	9040	9150	25100	22400	8600	11800
18	7380	6620	5820	6100	e7500	12900	9130	9590	21700	22300	9450	11800
19	7430	6810	5860	6100	e7500	12900	8580	11400	19900	22500	9570	10600
20	7430	6620	5860	6780	e7400	12800	9660	13500	19800	22500	9660	9020
21	7480	6560	e4600	e6200	7340	11800	11000	16100	19700	21100	10900	7590
22	7450	7110	e4000	e6200	6990	11200	11200	16900	19000	18800	12100	6760
23	7410	7540	e4100	e6200	6670	10900	11200	16700	17800	16700	12400	6850
24	7480	8420	e4300	e6200	7430	9940	11200	16300	19200	15300	11100	8190
25	7520	9360	e4400	e6200	10100	9780	11800	15600	20100	14300	9060	7540
26	7940	8970	e4300	e6200	13800	9590	12500	15100	21400	12700	7940	6560
27	8210	8440	e4600	e6200	14900	9250	14500	15100	21400	9800	7820	6120
28	8190	8400	e4800	e6200	13500	9480	14600	15000	22400	9290	7570	6440
29	8230	8400	e5300	e6200	13300	10100	14600	13900	22800	9200	7570	6390
30	8050	8070	e7100	e6200	---	10100	14200	12900	23000	9590	8580	6370
31	7890	---	8280	e6200	---	10600	---	12200	---	10100	8690	---
TOTAL	245590	235470	204620	211770	234930	418340	310560	359180	677100	515580	272750	237520
MEAN	7922	7849	6601	6831	8101	13490	10350	11590	22570	16630	8798	7917
MAX	8720	9360	8490	8530	14900	18700	14600	16900	28800	23000	12400	11800
MIN	7360	6560	4000	5840	6200	9250	7840	8160	13200	9200	6490	5450
AC-FT	487100	467100	405900	420000	466000	829800	616000	712400	1343000	1023000	541000	471100
CFSM	.09	.09	.08	.08	.09	.16	.12	.14	.26	.19	.10	.09
IN.	.11	.10	.09	.09	.10	.18	.13	.16	.29	.22	.12	.10

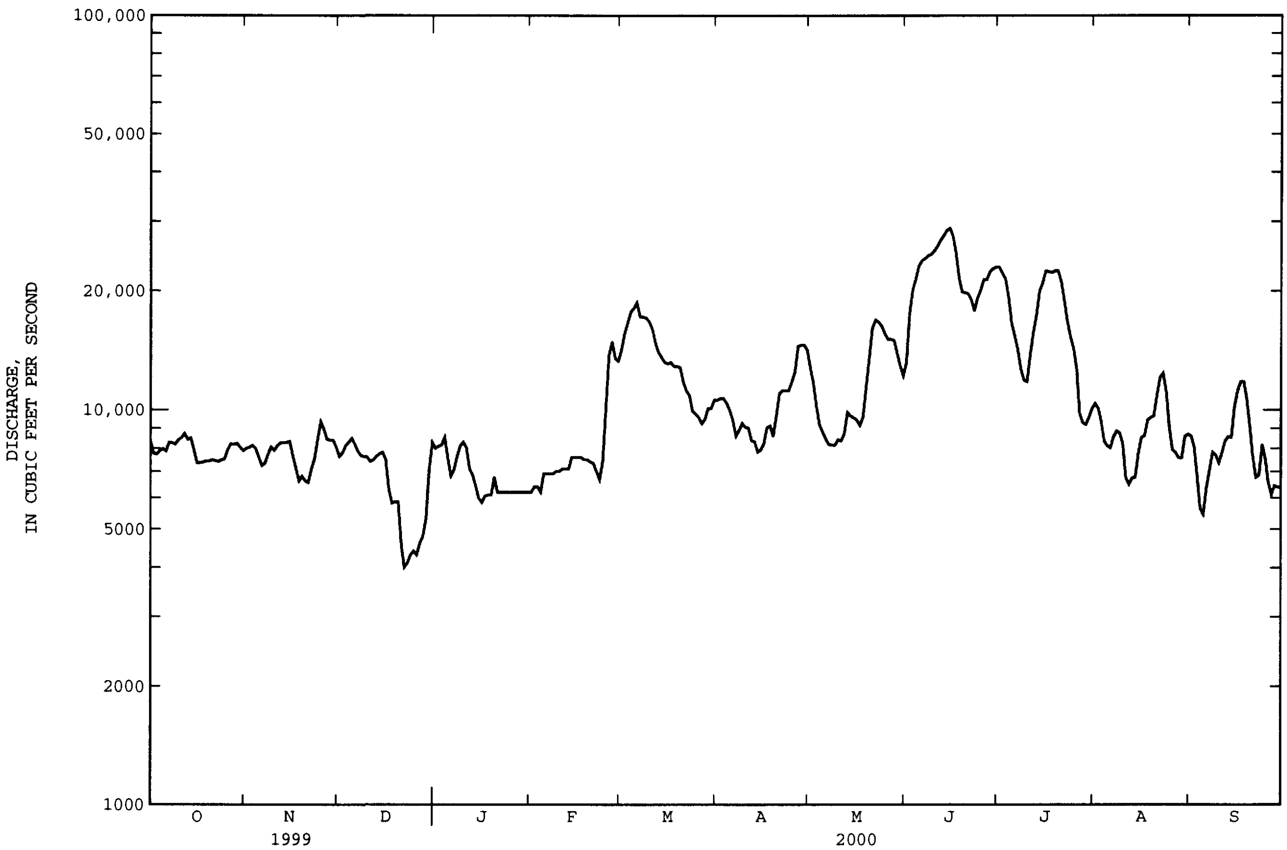
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	11420	12890	10060	9590	10620	15990	28360	24470	20500	20710	14460	11720
MAX	15960	18320	11680	12780	14510	19900	43980	34520	35240	49690	28330	21640
(WY)	1996	1996	1997	1995	1994	1995	1997	1993	1993	1993	1993	1993
MIN	7741	7849	6601	6831	8101	11610	10350	11590	13010	11950	8798	6083
(WY)	1997	2000	2000	2000	2000	1999	2000	2000	1997	1995	2000	1996

05420460 BEAVER SLOUGH AT THIRD STREET CLINTON, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1993 - 2000	
ANNUAL TOTAL	5286080		3923410			
ANNUAL MEAN	14480		10720		15910	
HIGHEST ANNUAL MEAN					23060	1993
LOWEST ANNUAL MEAN					10720	2000
HIGHEST DAILY MEAN	36000	May 19	28800	Jun 15	59500	Jul 7 1993
LOWEST DAILY MEAN	4000	Dec 22	4000	Dec 22	4000	Dec 22 1999
ANNUAL SEVEN-DAY MINIMUM	4330	Dec 21	4330	Dec 21	4330	Dec 21 1999
INSTANTANEOUS PEAK FLOW			29000	Jun 14a		
INSTANTANEOUS PEAK STAGE			17.99	Jun 15		
ANNUAL RUNOFF (AC-FT)	10480000		7782000		11530000	
ANNUAL RUNOFF (CFSM)	.17		.13		.19	
ANNUAL RUNOFF (INCHES)	2.30		1.71		2.53	
10 PERCENT EXCEEDS	27900		19400		28000	
50 PERCENT EXCEEDS	11400		8430		12800	
90 PERCENT EXCEEDS	7530		6380		7810	

a Also June 15.
e Estimated.



05420500 MISSISSIPPI RIVER AT CLINTON, IA

(National stream-quality accounting network station)

LOCATION.--Lat 41°46'50", long 90°15'07", in NW$^1/_4$ sec.34, T.81 N., R.6 E., Clinton County, Hydrologic Unit 07080101, on right bank at end of Eighth Avenue in Camanche, 5.0 mi upstream from Wapsipinicon River, 6.4 mi downstream from Clinton, 10.6 mi downstream from Lock and Dam 13, and at mile 511.8 upstream from Ohio River.

DRAINAGE AREA.--85,600 mi^2, 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")(June 1873 to December 1932 published in the Iowa State Planning Board report "Stream-flow records of Iowa, 1873-1932").

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

GAGE.--Water-stage recorder. Datum of gage is 562.68 ft above sea level. June 6, 1969 to Sept. 16, 1988, water-stage recorder at site 400 ft upstream at same datum. Auxiliary water-stage recorder at Lock and Dam 13 since Oct. 1, 1958. See WSP 1728 for history of changes prior to Oct. 1, 1955.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Minor flow regulation caused by navigation dams. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and data collection platform at station.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36200	34800	33200	34800	e27000	61900	46200	55700	57400	100000	45000	37400
2	33800	35000	33900	35200	e28000	68000	46400	50800	76500	96700	43900	35100
3	33600	35400	35400	35500	e28000	72100	46600	44500	87300	93600	40600	29500
4	34300	34800	36100	37100	e27000	76800	45400	39900	93300	84000	36300	24500
5	34700	33100	36900	32900	e30000	78600	43400	38300	101000	72000	35300	23700
6	34200	31500	35700	29600	e30000	81200	40900	36800	104000	67100	34900	27700
7	36000	31900	34200	30700	e30000	74900	37400	35600	105000	61700	37200	30700
8	35900	33600	33400	33200	e30000	74700	38700	35500	107000	55100	38500	34000
9	35600	35100	33200	35300	e30500	74400	40300	35500	108000	51800	38100	33500
10	36500	34400	33100	36100	e30500	72400	39400	36600	110000	51200	35700	32000
11	37000	35300	32200	34900	e31000	69500	39200	36400	113000	e60000	29300	33900
12	37900	35900	32500	30900	e31000	64400	36400	37900	117000	68200	28200	36300
13	36600	36000	33200	29800	e31000	60900	36200	42900	120000	75500	29300	37200
14	36900	36000	33700	27900	e33000	59000	34100	42100	124000	87000	29400	37100
15	34500	36200	34000	26000	e33000	57500	34500	41600	125000	91200	33700	44300
16	32000	33300	32600	25400	e33000	56900	35800	41100	120000	97700	37100	48800
17	32000	31000	27500	26400	e33000	57200	39300	39800	109000	97300	37400	51100
18	32100	28800	25300	26500	e32500	56300	39700	41700	94500	97000	41100	51300
19	32300	29600	25500	26500	e32500	56000	37300	49600	86400	97900	41600	46100
20	32300	28800	25500	29500	e32000	55500	42000	58600	86200	97700	42000	39200
21	32500	28500	e20000	e27000	31900	51400	48000	69800	85800	91900	47500	33000
22	32400	30900	e17500	e27000	30400	48500	48700	73300	82600	81700	52700	29400
23	32200	32800	e18000	e27000	29000	47300	48800	72800	77500	72500	53900	29800
24	32500	36600	e18500	e27000	32300	43200	48700	71000	83500	66400	48300	35600
25	32700	40700	e19000	e27000	43800	42500	51200	68000	87600	62100	39400	32800
26	34500	39000	e18500	e27000	59900	41700	54300	65500	92900	55200	34500	28500
27	35700	36700	e20000	e27000	64700	40200	62900	65600	93100	42600	34000	26600
28	35600	36500	e21000	e27000	58800	41200	63400	65400	97200	40400	32900	28000
29	35800	36500	e23000	e27000	57800	43800	63500	60400	99300	40000	32900	27800
30	35000	35100	e31000	e27000	---	43700	61800	56100	100000	41700	37300	27700
31	34300	---	36000	e27000	---	45900	---	53000	---	44100	37800	---
TOTAL	1067600	1023800	889600	921200	1021600	1817600	1350500	1561800	2944100	2241300	1185800	1032600
MEAN	34440	34130	28700	29720	35230	58630	45020	50380	98140	72300	38250	34420
MAX	37900	40700	36900	37100	64700	81200	63500	73300	125000	100000	53900	51300
MIN	32000	28500	17500	25400	27000	40200	34100	35500	57400	40000	28200	23700
AC-FT	2118000	2031000	1765000	1827000	2026000	3605000	2679000	3098000	5840000	4446000	2352000	2048000
CFSM	.40	.40	.34	.35	.41	.68	.53	.59	1.15	.84	.45	.40
IN.	.46	.44	.39	.40	.44	.79	.59	.68	1.28	.97	.52	.45

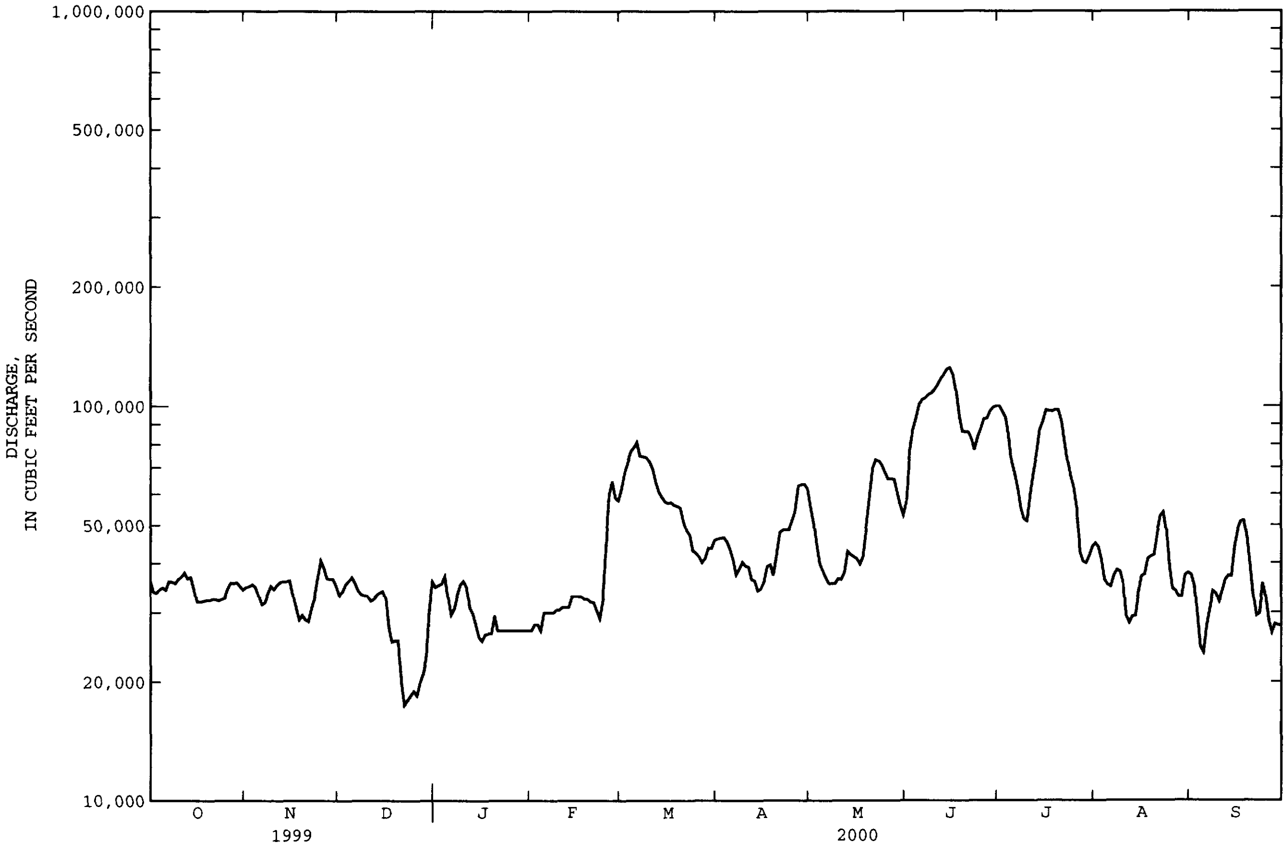
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1874 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	40830	39270	27880	25780	28110	50670	89460	81530	68930	55990	37790	38030
MAX	203600	146800	73590	54100	65680	127500	175900	212400	182100	198900	113400	92380
(WY)	1882	1882	1882	1973	1966	1973	1997	1888	1892	1993	1993	1938
MIN	13490	13760	11120	11390	14000	17600	26040	23190	15420	14690	12460	13870
(WY)	1934	1934	1934	1890	1893	1934	1931	1977	1988	1988	1936	1933

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1874 - 2000	
ANNUAL TOTAL	21380500		17057500			
ANNUAL MEAN	58580		46610		48730	
HIGHEST ANNUAL MEAN					94690	1882
LOWEST ANNUAL MEAN					18870	1934
HIGHEST DAILY MEAN	144000	May 19	125000	Jun 15	307000	Apr 28 1965
LOWEST DAILY MEAN	17500	Dec 22	17500	Dec 22a	6500	Dec 25 1933
ANNUAL SEVEN-DAY MINIMUM	18800	Dec 21	18800	Dec 21	7430	Dec 24 1933
INSTANTANEOUS PEAK FLOW			126000	Jun 14b		
INSTANTANEOUS PEAK STAGE			15.36	Jun 15	24.65	Apr 28 1965
ANNUAL RUNOFF (AC-FT)	42410000		33830000		35300000	
ANNUAL RUNOFF (CFSM)	.68		.54		.57	
ANNUAL RUNOFF (INCHES)	9.29		7.41		7.73	
10 PERCENT EXCEEDS	111000		84500		94400	
50 PERCENT EXCEEDS	45600		36600		37500	
90 PERCENT EXCEEDS	32300		27800		19000	

a Ice affected.
b Also June 15.
e Estimated.



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

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 1974 to September 1987, October 1994 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT												
14...	0920	36800	377	7.9	13.0	10.0	7.8	10.5	89	751	170	41.4
NOV												
30...	0950	35700	376	8.5	4.3	2.0	3.6	13.9	106	766	180	41.8
MAR												
13...	1115	59900	365	8.0	7.2	8.1	7.0	10.9	108	750	160	38.2
APR												
17...	1230	40800	339	8.9	9.6	8.0	20	12.1	108	750	160	36.0
MAY												
08...	1230	34000	319	8.1	22.0	30.0	6.2	7.7	92	735	130	29.5
22...	1030	72000	338	7.6	16.5	27.0	35	7.1	75	740	140	33.4
JUN												
06...	1200	106000	338	7.5	18.5	21.4	75	5.5	59	754	140	33.2
29...	1045	99400	372	7.3	22.2	23.5	39	6.8	80	747	160	40.2
JUL												
11...	0830	58000	410	7.7	25.3	28.2	26	7.5	94	748	180	45.0
AUG												
08...	1430	39500	397	7.9	25.4	28.0	8.3	8.9	111	745	180	40.7
SEP												
11...	1240	32800	367	8.3	24.0	29.5	1.4	6.8	83	740	170	38.0

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	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)
OCT												
14...	16.9	8.7	10	.3	2.2	155	0	189	18.0	13.6	.1	9.3
NOV												
30...	18.5	10.3	11	.3	2.0	156	7	176	19.3	14.6	.1	5.9
MAR												
13...	15.1	12.9	15	.4	3.3	142	0	173	18.7	17.8	.1	9.6
APR												
17...	16.4	10.3	12	.4	2.6	141	19	133	20.8	15.4	<.1	.9
MAY												
08...	13.7	9.0	13	.3	2.3	114	0	140	16.9	12.4	<.1	.8
22...	14.8	9.8	13	.4	2.6	128	0	156	18.5	14.6	<.1	3.1
JUN												
06...	12.9	7.2	10	.3	3.1	117	0	143	15.5	10.6	.1	7.1
29...	15.5	8.1	10	.3	2.5	132	0	162	22.0	11.7	.2	10.1
JUL												
11...	16.9	8.0	9	.3	2.2	153	0	187	21.2	12.4	.1	10.4
AUG												
08...	18.0	8.4	9	.3	2.3	143	0	174	21.9	13.0	.1	7.9
SEP												
11...	17.7	9.6	11	.3	2.1	140	0	171	21.2	12.3	.1	9.2

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

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, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
OCT												
14...	224	208	.30	22300	.56	1.10	.011	.055	.61	.085	.093	.126
NOV												
30...	228	211	.31	22000	--	1.10	<.010	<.020	.77	.023	.039	.072
MAR												
13...	218	208	.30	35300	--	1.51	.018	.061	<.10	.062	.081	.154
APR												
17...	202	188	.27	22300	--	.330	<.010	<.020	1.3	<.001	.015	.092
MAY												
08...	180	156	.24	16500	--	.421	.017	<.020	.77	.042	.054	.168
22...	197	178	.27	38300	.80	.805	.033	.136	.94	.072	.070	.189
JUN												
06...	187	170	.25	53500	1.4	2.13	.091	.153	1.5	.092	.089	.420
29...	231	206	.31	62000	1.1	3.51	.088	.042	1.2	.096	.120	.297
JUL												
11...	250	222	.34	39200	.77	2.93	.083	.036	.81	.099	.122	.197
AUG												
08...	239	206	.33	25500	--	1.73	.027	<.020	.74	.010	.111	.164
SEP												
11...	214	194	.29	19000	--	--	--	--	.74	--	--	.188

DATE	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT												
14...	31	3080	95	E1.1	1	39	<1	<1.0	<.8	<1	3	E10
NOV												
30...	11	1060	98	<2.0	1	33	<1	<1.0	<.8	<1	1	20
MAR												
13...	25	4090	98	<2.0	3	35	<1	<1.0	<1.0	<1	1	50
APR												
17...	65	7160	98	E1.2	1	28	<1	<1.0	<.8	<1	<1	10
MAY												
08...	55	5050	98	E1.4	--	--	--	--	--	--	--	20
22...	83	16100	99	<2.0	11	36	<1	<1.0	<.8	<1	1	10
JUN												
06...	246	70400	99	<2.0	--	--	--	--	--	--	--	E10
29...	138	37000	98	<2.0	--	--	--	--	--	--	--	E10
JUL												
11...	54	8460	98	<2.0	7	46	<1	<1.0	<.8	<1	2	<10
AUG												
08...	36	3840	95	E1.5	--	--	--	--	--	--	--	<10
SEP												
11...	57	5050	99	E1.6	--	--	--	--	--	--	--	<10

DATE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS-SOLVED (UG/L AS U) (22703)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)
OCT												
14...	<1	5.4	12	<1	2	<2.4	<1	77.9	<10	3	<1	E.033
NOV												
30...	<1	E3.0	4	<1	2	<2.4	<1	79.1	<10	4	<1	E.031
MAR												
13...	<1	E2.3	5	<1	1	<2.4	<1	71.8	<10	31	<1	E.025
APR												
17...	<1	E3.2	2	<1	2	<2.4	<1	71.3	<10	2	<1	E.032
MAY												
08...	--	<3.9	--	--	--	<2.4	--	58.1	<10	--	--	E.026
22...	<1	6.0	3	<1	1	<2.4	<1	65.7	<10	5	<1	E.053
JUN												
06...	--	E1.9	--	--	--	E1.3	--	64.5	<10	--	--	E.15
29...	--	7.4	--	--	--	<2.4	--	82.4	<10	--	--	E.10
JUL												
11...	<1	4.5	3	1	2	<2.4	<1	85.0	<10	5	1	E.10
AUG												
08...	--	5.8	--	--	--	<2.4	--	83.0	<10	--	--	E.078
SEP												
11...	--	E3.8	--	--	--	<2.4	--	78.9	<10	--	--	E.053

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN DIS-SOLVED (MG/L AS N) (00602)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTIC-ULATE TOTAL (MG/L AS C) (00689)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	HARD-NESS NONCARB DISSOLV LAB AS CACO3 (MG/L) (00905)
OCT											
14...	8.1	1.7	1.6	.41	1.09	.47	.261	7.6	.6	18	14
NOV											
30...	8.3	1.9	1.5	--	--	.36	.071	6.8	.6	25	17
MAR											
13...	7.6	--	2.1	.51	1.49	.58	.190	6.8	1.3	16	17
APR											
17...	8.7	1.6	.83	--	--	.50	--	7.1	2.7	17	14
MAY											
08...	8.3	1.2	.86	--	.404	.44	.129	7.6	--	15	11
22...	7.9	1.7	1.4	.48	.772	.62	.221	6.7	1.5	17	12
JUN											
06...	7.9	3.7	2.8	.49	2.04	.64	.282	6.3	--	19	14
29...	7.7	4.7	4.1	.50	3.42	.55	.294	--	1.7	31	30
JUL											
11...	8.1	3.7	3.5	.51	2.85	.55	.304	6.7	1.6	29	24
AUG											
08...	8.4	2.5	2.2	--	1.70	.43	.031	6.4	1.2	33	14
SEP											
11...	8.2	--	--	--	--	--	--	6.5	.8	27	--

DATE	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)	PROPA-CHLOR, WATER, DISS, REC (UG/L) (04024)	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	SI-MAZINE, WATER, DISS, REC (UG/L) (04035)	PRO-METON, WATER, DISS, REC (UG/L) (04037)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	FONOFOS WATER DISS REC (UG/L) (04095)	ALKA-LINITY WAT.DIS FET LAB CACO3 (MG/L) (29801)	ALPHA BHC DIS-SOLVED (UG/L) (34253)	P,P' DDE DISSOLV (UG/L) (34653)	CHLOR-PYRIFOS DIS-SOLVED (UG/L) (38933)
OCT											
14...	<1	<.007	<.002	<.005	<.018	<.004	<.003	159	<.002	<.006	<.004
NOV											
30...	<1	<.007	<.002	E.004	<.018	<.004	<.003	164	<.002	<.006	<.004
MAR											
13...	<1	<.007	<.002	.011	<.018	<.004	<.003	141	<.002	<.006	<.004
APR											
17...	<1	<.007	<.002	.009	E.008	<.008	<.003	144	<.002	<.006	<.004
MAY											
08...	--	<.007	<.002	.009	E.007	<.004	<.003	119	<.002	<.006	<.004
22...	<1	<.007	<.002	.018	E.008	.020	<.003	133	<.002	<.006	.006
JUN											
06...	--	<.007	<.002	.052	E.006	.088	<.003	122	<.002	<.006	.005
29...	--	<.007	<.002	.014	E.006	.018	<.003	134	<.002	<.006	E.002
JUL											
11...	<1	<.007	<.002	.008	E.005	.010	<.003	158	<.002	<.006	<.004
AUG											
08...	--	<.007	<.002	E.005	E.007	<.010	<.003	162	<.002	<.006	<.004
SEP											
11...	--	<.007	<.002	E.005	<.018	.007	<.003	207	<.002	<.006	<.004

DATE	LINDANE DIS-SOLVED (UG/L) (39341)	DI-ELDRIN DIS-SOLVED (UG/L) (39381)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	MALA-THION, DIS-SOLVED (UG/L) (39532)	PARA-THION, DIS-SOLVED (UG/L) (39542)	DI-AZINON, DIS-SOLVED (UG/L) (39572)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3) (71851)
OCT											
14...	<.004	<.001	.014	<.005	<.004	<.002	.054	<.002	<.002	.07	4.83
NOV											
30...	<.004	<.001	.010	<.005	<.004	<.002	.035	<.002	<.002	--	--
MAR											
13...	<.004	<.001	.034	<.005	<.004	<.002	.035	<.002	.008	.08	6.61
APR											
17...	<.004	<.001	.056	<.005	<.004	<.002	.036	<.002	.012	--	--
MAY											
08...	<.004	<.001	.024	<.005	<.004	<.002	.050	<.002	.037	--	1.79
22...	<.004	<.001	.344	<.009	<.004	<.002	.934	.030	.604	.18	3.42
JUN											
06...	<.004	<.001	.435	<.005	<.004	<.002	1.51	.097	.469	.20	9.01
29...	<.004	<.001	.191	<.005	<.004	E.002	.713	.017	.116	.05	15.1
JUL											
11...	<.004	<.001	.076	<.005	<.004	<.002	.401	.006	.033	.05	12.6
AUG											
08...	<.004	<.001	.041	<.005	<.004	<.002	.204	<.002	.008	--	7.53
SEP											
11...	<.004	<.001	.014	<.005	<.004	E.002	.093	<.002	E.004	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	NITROGEN, NITRITE DISSOLVED (MG/L AS NO2) (71856)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	2,6-DIETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	TRIFLURALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	ETHALFLURALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	TERBACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	LINURON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	METHYL PARATHION WAT FLT 0.7 U GF, REC (UG/L) (82667)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	PEBULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)
OCT											
14...	.036	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002	<.004
NOV											
30...	--	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002	<.004
MAR											
13...	.059	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002	<.004
APR											
17...	--	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002	<.004
MAY											
08...	.056	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002	<.004
22...	.108	<.006	<.003	<.002	<.004	<.002	<.007	<.002	<.006	E.003	<.004
JUN											
06...	.299	.015	<.003	<.002	<.004	<.002	<.007	<.002	<.006	E.004	<.004
29...	.289	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002	<.004
JUL											
11...	.273	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002	<.004
AUG											
08...	.089	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002	<.004
SEP											
11...	--	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002	<.004

DATE	TEBUTHIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	MOLINATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	ETHOPROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	BENFLURALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	CARBOFURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	TERBUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	PRONAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	DISULFOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	TRIALLATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	PROPANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	CARBARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)
OCT											
14...	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
NOV											
30...	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
MAR											
13...	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
APR											
17...	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
MAY											
08...	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
22...	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
JUN											
06...	E.007	<.004	<.003	<.002	E.027	<.013	<.003	<.017	<.001	<.004	<.003
29...	E.005	<.004	<.003	<.002	E.016	<.013	<.003	<.017	<.001	<.004	<.003
JUL											
11...	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
AUG											
08...	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
SEP											
11...	E.001	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003

DATE	THIOBENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	PENDIMETHALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	NAPROPAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PROPARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	METHYL AZINPHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PERMETHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	SPECIFIC CONDUCTANCE LAB (US/CM) (90095)	DIAZINON D10 SRG WAT FLT 0.7 U GF, REC PERCENT (91063)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (91065)	BORON, DISSOLVED (UG/L AS B) (01020)
OCT											
14...	<.002	<.002	<.004	<.003	<.013	<.001	<.005	375	130	108	25
NOV											
30...	<.002	<.002	<.004	<.003	<.013	<.001	<.005	387	101	95	18
MAR											
13...	<.002	<.002	<.004	<.003	<.013	<.001	<.005	373	102	100	21
APR											
17...	<.002	<.002	<.004	<.003	<.013	<.001	<.005	352	111	86	20
MAY											
08...	<.002	<.002	<.004	<.003	<.013	<.010	<.005	313	97	82	16
22...	<.002	<.002	<.004	<.003	<.013	<.010	<.005	345	111	101	25
JUN											
06...	<.002	<.002	E.004	<.003	<.013	<.001	<.005	318	108	102	24
29...	<.002	<.002	<.004	<.003	<.013	<.001	<.005	369	104	98	24
JUL											
11...	<.002	<.002	<.004	<.003	<.013	<.001	<.005	403	99	88	31
AUG											
08...	<.002	<.002	<.004	<.003	<.013	<.001	<.005	394	122	88	32
SEP											
11...	<.002	<.002	<.004	<.003	<.013	<.001	<.005	367	108	108	25

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA

LOCATION.--Lat 42°50'10", long 92°15'26", in $NW^1/_4$ $SW^1/_4$ $SW^1/_4$ sec. 27, T.93 N., R.12 W., Bremer County, Hydrologic Unit 07080102, 1.0 mile upstream of the mouth of the East Fork of the Wapsipinicon River, and 2.0 miles north of Tripoli.

DRAINAGE AREA.--343 mi^2.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--September 1957 to July 1977 (operated as a partial-record low flow measurement site), Discharge records April 1996 to September 30, 1998. Stage only May 13 to September 30, 2000.

REVISIONS.--WDR-IA-98-1: 1997(M)

GAGE.--Water stage recorder. Datum of gage is 1,000 ft above sea level, from map.

REMARKS.--Records good. U.S. Geological Survey rain gage and data collection platform with telephone modem at station.

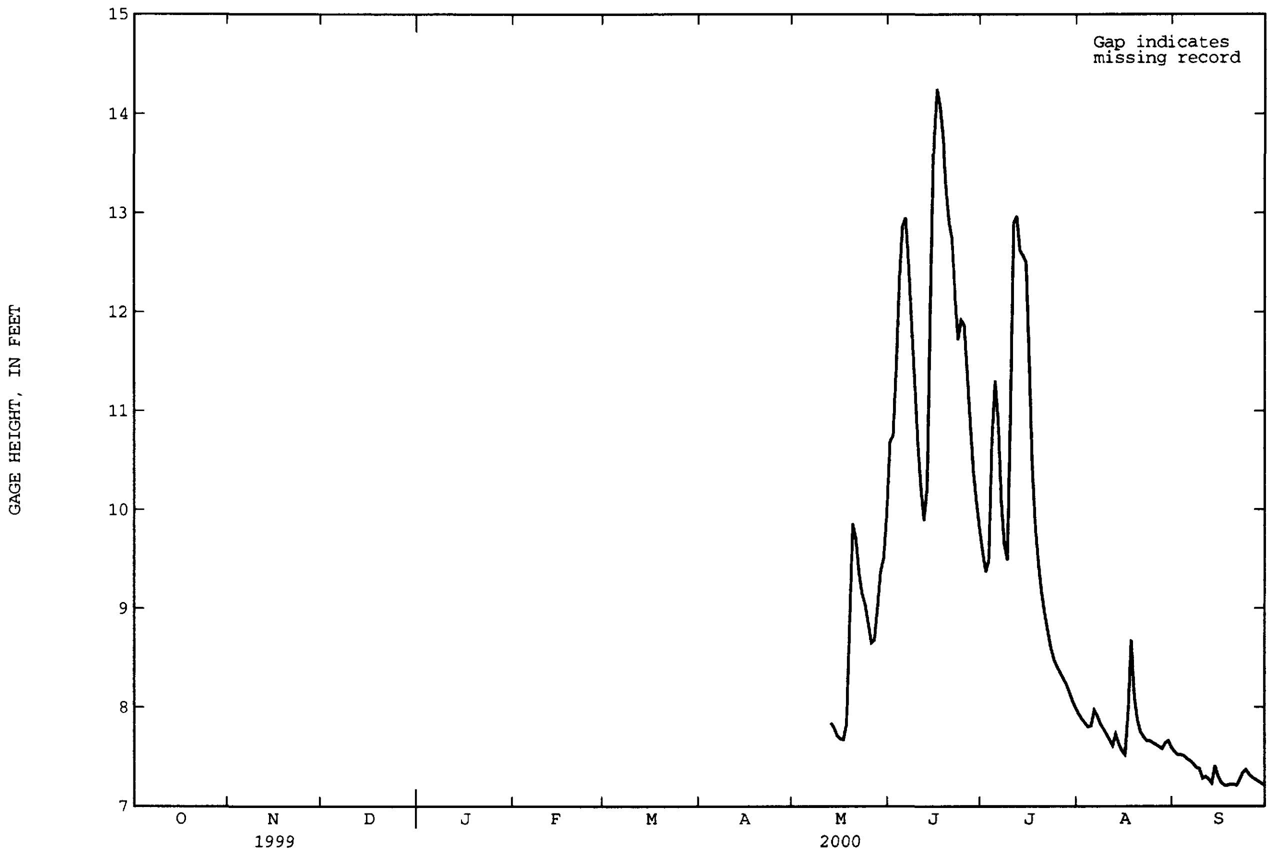
EXTREMES FOR PERIOD OF RECORD.--Maximum instantaneous discharge 4,730 ft^3/s June 29, 1998; Maximum gage height 14.91 ft June 29, 1998; minimum daily discharge 16 ft^3/s Oct. 7, 1996.

EXTREMES FOR CURRENT YEAR.--Maximum gage height 14.43 ft June 15, 16; minimum gage height 7.17 ft Sept. 21, 22.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	10.69	9.57	7.93	7.55
2	---	---	---	---	---	---	---	---	10.75	9.37	7.88	7.52
3	---	---	---	---	---	---	---	---	11.43	9.49	7.84	7.52
4	---	---	---	---	---	---	---	---	12.32	10.73	7.80	7.51
5	---	---	---	---	---	---	---	---	12.87	11.31	7.81	7.48
6	---	---	---	---	---	---	---	---	12.95	10.91	7.97	7.46
7	---	---	---	---	---	---	---	---	12.46	10.10	7.91	7.43
8	---	---	---	---	---	---	---	---	11.83	9.65	7.83	7.39
9	---	---	---	---	---	---	---	---	11.27	9.49	7.78	7.38
10	---	---	---	---	---	---	---	---	10.65	11.03	7.73	7.28
11	---	---	---	---	---	---	---	---	10.21	12.90	7.67	7.30
12	---	---	---	---	---	---	---	---	9.89	12.97	7.61	7.27
13	---	---	---	---	---	---	---	7.84	10.23	12.62	7.73	7.23
14	---	---	---	---	---	---	---	7.79	12.08	12.57	7.63	7.41
15	---	---	---	---	---	---	---	7.71	13.69	12.50	7.56	7.30
16	---	---	---	---	---	---	---	7.68	14.25	11.50	7.52	7.24
17	---	---	---	---	---	---	---	7.67	14.08	10.42	7.94	7.21
18	---	---	---	---	---	---	---	7.83	13.76	9.83	8.68	7.21
19	---	---	---	---	---	---	---	8.85	13.27	9.46	8.11	7.22
20	---	---	---	---	---	---	---	9.86	12.91	9.17	7.87	7.22
21	---	---	---	---	---	---	---	9.71	12.74	8.95	7.75	7.21
22	---	---	---	---	---	---	---	9.36	12.17	8.77	7.70	7.27
23	---	---	---	---	---	---	---	9.15	11.72	8.60	7.66	7.34
24	---	---	---	---	---	---	---	9.04	11.92	8.48	7.66	7.37
25	---	---	---	---	---	---	---	8.85	11.87	8.41	7.64	7.32
26	---	---	---	---	---	---	---	8.65	11.38	8.35	7.62	7.29
27	---	---	---	---	---	---	---	8.68	10.87	8.29	7.60	7.27
28	---	---	---	---	---	---	---	9.01	10.39	8.23	7.58	7.25
29	---	---	---	---	---	---	---	9.37	10.08	8.15	7.64	7.23
30	---	---	---	---	---	---	---	9.51	9.81	8.06	7.66	7.21
31	---	---	---	---	---	---	---	9.97	---	7.99	7.59	---
MEAN	---	---	---	---	---	---	---	8.76	11.82	9.93	7.77	7.33
MAX	---	---	---	---	---	---	---	9.97	14.25	12.97	8.68	7.55
MIN	---	---	---	---	---	---	---	7.67	9.81	7.99	7.52	7.21

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA--Continued



05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA

PRECIPITATION RECORDS

PERIOD OF RECORD.--April 10, 1996 to September 30, 1998, June 1 to September 30, 2000.

INSTRUMENTATION.--Tipping bucket rain gage.

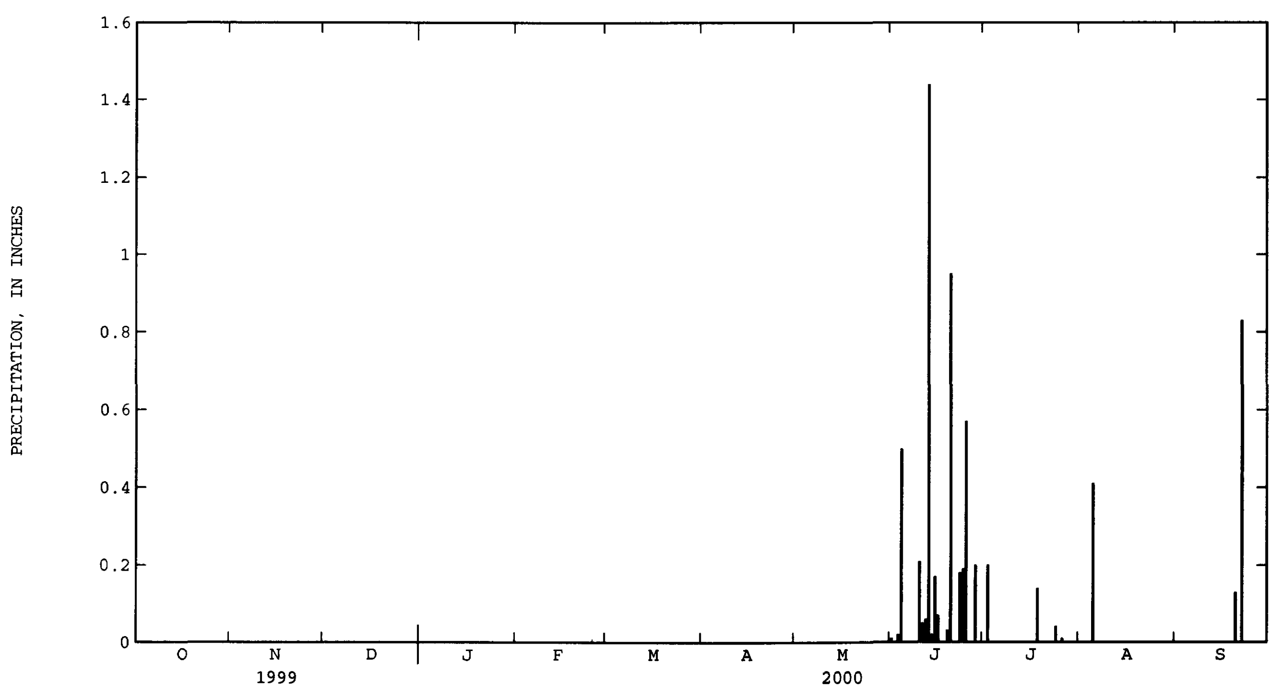
REMARKS.--Estimated totals: Mar. 18-23, and May 14. Estimated values taken from National Weather Service rain gage at Tripoli. Records good except for estimated days, and the winter period due to intermittent snow accumulation and subsequent melting, which are poor.

EXTREME FOR PERIOD OF RECORD.--Maximum daily accumulation 2.40 in., June 21, 1997.

EXTREME FOR CURRENT YEAR.--Maximum daily accumulation, 2.14 in., Oct. 12.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	.01	.00	.00	.00
2	---	---	---	---	---	---	---	---	.00	.20	.00	.00
3	---	---	---	---	---	---	---	---	.02	.00	.00	.00
4	---	---	---	---	---	---	---	---	.50	.00	.00	.00
5	---	---	---	---	---	---	---	---	.00	.00	.41	.00
6	---	---	---	---	---	---	---	---	.00	.00	.00	.00
7	---	---	---	---	---	---	---	---	.00	.00	.00	.00
8	---	---	---	---	---	---	---	---	.00	.00	.00	.00
9	---	---	---	---	---	---	---	---	.00	.00	.00	.00
10	---	---	---	---	---	---	---	---	.21	.00	.00	.00
11	---	---	---	---	---	---	---	---	.05	.00	.00	.00
12	---	---	---	---	---	---	---	---	.06	.00	.00	.00
13	---	---	---	---	---	---	---	---	1.44	.00	.00	.00
14	---	---	---	---	---	---	---	---	.02	.00	.00	.00
15	---	---	---	---	---	---	---	---	.17	.00	.00	.00
16	---	---	---	---	---	---	---	---	.07	.00	.00	.00
17	---	---	---	---	---	---	---	---	.00	.00	.00	.00
18	---	---	---	---	---	---	---	---	.00	.14	.00	.00
19	---	---	---	---	---	---	---	---	.03	.00	.00	.00
20	---	---	---	---	---	---	---	---	.95	.00	.00	.13
21	---	---	---	---	---	---	---	---	.00	.00	.00	.00
22	---	---	---	---	---	---	---	---	.00	.00	.00	.83
23	---	---	---	---	---	---	---	---	.18	.00	.00	.00
24	---	---	---	---	---	---	---	---	.19	.04	.00	.00
25	---	---	---	---	---	---	---	---	.57	.00	.00	.00
26	---	---	---	---	---	---	---	---	.00	.01	.00	.00
27	---	---	---	---	---	---	---	---	.00	.00	.00	.00
28	---	---	---	---	---	---	---	---	.20	.00	.00	.00
29	---	---	---	---	---	---	---	---	.00	.00	.00	.00
30	---	---	---	---	---	---	---	---	.00	.00	.00	.00
31	---	---	---	---	---	---	---	---	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	---	4.67	0.39	0.41	0.96
MEAN	---	---	---	---	---	---	---	---	.16	.01	.01	.03
MAX	---	---	---	---	---	---	---	---	1.44	.20	.41	.83
MIN	---	---	---	---	---	---	---	---	.00	.00	.00	.00



05421000 WAPSIPINICON RIVER AT INDEPENDENCE, IA

LOCATION.--Lat 42°27'49", long 91°53'42", in SE$^1/_4$ sec.4, T.88 N., R.9 W., Buchanan County, Hydrologic Unit 07080102, on right bank at Sixth Street in Independence, 1,800 ft downstream from dam at abandoned hydroelectric plant, 4.9 mi downstream from Otter Creek, 9.7 mi upstream from Pine Creek, and at mile 142.5.

DRAINAGE AREA.--1,048 mi^2.

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1901, that of May 18, 1999.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	183	142	192	140	104	1100	348	649	7160	1560	336	203
2	176	126	193	148	104	853	333	606	4450	1330	317	184
3	170	121	192	157	108	722	329	568	3230	1580	291	178
4	176	126	196	150	107	669	300	536	2730	1240	277	166
5	181	138	186	136	108	631	293	505	2480	1210	291	158
6	131	135	178	149	110	577	280	478	2420	1360	336	154
7	138	136	182	136	112	539	294	461	2490	1410	294	153
8	149	141	179	131	112	502	322	447	2650	1320	301	144
9	146	144	172	133	112	473	349	435	2720	1200	293	137
10	147	149	161	163	115	431	370	421	2400	2460	264	132
11	135	133	156	174	116	410	398	413	1860	3400	246	128
12	138	140	192	172	115	380	388	1360	1550	2850	238	120
13	140	145	257	161	116	365	381	1660	1910	2830	234	110
14	122	146	245	150	113	350	372	899	3870	3270	275	116
15	126	138	253	161	116	354	369	719	4900	3400	287	101
16	136	139	228	150	117	335	350	639	4560	2900	269	102
17	123	138	e160	143	117	315	345	594	4810	2500	272	110
18	121	144	e120	144	121	318	327	646	6580	2070	354	103
19	126	155	e110	139	114	329	529	3010	6960	1420	402	105
20	131	141	e100	e110	108	322	2190	2690	6310	1040	462	115
21	164	141	e90	e95	113	325	2090	1680	5750	846	383	108
22	148	150	e95	e100	125	342	2090	1550	4670	736	330	118
23	123	243	e100	111	230	350	1870	1410	4020	661	301	139
24	120	257	107	107	484	379	1500	1190	3910	582	285	135
25	125	256	109	117	750	389	1210	1010	3380	542	264	136
26	123	249	111	106	1020	402	1030	894	4640	522	250	136
27	121	243	110	102	1150	430	909	912	4760	339	238	134
28	129	221	110	97	1210	425	832	1070	3740	386	230	126
29	128	208	116	97	1230	422	749	1160	2760	403	232	121
30	134	194	124	98	---	403	694	1220	1960	387	215	115
31	129	---	129	98	---	377	---	1640	---	369	209	---
TOTAL	4339	4939	4853	4075	8557	14219	21841	31472	115630	46123	8976	3987
MEAN	140	165	157	131	295	459	728	1015	3854	1488	290	133
MAX	183	257	257	174	1230	1100	2190	3010	7160	3400	462	203
MIN	120	121	90	95	104	315	280	413	1550	339	209	101
AC-FT	8610	9800	9630	8080	16970	28200	43320	62420	229400	91480	17800	7910
CFSM	.13	.16	.15	.13	.28	.44	.69	.97	3.68	1.42	.28	.13
IN.	.15	.18	.17	.14	.30	.50	.78	1.12	4.10	1.64	.32	.14

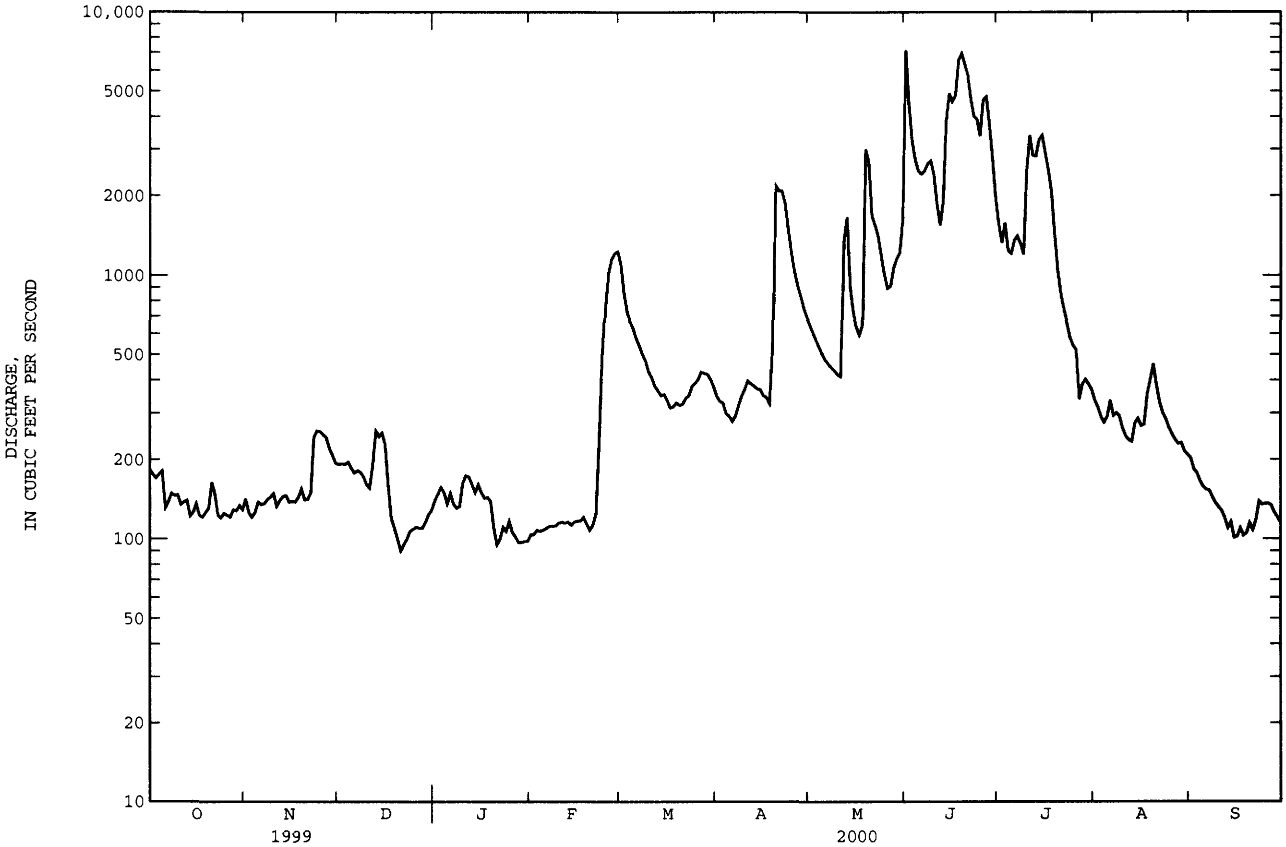
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	395	448	304	225	360	1415	1363	969	1008	746	555	370
MAX	2306	2280	1962	1411	1698	3201	5578	4326	4721	4836	5443	1940
(WY)	1973	1992	1992	1946	1984	1986	1993	1999	1947	1993	1993	1981
MIN	29.3	42.2	26.9	12.6	19.0	68.4	198	45.3	12.4	18.9	21.5	20.5
(WY)	1989	1977	1977	1977	1956	1934	1957	1934	1934	1936	1934	1976

05421000 WAPSIPINICON RIVER AT INDEPENDENCE, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1934 - 2000	
ANNUAL TOTAL	469206		269011			
ANNUAL MEAN	1285		735		681	
HIGHEST ANNUAL MEAN					2304	1993
LOWEST ANNUAL MEAN					74.5	1934
HIGHEST DAILY MEAN	28000	May 18	7160	Jun 1	28000	May 18 1999
LOWEST DAILY MEAN	90	Dec 21	90	Dec 21	7.0	Oct 1 1933a
ANNUAL SEVEN-DAY MINIMUM	102	Dec 19	100	Jan 27	7.1	Jan 24 1977
INSTANTANEOUS PEAK FLOW			8450	Jun 1	31100	May 18 1999
INSTANTANEOUS PEAK STAGE			11.36	Jun 1	22.35	May 18 1999
ANNUAL RUNOFF (AC-FT)	930700		533600		493300	
ANNUAL RUNOFF (CFSM)	1.23		.70		.65	
ANNUAL RUNOFF (INCHES)	16.66		9.55		8.83	
10 PERCENT EXCEEDS	2890		2250		1680	
50 PERCENT EXCEEDS	460		256		275	
90 PERCENT EXCEEDS	136		112		52	

a Many days in 1934 when power plant shut down; Jan 25-30, 1977
e Estimated



05422000 WAPSIPINICON RIVER NEAR DE WITT, IA

LOCATION.--Lat 41°46'01", long 90°32'05", in $SW^1/_4$ $NE^1/_4$ sec.6, T.80 N., R.4 E., Clinton County, Hydrologic Unit 07080103, on left bank 5 ft upstream from bridge on Highway 956, 0.9 mi downstream from Silver Creek, 4.0 mi south of water tower in De Witt, 6.2 mi upstream from Brophy Creek, and 18.2 mi upstream from mouth.

DRAINAGE AREA.--2,330 mi^2.

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

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

GAGE.--Water-stage recorder. Datum of gage is 598.81 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U. S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	586	422	506	e320	e360	1980	804	1850	5130	7070	1120	557
2	564	433	496	e340	e340	1950	804	1710	4370	6680	1080	544
3	555	429	487	e360	e320	1910	779	1580	3670	6490	1020	540
4	570	433	487	e340	e300	1810	752	1490	4830	6420	972	555
5	554	432	505	e320	e290	1630	723	1390	5580	6270	964	532
6	529	429	490	e340	e300	1470	700	1310	5960	5430	1010	506
7	513	421	473	e320	e320	1360	699	1250	5540	4280	1080	488
8	505	426	461	e300	e320	1290	703	1200	4400	3590	1190	472
9	495	424	458	e300	e340	1240	683	1250	3870	3280	1040	458
10	479	408	451	e360	e320	1190	685	1680	3610	3220	960	453
11	462	407	448	e400	e360	1120	698	1580	3640	3200	888	457
12	459	407	441	e400	e340	1070	693	1450	3730	3560	836	532
13	455	403	434	e380	e360	1020	692	1290	4500	4180	791	529
14	452	400	427	e360	e360	979	701	1180	7530	4670	762	500
15	449	390	423	e360	e380	941	709	1450	9750	4640	740	554
16	485	388	432	e340	e360	911	715	2340	10100	4250	710	490
17	514	387	e380	e320	e360	872	770	1920	9190	4160	697	443
18	517	389	e320	e320	e400	852	787	1760	8220	4270	728	418
19	469	381	e260	e300	e360	862	819	2240	7560	4120	723	397
20	457	382	e240	e290	e340	862	1360	1910	7250	3670	696	406
21	452	383	e200	e270	e360	837	2900	1660	6770	3240	675	416
22	445	382	e210	e280	e380	817	3460	2490	6480	2690	695	448
23	444	393	e230	e300	565	798	4100	3200	6650	2230	728	779
24	439	396	e240	e280	1200	797	4240	2740	7490	1930	749	1040
25	445	442	e260	e320	1750	815	3680	2380	8700	1730	714	851
26	443	501	e270	e300	2570	822	3260	2200	9080	1590	672	721
27	434	536	e270	e280	2500	819	2870	2110	8790	1490	646	642
28	430	545	e270	e270	2100	829	2510	1970	8300	1420	635	585
29	437	534	e280	e270	1960	821	2250	1820	8060	1400	618	546
30	432	519	e290	e280	---	815	2020	1770	7510	1300	594	515
31	417	---	e300	e320	---	813	---	2550	---	1160	578	---
TOTAL	14887	12822	11439	9940	20215	34302	46566	56720	196260	113630	25311	16374
MEAN	480	427	369	321	697	1107	1552	1830	6542	3665	816	546
MAX	586	545	506	400	2570	1980	4240	3200	10100	7070	1190	1040
MIN	417	381	200	270	290	797	683	1180	3610	1160	578	397
AC-FT	29530	25430	22690	19720	40100	68040	92360	112500	389300	225400	50200	32480
CFSM	.21	.18	.16	.14	.30	.47	.66	.78	2.80	1.57	.35	.23
IN.	.24	.20	.18	.16	.32	.55	.74	.90	3.13	1.81	.40	.26

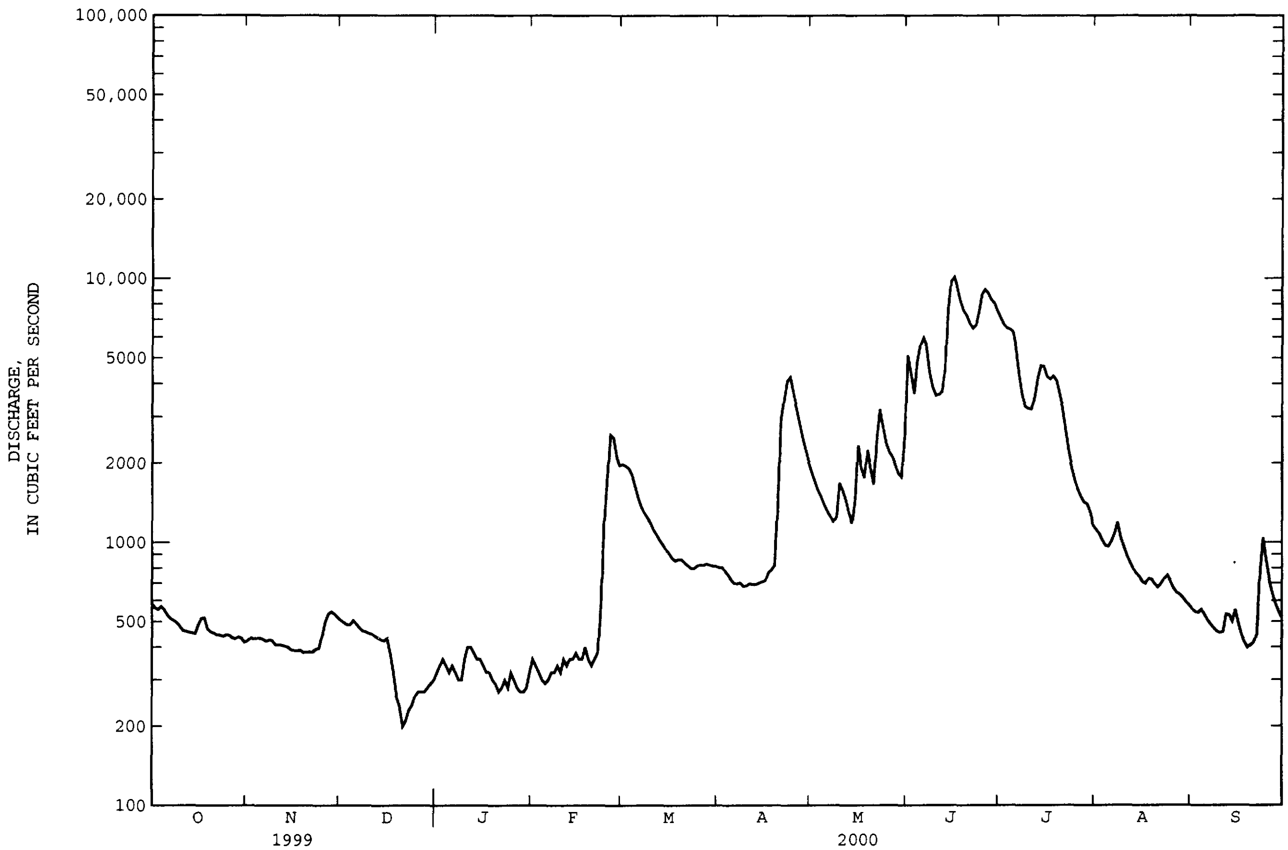
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	931	1126	918	828	1256	2962	3018	2379	2446	1793	1155	1032
MAX	3549	6435	4945	4086	3798	7137	9768	6854	10950	14280	8550	5647
(WY)	1973	1962	1983	1946	1984	1986	1993	1999	1947	1993	1993	1993
MIN	137	159	104	59.4	104	301	453	323	234	165	103	133
(WY)	1977	1965	1977	1977	1940	1954	1977	1977	1977	1936	1936	1976

05422000 WAPSIPINICON RIVER NEAR DE WITT, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1935 - 2000	
ANNUAL TOTAL	866083		558466			
ANNUAL MEAN	2373		1526		1654	
HIGHEST ANNUAL MEAN					5461	1993
LOWEST ANNUAL MEAN					374	1989
HIGHEST DAILY MEAN	23400	May 24	10100	Jun 16	25400	Apr 22 1973
LOWEST DAILY MEAN	200	Dec 21	200	Dec 21	46	Jan 22 1977
ANNUAL SEVEN-DAY MINIMUM	234	Dec 19	234	Dec 19	47	Jan 18 1977
INSTANTANEOUS PEAK FLOW			10800	Jun 15	31100	Jun 17 1990
INSTANTANEOUS PEAK STAGE			12.36	Jun 15	14.19	Jun 17 1990
ANNUAL RUNOFF (AC-FT)	1718000		1108000		1198000	
ANNUAL RUNOFF (CFSM)	1.02		.65		.71	
ANNUAL RUNOFF (INCHES)	13.79		8.89		9.62	
10 PERCENT EXCEEDS	5610		4240		3940	
50 PERCENT EXCEEDS	1430		694		913	
90 PERCENT EXCEEDS	389		320		230	

e Estimated



05422470 CROW CREEK AT BETTENDORF, IA

LOCATION.--Lat 41°33'03", long 90°27'15", in $NW^1/_4$ $NW^1/_4$ sec.24, T.78 N., R.4 E., Scott County, Hydrologic Unit 07080101, on left bank 200 ft upstream from bridge on Valley Road (old U.S. Highway 67), 3.5 mi east of U.S. Highway 6, and 0.7 mi upstream from mouth.

DRAINAGE AREA.--17.8 mi^2.

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	.86	.89	e.90	e1.8	22	5.9	16	52	19	4.0	1.1
2	.87	.76	.99	e1.1	e1.6	16	6.7	15	44	18	3.6	.85
3	4.2	.89	1.8	e.95	e1.9	14	6.2	14	30	41	3.1	4.5
4	5.6	1.0	3.4	e.85	e1.8	13	5.8	14	26	48	2.8	4.4
5	1.8	1.1	8.3	e.80	e1.6	12	5.8	13	32	31	7.6	2.0
6	1.1	1.0	3.4	e.75	e1.4	11	5.7	13	24	22	8.5	1.2
7	1.1	1.1	2.5	e.70	e1.3	10	6.4	12	21	19	8.1	.65
8	.89	1.5	2.8	e.80	e1.4	10	8.3	13	19	17	6.4	.57
9	.82	1.5	6.0	e1.1	e1.5	9.3	7.8	35	18	16	5.6	.52
10	.77	1.5	5.8	e1.5	e1.7	8.4	7.5	28	16	18	3.6	5.1
11	.73	1.5	2.8	e1.4	e1.6	8.2	11	21	77	14	3.1	9.7
12	.86	1.5	2.2	e1.1	e1.4	8.0	7.2	19	96	13	2.9	32
13	.76	1.4	1.9	e1.0	e1.3	8.3	6.9	17	318	12	3.7	7.4
14	.87	1.4	1.8	e.95	e1.4	7.8	6.8	16	180	11	3.9	49
15	1.1	1.4	2.0	e1.0	e1.6	8.2	6.7	15	58	9.9	2.9	12
16	5.0	1.3	e1.1	e1.2	e1.5	7.2	8.7	15	42	9.4	2.4	6.8
17	1.9	1.3	e.90	e1.1	e1.4	7.3	11	29	33	9.1	3.0	5.0
18	1.0	1.4	e.75	e1.1	e1.3	7.4	6.9	117	28	8.6	2.9	3.1
19	.84	1.4	e.80	e1.2	e1.2	11	14	48	25	8.6	1.6	2.1
20	1.3	1.2	e.85	e1.0	e1.2	9.9	228	30	26	7.7	1.4	11
21	.75	1.4	e.70	e.95	e1.9	7.9	86	24	22	7.2	1.3	5.9
22	.76	1.2	e.60	e1.1	e3.6	7.3	48	21	19	6.6	1.8	20
23	1.0	3.0	e.50	e1.0	e8.5	7.4	39	19	21	6.2	1.9	21
24	1.2	1.5	e.55	e.90	e22	8.7	33	17	91	6.0	1.6	14
25	1.2	.77	e.65	e1.1	36	7.5	28	15	56	5.9	1.3	9.0
26	1.2	.83	e.75	e1.0	101	7.0	25	15	35	5.8	1.1	6.0
27	1.2	1.0	e.65	e.95	34	7.3	23	25	28	5.7	1.1	4.8
28	1.2	.74	e.55	e1.0	25	6.7	21	16	27	6.7	7.5	4.0
29	1.2	.67	e.65	e1.3	22	6.2	19	14	23	7.3	3.2	3.8
30	1.0	.66	e.85	e2.0	---	6.1	17	14	21	5.9	1.6	3.4
31	1.0	---	e.80	e1.9	---	5.9	---	135	---	5.5	1.5	---
TOTAL	44.32	36.78	58.23	33.70	283.9	287.0	712.3	815	1508	421.1	105.0	250.89
MEAN	1.43	1.23	1.88	1.09	9.79	9.26	23.7	26.3	50.3	13.6	3.39	8.36
MAX	5.6	3.0	8.3	2.0	101	22	228	135	318	48	8.5	49
MIN	.73	.66	.50	.70	1.2	5.9	5.7	12	16	5.5	1.1	.52
AC-FT	88	73	115	67	563	569	1410	1620	2990	835	208	498
CFSM	.08	.07	.11	.06	.55	.52	1.33	1.48	2.82	.76	.19	.47
IN.	.09	.08	.12	.07	.59	.60	1.49	1.70	3.15	.88	.22	.52

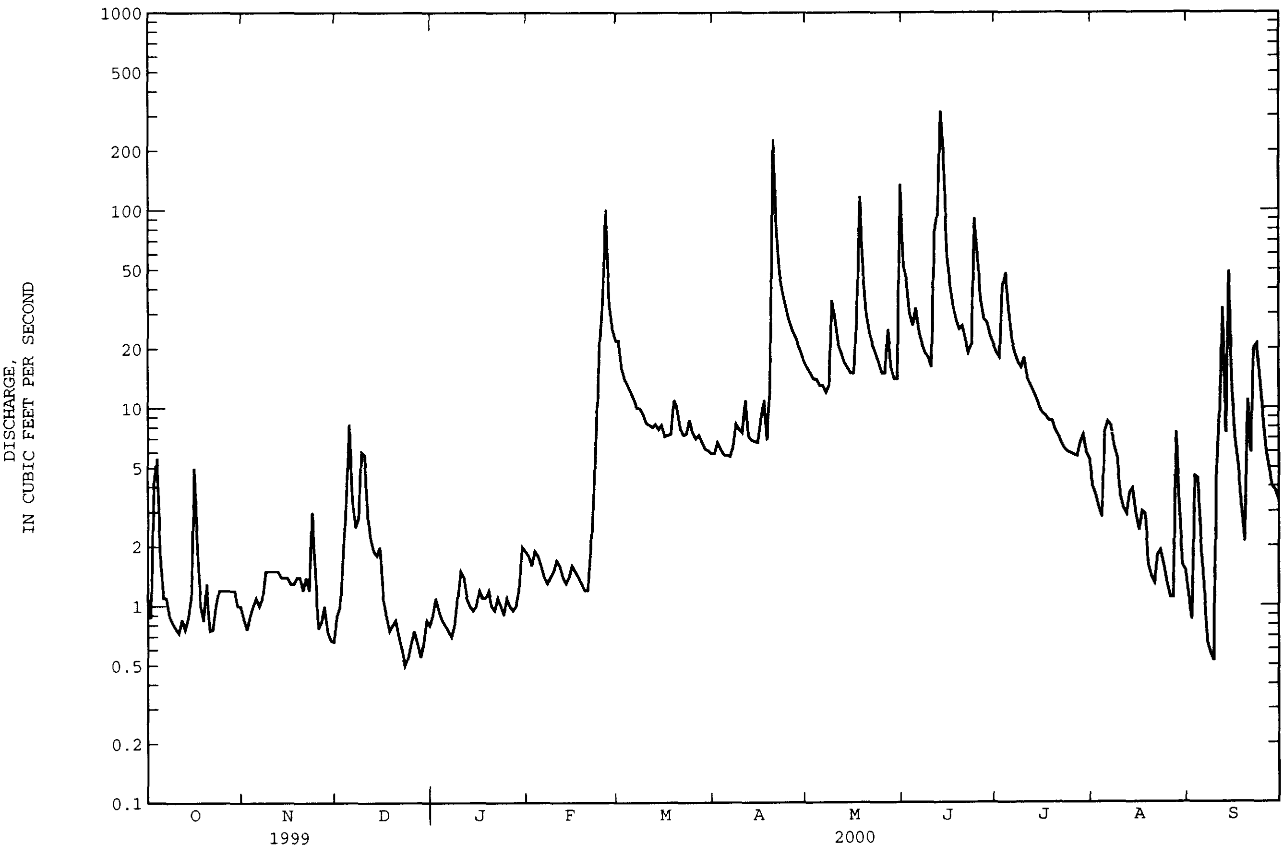
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	10.8	12.0	12.2	7.80	13.3	21.6	21.5	24.2	27.3	14.6	15.4	7.35
MAX	50.9	45.4	44.1	25.0	42.1	54.6	61.3	111	157	65.4	99.8	34.7
(WY)	1982	1993	1983	1988	1985	1979	1983	1996	1990	1992	1990	1992
MIN	.67	1.19	.77	1.09	.76	3.45	2.33	1.68	3.17	.74	.85	.49
(WY)	1989	1990	1990	2000	1989	1989	1989	1989	1988	1988	1978	1988

05422470 CROW CREEK AT BETTENDORF, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1978 - 2000	
ANNUAL TOTAL	4908.34		4556.22			
ANNUAL MEAN	13.4		12.4		15.7	
HIGHEST ANNUAL MEAN					31.7	1990
LOWEST ANNUAL MEAN					3.35	1989
HIGHEST DAILY MEAN	150	Jun 13	318	Jun 13	1660	Jun 16 1990
LOWEST DAILY MEAN	.29	Sep 25	.50	Dec 23	.13	Aug 16 1988
ANNUAL SEVEN-DAY MINIMUM	.35	Sep 20	.61	Dec 22	.21	Aug 13 1988
INSTANTANEOUS PEAK FLOW			1320	Jun 13	7700	Jun 16 1990
INSTANTANEOUS PEAK STAGE			7.20	Jun 13	11.03	Jun 16 1990
INSTANTANEOUS LOW FLOW			.45	Sep 9a		
ANNUAL RUNOFF (AC-FT)	9740		9040		11350	
ANNUAL RUNOFF (CFSM)	.76		.70		.88	
ANNUAL RUNOFF (INCHES)	10.26		9.52		11.96	
10 PERCENT EXCEEDS	33		28		33	
50 PERCENT EXCEEDS	7.4		5.3		7.4	
90 PERCENT EXCEEDS	.70		.86		1.3	

a Also Sept. 10.
e Estimated.



05422560 DUCK CREEK AT 110th AVENUE, DAVENPORT, IA

LOCATION.--Lat 41°33'24", long 90°41'15", in $NW^1/_4$ $SW^1/_4$, sec.13, T.78 N., R.2 E., Scott County, Hydrologic Unit 07080101, on left bank 20 ft. downstream from the bridge on County Road Y48 (110th Street), 0.3 miles downstream from unnamed creek, 3 miles west of Davenport, and 13.95 miles from the mouth.

DRAINAGE AREA.--16.1 mi^2.

PERIOD OF RECORD.--March 1994 to current year.

GAGE.--Water stage recorder. Datum of gage is 659.00 ft above sea level.

REMARKS.--Records good except those for estimated daily discharge, which is poor. Periodic observations of water temperature and specific conductance are published in this report as Miscellaneous Water Quality data. U.S. Geological Survey rain gage and data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	1.6	1.1	e1.5	e1.8	29	6.6	20	69	19	5.2	.79
2	3.0	1.5	1.1	e1.7	e2.0	25	6.7	18	52	19	4.8	.65
3	3.3	1.5	1.2	e1.4	e2.1	23	6.5	17	36	35	4.3	.85
4	3.8	1.5	1.2	e1.2	e2.0	20	6.1	17	30	26	4.0	.82
5	3.2	1.4	1.7	e1.0	e1.8	18	6.2	16	27	26	4.7	.64
6	2.8	1.3	1.3	e.95	e1.6	17	5.9	15	23	21	4.7	.54
7	2.6	1.3	1.2	e.90	e1.4	15	6.0	15	21	19	4.4	.47
8	2.4	1.4	1.3	e1.0	e1.5	15	6.0	14	21	17	4.0	.50
9	2.3	1.3	1.9	e1.3	e1.7	13	6.1	23	18	17	3.8	.49
10	2.2	1.3	2.3	e2.0	e2.0	12	5.9	32	16	21	3.2	1.3
11	2.1	1.2	1.8	e1.8	e1.9	12	6.2	27	24	17	2.9	4.2
12	2.1	1.2	1.8	e1.6	e1.6	12	5.4	23	30	15	2.7	6.1
13	2.0	1.2	1.7	e1.4	e1.5	11	5.6	20	219	14	2.7	.92
14	2.0	1.1	1.7	e1.2	e1.6	11	5.5	19	201	13	2.6	3.8
15	2.0	1.1	1.9	e1.3	e1.9	10	5.4	17	71	12	2.3	1.4
16	3.5	1.1	e1.2	e1.5	e1.7	9.6	5.7	17	47	11	2.1	.97
17	3.2	1.1	e.85	e1.3	e1.6	9.1	6.3	27	36	10	2.0	.84
18	2.2	1.2	e.75	e1.3	e1.5	9.3	5.7	99	31	10	2.0	.70
19	2.1	1.1	e.80	e1.4	e1.4	9.9	8.4	55	27	9.9	1.8	.67
20	2.0	1.1	e.85	e1.3	e1.4	9.4	389	34	25	9.4	1.7	1.8
21	2.0	1.1	e.75	e1.2	e2.1	8.6	127	28	22	8.7	1.5	1.6
22	1.9	1.1	e.65	e1.1	e4.0	8.3	67	25	20	8.2	1.5	5.8
23	1.9	1.2	e.55	e1.0	e7.5	8.2	49	22	19	7.7	1.6	5.8
24	1.8	1.1	e.60	e.95	e17	8.5	40	19	60	7.3	1.5	4.9
25	1.9	1.0	e.65	e.90	48	7.7	33	18	47	6.9	1.3	3.7
26	1.8	1.1	e.85	e.85	134	7.7	29	17	32	6.7	1.2	2.7
27	1.7	1.1	e.80	e.85	53	7.7	27	35	26	6.7	1.2	2.3
28	1.7	1.1	e.70	e.85	38	7.3	24	25	27	6.1	1.2	2.1
29	1.7	1.0	e.75	e1.1	31	7.0	22	22	27	5.8	1.1	1.9
30	1.6	.96	e1.1	e1.9	---	6.7	21	21	22	5.6	1.0	1.8
31	1.5	---	e1.3	e1.7	---	6.6	---	176	---	5.6	.93	---
TOTAL	71.5	36.26	36.35	39.45	368.6	374.6	944.2	933	1326	416.6	79.93	61.05
MEAN	2.31	1.21	1.17	1.27	12.7	12.1	31.5	30.1	44.2	13.4	2.58	2.04
MAX	3.8	1.6	2.3	2.0	134	29	389	176	219	35	5.2	6.1
MIN	1.5	.96	.55	.85	1.4	6.6	5.4	14	16	5.6	.93	.47
AC-FT	142	72	72	78	731	743	1870	1850	2630	826	159	121
CFSM	.14	.08	.07	.08	.79	.75	1.95	1.87	2.75	.83	.16	.13
IN.	.17	.08	.08	.09	.85	.87	2.18	2.16	3.06	.96	.18	.14

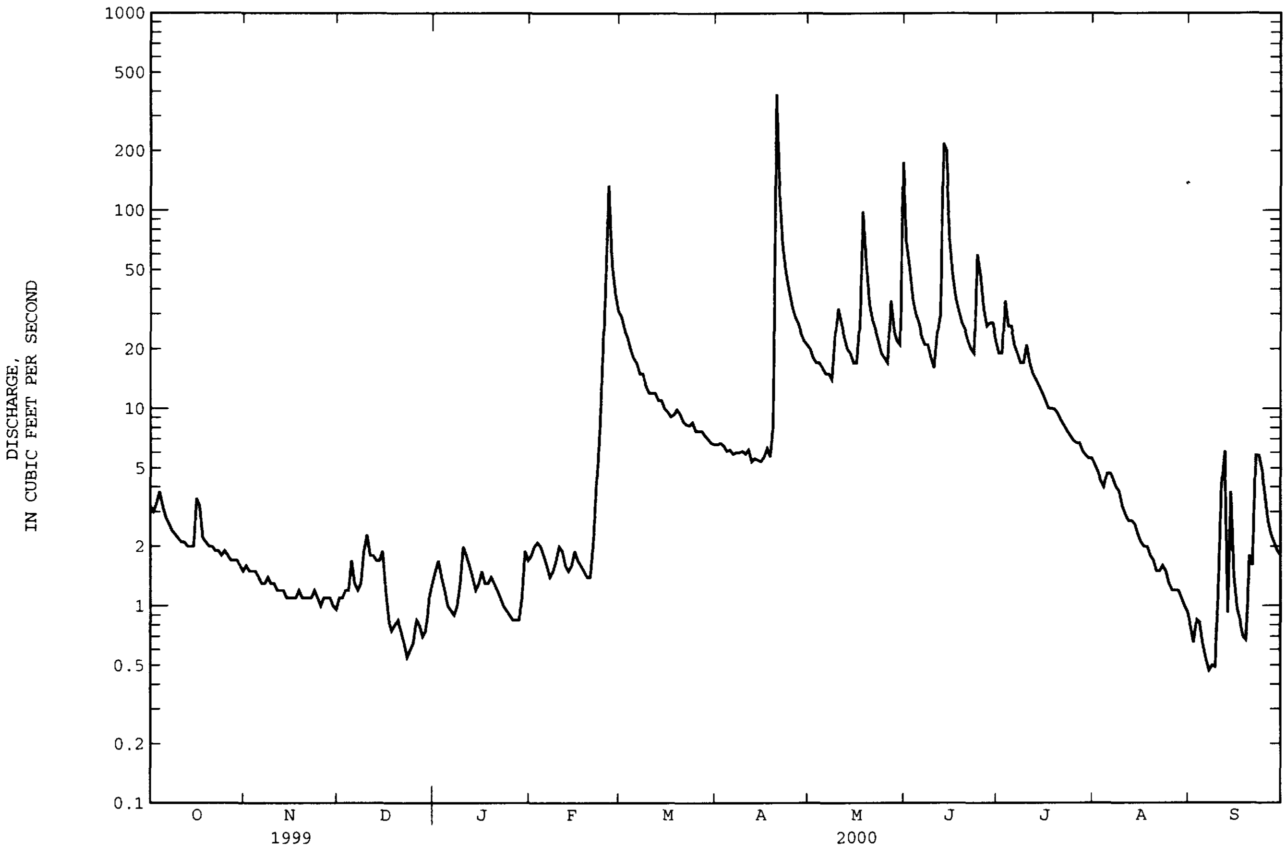
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	7.29	5.06	2.78	4.07	14.8	15.5	23.7	34.6	28.7	8.86	2.77	2.61
MAX	38.0	23.2	10.1	10.8	24.8	50.1	39.4	68.8	44.2	13.4	3.94	8.53
(WY)	1999	1999	1999	1999	1997	1998	1998	1996	2000	2000	1998	1998
MIN	.30	.97	.74	.73	4.30	3.28	2.60	14.0	9.13	3.03	1.31	.75
(WY)	1995	1995	1997	1997	1995	1996	1996	1997	1997	1997	1997	1997

05422560 DUCK CREEK AT 110th AVENUE, DAVENPORT, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1995 - 2000	
ANNUAL TOTAL	4274.35		4687.54			
ANNUAL MEAN	11.7		12.8		12.5	
HIGHEST ANNUAL MEAN					17.5	1998
LOWEST ANNUAL MEAN					5.60	1997
HIGHEST DAILY MEAN	173	Jun 10	389	Apr 20	648	May 28 1996
LOWEST DAILY MEAN	.55	Dec 23	.47	Sep 7	.22	Oct 16 1994
ANNUAL SEVEN-DAY MINIMUM	.69	Dec 22	.62	Sep 3	.24	Oct 11 1994
INSTANTANEOUS PEAK FLOW			1520	Apr 20	1870	May 28 1996
INSTANTANEOUS PEAK STAGE			17.79	Apr 20	18.44	May 28 1996
INSTANTANEOUS LOW FLOW			.43	Sep 9a		
ANNUAL RUNOFF (AC-FT)	8480		9300		9070	
ANNUAL RUNOFF (CFSM)	.73		.80		.78	
ANNUAL RUNOFF (INCHES)	9.88		10.83		10.57	
10 PERCENT EXCEEDS	26		27		29	
50 PERCENT EXCEEDS	5.9		3.2		4.0	
90 PERCENT EXCEEDS	1.0		.99		.80	

a Also Sept. 10, 11.
e Estimated.



05422600 DUCK CREEK AT DUCK CREEK GOLF COURSE, DAVENPORT, IA

LOCATION.--Lat 41°32'46", long 90°31'26", in $SW^1/_4$ $SE^1/_4$, $NW^1/_4$, sec.20, T.78 N., R.4 E., Scott County, Hydrologic Unit 07080101, on right bank 500 feet upstream from Kimberly Road, 100 feet upstream of golf cart bridge, 0.5 miles downstream from Pheasant Creek, in Davenport, and 4.45 miles from the mouth.

DRAINAGE AREA.--53.0 mi^2.

PERIOD OF RECORD.--November 1993 to current year.

GAGE.--Water stage recorder. Datum of gage is 597.00 ft above sea level.

REMARKS.--Records good except those for periods of estimated daily discharges, which are poor. Periodic observations of water temperature and conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey rain gage and data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	6.0	2.9	e4.8	e7.5	98	17	51	214	54	14	4.9
2	13	6.1	3.3	e5.5	e7.0	66	21	46	186	54	13	4.3
3	54	6.5	10	e5.0	e7.5	58	17	43	102	159	11	23
4	27	6.6	17	e4.2	e6.5	53	16	42	85	142	10	6.8
5	16	6.0	40	e3.8	e6.0	47	15	39	100	79	43	3.5
6	14	5.5	12	e3.4	e5.5	42	15	39	67	62	42	2.7
7	12	5.3	7.2	e3.2	e5.0	40	22	37	59	53	19	2.4
8	11	5.3	7.4	e3.6	e5.5	38	26	52	55	48	25	2.1
9	10	5.5	32	e4.4	e6.0	35	17	195	49	52	22	2.6
10	9.5	5.0	15	e6.5	e7.0	31	25	96	44	71	12	40
11	9.1	4.5	7.6	e6.0	e6.5	30	27	75	335	47	10	58
12	8.5	4.4	6.4	e5.5	e6.0	29	15	65	291	41	9.2	81
13	8.5	4.4	5.8	e5.0	e5.5	31	15	56	871	39	13	9.2
14	8.1	4.2	5.4	e4.4	e6.0	27	14	51	898	36	8.8	180
15	8.9	3.8	8.7	e4.6	e6.5	28	14	48	213	33	8.5	16
16	49	3.8	e4.0	e5.0	e6.0	25	45	47	137	31	7.7	7.6
17	12	4.0	e3.0	e4.6	e5.5	23	32	116	101	29	8.8	5.6
18	9.4	4.0	e2.7	e4.6	e5.0	23	17	524	85	28	6.7	4.7
19	7.8	4.2	e2.8	e5.0	e4.8	44	59	208	74	28	5.9	4.0
20	7.7	4.1	e3.2	e4.6	e4.8	28	1260	96	84	25	5.5	67
21	8.0	4.2	e2.6	e4.4	e8.0	22	661	75	62	23	5.0	13
22	7.3	4.3	e2.3	e4.0	e14	21	194	65	53	22	5.3	87
23	7.6	15	e1.8	e3.8	e32	20	147	56	76	20	5.0	65
24	6.6	4.6	e1.9	e3.6	e75	27	112	49	482	19	5.5	49
25	6.8	3.2	e2.2	e3.4	211	20	90	43	159	18	5.3	27
26	6.8	3.1	e3.0	e3.2	581	20	79	52	107	18	4.6	15
27	6.7	3.3	e2.7	e3.2	156	21	71	108	81	19	4.0	11
28	6.3	2.9	e2.4	e3.2	104	19	66	58	92	17	18	9.8
29	6.7	2.8	e2.6	e4.4	92	17	59	50	77	17	7.0	8.6
30	6.2	2.7	e3.6	e8.5	---	17	53	47	61	22	5.0	7.8
31	5.8	---	e4.2	e7.0	---	17	---	704	---	17	4.8	---
TOTAL	387.3	145.3	225.7	142.4	1393.1	1017	3221	3233	5300	1323	364.6	818.6
MEAN	12.5	4.84	7.28	4.59	48.0	32.8	107	104	177	42.7	11.8	27.3
MAX	54	15	40	8.5	581	98	1260	704	898	159	43	180
MIN	5.8	2.7	1.8	3.2	4.8	17	14	37	44	17	4.0	2.1
AC-FT	768	288	448	282	2760	2020	6390	6410	10510	2620	723	1620
CFSM	.24	.09	.14	.09	.91	.62	2.03	1.97	3.33	.81	.22	.51
IN.	.27	.10	.16	.10	.98	.71	2.26	2.27	3.72	.93	.26	.57

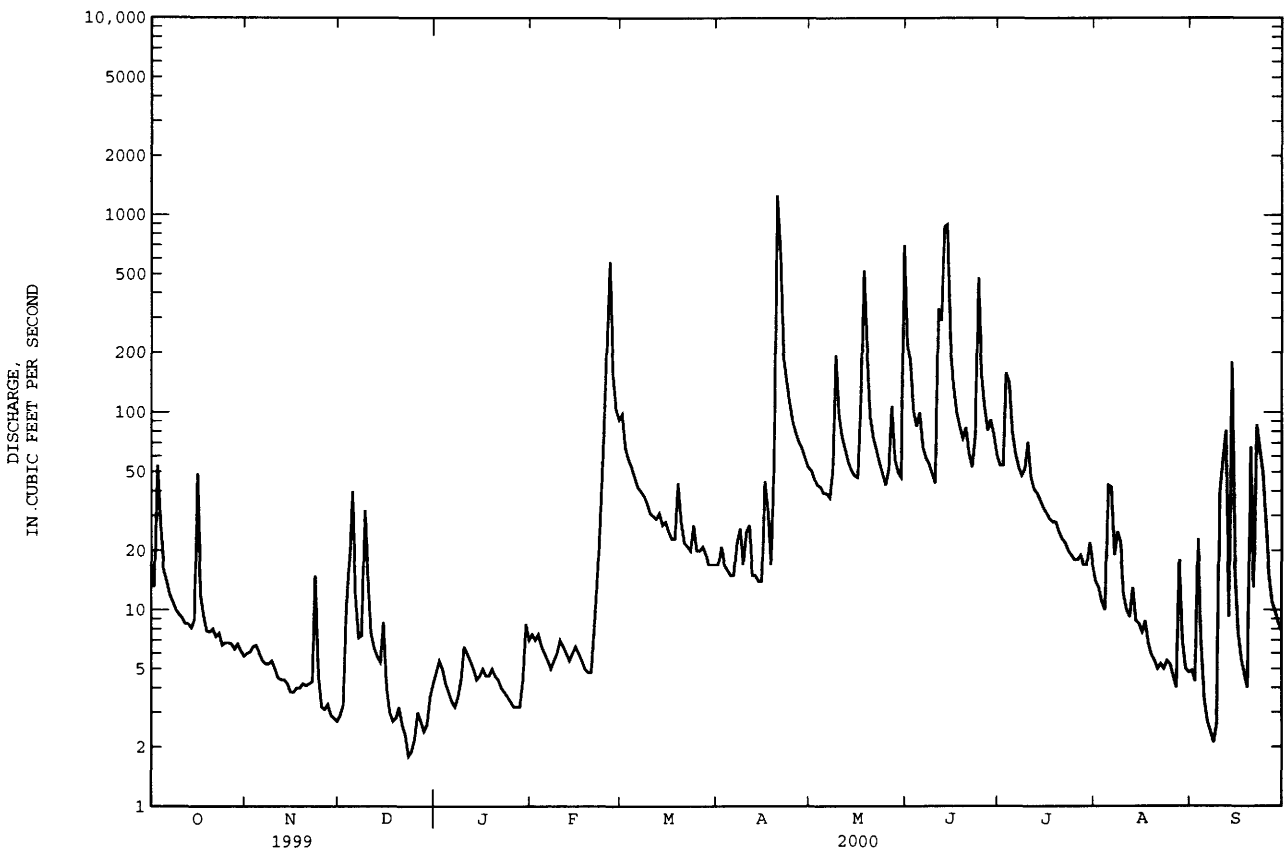
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2000, BY WATER YEAR (WY)

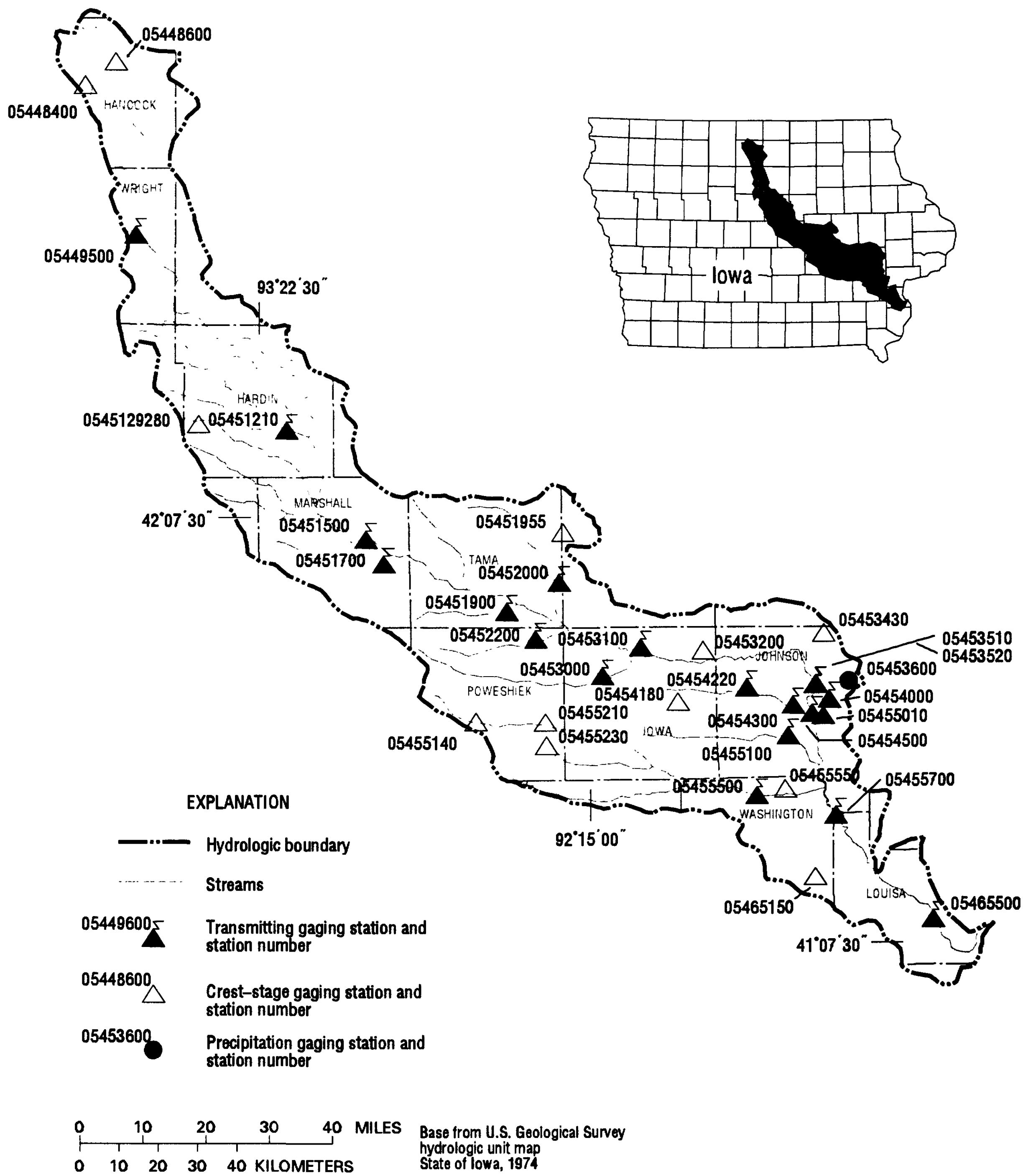
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	27.4	20.9	11.3	15.7	50.6	49.3	89.8	122	101	32.9	24.3	18.4
MAX	125	68.3	33.1	38.6	77.8	143	141	250	177	42.7	34.6	35.1
(WY)	1999	1999	1999	1999	1997	1998	1998	1996	2000	2000	1995	1998
MIN	3.26	4.84	3.74	4.59	13.8	16.0	16.5	56.3	41.0	10.4	11.8	4.96
(WY)	1995	2000	1997	2000	1995	1996	1996	1997	1997	1997	2000	1995

05422600 DUCK CREEK AT DUCK CREEK GOLF COURSE, DAVENPORT, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1995 - 2000	
ANNUAL TOTAL	16309.6		17571.0			
ANNUAL MEAN	44.7		48.0		46.8	
HIGHEST ANNUAL MEAN					61.8	1998
LOWEST ANNUAL MEAN					25.3	1997
HIGHEST DAILY MEAN	656	Jun 13	1260	Apr 20	2250	May 28 1996
LOWEST DAILY MEAN	1.8	Dec 23	1.8	Dec 23	.86	Oct 4 1994
ANNUAL SEVEN-DAY MINIMUM	2.3	Dec 22	2.3	Dec 22	1.0	Oct 11 1994
INSTANTANEOUS PEAK FLOW			3170	Apr 20	5320	May 28 1996
INSTANTANEOUS PEAK STAGE			12.98	Apr 20	14.94	May 28 1996
INSTANTANEOUS LOW FLOW			1.8	Sep 8		
ANNUAL RUNOFF (AC-FT)	32350		34850		33900	
ANNUAL RUNOFF (CFSM)	.84		.91		.88	
ANNUAL RUNOFF (INCHES)	11.45		12.33		12.00	
10 PERCENT EXCEEDS	102		92		100	
50 PERCENT EXCEEDS	25		15		18	
90 PERCENT EXCEEDS	4.0		3.8		3.5	

e Estimated

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Iowa
EXPLANATION
Hydrologic boundary
Streams
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Transmitting gaging station and station number
05448600
Crest-stage gaging station and station number
05453600
Precipitation gaging station and station number
0 10 20 30 40 MILES
0 10 20 30 40 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05449500	Iowa River near Rowan, IA	116
05451210	South Fork Iowa River NE of New Providence, IA	118
05451500	Iowa River at Marshalltown, IA	126
05451700	Timber Creek near Marshalltown, IA	128
05451900	Richland Creek near Haven, IA	130
05452000	Salt Creek near Elberon, IA	132
05452200	Walnut Creek near Hartwick, IA	134
05453000	Big Bear Creek at Ladora, IA	136
05453100	Iowa River at Marengo, IA	138
05453510	Coralville Lake near Coralville, IA	140
05453520	Iowa River below Coralville Dam near Coralville, IA	142
05453600	Rapid Creek below Morse, IA (precipitation)	144
05454000	Rapid Creek near Iowa City, IA	146
05454220	Clear Creek near Oxford, IA	148
05454300	Clear Creek near Coralville, IA	150
05454500	Iowa River at Iowa City, IA	152
05455010	South Branch Ralston Creek at Iowa City, IA	154
05455100	Old Mans Creek near Iowa City, IA	156
05455500	English River at Kalona, IA	158
05455700	Iowa River near Lone Tree, IA	160
	(Cedar River Basin Stations	162-185)
05465500	Iowa River at Wapello, IA	186

Crest Stage Gaging Stations

05448400	West Main Drainage Ditch 1 & 2 at Britt, IA	324
05448600	East Branch Iowa River above Hayfield, IA	324
0545129280	Honey Creek tributary near Radcliffe, IA	324
05451955	Stein Creek near Clutier, IA	324
05453200	Price Creek at Amana, IA	324
05453430	North Fork Tributary to Mill Creek near Solon, IA	324
05454180	Clear Creek Tributary near Williamsburg, IA	324
05455140	North English River near Montezuma, IA	324
05455210	North English River at Guernsey, IA	325
05455230	Deep River at Deep River, IA	325
05455550	Bulgers Run near Riverside, IA	325
05465150	North Fork Long Creek at Ainsworth, IA	325

05449500 IOWA RIVER NEAR ROWAN, IA

LOCATION.--Lat 42°45'36", long 93°37'23", in $NW^1/_4$ $NE^1/_4$ sec.25, T.92 N., R.24 W., Wright County, Hydrologic Unit 07080207, on left bank 10 ft downstream from bridge on county highway C38, 0.9 mi downstream from drainage ditch 123, 3.8 mi northwest of Rowan, 10.7 mi downstream from confluence of East and West Branches, and at mile 316.4.

DRAINAGE AREA.--429 mi^2.

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corp of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	57	38	e37	e19	187	79	93	684	216	66	44
2	53	52	41	e40	e20	203	77	90	601	194	62	43
3	55	50	56	e42	e22	178	75	85	470	180	59	44
4	54	49	51	e38	e26	154	74	82	385	178	58	41
5	53	49	48	e33	e22	142	71	79	404	279	61	39
6	53	50	39	e34	e26	132	66	74	413	418	66	38
7	52	49	35	e36	e30	122	70	72	371	334	67	35
8	53	48	43	e38	e38	122	87	73	325	256	61	35
9	53	49	52	e42	e42	120	97	77	282	214	63	34
10	53	48	36	e45	e50	120	126	74	251	802	63	32
11	52	49	38	e42	e46	111	145	74	320	1120	59	31
12	52	46	42	e36	e42	101	150	76	293	831	57	30
13	52	46	40	e33	e42	97	137	68	314	587	53	35
14	53	46	41	e32	e48	94	134	61	1150	444	51	33
15	57	46	43	e31	e60	92	125	59	1490	337	48	31
16	58	46	42	e32	e83	92	118	61	1490	264	48	29
17	e55	45	e42	e28	e80	92	113	65	1460	217	113	28
18	e52	45	e40	e29	e77	92	108	79	1410	184	120	27
19	e51	45	e40	e26	e70	92	126	158	1290	165	81	27
20	e52	46	e36	e24	e60	91	151	215	1070	152	67	28
21	e54	44	e32	e28	e65	91	172	179	856	136	60	29
22	e53	43	e33	e28	124	92	164	153	747	122	58	35
23	e53	52	e34	e27	179	92	158	135	570	111	58	38
24	e52	54	e32	e25	298	92	146	120	596	103	60	36
25	e50	53	e30	e28	322	92	128	108	542	98	57	32
26	e49	48	e31	e23	364	93	118	100	429	107	53	29
27	e48	48	e34	e20	379	92	114	188	357	93	50	28
28	e49	47	e32	e19	235	92	115	450	308	81	48	27
29	53	45	e36	e19	176	89	107	496	273	75	46	26
30	58	43	e38	e20	---	85	97	425	243	74	46	26
31	62	---	e36	e19	---	82	---	466	---	69	45	---
TOTAL	1648	1438	1211	954	3045	3426	3448	4535	19394	8441	1904	990
MEAN	53.2	47.9	39.1	30.8	105	111	115	146	646	272	61.4	33.0
MAX	62	57	56	45	379	203	172	496	1490	1120	120	44
MIN	48	43	30	19	19	82	66	59	243	69	45	26
AC-FT	3270	2850	2400	1890	6040	6800	6840	9000	38470	16740	3780	1960
CFSM	.13	.11	.09	.07	.25	.26	.27	.35	1.55	.65	.15	.08
IN.	.15	.13	.11	.08	.27	.30	.31	.40	1.73	.75	.17	.09

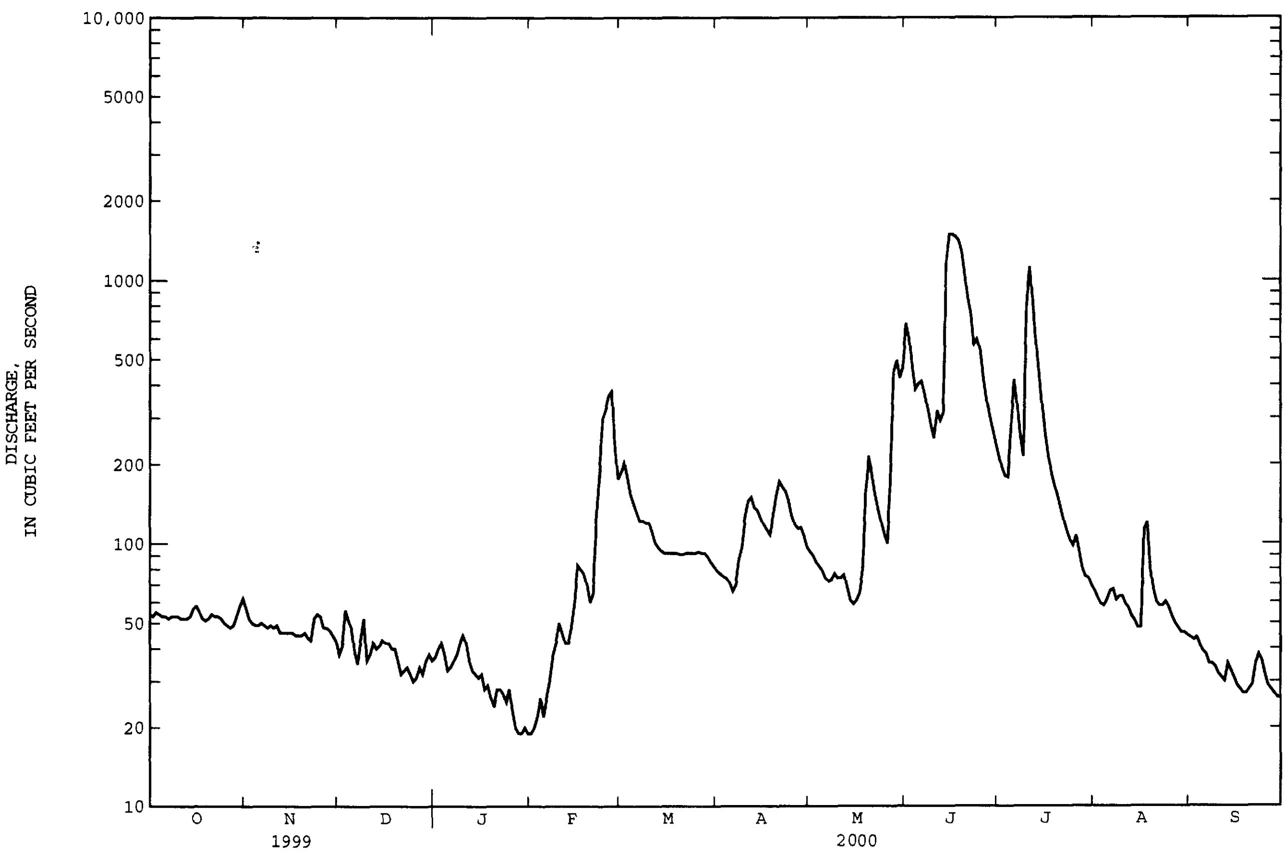
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	135	134	86.2	55.4	115	397	484	361	491	303	159	141
MAX	720	695	588	298	931	1415	2439	1793	2452	1922	1684	1213
(WY)	1987	1993	1983	1983	1984	1973	1965	1991	1984	1993	1979	1965
MIN	8.14	9.49	5.62	3.63	3.54	23.9	32.4	44.3	19.2	5.36	5.14	3.98
(WY)	1990	1990	1990	1959	1959	1968	1957	1989	1989	1977	1977	1977

05449500 IOWA RIVER NEAR ROWAN, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1941 - 2000	
ANNUAL TOTAL	153312		50434			
ANNUAL MEAN	420		138		239	
HIGHEST ANNUAL MEAN					869	1993
LOWEST ANNUAL MEAN					30.4	1956
HIGHEST DAILY MEAN	2680	May 18	1490	Jun 15	7640	Jun 21 1954
LOWEST DAILY MEAN	23	Jan 9	19	Jan 28	2.2	Sep 11 1977
ANNUAL SEVEN-DAY MINIMUM	24	Jan 9	19	Jan 27	2.9	Sep 8 1977
INSTANTANEOUS PEAK FLOW			1520	Jun 15	8460	Jun 21 1954
INSTANTANEOUS PEAK STAGE			10.02	Jun 15	14.88	Jun 21 1954
INSTANTANEOUS LOW FLOW			23	Dec 13		
ANNUAL RUNOFF (AC-FT)	304100		100000		173400	
ANNUAL RUNOFF (CFSM)	1.00		.33		.57	
ANNUAL RUNOFF (INCHES)	13.64		4.49		7.78	
10 PERCENT EXCEEDS	1300		323		607	
50 PERCENT EXCEEDS	181		59		85	
90 PERCENT EXCEEDS	37		31		17	

e Estimated



05451210 SOUTH FORK IOWA RIVER NORTHEAST OF NEW PROVIDENCE, IA

LOCATION.--Lat 42°18'55", long 93°09'07", in SE$^1/_4$ NW$^1/_4$ SW$^1/_4$ sec.26, T.87 N., R.20 W., Hardin County, Hydrologic Unit 07080207, located 15 ft from the left bank downstream side of the bridge on County Road, 4.0 miles upstream of the confluence with the Iowa River, and 2.0 miles NE of New Providence.

DRAINAGE AREA.--230 mi^2.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--October 1995 to current year.

GAGE.--Water stage recorder. Datum of gage is 945 ft above sea level, from map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey rain gage and data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	3.3	5.8	e4.2	e6.0	18	5.3	4.8	584	63	19	4.4
2	2.6	3.0	5.6	e4.6	e6.5	17	5.0	4.5	363	59	17	4.2
3	2.9	3.2	6.0	e5.0	e7.0	13	5.1	4.1	185	95	16	4.1
4	3.4	3.3	6.5	e4.6	e7.5	11	4.5	4.1	128	90	14	3.7
5	3.1	3.3	6.1	e3.8	e7.0	11	4.3	3.9	203	102	27	3.7
6	2.8	3.6	6.1	e4.0	e8.0	11	4.0	3.6	226	87	27	3.4
7	2.8	4.0	5.9	e4.0	e9.5	10	5.6	3.3	137	72	19	3.4
8	2.3	4.3	5.3	e4.4	e11	9.5	7.2	4.3	106	62	17	3.2
9	2.2	4.0	5.2	e6.0	e12	8.7	6.7	4.5	87	55	15	2.6
10	2.2	3.7	6.3	e8.0	e14	8.5	6.0	4.0	73	404	13	2.5
11	2.0	4.2	6.6	e7.5	e12	8.2	5.8	4.0	192	581	12	2.3
12	2.0	4.3	5.4	e6.5	e11	7.9	5.7	4.6	403	382	11	1.9
13	2.0	4.5	6.0	e6.0	e10	7.6	5.5	4.2	287	230	17	1.7
14	2.9	4.3	6.2	e5.5	e11	7.3	5.4	3.4	736	162	13	1.9
15	2.5	4.1	5.2	e6.0	e13	7.5	5.4	3.5	902	125	11	1.9
16	2.1	4.4	e5.5	e7.0	e15	7.2	6.5	4.2	783	106	9.4	1.9
17	2.2	4.6	e4.8	e6.5	e14	6.7	7.1	4.3	426	89	9.7	1.9
18	2.4	4.8	e4.6	e7.0	e14	7.5	7.0	5.0	276	78	9.8	2.6
19	2.5	4.8	e4.6	e6.5	e12	8.4	10	5.2	202	70	9.3	3.1
20	2.7	4.7	e4.4	e5.5	e10	8.2	9.6	5.6	198	63	9.5	3.7
21	2.8	4.7	e3.8	e6.0	e8.0	7.8	13	5.2	191	55	9.0	3.4
22	2.6	4.8	e4.0	e7.0	e10	7.4	18	4.3	152	48	12	4.0
23	2.4	8.7	e4.0	e6.5	e18	7.2	13	3.7	126	42	13	4.6
24	2.6	8.4	e3.8	e6.5	e38	8.8	10	3.3	111	37	9.9	5.6
25	2.6	7.7	e3.6	e7.0	63	8.1	8.4	2.4	102	34	8.7	5.7
26	2.4	7.2	e3.8	e6.5	55	7.1	7.3	3.7	99	39	8.0	5.1
27	2.6	6.7	e4.0	e6.0	43	6.7	6.6	11	87	34	7.3	5.0
28	2.7	6.5	e3.8	e5.5	26	6.2	6.2	9.8	84	32	6.6	5.0
29	2.8	6.1	e4.0	e6.0	20	5.9	5.7	35	76	29	6.1	4.5
30	3.2	5.8	e4.6	e7.0	---	5.5	5.1	39	69	26	5.5	4.3
31	3.3	---	e4.4	e6.5	---	5.6	---	204	---	22	5.0	---
TOTAL	80.2	147.0	155.9	183.1	491.5	270.5	215.0	406.5	7594	3373	386.8	105.3
MEAN	2.59	4.90	5.03	5.91	16.9	8.73	7.17	13.1	253	109	12.5	3.51
MAX	3.4	8.7	6.6	8.0	63	18	18	204	902	581	27	5.7
MIN	2.0	3.0	3.6	3.8	6.0	5.5	4.0	2.4	69	22	5.0	1.7
AC-FT	159	292	309	363	975	537	426	806	15060	6690	767	209
CFSM	.01	.02	.02	.03	.08	.04	.03	.06	1.13	.49	.06	.02
IN.	.01	.02	.03	.03	.08	.04	.04	.07	1.26	.56	.06	.02

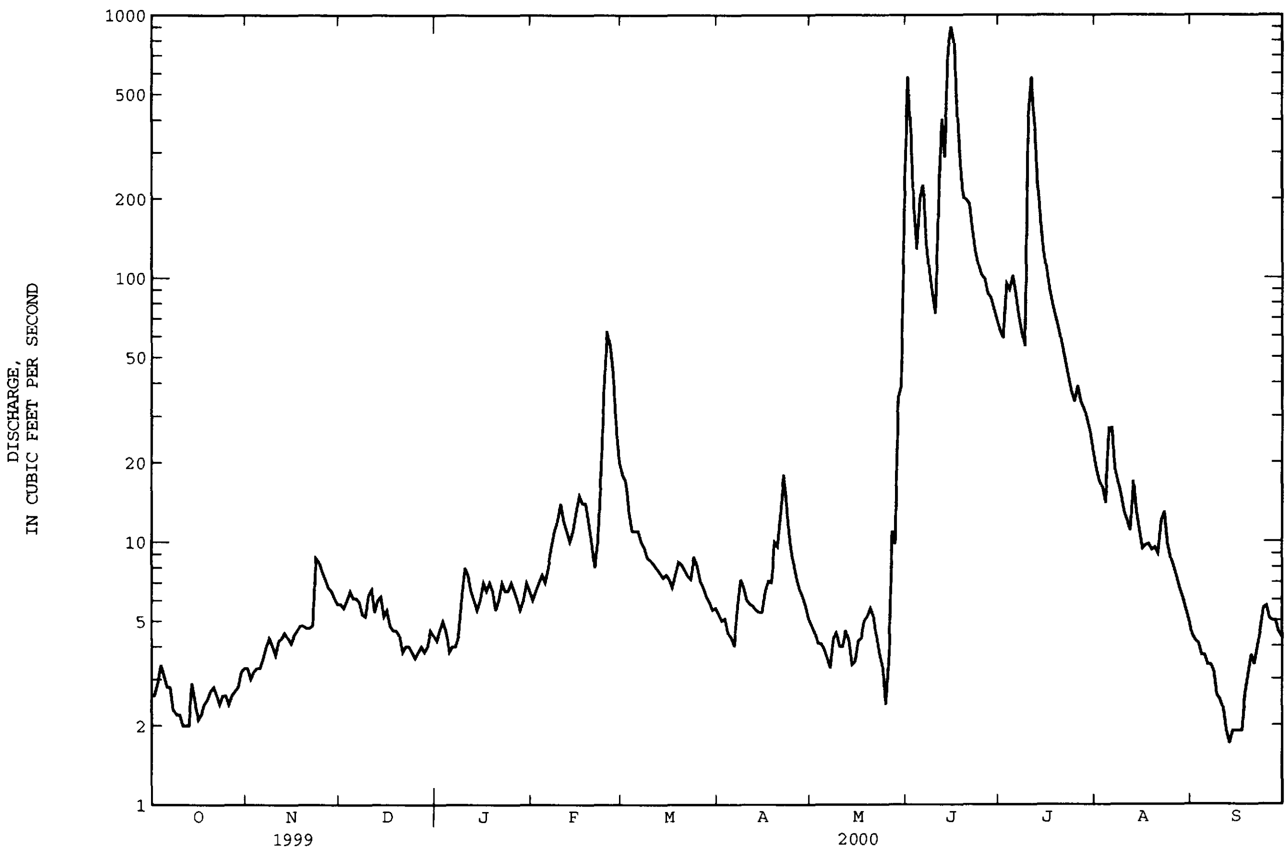
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	28.9	67.4	40.6	26.4	136	145	219	270	570	194	30.6	8.31
MAX	76.6	199	119	65.7	250	334	513	643	1173	414	73.7	15.1
(WY)	1999	1997	1997	1997	1997	1997	1999	1999	1998	1998	1998	1998
MIN	2.59	4.90	5.03	5.91	16.9	8.73	7.17	13.1	253	59.9	12.5	3.51
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	2000	1996	2000	2000

05451210 SOUTH FORK IOWA RIVER NORTHEAST OF NEW PROVIDENCE, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1996 - 2000	
ANNUAL TOTAL	66805.2		13408.8			
ANNUAL MEAN	183		36.6		161	
HIGHEST ANNUAL MEAN					218	1998
LOWEST ANNUAL MEAN					36.6	2000
HIGHEST DAILY MEAN	1860	Jun 11	902	Jun 15	2920	Jun 30 1998
LOWEST DAILY MEAN	1.9	Sep 26	1.7	Sep 13	1.7	Sep 13 2000
ANNUAL SEVEN-DAY MINIMUM	2.2	Oct 7	1.9	Sep 11	1.9	Sep 11 2000
INSTANTANEOUS PEAK FLOW			923	Jun 14	3550	Jun 21 1998
INSTANTANEOUS PEAK STAGE			6.92	Jun 14	11.59	Jun 21 1998
INSTANTANEOUS LOW FLOW			1.5	Oct 13	1.7	Sep 26 1999
ANNUAL RUNOFF (AC-FT)	132500		26600		116700	
ANNUAL RUNOFF (CFSM)	.82		.16		.72	
ANNUAL RUNOFF (INCHES)	11.09		2.23		9.77	
10 PERCENT EXCEEDS	500		88		377	
50 PERCENT EXCEEDS	32		6.5		44	
90 PERCENT EXCEEDS	3.1		2.9		5.3	

e Estimated



05451210 SOUTH FORK IOWA RIVER NORTHEAST OF NEW PROVIDENCE, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1995 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
OCT												
05...	1030	3.1	534	8.1	10.4	15.0	12.2	113	740	260	60.0	26.6
NOV												
02...	1033	3.3	565	8.2	5.1	5.0	12.7	102	744	290	66.8	31.0
DEC												
08...	1010	5.5	538	8.1	.6	8.0	14.5	101	739	270	62.3	28.1
JAN												
06...	1048	4.1	620	7.9	-.2	-2.0	12.4	87	741	310	74.1	30.9
31...	1023	6.4	657	7.2	-.2	-9.0	10.3	73	736	340	82.2	33.4
MAR												
07...	1053	9.5	522	8.4	14.1	22.0	12.3	131	735	240	55.2	24.3
APR												
06...	1035	4.3	563	8.2	9.8	10.0	11.1	102	735	280	62.4	29.5
MAY												
02...	1050	4.4	564	8.2	17.9	22.0	10.3	113	740	260	58.1	27.5
JUN												
05...	1045	183	610	8.2	16.5	15.0	8.8	93	743	280	77.6	21.9
JUL												
06...	1100	87	670	8.2	23.4	28.0	8.4	102	738	320	84.4	25.9
AUG												
10...	1025	13	476	8.0	24.0	29.0	8.6	105	742	220	46.0	24.7
SEP												
07...	1040	3.3	548	8.3	20.4	20.5	10.5	120	739	280	64.3	28.7

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT											
05...	8.4	.2	2.5	227	0	277	20.5	12.3	.4	9.8	318
NOV											
02...	9.9	.3	2.8	246	0	300	18.8	13.1	.4	6.9	330
DEC											
08...	9.7	.3	2.1	229	0	279	22.7	13.2	.4	5.9	323
JAN											
06...	11.9	.3	2.5	278	0	339	25.1	15.2	.4	9.4	378
31...	11.8	.3	2.2	296	0	361	22.8	12.7	.4	10.9	394
MAR											
07...	10.6	.3	2.8	172	0	210	35.8	21.0	.3	2.7	299
APR											
06...	13.5	.4	2.5	217	0	265	28.9	21.0	.4	4.4	331
MAY											
02...	13.4	.4	3.0	205	0	250	29.0	23.8	.4	8.3	328
JUN											
05...	6.5	.2	2.3	160	0	195	27.9	20.1	.4	20.5	400
JUL											
06...	6.5	.2	2.0	216	0	264	23.1	18.1	.4	18.9	438
AUG											
10...	8.4	.2	3.4	176	0	215	29.8	17.9	.3	8.3	271
SEP											
07...	10.5	.3	3.1	242	--	295	24.8	16.7	.3	17.1	331

05451210 SOUTH FORK IOWA RIVER NORTHEAST OF NEW PROVIDENCE, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	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)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
05...	.43	.519	<.010	<.020	.56	<.010	.017	.044	22	.18	E10
NOV											
02...	.45	.266	<.010	<.020	.50	<.010	.011	.033	62	.55	20
DEC											
08...	.44	.281	<.010	<.020	.39	<.010	.007	.021	54	.81	30
JAN											
06...	.51	1.02	.012	.066	.34	<.010	.009	.019	70	.76	20
31...	.54	1.05	.011	.141	.35	<.010	.009	E.006	82	1.4	20
MAR											
07...	.41	.208	<.010	<.020	.60	<.010	.015	.058	19	.49	40
APR											
06...	.45	.101	<.010	<.020	.74	<.010	.016	.063	46	.54	40
MAY											
02...	.45	.055	<.010	<.020	.80	.010	.031	.077	27	.32	30
JUN											
05...	.54	15.8	.097	.093	2.1	.136	.157	.490	344	170	<10
JUL											
06...	.60	16.4	.053	<.020	1.1	.096	.112	.143	200	47	<10
AUG											
10...	.37	.821	.027	<.020	.74	<.010	.020	.060	8	.29	E10
SEP											
07...	.45	<.050	<.010	<.020	1.1	.019	.057	.141	22	.19	E10

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTIC-ULATE TOTAL (MG/L AS C) (00689)	PROPA-CHLOR, WATER, DISS, REC (UG/L) (04024)	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	SI-MAZINE WATER DISS, REC (UG/L) (04035)	PRO-METON, WATER, DISS, REC (UG/L) (04037)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)
OCT											
05...	71	E.021	8.2	.28	4.4	.6	<.007	<.002	.009	<.018	<.004
NOV											
02...	76	E.028	8.1	.31	4.1	.5	<.007	<.002	<.005	<.018	<.004
DEC											
08...	67	E.015	8.1	.23	3.7	.4	<.007	<.002	<.005	E.005	<.004
JAN											
06...	73	E.027	8.0	.26	3.1	.3	<.007	<.002	<.005	E.006	<.004
31...	116	E.021	7.8	.30	3.0	.2	<.007	<.002	<.005	<.018	<.004
MAR											
07...	134	E.010	8.0	.38	--	1.0	<.007	<.002	<.005	E.004	<.004
APR											
06...	117	E.014	8.1	.36	4.6	.6	<.007	<.002	E.004	E.009	<.004
MAY											
02...	132	E.016	8.2	.50	6.0	.8	<.007	<.002	<.010	.036	<.010
JUN											
05...	3	E.23	7.9	.77	4.9	>5.0	<.007	<.002	.098	E.011	<.004
JUL											
06...	5	E.029	8.3	.54	4.1	.7	<.007	<.002	.008	E.007	<.004
AUG											
10...	61	E.019	8.0	.46	4.9	.6	<.007	<.002	.007	E.009	<.004
SEP											
07...	58	E.020	8.2	.57	5.4	1.8	<.007	<.002	<.010	E.013	<.004

05451210 SOUTH FORK IOWA RIVER NORTHEAST OF NEW PROVIDENCE, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	FONOFOS WATER DISS REC (UG/L) (04095)	ALPHA BHC DIS-SOLVED (UG/L) (34253)	P,P' DDE DISSOLV (UG/L) (34653)	CHLOR-PYRIFOS DIS-SOLVED (UG/L) (38933)	LINDANE DIS-SOLVED (UG/L) (39341)	DI-ELDRIN DIS-SOLVED (UG/L) (39381)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	MALA-THION, DIS-SOLVED (UG/L) (39532)	PARA-THION, DIS-SOLVED (UG/L) (39542)	DI-AZINON, DIS-SOLVED (UG/L) (39572)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)
OCT											
05...	<.003	<.002	<.006	<.004	<.004	<.001	.031	<.005	<.004	<.002	.058
NOV											
02...	<.003	<.002	<.006	<.004	<.004	<.001	.022	<.005	<.004	<.002	.044
DEC											
08...	<.003	<.002	<.006	<.004	<.004	<.001	.071	<.005	<.004	<.002	.030
JAN											
06...	<.003	<.002	<.006	<.004	<.004	<.001	.031	<.005	<.004	<.002	.040
31...	<.003	<.002	<.006	<.004	<.004	<.001	.025	<.005	<.004	<.002	.031
MAR											
07...	<.003	<.002	<.006	<.004	<.004	<.001	.288	<.005	<.004	<.002	.036
APR											
06...	<.003	<.002	<.006	<.004	<.004	<.001	.094	<.005	<.004	<.002	.030
MAY											
02...	<.003	<.002	<.006	<.004	<.004	<.001	.937	<.005	<.004	<.002	.148
JUN											
05...	<.003	<.002	<.006	<.004	<.004	<.001	1.42	<.005	<.004	<.002	2.26
JUL											
06...	<.003	<.002	<.006	<.004	<.004	<.001	.282	<.005	<.004	<.002	.452
AUG											
10...	<.003	<.002	<.006	<.004	<.004	<.001	.082	<.005	<.004	<.002	.135
SEP											
07...	<.003	<.002	<.006	<.004	<.004	<.001	.036	<.005	<.004	<.002	.112

DATE	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	TRI-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	ETHAL-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	TER-BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	LIN-URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	METHYL PARA-THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)
OCT											
05...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
NOV											
02...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
DEC											
08...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
JAN											
06...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
31...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
MAR											
07...	<.002	<.010	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
APR											
06...	<.002	.016	<.004	<.003	E.004	<.004	<.002	<.007	<.002	<.006	<.002
MAY											
02...	<.002	.219	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	.006
JUN											
05...	<.010	.335	.015	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
JUL											
06...	.004	.118	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
AUG											
10...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
SEP											
07...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002

05451210 SOUTH FORK IOWA RIVER NORTHEAST OF NEW PROVIDENCE, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	PEB-ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	MOL-INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	ETHO-PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	BEN-FLUR-ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	CARBO-FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	TER-BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	PRON-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	DISUL-FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	TRIAL-LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	PRO-PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)
OCT											
05...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
NOV											
02...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
DEC											
08...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
JAN											
06...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
31...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
MAR											
07...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
APR											
06...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
MAY											
02...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
JUN											
05...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
JUL											
06...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
AUG											
10...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
SEP											
07...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004

DATE	CAR-BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	THIO-BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	PENDI-METH-ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	NAPROP-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PRO-PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	METHYL AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PER-METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) (90095)	DIAZ-INON D10 SRG WAT FLT 0.7 U GF, REC PERCENT (91063)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (91065)
OCT											
05...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	529	104	79
NOV											
02...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	589	119	80
DEC											
08...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	563	86	84
JAN											
06...	<.003	<.002	<.002	<.004	<.010	<.013	<.001	<.005	649	112	107
31...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	695	111	97
MAR											
07...	<.003	<.002	<.002	<.004	<.003	<.013	<.010	<.005	527	109	117
APR											
06...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	585	105	90
MAY											
02...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	576	142	102
JUN											
05...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	607	144	147
JUL											
06...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	657	143	121
AUG											
10...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	478	103	77
SEP											
07...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	554	96	89

05451210 SOUTH FORK IOWA RIVER NORTHEAST OF NEW PROVIDENCE, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	TIME	CYAN-AZINE AMIDE WAT FLT GF 0.7U REC (UG/L) (50010)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	ACETO-CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	ACETO-CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	ALA-CHLOR, (ESA) WAT FLT GF 0.7U REC (UG/L) (50009)	ALA-CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031)	HYDROXY ATRAZIN WATER, WHOLE, REC (UG/L) (34761)	METOLA-CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61043)	METOLA-CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)
OCT											
05...	1031	<.050	.050	<.05	.35	<.20	<.200	<.20	<.2	1.32	.24
NOV											
02...	1034	<.050	<.050	<.05	<.20	<.20	<.200	<.20	<.2	1.16	.41
DEC											
08...	1011	<.050	<.050	<.05	<.20	<.20	.200	<.20	<.2	1.21	.30
JAN											
06...	1049	<.050	<.050	<.05	<.20	<.20	<.200	<.20	<.2	1.14	<.20
31...	1024	<.050	<.050	<.05	<.20	<.20	<.200	<.20	<.2	1.11	<.20
MAR											
07...	1054	<.050	<.050	<.05	<.20	<.20	<.200	<.20	<.2	1.35	<.20
APR											
06...	1036	<.050	.10	<.05	<.20	<.20	<.200	<.20	<.2	1.07	.22
MAY											
02...	1051	<.050	<.050	<.05	<.20	.35	.220	<.20	<.2	1.38	.34
JUN											
05...	1046	<.050	.090	<.05	<.20	.47	<.200	<.20	.3	2.78	1.04
JUL											
06...	1101	<.050	.21	<.05	.32	<.20	.420	<.20	.3	3.14	.61
AUG											
10...	1026	<.050	.090	<.05	.21	<.20	.210	<.20	1.2	1.92	.28
SEP											
07...	1041	<.050	<.050	<.05	<.20	.21	.220	<.20	.4	1.48	.40

05451210 SOUTH FORK IOWA RIVER NORTHEAST OF NEW PROVIDENCE, IA--Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.-- October 1995 to current year.

INSTRUMENTATION.-- Tipping bucket rain gage.

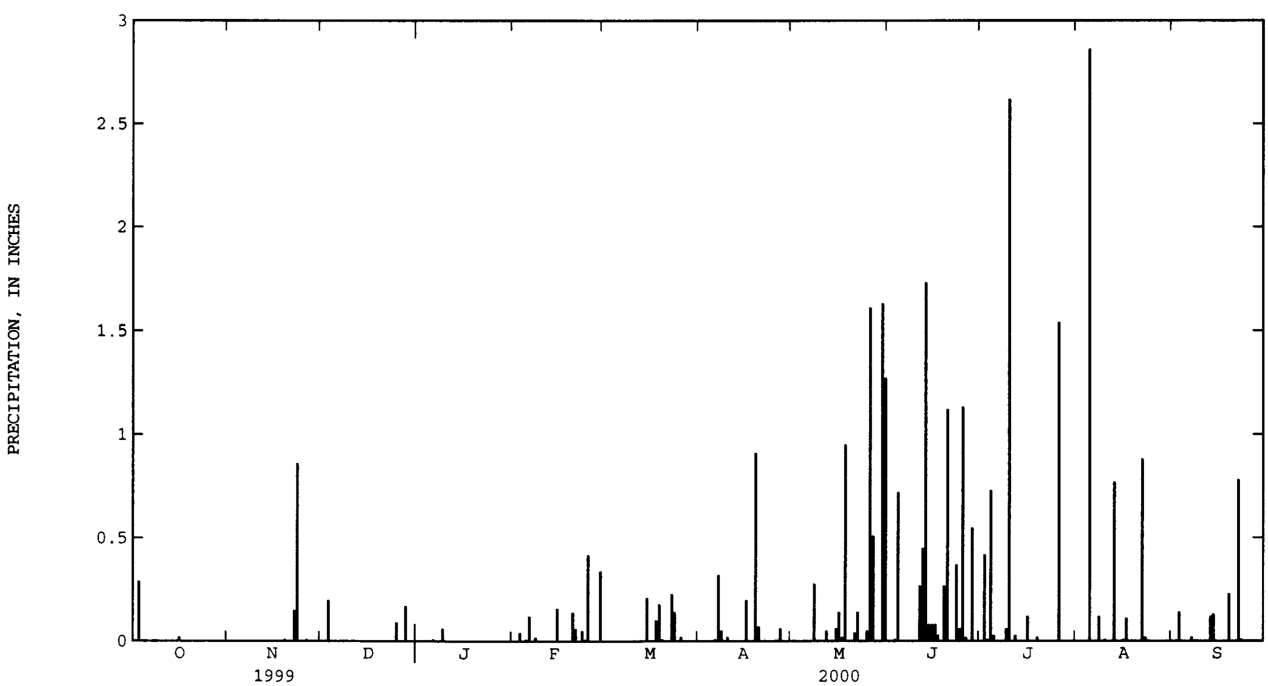
REMARKS.-- Records good except for winter period, which is poor due to intermittent snow accumulation and subsequent melting.

EXTREME FOR PERIOD OF RECORD.-- Maximum daily accumulation, 5.37 in., June 21, 1997.

EXTREME FOR CURRENT YEAR.-- Maximum daily accumulation 2.62 in., July 10.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.42	.00	.00
3	.29	.00	.20	.00	.04	.00	.00	.00	.01	.01	.00	.14
4	.00	.00	.00	.00	.00	.00	.00	.00	.72	.73	.00	.00
5	.00	.00	.00	.00	.01	.00	.00	.00	.00	.03	2.86	.00
6	.00	.00	.00	.01	.12	.00	.01	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.32	.00	.00	.00	.00	.02
8	.00	.00	.00	.00	.02	.00	.05	.28	.00	.00	.12	.00
9	.00	.00	.00	.06	.00	.00	.00	.00	.00	.06	.00	.00
10	.00	.00	.00	.00	.00	.00	.02	.00	.00	2.62	.01	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.27	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.05	.45	.03	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	1.73	.00	.77	.12
14	.00	.00	.00	.00	.00	.00	.00	.00	.08	.00	.00	.13
15	.00	.00	.00	.00	.16	.21	.00	.06	.08	.00	.00	.00
16	.02	.00	.00	.00	.00	.00	.20	.14	.08	.12	.01	.00
17	.00	.00	.00	.00	.00	.00	.00	.02	.03	.00	.11	.00
18	.00	.00	.00	.00	.00	.10	.00	.95	.00	.00	.00	.00
19	.00	.01	.00	.00	.00	.18	.91	.00	.27	.02	.00	.23
20	.00	.00	.00	.00	.14	.01	.07	.00	1.12	.00	.00	.00
21	.00	.00	.00	.00	.06	.00	.00	.04	.00	.00	.00	.00
22	.00	.15	.00	.00	.00	.00	.00	.14	.00	.00	.88	.78
23	.00	.86	.00	.00	.05	.23	.00	.00	.37	.00	.02	.01
24	.00	.00	.00	.00	.01	.14	.00	.00	.06	.00	.00	.00
25	.00	.00	.09	.00	.42	.00	.00	.05	1.13	.00	.00	.00
26	.00	.01	.00	.00	.00	.02	.00	1.61	.02	1.54	.00	.00
27	.00	.00	.00	.00	.00	.00	.06	.51	.00	.00	.00	.00
28	.00	.00	.17	.00	.00	.00	.00	.00	.55	.00	.00	.00
29	.00	.00	.00	.00	.34	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	1.63	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	1.27	---	.00	.00	---
TOTAL	0.31	1.03	0.46	0.07	1.37	0.89	1.64	6.75	6.97	5.58	4.78	1.43
MEAN	.01	.03	.01	.00	.05	.03	.05	.22	.23	.18	.15	.05
MAX	.29	.86	.20	.06	.42	.23	.91	1.63	1.73	2.62	2.86	.78
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00



05451500 IOWA RIVER AT MARSHALLTOWN, IA

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

DRAINAGE AREA.--1,532 mi^2.

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	131	136	e110	e65	485	157	152	2370	885	396	149
2	122	132	137	e120	e70	410	149	146	1960	838	370	143
3	124	137	138	e126	e72	359	145	157	1720	1020	344	147
4	133	137	141	e112	e73	340	139	142	1540	1120	317	143
5	129	134	138	e100	e75	333	134	136	1510	988	323	134
6	128	130	136	e100	e92	301	128	133	1330	888	447	124
7	125	130	147	e110	e110	275	137	128	1120	798	370	118
8	122	130	141	e116	e130	250	146	128	956	847	336	117
9	121	130	137	e128	e138	254	147	141	840	842	309	123
10	120	131	132	e130	e142	249	148	139	735	3350	282	109
11	118	131	146	e120	e138	233	166	135	727	4910	260	103
12	119	134	138	e108	e122	227	176	130	1610	3520	239	99
13	119	133	131	e98	e110	222	197	120	2010	3180	331	98
14	119	133	132	e90	e103	214	210	115	3800	2700	341	112
15	119	133	e130	e92	e120	213	213	110	4240	2140	277	106
16	118	132	e127	e90	e152	210	217	111	3960	1670	233	105
17	123	131	e125	e82	e250	198	226	105	3590	1330	214	100
18	121	135	e124	e88	e240	e200	215	155	3170	1100	226	97
19	124	131	e120	e82	e220	205	211	335	2810	953	224	93
20	124	131	e110	e76	e218	201	220	161	2750	847	259	100
21	123	133	e97	e84	e270	195	253	175	2690	763	263	95
22	120	132	e100	e85	e385	190	254	232	2320	691	239	115
23	119	177	e100	e82	523	185	251	257	1970	629	272	126
24	e122	166	e93	e84	629	185	241	223	1700	579	240	126
25	125	156	e88	e91	603	184	243	190	1510	547	213	128
26	123	149	e92	e80	469	177	214	188	1540	704	201	127
27	125	148	e100	e72	559	178	201	212	1350	770	190	123
28	122	144	e95	e65	577	175	185	263	1230	606	187	114
29	119	141	e110	e68	545	172	171	346	1100	532	173	107
30	120	135	e113	e63	---	165	159	553	976	471	163	103
31	126	---	e108	e60	---	163	---	1000	---	425	160	---
TOTAL	3795	4127	3762	2912	7200	7348	5653	6518	59134	40643	8399	3484
MEAN	122	138	121	93.9	248	237	188	210	1971	1311	271	116
MAX	133	177	147	130	629	485	254	1000	4240	4910	447	149
MIN	118	130	88	60	65	163	128	105	727	425	160	93
AC-FT	7530	8190	7460	5780	14280	14570	11210	12930	117300	80620	16660	6910
CFSM	.08	.09	.08	.06	.16	.15	.12	.14	1.29	.86	.18	.08
IN.	.09	.10	.09	.07	.17	.18	.14	.16	1.44	.99	.20	.08

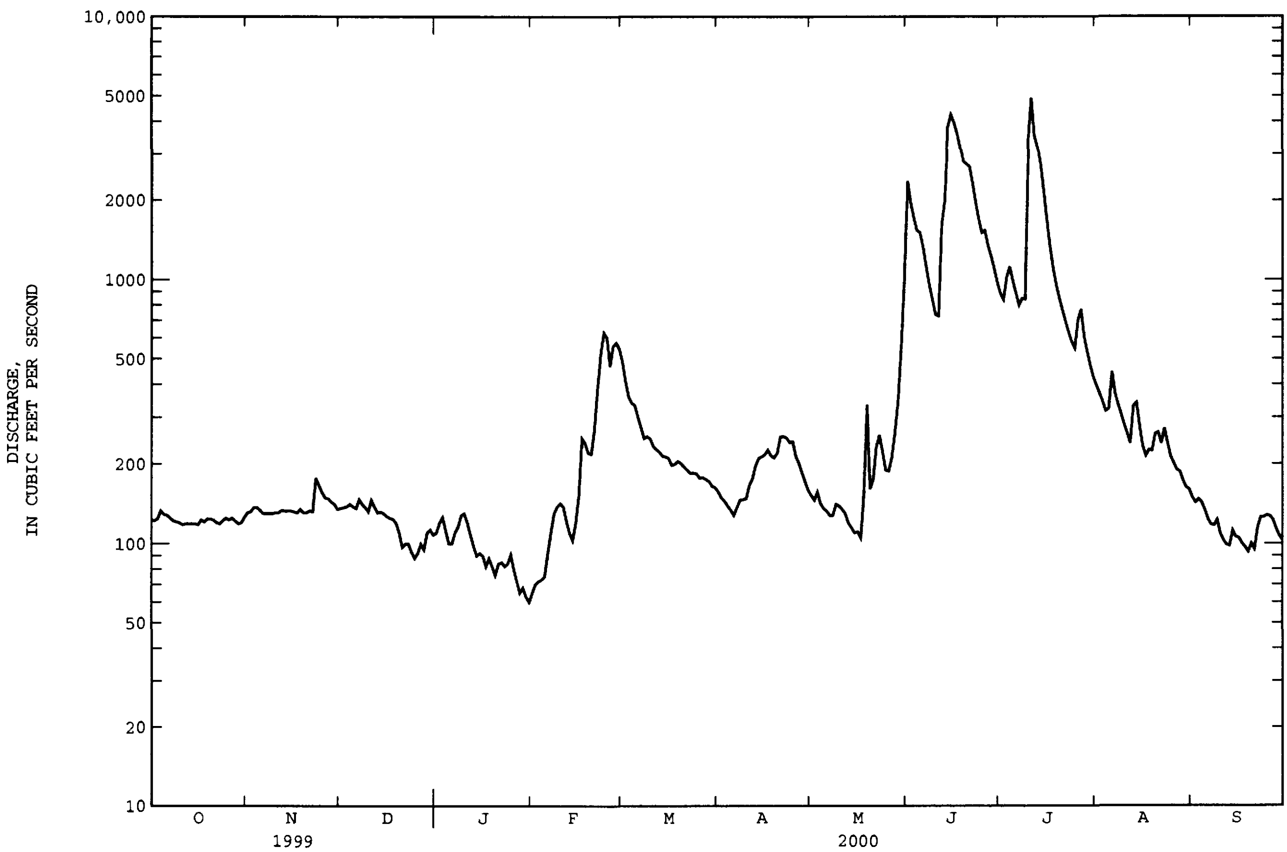
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	497	497	360	303	635	1567	1496	1330	1802	1036	560	493
MAX	2721	2593	2139	2231	3424	4206	6796	5559	7619	8389	7062	3362
(WY)	1987	1973	1983	1973	1915	1973	1965	1991	1918	1993	1993	1993
MIN	39.2	46.2	31.0	10.2	20.9	98.4	99.3	49.9	16.0	41.8	35.9	27.5
(WY)	1940	1940	1990	1977	1940	1934	1934	1934	1934	1977	1934	1939

05451500 IOWA RIVER AT MARSHALLTOWN, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1903 - 2000	
ANNUAL TOTAL	503974		152975			
ANNUAL MEAN	1381		418		881	
HIGHEST ANNUAL MEAN					3456	1993
LOWEST ANNUAL MEAN					77.3	1934
HIGHEST DAILY MEAN	9560	Jun 11	4910	Jul 11	39400	Jun 4 1918
LOWEST DAILY MEAN	88	Dec 25	60	Jan 31	4.7	Jan 25 1977
ANNUAL SEVEN-DAY MINIMUM	95	Dec 22	66	Jan 27	5.2	Jan 20 1977
INSTANTANEOUS PEAK FLOW			5790	Jul 11	42000	Jun 4 1918
INSTANTANEOUS PEAK STAGE			16.41	Jul 11	20.77	Aug 17 1993
INSTANTANEOUS LOW FLOW			60	Jan 31		
ANNUAL RUNOFF (AC-FT)	999600		303400		638300	
ANNUAL RUNOFF (CFSM)	.90		.27		.58	
ANNUAL RUNOFF (INCHES)	12.24		3.71		7.81	
10 PERCENT EXCEEDS	4080		1010		2170	
50 PERCENT EXCEEDS	598		147		395	
90 PERCENT EXCEEDS	124		100		74	

e Estimated



05451700 TIMBER CREEK NEAR MARSHALLTOWN, IA

LOCATION.--Lat 42°00'32", long 92°51'08", in $SE^1/_4$ $SW^1/_4$ sec.8, T.83 N., R.17 W., Marshall County, Hydrologic Unit 07080208, on left bank 20 ft upstream from bridge on Shady Oaks Road, 3.0 mi upstream from mouth, and 3.0 mi southeast of Marshalltown.

DRAINAGE AREA.--118 mi^2.

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

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

GAGE.--Water stage recorder. Datum of gage is 849.44 ft above sea level. Prior to Oct. 1, 1991 at site 1/8 mile upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of 16.8 ft, discharge, 5,700 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	6.0	11	e5.8	e4.9	14	8.8	7.5	26	58	35	13
2	7.2	8.1	11	e6.1	e4.5	13	8.9	7.6	18	52	32	12
3	7.3	7.9	9.1	e6.5	e4.3	13	8.7	7.3	16	98	30	11
4	7.4	8.6	8.7	e5.5	e4.2	15	8.8	7.5	16	125	29	10
5	7.4	6.5	8.2	e5.0	e4.2	13	8.2	7.3	16	159	28	10
6	7.7	6.3	8.5	e5.2	e5.3	12	8.3	7.0	14	99	28	9.7
7	6.9	6.2	8.7	e5.4	e6.3	12	8.5	6.9	13	78	26	9.4
8	9.4	6.3	7.5	e5.7	e7.2	11	9.7	7.8	12	65	28	9.4
9	9.0	6.5	7.4	e6.1	e8.0	12	9.2	11	11	56	26	11
10	7.0	6.4	8.4	e6.3	e8.9	11	8.8	9.3	10	429	24	11
11	6.6	7.0	9.4	e6.0	e8.4	11	9.1	10	12	305	22	9.6
12	7.0	6.8	7.3	e5.5	e7.8	11	8.9	8.1	278	194	22	7.2
13	6.9	6.5	9.1	e5.0	e7.0	11	8.6	7.2	150	136	28	7.2
14	8.4	7.4	8.5	e4.6	e6.4	11	8.7	6.7	581	107	30	6.9
15	11	6.1	6.6	e4.6	e12	11	8.2	6.4	258	88	25	6.9
16	8.7	6.2	e6.2	e4.6	e14	10	8.7	6.8	177	75	23	6.7
17	7.2	6.5	e6.4	e4.3	e15	10	11	6.8	136	68	21	6.4
18	7.0	6.7	e6.2	e4.7	e14	10	9.7	13	113	58	21	6.2
19	8.2	6.5	e5.9	e4.3	e13	12	10	30	94	57	19	6.3
20	9.1	6.5	e5.4	e4.0	e20	12	11	15	91	52	18	7.4
21	8.5	6.4	e5.0	e4.2	35	11	11	12	71	48	18	6.9
22	7.1	6.5	e5.3	e4.4	53	10	9.9	11	58	43	19	8.8
23	6.5	22	e5.4	e4.3	142	10	9.2	11	51	40	19	9.9
24	6.0	18	e4.9	e4.3	77	10	8.7	9.6	61	39	18	7.8
25	6.2	9.8	e4.6	e4.5	35	10	8.4	8.7	157	38	17	6.9
26	6.4	8.5	e4.5	e4.1	24	9.5	8.1	10	128	85	16	6.6
27	6.9	8.3	e4.9	e3.7	17	9.0	8.1	22	79	104	15	6.3
28	6.3	7.9	e4.9	e3.4	14	8.9	8.5	21	95	58	15	6.1
29	6.4	7.8	e5.1	e3.6	14	8.9	7.8	18	85	45	15	6.0
30	7.3	12	e5.7	e3.8	---	8.9	7.7	15	71	39	15	6.1
31	6.0	---	e5.7	e4.2	---	8.8	---	23	---	38	14	---
TOTAL	230.4	242.2	215.5	149.7	586.4	340.0	269.2	350.5	2898	2936	696	248.7
MEAN	7.43	8.07	6.95	4.83	20.2	11.0	8.97	11.3	96.6	94.7	22.5	8.29
MAX	11	22	11	6.5	142	15	11	30	581	429	35	13
MIN	6.0	6.0	4.5	3.4	4.2	8.8	7.7	6.4	10	38	14	6.0
AC-FT	457	480	427	297	1160	674	534	695	5750	5820	1380	493
CFSM	.06	.07	.06	.04	.17	.09	.08	.10	.82	.80	.19	.07
IN.	.07	.08	.07	.05	.18	.11	.08	.11	.91	.93	.22	.08

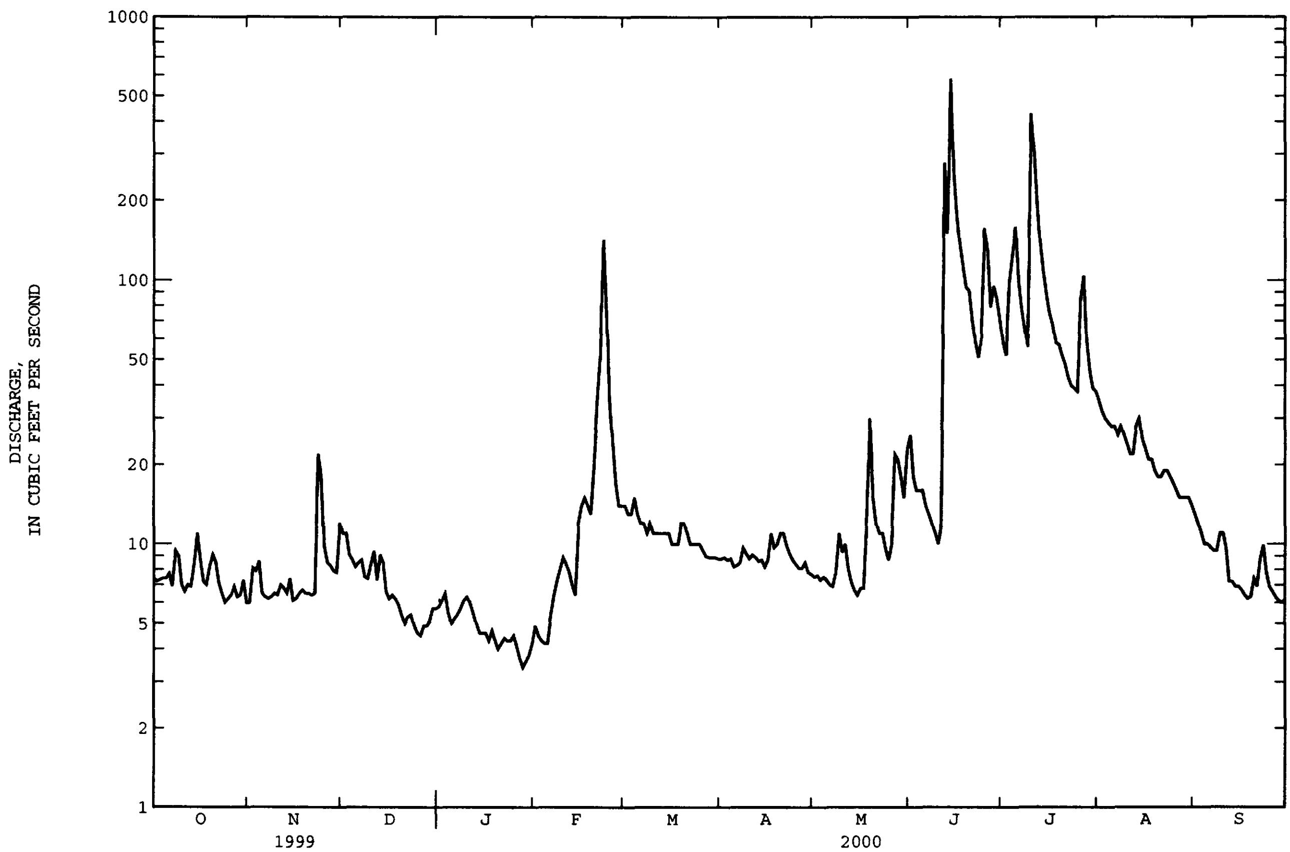
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	36.9	39.5	35.6	35.9	86.2	141	109	128	154	95.0	58.2	38.1
MAX	286	265	183	200	351	597	385	447	704	866	635	341
(WY)	1987	1984	1984	1973	1971	1979	1993	1974	1998	1993	1993	1986
MIN	.76	1.11	.60	.054	3.07	5.11	2.84	3.08	1.09	1.03	1.16	1.21
(WY)	1951	1951	1956	1977	1954	1956	1956	1977	1977	1956	1956	1950

05451700 TIMBER CREEK NEAR MARSHALLTOWN, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1950 - 2000	
ANNUAL TOTAL	31099.9		9162.6			
ANNUAL MEAN	85.2		25.0		79.7	
HIGHEST ANNUAL MEAN					299	1993
LOWEST ANNUAL MEAN					2.84	1956
HIGHEST DAILY MEAN	736	Jun 9	581	Jun 14	6570	Aug 16 1977
LOWEST DAILY MEAN	4.5	Dec 26	3.4	Jan 28	.00	Jul 24 1956a
ANNUAL SEVEN-DAY MINIMUM	4.9	Dec 23	3.9	Jan 25	.00	Oct 4 1956
INSTANTANEOUS PEAK FLOW			879	Jun 14	12000	Aug 16 1977
INSTANTANEOUS PEAK STAGE			9.67	Jun 14	17.69	Aug 16 1977
ANNUAL RUNOFF (AC-FT)	61690		18170		57750	
ANNUAL RUNOFF (CFSM)	.72		.21		.68	
ANNUAL RUNOFF (INCHES)	9.80		2.89		9.18	
10 PERCENT EXCEEDS	229		58		175	
50 PERCENT EXCEEDS	37		9.1		32	
90 PERCENT EXCEEDS	6.5		5.4		3.2	

a Several days in July, Oct. 1956, Feb., July 1977.
e Estimated.



05451900 RICHLAND CREEK NEAR HAVEN, IA

LOCATION.--Lat 41°53'58", long 92°28'27", in SE$^1/_4$ NE$^1/_4$ sec.21, T.82 N., R.14 W., Tama County, Hydrologic Unit 07080208, on right bank 5 ft upstream from bridge on county highway, 0.5 mi northeast of Haven, and 3.0 mi upstream from mouth.

DRAINAGE AREA.--56.1 mi^2.

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	3.9	3.5	e4.6	e2.3	8.5	3.2	3.1	e110	15	18	5.7
2	4.4	3.8	3.6	e5.0	e2.5	6.5	3.2	2.9	e36	20	17	5.6
3	4.6	3.7	3.6	e4.6	e2.7	5.8	3.0	2.9	e21	27	15	5.3
4	4.7	3.6	3.6	e4.2	e3.0	5.4	2.9	2.9	14	134	14	4.8
5	4.6	3.6	3.3	e3.6	e2.8	5.5	3.0	2.8	13	90	14	4.4
6	4.4	3.5	3.1	e3.2	e2.9	5.0	2.7	2.7	11	44	14	4.2
7	4.3	3.4	3.1	e3.0	e2.9	4.9	3.1	2.4	10	34	13	4.1
8	4.1	3.4	3.2	e3.4	e3.0	4.7	4.3	7.4	9.5	30	14	4.1
9	4.1	3.4	3.1	e4.0	e3.4	4.3	3.5	7.1	8.2	22	16	3.9
10	4.1	3.3	2.9	e4.6	e3.6	4.2	3.4	4.8	7.4	251	12	4.0
11	4.2	3.2	3.0	e4.2	e3.4	3.9	4.1	4.0	e26	131	12	4.1
12	4.1	3.2	3.1	e3.6	e3.0	4.0	3.7	3.7	e46	74	11	4.0
13	4.1	3.3	3.1	e3.2	e3.2	4.6	3.4	2.9	e80	54	17	3.7
14	4.1	3.5	e2.8	e3.0	e3.6	4.3	3.0	2.6	e230	43	15	4.4
15	4.1	3.2	e2.6	e3.4	e3.4	4.1	3.0	2.6	73	37	12	3.9
16	4.2	3.1	e1.8	e3.6	e3.2	4.1	3.1	2.8	46	34	12	3.8
17	4.1	3.2	e2.0	e3.2	e3.0	3.7	4.2	2.9	34	29	11	3.9
18	4.1	3.2	e2.3	e3.4	e2.8	4.3	3.8	5.9	30	25	11	3.8
19	4.0	3.1	e2.6	e3.8	e2.7	5.7	e7.5	13	26	24	11	4.3
20	4.2	3.1	e2.9	e3.6	e2.6	5.1	e23	6.7	24	22	11	6.7
21	4.1	3.1	e2.6	e3.6	e3.8	4.7	e14	e9.0	20	20	11	5.0
22	3.9	3.1	e2.3	e3.2	e7.5	4.3	e9.5	e17	18	19	11	8.0
23	3.8	5.7	e1.9	e2.8	e21	4.3	5.2	e8.5	17	17	11	8.9
24	3.9	4.7	e2.0	e2.6	e50	4.6	4.7	4.0	19	16	11	6.4
25	4.1	3.9	e2.9	e2.3	e24	3.9	4.2	3.2	21	17	10	5.8
26	4.0	3.8	e4.0	e2.2	e19	3.4	3.9	6.1	20	215	e9.0	5.7
27	4.1	3.7	e3.6	e2.1	11	3.4	3.9	14	16	147	e8.0	5.1
28	4.1	3.4	e3.4	e2.1	8.1	3.1	3.6	11	20	35	e7.0	4.2
29	4.1	3.3	e3.6	e2.2	8.2	3.2	3.2	9.6	18	25	e6.5	3.6
30	3.9	3.3	e4.0	e2.4	---	3.0	3.1	8.5	16	22	6.1	3.1
31	3.9	---	e4.4	e2.1	---	3.0	---	e50	---	20	6.1	---
TOTAL	128.7	105.7	93.9	102.8	212.6	139.5	146.4	227.0	1040.1	1693	366.7	144.5
MEAN	4.15	3.52	3.03	3.32	7.33	4.50	4.88	7.32	34.7	54.6	11.8	4.82
MAX	4.7	5.7	4.4	5.0	50	8.5	23	50	230	251	18	8.9
MIN	3.8	3.1	1.8	2.1	2.3	3.0	2.7	2.4	7.4	15	6.1	3.1
AC-FT	255	210	186	204	422	277	290	450	2060	3360	727	287
CFSM	.07	.06	.05	.06	.13	.08	.09	.13	.62	.97	.21	.09
IN.	.09	.07	.06	.07	.14	.09	.10	.15	.69	1.12	.24	.10

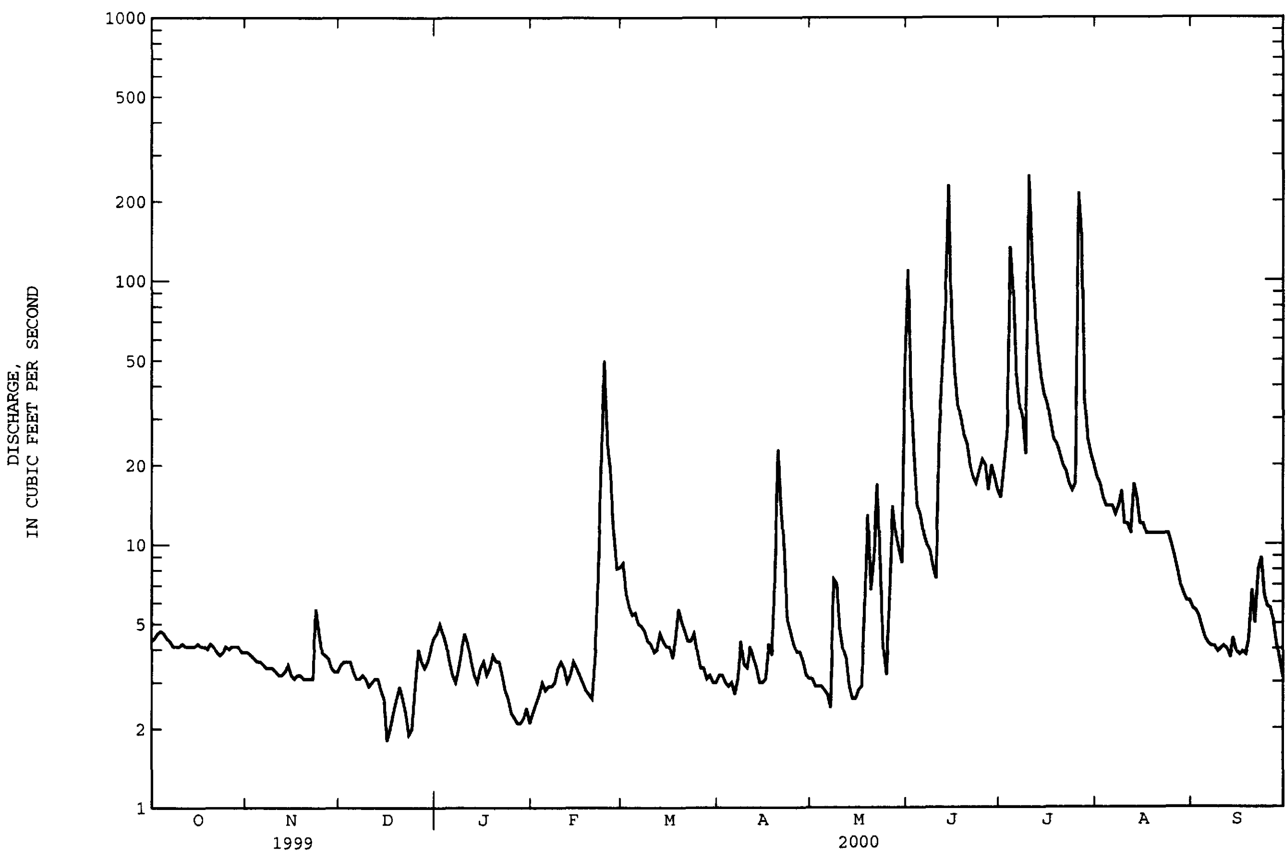
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	18.4	22.8	17.3	19.5	43.0	65.9	57.5	61.3	66.9	45.8	31.5	19.6
MAX	105	122	85.8	104	165	270	323	337	270	463	427	159
(WY)	1987	1984	1983	1960	1965	1979	1991	1974	1990	1993	1993	1993
MIN	.24	.31	.25	.020	.32	1.05	.85	2.04	.25	.66	.76	.58
(WY)	1957	1951	1957	1977	1989	1956	1956	1956	1956	1977	1955	1950

05451900 RICHLAND CREEK NEAR HAVEN, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1950 - 2000	
ANNUAL TOTAL	12720.2		4400.9			
ANNUAL MEAN	34.8		12.0		39.1	
HIGHEST ANNUAL MEAN					162	1993
LOWEST ANNUAL MEAN					2.49	1956
HIGHEST DAILY MEAN	337	Jun 9	251	Jul 10	2880	Aug 16 1977
LOWEST DAILY MEAN	1.8	Dec 16	1.8	Dec 16	.00	Jan 22 1977a
ANNUAL SEVEN-DAY MINIMUM	2.4	Dec 16	2.2	Jan 25	.00	Jan 22 1977a
INSTANTANEOUS PEAK FLOW			911	Jul 26	12200	Apr 12 1991
INSTANTANEOUS PEAK STAGE			17.46	Jul 26	26.71	Apr 12 1991
INSTANTANEOUS LOW FLOW			1.7	May 5		
ANNUAL RUNOFF (AC-FT)	25230		8730		28310	
ANNUAL RUNOFF (CFSM)	.62		.21		.70	
ANNUAL RUNOFF (INCHES)	8.43		2.92		9.46	
10 PERCENT EXCEEDS	90		22		80	
50 PERCENT EXCEEDS	21		4.1		14	
90 PERCENT EXCEEDS	3.4		2.9		1.2	

a Also Jan. 23 to Feb. 2, 1977, July 9 and 10, 1959.
e Estimated.



05452000 SALT CREEK NEAR ELBERON, IA

LOCATION.--Lat 41°57'51", long 92°18'47", in $NW^1/_4$ $NW^1/_4$ sec.36, T.83 N., R.13 W., Tama County, Hydrologic Unit 07080208, on left bank 20 ft upstream from bridge on U.S. Highway 30, 2.0 mi upstream from Hog Run, 3.0 mi south of Elberon, and 9.0 mi upstream from mouth.

DRAINAGE AREA.--201 mi^2.

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

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

GAGE.--Water-stage recorder. Datum of gage is 781.58 ft above sea level (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 estimated daily discharge, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 16, 1944 reached a stage of 19.9 ft, from floodmark at downstream side of bridge, discharge, about 30,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	19	17	e14	e8.5	36	16	30	653	183	149	35
2	19	17	19	e16	e8.0	30	16	29	176	169	132	34
3	19	17	19	e13	e8.5	28	16	27	119	418	117	34
4	20	17	18	e12	e9.0	27	15	28	109	410	107	33
5	20	17	16	e11	e8.5	26	15	27	288	349	105	30
6	20	16	15	e10	e8.5	25	14	26	140	228	106	30
7	19	15	16	e9.0	e9.5	24	14	25	108	187	92	30
8	19	16	17	e10	e10	24	17	30	94	165	88	29
9	19	17	15	e12	e11	22	17	30	84	155	83	28
10	20	16	14	e14	e12	20	16	28	76	1130	74	28
11	19	15	17	e12	e11	20	17	26	75	2810	68	27
12	20	16	18	e10	e10	20	15	25	121	772	64	25
13	21	16	19	e9.0	e11	21	15	23	189	402	64	24
14	21	16	17	e8.5	e12	20	15	21	1490	315	62	31
15	23	15	16	e9.0	e11	20	14	20	574	263	56	29
16	24	15	e9.0	e10	e9.5	19	14	21	281	229	52	26
17	20	15	e9.5	e9.0	e9.0	17	15	22	201	203	51	25
18	21	16	e10	e9.5	e8.5	18	15	24	172	180	50	25
19	21	16	e11	e11	e8.0	22	20	38	151	169	47	25
20	21	16	e12	e9.0	e7.5	21	180	30	149	156	45	31
21	21	16	e10	e8.5	e10	20	113	26	129	142	44	28
22	21	17	e8.5	e8.0	e16	20	73	35	113	130	44	32
23	20	49	e7.5	e7.5	e55	19	59	29	104	120	49	40
24	19	36	e9.0	e7.0	151	21	48	25	119	112	44	31
25	21	23	e11	e7.0	93	20	42	22	205	106	41	29
26	21	21	e14	e6.5	69	18	38	23	1220	375	41	27
27	20	20	e12	e6.5	46	18	37	40	422	1350	49	25
28	19	18	e9.5	e7.0	41	17	35	39	280	313	42	24
29	20	16	e11	e8.0	38	16	32	35	279	213	40	25
30	20	16	e12	e9.0	---	16	31	34	211	181	38	25
31	19	---	e13	e9.5	---	16	---	511	---	188	37	---
TOTAL	626	555	422.0	302.5	710.0	661	984	1349	8332	12123	2081	865
MEAN	20.2	18.5	13.6	9.76	24.5	21.3	32.8	43.5	278	391	67.1	28.8
MAX	24	49	19	16	151	36	180	511	1490	2810	149	40
MIN	19	15	7.5	6.5	7.5	16	14	20	75	106	37	24
AC-FT	1240	1100	837	600	1410	1310	1950	2680	16530	24050	4130	1720
CFSM	.10	.09	.07	.05	.12	.11	.16	.22	1.38	1.95	.33	.14
IN.	.12	.10	.08	.06	.13	.12	.18	.25	1.54	2.24	.39	.16

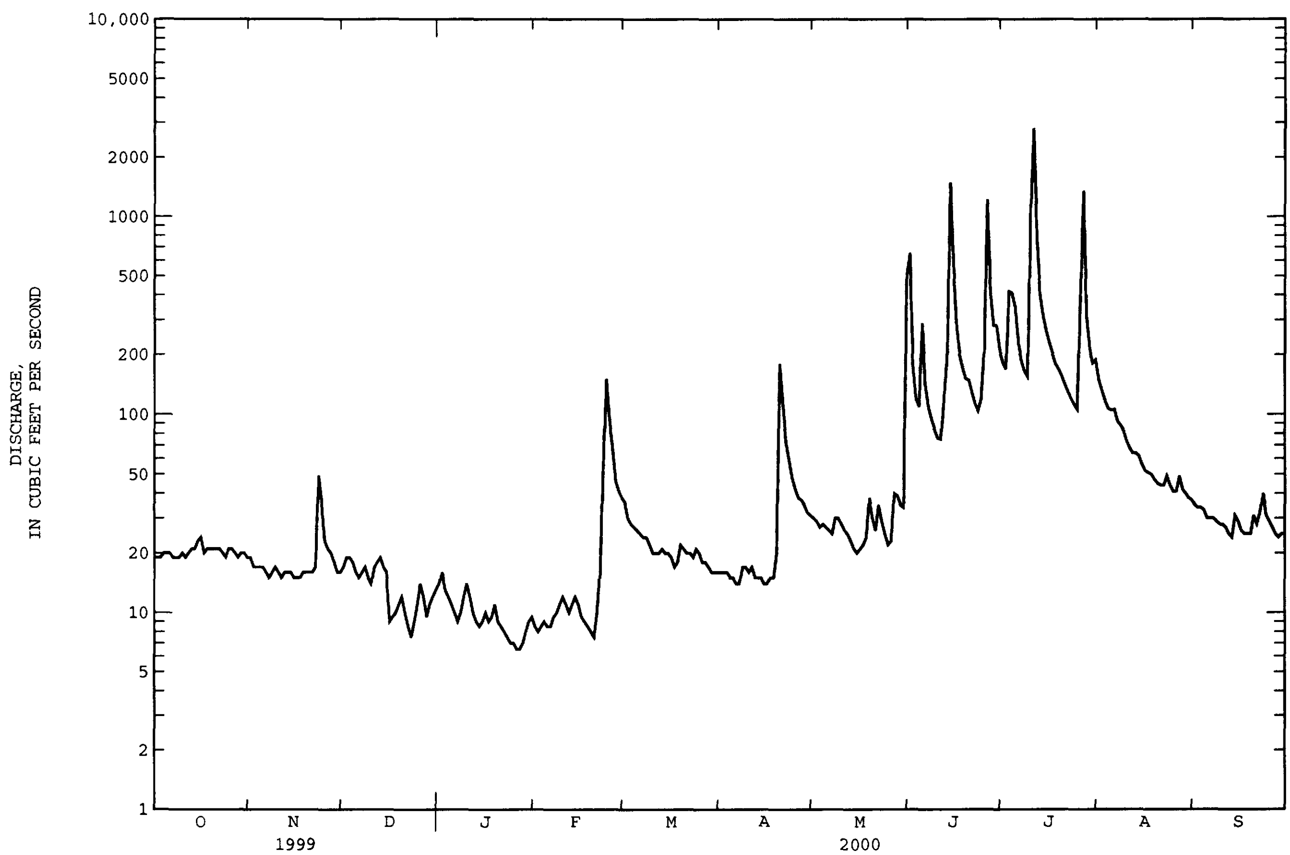
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	66.6	81.1	64.6	72.1	141	261	193	194	267	198	103	67.1
MAX	250	425	314	337	607	844	652	573	1826	1803	1157	440
(WY)	1978	1983	1983	1973	1982	1993	1983	1982	1947	1993	1993	1993
MIN	4.85	4.08	2.29	1.14	7.02	11.7	11.0	5.75	7.79	3.84	5.65	5.43
(WY)	1951	1951	1977	1977	1977	1954	1989	1977	1977	1989	1949	1950

05452000 SALT CREEK NEAR ELBERON, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1946 - 2000	
ANNUAL TOTAL	42175.0		29010.5			
ANNUAL MEAN	116		79.3		142	
HIGHEST ANNUAL MEAN					569	1993
LOWEST ANNUAL MEAN					23.2	1989
HIGHEST DAILY MEAN	1310	Jun 9	2810	Jul 11	14000	Jul 9 1993
LOWEST DAILY MEAN	7.5	Dec 23	6.5	Jan 26a	.85	Jan 31 1977
ANNUAL SEVEN-DAY MINIMUM	9.7	Dec 18	7.1	Jan 22	.95	Jan 25 1977
INSTANTANEOUS PEAK FLOW			3780	Jul 11	41800	Jul 9 1993
INSTANTANEOUS PEAK STAGE			16.47	Jul 11	20.85	Jul 9 1993
ANNUAL RUNOFF (AC-FT)	83650		57540		103000	
ANNUAL RUNOFF (CFSM)	.57		.39		.71	
ANNUAL RUNOFF (INCHES)	7.81		5.37		9.61	
10 PERCENT EXCEEDS	282		177		281	
50 PERCENT EXCEEDS	71		22		56	
90 PERCENT EXCEEDS	16		9.9		9.2	

a Also Jan. 27.
e Estimated.



05452200 WALNUT CREEK NEAR HARTWICK, IA

LOCATION.--Lat 41°50'06", long 92°23'10", in $SE^1/_4$ $SW^1/_4$ sec.8, T.81 N, R.13 W., Poweshiek County, Hydrologic Unit 07080208, on right bank 5 ft downstream from bridge on county highway V21, 1.2 mi downstream from North Walnut Creek, 4.0 mi northwest of Hartwick, and 6.5 mi upstream from mouth.

DRAINAGE AREA.--70.9 mi^2.

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

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

GAGE.--Water-stage recorder. Datum of gage is 786.59 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.4	3.9	e4.0	e1.9	11	2.5	3.4	71	16	37	6.7
2	1.9	2.1	3.5	e4.4	e2.0	8.7	2.6	3.1	37	80	33	7.3
3	2.6	2.4	3.7	e4.0	e2.1	8.1	2.4	3.0	26	265	28	7.1
4	3.0	2.7	3.9	e3.6	e2.4	7.4	1.9	3.1	24	425	26	6.6
5	2.3	2.9	3.2	e3.4	e2.3	6.5	1.8	2.7	19	197	25	6.1
6	2.1	2.9	3.2	e3.0	e2.2	6.0	1.5	2.2	16	124	24	5.5
7	1.9	2.8	3.5	e2.8	e2.2	5.8	2.4	2.3	13	91	20	5.4
8	1.7	2.7	3.2	e3.2	e2.3	5.2	3.6	7.8	11	70	24	5.5
9	1.7	2.4	3.0	e3.6	e2.5	4.4	2.8	7.2	9.1	61	41	5.3
10	1.8	2.1	3.0	e4.0	e2.8	4.2	2.9	5.9	7.6	431	22	5.0
11	1.7	1.9	e2.7	e3.8	e2.6	3.4	4.3	4.7	24	184	18	4.7
12	1.9	2.0	e3.0	e3.4	e2.5	3.3	3.1	4.2	38	125	17	4.5
13	1.9	2.0	e3.2	e3.0	e2.7	3.9	2.5	3.0	71	92	22	3.6
14	1.9	1.8	e2.9	e2.8	e3.0	4.0	2.0	2.5	356	71	21	4.6
15	2.0	1.9	e2.7	e2.9	e2.8	4.2	1.9	2.3	109	58	16	3.7
16	2.3	1.8	e1.7	e3.2	e2.6	3.8	2.3	2.7	71	50	14	3.5
17	2.1	2.0	e1.8	e2.9	e2.5	3.3	3.3	2.9	54	42	13	3.6
18	2.0	2.1	e2.1	e3.0	e2.3	4.2	2.6	11	46	36	13	3.4
19	2.0	1.9	e2.3	e3.2	e2.2	6.0	6.4	14	39	33	12	3.7
20	2.2	1.9	e2.5	e3.0	e2.1	5.4	30	5.5	39	28	11	6.7
21	2.3	1.9	e2.2	e2.9	e2.1	4.6	18	15	30	24	11	4.8
22	2.2	1.8	e1.9	e2.7	e6.5	4.0	12	22	25	21	12	16
23	2.1	27	e1.6	e2.3	e15	3.7	9.1	10	22	18	12	11
24	2.2	7.6	e1.7	e2.0	48	4.2	7.4	6.7	30	16	10	5.8
25	2.3	4.1	e2.6	e1.8	23	3.2	6.0	4.9	30	16	9.3	4.7
26	2.4	3.8	e3.4	e1.7	17	2.7	5.0	11	31	177	9.1	4.3
27	2.5	3.4	e3.2	e1.6	12	2.8	4.7	24	21	300	8.8	4.0
28	2.4	3.1	e3.0	e1.6	10	2.3	4.6	15	27	82	8.7	3.8
29	2.6	2.9	e3.2	e1.8	10	2.2	4.0	12	22	61	8.3	3.4
30	2.3	3.7	e3.4	e1.9	---	2.2	3.6	11	18	51	7.5	3.2
31	2.4	---	e3.6	e1.8	---	2.1	---	177	---	44	7.6	---
TOTAL	66.5	104.0	88.8	89.3	191.6	142.8	157.2	402.1	1336.7	3289	541.3	163.5
MEAN	2.15	3.47	2.86	2.88	6.61	4.61	5.24	13.0	44.6	106	17.5	5.45
MAX	3.0	27	3.9	4.4	48	11	30	177	356	431	41	16
MIN	1.7	1.8	1.6	1.6	1.9	2.1	1.5	2.2	7.6	16	7.5	3.2
AC-FT	132	206	176	177	380	283	312	798	2650	6520	1070	324
CFSM	.03	.05	.04	.04	.09	.06	.07	.18	.63	1.50	.25	.08
IN.	.03	.05	.05	.05	.10	.07	.08	.21	.70	1.73	.28	.09

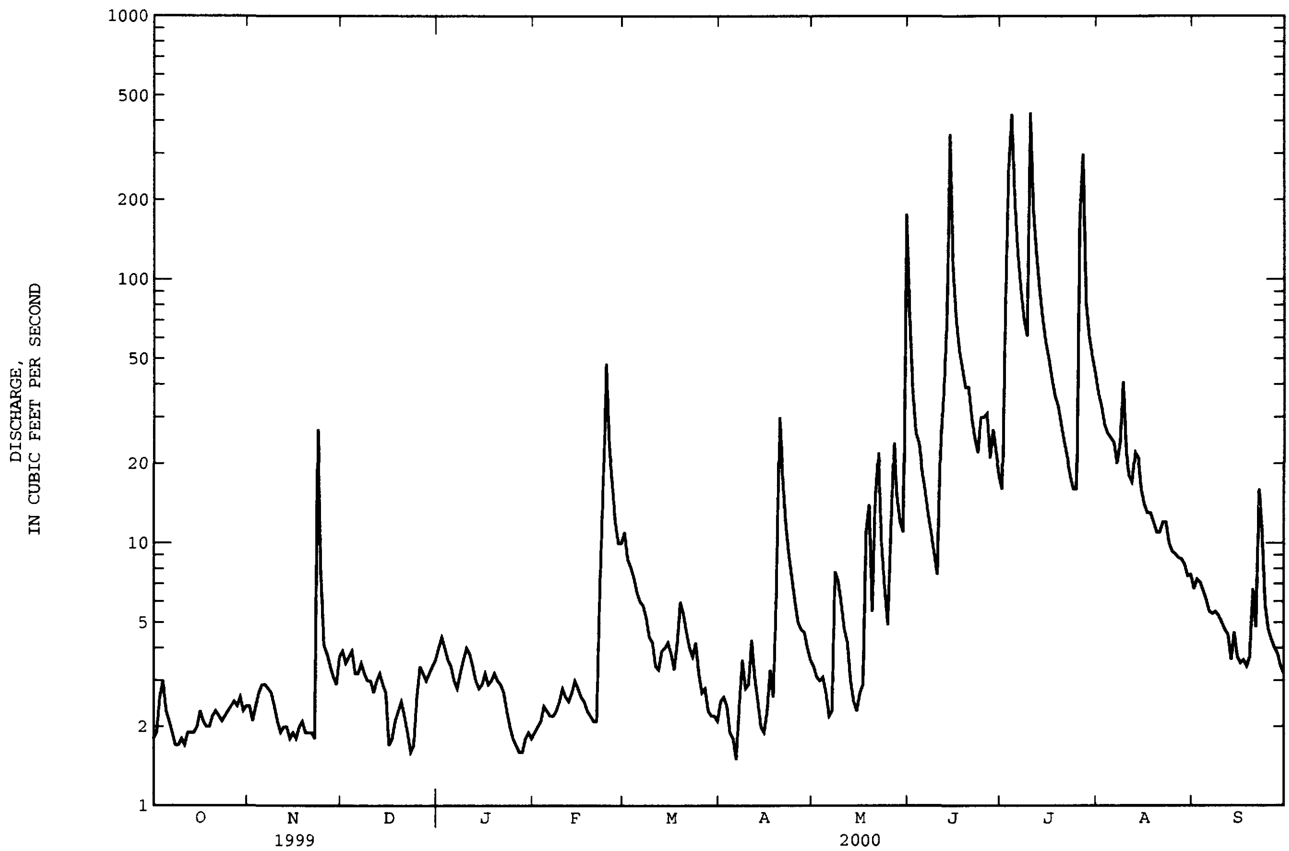
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	19.7	27.6	22.9	25.9	50.4	81.3	75.8	79.4	81.9	55.9	35.4	24.3
MAX	137	171	109	179	191	300	365	452	450	461	498	185
(WY)	1987	1984	1993	1960	1971	1993	1991	1974	1990	1993	1993	1993
MIN	.003	.29	.060	.006	1.40	1.64	1.03	1.62	.76	1.01	.38	.28
(WY)	1957	1956	1977	1956	1954	1954	1957	1977	1956	1954	1955	1953

05452200 WALNUT CREEK NEAR HARTWICK, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1950 - 2000	
ANNUAL TOTAL	16663.6		6572.8			
ANNUAL MEAN	45.7		18.0		48.3	
HIGHEST ANNUAL MEAN					200	1993
LOWEST ANNUAL MEAN					4.76	1956
HIGHEST DAILY MEAN	608	Jun 9	431	Jul 10	4840	Jul 2 1983
LOWEST DAILY MEAN	1.6	Dec 23	1.5	Apr 6	.00	Jul 31 1954
ANNUAL SEVEN-DAY MINIMUM	1.8	Oct 7	1.7	Jan 25	.00	Aug 27 1955
INSTANTANEOUS PEAK FLOW			1510	Jul 26	7900	Apr 29 1991
INSTANTANEOUS PEAK STAGE			11.76	Jul 26	16.93	Apr 29 1991
ANNUAL RUNOFF (AC-FT)	33050		13040		35010	
ANNUAL RUNOFF (CFSM)	.64		.25		.68	
ANNUAL RUNOFF (INCHES)	8.74		3.45		9.26	
10 PERCENT EXCEEDS	110		37		102	
50 PERCENT EXCEEDS	24		3.8		17	
90 PERCENT EXCEEDS	2.1		2.0		1.3	

e Estimated



05453000 BIG BEAR CREEK AT LADORA, IA

LOCATION.--Lat 41°44'58", long 92°10'55", in $SW^{1}/_{4}$ $SW^{1}/_{4}$ sec.7, T.80 N., R.11 W., Iowa County, Hydrologic Unit 07080208, on left bank 10 ft downstream from bridge on county highway V52, 0.4 mi south of Ladora, 1.2 mi downstream from Coats Creek, 2.8 mi upstream from Little Bear Creek, and 8.1 mi upstream from mouth.

DRAINAGE AREA.--189 mi^2.

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

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

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

REMARKS.--Records good except those for periods of estimated daily discharge, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.5	10	e15	e7.0	23	11	30	278	91	61	18
2	11	8.9	11	e16	e7.5	21	12	29	179	96	56	18
3	12	8.8	11	e14	e8.5	20	11	27	114	395	51	17
4	13	8.9	11	e12	e9.5	19	11	27	96	1040	47	16
5	12	9.4	9.9	e10	e9.0	18	11	26	87	782	45	15
6	11	9.1	9.0	e9.5	e9.5	17	10	24	74	356	45	14
7	11	9.0	9.0	e9.0	e9.5	16	11	24	65	262	44	14
8	10	9.0	9.7	e11	e10	16	13	29	60	214	43	14
9	11	9.4	9.1	e13	e11	15	13	34	54	192	73	14
10	10	9.1	8.7	e14	e13	15	12	34	50	612	54	14
11	9.7	8.7	e7.5	e13	e11	14	13	29	61	486	41	14
12	9.9	8.8	e7.0	e11	e10	14	13	27	264	302	38	13
13	10	9.1	e6.0	e10	e11	15	12	23	131	240	38	12
14	10	8.7	e7.5	e8.5	e12	14	11	22	923	201	63	12
15	11	8.5	e8.5	e9.5	e11	14	10	21	357	174	41	11
16	12	8.5	e5.5	e11	e10	14	11	22	237	155	35	11
17	11	8.5	e6.0	e9.5	e9.5	13	12	21	180	139	32	11
18	9.9	8.7	e6.5	e10	e9.0	14	15	23	153	124	33	11
19	10	9.9	e7.5	e11	e8.5	16	16	34	133	117	31	11
20	9.8	8.0	e8.5	e10	e8.0	16	99	30	126	106	30	13
21	10	8.4	e7.5	e10	e11	15	148	77	108	98	29	14
22	9.9	8.4	e6.0	e9.5	e20	14	78	148	92	88	28	29
23	9.5	46	e4.6	e8.0	e50	13	60	43	85	81	31	40
24	9.3	33	e6.5	e7.5	e119	14	49	34	101	76	30	20
25	9.7	16	e9.0	e7.0	e66	14	43	29	154	73	27	16
26	9.9	13	e12	e6.5	e42	13	39	31	208	99	26	14
27	10	12	e11	e6.0	e32	12	38	62	132	210	25	13
28	9.2	11	e10	e6.0	26	12	36	58	122	103	23	12
29	9.8	10	e11	e6.5	23	11	33	50	127	81	22	12
30	9.8	9.5	e13	e7.0	---	11	31	47	102	73	21	11
31	9.4	---	e14	e6.5	---	11	---	205	---	66	20	---
TOTAL	321.8	345.8	273.5	307.5	583.5	464	882	1320	4853	7132	1183	454
MEAN	10.4	11.5	8.82	9.92	20.1	15.0	29.4	42.6	162	230	38.2	15.1
MAX	13	46	14	16	119	23	148	205	923	1040	73	40
MIN	9.2	8.0	4.6	6.0	7.0	11	10	21	50	66	20	11
AC-FT	638	686	542	610	1160	920	1750	2620	9630	14150	2350	901
CFSM	.05	.06	.05	.05	.11	.08	.16	.23	.86	1.22	.20	.08
IN.	.06	.07	.05	.06	.11	.09	.17	.26	.96	1.40	.23	.09

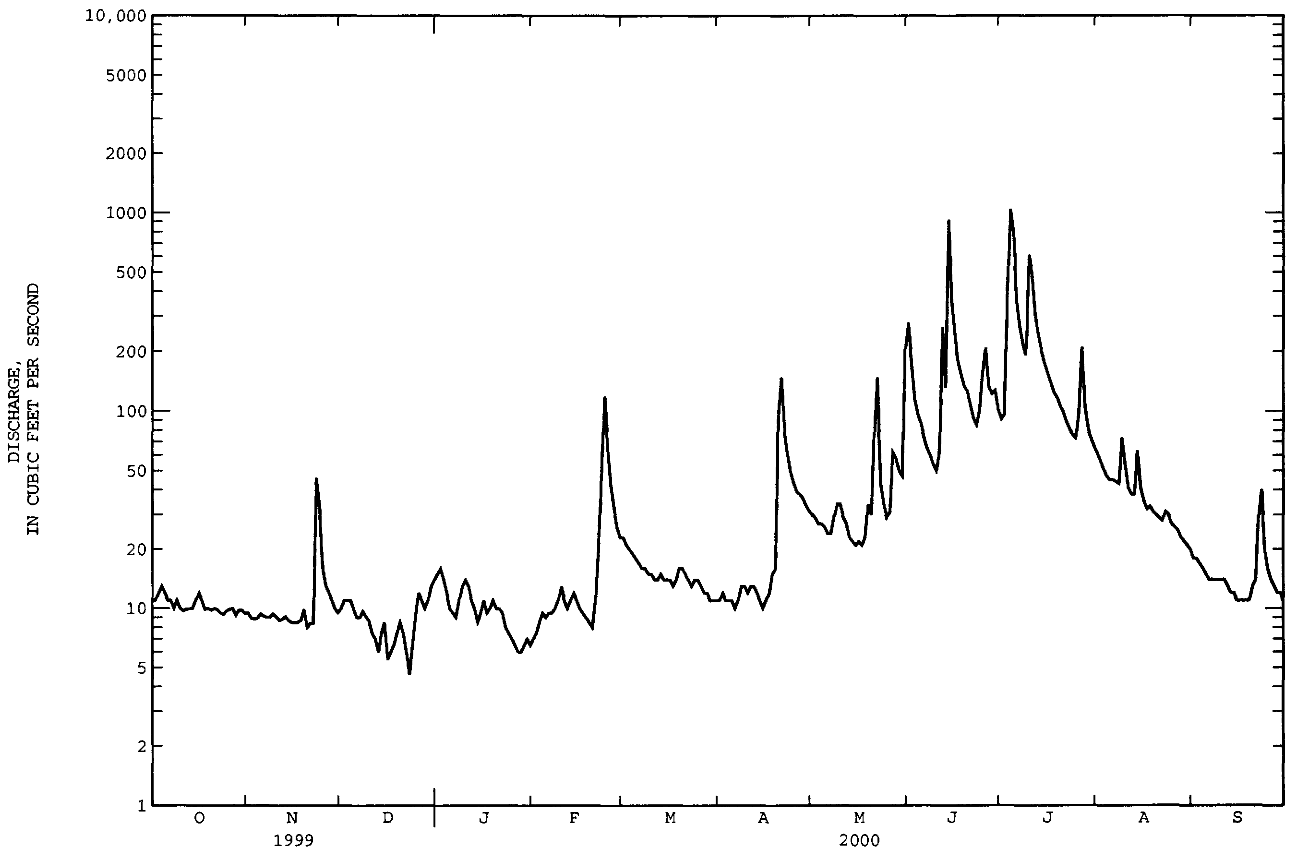
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	57.9	73.9	62.5	73.7	122	232	198	213	228	142	91.0	73.5
MAX	375	341	294	432	543	895	704	1185	1136	1011	1537	559
(WY)	1987	1993	1983	1960	1971	1979	1973	1974	1947	1993	1993	1993
MIN	.49	1.68	.33	.021	2.07	5.99	4.17	2.25	2.94	5.00	2.36	1.34
(WY)	1957	1956	1956	1977	1977	1957	1956	1956	1956	1988	1955	1956

05453000 BIG BEAR CREEK AT LADORA, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1946 - 2000	
ANNUAL TOTAL	47204.1		18120.1			
ANNUAL MEAN	129		49.5		130	
HIGHEST ANNUAL MEAN					516	1993
LOWEST ANNUAL MEAN					8.26	1956
HIGHEST DAILY MEAN	1850	Jun 12	1040	Jul 4	9480	Mar 30 1960
LOWEST DAILY MEAN	4.6	Dec 23	4.6	Dec 23	.00	Jan 22 1956a
ANNUAL SEVEN-DAY MINIMUM	6.7	Dec 17	6.5	Jan 25	.00	Jan 22 1956
INSTANTANEOUS PEAK FLOW			2980	Jul 4	10500	Mar 30 1960
INSTANTANEOUS PEAK STAGE			19.97	Jul 4	15.32b	Sep 8 1977
ANNUAL RUNOFF (AC-FT)	93630		35940		94490	
ANNUAL RUNOFF (CFSM)	.68		.26		.69	
ANNUAL RUNOFF (INCHES)	9.29		3.57		9.38	
10 PERCENT EXCEEDS	293		120		278	
50 PERCENT EXCEEDS	65		14		46	
90 PERCENT EXCEEDS	9.1		8.7		5.5	

a Also Jan. 22 to Feb. 8, 1956, Jan. 19 to Feb. 3, 1977.
b Datum in use prior to Oct. 1, 1980.
e Estimated.



05453100 IOWA RIVER AT MARENGO, IA

LOCATION.-- Lat 41°48'48", long 92°03'51", in SE$^{1}/_{4}$ NE$^{1}/_{4}$ sec.24, T.81 N., R.11 W., Iowa County, Hydrologic Unit 07080208, on left bank 5 ft upstream from bridge on county highway V66, 1.0 mi downstream from Big Bear Creek, 0.8 mi north of Marengo, 4.6 mi upstream from Hilton Creek, and at mile 139.1.

DRAINAGE AREA.--2,794 mi^2.

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

REVISED RECORDS.--WSP 1558: 1957.

GAGE.--Water-stage recorder. Datum of gage is 720.52 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	320	239	270	e230	e150	721	303	371	2020	2010	1370	437
2	301	240	271	e240	e160	700	303	350	2100	1850	1160	426
3	291	241	273	e250	e170	653	302	331	2280	2470	1040	412
4	290	247	273	e240	e180	599	291	297	2080	3210	936	395
5	283	249	270	e220	e180	550	284	293	1980	4670	864	383
6	282	250	264	e200	e190	523	278	293	1970	3460	811	368
7	283	250	258	e180	e230	513	279	282	1800	e2850	780	367
8	274	248	258	e190	e260	499	283	291	1640	e2890	790	366
9	268	245	261	e210	e280	468	285	317	1470	2200	802	366
10	264	241	261	e230	e290	447	289	313	1310	3150	742	360
11	259	241	253	e210	e290	428	294	295	1190	5180	637	344
12	256	241	251	e200	e280	415	294	286	1360	5710	582	336
13	252	242	250	e190	e250	406	293	271	1500	6010	551	316
14	250	240	250	e180	e230	400	297	260	4530	6160	580	296
15	251	240	255	e200	e250	394	299	257	5230	5420	646	296
16	266	242	e200	e190	e270	384	308	242	5270	4420	617	298
17	270	238	e180	e180	e300	377	325	239	5170	3600	559	288
18	261	236	e170	e190	e320	373	340	250	5080	2940	508	284
19	254	230	e160	e200	e290	389	361	290	4870	2450	470	285
20	251	232	e180	e210	e280	389	526	325	e4380	2110	446	291
21	247	244	e190	e190	e300	384	810	408	e3700	1890	455	293
22	244	241	e140	e190	e360	376	615	636	3550	1730	483	337
23	242	361	e120	e180	e650	368	538	413	3350	1600	524	374
24	236	429	e130	e180	1090	362	500	382	3120	1480	541	356
25	234	383	e140	e190	1030	352	480	408	3050	1380	545	343
26	237	348	e160	e170	840	346	459	422	3640	1430	537	328
27	239	318	e170	e160	766	337	446	476	4300	3430	513	313
28	241	296	e180	e150	705	329	433	495	3310	4030	504	296
29	242	283	e200	e140	700	322	412	498	2780	2370	479	282
30	241	273	e210	e150	---	314	388	495	2400	1800	460	265
31	241	---	e220	e140	---	307	---	716	---	1540	452	---
TOTAL	8070	8008	6668	5980	11291	13425	11315	11202	90430	95440	20384	10101
MEAN	260	267	215	193	389	433	377	361	3014	3079	658	337
MAX	320	429	273	250	1090	721	810	716	5270	6160	1370	437
MIN	234	230	120	140	150	307	278	239	1190	1380	446	265
AC-FT	16010	15880	13230	11860	22400	26630	22440	22220	179400	189300	40430	20040
CFSM	.09	.10	.08	.07	.14	.15	.13	.13	1.08	1.10	.24	.12
IN.	.11	.11	.09	.08	.15	.18	.15	.15	1.20	1.27	.27	.13

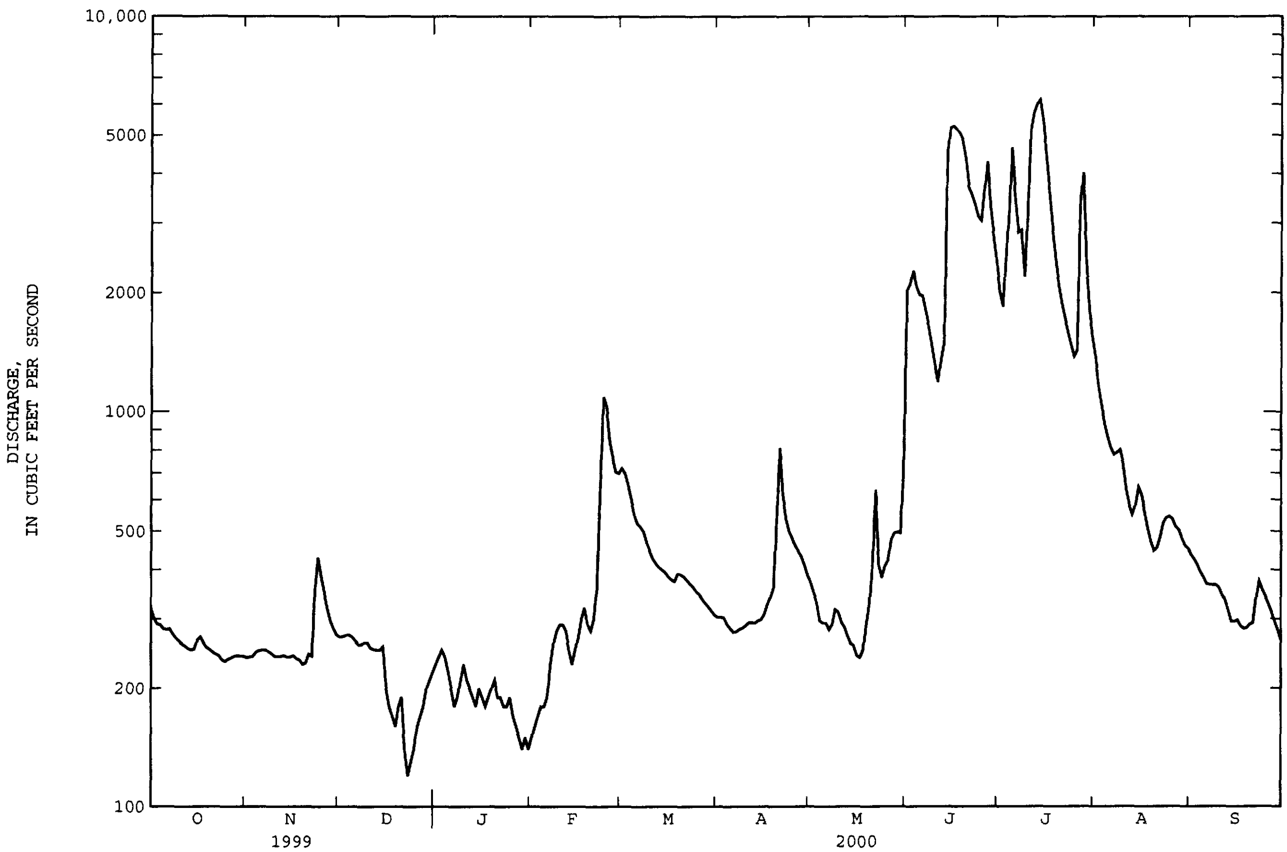
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1025	1162	966	834	1401	3141	3338	3004	3388	2739	1504	1016
MAX	5078	3878	3633	4194	5424	8227	11310	9340	9287	19620	15290	7901
(WY)	1987	1973	1983	1973	1984	1979	1993	1991	1998	1993	1993	1993
MIN	80.8	90.0	63.0	31.3	79.0	256	259	179	114	116	108	123
(WY)	1957	1957	1990	1977	1977	1964	1977	1977	1977	1977	1989	1988

05453100 IOWA RIVER AT MARENGO, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1957 - 2000	
ANNUAL TOTAL	811858		292314			
ANNUAL MEAN	2224		799		1961	
HIGHEST ANNUAL MEAN					7192	1993
LOWEST ANNUAL MEAN					283	1989
HIGHEST DAILY MEAN	11400	Jun 17	6160	Jul 14	35600	Jul 12 1993
LOWEST DAILY MEAN	120	Dec 23	120	Dec 23	24	Jan 29 1977
ANNUAL SEVEN-DAY MINIMUM	149	Dec 22	149	Dec 22	25	Jan 28 1977
INSTANTANEOUS PEAK FLOW			6290	Jul 14	38000	Jul 19 1993
INSTANTANEOUS PEAK STAGE			14.58	Jul 14	20.31	Jul 19 1993
ANNUAL RUNOFF (AC-FT)	1610000		579800		1421000	
ANNUAL RUNOFF (CFSM)	.80		.29		.70	
ANNUAL RUNOFF (INCHES)	10.81		3.89		9.54	
10 PERCENT EXCEEDS	6600		2310		4880	
50 PERCENT EXCEEDS	1180		316		1000	
90 PERCENT EXCEEDS	242		197		204	

e Estimated



05453510 CORALVILLE LAKE NEAR CORALVILLE, IA

LOCATION.--Lat 41°43'29", long 91°31'40", in $SW^1/_4$ $NE^1/_4$ sec.22, T.80 N., R.6 W., Johnson County, Hydrologic Unit 07080208, at outlet works at left end of Coralville Dam on Iowa River, 2.3 mi upstream from Rapid Creek, 4.3 mi northeast of Coralville post office, and at mile 83.3.

DRAINAGE AREA.--3,115 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is at sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam completed in 1957. Storage began in September 1958. Releases controlled by three gates, 8.33 ft wide and 20 ft high, into forechamber of 23-ft diameter concrete conduit through dam. Inlet invert elevation at 646.0 ft. No dead storage. Maximum design discharge through gates is 20,000 ft^3/s. Ungated spillway is concrete overflow section 500 ft in length at elevation 712 ft above sea level, contents, 469,000 acre-ft, surface area, 24,800 acres. Reservoir is used for flood control, low-flow augmentation, conservation and recreation. Normal operation will lower the elevation from 683 ft. (surface area 5,430 acres) on Feb. 15 to 679 ft (surface area 3,270 acres) on Mar 1, maintaining 679 ft. Mar. 1 to June 15, 683 ft June 15 to Sept. 15, 686 ft. (surface area 7,000 acres) Sept. 15 to Dec. 15, and 683 ft Dec. 15 to Feb. 15, with a minimum release of 150 ft^3/s and maximum release of 10,000 ft^3/s Dec. 15 to May 1 and 6,000 ft^3/s May 1 to Dec. 15.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 586,000 acre-ft July 20, 1993, maximum elevation, 716.75 ft July 24, 1993; minimum daily contents, 456 acre-ft Jan. 15, 1975; minimum elevation, 658.77 ft Mar. 10, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 91,100 acre-ft June 16; maximum elevation, 689.76 ft June 16; minimum daily contents, 42,400 acre-ft Aug. 1, 2; minimum elevation, 683.03 ft Aug. 1.

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

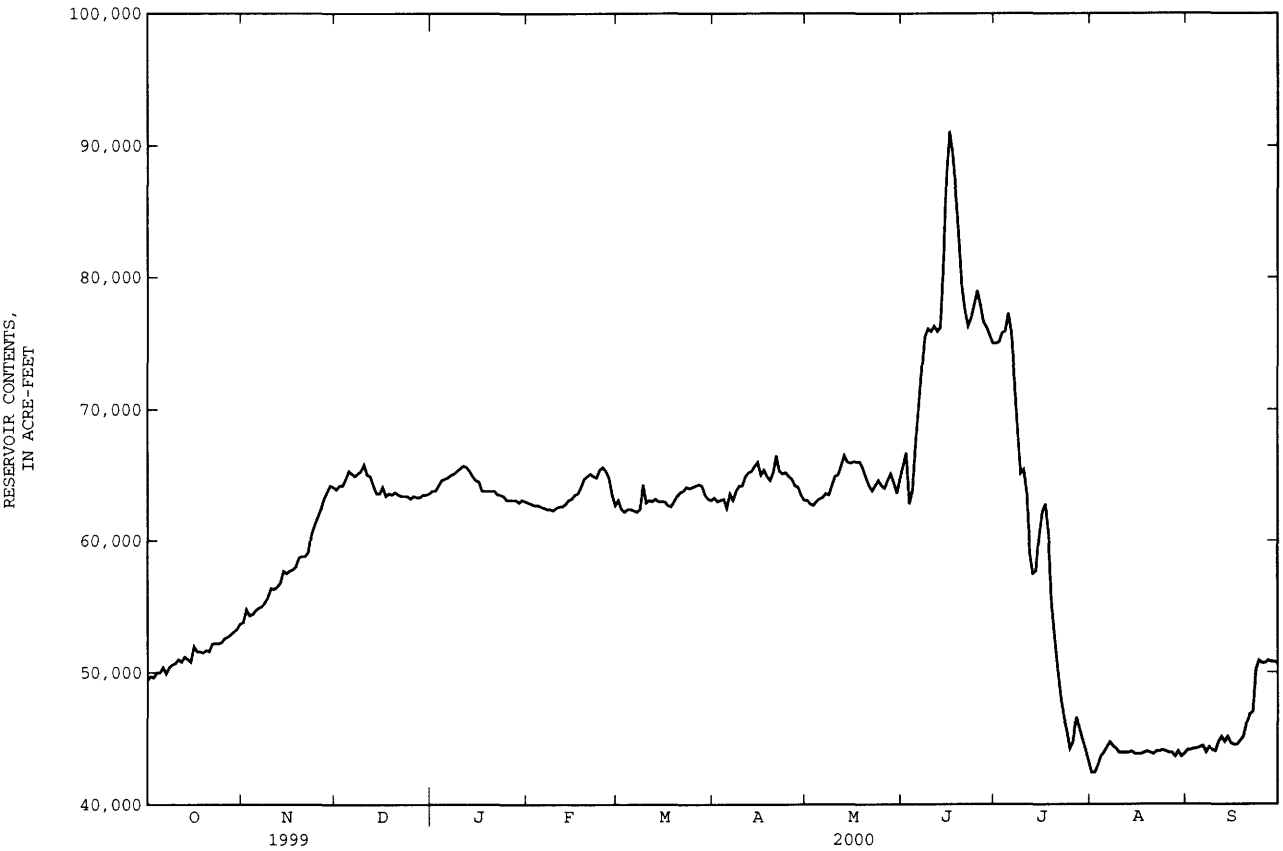
655	55	675	15,100	692	115,000	704	287,000	712	461,000
660	621	680	29,600	696	160,000	706	327,000	714	512,000
665	2,770	684	52,800	700	215,000	708	370,000	716	566,000
670	7,230	688	81,200	702	251,000	710	413,000	718	622,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49400	53800	63900	63800	62900	63100	63300	63100	e65700	75000	42400	44100
2	49700	54800	64200	63800	62800	62400	63000	62800	66700	75100	42400	e44100
3	49600	54300	64200	64200	62700	62200	63100	62700	62800	75800	42900	e44200
4	50000	54400	64700	64600	62700	62400	63200	63000	63800	75900	43600	e44200
5	50000	54700	65300	64700	62600	62400	62500	63200	67300	77300	43900	e44300
6	50400	54900	65100	64800	62500	62300	63600	63300	70100	75800	44300	44400
7	49900	55000	64900	65000	62400	62200	63100	63600	72900	72500	44700	43900
8	50400	55300	65100	65100	62400	62400	63800	63500	75500	68700	44400	44300
9	50600	55700	65300	65300	62300	64300	64200	64200	76100	65100	44200	44100
10	50700	56400	65800	65500	62500	62900	64200	64900	75900	65400	43900	44000
11	51000	56300	65000	65700	62600	63100	64900	65000	76300	63600	43900	44700
12	50800	56500	64900	65600	62600	63000	65200	65700	75900	59100	43900	45100
13	51200	56800	64200	65300	62800	63200	65300	66500	76200	57500	43900	44700
14	51000	57700	63600	64900	63100	63000	65700	66000	80900	57700	44000	45100
15	50800	57500	63600	64600	63200	63000	66000	65900	87900	60400	43800	44600
16	52000	57700	64100	64500	63500	63000	65000	66000	91100	62200	43800	44500
17	51600	57800	63400	63800	63600	62700	65400	e66000	89400	62800	43800	44500
18	51600	58000	63600	63800	64100	62600	64900	66000	86500	60400	43900	44800
19	51500	58700	63500	63800	64700	63000	64600	65500	83200	55300	44000	45100
20	51700	58800	63700	e63800	e64900	63400	65200	64800	79300	52700	43900	46100
21	51600	58800	63500	63800	65100	63700	66500	64200	77500	50200	43800	46800
22	52200	59100	63400	63500	64900	63800	65300	63800	76300	48100	44000	47000
23	52200	60500	e63400	63500	64800	64100	65100	64200	76900	46600	44000	50200
24	52200	61200	63400	63400	65400	64000	65200	64600	77900	45600	44100	50900
25	52300	61800	63200	63100	65600	e64100	64900	64200	79000	44200	44000	50700
26	52600	62400	63400	63100	65300	e64200	64700	64000	77900	44700	43900	50700
27	52700	63200	e63300	63100	64800	64300	64200	64600	76600	46600	43900	50900
28	52900	63700	63300	63100	63500	64200	64100	65100	76200	45900	43600	50800
29	53100	64200	63500	62900	62700	63500	63500	64400	75600	45000	44000	50800
30	53300	64100	63500	63100	---	63200	63100	63600	75000	44200	43600	50700
31	53700	---	63600	63000	---	63100	---	e64700	---	43300	e43800	---
MEAN	51400	58100	64100	64100	63600	63200	64400	64500	76400	58800	43800	46300
MAX	53700	64200	65800	65700	65600	64300	66500	66500	91100	77300	44700	50900
MIN	49400	53800	63200	62900	62300	62200	62500	62700	62800	43300	42400	43900

e Estimated

05453510 CORALVILLE LAKE NEAR CORALVILLE, IA--Continued



05453520 IOWA RIVER BELOW CORALVILLE DAM NEAR CORALVILLE, IA

LOCATION.--Lat 41°43'23", long 91°31'47", in $SW^1/_4$ $NE^1/_4$ sec.22, T.80 N., R.6 W., Johnson County, Hydrologic Unit 07080208, on left bank about 500 ft downstream of Coralville Dam control house, 2.3 miles upstream from Rapid Creek, 4.3 miles northeast of Coralville post office, and at mile 83.2.

DRAINAGE AREA.--3,115 mi^2.

PERIOD OF RECORD.--October 1992 to current year.

GAGE.--Water-stage recorder. Datum of gage is 600.00 ft above sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for estimated daily discharges, which are fair. Periodic observations of water temperatures and specific conductance are published in this report as miscellaneous water-quality data. U.S. Army Corps of Engineers satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	261	152	233	166	177	890	303	535	1610	2340	1720	358
2	237	151	234	166	184	809	305	439	3340	2210	1240	363
3	242	162	230	163	181	683	300	306	2510	2230	1010	368
4	244	165	230	164	180	642	293	277	1340	2610	972	369
5	246	161	216	166	185	639	245	274	1020	4090	1030	374
6	241	160	223	167	183	584	160	274	794	5180	1140	464
7	245	160	229	167	182	467	160	269	780	4870	1150	612
8	241	163	230	181	179	405	163	271	1240	4150	1150	605
9	237	158	224	206	161	383	162	271	1590	3030	1140	604
10	237	147	321	227	153	372	165	268	1430	3380	959	605
11	243	143	413	308	151	367	169	259	1320	5070	851	604
12	251	145	517	372	154	375	167	249	1220	5860	e800	591
13	239	145	502	372	154	379	171	245	1450	5210	e780	582
14	246	141	319	382	154	389	201	238	2070	4670	758	577
15	250	144	264	387	155	383	356	237	2620	4720	760	519
16	246	147	224	367	152	370	444	234	4880	5270	762	438
17	235	146	170	290	152	329	450	288	5960	5430	652	353
18	234	154	171	228	151	287	461	534	6190	5400	564	281
19	234	154	171	225	156	285	487	696	6230	4600	567	233
20	231	151	171	224	154	284	547	599	5730	3740	566	e210
21	234	149	171	231	285	287	1090	481	4790	3220	561	204
22	172	146	166	236	456	287	1170	430	3650	2720	562	319
23	135	164	166	235	501	294	706	423	3030	2300	550	300
24	132	152	163	236	788	322	694	421	3330	2160	539	551
25	132	148	167	200	1240	373	693	419	3760	1700	545	578
26	129	146	167	182	1380	445	700	300	3910	1320	549	457
27	155	144	166	182	1350	420	707	302	3890	2860	547	447
28	150	154	166	179	1120	399	705	585	3890	4310	500	443
29	155	193	167	178	914	406	616	720	3420	3940	484	437
30	155	230	167	179	---	350	549	721	2680	2780	429	435
31	154	---	167	181	---	304	---	e1200	---	2320	359	---
TOTAL	6543	4675	7125	7147	11332	13209	13339	12765	89674	113690	24196	13281
MEAN	211	156	230	231	391	426	445	412	2989	3667	781	443
MAX	261	230	517	387	1380	890	1170	1200	6230	5860	1720	612
MIN	129	141	163	163	151	284	160	234	780	1320	359	204
AC-FT	12980	9270	14130	14180	22480	26200	26460	25320	177900	225500	47990	26340
CFSM	.07	.05	.07	.07	.13	.14	.14	.13	.96	1.18	.25	.14
IN.	.08	.06	.09	.09	.14	.16	.16	.15	1.07	1.36	.29	.16

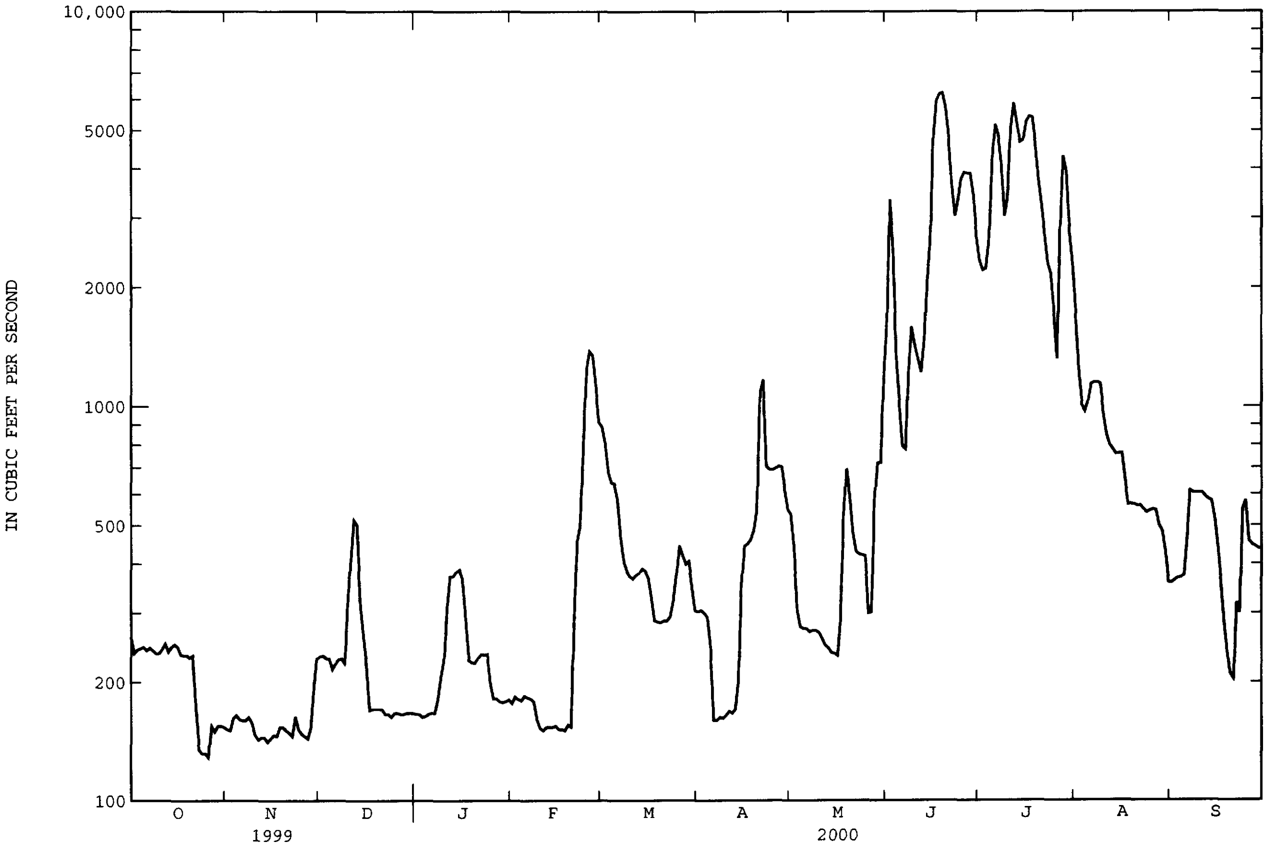
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1255	1310	1455	829	1943	3054	3575	3909	4687	6095	3465	2030
MAX	4012	2771	4229	1723	3006	6587	7776	9347	7203	20610	18500	13050
(WY)	1994	1993	1993	1993	1997	1993	1993	1993	1993	1993	1993	1993
MIN	211	156	230	231	391	426	445	412	2362	2318	581	275
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	1994	1995	1997	1997

05453520 IOWA RIVER BELOW CORALVILLE DAM NEAR CORALVILLE, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1993 - 2000	
ANNUAL TOTAL	841275		316976			
ANNUAL MEAN	2305		866		2806	
HIGHEST ANNUAL MEAN					7910	1993
LOWEST ANNUAL MEAN					866	2000
HIGHEST DAILY MEAN	6710	Apr 29	6230	Jun 19	25000	Jul 21 1993
LOWEST DAILY MEAN	129	Oct 26	129	Oct 26	129	Oct 26 1999
ANNUAL SEVEN-DAY MINIMUM	141	Oct 23	141	Oct 23	141	Oct 23 1999
INSTANTANEOUS PEAK FLOW			6410	Jul 12	25800	Jul 19 1993
INSTANTANEOUS PEAK STAGE			54.25	Jul 12	63.95	Jul 19 1993
ANNUAL RUNOFF (AC-FT)	1669000		628700		2033000	
ANNUAL RUNOFF (CFSM)	.74		.28		.90	
ANNUAL RUNOFF (INCHES)	10.05		3.79		12.24	
10 PERCENT EXCEEDS	5920		2740		6380	
50 PERCENT EXCEEDS	1210		352		1410	
90 PERCENT EXCEEDS	164		155		277	

e Estimated



05453600 RAPID CREEK BELOW MORSE, IA

LOCATION.--Lat 41°43'45", long 91°25'38", in NE corner of sec.21, T.80 N., R.5 W., Johnson County, Hydrologic Unit 07080209, at bridge on county highway, 1.5 miles southwest of Morse.

DRAINAGE AREA.--8.12 mi^2.

PERIOD OF RECORD.--March 1994 to current year. Operated May 1951 to September 1992 as a crest-stage partial record station.

GAGE.--Tipping bucket rain gage.

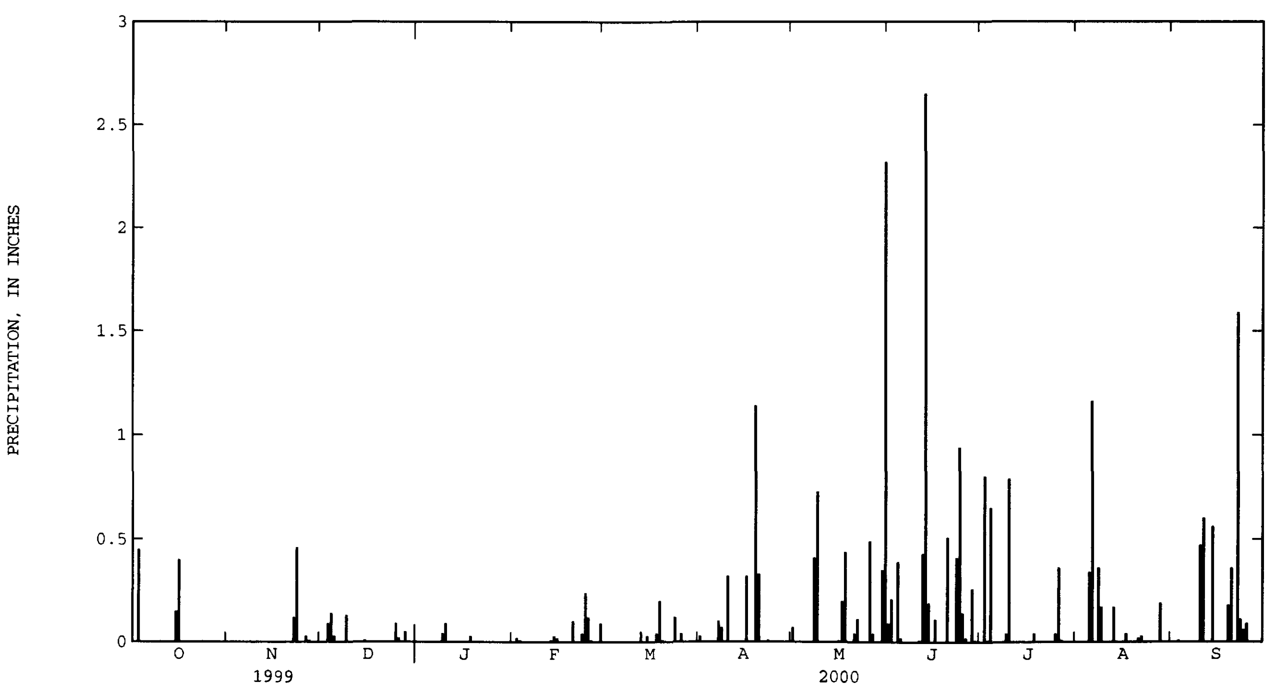
REMARKS.--Records good except for winter period, which is poor due to intermittent snow accumulation and subsequent melting.

EXTREME FOR PERIOD OF RECORD.--Maximum daily accumulation, 2.65 in., May 9, 1996, June 13, 2000.

EXTREME FOR CURRENT YEAR.--Maximum daily accumulation, 2.65 in., June 13.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.03	.07	.09	.00	.00	.00
2	.00	.00	.00	.00	.02	.00	.00	.00	.21	.80	.00	.00
3	.45	.00	.09	.00	.01	.00	.00	.00	.00	.01	.00	.01
4	.00	.00	.14	.00	.00	.00	.00	.00	.39	.65	.00	.00
5	.00	.00	.03	.00	.00	.00	.00	.00	.02	.00	.34	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.16	.00
7	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.07	.41	.00	.00	.36	.00
9	.00	.00	.13	.04	.00	.00	.00	.73	.00	.04	.17	.00
10	.00	.00	.00	.09	.00	.00	.32	.00	.00	.79	.00	.47
11	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.60
12	.00	.00	.00	.00	.00	.00	.00	.00	.43	.00	.00	.00
13	.00	.00	.00	.00	.01	.05	.00	.00	2.65	.00	.17	.00
14	.00	.00	.00	.00	.03	.00	.00	.00	.19	.00	.00	.56
15	.15	.00	.01	.00	.02	.03	.00	.00	.00	.00	.00	.00
16	.40	.00	.00	.00	.00	.00	.32	.01	.11	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00	.04	.00
18	.00	.00	.00	.03	.00	.04	.00	.44	.00	.04	.00	.00
19	.00	.00	.00	.00	.00	.20	1.14	.00	.00	.00	.00	.18
20	.00	.00	.00	.00	.10	.01	.33	.00	.51	.00	.00	.36
21	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.02	.00
22	.00	.12	.00	.00	.00	.00	.00	.11	.00	.00	.03	1.59
23	.00	.46	.00	.00	.04	.00	.01	.00	.41	.00	.00	.11
24	.00	.00	.00	.00	.24	.12	.00	.00	.94	.00	.00	.06
25	.00	.00	.09	.00	.12	.00	.00	.00	.14	.04	.00	.09
26	.00	.03	.02	.00	.01	.04	.00	.49	.02	.36	.00	.00
27	.00	.01	.00	.00	.00	.00	.00	.04	.00	.01	.00	.00
28	.00	.00	.05	.00	.00	.00	.00	.00	.26	.00	.19	.00
29	.00	.00	.00	.00	.09	.00	.00	.00	.01	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.35	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	2.32	---	.00	.00	---
TOTAL	1.00	0.62	0.56	0.16	0.69	0.49	2.32	5.21	6.39	2.74	2.48	4.03



05454000 RAPID CREEK NEAR IOWA CITY, IA

LOCATION.--Lat 41°42'00", long 91°29'15", in $NE^1/_4$ $NE^1/_4$ sec.36. T.80 N., R.6 W., Johnson County, Hydrologic Unit 07080209, on left bank 80 ft upstream from bridge on State Highway 1, 3.5 mi northeast of Iowa City, and 4.7 mi upstream from mouth.

DRAINAGE AREA.--25.3 mi^2.

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 IA-67-1: Drainage area.

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with telephone modem, and U.S. Army Corps of Engineers rain gage and data collection platform.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.37	.57	.58	.82	e.34	5.4	1.2	4.8	81	16	3.9	.88
2	.28	.52	.60	.99	e.40	4.0	1.4	4.3	52	16	3.5	.78
3	.47	.50	.73	1.1	e.50	3.7	1.5	3.6	39	29	2.9	.67
4	.77	.61	.81	.94	e.65	3.3	1.3	3.5	32	44	2.5	.64
5	.80	.52	.84	.69	.69	3.1	1.2	3.0	30	44	3.4	.57
6	.71	.54	.74	e.60	.69	2.6	1.2	2.7	24	31	16	.52
7	.69	.55	.68	e.55	.67	2.5	1.4	2.6	21	24	14	.48
8	.67	.60	.66	.64	.63	2.4	2.0	3.4	18	21	9.8	.43
9	.60	.58	.71	.98	.74	2.1	1.6	5.9	16	19	8.8	.43
10	.75	.54	.76	1.5	.90	1.9	1.9	6.6	14	53	5.1	.92
11	.83	.54	.70	1.2	.89	1.7	3.0	5.3	12	35	4.0	1.2
12	.72	.54	.66	.87	.76	1.6	1.8	4.8	14	26	3.7	2.7
13	.66	.55	.66	.77	.80	1.9	1.5	3.8	92	21	3.6	.91
14	.69	.57	.71	.59	.82	1.8	1.5	3.2	474	18	3.4	1.3
15	.72	.58	.73	.65	.87	1.8	1.4	3.0	80	16	2.8	1.2
16	1.1	.60	e.46	.74	1.1	1.8	1.6	3.1	52	14	2.1	.80
17	1.1	.58	e.50	.66	1.0	1.3	2.6	3.4	40	12	1.8	.63
18	1.0	.60	.56	.68	.92	1.5	1.7	3.9	32	11	2.0	.59
19	.97	.60	.58	.64	.93	2.5	6.2	4.9	27	11	1.6	.61
20	.93	.58	.74	.82	.88	2.7	33	2.7	27	9.9	1.5	.86
21	.97	.58	1.4	.71	.96	2.1	22	2.7	22	8.9	1.3	.98
22	1.1	.58	.37	.60	2.1	1.7	17	2.9	18	7.9	1.3	21
23	.96	1.1	.39	.65	17	1.6	13	2.8	17	7.2	1.5	19
24	.87	1.0	.42	.53	28	2.1	11	2.4	36	6.8	1.3	9.7
25	.83	.78	.52	.54	18	2.0	8.8	1.8	44	6.4	1.1	7.1
26	.81	.70	.62	.46	14	1.4	7.5	1.9	32	7.1	1.0	5.6
27	.70	.68	e.55	.34	9.0	1.7	6.8	4.0	25	7.6	1.0	4.6
28	.64	.66	e.48	.28	6.4	1.6	6.0	3.2	23	5.6	1.7	3.7
29	.55	.63	e.55	e.30	5.6	1.5	5.1	2.9	21	5.0	1.2	3.3
30	.55	.58	e.65	e.34	---	1.3	4.6	2.8	18	4.8	1.0	e3.0
31	.59	---	e.75	e.32	---	1.2	---	259	---	4.7	.97	---
TOTAL	23.40	18.56	20.11	21.50	116.24	67.8	170.8	364.9	1433	542.9	109.77	95.10
MEAN	.75	.62	.65	.69	4.01	2.19	5.69	11.8	47.8	17.5	3.54	3.17
MAX	1.1	1.1	1.4	1.5	28	5.4	33	259	474	53	16	21
MIN	.28	.50	.37	.28	.34	1.2	1.2	1.8	12	4.7	.97	.43
AC-FT	46	37	40	43	231	134	339	724	2840	1080	218	189
CFSM	.03	.02	.03	.03	.16	.09	.23	.47	1.89	.69	.14	.13
IN.	.03	.03	.03	.03	.17	.10	.25	.54	2.11	.80	.16	.14

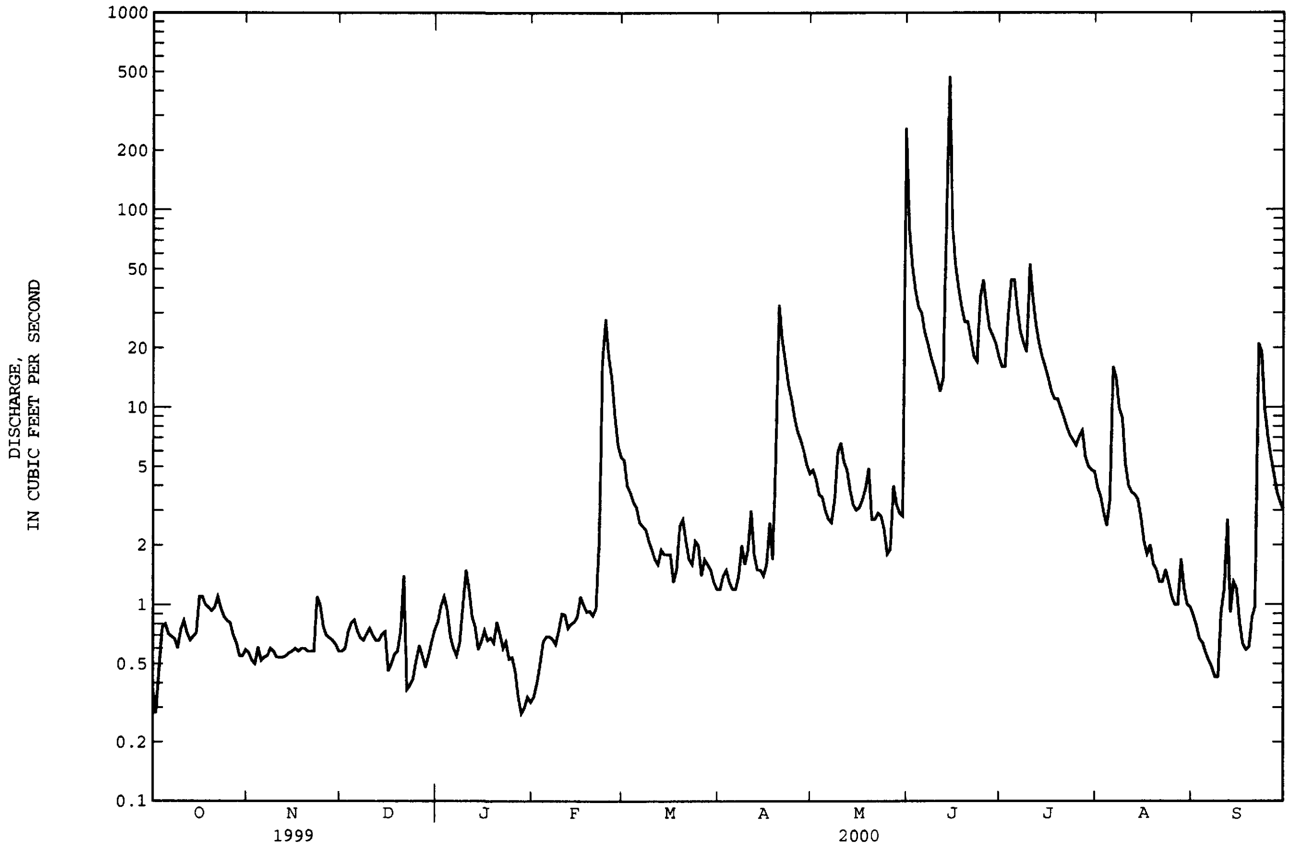
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	7.64	10.3	9.02	9.63	22.3	28.8	24.4	27.0	25.5	16.0	11.8	7.98
MAX	83.5	84.0	66.6	56.8	77.5	106	98.6	167	134	105	176	66.6
(WY)	1999	1993	1983	1946	1953	1979	1973	1974	1990	1969	1993	1965
MIN	.000	.000	.000	.000	.22	.42	1.25	1.13	.21	.000	.032	.000
(WY)	1954	1956	1956	1940	1989	1956	1956	1977	1956	1957	1955	1955

05454000 RAPID CREEK NEAR IOWA CITY, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1938 - 2000	
ANNUAL TOTAL	7218.42		2984.08			
ANNUAL MEAN	19.8		8.15		16.6	
HIGHEST ANNUAL MEAN					63.8	1993
LOWEST ANNUAL MEAN					1.09	1957
HIGHEST DAILY MEAN	408	Jun 27	474	Jun 14	1720	May 17 1986
LOWEST DAILY MEAN	.14	Sep 21	.28	Oct 2	.00	Jan 1 1940
ANNUAL SEVEN-DAY MINIMUM	.16	Sep 20	.33	Jan 27	.00	Jan 1 1940
INSTANTANEOUS PEAK FLOW			1430	Jun 14	6700	Aug 10 1993
INSTANTANEOUS PEAK STAGE			11.10	Jun 14	15.61	Aug 10 1993
INSTANTANEOUS LOW FLOW			.23	Oct 2a		
ANNUAL RUNOFF (AC-FT)	14320		5920		12060	
ANNUAL RUNOFF (CFSM)	.78		.32		.66	
ANNUAL RUNOFF (INCHES)	10.61		4.39		8.94	
10 PERCENT EXCEEDS	46		21		35	
50 PERCENT EXCEEDS	7.5		1.5		5.0	
90 PERCENT EXCEEDS	.55		.55		.10	

a Also Oct. 3.
e Estimated.



05454220 CLEAR CREEK NEAR OXFORD, IA

LOCATION.--Lat 41°43'06", long 91°44'24", in $SW^1/_4$ $SE^1/_4$ $SE^1/_4$ sec.23, T.80 N., R.8 W., Johnson County, Hydrologic Unit 07080209, on left bank 15 ft. downstream of bridge on NW Eagle Avenue, 0.2 miles west of Kent Park, 2.6 miles upstream of Buffalo Creek, 2.8 miles east of Oxford, and 4.2 miles west of Tiffin.

DRAINAGE AREA.--58.4 mi^2.

PERIOD OF RECORD.--November 1993 to current year.

GAGE.--Water stage recorder. Datum of gage is 696.50 ft., above sea level.

REMARKS.--Records good except for those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey rain gage and data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.4	e1.7	e4.9	e1.9	8.3	e5.0	e13	107	32	36	8.8
2	1.6	1.3	2.4	e5.5	e2.0	6.5	e6.0	e12	66	32	31	8.6
3	2.5	1.3	2.6	e4.4	e2.2	6.3	e5.5	e11	47	101	27	8.0
4	3.5	1.4	2.7	e3.8	e2.6	6.3	e5.5	e11	41	93	25	7.7
5	2.8	1.4	2.6	e3.2	e2.5	6.3	e5.5	e10	60	106	24	7.2
6	2.4	1.5	2.1	e2.7	e2.5	5.6	e5.0	e10	42	64	35	6.9
7	2.2	1.5	2.1	e2.3	e2.6	e5.3	e5.5	e11	35	52	26	7.0
8	2.1	1.6	2.2	e2.6	e2.8	e5.2	e6.5	e14	31	44	27	7.0
9	2.1	1.8	2.4	e3.4	e3.4	e5.0	e6.0	e18	27	41	68	6.8
10	2.2	1.8	2.2	e4.6	e3.8	e5.0	e6.5	e16	25	300	39	9.5
11	2.1	1.6	e1.9	e4.0	e3.6	e5.0	e8.0	e14	24	162	29	8.3
12	2.1	1.7	e1.7	e3.2	e3.4	e5.0	e7.0	e13	25	102	25	13
13	2.2	1.7	e1.5	e2.8	e3.6	e4.8	e6.5	e12	173	81	24	7.0
14	2.2	1.7	e1.9	e2.6	e4.0	e4.8	e6.0	e11	1000	68	22	6.6
15	2.4	1.9	2.3	e3.0	e3.8	e5.0	e6.0	e10	327	59	20	6.0
16	5.7	1.9	e1.3	e3.5	e3.6	e5.0	e7.0	e10	130	53	18	5.5
17	4.9	1.9	e1.4	e3.2	e3.2	e5.0	e7.5	e11	93	48	17	5.5
18	2.9	2.0	e1.6	e3.4	e3.2	e5.2	e7.0	e12	76	43	16	5.3
19	2.4	2.0	e1.8	e3.6	e3.0	e7.0	e16	e17	63	42	15	5.0
20	2.3	1.8	e2.0	e3.4	e2.7	e7.0	70	e13	61	39	15	6.9
21	2.1	1.9	e1.8	e3.2	e3.4	e6.5	101	e11	51	35	13	6.6
22	1.9	2.0	e1.4	e3.2	e5.5	e6.0	52	e10	43	32	13	95
23	1.7	13	e1.2	e2.5	e10	e6.0	e32	e10	39	30	13	45
24	1.6	6.5	e1.5	e2.0	e26	e6.0	e22	e9.0	51	28	13	20
25	1.6	2.6	e1.9	e1.9	e22	e6.0	e19	e8.0	72	27	12	16
26	1.6	2.4	e2.8	e1.8	18	e6.0	e17	e9.5	54	36	11	13
27	1.5	2.3	e2.4	e1.7	12	e5.5	e16	e13	46	396	11	12
28	1.4	2.0	e2.0	e1.8	8.5	e5.5	e15	e12	43	91	11	11
29	1.4	1.8	e2.3	e1.9	8.3	e5.5	e14	e11	40	57	10	11
30	1.5	e1.4	e2.8	e2.1	---	e5.5	e13	e10	35	48	9.7	10
31	1.4	---	e3.6	e1.9	---	e5.0	---	114	---	44	9.5	---
TOTAL	69.9	69.1	64.1	94.1	174.1	177.1	499.0	466.5	2927	2386	665.2	386.2
MEAN	2.25	2.30	2.07	3.04	6.00	5.71	16.6	15.0	97.6	77.0	21.5	12.9
MAX	5.7	13	3.6	5.5	26	8.3	101	114	1000	396	68	95
MIN	1.4	1.3	1.2	1.7	1.9	4.8	5.0	8.0	24	27	9.5	5.0
AC-FT	139	137	127	187	345	351	990	925	5810	4730	1320	766
CFSM	.04	.04	.04	.05	.10	.10	.28	.26	1.67	1.32	.37	.22
IN.	.04	.04	.04	.06	.11	.11	.32	.30	1.86	1.52	.42	.25

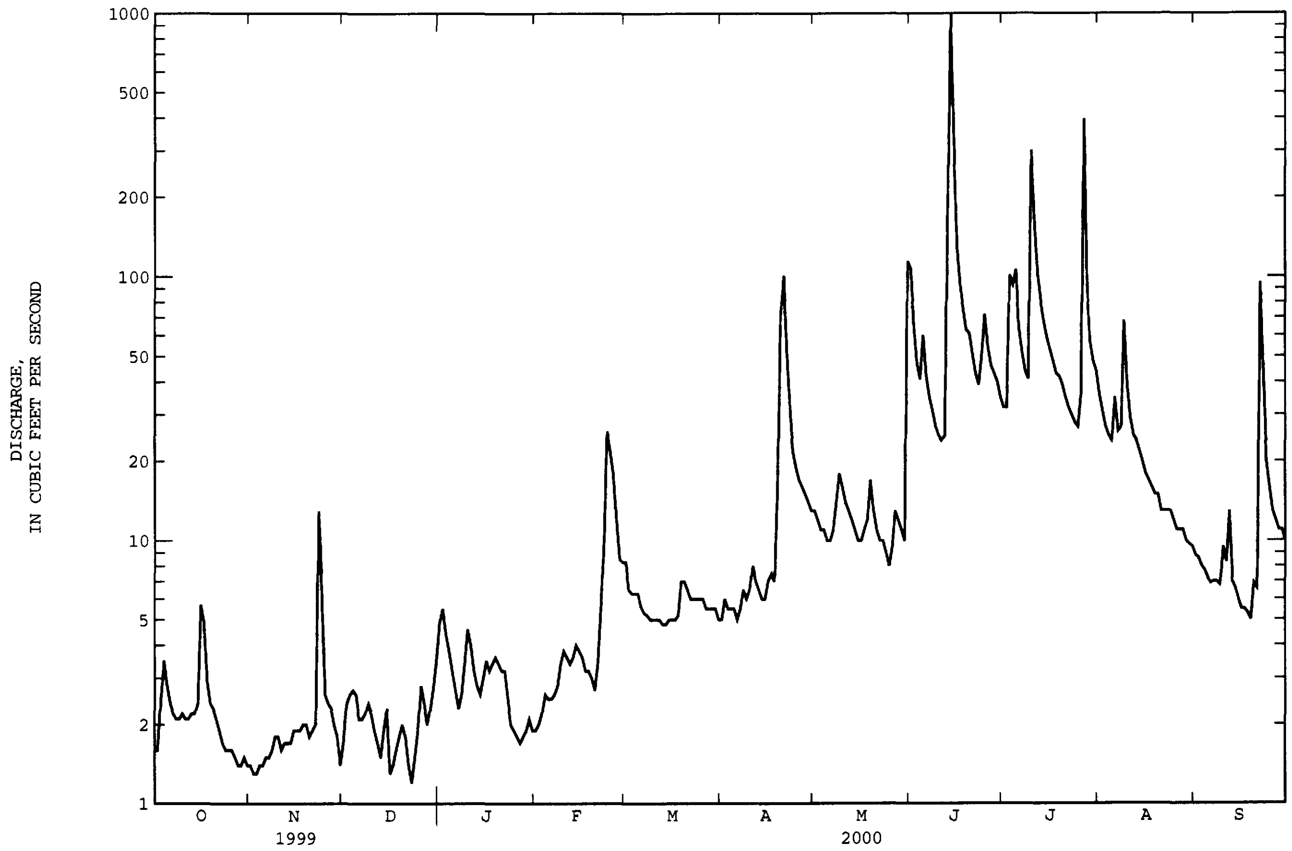
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	30.0	19.3	10.5	15.3	43.9	38.4	60.4	114	75.0	34.0	14.4	8.94
MAX	153	74.4	28.1	35.2	104	95.5	113	269	115	77.0	44.5	29.4
(WY)	1999	1999	1999	1998	1997	1998	1998	1996	1998	2000	1998	1998
MIN	1.74	2.30	2.07	3.04	6.00	5.71	8.16	15.0	32.0	10.4	4.14	1.35
(WY)	1996	2000	2000	2000	2000	2000	1996	2000	1997	1997	1996	1999

05454220 CLEAR CREEK NEAR OXFORD, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1995 - 2000	
ANNUAL TOTAL	12941.15		7978.3			
ANNUAL MEAN	35.5		21.8		38.6	
HIGHEST ANNUAL MEAN					56.4	1999
LOWEST ANNUAL MEAN					21.8	2000
HIGHEST DAILY MEAN	349	Apr 23	1000	Jun 14	2400	May 10 1996
LOWEST DAILY MEAN	.81	Sep 21	1.2	Dec 23	.74	Dec 11 1995
ANNUAL SEVEN-DAY MINIMUM	.90	Sep 20	1.4	Oct 28	.90	Sep 20 1999
INSTANTANEOUS PEAK FLOW			1190	Jun 14	4230	May 10 1996
INSTANTANEOUS PEAK STAGE			13.05	Jun 14	14.89	May 10 1996
INSTANTANEOUS LOW FLOW			1.1	Oct 24a		
ANNUAL RUNOFF (AC-FT)	25670		15820		27960	
ANNUAL RUNOFF (CFSM)	.61		.37		.66	
ANNUAL RUNOFF (INCHES)	8.24		5.08		8.98	
10 PERCENT EXCEEDS	93		49		92	
50 PERCENT EXCEEDS	19		6.3		14	
90 PERCENT EXCEEDS	1.4		1.8		2.1	

a Also Oct. 26, 28, and Nov. 2.
e Estimated.



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 15 ft upstream from bridge on county highway, 1.1 mi west of post office in Coralville, 1.5 mi downstream from Deer Creek, and 2.7 mi upstream from mouth.

DRAINAGE AREA.--98.1 mi^2.

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

REVISED RECORDS.--WDR IA-93-1: 1974 (M), 1982 (M), 1990 (M).

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

REMARKS.--Records good except those for estimated daily discharges, which are fair. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with telephone modem and U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	4.5	e5.5	e13	e4.4	20	11	23	225	57	49	14
2	4.4	3.7	6.2	e14	e4.6	16	12	21	129	57	42	13
3	7.0	3.8	7.1	e11	e5.5	14	11	19	100	125	37	12
4	6.8	3.9	7.2	e9.5	e6.6	14	11	19	89	195	34	12
5	6.2	4.0	7.4	e8.0	e6.6	13	11	18	134	195	37	11
6	5.4	4.0	6.3	e7.0	e6.6	12	11	17	89	116	98	11
7	4.9	4.1	5.7	e6.5	e6.8	11	12	17	65	87	68	11
8	4.6	4.5	5.8	e7.5	e7.5	11	14	24	57	73	55	10
9	4.6	4.3	6.1	e10	e9.5	10	13	36	53	68	110	9.9
10	4.6	4.4	5.9	e12	e11	9.9	14	27	46	440	67	14
11	4.2	4.2	e5.5	e11	e10	10	17	25	43	294	45	23
12	4.1	4.6	e4.6	e8.5	e9.0	10	14	23	45	153	39	22
13	4.1	4.4	e4.0	e7.5	e9.5	10	13	21	235	119	38	14
14	4.2	4.3	e4.9	e7.4	e10	10	13	19	1380	99	34	12
15	4.2	4.2	5.9	e8.5	e9.5	10	12	18	613	85	31	11
16	8.5	4.5	e3.0	e10	e9.0	10	15	18	221	71	27	10
17	7.3	4.3	e3.2	e8.5	e7.9	9.9	16	19	159	63	26	9.7
18	5.6	4.6	e3.6	e8.8	e7.5	10	14	20	127	58	25	9.3
19	4.4	4.5	e4.2	e9.5	e7.5	14	26	34	111	54	23	9.4
20	4.3	4.4	e4.8	e8.5	e7.0	14	58	21	107	50	22	14
21	4.7	4.4	e4.4	e8.1	e9.5	13	148	19	92	46	21	12
22	4.3	4.4	e3.4	e8.0	e15	12	69	18	75	42	20	186
23	4.2	22	e2.7	e6.0	e30	12	49	18	68	39	20	128
24	4.0	17	e4.2	e4.6	e65	12	39	16	169	36	20	46
25	4.4	8.7	e6.0	e4.5	56	12	35	14	150	35	18	36
26	4.4	6.9	e8.0	e4.4	43	12	30	18	111	48	17	29
27	4.1	6.7	e7.0	e4.2	30	11	28	23	87	359	17	26
28	4.4	5.9	e6.1	e4.2	24	11	26	21	82	156	20	24
29	4.0	5.4	e7.1	e4.4	21	11	25	20	72	79	17	22
30	4.0	e5.0	e8.5	e4.8	---	11	23	18	63	62	16	23
31	4.0	---	e10	e4.2	---	11	---	416	---	55	15	---
TOTAL	150.7	171.6	174.3	244.1	449.5	366.8	790	1040	4997	3416	1108	784.3
MEAN	4.86	5.72	5.62	7.87	15.5	11.8	26.3	33.5	167	110	35.7	26.1
MAX	8.5	22	10	14	65	20	148	416	1380	440	110	186
MIN	4.0	3.7	2.7	4.2	4.4	9.9	11	14	43	35	15	9.3
AC-FT	299	340	346	484	892	728	1570	2060	9910	6780	2200	1560
CFSM	.05	.06	.06	.08	.16	.12	.27	.34	1.70	1.12	.36	.27
IN.	.06	.07	.07	.09	.17	.14	.30	.39	1.89	1.30	.42	.30

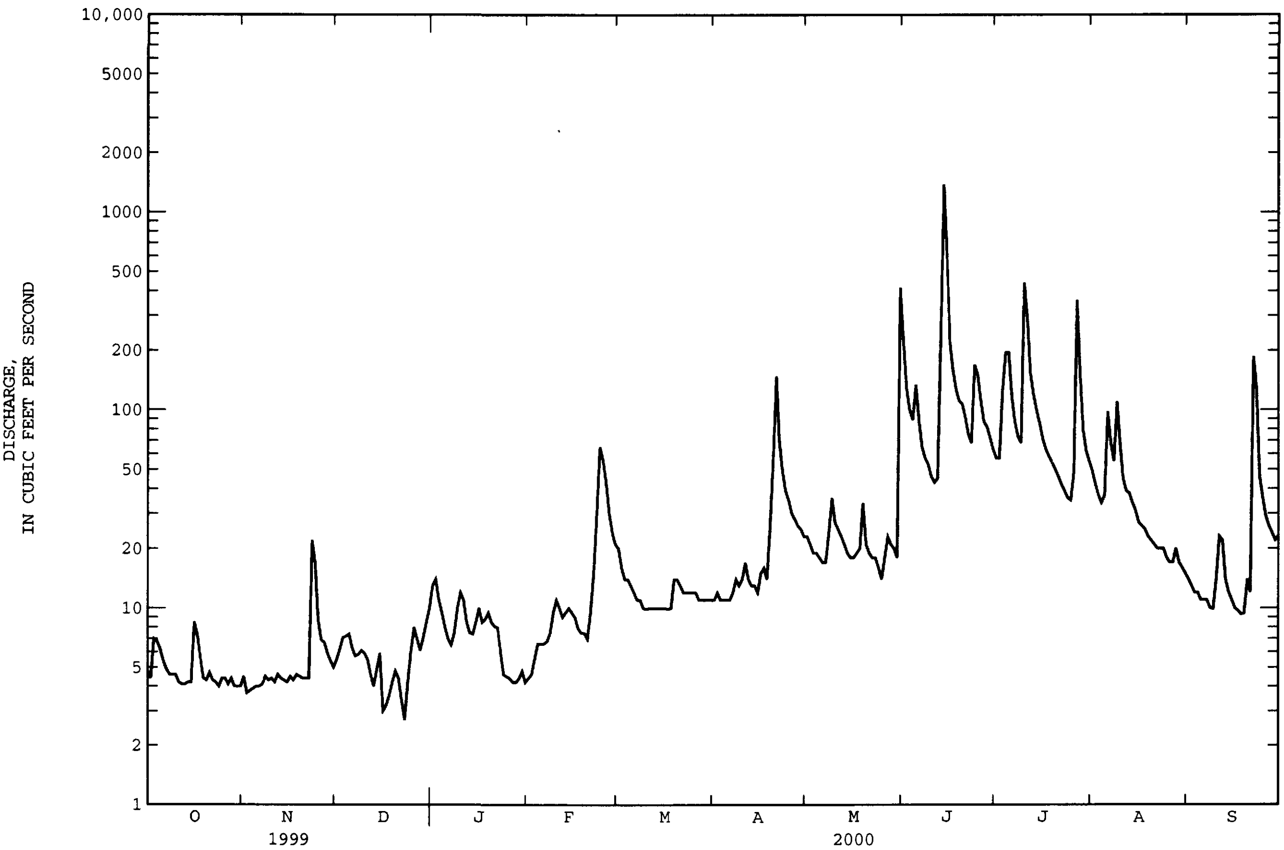
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	33.5	44.8	38.6	39.5	70.6	110	103	112	105	91.6	60.3	43.7
MAX	261	246	162	206	229	402	452	589	566	991	759	337
(WY)	1999	1962	1993	1960	1959	1979	1973	1974	1990	1993	1993	1965
MIN	.55	.95	.54	.10	2.79	4.49	4.15	3.79	.83	1.69	1.94	.69
(WY)	1958	1956	1956	1977	1954	1954	1956	1956	1956	1954	1953	1953

05454300 CLEAR CREEK NEAR CORALVILLE, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1953 - 2000	
ANNUAL TOTAL	22234.8		13692.3			
ANNUAL MEAN	60.9		37.4		71.1	
HIGHEST ANNUAL MEAN					327	1993
LOWEST ANNUAL MEAN					6.57	1957
HIGHEST DAILY MEAN	510	May 13	1380	Jun 14	7310	Jun 17 1990
LOWEST DAILY MEAN	2.7	Dec 23	2.7	Dec 23	.00	Jan 18 1977
ANNUAL SEVEN-DAY MINIMUM	3.5	Sep 19	3.8	Dec 17	.00	Jan 18 1977
INSTANTANEOUS PEAK FLOW			1950	Jun 14	10200	Jun 17 1990
INSTANTANEOUS PEAK STAGE			10.59	Jun 14	16.36	Jun 17 1990
ANNUAL RUNOFF (AC-FT)	44100		27160		51500	
ANNUAL RUNOFF (CFSM)	.62		.38		.72	
ANNUAL RUNOFF (INCHES)	8.43		5.19		9.84	
10 PERCENT EXCEEDS	154		87		149	
50 PERCENT EXCEEDS	33		12		27	
90 PERCENT EXCEEDS	4.2		4.4		2.9	

e Estimated



05454500 IOWA RIVER AT IOWA CITY, IA

LOCATION.--Lat 41°39'24", long 91°32'27", in $SE^1/_4$ $SE^1/_4$ sec.9, T.79 N., R.6 W., Johnson County, Hydrologic Unit 07080209, on right bank 25 ft downstream from Hydraulics Laboratory of University of Iowa in Iowa City, 175 ft downstream from University Dam, 0.8 mi upstream from Ralston Creek, 3.6 mi downstream from Clear Creek, and at mile 74.2.

DRAINAGE AREA.--3,271 mi^2.

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

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

REMARKS.--No estimated daily discharge. Records good. Slight fluctuation at low stages caused by powerplant above station. Flow regulated by Coralville Lake (station 05453510), 9.1 mi upstream, since Sept. 17, 1958. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers raingage and satellite data collection platform and U.S. Geological Survey data collection platform with telephone modem backup at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,500 ft^3/s June 8, 1918, gage height, 19.6 ft, from graph based on gage readings, site and datum then in use; minimum daily discharge, 29 ft^3/s Oct. 21, 22, 1916, regulated.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	293	157	272	181	206	893	363	523	1850	2270	2030	423
2	265	155	272	183	205	819	364	462	3960	2090	1280	433
3	280	156	272	186	207	706	365	350	3410	2220	987	446
4	276	159	275	183	205	653	359	311	1370	2550	950	445
5	272	160	274	181	206	648	311	308	1170	3610	1060	453
6	268	157	269	180	207	606	198	306	835	5150	1210	466
7	267	155	268	180	206	512	206	306	798	4890	1310	546
8	265	152	271	192	200	439	207	334	1140	4180	1280	562
9	263	155	270	238	188	436	203	367	1550	3100	1340	571
10	263	151	328	284	181	432	207	334	1410	3500	1120	586
11	261	150	415	347	177	433	217	319	1260	5000	888	604
12	263	150	469	429	178	436	204	313	1200	6480	823	652
13	267	149	489	426	182	436	200	303	1540	5670	776	615
14	263	148	338	425	179	437	225	297	3310	5060	765	616
15	264	146	282	428	182	438	368	291	2780	4870	766	601
16	293	149	246	426	181	432	486	293	4480	5440	761	540
17	265	148	190	362	180	398	488	341	5940	5720	686	458
18	258	151	189	263	188	355	481	543	6240	5700	561	291
19	254	150	190	265	181	363	533	726	6330	5070	557	246
20	250	150	186	257	181	357	635	638	5940	3990	549	234
21	249	151	184	261	265	354	1050	516	4900	3440	551	218
22	201	149	183	264	437	352	1190	469	3730	2930	565	413
23	136	216	183	260	524	355	723	467	2900	2510	573	563
24	137	180	181	260	813	380	699	462	3270	2300	567	521
25	137	161	182	237	1200	405	688	457	3670	1830	576	621
26	136	157	181	207	1350	469	678	386	3850	1180	578	468
27	171	155	182	206	1320	463	672	356	3780	2400	555	463
28	160	165	178	206	1140	456	669	562	3780	4660	530	456
29	158	216	179	207	903	455	608	706	3450	4350	478	455
30	159	271	181	208	---	415	536	707	2610	3100	483	448
31	158	---	180	206	---	363	---	1620	---	2690	417	---
TOTAL	7152	4869	7759	8138	11772	14696	14133	14373	92453	117950	25572	14414
MEAN	231	162	250	263	406	474	471	464	3082	3805	825	480
MAX	293	271	489	429	1350	893	1190	1620	6330	6480	2030	652
MIN	136	146	178	180	177	352	198	291	798	1180	417	218
AC-FT	14190	9660	15390	16140	23350	29150	28030	28510	183400	234000	50720	28590
CFSM	.07	.05	.08	.08	.12	.14	.14	.14	.94	1.16	.25	.15
IN.	.08	.06	.09	.09	.13	.17	.16	.16	1.05	1.34	.29	.16

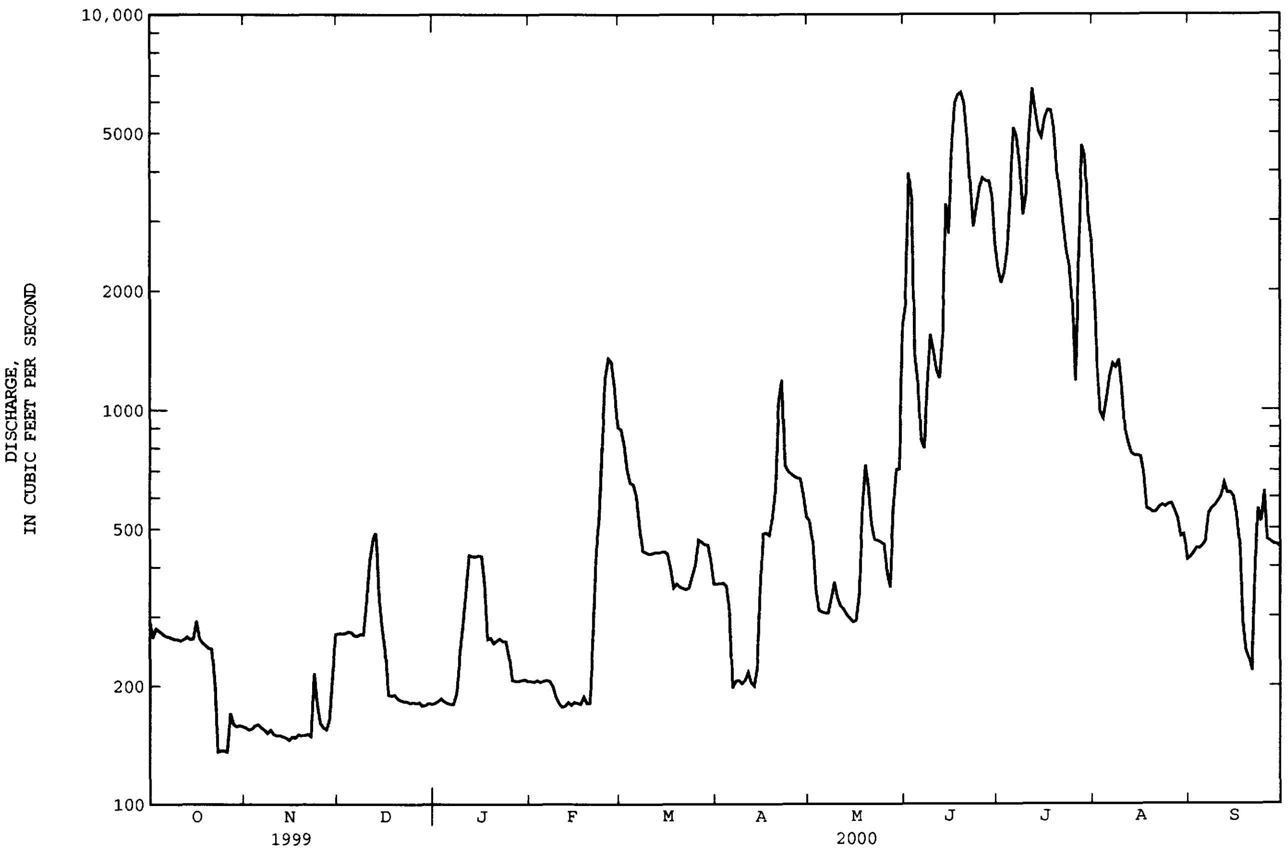
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1167	1476	1440	1078	1784	3365	3795	3227	3607	3551	2222	1470
MAX	4277	5395	4580	5381	5789	7988	9764	9763	11590	22220	20060	13760
(WY)	1994	1987	1983	1973	1973	1971	1979	1993	1991	1993	1993	1993
MIN	135	121	130	141	125	366	348	184	99.1	72.8	162	147
(WY)	1990	1967	1989	1990	1977	1977	1989	1977	1977	1977	1989	1976

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1959 - 2000a	
ANNUAL TOTAL	879700		333281			
ANNUAL MEAN	2410		911		2350	
HIGHEST ANNUAL MEAN					8502	1993
LOWEST ANNUAL MEAN					304	1989
HIGHEST DAILY MEAN	7150	Apr 29	6480	Jul 12	26200	Jul 21 1993
LOWEST DAILY MEAN	136	Oct 23	136	Oct 23	49	Aug 1 1977b
ANNUAL SEVEN-DAY MINIMUM	148	Oct 23	148	Oct 23	50	Jul 31 1977
INSTANTANEOUS PEAK FLOW			6890	Jul 12	28200	Aug 10 1993
INSTANTANEOUS PEAK STAGE			17.29	Jul 12	28.52	Aug 10 1993
ANNUAL RUNOFF (AC-FT)	1745000		661100		1703000	
ANNUAL RUNOFF (CFSM)	.74		.28		.72	
ANNUAL RUNOFF (INCHES)	10.00		3.79		9.76	
10 PERCENT EXCEEDS	6170		2980		5990	
50 PERCENT EXCEEDS	1330		414		1310	
90 PERCENT EXCEEDS	179		178		208	

a Post regulation.
b Also Aug. 2, 1977.
e estimated.



05455010 SOUTH BRANCH RALSTON CREEK AT IOWA CITY, IA

LOCATION.--Lat 41°39'05", long 91°30'27", in $SW^1/_4$ $NE^1/_4$ sec.14, T.79 N., R.6 W., Johnson County, Hydrologic Unit 07080209, on right bank 60 ft downstream from bridge on Muscatine Avenue in Iowa City, and 1.2 mi upstream from mouth.

DRAINAGE AREA.--2.94 mi^2.

PERIOD OF RECORD.--Discharge records from October 1963 to September 1995. Stage-only records from October 29, 1996 to present year.

REVISED RECORDS.--WDR IA-66-1: Drainage area.

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

REMARKS.--Minor regulation from retention dam 2 miles upstream may affect peaks. U.S. Geological Survey data collection platform with telephone modem at station.

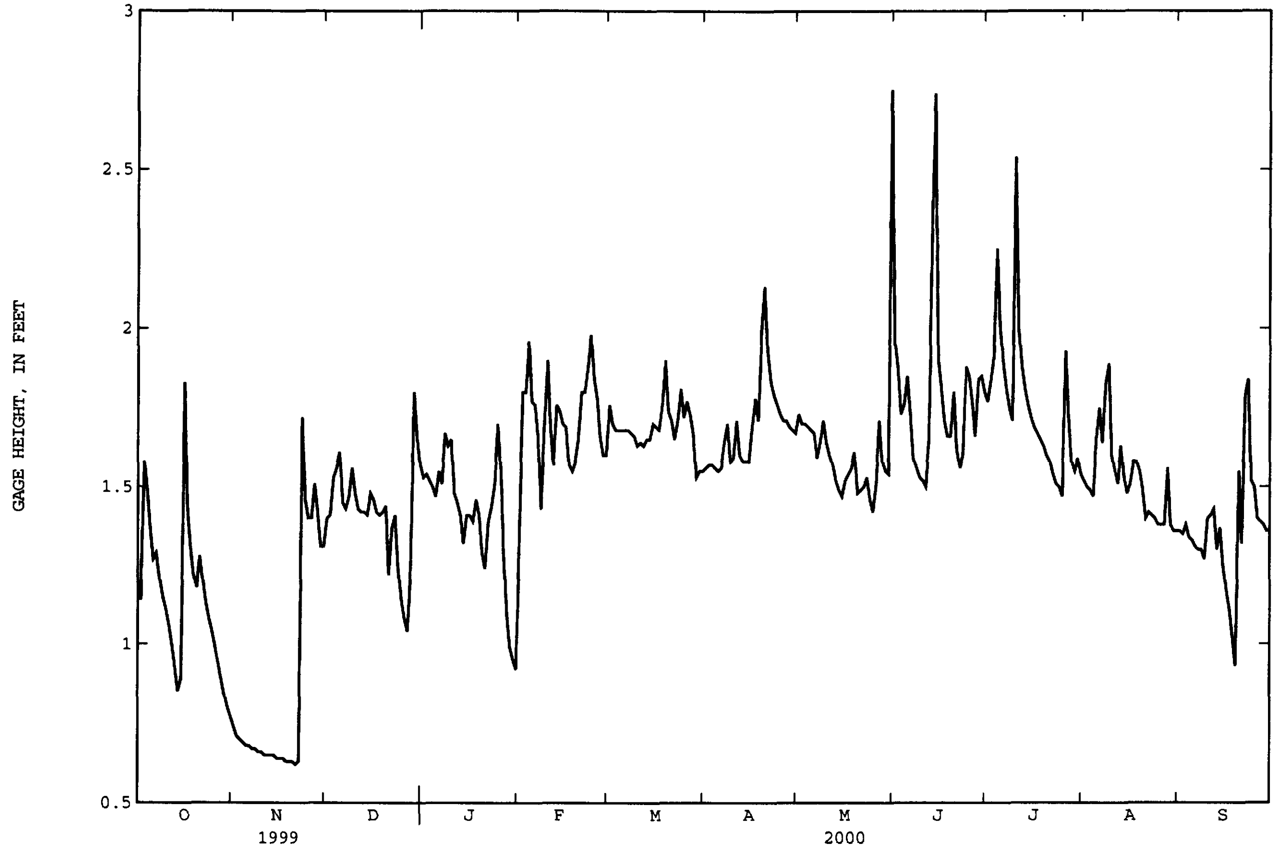
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 14, 1962, reached a stage of 10.5 ft, from flood profile, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum instantaneous gage height 6.85 ft on June 13. Minimum gage height of .62 ft. on Nov. 20-22.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.20	.74	1.40	1.53	1.31	1.76	1.56	1.73	1.96	1.77	1.52	1.36
2	1.14	.71	1.41	1.54	1.80	1.70	1.57	1.70	1.87	1.84	1.50	1.35
3	1.58	.70	1.53	1.52	1.80	1.68	1.57	1.70	1.73	1.92	1.49	1.38
4	1.49	.69	1.56	1.50	1.96	1.68	1.56	1.69	1.76	2.25	1.47	1.34
5	1.37	.68	1.61	1.47	1.77	1.68	1.55	1.68	1.85	2.01	1.65	1.33
6	1.27	.68	1.45	1.55	1.76	1.68	1.56	1.67	1.73	1.89	1.75	1.31
7	1.29	.67	1.43	1.51	1.66	1.68	1.64	1.59	1.59	1.81	1.64	1.30
8	1.21	.67	1.47	1.67	1.43	1.67	1.70	1.64	1.56	1.75	1.83	1.30
9	1.15	.66	1.56	1.63	1.69	1.66	1.58	1.71	1.53	1.71	1.89	1.27
10	1.11	.66	1.48	1.65	1.90	1.63	1.59	1.64	1.52	2.54	1.60	1.40
11	1.06	.65	1.43	1.48	1.69	1.64	1.71	1.60	1.50	2.00	1.55	1.41
12	1.00	.65	1.42	1.45	1.57	1.63	1.60	1.57	1.65	1.88	1.51	1.43
13	.93	.65	1.42	1.41	1.76	1.65	1.58	1.52	2.32	1.81	1.63	1.30
14	.85	.65	1.41	1.32	1.74	1.65	1.58	1.49	2.74	1.76	1.53	1.37
15	.89	.64	1.48	1.41	1.70	1.70	1.58	1.47	1.90	1.72	1.48	1.25
16	1.83	.64	1.46	1.41	1.69	1.69	1.69	1.52	1.81	1.69	1.51	1.17
17	1.43	.64	1.42	1.39	1.57	1.68	1.78	1.54	1.71	1.67	1.58	1.11
18	1.31	.63	1.41	1.46	1.55	1.76	1.71	1.56	1.66	1.65	1.58	1.02
19	1.22	.63	1.42	1.41	1.58	1.90	1.99	1.61	1.66	1.63	1.55	.93
20	1.18	.63	1.44	1.29	1.65	1.74	2.13	1.48	1.80	1.60	1.49	1.55
21	1.28	.62	1.22	1.24	1.80	1.71	1.92	1.49	1.62	1.58	1.40	1.32
22	1.20	.63	1.37	1.39	1.80	1.65	1.83	1.50	1.56	1.54	1.42	1.79
23	1.13	1.72	1.41	1.44	1.88	1.71	1.79	1.53	1.60	1.51	1.41	1.84
24	1.08	1.46	1.24	1.51	1.98	1.81	1.76	1.46	1.88	1.50	1.40	1.52
25	1.04	1.40	1.14	1.70	1.84	1.72	1.73	1.42	1.85	1.47	1.38	1.50
26	.99	1.40	1.08	1.55	1.78	1.77	1.71	1.51	1.77	1.93	1.38	1.40
27	.94	1.51	1.04	1.28	1.66	1.73	1.71	1.71	1.66	1.73	1.38	1.39
28	.89	1.42	1.24	1.09	1.60	1.67	1.69	1.58	1.84	1.58	1.56	1.38
29	.84	1.31	1.80	.99	1.60	1.53	1.68	1.55	1.85	1.55	1.38	1.36
30	.80	1.31	1.66	.95	---	1.55	1.67	1.54	1.80	1.59	1.36	1.36
31	.77	---	1.57	.92	---	1.55	---	2.75	---	1.54	1.36	---
MEAN	1.14	.87	1.42	1.41	1.71	1.69	1.69	1.62	1.78	1.76	1.52	1.36
MAX	1.83	1.72	1.80	1.70	1.98	1.90	2.13	2.75	2.74	2.54	1.89	1.84
MIN	.77	.62	1.04	.92	1.31	1.53	1.55	1.42	1.50	1.47	1.36	.93

05455010 SOUTH BRANCH RALSTON CREEK AT IOWA CITY, IA--Continued



05455100 OLD MANS CREEK NEAR IOWA CITY, IA

LOCATION.--Lat. 41°36'23", long. 91°36'56", in $SE^1/_4$ $SW^1/_4$ $NW^1/_4$ sec.36, T.79 N., R.7 W., Johnson County, Hydrologic Unit 07080209, on left bank 10 ft downstream from bridge on county highway W62, 5 miles southwest of Iowa City, 5.9 miles upstream of Dirty Face Creek, and 8.6 miles upstream from mouth.

DRAINAGE AREA.--201 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 637.49 ft above sea level. Prior to Nov. 16, 1984, nonrecording gage at same site at datum 2.00 ft higher. Prior to Oct. 1, 1987, at datum 2.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

COOPERATION.--Gage height record and discharge measurements for water years 1951-64 were collected by the U.S. Army Corps of Engineers and computed by the U.S. Geological Survey.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 13,500 ft^3/s, on the basis of contracted-opening of peak flow, June 15, 1982, gage height, 17.25 ft, present datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	4.8	6.6	e10	e4.4	30	11	42	531	137	79	17
2	5.5	4.8	6.7	e11	e4.6	27	12	41	260	134	e70	15
3	5.7	5.0	7.2	e10	e5.5	24	12	37	187	413	e60	14
4	6.0	4.9	7.6	e8.5	e6.5	23	11	35	147	429	57	13
5	7.8	4.8	8.4	e7.5	e6.5	22	11	33	177	576	57	13
6	6.4	4.9	8.1	e7.0	e6.5	20	10	31	142	308	61	12
7	5.6	4.9	8.3	e6.5	e7.0	18	11	29	131	223	67	12
8	5.1	5.2	7.0	e7.5	e7.5	18	13	31	111	181	98	12
9	5.1	5.3	6.8	8.5	e9.5	17	14	47	101	159	229	12
10	5.6	5.2	6.7	11	e11	17	13	61	88	1080	197	12
11	5.0	5.4	e5.5	e9.0	e10	16	15	52	75	603	88	14
12	5.0	5.3	e4.6	e8.0	e9.0	16	18	46	89	336	71	31
13	4.8	5.5	e4.0	e7.5	e9.5	16	15	41	554	256	64	30
14	4.8	5.4	e5.0	e7.5	e10	16	13	36	2640	210	59	15
15	5.1	5.3	e6.0	e8.5	e9.5	16	12	35	1930	179	51	14
16	7.3	5.4	e3.2	e10	e9.0	15	12	32	654	157	44	11
17	9.4	5.4	e3.4	e8.5	e8.0	13	16	33	391	140	41	9.4
18	12	5.5	e3.8	e9.0	e7.5	13	15	35	302	125	39	9.1
19	6.4	5.3	e4.4	e9.5	e7.5	17	19	74	249	116	37	8.7
20	5.2	5.3	e5.0	e6.5	e7.0	22	75	45	233	107	34	11
21	5.0	5.5	e4.4	e5.0	e9.5	21	375	38	210	98	32	13
22	4.7	5.6	e3.6	e4.8	e15	17	170	39	171	88	31	172
23	4.7	11	e2.8	e4.6	e50	16	114	41	150	81	32	547
24	4.8	38	e4.2	e4.4	151	15	87	33	305	73	30	128
25	4.6	20	e6.0	e4.4	113	16	72	28	382	71	28	86
26	4.6	12	e7.5	e4.2	73	15	62	28	272	72	26	66
27	4.8	9.1	e6.5	e4.2	50	14	57	52	230	604	25	54
28	4.8	8.0	e5.5	e4.2	38	14	54	60	180	178	24	46
29	4.8	7.2	e6.5	e4.4	32	13	49	51	184	112	23	42
30	4.8	7.0	e7.5	e4.8	---	12	45	47	150	96	20	40
31	4.8	---	e9.0	e4.2	---	11	---	549	---	92	19	---
TOTAL	176.7	227.0	181.8	220.7	687.5	540	1413	1782	11226	7434	1793	1479.2
MEAN	5.70	7.57	5.86	7.12	23.7	17.4	47.1	57.5	374	240	57.8	49.3
MAX	12	38	9.0	11	151	30	375	549	2640	1080	229	547
MIN	4.6	4.8	2.8	4.2	4.4	11	10	28	75	71	19	8.7
AC-FT	350	450	361	438	1360	1070	2800	3530	22270	14750	3560	2930
CFSM	.03	.04	.03	.04	.12	.09	.23	.29	1.86	1.19	.29	.25
IN.	.03	.04	.03	.04	.13	.10	.26	.33	2.08	1.38	.33	.27

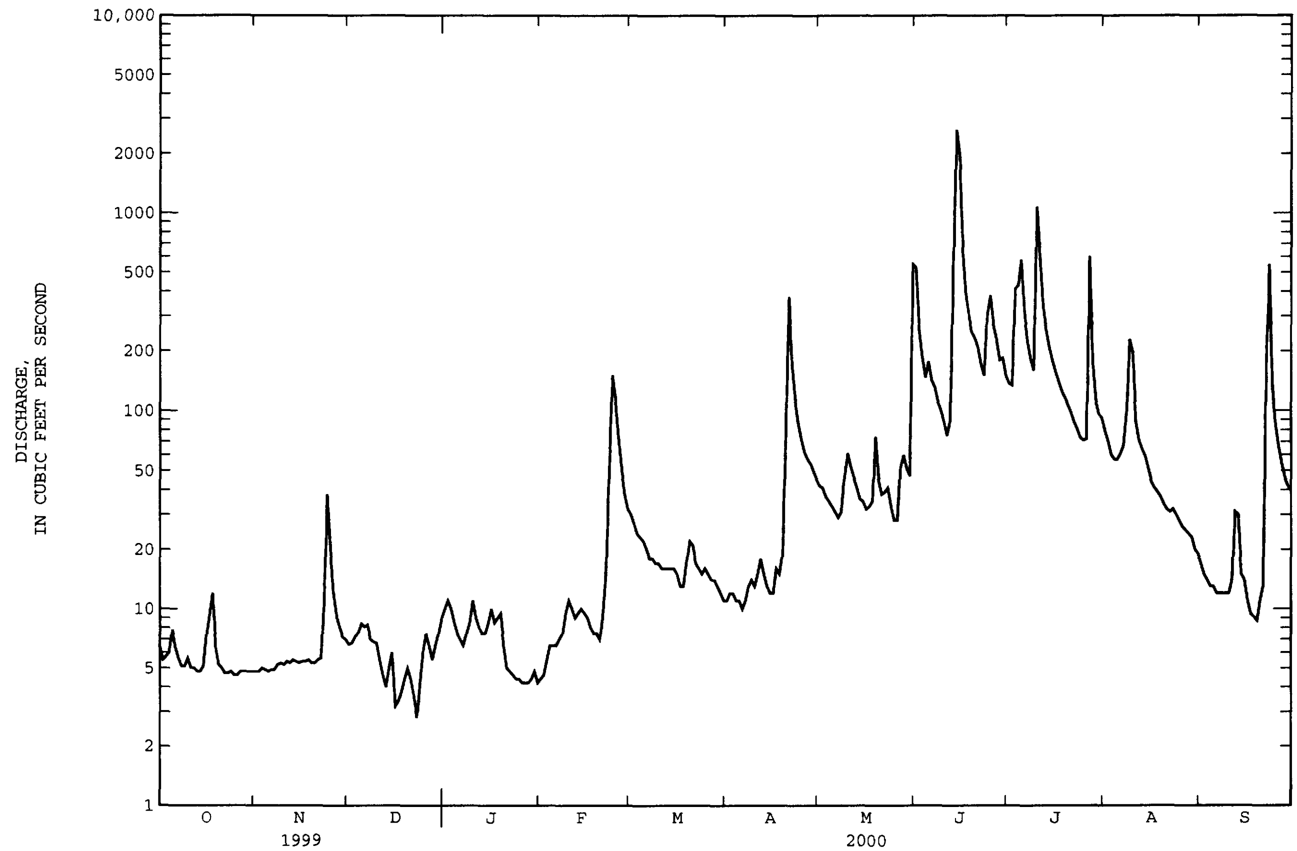
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	62.6	94.1	55.8	62.7	117	237	170	231	188	158	107	63.2
MAX	541	636	337	436	346	793	625	1071	907	1515	1190	598
(WY)	1999	1962	1993	1960	1953	1962	1993	1996	1990	1993	1993	1993
MIN	.21	.39	.35	.26	2.50	2.12	1.29	4.97	5.34	1.43	2.97	.36
(WY)	1958	1956	1956	1956	1954	1954	1956	1956	1956	1954	1988	1957

05455100 OLD MANS CREEK NEAR IOWA CITY, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1951 - 2000	
ANNUAL TOTAL	43572.2		27160.9			
ANNUAL MEAN	119		74.2		129	
HIGHEST ANNUAL MEAN					607	1993
LOWEST ANNUAL MEAN					10.3	1954
HIGHEST DAILY MEAN	1300	Apr 23	2640	Jun 14	8780	Jul 6 1993
LOWEST DAILY MEAN	2.8	Dec 23	2.8	Dec 23	.10	Sep 6 1957
ANNUAL SEVEN-DAY MINIMUM	3.9	Dec 17	3.9	Dec 17	.10	Sep 6 1957
INSTANTANEOUS PEAK FLOW			3190	Jun 14	13000	Jul 6 1993
INSTANTANEOUS PEAK STAGE			14.71	Jun 14	17.61	Jul 6 1993
ANNUAL RUNOFF (AC-FT)	86430		53870		93470	
ANNUAL RUNOFF (CFSM)	.59		.37		.64	
ANNUAL RUNOFF (INCHES)	8.06		5.03		8.72	
10 PERCENT EXCEEDS	310		178		281	
50 PERCENT EXCEEDS	65		15		39	
90 PERCENT EXCEEDS	5.0		4.8		1.8	

e Estimated



05455500 ENGLISH RIVER AT KALONA, IA

LOCATION.--Lat 41°28'11", long 91°42'52",(revised) in $SE^1/_4$ $SE^1/_4$ sec.13, T.77 N., R.8 W., Washington County, Hydrologic Unit 07080209, on right bank 30 ft upstream from bridge on State Highway 1, 0.8 mi south of Kalona, 1.1 mi upstream from Camp Creek, 4.5 mi downstream from Smith Creek, and 14.5 mi upstream from mouth.

DRAINAGE AREA.--573 mi^2.

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1930 reached a stage of 19.9 ft, from floodmark, from information by local residents, discharge, 18,500 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	15	23	e25	e10	110	38	130	847	332	74	32
2	19	14	23	e29	e11	100	38	125	573	281	64	29
3	18	15	25	e23	e13	90	39	116	440	1520	57	27
4	18	15	28	e20	e16	82	39	108	311	898	51	26
5	18	16	32	e17	e15	79	37	102	262	2110	49	24
6	18	17	30	e16	e15	74	35	96	228	1130	48	22
7	17	16	26	e15	e16	70	35	90	194	659	48	21
8	18	15	23	e17	e18	67	37	90	170	474	60	21
9	15	17	23	e21	e22	61	38	104	151	371	725	21
10	15	18	23	e26	e26	55	40	172	135	1370	550	20
11	14	18	e20	e22	e23	52	43	165	123	1250	185	21
12	13	17	e16	e18	e21	50	45	142	138	690	116	65
13	13	16	e13	e17	e22	49	46	119	455	479	93	81
14	13	16	e14	e17	e24	49	42	99	3810	359	81	43
15	13	16	e16	e19	e23	50	38	90	2230	282	78	31
16	24	16	e9.5	e22	e21	49	37	89	958	232	72	26
17	22	15	e10	e19	e20	46	39	92	639	199	61	22
18	19	16	e11	e20	e19	44	39	97	467	176	55	21
19	16	15	e12	e21	e18	49	50	114	376	162	52	20
20	17	16	e13	e19	e17	59	384	100	337	150	49	24
21	16	17	e11	e17	e38	63	1400	88	322	136	47	27
22	15	18	e8.5	e17	e75	59	805	87	258	122	46	133
23	14	27	e7.0	e14	e170	55	456	92	220	108	46	2060
24	14	81	e9.5	e11	613	53	324	85	573	98	45	828
25	14	113	e14	e10	413	52	251	73	1120	91	43	445
26	13	57	e18	e10	304	50	210	70	866	e130	40	307
27	13	39	e16	e9.5	194	47	186	93	1000	e220	37	216
28	13	32	e14	e9.5	144	46	170	131	576	132	39	167
29	15	28	e16	e10	118	44	155	128	466	102	39	138
30	14	25	e18	e11	---	41	138	113	436	85	35	120
31	15	---	e22	e9.5	---	39	---	517	---	82	33	---
TOTAL	499	756	544.5	531.5	2439	1834	5234	3717	18681	14430	3018	5038
MEAN	16.1	25.2	17.6	17.1	84.1	59.2	174	120	623	465	97.4	168
MAX	24	113	32	29	613	110	1400	517	3810	2110	725	2060
MIN	13	14	7.0	9.5	10	39	35	70	123	82	33	20
MED	15	16	16	17	22	52	42	100	438	232	51	28
AC-FT	990	1500	1080	1050	4840	3640	10380	7370	37050	28620	5990	9990
CFSM	.03	.04	.03	.03	.15	.10	.30	.21	1.08	.81	.17	.29
IN.	.03	.05	.04	.03	.16	.12	.34	.24	1.21	.94	.20	.33

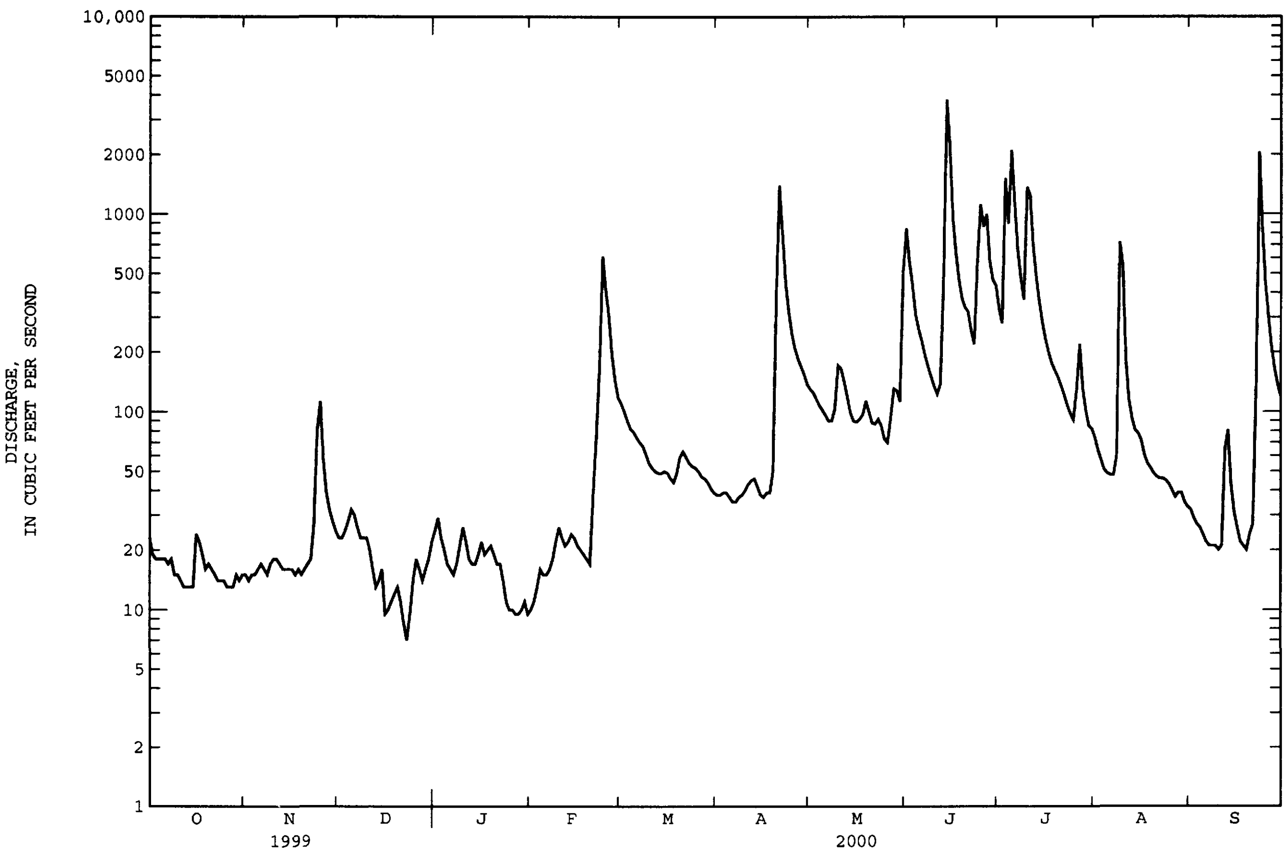
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	164	250	187	210	363	683	645	677	594	416	273	234
MAX	1274	2060	1085	1429	1066	2957	2736	3529	2570	4207	3696	3169
(WY)	1999	1962	1983	1946	1984	1979	1973	1974	1990	1993	1993	1965
MIN	2.98	2.38	2.19	.76	13.8	10.8	5.35	9.62	21.7	7.31	6.34	3.10
(WY)	1954	1956	1956	1977	1954	1954	1956	1956	1940	1954	1955	1955

05455500 ENGLISH RIVER AT KALONA, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1940 - 2000	
ANNUAL TOTAL	139414.5		56722.0			
ANNUAL MEAN	382		155		391	
HIGHEST ANNUAL MEAN					1721	1993
LOWEST ANNUAL MEAN					41.7	1954
HIGHEST DAILY MEAN	3660	Apr 23	3810	Jun 14	22300	Jul 6 1993
LOWEST DAILY MEAN	7.0	Dec 23	7.0	Dec 23	.66	Feb 5 1977
ANNUAL SEVEN-DAY MINIMUM	10	Dec 18	9.9	Jan 25	.68	Feb 1 1977
INSTANTANEOUS PEAK FLOW			4640	Jun 14	36100	Jul 6 1993
INSTANTANEOUS PEAK STAGE			14.46	Jun 14	22.55	Jul 6 1993
ANNUAL RUNOFF (AC-FT)	276500		112500		283300	
ANNUAL RUNOFF (CFSM)	.67		.27		.68	
ANNUAL RUNOFF (INCHES)	9.04		3.68		9.26	
10 PERCENT EXCEEDS	1040		420		866	
50 PERCENT EXCEEDS	150		43		120	
90 PERCENT EXCEEDS	15		14		12	

e Estimated



05455700 IOWA RIVER NEAR LONE TREE, IA

LOCATION.--Lat 41°25'15", long 91°28'25", in $NW^1/_4$ $NE^1/_4$ sec.6, T.76 N., R.5 W., Louisa County, Hydrologic Unit 07080209, on left bank 2,000 ft downstream from tri-county bridge on county highway W66, 5 mi southwest of Lone Tree, 6.2 mi downstream from English River, and at mile 47.2.

DRAINAGE AREA.--4,293 mi^2.

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

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

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Coralville Lake (station 05453510), 36.1 mi upstream, since Sept. 17, 1958. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	389	230	340	e220	e290	1190	442	889	5000	3270	2670	536
2	359	226	340	e220	e290	1140	444	864	4260	2890	2010	524
3	354	227	346	e210	e300	1020	442	740	4900	5550	1630	509
4	372	231	348	e200	e290	922	439	629	2840	4460	1400	509
5	343	235	362	e190	e290	887	428	583	2390	6460	1420	501
6	337	234	351	e200	e290	879	348	560	1850	7470	1460	494
7	329	233	339	e210	e280	805	274	545	1560	6550	1750	588
8	328	230	339	e220	e270	690	299	552	1470	5680	1600	652
9	329	223	337	e250	e250	643	278	646	2020	4670	1870	651
10	324	227	334	e280	e230	625	277	748	2100	5550	2670	664
11	319	226	424	e300	e230	609	312	712	1840	8220	1640	677
12	309	223	478	e380	e240	589	297	672	1830	8040	1360	717
13	313	222	577	e410	e240	581	276	617	1990	6980	1220	713
14	311	224	524	e420	e230	574	267	570	9190	6180	1160	705
15	311	220	412	e440	e240	573	301	533	9090	5480	1110	654
16	367	220	376	e410	e230	572	492	531	6810	5820	1070	571
17	363	216	328	e360	e230	555	604	539	7170	6110	1040	514
18	324	214	284	e320	e240	503	575	742	7170	6060	899	423
19	315	219	280	e280	e230	503	652	1050	7100	5890	842	371
20	305	220	e240	e260	e230	511	1260	1070	6930	4730	818	359
21	304	221	e190	e270	e240	499	2430	895	6070	4140	802	355
22	302	223	e200	e290	e550	489	3070	779	5010	3590	793	395
23	248	256	e200	e300	715	472	1960	745	3770	3060	784	2630
24	206	307	e200	e300	1270	480	1520	729	4630	2680	758	2180
25	198	346	e200	e280	1710	478	1350	693	6140	2580	743	1460
26	198	338	e210	e270	1890	532	1200	677	5640	1930	733	1100
27	206	287	e210	e270	1730	569	1130	653	5440	2390	720	895
28	238	260	e210	e270	1600	560	1100	707	5080	4990	755	797
29	225	263	e220	e280	1260	552	1070	968	4790	4830	685	734
30	225	305	e220	e300	---	542	949	1020	3860	3880	667	693
31	227	---	e220	e290	---	471	---	4310	---	3190	580	---
TOTAL	9278	7306	9639	8900	16085	20015	24486	25968	137940	153320	37659	22571
MEAN	299	244	311	287	555	646	816	838	4598	4946	1215	752
MAX	389	346	577	440	1890	1190	3070	4310	9190	8220	2670	2630
MIN	198	214	190	190	230	471	267	531	1470	1930	580	355
AC-FT	18400	14490	19120	17650	31900	39700	48570	51510	273600	304100	74700	44770
CFSM	.07	.06	.07	.07	.13	.15	.19	.20	1.07	1.15	.28	.18
IN.	.08	.06	.08	.08	.14	.17	.21	.23	1.20	1.33	.33	.20

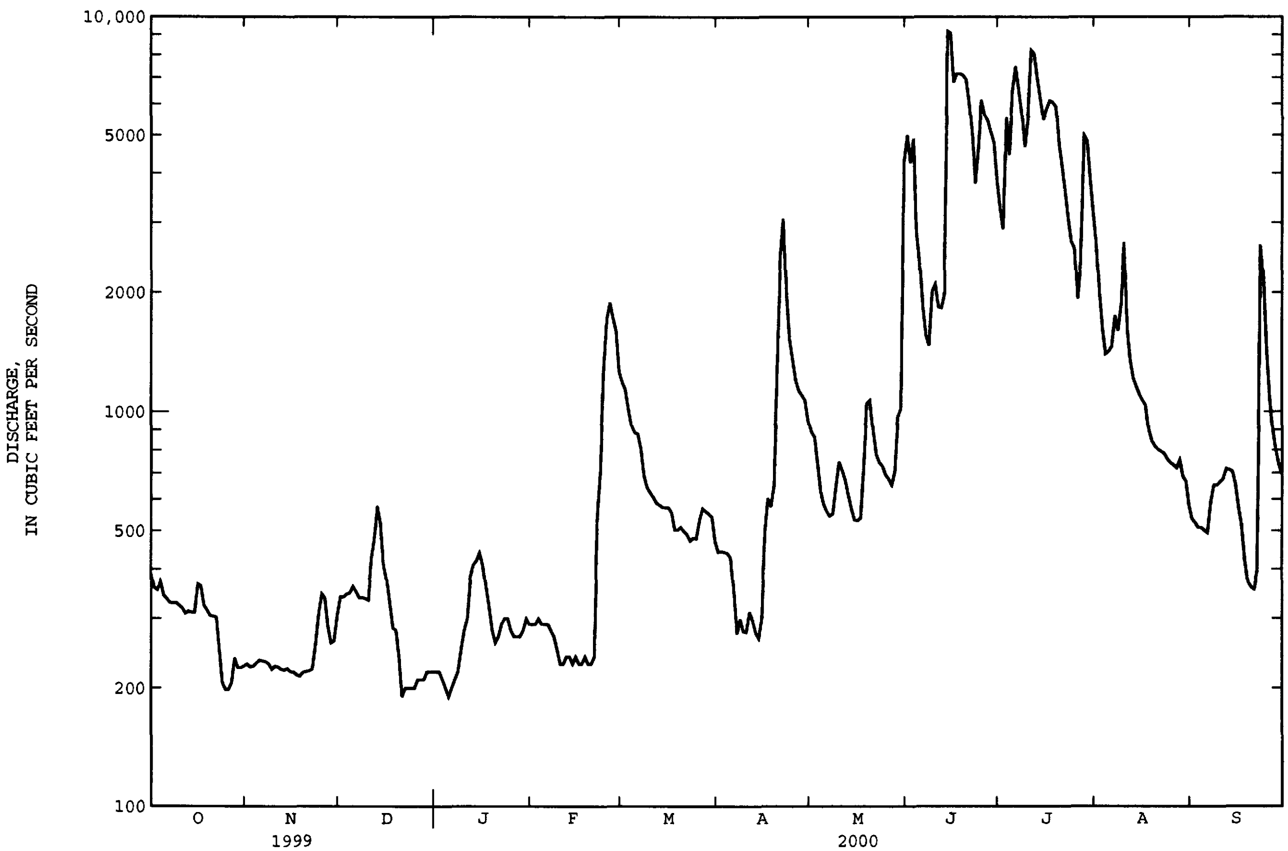
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2000, BY WATER YEAR (WY)

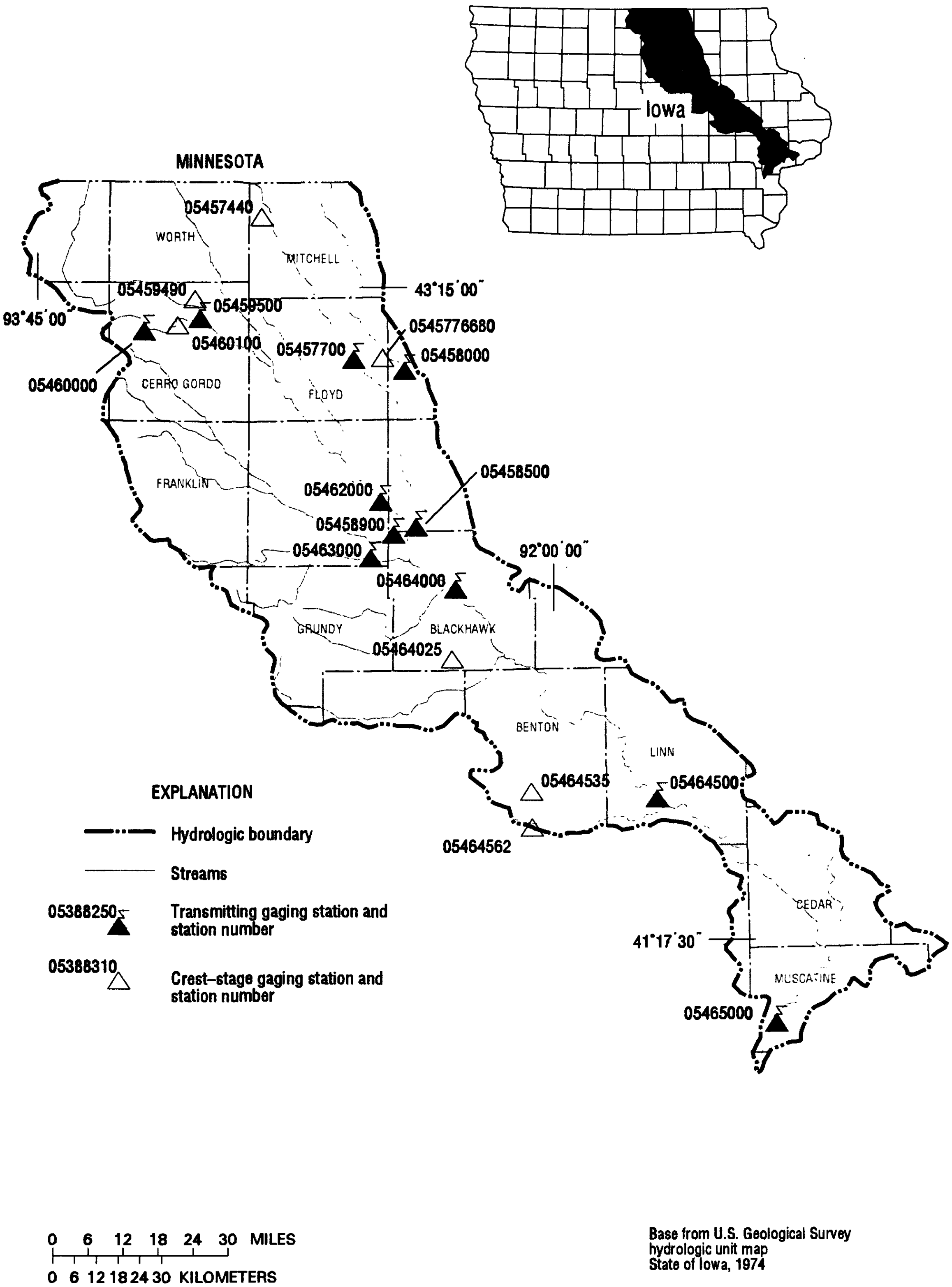
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1570	2022	1900	1518	2474	4659	5137	4604	4729	4498	2864	2075
MAX	6115	6347	6678	7814	7205	10410	12230	14030	13150	30320	26150	18150
(WY)	1994	1962	1983	1973	1973	1993	1979	1993	1974	1993	1993	1993
MIN	192	190	168	154	158	539	533	282	147	180	186	210
(WY)	1989	1967	1989	1977	1977	1977	1989	1977	1977	1977	1989	1988

05455700 IOWA RIVER NEAR LONE TREE, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1959 - 2000a	
ANNUAL TOTAL	1132874		473167			
ANNUAL MEAN	3104		1293		3173	
HIGHEST ANNUAL MEAN					11900	1993
LOWEST ANNUAL MEAN					483	1989
HIGHEST DAILY MEAN	11700	Apr 24	9190	Jun 14	55100	Jul 7 1993
LOWEST DAILY MEAN	190	Dec 21	190	Dec 21	69	Aug 4 1977
ANNUAL SEVEN-DAY MINIMUM	201	Dec 21	201	Dec 21	75	Jul 30 1977
INSTANTANEOUS PEAK FLOW			11200	Jun 14	57100	Jul 7 1993
INSTANTANEOUS PEAK STAGE			12.84	Jun 14	22.94	Jul 7 1993
ANNUAL RUNOFF (AC-FT)	2247000		938500		2298000	
ANNUAL RUNOFF (CFSM)	.72		.30		.74	
ANNUAL RUNOFF (INCHES)	9.82		4.10		10.04	
10 PERCENT EXCEEDS	7260		4510		7590	
50 PERCENT EXCEEDS	2100		538		1800	
90 PERCENT EXCEEDS	231		225		312	

a Post regulation.
e Estimated.




Iowa
MINNESOTA
WORTH
MITCHELL
CERRO GORDO
FLOYD
FRANKLIN
GRUNDY
BLACKHAWK
BENTON
LINN
CEDAR
MUSCATINE
05457440
05459490
05459500
05460100
05460000
05457700
0545776680
05458000
05458500
05462000
05458900
05463000
05464000
05464025
05464535
05464500
05464562
05465000
43°15'00"
93°45'00"
92°00'00"
41°17'30"
EXPLANATION
Hydrologic boundary
Streams
05388250
Transmitting gaging station and station number
05388310
Crest-stage gaging station and station number
0 6 12 18 24 30 MILES
0 6 12 18 24 30 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05457700	Cedar River at Charles City, IA.	164
05458000	Little Cedar River near Ionia, IA.	166
05458500	Cedar River at Janesville, IA.	168
05458900	West Fork Cedar River at Finchford, IA	170
05459500	Winnebago River at Mason City, IA.	172
05460000	Clear Lake at Clear Lake, IA	174
05462000	Shell Rock River at Shell Rock, IA	176
05463000	Beaver Creek at New Hartford, IA	178
05464000	Cedar River at Waterloo, IA.	180
05464500	Cedar River at Cedar Rapids, IA.	182
05465000	Cedar River near Conesville, IA.	184

Crest Stage Gaging Stations

05457440	Deer Creek near Carpenter, IA.	325
0545776680	Gizzard Creek Tributary near Bassett, IA	325
05459490	Spring Creek near Mason City, IA	325
05460100	Willow Creek near Mason City, IA	325
05464025	Miller Creek near Eagle Center, IA	325
05464535	Prairie Creek Tributary near Van Horne, IA	325
05464562	Thunder Creek at Blairstown, IA.	325

05457700 CEDAR RIVER AT CHARLES CITY, IA

LOCATION.--Lat 43°03'45", long 92°40'23", in $SE^1/_4$ $NE^1/_4$, sec.12, T.95 N., R.16 W., Floyd County, Hydrologic Unit 07080201, on right bank 800 ft downstream from bridge on U.S. Highway 18 (Brantingham Street) in Charles City, 10.6 mi upstream from Gizzard Creek, and at mile 252.9 upstream from mouth of Iowa River.

DRAINAGE AREA.--1,054 mi^2.

PERIOD OF RECORD.--Discharge records from October 1964 to September 1995. Stage-only records from October 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is 973.02 ft above sea level.

REMARKS.--Occasional minor regulation by dam 0.2 mi upstream from gage. Daily wire-weight gage readings available in district office for period Sept. 13, 1945 to June 30, 1954, at same site and datum. Discharge not published for this period because of extreme regulation of streamflow by power dam 0.2 mi upstream. U.S. Geological Survey data collection platform with telephone modem at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum instantaneous discharge 31,200 ft^3/s, July 21, 1999; maximum gage height, 22.81 ft July 21, 1999; minimum daily discharge, 60 ft^3/s Nov. 23, 1977 and Jan. 7, 1978.

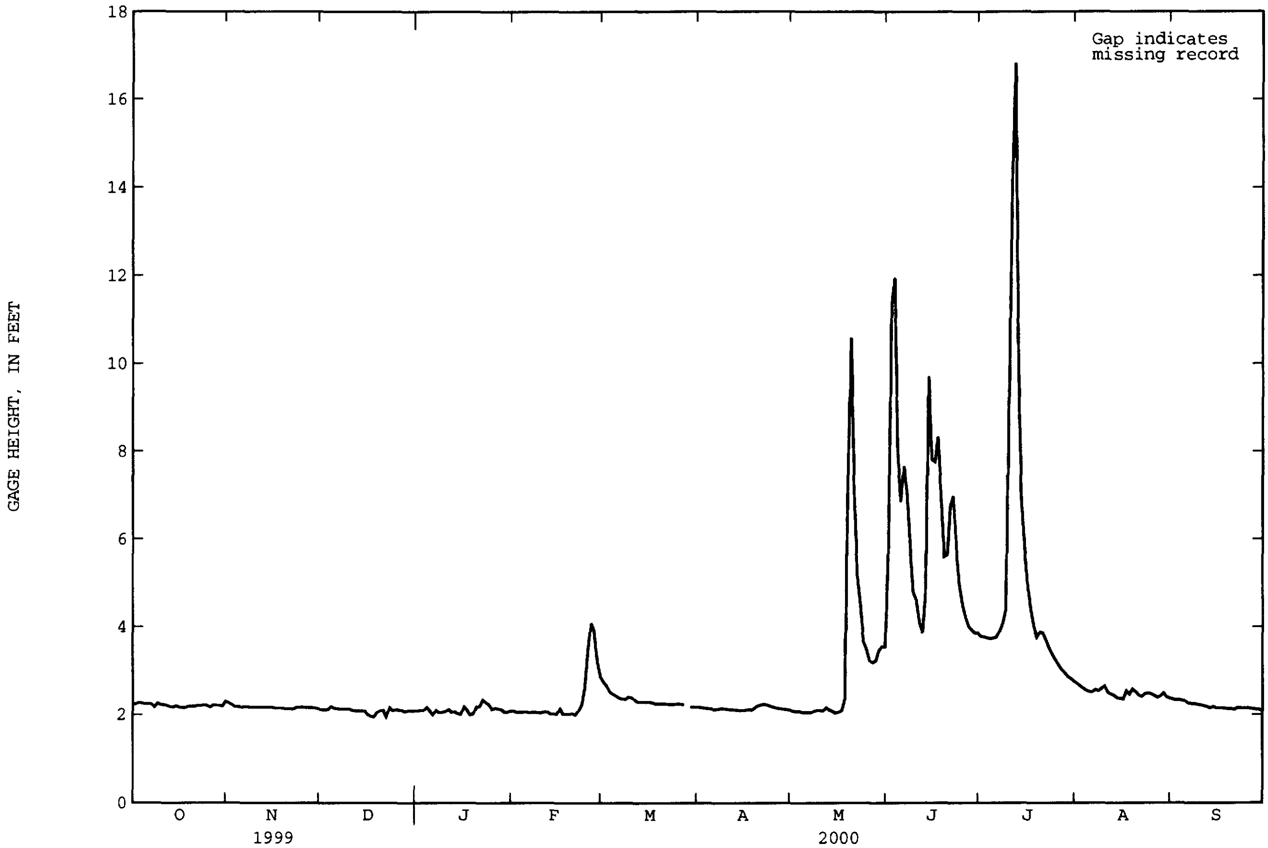
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 27, 1961, reached a stage of 21.6 ft, from flood marks, discharge, 29,200 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum gage height 17.58 ft. on July 12, minimum gage height 1.71 ft. on Dec. 16.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.24	2.27	2.12	2.09	2.09	2.74	2.17	2.09	5.65	3.78	2.71	2.35
2	2.24	2.23	2.12	2.10	2.06	2.66	2.16	2.08	11.40	3.77	2.65	2.33
3	2.27	2.18	2.12	2.10	2.06	2.52	2.15	2.08	11.95	3.75	2.60	2.34
4	2.26	2.18	2.19	2.17	2.06	2.47	2.14	2.06	7.94	3.73	2.55	2.32
5	2.24	2.17	2.15	2.09	2.07	2.43	2.13	2.05	6.85	3.74	2.52	2.31
6	2.24	2.18	2.14	2.00	2.05	2.38	2.12	2.05	7.66	3.76	2.52	2.26
7	2.24	2.18	2.13	2.10	2.06	2.36	2.13	2.05	7.11	3.90	2.57	2.25
8	2.17	2.17	2.13	2.05	2.06	2.35	2.15	2.08	5.86	4.08	2.54	2.25
9	2.26	2.17	2.13	2.06	2.05	2.40	2.14	2.10	4.79	4.40	2.60	2.23
10	2.22	2.17	2.13	2.07	2.05	2.39	2.13	2.10	4.61	9.12	2.65	2.22
11	2.23	2.17	2.10	2.12	2.07	2.34	2.12	2.09	4.09	14.27	2.51	2.20
12	2.21	2.17	2.09	2.06	2.07	2.29	2.12	2.16	3.86	16.83	2.47	2.18
13	2.18	2.17	2.09	2.07	2.02	2.29	2.11	2.11	4.76	9.98	2.44	2.15
14	2.17	2.17	2.09	2.03	2.02	2.29	2.10	2.08	9.71	6.94	2.38	2.18
15	2.20	2.17	2.09	2.01	2.02	2.29	2.10	2.04	7.81	5.82	2.37	2.15
16	2.17	2.15	2.01	2.18	2.14	2.29	2.11	2.06	7.76	4.98	2.35	2.15
17	2.16	2.15	1.97	2.10	2.02	2.27	2.12	2.09	8.34	4.40	2.54	2.15
18	2.16	2.15	1.95	2.00	2.02	2.25	2.11	2.37	7.03	4.00	2.46	2.14
19	2.19	2.14	2.05	2.02	2.02	2.25	2.17	7.74	5.59	3.76	2.58	2.13
20	2.19	2.13	2.09	2.18	2.03	2.25	2.21	10.59	5.63	3.88	2.52	2.13
21	2.19	2.13	2.10	2.19	2.00	2.25	2.23	7.08	6.75	3.86	2.44	2.12
22	2.21	2.13	1.95	2.34	2.09	2.24	2.24	5.19	6.98	3.70	2.41	2.16
23	2.21	2.17	2.16	2.28	2.23	2.24	2.22	4.51	5.79	3.52	2.47	2.15
24	2.22	2.17	2.09	2.23	2.63	2.24	2.19	3.67	4.96	3.37	2.49	2.15
25	2.21	2.17	2.11	2.12	3.46	2.25	2.17	3.49	4.50	3.25	2.47	2.15
26	2.17	2.16	2.11	2.15	4.08	2.24	2.15	3.23	4.21	3.14	2.43	2.14
27	2.22	2.16	2.10	2.13	3.89	2.23	2.14	3.19	4.00	3.03	2.39	2.13
28	2.21	2.16	2.07	2.12	3.23	---	2.13	3.23	3.92	2.96	2.42	2.12
29	2.21	2.15	2.09	2.06	2.87	2.18	2.12	3.46	3.86	2.87	2.49	2.11
30	2.19	2.13	2.09	2.06	---	2.18	2.11	3.55	3.86	2.82	2.40	2.09
31	2.30	---	2.09	2.09	---	2.18	---	3.54	---	2.76	2.37	---
MEAN	2.21	2.17	2.09	2.11	2.33	2.32	2.15	3.23	6.24	4.97	2.49	2.19
MAX	2.30	2.27	2.19	2.34	4.08	2.74	2.24	10.59	11.95	16.83	2.71	2.35
MIN	2.16	2.13	1.95	2.00	2.00	2.18	2.10	2.04	3.86	2.76	2.35	2.09

05457700 CEDAR RIVER AT CHARLES CITY, IA--Continued



05458000 LITTLE CEDAR RIVER NEAR IONIA, IA

LOCATION.--Lat 43°02'05", long 92°30'05", in $SW^1/_4$ $NE^1/_4$ sec.21, T.95 N., R.14 W., Chickasaw County, Hydrologic Unit 07080201, on left bank 12 ft downstream from bridge on county highway B57, 2.4 mi west of Ionia, 6.4 mi upstream from mouth, and 7.6 mi downstream from Beaver Creek.

DRAINAGE AREA.--306 mi^2.

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

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

GAGE.--Water-stage recorder. Datum of gage is 973.35 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with telephone modem at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1954, reached a stage of 11.37 ft, discharge, 4,600 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	65	50	43	34	176	77	57	653	282	97	58
2	76	64	53	44	35	191	76	56	1980	332	92	61
3	78	62	55	44	35	171	75	55	3700	844	88	60
4	77	60	58	42	36	156	72	54	1710	594	85	58
5	76	60	56	40	37	146	70	52	866	421	86	57
6	75	60	54	39	38	136	68	50	806	354	89	54
7	73	59	50	38	39	130	70	49	666	306	86	53
8	73	58	53	39	40	127	70	50	490	273	85	53
9	73	59	54	39	41	127	69	50	394	768	82	52
10	73	58	40	45	42	124	67	48	334	1430	79	51
11	70	58	34	46	43	118	66	51	297	2310	75	50
12	69	57	37	46	44	114	64	53	261	3380	71	48
13	68	57	36	41	43	110	62	54	801	1420	69	46
14	67	56	37	41	43	108	62	50	3500	608	67	47
15	68	55	37	40	44	107	61	47	4600	451	66	45
16	70	55	28	39	45	103	60	48	3450	365	64	44
17	69	54	e26	39	47	98	60	53	2370	307	92	44
18	68	54	e23	37	46	97	60	94	1550	262	72	43
19	68	55	e24	35	47	95	65	215	853	232	68	42
20	68	53	e23	33	47	95	77	550	684	209	65	43
21	68	53	e22	34	50	93	81	332	1280	190	62	42
22	67	53	e24	32	56	91	79	253	1180	173	62	46
23	66	57	e27	33	132	90	76	207	723	159	64	47
24	66	58	e26	32	200	93	73	172	562	148	64	46
25	65	59	e25	32	346	96	68	145	480	141	62	45
26	65	56	e30	32	372	95	66	128	431	133	60	44
27	65	54	35	32	297	95	65	133	385	124	58	42
28	64	53	37	33	215	91	63	159	344	115	64	41
29	63	51	39	33	175	86	61	181	324	109	62	40
30	67	47	40	33	---	83	58	232	304	104	58	39
31	66	---	42	34	---	81	---	236	---	100	57	---
TOTAL	2154	1700	1175	1170	2669	3523	2041	3914	35978	16644	2251	1441
MEAN	69.5	56.7	37.9	37.7	92.0	114	68.0	126	1199	537	72.6	48.0
MAX	78	65	58	46	372	191	81	550	4600	3380	97	61
MIN	63	47	22	32	34	81	58	47	261	100	57	39
AC-FT	4270	3370	2330	2320	5290	6990	4050	7760	71360	33010	4460	2860
CFSM	.23	.19	.12	.12	.30	.37	.22	.41	3.92	1.75	.24	.16
IN.	.26	.21	.14	.14	.32	.43	.25	.48	4.37	2.02	.27	.18

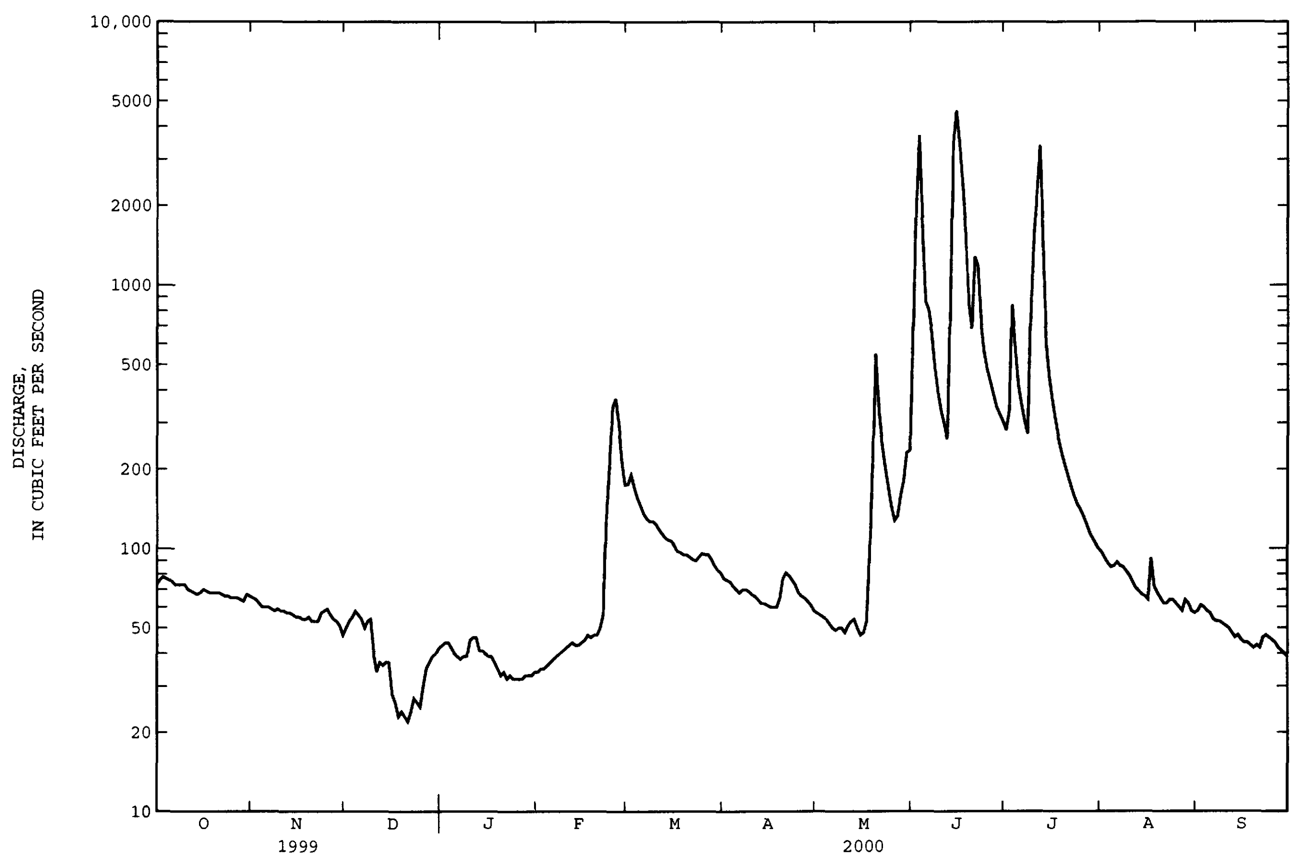
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	144	122	78.2	48.9	86.8	369	356	239	292	206	173	135
MAX	902	632	503	265	644	1056	1466	906	1199	1317	1744	807
(WY)	1987	1983	1983	1973	1984	1961	1965	1991	2000	1999	1993	1965
MIN	9.64	12.4	4.93	4.20	3.40	34.5	47.3	30.5	18.4	14.2	7.23	12.7
(WY)	1990	1990	1990	1959	1959	1964	1957	1958	1989	1964	1989	1988

05458000 LITTLE CEDAR RIVER NEAR IONIA, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1955 - 2000	
ANNUAL TOTAL	117490		74660			
ANNUAL MEAN	322		204		188	
HIGHEST ANNUAL MEAN					584	1993
LOWEST ANNUAL MEAN					32.0	1977
HIGHEST DAILY MEAN	8940	Jul 21	4600	Jun 15	9930	Mar 27 1961
LOWEST DAILY MEAN	22	Dec 21	22	Dec 21	3.0	Feb 4 1959a
ANNUAL SEVEN-DAY MINIMUM	24	Dec 17	24	Dec 17	3.0	Feb 3 1959
INSTANTANEOUS PEAK FLOW			5040	Jun 15	14000	Aug 16 1993
INSTANTANEOUS PEAK STAGE			12.55	Jun 15	18.99	Aug 16 1993
INSTANTANEOUS LOW FLOW			16	Dec 16		
ANNUAL RUNOFF (AC-FT)	233000		148100		136100	
ANNUAL RUNOFF (CFSM)	1.05		.67		.61	
ANNUAL RUNOFF (INCHES)	14.28		9.08		8.34	
10 PERCENT EXCEEDS	690		367		393	
50 PERCENT EXCEEDS	145		64		74	
90 PERCENT EXCEEDS	53		37		19	

a Also Feb. 5-9, 1959.
e Estimated.



05458500 CEDAR RIVER AT JANESVILLE, IA

LOCATION.--Lat 42°38'54", long 92°27'54", in NE$^{1}/_{4}$ SW$^{1}/_{4}$ sec.35, T.91 N., R.14 W., Bremer County, Hydrologic Unit 07080201, on left bank 300 ft downstream from bridge on county highway at Janesville, 3.6 mi upstream from West Fork Cedar River, and at mile 207.7 upstream from mouth of Iowa River.

DRAINAGE AREA.--1,661 mi^2.

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", 1905-06.

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), WDR IA-97-1:1996.

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diurnal fluctuation during low water caused by powerplant at Waverly, 10 mi upstream. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with telephone modem at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 17, 1945, reached a stage of 16.2 ft, from floodmark at site 300 ft upstream, discharge, 34,300 ft^3/s. Flood of Mar. 16, 1929, reached a stage of about 16 ft, from information by City of Waterloo, discharge not determined.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	594	539	417	e340	e230	1020	431	427	2540	e2100	903	539
2	598	550	431	e360	e240	913	424	397	3040	e2080	856	367
3	609	513	433	e400	e260	736	434	383	e7000	2070	807	354
4	952	496	448	e360	e270	705	411	390	e11400	2440	754	371
5	988	490	505	e290	e250	674	383	379	9220	2300	755	588
6	659	486	454	e320	e270	630	444	358	5600	2100	798	546
7	617	487	425	e300	e300	607	387	366	5710	1940	826	495
8	557	501	448	e340	e340	565	474	363	5410	2010	810	501
9	371	487	442	e360	e320	575	438	426	4110	2250	775	498
10	331	476	439	e380	e300	526	435	265	3070	3780	771	484
11	452	485	417	e360	e290	568	430	300	2860	6740	807	520
12	606	464	416	e340	e270	530	428	411	2340	10900	794	885
13	542	484	416	e320	e300	519	413	388	2810	15700	774	640
14	533	465	432	e290	e290	504	414	355	5520	13100	767	513
15	518	471	407	e320	e300	511	411	341	10800	6310	730	466
16	558	452	403	e380	e320	498	402	338	10600	4470	670	339
17	579	462	e360	e320	e280	473	397	360	9460	3240	700	333
18	504	422	e340	e340	e300	474	396	367	e8750	2830	965	333
19	548	469	e320	e300	e300	476	491	598	e6850	2500	690	333
20	550	459	e300	e280	e320	468	787	2550	5180	2190	733	386
21	570	445	e290	e300	e320	469	782	6370	4560	1950	800	385
22	499	435	e320	e360	e340	465	669	5770	5250	1730	759	395
23	531	536	e340	e340	e360	455	643	3120	5940	1630	701	453
24	504	494	e320	e320	e500	474	601	2370	4590	1500	833	430
25	504	479	e300	e320	742	492	515	1890	3650	1290	992	397
26	496	479	e340	e300	1470	485	494	1590	3410	1200	871	400
27	490	481	e360	e260	1770	489	479	1370	2850	1260	724	388
28	500	473	e320	e220	1820	482	452	1340	2580	1140	659	397
29	543	459	e340	e240	1370	431	438	1390	2410	1080	627	365
30	489	447	e380	e270	---	450	415	1550	2260	1030	680	386
31	544	---	e360	e220	---	450	---	1910	---	992	660	---
TOTAL	17336	14386	11923	9850	14442	17114	14318	38432	159770	105852	23991	13487
MEAN	559	480	385	318	498	552	477	1240	5326	3415	774	450
MAX	988	550	505	400	1820	1020	787	6370	11400	15700	992	885
MIN	331	422	290	220	230	431	383	265	2260	992	627	333
AC-FT	34390	28530	23650	19540	28650	33950	28400	76230	316900	210000	47590	26750
CFSM	.34	.29	.23	.19	.30	.33	.29	.75	3.21	2.06	.47	.27
IN.	.39	.32	.27	.22	.32	.38	.32	.86	3.58	2.37	.54	.30

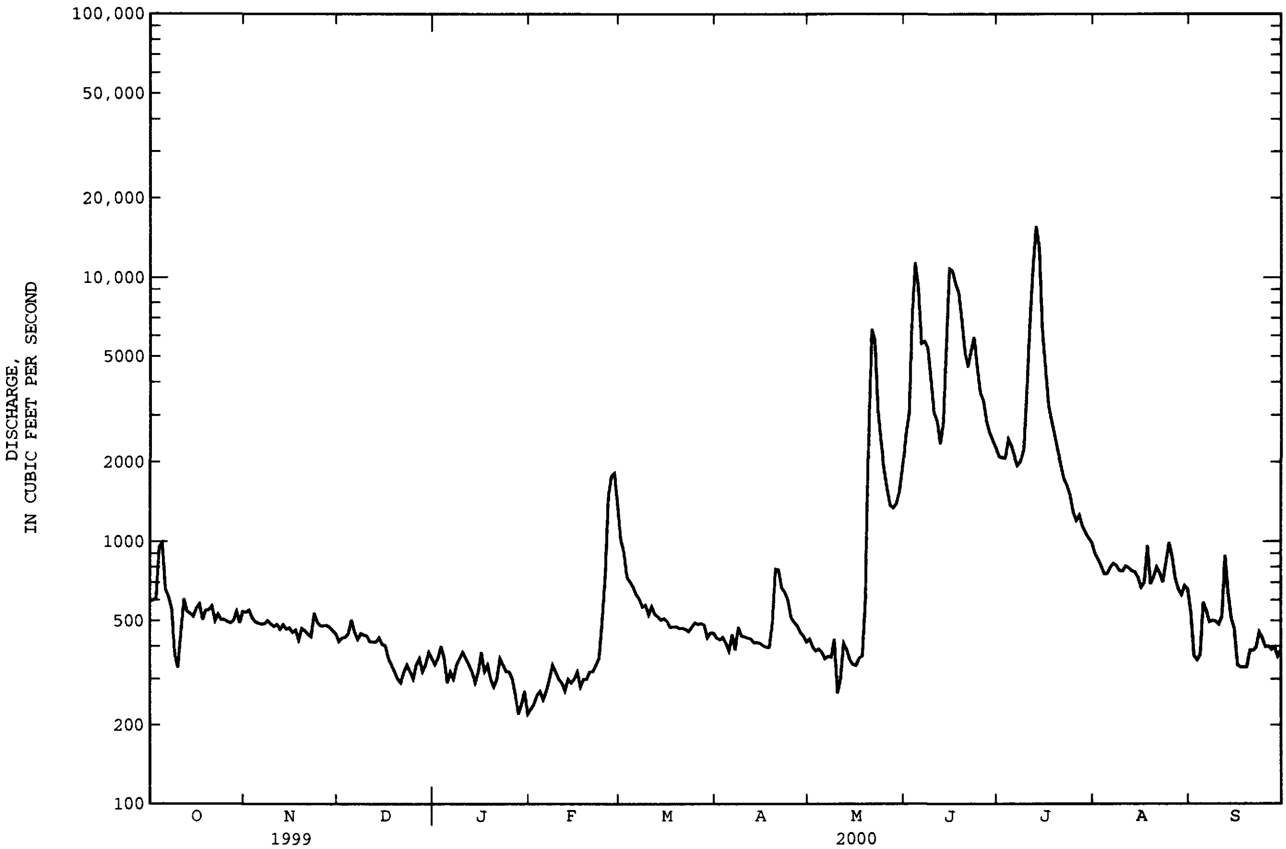
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	623	588	437	346	553	1839	1834	1266	1362	1073	794	629
MAX	3793	2672	2404	1293	3393	4851	8966	5668	6223	6328	7762	2805
(WY)	1987	1983	1983	1983	1984	1973	1993	1991	1993	1999	1993	1993
MIN	101	121	75.2	80.3	61.2	124	247	134	95.2	84.7	83.6	117
(WY)	1935	1934	1934	1917	1959	1934	1957	1934	1934	1934	1934	1934

05458500 CEDAR RIVER AT JANESVILLE, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1905 - 2000	
ANNUAL TOTAL	772676		440901			
ANNUAL MEAN	2117		1205		947	
HIGHEST ANNUAL MEAN					3454	1993
LOWEST ANNUAL MEAN					187	1934
HIGHEST DAILY MEAN	38800	Jul 22	15700	Jul 13	38800	Jul 22 1999
LOWEST DAILY MEAN	290	Dec 21	220	Jan 28a	28	Oct 21 1922
ANNUAL SEVEN-DAY MINIMUM	313	Dec 19	240	Jan 27	50	Feb 1 1918
INSTANTANEOUS PEAK FLOW			17000	Jul 13	42200	Jul 22 1999
INSTANTANEOUS PEAK STAGE			11.91	Jul 13	17.15	Jul 22 1999
ANNUAL RUNOFF (AC-FT)	1533000		874500		685800	
ANNUAL RUNOFF (CFSM)	1.27		.73		.57	
ANNUAL RUNOFF (INCHES)	17.30		9.87		7.74	
10 PERCENT EXCEEDS	5000		2820		2090	
50 PERCENT EXCEEDS	979		489		477	
90 PERCENT EXCEEDS	429		320		160	

a Also Jan. 31.
e Estimated.



05458900 WEST FORK CEDAR RIVER AT FINCHFORD, IA

LOCATION.--Lat 42°37'50", long 92°32'24", in SW 1/4 SE 1/4 sec.6, T.90 N., R.14 W., Black Hawk County, Hydrologic Unit 07080204, on left bank 100 ft downstream from bridge on county highway C55 at Finchford, 3.2 mi upstream from Shell Rock River, and 5.0 mi upstream from mouth.

DRAINAGE AREA.--846 mi^2.

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. An authorized diversion of 2,100 acre-ft is made into Big Marsh, 16 mi upstream from gage, each year between September 1 and November 15. Net effect on daily flows at gage is unknown. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey Data Collection platform with telephone modem at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1929 reached a stage of about 14 ft, from information by local resident, discharge, about 12,800 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	134	117	e110	e65	285	204	229	1730	e1200	330	105
2	140	126	115	e120	e65	272	202	217	1980	e1110	319	105
3	140	109	130	e130	e70	e265	202	207	2280	1040	307	103
4	138	100	122	e120	e75	e255	200	200	1970	1000	294	98
5	139	100	122	e95	e70	e250	198	200	1510	1010	295	97
6	137	105	118	e110	e75	240	196	195	1320	969	339	96
7	137	105	117	e100	e85	231	195	190	1200	948	308	97
8	136	104	113	e120	e100	225	200	187	1080	868	249	97
9	135	104	118	e130	e95	220	210	186	963	810	237	97
10	135	104	105	e140	e95	217	229	e180	871	2210	227	96
11	131	107	104	e130	e90	217	252	180	819	3100	218	93
12	131	108	110	e120	e85	212	269	e180	892	3200	210	88
13	129	109	120	e110	e95	212	265	e180	1310	3540	e200	92
14	127	109	e110	e95	e90	209	254	e175	1740	2750	195	93
15	125	112	e100	e100	e95	208	244	172	2230	1780	187	93
16	123	109	e110	e110	e110	207	236	e175	2980	1380	177	94
17	120	107	e100	e95	e100	203	226	e170	4270	1140	180	95
18	121	107	e95	e100	e110	202	218	180	4310	964	200	92
19	119	108	e95	e90	e110	202	268	e185	3690	839	224	92
20	118	107	e90	e80	e120	202	397	e215	3110	756	210	94
21	123	105	e85	e90	e120	202	415	e250	2540	685	192	93
22	130	106	e95	e100	e130	200	410	290	2330	622	184	102
23	145	e115	e100	e90	e260	200	380	270	2180	568	178	108
24	137	e110	e95	e85	385	200	347	e250	e2260	521	174	111
25	135	e100	e90	e85	369	205	318	230	e2350	483	168	112
26	136	e100	e100	e80	447	206	292	219	2380	446	165	106
27	136	e105	e110	e70	428	209	275	229	2300	418	159	93
28	136	e110	e100	e60	371	215	260	331	1820	399	154	84
29	134	119	e110	e65	313	214	247	700	1510	382	136	78
30	132	115	e130	e75	---	212	236	877	1380	361	115	74
31	132	---	e120	e60	---	206	---	1140	---	343	109	---
TOTAL	4097	3259	3346	3065	4623	6803	7845	8589	61305	35842	6640	2878
MEAN	132	109	108	98.9	159	219	262	277	2044	1156	214	95.9
MAX	145	134	130	140	447	285	415	1140	4310	3540	339	112
MIN	118	100	85	60	65	200	195	170	819	343	109	74
AC-FT	8130	6460	6640	6080	9170	13490	15560	17040	121600	71090	13170	5710
CFSM	.16	.13	.13	.12	.19	.26	.31	.33	2.42	1.37	.25	.11
IN.	.18	.14	.15	.13	.20	.30	.34	.38	2.70	1.58	.29	.13

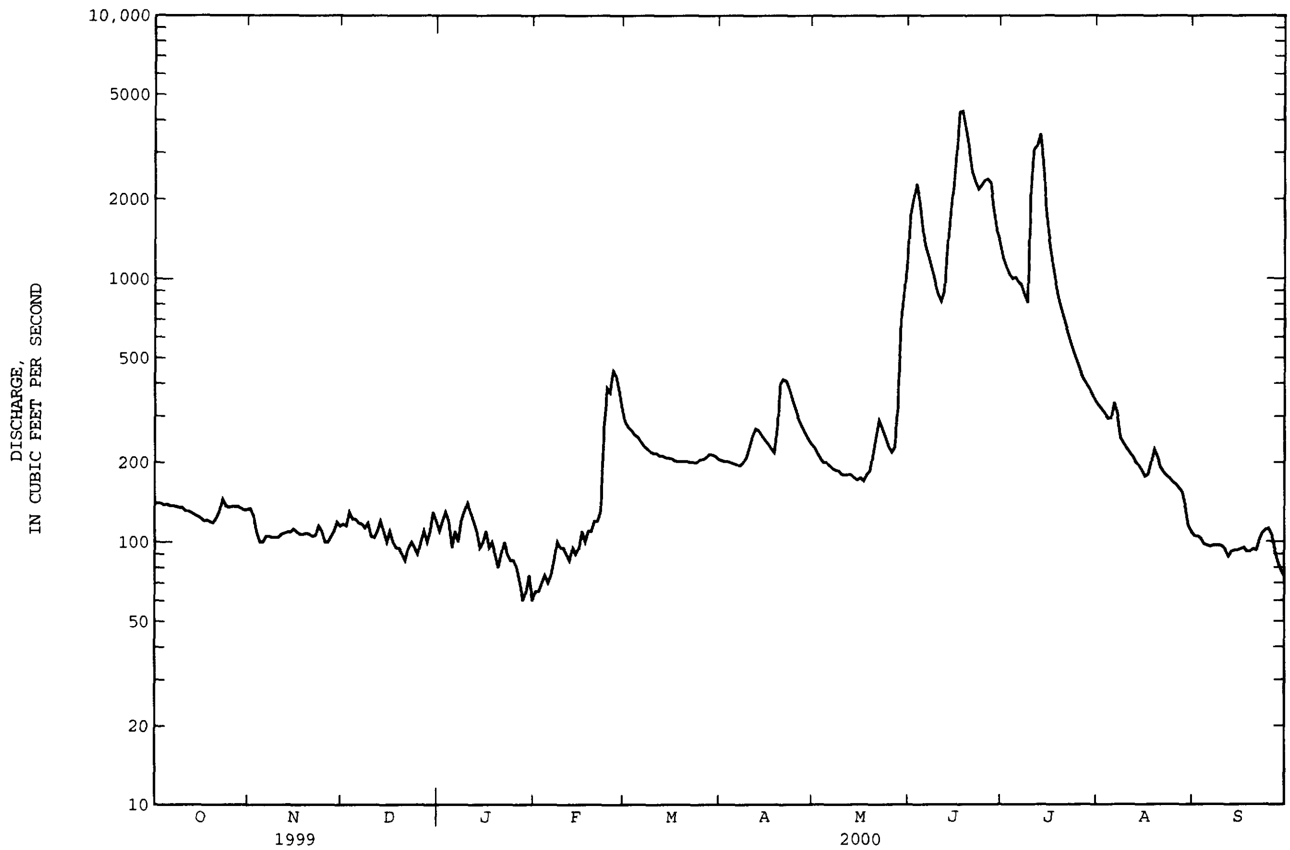
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	320	320	251	171	313	1002	1039	833	1019	746	386	309
MAX	1412	1502	1165	995	2303	2456	4170	3472	3358	3995	3023	2149
(WY)	1973	1973	1983	1973	1984	1961	1965	1999	1984	1993	1993	1965
MIN	14.9	22.3	14.2	9.35	6.37	86.2	81.8	80.1	39.5	26.6	15.2	16.9
(WY)	1990	1959	1959	1959	1959	1954	1957	1957	1977	1977	1989	1989

05458900 WEST FORK CEDAR RIVER AT FINCHFORD, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1946 - 2000	
ANNUAL TOTAL	365559		148292			
ANNUAL MEAN	1002		405		560	
HIGHEST ANNUAL MEAN					1800	1993
LOWEST ANNUAL MEAN					65.5	1956
HIGHEST DAILY MEAN	14200	May 18	4310	Jun 18	25100	Jun 27 1951
LOWEST DAILY MEAN	85	Dec 21	60	Jan 28	5.9	Feb 26 1959a
ANNUAL SEVEN-DAY MINIMUM	93	Dec 19	66	Jan 27	6.1	Feb 23 1959
INSTANTANEOUS PEAK FLOW			4590	Jun 17	31900	Jun 27 1951
INSTANTANEOUS PEAK STAGE			12.23	Jun 17	18.45	Jul 29 1990
ANNUAL RUNOFF (AC-FT)	725100		294100		405400	
ANNUAL RUNOFF (CFSM)	1.18		.48		.66	
ANNUAL RUNOFF (INCHES)	16.07		6.52		8.99	
10 PERCENT EXCEEDS	2380		1090		1360	
50 PERCENT EXCEEDS	514		171		242	
90 PERCENT EXCEEDS	110		93		47	

a Also Feb. 27, 1959.
e Estimated.



05459500 WINNEBAGO RIVER AT MASON CITY, IA

LOCATION.--Lat 43°09'54", long 93°11'33", in $NE^1/_4$ $NW^1/_4$ sec.3, T.96 N., R.20 W., Cerro Gordo County, Hydrologic Unit 07080203, on right bank 650 ft upstream from Thirteenth Street Bridge in Mason City, 0.1 mi downstream from Calmus Creek, 1.0 mi upstream from Willow Creek, and at mile 275.8 upstream from mouth of Iowa River.

DRAINAGE AREA.--526 mi^2.

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	98	65	e48	e34	480	145	141	1640	618	158	83
2	102	92	64	e55	e36	405	138	136	1330	655	144	88
3	104	85	72	e60	e38	347	135	129	923	1070	128	93
4	101	83	77	e55	e42	318	129	125	788	887	117	86
5	99	82	70	51	e38	293	125	121	736	928	137	80
6	98	81	64	57	42	275	123	116	659	787	151	73
7	97	78	68	52	40	265	128	114	592	682	131	72
8	98	79	64	52	40	255	136	122	538	614	156	72
9	97	81	74	52	42	255	139	136	481	714	176	69
10	96	87	72	57	41	243	149	139	436	1010	196	66
11	94	76	58	56	e38	229	162	139	403	941	175	61
12	93	73	69	53	e32	217	158	133	378	901	147	57
13	91	73	63	51	e34	211	152	123	973	986	127	55
14	88	72	65	47	e36	205	147	112	1890	1040	116	62
15	89	69	76	49	e38	204	142	107	1570	936	106	57
16	90	68	28	43	e40	196	139	124	1930	791	102	53
17	88	67	56	41	e36	184	139	233	1600	658	126	53
18	88	68	61	46	e40	183	138	655	1300	557	119	51
19	88	67	58	43	e38	183	155	878	1110	511	104	51
20	88	67	49	39	e36	180	248	728	1200	459	99	51
21	87	66	44	40	e34	180	260	639	1210	412	93	48
22	86	66	48	48	e50	181	233	556	1050	368	108	54
23	83	77	e46	e46	e120	180	215	496	964	e340	159	54
24	80	85	e44	e44	e220	191	196	453	972	e310	136	54
25	79	80	e42	e48	e550	203	180	410	905	e280	121	52
26	78	79	e44	e44	823	199	171	381	890	257	110	56
27	79	74	e48	e38	675	195	163	462	795	242	100	50
28	80	70	e42	e32	591	184	159	662	745	227	93	48
29	81	67	e50	e34	484	167	151	648	716	209	93	44
30	100	64	e55	e38	---	160	147	602	670	197	88	42
31	108	---	e50	e32	---	153	---	573	---	172	86	---
TOTAL	2824	2274	1786	1451	4308	7121	4802	10393	29394	18759	3902	1835
MEAN	91.1	75.8	57.6	46.8	149	230	160	335	980	605	126	61.2
MAX	108	98	77	60	823	480	260	878	1930	1070	196	93
MIN	78	64	28	32	32	153	123	107	378	172	86	42
AC-FT	5600	4510	3540	2880	8540	14120	9520	20610	58300	37210	7740	3640
CFSM	.17	.14	.11	.09	.28	.44	.30	.64	1.86	1.15	.24	.12
IN.	.20	.16	.13	.10	.30	.50	.34	.74	2.08	1.33	.28	.13

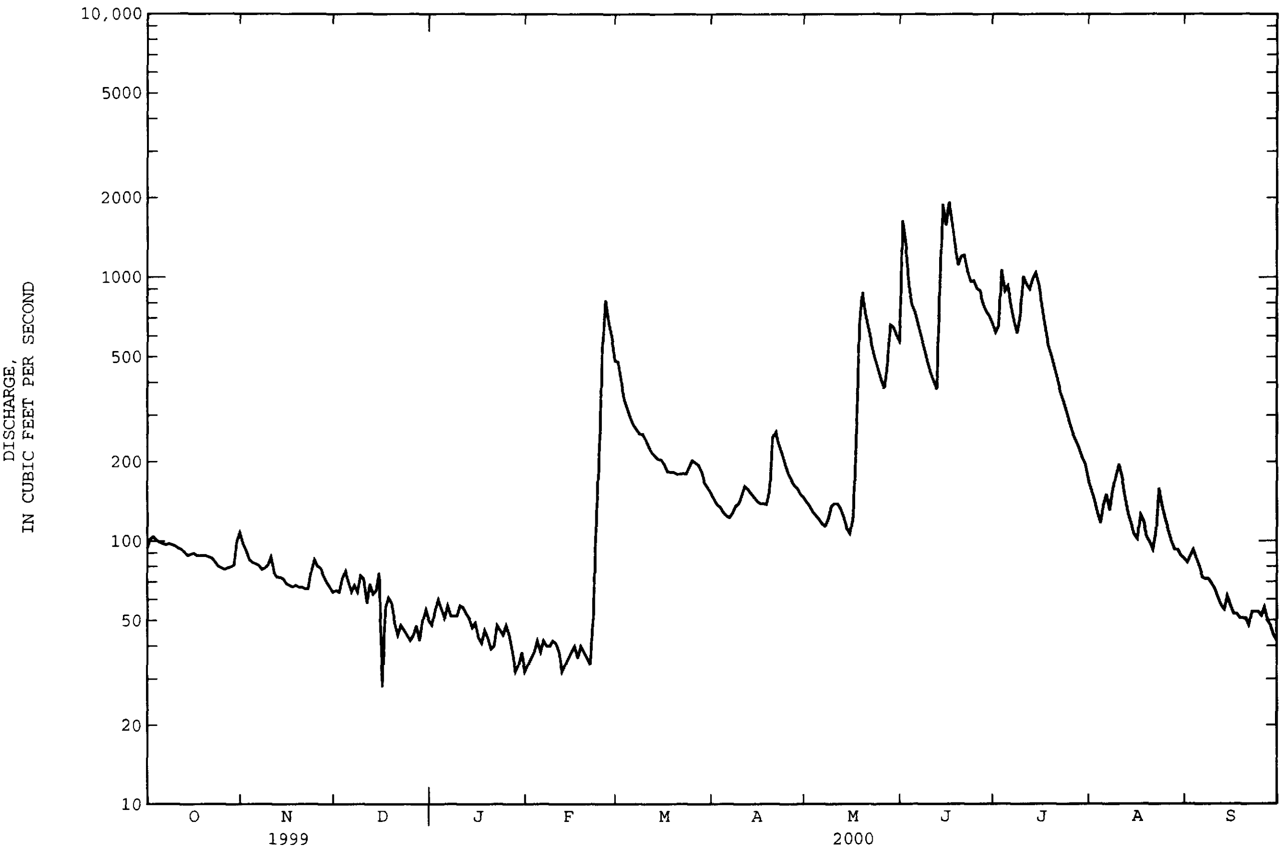
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	173	169	112	75.4	123	521	601	419	492	320	215	180
MAX	840	811	724	378	1002	1707	2880	1807	2160	1915	2054	1073
(WY)	1966	1942	1983	1983	1984	1973	1965	1991	1993	1993	1979	1938
MIN	11.3	12.7	7.45	6.61	7.50	17.6	61.0	16.1	21.9	7.29	4.89	12.6
(WY)	1935	1934	1934	1977	1959	1934	1957	1934	1934	1934	1934	1933

05459500 WINNEBAGO RIVER AT MASON CITY, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1933 - 2000	
ANNUAL TOTAL	208886		88849			
ANNUAL MEAN	572		243		284	
HIGHEST ANNUAL MEAN					947	1993
LOWEST ANNUAL MEAN					28.1	1934
HIGHEST DAILY MEAN	5120	Jul 21	1930	Jun 16	9370	Mar 27 1961
LOWEST DAILY MEAN	28	Dec 16	28	Dec 16	1.2	Aug 19 1989
ANNUAL SEVEN-DAY MINIMUM	45	Dec 22	35	Jan 27	3.1	Dec 29 1933
INSTANTANEOUS PEAK FLOW			2020	Jun 16	10800	Mar 30 1933
INSTANTANEOUS PEAK STAGE			6.76	Jun 16	15.70	Mar 30 1933
INSTANTANEOUS LOW FLOW			13	Dec 16	.86	Aug 18 1988a
ANNUAL RUNOFF (AC-FT)	414300		176200		205500	
ANNUAL RUNOFF (CFSM)	1.09		.46		.54	
ANNUAL RUNOFF (INCHES)	14.77		6.28		7.33	
10 PERCENT EXCEEDS	1570		715		721	
50 PERCENT EXCEEDS	291		105		114	
90 PERCENT EXCEEDS	70		44		20	

a Also Aug. 19, 1988.
e Estimated.



05460000 CLEAR LAKE AT CLEAR LAKE, IA

LOCATION.--Lat 43°08'01", long 93°22'57", in $SE^1/_4$ $NE^1/_4$ 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 mi^2.

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

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

REMARKS.--Lake is formed by concrete dam on Clear Creek with ungated overflow spillway 50 ft long at elevation 1,226.84 ft above sea level. 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. U.S. Geological Survey satellite data collection platform at station.

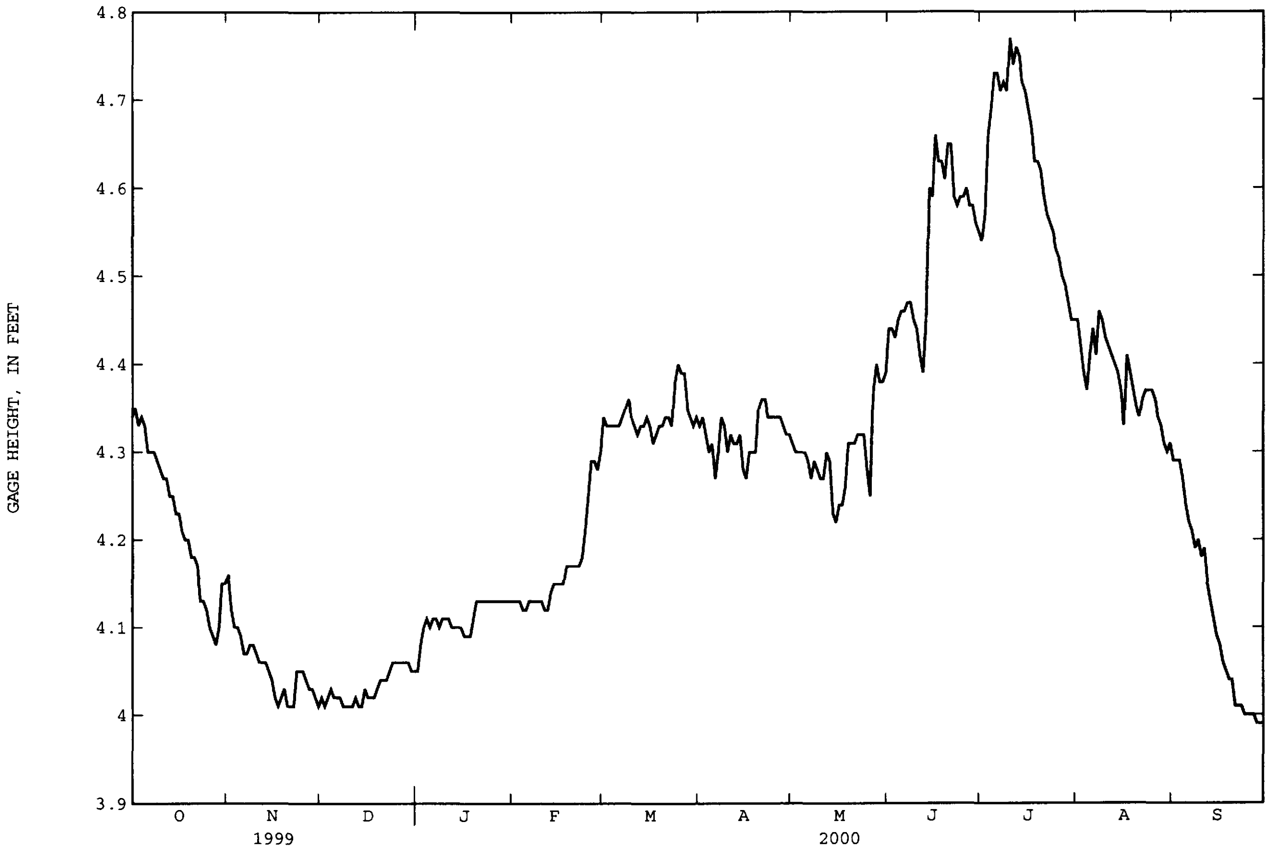
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 5.94 ft July 3, 1951; minimum observed, 0.76 ft Oct. 26, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.02 ft May 22 (wind affected); minimum, 3.98 ft Sept 27, 28, and 30.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.34	4.16	4.02	4.05	4.13	4.34	4.33	4.31	4.44	4.54	4.45	4.29
2	4.35	4.12	4.01	4.08	4.13	4.33	4.34	4.30	4.44	4.57	4.42	4.29
3	4.33	4.10	4.02	4.10	4.13	4.33	4.32	4.30	4.43	4.66	4.39	4.29
4	4.34	4.10	4.03	4.11	4.12	4.33	4.30	4.30	4.45	4.69	4.37	4.27
5	4.33	4.09	4.02	4.10	4.12	4.33	4.31	4.30	4.46	4.73	4.41	4.24
6	4.30	4.07	4.02	4.11	4.13	4.33	4.27	4.29	4.46	4.73	4.44	4.22
7	4.30	4.07	4.02	4.11	4.13	4.34	4.30	4.27	4.47	4.71	4.41	4.21
8	4.30	4.08	4.01	4.10	4.13	4.35	4.34	4.29	4.47	4.72	4.46	4.19
9	4.29	4.08	4.01	4.11	4.13	4.36	4.33	4.28	4.45	4.71	4.45	4.20
10	4.28	4.07	4.01	4.11	4.13	4.34	4.30	4.27	4.44	4.77	4.43	4.18
11	4.27	4.06	4.01	4.11	4.12	4.33	4.32	4.27	4.41	4.74	4.42	4.19
12	4.27	4.06	4.02	4.10	4.12	4.32	4.31	4.30	4.39	4.76	4.41	4.15
13	4.25	4.06	4.01	4.10	4.14	4.33	4.31	4.29	4.45	4.75	4.40	4.13
14	4.25	4.05	4.01	4.10	4.15	4.33	4.32	4.23	4.60	4.72	4.39	4.11
15	4.23	4.04	4.03	4.10	4.15	4.34	4.28	4.22	4.59	4.71	4.37	4.09
16	4.23	4.02	4.02	4.09	4.15	4.33	4.27	4.24	4.66	4.69	4.33	4.08
17	4.21	4.01	4.02	4.09	4.15	4.31	4.30	4.24	4.63	4.67	4.41	4.06
18	4.20	4.02	4.02	4.09	4.17	4.32	4.30	4.26	4.63	4.63	4.39	4.05
19	4.20	4.03	4.03	4.11	4.17	4.33	4.30	4.31	4.61	4.63	4.37	4.04
20	4.18	4.01	4.04	4.13	4.17	4.33	4.35	4.31	4.65	4.62	4.35	4.04
21	4.18	4.01	4.04	4.13	4.17	4.34	4.36	4.31	4.65	4.59	4.34	4.01
22	4.17	4.01	4.04	4.13	4.17	4.34	4.36	4.32	4.59	4.57	4.36	4.01
23	4.13	4.05	4.05	4.13	4.18	4.33	4.34	4.32	4.58	4.56	4.37	4.01
24	4.13	4.05	4.06	4.13	4.21	4.38	4.34	4.32	4.59	4.55	4.37	4.00
25	4.12	4.05	4.06	4.13	4.25	4.40	4.34	4.28	4.59	4.53	4.37	4.00
26	4.10	4.04	4.06	4.13	4.29	4.39	4.34	4.25	4.60	4.52	4.36	4.00
27	4.09	4.03	4.06	4.13	4.29	4.39	4.34	4.37	4.58	4.50	4.34	4.00
28	4.08	4.03	4.06	4.13	4.28	4.35	4.33	4.40	4.58	4.49	4.33	3.99
29	4.10	4.02	4.06	4.13	4.30	4.34	4.32	4.38	4.56	4.47	4.31	3.99
30	4.15	4.01	4.05	4.13	---	4.33	4.32	4.38	4.55	4.45	4.30	3.99
31	4.15	---	4.05	4.13	---	4.34	---	4.39	---	4.45	4.31	---
MEAN	4.22	4.05	4.03	4.11	4.17	4.34	4.32	4.30	4.53	4.63	4.38	4.11
MAX	4.35	4.16	4.06	4.13	4.30	4.40	4.36	4.40	4.66	4.77	4.46	4.29
MIN	4.08	4.01	4.01	4.05	4.12	4.31	4.27	4.22	4.39	4.45	4.30	3.99

05460000 CLEAR LAKE AT CLEAR LAKE, IA--Continued



05462000 SHELL ROCK RIVER AT SHELL ROCK, IA

LOCATION.--Lat 42°42'43", long 92°34'58", in $NW^1/_4$ $NE^1/_4$ sec.11, T.91 N., R.15 W., Butler County, Hydrologic Unit 07080202 on right bank 400 ft upstream from bridge on county highway C45 in Shell Rock, 2.2 mi downstream from Curry Creek, and 10.4 mi upstream from mouth.

DRAINAGE AREA.--1,746 mi^2.

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

REVISED RECORDS.--WSP 1438: Drainage area.

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with telephone modem at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1856 reached a stage of 17.7 ft at bridge 400 ft downstream, from information provided by U.S. Army Corps of Engineers, discharge, about 45,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	532	459	361	338	258	1110	420	390	2280	1990	687	425
2	534	438	351	340	260	1080	407	380	4800	1840	697	406
3	544	424	372	340	264	955	404	359	3680	1930	658	414
4	543	421	386	319	264	839	e395	360	2860	2520	635	415
5	526	424	390	290	265	763	397	351	2690	2260	634	393
6	514	413	370	324	263	704	401	336	2620	2250	672	375
7	502	410	359	313	272	670	415	326	2460	2060	658	372
8	512	409	346	323	258	639	438	328	2310	1870	642	358
9	500	409	374	325	284	653	439	340	2130	2030	683	349
10	486	402	371	329	286	626	421	334	1970	4520	761	346
11	477	392	361	317	280	621	446	346	1870	5130	785	332
12	453	395	339	323	276	601	458	366	1860	4230	743	323
13	490	396	348	294	287	568	450	346	2210	3590	690	315
14	461	393	343	294	281	541	442	322	6410	3360	640	302
15	468	383	346	316	274	538	429	305	11300	3140	615	315
16	466	379	322	273	272	526	415	310	9050	2800	574	315
17	458	376	274	285	282	520	408	324	8120	2450	670	328
18	449	372	e260	296	289	508	410	385	6650	2140	708	294
19	448	372	e230	262	282	490	456	1230	5290	1930	603	292
20	449	367	e240	229	274	486	495	1960	4660	1720	570	282
21	447	363	e250	274	284	475	545	1810	5180	1480	542	270
22	446	368	e230	267	292	471	575	1740	4700	1340	523	293
23	427	402	e220	271	367	467	553	1650	3870	1210	519	311
24	430	405	e240	265	656	477	525	1540	3450	1100	587	313
25	426	416	e265	270	1120	502	487	1440	3280	1000	563	294
26	415	414	e250	257	1630	498	465	1350	3080	929	527	285
27	428	397	308	256	1940	502	441	1370	2810	872	498	284
28	422	382	325	253	1570	501	436	1600	2590	818	483	280
29	416	372	321	253	1250	477	415	1960	2400	e815	466	273
30	427	365	329	259	---	468	393	1920	2170	e810	444	267
31	458	---	334	258	---	443	---	1850	---	792	434	---
TOTAL	14554	11918	9815	9013	14580	18719	13381	27628	118750	64926	18911	9821
MEAN	469	397	317	291	503	604	446	891	3958	2094	610	327
MAX	544	459	390	340	1940	1110	575	1960	11300	5130	785	425
MIN	415	363	220	229	258	443	393	305	1860	792	434	267
AC-FT	28870	23640	19470	17880	28920	37130	26540	54800	235500	128800	37510	19480
CFSM	.27	.23	.18	.17	.29	.35	.26	.51	2.27	1.20	.35	.19
IN.	.31	.25	.21	.19	.31	.40	.29	.59	2.53	1.38	.40	.21

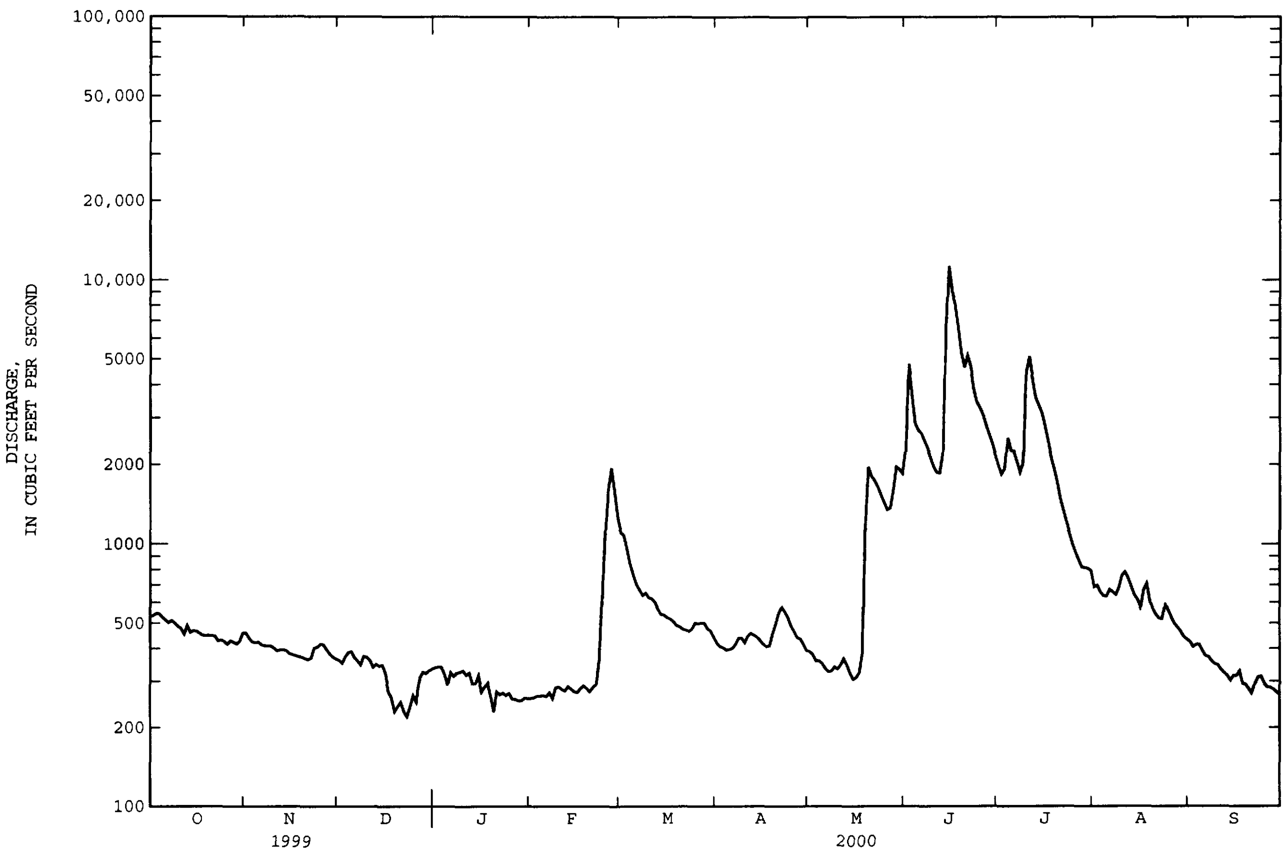
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	747	697	525	352	508	1663	2031	1622	1789	1353	900	710
MAX	2544	2326	2381	1375	2833	5426	8540	5889	6239	6461	5637	2816
(WY)	1987	1983	1983	1983	1984	1992	1965	1991	1993	1993	1979	1993
MIN	74.1	77.7	39.8	45.6	44.7	193	226	243	138	114	66.7	96.6
(WY)	1990	1990	1990	1959	1959	1968	1957	1958	1977	1977	1989	1989

05462000 SHELL ROCK RIVER AT SHELL ROCK, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1954 - 2000	
ANNUAL TOTAL	742729		332016			
ANNUAL MEAN	2035		907		1076	
HIGHEST ANNUAL MEAN					3231	1993
LOWEST ANNUAL MEAN					171	1977
HIGHEST DAILY MEAN	25100	Jul 22	11300	Jun 15	32100	Mar 28 1961
LOWEST DAILY MEAN	220	Dec 23	220	Dec 23	27	Dec 22 1989
ANNUAL SEVEN-DAY MINIMUM	239	Dec 18	239	Dec 18	29	Dec 16 1989
INSTANTANEOUS PEAK FLOW			11800	Jun 15	33500	Mar 28 1961
INSTANTANEOUS PEAK STAGE			12.61	Jun 15	16.73	Jul 22 1999
INSTANTANEOUS LOW FLOW			173	Jan 20		
ANNUAL RUNOFF (AC-FT)	1473000		658600		779800	
ANNUAL RUNOFF (CFSM)	1.17		.52		.62	
ANNUAL RUNOFF (INCHES)	15.82		7.07		8.38	
10 PERCENT EXCEEDS	5350		2180		2520	
50 PERCENT EXCEEDS	1010		432		543	
90 PERCENT EXCEEDS	361		274		155	

e Estimated



05463000 BEAVER CREEK AT NEW HARTFORD, IA

LOCATION.--Lat 42°34'22", long 92°37'04", in $SE^1/_4$ $SE^1/_4$ sec.28, T.90 N., R.15 W., Butler County, Hydrologic Unit 07080205, on right bank 5 ft. from right end of bridge on county highway T55, 0.2 mi north of New Hartford, and 8 mi upstream from mouth.

DRAINAGE AREA.--347 mi^2.

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	44	45	e34	e23	106	51	70	1810	287	97	35
2	62	43	47	e36	e24	97	51	67	1640	258	89	35
3	62	42	48	e40	e26	90	49	65	781	240	83	38
4	62	43	e48	e36	e27	86	47	64	584	231	77	35
5	62	43	e45	e29	e25	81	47	62	542	260	84	32
6	61	42	43	e32	e27	76	46	60	483	217	98	33
7	61	43	44	e30	e30	73	50	59	404	195	85	32
8	60	44	46	e34	e34	71	59	60	350	180	75	31
9	59	44	44	e36	e32	68	64	61	301	209	70	30
10	57	45	41	e38	e30	64	68	60	271	1220	64	29
11	56	43	41	e36	e29	61	70	58	282	2340	61	28
12	56	43	46	e34	e27	59	68	60	358	2590	59	26
13	57	43	40	e32	e30	60	67	55	400	1110	59	25
14	56	43	e44	e29	e29	58	64	51	1190	734	57	27
15	58	42	44	e32	e30	59	61	48	1580	567	54	27
16	57	e40	31	e38	e32	59	59	50	1070	462	51	26
17	55	45	e28	e32	e28	56	58	50	728	386	52	26
18	55	46	e29	e34	e29	56	59	52	566	323	54	26
19	53	45	e30	e30	e30	59	82	54	471	286	50	26
20	43	44	e28	e28	e32	58	158	54	493	257	47	28
21	44	44	e27	e30	e32	57	153	52	629	228	46	28
22	43	44	e32	e36	e34	58	127	51	471	202	47	31
23	41	53	e34	e34	e100	58	114	50	415	180	48	37
24	41	55	e32	e32	269	61	102	49	446	164	46	36
25	42	51	e30	e32	237	63	93	47	396	151	42	33
26	43	49	e34	e30	220	60	86	46	723	145	41	31
27	43	48	e36	e26	165	60	83	62	762	148	39	30
28	43	46	e32	e22	127	58	81	111	469	133	e38	29
29	44	45	e34	e24	111	56	76	147	390	120	37	28
30	44	44	e38	e27	---	54	72	151	327	112	37	27
31	44	---	e36	e22	---	52	---	632	---	104	36	---
TOTAL	1624	1346	1177	985	1869	2034	2265	2558	19332	14039	1823	905
MEAN	52.4	44.9	38.0	31.8	64.4	65.6	75.5	82.5	644	453	58.8	30.2
MAX	62	55	48	40	269	106	158	632	1810	2590	98	38
MIN	41	40	27	22	23	52	46	46	271	104	36	25
AC-FT	3220	2670	2330	1950	3710	4030	4490	5070	38350	27850	3620	1800
CFSM	.15	.13	.11	.09	.19	.19	.22	.24	1.86	1.31	.17	.09
IN.	.17	.14	.13	.11	.20	.22	.24	.27	2.07	1.51	.20	.10

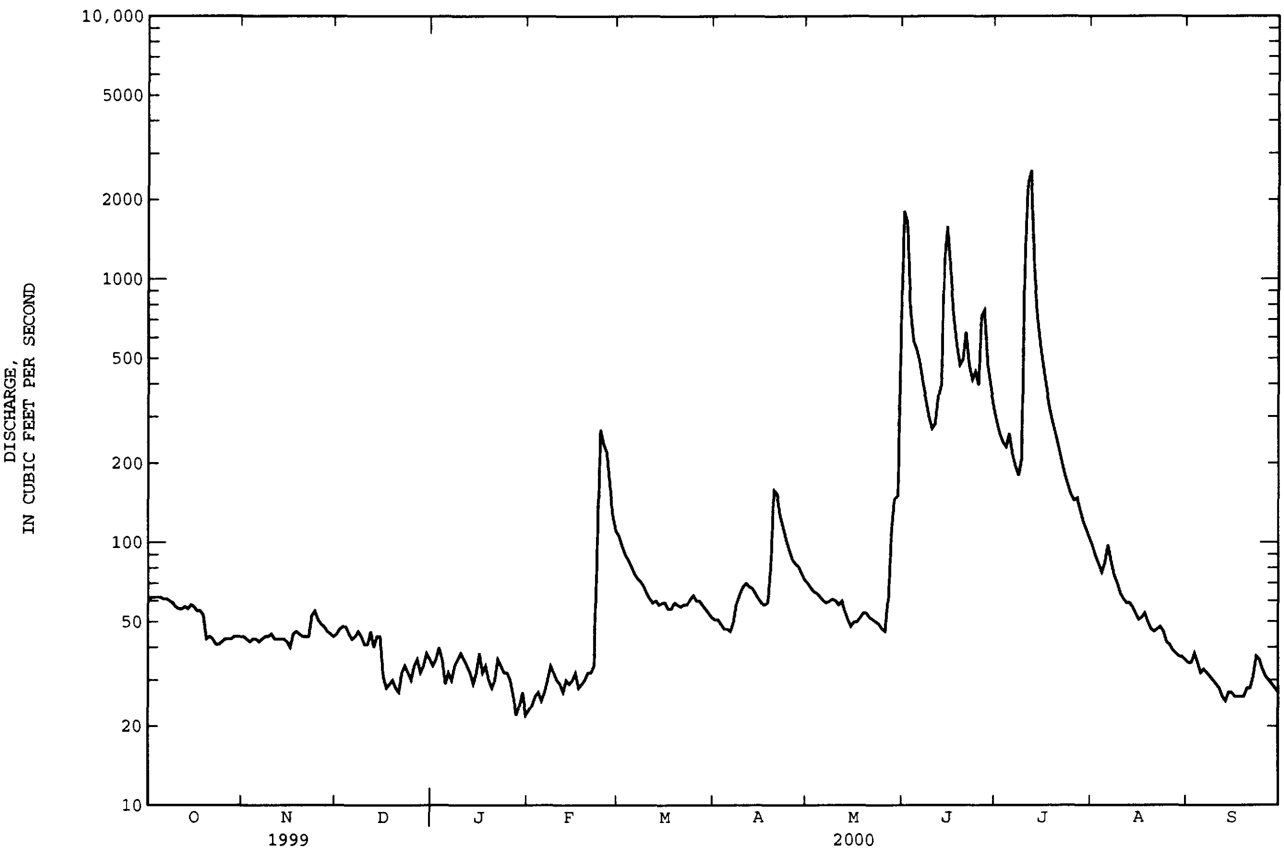
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	121	126	87.1	73.9	156	455	386	336	431	284	145	107
MAX	495	673	514	403	651	1606	1578	1606	2213	1686	1368	1028
(WY)	1987	1973	1983	1946	1983	1993	1993	1991	1947	1993	1993	1965
MIN	4.98	8.80	7.13	2.88	3.84	28.1	33.8	23.2	12.5	4.47	4.22	6.02
(WY)	1957	1957	1990	1956	1956	1954	1954	1977	1956	1956	1989	1988

05463000 BEAVER CREEK AT NEW HARTFORD, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1946 - 2000	
ANNUAL TOTAL	171204		49957			
ANNUAL MEAN	469		136		226	
HIGHEST ANNUAL MEAN					874	1993
LOWEST ANNUAL MEAN					21.8	1956
HIGHEST DAILY MEAN	9990	Jul 3	2590	Jul 12	16300	Jun 13 1947
LOWEST DAILY MEAN	27	Dec 21	22	Jan 28a	2.0	Sep 30 1989
ANNUAL SEVEN-DAY MINIMUM	29	Dec 16	24	Jan 27	2.3	Jan 19 1956
INSTANTANEOUS PEAK FLOW			2960	Jul 12	18000	Jun 13 1947
INSTANTANEOUS PEAK STAGE			9.71	Jul 12	13.50	Jun 13 1947
INSTANTANEOUS LOW FLOW			21	Dec 16		
ANNUAL RUNOFF (AC-FT)	339600		99090		163600	
ANNUAL RUNOFF (CFSM)	1.35		.39		.65	
ANNUAL RUNOFF (INCHES)	18.35		5.36		8.84	
10 PERCENT EXCEEDS	1050		324		490	
50 PERCENT EXCEEDS	162		51		89	
90 PERCENT EXCEEDS	43		29		17	

a Also Jan. 31.
e Estimated.



05464000 CEDAR RIVER AT WATERLOO, IA

LOCATION.--Lat 42°29'44", long 92°20'03", in $NW^1/_4$ $NW^1/_4$ sec.25, T.89 N., R.13 W., Black Hawk County, Hydrologic Unit 07080205, on left bank at foot of East Seventh Street, 0.3 mi upstream from Eleventh Street bridge in Waterloo, 1.1 mi downstream from Black Hawk Creek, and at mile 187.9 upstream from mouth of Iowa River.

DRAINAGE AREA.--5,146 mi^2.

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

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

GAGE.--Water-stage recorder. Datum of gage is 824.14 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Slight diurnal fluctuation during low flow caused by powerplant upstream from station. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. National Weather Service Limited Automatic Remote Collector (LARC) and U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 16, 1929, reached a stage of about 20 ft, determined by U. S. Army Corps of Engineers, from information by City of Waterloo, discharge, 65,000 ft^3/s. Flood of Apr. 2, 1933, reached a stage of about 19.5 ft from information by City of Waterloo, discharge, 61,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1720	1430	1190	e900	e650	3610	1540	1480	7730	6260	2760	1580
2	1730	1440	1180	e950	e650	3270	1500	1440	9650	5780	2570	1410
3	1760	1420	1190	e1100	e700	3120	1450	1390	12400	5500	2500	1340
4	1810	1350	1210	e950	e750	2870	1420	1360	14700	6090	2410	1280
5	2300	1340	1220	e800	e700	2710	1360	1340	16600	6360	2470	1320
6	1910	1340	1230	e900	e750	2550	1330	1300	11900	5980	2500	1430
7	1730	1310	1180	e850	e800	2440	1500	1270	9660	5680	2500	1340
8	1700	1310	1180	e900	e900	2350	1400	1260	9490	5340	2450	1320
9	1560	1320	1180	e950	e850	2240	1450	1250	8270	5590	2410	1300
10	1440	1320	1180	e1000	e800	2210	1450	1220	6980	11400	2330	1290
11	1390	1300	1150	e950	e800	2120	1460	1130	6100	18200	2380	1250
12	1590	1300	1150	e900	e750	2100	1480	1220	5870	22600	2370	1370
13	1540	1290	1130	e850	e850	2050	1490	1260	6880	23600	2320	1460
14	1560	1270	1170	e800	e800	1980	1470	1180	10500	24400	2240	1320
15	1510	1260	1290	e850	e850	1960	1450	1140	17100	17400	2130	1190
16	1570	1240	1190	e950	e900	1940	1430	1150	22800	11200	2000	1100
17	1550	1230	1090	e900	e750	1850	1410	1160	21300	8950	2070	989
18	1510	1230	958	e950	e800	1840	1390	1420	20200	7310	2190	963
19	1480	1230	e900	e850	e800	1840	1780	1570	18400	6510	2280	962
20	1490	1220	e850	e750	e850	1820	2280	3300	15600	5870	1980	994
21	1500	1220	e800	e800	e850	1790	2340	5870	13200	5230	2040	1020
22	1450	1210	e850	e950	e900	1760	2240	7610	12700	4810	2010	1130
23	1450	1500	e950	e900	e1000	1730	2150	5670	12900	4400	1960	1130
24	1430	1360	e900	e850	e1400	1760	2010	4420	12400	4120	1890	1150
25	1440	1330	e850	e850	2410	1740	1890	3860	10900	3710	2190	1120
26	1390	1320	e900	e800	3260	1750	1730	3290	11000	3640	2050	1080
27	1390	1300	e1000	e700	4190	1720	1690	3240	10900	3390	1920	1050
28	1400	1270	e900	e600	4490	1700	1600	3250	9230	3340	1800	1030
29	1440	1240	e950	e650	4120	1670	1550	3670	7720	3160	1730	1020
30	1410	1210	e1000	e750	---	1610	1510	4470	6840	3030	1670	989
31	1420	---	e950	e600	---	1600	---	5980	---	2890	1670	---
TOTAL	48570	39110	32868	26500	38320	65700	48750	79170	359920	251740	67790	35927
MEAN	1567	1304	1060	855	1321	2119	1625	2554	12000	8121	2187	1198
MAX	2300	1500	1290	1100	4490	3610	2340	7610	22800	24400	2760	1580
MIN	1390	1210	800	600	650	1600	1330	1130	5870	2890	1670	962
AC-FT	96340	77570	65190	52560	76010	130300	96700	157000	713900	499300	134500	71260
CFSM	.30	.25	.21	.17	.26	.41	.32	.50	2.33	1.58	.42	.23
IN.	.35	.28	.24	.19	.28	.47	.35	.57	2.60	1.82	.49	.26

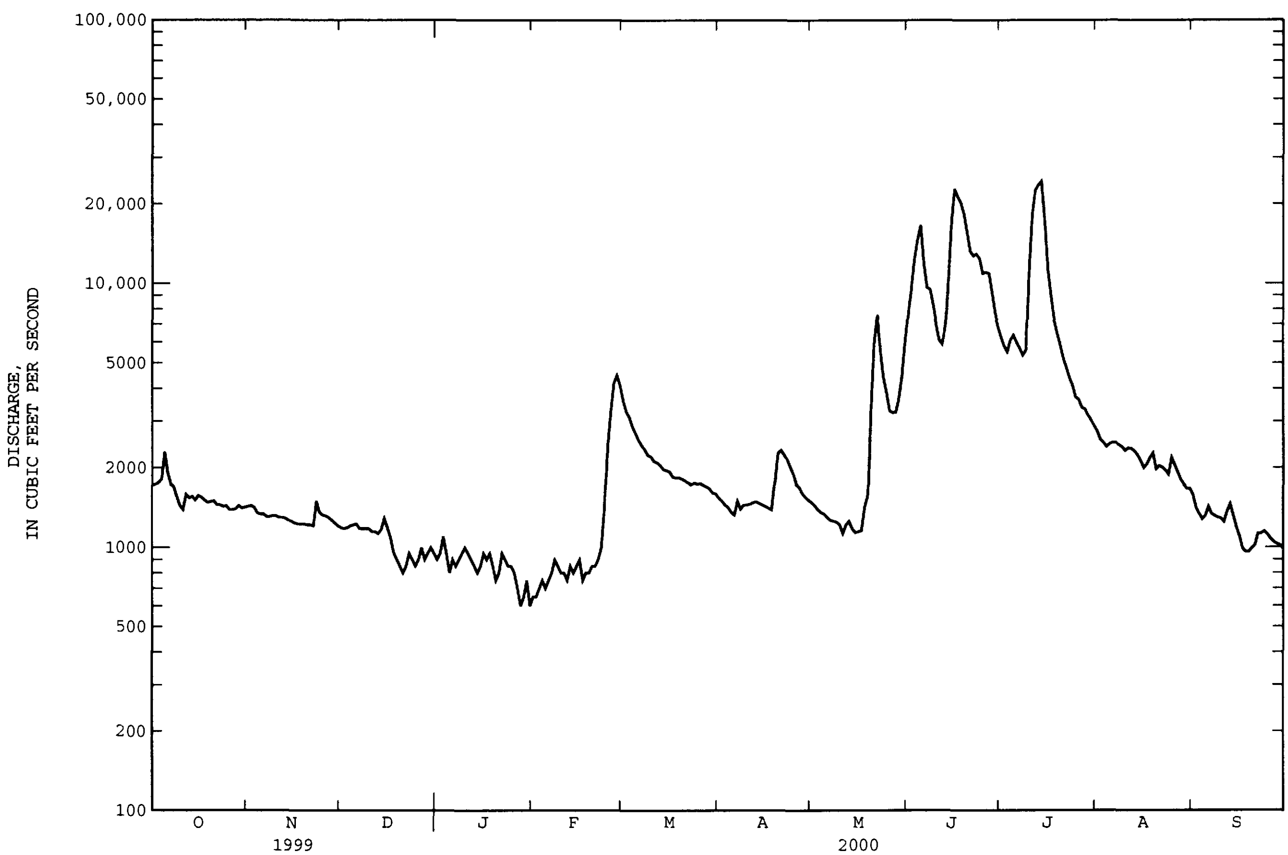
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2135	2079	1560	1241	1805	5614	6229	4699	5370	4142	2719	2058
MAX	8499	7434	6891	5479	9448	13760	24940	19010	18320	21210	18770	9258
(WY)	1987	1973	1983	1973	1984	1973	1993	1991	1993	1993	1993	1993
MIN	364	370	266	252	188	687	741	732	474	455	328	387
(WY)	1990	1990	1990	1959	1959	1964	1957	1977	1977	1989	1989	1955

05464000 CEDAR RIVER AT WATERLOO, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1941 - 2000	
ANNUAL TOTAL	2335468		1094365			
ANNUAL MEAN	6399		2990		3309	
HIGHEST ANNUAL MEAN					10580	1993
LOWEST ANNUAL MEAN					636	1977
HIGHEST DAILY MEAN	67000	Jul 23	24400	Jul 14	74000	Mar 29 1961
LOWEST DAILY MEAN	800	Dec 21	600	Jan 28a	152	Jan 28 1959
ANNUAL SEVEN-DAY MINIMUM	871	Dec 19	657	Jan 27	173	Feb 13 1959
INSTANTANEOUS PEAK FLOW			24900	Jul 14	76700	Mar 29 1961
INSTANTANEOUS PEAK STAGE			12.85	Jul 14	21.86	Mar 29 1961
INSTANTANEOUS LOW FLOW			600	Jan 28		
ANNUAL RUNOFF (AC-FT)	4632000		2171000		2397000	
ANNUAL RUNOFF (CFSM)	1.24		.58		.64	
ANNUAL RUNOFF (INCHES)	16.88		7.91		8.74	
10 PERCENT EXCEEDS	15100		6910		7570	
50 PERCENT EXCEEDS	3370		1460		1800	
90 PERCENT EXCEEDS	1200		850		562	

a Also Jan. 31.
e Estimated.



05464500 CEDAR RIVER AT CEDAR RAPIDS, IA

LOCATION.--Lat 41°58'14", long 91°40'01", in $SE^1/_4$ $NW^1/_4$ sec.28, T.83 N., R.7 W., Linn County, Hydrologic Unit 07080205, on right bank 400 ft upstream from bridge on Eighth Avenue in Cedar Rapids, 2.7 mi upstream from Prairie Creek, and at mile 112.7 upstream from mouth of Iowa River.

DRAINAGE AREA.--6,510 mi^2.

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow affected by city hydroelectric dam 0.5 mile upstream since June 1979. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U. S. Army Corps of Engineers rain gage and satellite data collection platform and U.S. Geological Survey data collection platform with telephone modem at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1851 reached a stage of about 20 ft, discharge, 65,000 ft^3/s, estimated.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2440	1690	1720	1470	e1000	4890	1900	2270	8450	9310	4040	2070
2	2420	1760	1690	1540	e1050	4290	1830	2190	10900	8250	3840	2020
3	2360	1850	1710	1570	1140	3790	1770	2110	11000	7920	3600	1820
4	2290	1860	1700	e1400	1130	3570	1720	2050	12100	7730	3400	1700
5	2290	1850	1700	e1100	1160	3290	1650	1950	13200	8430	3410	1610
6	2610	1830	1690	e1000	1120	3050	1600	1920	14700	8340	3540	1580
7	2670	1830	1710	e950	1110	2870	1680	1870	16400	7740	3460	1660
8	2360	1820	1620	e1100	1080	2740	1720	1950	14100	7290	3380	1690
9	2290	1820	1630	e1300	1090	2620	1750	1920	11600	6960	3300	1590
10	2260	1840	1590	e1400	1170	2500	1800	1820	10800	8180	3150	1710
11	1980	1950	1600	1550	1200	2390	1770	1790	9230	11100	3080	1640
12	1910	1980	1660	1600	1190	2200	1800	1730	8190	15300	3010	1510
13	1950	1990	1560	1450	1230	2310	1790	1690	8340	19400	3100	1510
14	2050	1980	1530	1240	1150	2210	1840	1710	10300	25600	3060	1850
15	2000	1990	1560	1100	1240	2220	1850	1650	13000	27300	2920	1750
16	2100	1980	1610	1240	1290	2140	1850	1610	15100	26300	2790	1540
17	2040	1790	1420	1270	1260	2110	1800	1620	17500	21200	2680	1490
18	2040	1620	863	1140	1270	2070	1720	1690	21000	13900	2660	1350
19	2020	1610	e750	923	1140	2120	1990	1710	23100	10300	2720	1310
20	1820	1610	e550	e850	e1100	2130	3490	2360	22000	8710	2930	1350
21	1720	1610	e410	e750	e1200	2070	5400	3050	20000	7730	2650	1310
22	1750	1600	e370	e800	1390	2040	4670	5480	17600	7030	2530	1580
23	1800	2140	748	e850	1760	2000	4090	7690	15100	6440	2600	1520
24	1680	2140	1210	e800	2420	2020	3710	7590	14200	5930	2530	1550
25	1710	2140	1390	e900	3430	2040	3350	6060	14400	5570	2430	1460
26	1660	1980	1400	e850	3500	2030	3070	5370	14900	5400	2560	1470
27	1710	1950	1500	e850	3940	2050	2830	4870	15000	5440	2700	1410
28	1650	1910	e1500	e900	4660	2020	2640	4610	14500	5030	2490	1360
29	1670	1840	1460	e1000	5070	2000	2530	4470	12800	4910	2280	1330
30	1690	1750	1460	e1100	---	1960	2360	4540	10800	4510	2210	1300
31	1740	---	1520	e1000	---	1870	---	5800	---	4300	2100	---
TOTAL	62680	55710	42831	34993	50490	77610	71970	97140	420310	321550	91150	47040
MEAN	2022	1857	1382	1129	1741	2504	2399	3134	14010	10370	2940	1568
MAX	2670	2140	1720	1600	5070	4890	5400	7690	23100	27300	4040	2070
MIN	1650	1600	370	750	1000	1870	1600	1610	8190	4300	2100	1300
MED	2000	1840	1530	1100	1200	2140	1840	2050	14200	7920	2920	1540
AC-FT	124300	110500	84960	69410	100100	153900	142800	192700	833700	637800	180800	93300
CFSM	.31	.29	.21	.17	.27	.38	.37	.48	2.15	1.59	.45	.24
IN.	.36	.32	.24	.20	.29	.44	.41	.56	2.40	1.84	.52	.27

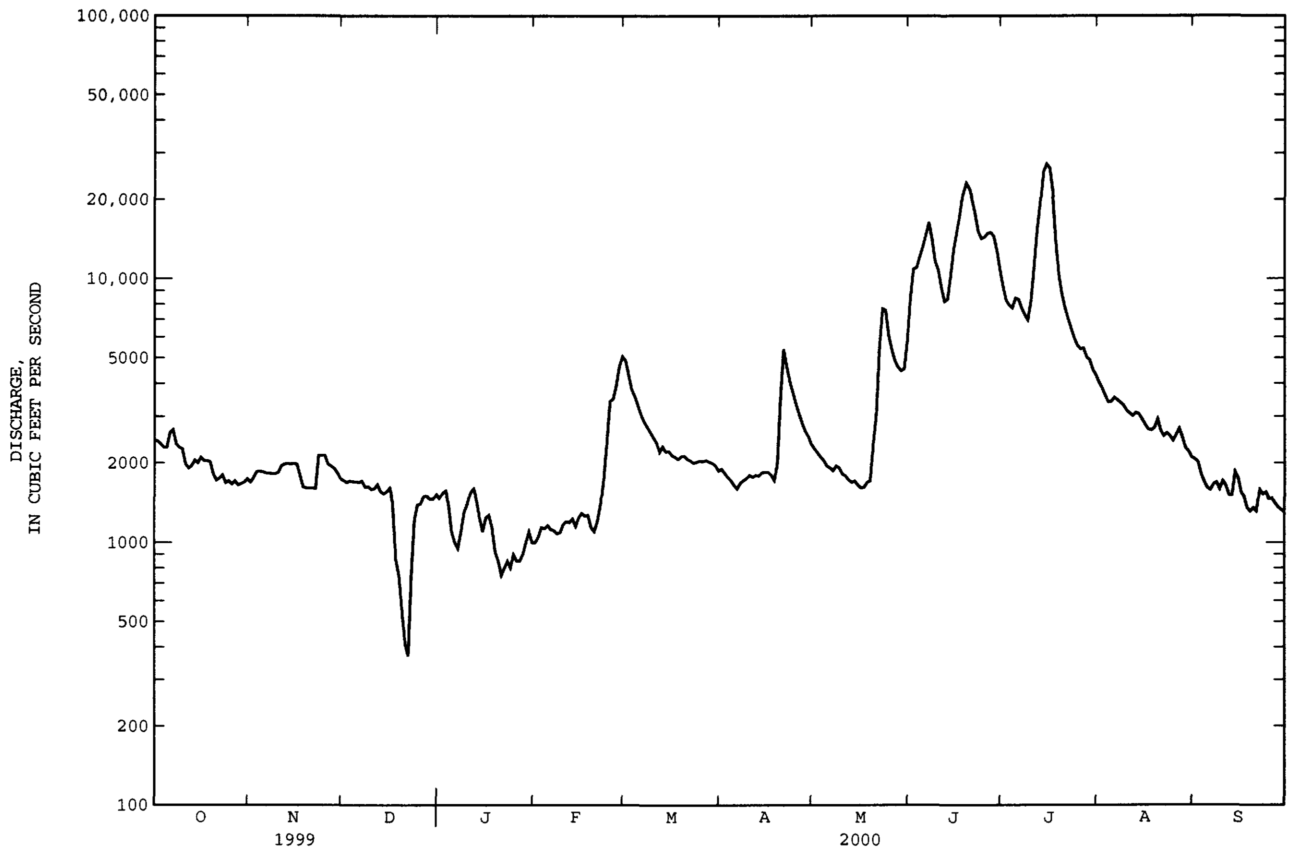
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2365	2437	1875	1589	2502	6687	6811	5254	5854	4303	3004	2405
MAX	10570	9327	8675	8529	12230	17420	35320	24500	23420	33910	28700	13990
(WY)	1987	1973	1983	1973	1984	1929	1993	1991	1947	1993	1993	1993
MIN	463	410	290	299	304	664	1045	527	350	533	377	466
(WY)	1990	1990	1990	1911	1940	1934	1957	1934	1934	1989	1934	1934

05464500 CEDAR RIVER AT CEDAR RAPIDS, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1903 - 2000	
ANNUAL TOTAL	2807121		1373474			
ANNUAL MEAN	7691		3753		3760	
HIGHEST ANNUAL MEAN					15130	1993
LOWEST ANNUAL MEAN					689	1934
HIGHEST DAILY MEAN	58700	Jul 25	27300	Jul 15	71500	Mar 31 1961
LOWEST DAILY MEAN	370	Dec 22	370	Dec 22	140	Nov 18 1989
ANNUAL SEVEN-DAY MINIMUM	700	Dec 18	700	Dec 18	224	Dec 20 1989
INSTANTANEOUS PEAK FLOW			27700	Jul 15	73000	Mar 31 1961
INSTANTANEOUS PEAK STAGE			11.18	Jul 15	20.00	Mar 18 1929
ANNUAL RUNOFF (AC-FT)	5568000		2724000		2724000	
ANNUAL RUNOFF (CFSM)	1.18		.58		.58	
ANNUAL RUNOFF (INCHES)	16.04		7.85		7.85	
10 PERCENT EXCEEDS	17900		9250		8350	
50 PERCENT EXCEEDS	4260		1970		2150	
90 PERCENT EXCEEDS	1680		1160		680	

e Estimated



05465000 CEDAR RIVER NEAR CONESVILLE, IA

LOCATION.--Lat 41°24'36", long 91°17'06", in $SW^1/_4$ $SW^1/_4$ sec.2, T.76 N., R.4 W., Muscatine County, Hydrologic Unit 07080206, on right bank 10 ft downstream from bridge on county highway G28, 3.4 mi northeast of Conesville, 5.2 mi downstream from Wapsinonoc Creek, 10.7 mi upstream from mouth, and at mile 39.8 upstream from mouth of Iowa River.

DRAINAGE AREA.--7,785 mi^2.

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2680	1940	1950	e1600	e1200	5050	2150	2870	11800	12900	4940	2500
2	2550	1930	1920	e1500	e1100	5100	2100	2770	11900	11000	4590	2410
3	2560	1900	1920	e1600	e1300	4650	2080	2660	12700	11100	4290	2380
4	2540	1910	1940	e1500	e1200	4200	2030	2570	12400	10300	4060	2310
5	2510	1910	2010	e1300	e1100	3870	1970	2490	12900	10900	3860	2200
6	2430	1910	1960	e1100	e1100	3650	1900	2390	13900	10600	3840	2050
7	2410	1850	1930	e1000	e1200	3430	1870	2310	15100	10100	4010	1980
8	2640	1840	1930	e1100	e1100	3270	1880	2280	16700	9250	4040	1970
9	2520	1820	1960	e1200	e1200	3130	1910	2410	16200	8580	3920	2030
10	2380	1800	1920	e1400	e1300	2990	1960	2670	13200	8930	3710	1980
11	2330	1810	1890	e1500	e1200	2870	1950	2630	11600	10400	3500	2170
12	2250	1800	1870	e1400	e1100	2760	1990	2450	10400	12700	3350	2130
13	2110	1800	1890	e1300	e1200	2720	1950	2360	9980	15600	3280	2040
14	2040	1770	1890	e1200	e1200	2620	1940	2220	17000	18700	3330	1950
15	2090	1740	1930	e1100	e1300	2600	1920	2150	20800	21900	3310	2090
16	2220	1750	1850	e1200	e1400	2540	1950	2140	18200	25500	3210	2120
17	2270	1760	1860	e1300	e1300	2480	2010	2110	17300	28300	3110	1960
18	2170	1750	1890	e1200	e1300	2420	2010	2240	18100	28800	3050	1820
19	2110	1750	e1200	e1100	e1200	2430	2000	3890	20000	23800	2990	1750
20	2100	1740	e1000	e950	e1100	2470	2390	3080	22300	13700	2910	1730
21	2060	1740	e700	e800	e1200	2470	4380	2690	23600	10800	2950	1710
22	2030	1730	e550	e850	e1300	2400	6100	2950	23400	9370	3000	1750
23	2020	1770	e900	e900	1700	2350	5790	4030	21900	8420	2860	2380
24	2020	2120	e1100	e850	2180	2320	4910	6370	20100	7650	2890	2630
25	2000	2300	e1400	e950	2940	2310	4350	7410	20100	6950	2850	2200
26	1970	2310	e1600	e900	3690	2310	3940	6410	18200	6450	2780	2060
27	1950	2200	e1700	e900	4330	2290	3640	5690	17800	6140	2710	1950
28	1940	2110	e1800	e1000	4180	2280	3400	5340	17500	6870	2910	1870
29	1940	2040	e1700	e1100	4530	2250	3170	4860	17000	7200	2810	1800
30	1910	2000	e1600	e1200	---	2210	3020	4680	15100	6030	2690	1730
31	1930	---	e1700	e1100	---	2200	---	6610	---	5430	2580	---
TOTAL	68680	56800	51460	36100	50150	90640	82660	107730	497180	384370	104330	61650
MEAN	2215	1893	1660	1165	1729	2924	2755	3475	16570	12400	3365	2055
MAX	2680	2310	2010	1600	4530	5100	6100	7410	23600	28800	4940	2630
MIN	1910	1730	550	800	1100	2200	1870	2110	9980	5430	2580	1710
AC-FT	136200	112700	102100	71600	99470	179800	164000	213700	986200	762400	206900	122300
CFSM	.28	.24	.21	.15	.22	.38	.35	.45	2.13	1.59	.43	.26
IN.	.33	.27	.25	.17	.24	.43	.39	.51	2.38	1.84	.50	.29

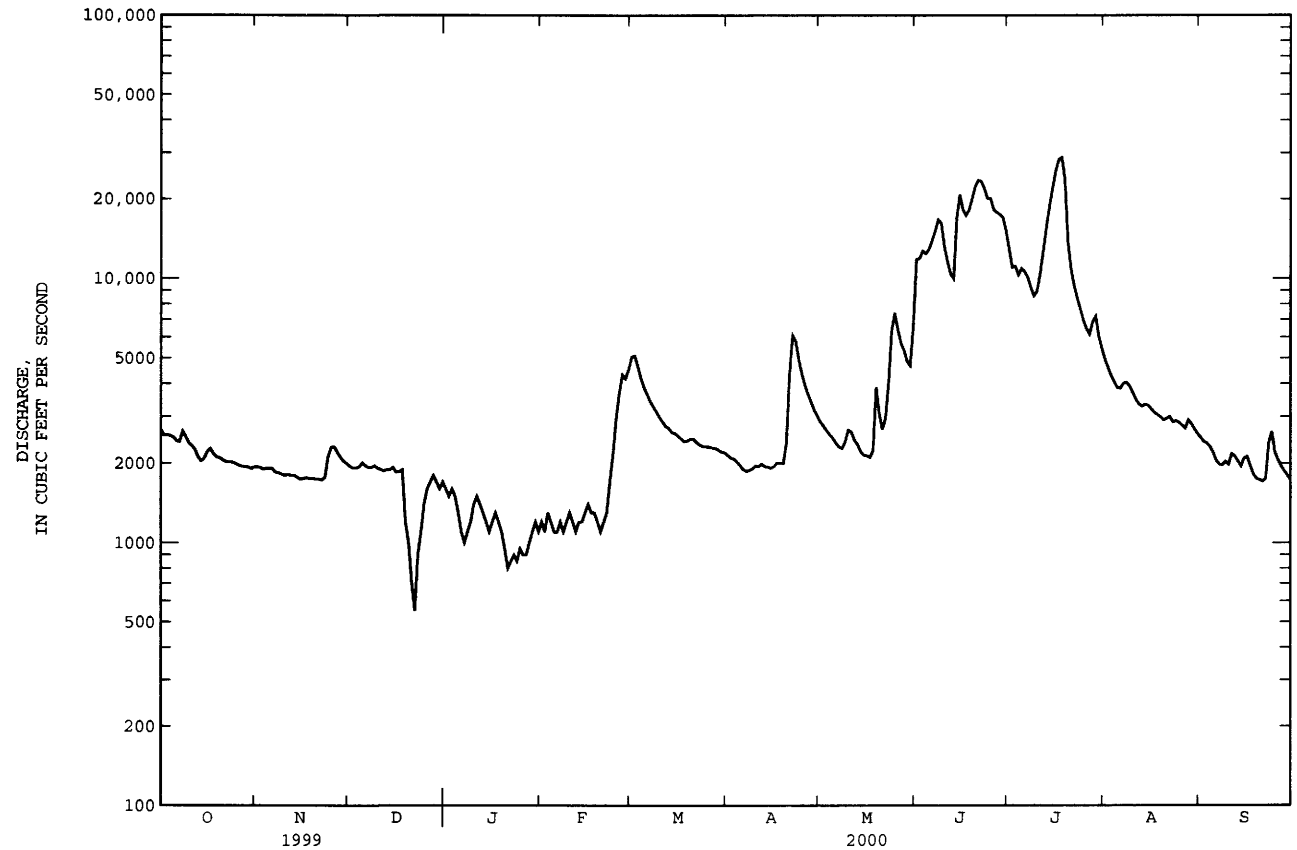
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3144	3338	2616	2401	3270	8041	9496	7536	8213	6552	4236	3304
MAX	12380	10240	11110	11860	12000	17590	36790	24440	27780	42110	34190	19530
(WY)	1987	1973	1983	1973	1984	1948	1993	1991	1993	1993	1993	1993
MIN	599	590	429	365	359	1056	1244	1219	768	815	700	620
(WY)	1957	1956	1990	1977	1940	1954	1957	1940	1977	1989	1989	1955

05465000 CEDAR RIVER NEAR CONESVILLE, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1940 - 2000	
ANNUAL TOTAL	3165230		1591750			
ANNUAL MEAN	8672		4349		5183	
HIGHEST ANNUAL MEAN					18710	1993
LOWEST ANNUAL MEAN					1176	1956
HIGHEST DAILY MEAN	57700	Jul 28	28800	Jul 18	69800	Apr 6 1993
LOWEST DAILY MEAN	550	Dec 22	550	Dec 22	250	Nov 28 1955
ANNUAL SEVEN-DAY MINIMUM	979	Dec 19	879	Jan 21	329	Jan 30 1940
INSTANTANEOUS PEAK FLOW			29000	Jul 18	74000	Apr 6 1993
INSTANTANEOUS PEAK STAGE			14.17	Jul 17	17.11	Apr 6 1993
ANNUAL RUNOFF (AC-FT)	6278000		3157000		3755000	
ANNUAL RUNOFF (CFSM)	1.11		.56		.67	
ANNUAL RUNOFF (INCHES)	15.12		7.60		9.04	
10 PERCENT EXCEEDS	19700		11800		11900	
50 PERCENT EXCEEDS	5260		2250		3160	
90 PERCENT EXCEEDS	1890		1200		927	

e Estimated



05465500 IOWA RIVER AT WAPELLO, IA

LOCATION.--Lat 41°10'41", long 91°10'55", in $NW^1/_4$ $SE^1/_4$ sec.27, T.74 N., R.3 W., Louisa County, Hydrologic Unit 07080209, on right bank, 1200 ft. downstream from bridge on State Highway 99 at east edge of Wapello, 13.2 mi downstream from Cedar River, and at mile 15.8.

DRAINAGE AREA.--12,499 mi^2.

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. WDR IA-95-1:location.

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Coralville Lake (station 05453510) 67.3 mi upstream, since Sept. 17, 1958. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum instantaneous discharge, 111,000 ft^3/s, July 8, 1993, gage height, 29.53 ft; minimum daily discharge, 300 ft^3/s, Nov. 28, 1955.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3320	2210	2530	e1500	e1200	6930	3050	4330	18600	18800	8540	3350
2	3070	2200	2500	e1500	e1100	7210	2980	4130	18200	16100	7640	3200
3	2960	2210	2490	e1700	e1300	6900	2920	3960	18300	16700	6750	3110
4	3020	2240	2490	e1500	e1200	6230	2870	3720	17800	18500	6150	3040
5	2970	2260	2580	e1300	e1200	5660	2840	3530	15900	19800	5730	2930
6	2850	2270	2600	e1100	e1200	5340	2740	3410	16200	20300	5620	2750
7	2800	2260	2550	e1200	e1300	5030	2630	3310	16400	19200	5720	2620
8	2840	2220	2510	e1200	e1200	4720	2600	3220	17300	17300	6110	2650
9	2970	2210	2540	e1400	e1300	4320	2610	3320	18200	15400	6060	2760
10	2760	2180	2550	e1700	e1400	4170	2630	3860	16900	14700	6310	2780
11	2630	2190	2520	e1900	e1200	3980	2720	4010	14700	19000	6320	2760
12	2560	2210	2580	e1800	e1200	3850	2710	3770	13400	20600	5390	2980
13	2420	2220	2630	e1600	e1300	3730	2700	3530	12600	22300	5060	2890
14	2360	2220	2770	e1500	e1300	3690	2610	3320	21100	23500	4900	2860
15	2330	2210	2700	e1600	e1400	3610	2580	3140	29800	24900	4830	2780
16	2500	2210	2580	e1700	e1500	3550	2650	3060	29100	27200	4700	2890
17	2580	2230	2540	e1400	e1400	3510	2920	3060	25800	30600	4550	2720
18	2610	2230	2520	e1500	e1300	3440	3050	3020	25600	33300	4420	2500
19	2450	2200	e1700	e1300	e1200	3400	3070	4340	26500	33900	4210	2290
20	2400	2190	e1300	e1000	e1300	3410	3580	5450	28100	27800	4100	2230
21	2390	2200	e950	e950	e1700	3440	7820	4340	29900	17800	4040	2140
22	2320	2200	e800	e1100	e2300	3380	9740	4030	30500	14500	4130	2210
23	2310	2220	e1200	e1100	3120	3300	10200	4320	29600	12500	4040	2830
24	2290	2280	e1400	e1000	3890	3240	8190	6160	27800	11100	3920	6290
25	2270	2790	e1600	e1200	5080	3190	7050	8400	28900	10100	3900	5090
26	2230	2800	e1700	e1100	6410	3190	6300	8540	27600	9290	3820	4290
27	2230	2810	e1500	e1100	7010	3230	5780	7700	25100	8480	3740	3730
28	2200	2640	e1300	e1200	6830	3230	5360	7110	24200	9980	3740	3400
29	2230	2550	e1500	e1300	6690	3250	5000	6730	23300	12300	3900	3190
30	2210	2510	e1700	e1400	---	3200	4680	6500	21800	11400	3710	3020
31	2200	---	e1600	e1100	---	3140	---	12300	---	9560	3560	---
TOTAL	79280	69370	64430	41950	68530	128470	126580	149620	669200	566910	155610	92280
MEAN	2557	2312	2078	1353	2363	4144	4219	4826	22310	18290	5020	3076
MAX	3320	2810	2770	1900	7010	7210	10200	12300	30500	33900	8540	6290
MIN	2200	2180	800	950	1100	3140	2580	3020	12600	8480	3560	2140
AC-FT	157300	137600	127800	83210	135900	254800	251100	296800	1327000	1124000	308700	183000
CFSM	.20	.18	.17	.11	.19	.33	.34	.39	1.78	1.46	.40	.25
IN.	.24	.21	.19	.12	.20	.38	.38	.45	1.99	1.69	.46	.27

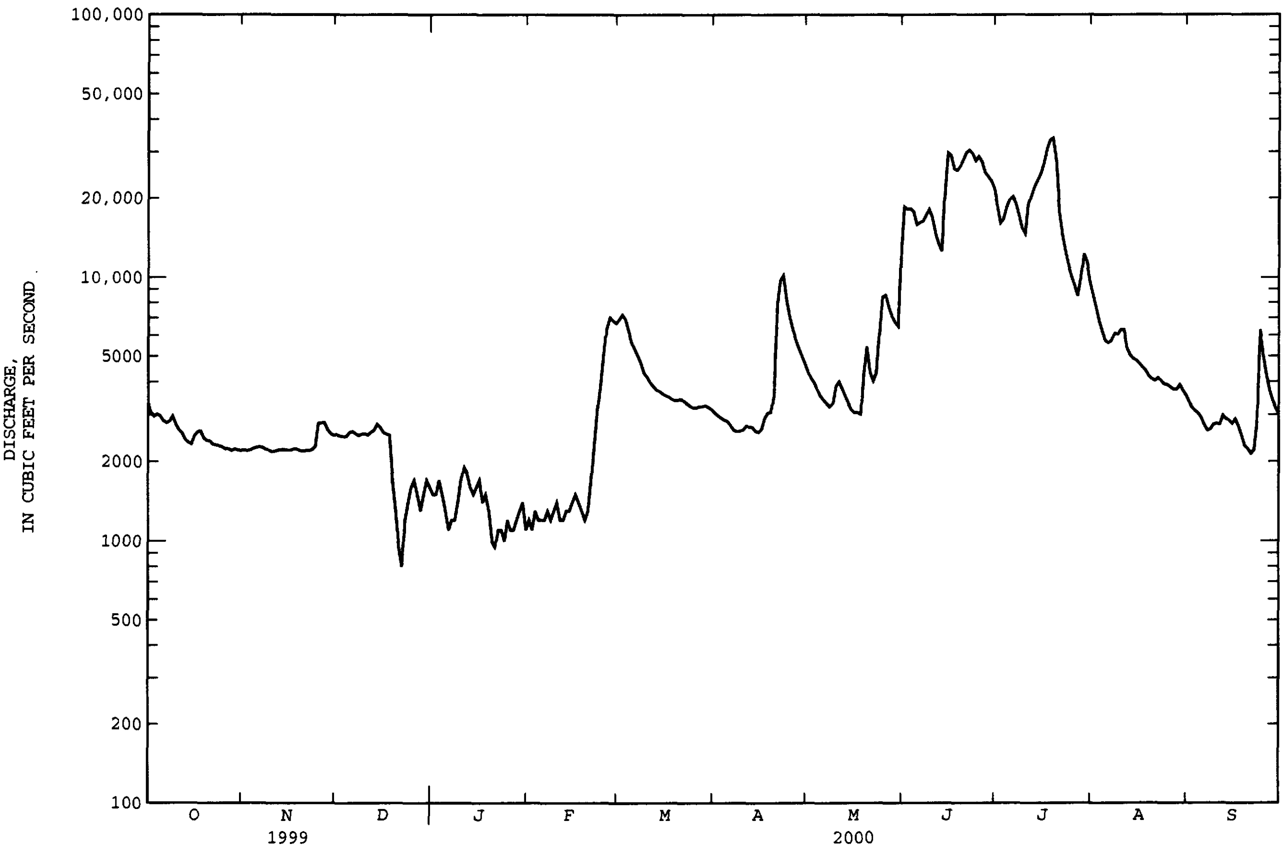
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5526	6160	5340	4504	6290	13510	16320	13740	13940	12600	8000	6097
MAX	17200	16080	18150	20420	17080	26130	45840	33030	36630	77320	61750	37270
(WY)	1987	1993	1983	1973	1984	1982	1993	1993	1993	1993	1993	1993
MIN	926	882	664	533	661	2273	2536	1709	1022	1019	873	982
(WY)	1990	1990	1990	1977	1977	1977	1977	1977	1977	1989	1989	1988

05465500 IOWA RIVER AT WAPELLO, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1959 - 2000a	
ANNUAL TOTAL	4591840		2212230			
ANNUAL MEAN	12580		6044		9344	
HIGHEST ANNUAL MEAN					30550	1993
LOWEST ANNUAL MEAN					1908	1989
HIGHEST DAILY MEAN	59900	Jul 29	33900	Jul 19	106000	Jul 8 1993
LOWEST DAILY MEAN	800	Dec 22	800	Dec 22	460	Jan 21 1977
ANNUAL SEVEN-DAY MINIMUM	1280	Dec 19	1060	Jan 20	470	Jan 20 1977
INSTANTANEOUS PEAK FLOW			34200	Jul 19	111000	Jul 8 1993
INSTANTANEOUS PEAK STAGE			21.01	Jul 19	29.53	Jul 7 1993
ANNUAL RUNOFF (AC-FT)	9108000		4388000		6769000	
ANNUAL RUNOFF (CFSM)	1.01		.48		.75	
ANNUAL RUNOFF (INCHES)	13.67		6.58		10.16	
10 PERCENT EXCEEDS	30900		17900		21100	
50 PERCENT EXCEEDS	7980		3060		6040	
90 PERCENT EXCEEDS	2230		1300		1710	

a Post regulation.
e Estimated.



05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY RECORDS

LOCATION -- Samples collected at bridge on State Highway 99, 1200 ft. upstream of gage.

PERIOD OF RECORD.--January 1978 to current year.

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

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

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 920 microsiemens Dec. 17, 1988; minimum daily, 168 microsiemens June 21, 1990.
WATER TEMPERATURES: Maximum daily, 33.0°C July 25, 1987; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,970 mg/L June 25, 1981; minimum daily mean, 1 mg/L Jan. 21, 22, 1981.
SEDIMENT LOADS: Maximum daily 604,000 tons June 20, 1990; minimum daily, 4.7 tons Dec. 23, 24, 1989.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 746 microsiemens Feb. 1; minimum daily, 341 microsiemens June 15.
WATER TEMPERATURES: Maximum daily, 29.0°C, June 5, 6; minimum daily, 0.0°C Feb. 1.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 912 mg/L June 1; minimum daily mean, 4 mg/L Feb. 1.
SEDIMENT LOADS: Maximum daily, 61,300 tons June 15; minimum daily, 13 tons Feb. 1.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
OCT												
04...	1030	3040	483	8.3	10.4	11.0	11.0	99	758	180	38.1	20.2
NOV												
01...	0907	2230	570	7.4	13.1	15.0	9.7	93	750	220	48.9	23.6
DEC												
07...	1230	2440	607	8.7	3.2	1.0	15.6	119	749	250	62.5	22.5
JAN												
05...	0815	1330	685	7.8	.1	-8.0	14.5	99	755	280	73.4	22.3
FEB												
01...	1210	1290	728	7.4	-.2	3.0	12.6	86	760	280	72.2	24.4
MAR												
01...	1307	6800	552	8.3	8.4	9.0	11.4	101	750	220	57.6	19.0
APR												
03...	1010	2790	492	8.9	12.1	--	12.8	122	743	180	38.0	20.3
MAY												
01...	0950	4520	451	8.6	18.3	17.5	9.4	102	745	170	35.6	19.2
JUN												
07...	1018	15900	460	7.9	19.5	22.0	7.1	78	754	190	51.5	15.2
JUL												
05...	0950	19600	472	7.9	23.2	31.0	6.7	80	748	200	52.5	16.3
AUG												
09...	0947	6030	413	8.3	26.5	26.0	7.7	98	748	160	35.6	17.6
31...	1020	3750	460	8.5	26.3	30.0	9.3	118	748	170	36.0	20.6

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT											
04...	26.2	.9	2.6	134	16	132	43.7	37.7	.2	5.6	283
NOV											
01...	32.9	1	2.8	168	23	159	47.7	45.6	.2	E.1	326
DEC											
07...	31.1	.9	2.8	189	22	187	49.7	45.4	.2	2.1	344
JAN											
05...	38.2	1	3.1	234	0	286	56.3	57.7	.2	7.6	429
FEB											
01...	38.7	1	3.0	187	0	228	57.7	55.1	.3	6.8	437
MAR											
01...	21.0	.6	3.3	154	0	188	37.7	33.6	.2	7.2	325
APR											
03...	26.9	.9	2.7	127	16	123	48.0	40.0	.2	.1	286
MAY											
01...	20.1	.7	2.2	100	0	122	38.7	33.7	.3	.3	251
JUN											
07...	9.4	.3	2.7	164	0	200	23.2	17.9	.2	10.8	271
JUL											
05...	8.8	.3	3.0	123	0	150	23.1	16.2	.2	11.3	285
AUG											
09...	15.6	.5	2.8	116	0	142	32.9	24.0	.2	2.6	236
31...	22.7	.7	2.8	137	13	140	38.8	29.8	.3	.7	256

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	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)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
04...	.38	1.88	.013	.033	2.1	.037	.068	.220	41	337	E10
NOV											
01...	.44	1.57	.014	.030	1.9	<.010	.024	.271	56	337	10
DEC											
07...	.47	3.01	.011	<.020	1.4	.029	.047	.188	15	99	E10
JAN											
05...	.58	4.38	.013	.151	.68	.165	.184	.193	18	63	E10
FEB											
01...	.59	4.73	.017	.345	.79	.179	.256	--	4	13	10
MAR											
01...	.44	--	--	--	--	--	--	--	124	2290	<10
APR											
03...	.39	1.87	.016	.048	2.1	<.010	.021	.310	57	429	10
MAY											
01...	.34	3.55	.024	.024	1.5	<.010	.017	.305	136	1660	<10
JUN											
07...	.37	9.29	.053	.023	1.9	.120	.144	.488	294	12600	<10
JUL											
05...	.39	8.13	.026	<.020	1.9	.167	.199	.623	452	23900	<10
AUG											
09...	.32	2.92	.019	<.020	1.4	.026	.040	.292	181	2940	<10
31...	.35	1.23	.022	<.020	.94	<.010	.025	.220	166	1680	<10

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTIC-ULATE TOTAL (MG/L AS C) (00689)	PROPA-CHLOR, WATER, DISS, REC (UG/L) (04024)	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	SI-MAZINE, WATER, DISS, REC (UG/L) (04035)	PRO-METON, WATER, DISS, REC (UG/L) (04037)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)
OCT											
04...	3	E.037	8.3	.68	3.5	>5.0	<.007	<.002	E.004	E.009	<.004
NOV											
01...	14	E.037	8.2	.35	3.7	3.8	<.007	<.002	E.005	E.011	<.004
DEC											
07...	15	E.043	8.4	.36	2.9	1.7	<.007	<.002	<.005	E.008	<.004
JAN											
05...	65	E.042	7.8	.43	2.7	.5	<.007	<.002	<.005	E.006	<.004
FEB											
01...	41	E.052	7.6	.73	3.2	.3	<.007	<.002	<.005	E.007	.009
MAR											
01...	12	E.041	8.2	--	4.0	2.2	<.007	<.002	<.005	<.018	<.004
APR											
03...	6	E.033	8.5	.30	3.9	>5.0	<.007	<.002	<.005	E.010	<.004
MAY											
01...	E2	E.028	8.1	.38	3.7	>5.0	<.007	<.002	.012	E.007	<.010
JUN											
07...	E2	E.17	7.8	.50	4.2	>5.0	<.007	<.002	.030	E.011	.025
JUL											
05...	E1	E.11	7.6	.44	5.7	>5.0	<.007	<.002	.008	E.012	.015
AUG											
09...	<2	E.050	8.3	.32	3.6	>5.0	<.007	<.002	.005	E.016	.008
31...	<2	E.052	8.7	.40	4.5	>5.0	<.007	<.002	.008	E.013	<.004

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	FONOFOS WATER DISS REC (UG/L) (04095)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	P,P' DDE DISSOLV (UG/L) (34653)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	LINDANE DIS- SOLVED (UG/L) (39341)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	MALA- THION, DIS- SOLVED (UG/L) (39532)	PARA- THION, DIS- SOLVED (UG/L) (39542)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)
OCT											
04...	<.003	<.002	<.006	<.004	<.004	<.001	.027	<.005	<.004	<.002	.115
NOV											
01...	<.003	<.002	<.006	<.004	<.004	<.001	.026	<.005	<.004	<.002	.101
DEC											
07...	<.003	<.002	<.006	<.004	<.004	<.001	.033	<.005	<.004	<.002	.103
JAN											
05...	<.003	<.002	<.006	<.004	<.004	<.001	.027	<.005	<.004	<.002	.064
FEB											
01...	<.003	<.002	<.006	<.004	<.004	<.001	.027	<.005	<.004	<.002	.069
MAR											
01...	<.003	<.002	<.006	<.004	<.004	<.001	.075	<.005	<.004	<.002	.072
APR											
03...	<.003	<.002	<.006	<.004	<.004	<.001	.040	<.005	<.004	<.002	.096
MAY											
01...	<.003	<.002	<.006	<.004	<.004	<.001	.127	<.005	<.004	<.002	.306
JUN											
07...	<.003	<.002	<.006	<.004	<.004	<.001	.908	<.005	<.004	<.002	3.78
JUL											
05...	<.003	<.002	<.006	<.004	<.004	<.001	.276	<.005	<.004	.005	.980
AUG											
09...	<.003	<.002	<.006	<.004	<.004	<.001	.063	<.005	<.004	.007	.212
31...	<.003	<.002	<.006	<.004	<.004	<.001	.027	<.005	<.004	<.002	.161

DATE	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)
OCT											
04...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
NOV											
01...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
DEC											
07...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
JAN											
05...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
FEB											
01...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
MAR											
01...	<.002	.016	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
APR											
03...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
MAY											
01...	.008	.073	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
JUN											
07...	.023	.878	.025	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
JUL											
05...	.030	.055	.007	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
AUG											
09...	<.002	.014	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002
31...	<.002	<.002	<.004	<.003	<.002	<.004	<.002	<.007	<.002	<.006	<.002

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	PEB-ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	MOL-INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	ETHO-PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	BEN-FLUR-ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	CARBO-FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	TER-BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	PRON-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	DISUL-FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	TRIAL-LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	PRO-PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)
OCT											
04...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
NOV											
01...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
DEC											
07...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
JAN											
05...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
FEB											
01...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
MAR											
01...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
APR											
03...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
MAY											
01...	<.004	<.010	<.004	<.003	<.002	<.010	<.013	<.003	<.017	<.001	<.004
JUN											
07...	<.004	<.010	<.004	<.003	<.002	E.16	<.013	<.003	<.017	<.001	<.004
JUL											
05...	<.004	<.010	<.004	<.003	<.002	E.004	<.013	<.003	<.017	<.001	<.004
AUG											
09...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004
31...	<.004	<.010	<.004	<.003	<.002	<.003	<.013	<.003	<.017	<.001	<.004

DATE	CAR-BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	THIO-BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	PENDI-METH-ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	NAPROP-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PRO-PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	METHYL AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PER-METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) (90095)	DIAZ-INON D10 SRG WAT FLT 0.7 U GF, REC PERCENT (91063)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (91065)
OCT											
04...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	486	112	79
NOV											
01...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	575	133	87
DEC											
07...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	627	104	95
JAN											
05...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	729	102	91
FEB											
01...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	762	104	95
MAR											
01...	<.003	<.002	<.002	<.004	<.003	<.013	<.010	<.005	556	102	100
APR											
03...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	513	133	125
MAY											
01...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	464	140	103
JUN											
07...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	455	138	150
JUL											
05...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	466	96	92
AUG											
09...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	413	103	78
31...	<.003	<.002	<.002	<.004	<.003	<.013	<.001	<.005	457	E154	E149

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	TIME	CYAN-AZINE AMIDE WAT FLT GF 0.7U REC (UG/L) (50010)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	ACETO-CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	ACETO-CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	ALA-CHLOR, (ESA) WAT FLT GF 0.7U REC (UG/L) (50009)	ALA-CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031)	HYDROXY ATRAZIN WATER, WHOLE, REC (UG/L) (34761)	METOLA-CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61043)	METOLA-CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)
OCT											
04...	1031	<.050	.15	.06	.28	<.20	.830	<.20	<.2	1.75	.27
NOV											
01...	0908	<.050	.090	<.05	.31	<.20	1.10	.46	<.2	1.49	.54
DEC											
07...	1231	<.050	.070	<.05	.24	<.20	1.08	<.20	<.2	1.49	<.20
JAN											
05...	0816	<.050	.080	<.05	<.20	.99	1.04	<.20	<.2	1.59	<.20
FEB											
01...	1211	<.050	.060	<.05	.22	<.20	1.11	<.20	<.2	1.79	.29
MAR											
01...	1308	<.050	.060	<.05	.24	>.20	.590	<.20	<.2	1.11	.22
APR											
03...	1011	<.050	<.050	<.05	<.20	<.20	.750	<.20	<.2	1.63	.24
MAY											
01...	0951	<.050	.14	<.05	.24	<.20	.590	<.20	<.2	1.70	<.20
JUN											
07...	1019	<.050	.050	<.05	.70	.73	.520	<.20	.5	1.55	.45
JUL											
05...	0951	<.050	.21	.11	.70	.46	.510	<.20	.4	1.56	.49
AUG											
09...	0948	<.050	.11	.05	.25	<.20	<.200	<.20	.6	1.43	.31
31...	1021	<.050	.070	<.05	.29	.29	.800	<.20	<.2	1.63	.38

DATE	TIME	TEMPER-ATURE WATER (DEG C) (00010)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (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						
25...	1415	9.7	2280	36	222	98
DEC						
07...	1225	3.2	2440	41	270	98
MAR						
01...	1125	--	6800	165	3030	94
APR						
03...	1347	--	2790	80	603	95
MAY						
01...	0945	18.3	4520	136	1660	98
JUN						
07...	1235	--	15900	314	13500	94
JUL						
05...	1230	23.2	19600	505	26700	81
AUG						
09...	1300	--	6030	114	1860	98
31...	1200	--	3750	130	1320	99

DATE	TIME	NUMBER OF SAM-PLING POINTS (COUNT) (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT												
25...	1415	3	--	0	3	61	79	81	83	86	89	100
DEC												
07...	1230	3	--	0	2	42	70	84	92	96	100	--
MAR												
01...	1125	1	2	3	5	11	53	85	96	99	100	--
APR												
03...	1345	3	--	0	5	56	75	85	95	99	100	--
MAY												
01...	0950	4	0	1	8	42	72	87	95	99	100	--
JUN												
07...	1020	3	--	0	13	52	72	91	99	100	--	--
JUL												
05...	1230	3	--	0	11	49	76	89	98	100	--	--
AUG												
09...	1300	5	1	2	5	32	62	86	97	100	--	--
31...	1200	3	1	2	5	30	70	86	93	97	100	--

05465500 IOWA RIVER AT WAPELLO, IA--Continued

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	746	562	---	---	407	---	468	463
2	---	---	511	---	---	---	---	---	---	---	450	---
3	---	570	---	---	---	---	519	---	---	398	---	---
4	496	557	599	---	---	---	---	---	---	---	---	451
5	599	562	---	737	---	---	---	---	464	460	---	---
6	486	---	604	---	---	---	---	---	466	---	---	---
7	---	559	---	567	---	---	536	480	456	510	439	461
8	---	559	---	---	---	---	---	482	417	---	---	466
9	---	557	---	---	---	---	528	---	456	---	424	---
10	---	---	---	607	---	---	512	495	---	514	---	---
11	---	---	---	623	---	560	---	---	---	444	---	---
12	512	566	---	---	---	579	520	---	517	482	---	---
13	---	---	---	---	---	---	---	---	519	---	---	429
14	552	567	---	---	---	---	---	523	356	---	---	---
15	550	562	---	---	---	---	541	494	341	447	---	---
16	553	572	---	---	---	---	---	---	419	414	---	---
17	535	589	---	669	---	---	---	---	434	381	---	---
18	---	---	---	666	---	---	---	503	---	---	---	---
19	---	---	---	---	---	---	526	---	---	438	---	---
20	519	---	---	---	---	---	---	437	---	---	---	---
21	---	---	---	---	---	550	---	---	426	---	---	---
22	---	---	---	---	---	527	---	---	449	---	---	---
23	528	574	---	---	---	516	478	506	---	---	---	---
24	530	581	---	---	---	518	---	512	---	---	449	378
25	539	---	---	---	551	520	---	---	---	---	439	---
26	532	---	---	---	550	516	486	---	---	---	446	---
27	---	---	---	---	548	518	480	---	---	---	---	---
28	---	---	---	---	549	526	---	---	---	466	464	484
29	---	591	---	---	---	---	477	527	469	---	---	471
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	344	---	---	461	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	.0	8.4	---	---	28.0	---	27.0	---
2	---	---	11.0	---	---	---	---	---	---	---	27.0	---
3	---	11.0	---	---	---	---	12.1	---	---	---	---	---
4	10.5	11.0	13.0	---	---	---	---	---	---	---	---	---
5	---	11.0	---	.1	---	---	---	---	29.0	23.2	---	---
6	---	---	15.0	---	---	---	---	---	29.0	---	---	---
7	---	13.0	---	1.0	---	---	12.0	18.0	19.5	---	27.0	---
8	---	14.0	---	---	---	---	---	18.0	26.0	---	---	---
9	---	18.0	---	---	---	---	13.0	---	27.0	---	27.0	---
10	---	---	---	1.0	---	---	13.0	18.0	---	---	---	---
11	---	---	---	2.0	---	12.0	---	---	---	26.0	---	---
12	---	---	---	---	---	12.0	13.0	---	24.0	26.0	---	---
13	---	---	---	---	---	---	---	---	24.0	---	---	---
14	---	12.0	---	---	---	---	---	18.0	---	---	---	---
15	---	12.0	---	---	---	---	17.0	18.0	25.0	26.0	---	---
16	---	10.0	---	---	---	---	---	---	---	27.0	---	---
17	---	12.0	---	1.0	---	---	---	---	---	---	---	---
18	---	---	---	1.0	---	---	---	19.0	---	---	---	---
19	---	---	---	---	---	---	17.0	---	---	---	---	---
20	---	---	---	---	---	---	---	20.0	---	---	---	---
21	---	---	---	---	---	10.0	---	---	---	---	---	---
22	---	---	---	---	---	10.0	---	---	---	---	---	---
23	---	---	---	---	---	10.0	17.0	23.0	---	---	---	---
24	---	---	---	---	---	10.0	---	23.0	---	---	28.0	18.0
25	14.0	---	---	---	---	10.0	---	---	---	---	28.0	---
26	14.0	---	---	---	---	10.0	17.0	---	---	---	28.0	---
27	---	---	---	---	10.0	10.0	17.0	---	---	---	---	---
28	---	---	---	---	10.0	10.0	---	---	---	28.0	28.0	18.0
29	---	12.0	---	---	---	---	18.0	21.0	---	---	---	17.0
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	27.0	---	---	---	---

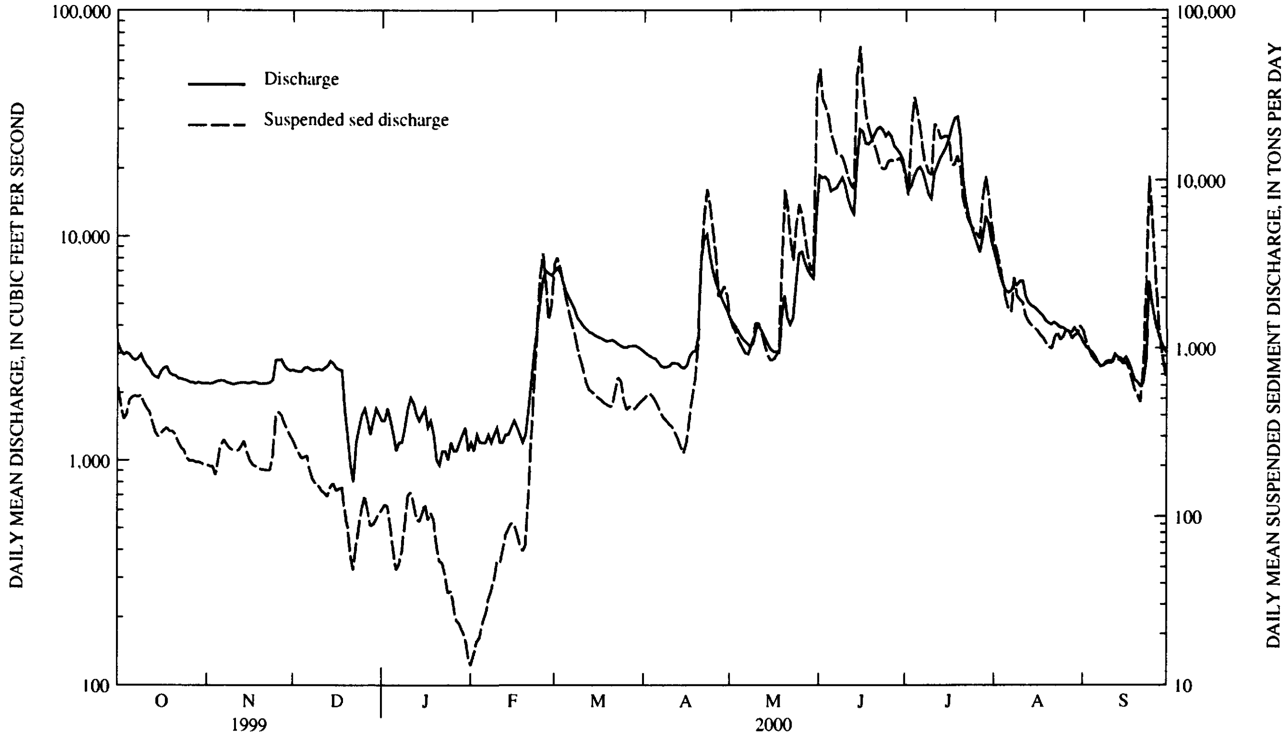
05465500 IOWA RIVER AT WAPELLO, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	65	581	34	202	41	283	27	109	4	13	171	3200
2	55	460	33	199	38	258	29	117	5	15	178	3460
3	47	380	33	198	35	238	25	115	5	18	160	2980
4	50	404	29	176	33	221	21	85	6	19	144	2420
5	61	492	36	218	32	225	18	63	7	23	129	1970
6	67	513	43	266	33	229	16	48	8	26	116	1670
7	69	521	47	285	26	180	16	52	9	32	104	1420
8	67	514	44	267	24	163	19	62	11	36	94	1200
9	65	525	43	254	23	157	24	91	12	42	84	982
10	64	474	42	248	22	151	29	133	14	53	76	852
11	62	441	42	246	21	142	27	139	16	52	68	731
12	60	418	41	246	20	138	25	122	19	62	60	622
13	56	364	43	260	18	131	23	99	22	77	56	567
14	50	318	47	280	20	149	23	93	24	84	55	550
15	47	298	41	242	21	157	24	104	24	91	54	528
16	46	313	36	216	20	142	26	119	22	89	53	510
17	47	325	34	203	21	145	25	95	21	79	52	494
18	48	336	33	198	22	152	26	105	20	70	51	475
19	49	321	32	192	24	110	27	95	19	62	50	461
20	50	322	32	190	25	88	24	65	19	67	49	453
21	48	307	32	189	23	59	21	54	29	133	49	451
22	44	276	31	187	22	48	18	53	47	292	61	554
23	41	256	31	187	21	68	15	45	77	649	75	670
24	40	247	37	230	23	87	13	35	124	1320	73	638
25	36	223	52	390	26	112	11	36	197	2730	57	494
26	35	213	55	417	29	133	10	30	211	3640	50	431
27	36	215	53	398	27	109	8	24	128	2410	52	450
28	35	210	50	357	25	88	7	23	80	1480	50	433
29	35	211	48	329	22	89	6	21	99	1780	50	439
30	35	207	45	302	21	96	5	19	---	---	53	460
31	34	203	---	---	24	104	5	15	---	---	57	481
TOTAL	---	10888	---	7572	---	4452	---	2266	---	15444	---	31046

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	61	498	133	1560	912	45300	198	10100	184	4260	142	1280
2	65	519	119	1330	608	29800	187	8120	182	3740	127	1100
3	68	539	115	1230	547	27100	436	20700	171	3110	118	988
4	67	518	111	1110	492	23700	615	30700	148	2470	109	896
5	64	488	107	1020	441	18900	471	25200	129	2000	108	855
6	61	449	104	955	378	16500	371	20300	113	1710	110	816
7	58	410	100	897	320	14200	284	14700	107	1650	111	789
8	55	385	115	1000	303	14100	263	12300	160	2640	110	786
9	52	369	129	1150	276	13600	266	11000	126	2060	109	813
10	50	354	135	1410	265	12100	269	10700	114	1940	109	821
11	46	341	131	1410	261	10400	413	21400	110	1870	110	816
12	43	315	120	1220	257	9320	369	20500	108	1560	110	883
13	40	290	111	1060	261	8900	293	17600	106	1440	110	859
14	37	259	102	918	682	41500	282	17900	104	1370	109	842
15	34	237	100	844	765	61300	271	18200	102	1330	107	806
16	39	279	104	857	463	36500	243	17800	100	1270	106	826
17	50	393	110	910	350	24400	150	12400	98	1200	102	750
18	63	522	119	974	298	20600	135	12200	96	1150	97	653
19	81	672	244	3030	251	17900	152	13900	94	1070	92	566
20	112	1100	609	8850	211	16000	158	11800	93	1020	87	522
21	160	3410	583	6860	177	14300	163	7820	91	991	82	476
22	228	6040	406	4410	148	12200	168	6560	104	1160	128	769
23	322	8800	286	3330	145	11600	173	5860	115	1250	303	2410
24	319	7060	321	5400	155	11600	179	5340	105	1120	608	10500
25	266	5070	318	7200	166	12900	185	5020	111	1170	432	5990
26	217	3700	267	6170	177	13100	191	4780	127	1300	278	3230
27	131	2040	225	4670	189	12800	197	4500	125	1260	179	1810
28	148	2140	189	3620	201	13200	289	7980	113	1140	114	1050
29	174	2350	161	2930	214	13500	316	10500	114	1200	93	804
30	164	2070	179	3140	210	12400	264	8140	122	1220	82	669
31	---	---	872	35100	---	---	220	5690	142	1360	---	---
TOTAL	---	51617	---	114565	---	589720	---	399710	---	52031	---	44375

YEAR 1323686


100,000
10,000
1,000
100
Discharge
Suspended sed discharge
DAILY MEAN DISCHARGE, IN CUBIC FEET PER SECOND
100,000
10,000
1,000
100
10
DAILY MEAN SUSPENDED SEDIMENT DISCHARGE, IN TONS PER DAY
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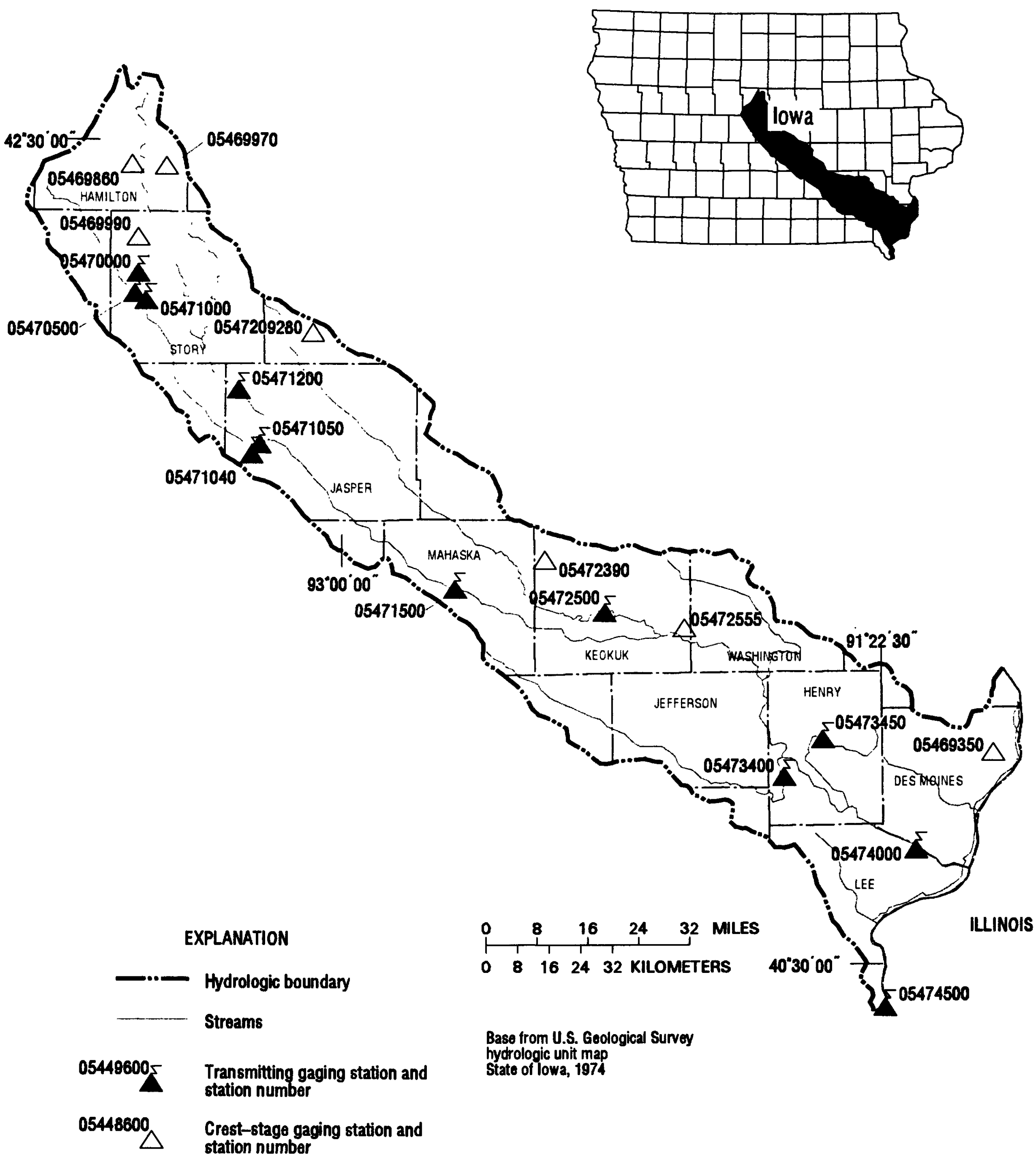


Iowa
42°30'00"
05469970
05469860
HAMILTON
05469990
05470000
05471000
05470500
0547209280
STORY
05471200
05471050
05471040
JASPER
MAHASKA
93°00'00"
05471500
05472390
05472500
05472555
KEOKUK
WASHINGTON
91°22'30"
JEFFERSON
HENRY
05473450
05469350
05473400
DES MOINES
05474000
LEE
ILLINOIS
40°30'00"
05474500
EXPLANATION
Hydrologic boundary
Streams
05449600
Transmitting gaging station and station number
05448600
Crest-stage gaging station and station number
0 8 16 24 32 MILES
0 8 16 24 32 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05470000	South Skunk River near Ames, IA.	198
05470500	Squaw Creek at Ames, IA.	200
05471000	South Skunk River below Squaw Creek near Ames, IA.	202
05471040	Squaw Creek near Colfax, IA.	204
05471050	South Skunk River at Colfax, IA.	210
05471200	Indian Creek near Mingo, IA.	212
05471500	South Skunk River near Oskaloosa, IA	214
05472500	North Skunk River near Sigourney, IA	216
05473400	Cedar Creek near Oakland Mills, IA	218
05473450	Big Creek near Mt. Pleasant.	220
05474000	Skunk River at Augusta, IA	222
05474500	Mississippi River at Keokuk, IA.	228

Crest Stage Gaging Stations

05469350	Haight Creek at Kingston, IA	326
05469860	Mud Lake Drainage Ditch 71 at Jewell, IA	326
05469970	Long Dick Creek near Ellsworth, IA	326
05469990	Keigley Branch near Story City, IA	326
0547209280	Snipe Creek Tributary at Melbourne, IA	326
05472390	Middle Creek near Lacey, IA.	326
05472555	Skunk River Tributary near Richland, IA.	326

05470000 SOUTH SKUNK RIVER NEAR AMES, IA

LOCATION.--Lat 42°04'06", long 93°37'09", in NW$^1/_4$ SW$^1/_4$ sec.23, T.84 N., R.24 W., Story County, Hydrologic Unit 07080105, on left bank 2.5 mi north of Ames, 3.5 mi downstream from Keigley Branch, 5.2 mi upstream from Squaw Creek, and at mile 228.1 upstream from mouth of Skunk River.

DRAINAGE AREA.--315 mi^2.

PERIOD OF RECORD.--July 1920 to September 1927, October 1932 to September 1995, October 1, 1996 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 IA-67-1: 1965. WDR IA-74-1: 1973 (P).

GAGE.--Water-stage recorder. Concrete control since July 21, 1934. Datum of gage is 893.61 ft above sea level (Iowa Highway Commission benchmark). Prior to Aug. 25, 1921, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with phone modem at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 17, 1996 reached about 14,000 ft^3/s, from rating curve extension, gage height 15.89 ft, from highwater mark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	6.8	7.2	6.5	3.4	24	e8.3	4.5	144	47	6.6	1.5
2	3.8	3.8	7.5	6.5	3.5	20	e7.8	4.2	176	44	5.3	1.6
3	4.4	3.0	8.3	7.4	3.9	19	e7.5	4.2	92	49	4.2	2.6
4	4.9	5.0	9.1	7.2	4.1	17	e6.7	3.7	66	98	4.5	2.1
5	4.6	5.8	e7.5	8.6	4.2	16	e6.3	3.8	52	91	5.2	1.6
6	3.9	4.0	e6.8	8.4	4.5	14	e6.1	3.6	47	75	22	1.4
7	3.6	4.6	e7.5	6.2	8.2	14	e6.1	3.7	43	69	17	1.2
8	3.4	5.0	e8.5	5.6	8.7	e12	e5.8	3.8	35	61	14	1.3
9	3.5	5.1	7.9	6.0	6.3	e12	e5.2	3.8	31	55	13	1.5
10	3.5	5.3	7.8	7.3	6.3	e12	e5.1	5.0	27	55	10	1.3
11	3.2	5.6	8.0	6.9	6.0	e12	e4.9	4.2	107	52	8.3	.89
12	3.2	5.9	7.3	6.5	6.4	e14	e4.5	3.5	399	68	6.5	.69
13	3.0	5.7	6.3	5.5	6.5	12	e4.3	3.6	206	70	7.2	.70
14	3.0	5.6	6.8	5.0	6.7	12	e3.9	4.1	e450	58	e7.5	.67
15	3.5	5.6	7.2	e5.0	7.1	14	e3.5	3.4	653	50	e9.0	.61
16	3.1	6.5	5.1	e5.0	7.0	e15	e3.5	2.9	351	44	8.7	.66
17	2.9	7.1	5.7	5.2	7.5	e13	e3.2	3.2	231	39	5.9	.82
18	2.9	7.3	5.3	e5.3	6.9	e13	e2.9	4.5	174	34	4.7	1.2
19	3.1	9.5	5.4	e5.2	7.2	e12	e3.2	37	135	32	4.3	.97
20	4.8	10	5.0	e5.0	6.8	e12	e6.8	12	129	28	3.9	.80
21	5.3	8.6	3.8	e5.0	7.4	e11	6.7	7.0	121	25	3.0	1.5
22	4.4	8.0	3.6	4.8	9.9	e9.4	6.5	4.9	101	22	3.3	2.1
23	4.0	17	3.6	4.6	26	e8.0	6.5	4.1	87	20	12	1.4
24	3.4	15	3.7	3.8	39	e8.8	6.2	3.6	79	18	11	1.1
25	3.1	12	3.8	e3.2	71	e9.2	5.9	3.4	74	14	7.4	1.7
26	3.6	9.8	4.1	e3.2	68	e9.0	5.5	4.7	74	13	5.5	2.3
27	3.8	9.0	4.3	3.2	54	e8.1	5.2	22	61	14	4.6	1.8
28	3.6	8.0	4.6	3.2	35	e7.6	4.8	23	62	13	3.9	2.4
29	5.1	7.6	5.0	3.4	26	e9.5	5.1	34	59	11	3.3	2.9
30	5.8	7.0	8.1	3.6	---	e9.2	5.2	e55	53	9.1	2.9	2.3
31	4.6	---	7.6	3.5	---	e8.3	---	e100	---	7.9	2.4	---
TOTAL	119.2	219.2	192.4	165.8	457.5	387.1	163.2	380.4	4319	1286.0	227.1	43.61
MEAN	3.85	7.31	6.21	5.35	15.8	12.5	5.44	12.3	144	41.5	7.33	1.45
MAX	5.8	17	9.1	8.6	71	24	8.3	100	653	98	22	2.9
MIN	2.9	3.0	3.6	3.2	3.4	7.6	2.9	2.9	27	7.9	2.4	.61
AC-FT	236	435	382	329	907	768	324	755	8570	2550	450	87
CFSM	.01	.02	.02	.02	.05	.04	.02	.04	.46	.13	.02	.00
IN.	.01	.03	.02	.02	.05	.05	.02	.04	.51	.15	.03	.01

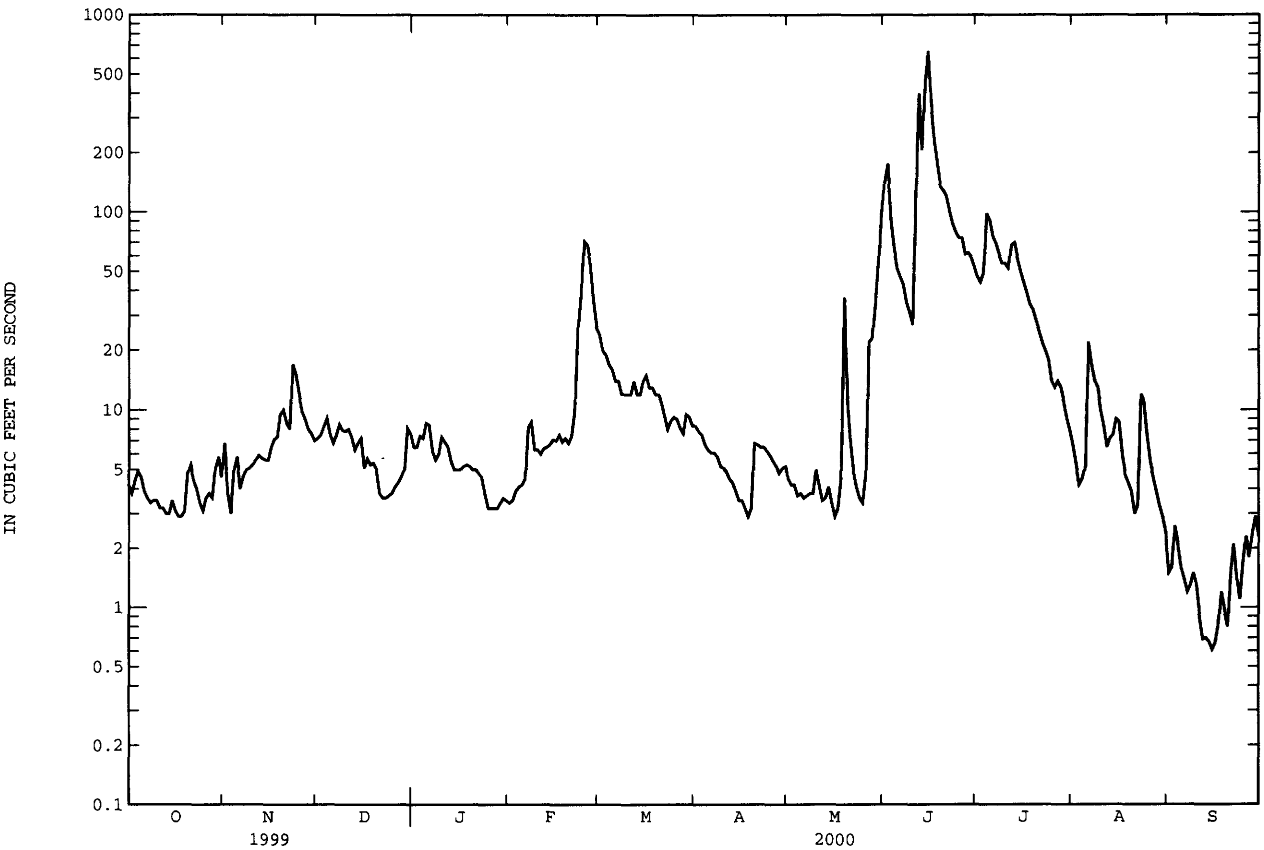
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	94.9	98.7	70.7	49.9	120	312	282	277	389	224	114	95.0
MAX	723	726	537	315	623	1034	1208	1193	1900	2628	1782	577
(WY)	1987	1973	1983	1973	1984	1979	1965	1944	1947	1993	1993	1926
MIN	.12	.14	.000	.000	.31	6.35	5.44	2.28	.011	.017	.087	.081
(WY)	1954	1956	1977	1977	1956	1981	2000	1934	1977	1977	1934	1976

05470000 SOUTH SKUNK RIVER NEAR AMES, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1921 - 2000	
ANNUAL TOTAL	86477.3		7960.51			
ANNUAL MEAN	237		21.8		177	
HIGHEST ANNUAL MEAN					752	1993
LOWEST ANNUAL MEAN					5.58	1956
HIGHEST DAILY MEAN	3390	Jun 11	653	Jun 15	8980	Jul 9 1993
LOWEST DAILY MEAN	2.9	Oct 17	.61	Sep 15a	.00	Jun 20 1934b
ANNUAL SEVEN-DAY MINIMUM	3.1	Oct 13	.72	Sep 11	.00	Jun 20 1934
INSTANTANEOUS PEAK FLOW			906	Jun 14	11200	Aug 16 1993
INSTANTANEOUS PEAK STAGE			4.51	Jun 14	14.23	Aug 16 1993
INSTANTANEOUS LOW FLOW			.54	Sep 15c		
ANNUAL RUNOFF (AC-FT)	171500		15790		128500	
ANNUAL RUNOFF (CFSM)	.75		.069		.56	
ANNUAL RUNOFF (INCHES)	10.21		.94		7.65	
10 PERCENT EXCEEDS	679		55		434	
50 PERCENT EXCEEDS	44		6.4		58	
90 PERCENT EXCEEDS	4.1		3.0		2.3	

a Also Sept. 12-14.
b Many days in 1934, 1953-56, 1976-77.
c Also Sept. 16.
e Estimated.



05470500 SQUAW CREEK AT AMES, IA

LOCATION.--Lat 42°01'21", long 93°37'45", in NE$^{1}/_{4}$ NW$^{1}/_{4}$ sec.10, T.83 N., R.24 W., Story County, Hydrologic Unit 07080105, on left bank 65 ft downstream from Lincoln Way Bridge in Ames, 0.2 mi downstream from College Creek, and 2.4 mi upstream from mouth.

DRAINAGE AREA.--204 mi^2.

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 IA-66-1: 1965, WDR IA-71-1: 1970 (M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 881.00 ft. above sea level (levels by Iowa State University). Prior to Mar. 11, 1925, nonrecording gage at site 0.6 mi upstream at different datum. Mar. 11, 1925 to Apr. 30, 1927, nonrecording gage at site 65 ft. upstream at datum about 4 ft. higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with phone modem at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 4, 1918 reached a stage of 14.5 ft. from floodmarks, site and datum used 1919-25, discharge, 6,900 ft^3/s. Flood of Mar. 1, 1965 reached a stage of 10.7 ft. from graph based on gage readings, at present site and datum, discharge, 4,200 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	7.2	6.0	5.8	e2.6	33	11	11	56	34	2.3	.00
2	7.3	6.6	6.4	6.1	e2.7	28	11	11	53	35	e2.0	.00
3	12	6.3	7.7	6.3	e3.0	27	11	12	45	30	e1.9	.00
4	11	6.8	6.9	5.6	e2.7	26	9.8	12	50	34	e1.4	.00
5	9.8	6.8	e6.0	4.3	e2.9	24	9.4	11	41	32	1.3	.00
6	9.3	6.5	5.0	4.4	e3.1	22	8.8	10	37	28	2.8	.00
7	8.2	6.7	5.9	4.3	3.4	21	12	9.6	33	23	2.6	.00
8	7.8	7.4	6.1	4.2	3.6	21	11	12	31	21	5.2	.00
9	8.0	7.1	5.8	4.7	4.6	21	9.4	7.5	25	18	1.9	.00
10	e6.1	6.9	4.8	5.6	5.6	19	9.2	8.4	25	32	1.5	.00
11	e5.6	7.0	5.1	5.1	5.9	18	9.9	7.6	39	20	1.2	.00
12	e5.4	6.4	6.1	4.0	5.4	17	9.1	8.5	69	18	.80	.00
13	e5.4	6.6	4.4	3.7	6.0	17	9.2	7.2	89	16	34	.00
14	e5.2	5.9	5.1	3.6	5.8	17	9.1	5.6	345	14	3.6	.00
15	e4.7	7.4	6.8	3.4	6.5	17	9.5	5.4	336	12	2.0	.00
16	e4.6	6.2	2.9	e3.6	6.9	17	10	5.2	178	12	1.2	.00
17	e4.6	5.9	3.7	e3.7	6.9	15	11	5.4	114	9.4	.75	.00
18	e4.3	6.1	4.1	e3.6	6.8	18	11	32	89	9.1	.80	.00
19	e4.1	6.4	4.1	e3.5	7.0	17	10	52	75	8.0	.68	.00
20	e3.9	6.6	3.9	e3.1	7.8	16	12	30	84	6.6	.34	.00
21	e3.7	6.9	2.9	e3.8	10	15	8.7	23	64	5.3	.00	.00
22	e3.8	7.6	2.5	e3.7	13	14	9.0	19	53	4.2	1.3	7.3
23	e4.0	20	2.1	e3.6	40	16	9.6	18	54	3.0	1.0	.02
24	e3.8	9.5	2.4	e3.4	73	18	10	16	43	2.3	.36	.00
25	e3.8	7.3	3.1	e3.2	85	14	10	13	71	1.7	.00	.00
26	e3.6	6.7	3.8	e2.5	70	12	10	47	51	30	.00	.00
27	4.0	7.2	5.0	e2.4	47	13	12	88	38	12	.00	.00
28	4.2	6.1	6.4	e2.5	37	11	11	85	54	5.2	.00	.00
29	5.6	5.6	6.1	e2.8	39	11	11	69	41	3.1	.00	.00
30	5.6	5.4	5.5	e2.6	---	11	11	75	36	2.2	.00	.00
31	6.3	---	5.6	e2.4	---	11	---	80	---	2.6	.00	---
TOTAL	182.1	215.1	152.2	121.5	513.2	557	305.7	796.4	2319	483.7	70.93	7.32
MEAN	5.87	7.17	4.91	3.92	17.7	18.0	10.2	25.7	77.3	15.6	2.29	.24
MAX	12	20	7.7	6.3	85	33	12	88	345	35	34	7.3
MIN	3.6	5.4	2.1	2.4	2.6	11	8.7	5.2	25	1.7	.00	.00
AC-FT	361	427	302	241	1020	1100	606	1580	4600	959	141	15
CFSM	.03	.04	.02	.02	.09	.09	.05	.13	.38	.08	.01	.00
IN.	.03	.04	.03	.02	.09	.10	.06	.15	.42	.09	.01	.00

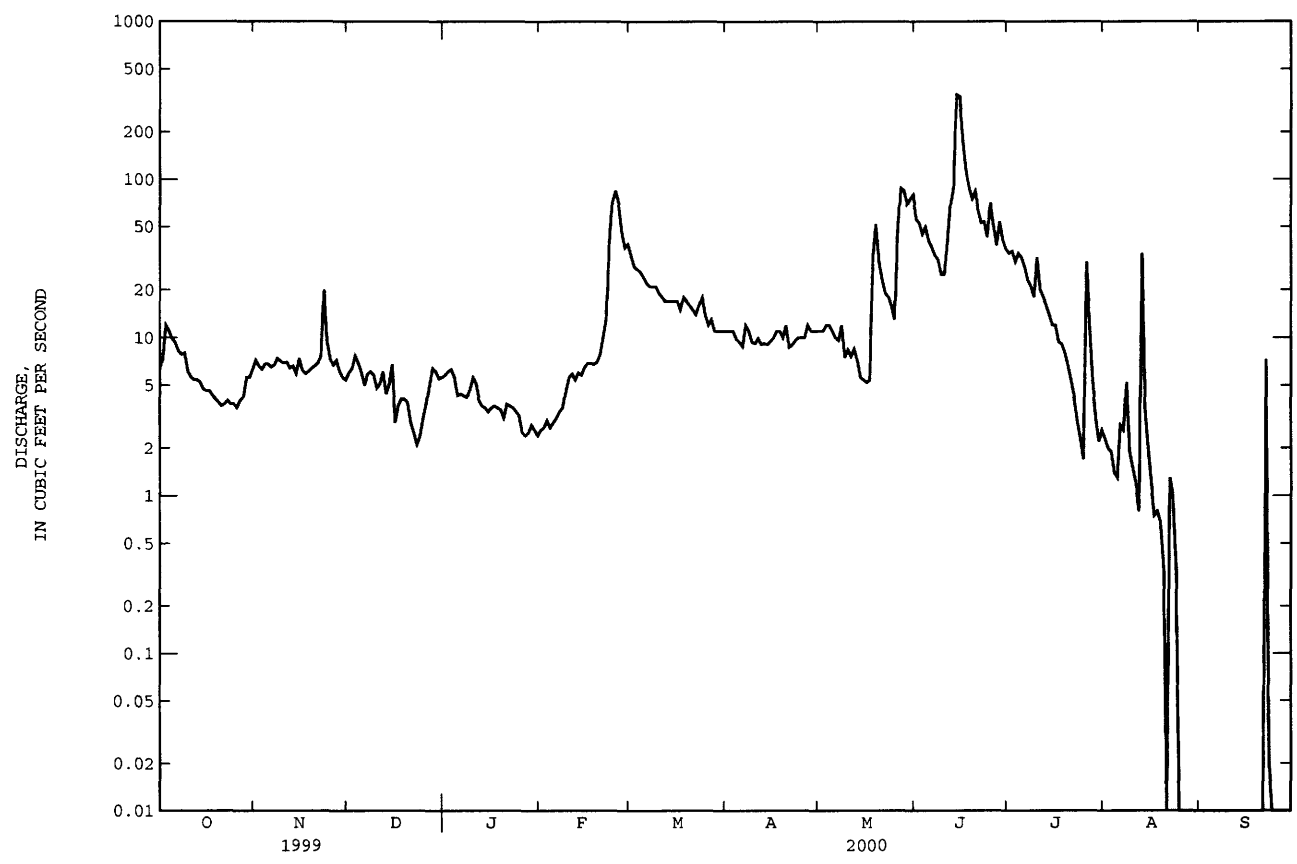
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	80.9	85.6	61.4	40.5	99.6	207	223	232	323	175	85.7	80.9
MAX	505	491	372	275	465	777	796	817	1107	2128	1177	568
(WY)	1974	1973	1983	1973	1973	1979	1999	1990	1975	1993	1993	1926
MIN	.36	.63	.001	.000	.093	2.51	4.32	1.42	2.97	3.61	.95	.071
(WY)	1989	1967	1977	1977	1977	1981	1977	1981	1977	1927	1989	1971

05470500 SQUAW CREEK AT AMES, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1920 - 2000	
ANNUAL TOTAL	73828.6		5724.15			
ANNUAL MEAN	202		15.6		142	
HIGHEST ANNUAL MEAN					528	1993
LOWEST ANNUAL MEAN					13.6	1981
HIGHEST DAILY MEAN	2500	Jun 11	345	Jun 14	12200	Jul 9 1993
LOWEST DAILY MEAN	2.1	Dec 23	.00	Aug 21	.00	Jul 31 1925a
ANNUAL SEVEN-DAY MINIMUM	3.0	Dec 20	.00	Aug 25	.00	Oct 7 1971
INSTANTANEOUS PEAK FLOW			614	Jun 14	24300	Jul 9 1993
INSTANTANEOUS PEAK STAGE			3.18	Jun 14	18.54	Jul 9 1993
INSTANTANEOUS LOW FLOW			.00	Aug 2b		
ANNUAL RUNOFF (AC-FT)	146400		11350		102700	
ANNUAL RUNOFF (CFSM)	.99		.077		.69	
ANNUAL RUNOFF (INCHES)	13.46		1.04		9.44	
10 PERCENT EXCEEDS	676		38		348	
50 PERCENT EXCEEDS	57		6.6		46	
90 PERCENT EXCEEDS	5.6		.01		1.9	

a Many days in 1925, 1971, 1972, 1976, 1977, 1988, 2000.
b Many days.
e Estimated.



05471000 SOUTH SKUNK RIVER BELOW SQUAW CREEK NEAR AMES, IA

LOCATION.--Lat 42°00'24", long 93°35'43", in $NE^1/_4$ $NW^1/_4$ sec.13, T.83 N., R.24 W., Story County, Hydrologic Unit 07080105, on right bank 500 ft downstream from bridge on county highway, 0.2 mi downstream from Squaw Creek, 200 ft upstream from bridge on U.S. Highway 30, 2 mi southeast of Ames, and at mile 222.6 upstream from mouth of Skunk River.

DRAINAGE AREA.--556 mi^2.

PERIOD OF RECORD.--October 1952 to December 1979, October 1991 to current year. Prior to October 1966, published as "Skunk River below Squaw Creek near Ames".

REVISED RECORDS.--WDR IA-95-1: Location.

GAGE.--Water-stage recorder. Datum of gage is 857.10 ft above sea level. Prior to Oct. 1, 1973, at datum 10.00 ft higher. Prior to Oct. 1991, at site 500 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flows are affected by pumpage by City of Ames from surficial aquifer and do not represent the natural flow of the stream. Several observations of water temperature were made during the year. U.S. Geological Survey data collection platform with telephone modem at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 19, 1944, reached a stage of 13 ft, from floodmarks, discharge, 10,000 ft^3/s, datum then in use.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	6.1	13	e1.2	e.59	67	18	6.8	149	88	6.9	.27
2	6.4	5.8	12	e.95	e.67	54	17	6.0	260	88	4.5	.20
3	e13	4.3	15	e.95	e.60	48	17	5.5	162	89	3.0	.16
4	e12	4.4	14	e1.0	e.63	43	15	5.3	138	125	2.1	.08
5	e9.4	6.4	13	e1.0	e.85	38	14	5.0	106	130	3.0	.03
6	e8.3	6.3	12	e1.1	e1.0	34	13	4.3	89	107	11	.00
7	e6.4	e6.5	12	e1.2	e1.2	31	16	3.6	81	89	14	.00
8	e3.9	7.0	12	e1.2	e1.5	29	18	10	69	77	17	.00
9	e3.9	7.5	12	e1.4	e1.5	27	15	5.0	57	67	9.2	.00
10	e2.8	7.1	8.9	e1.1	e1.3	25	15	4.4	50	96	7.0	.00
11	e2.0	6.5	5.0	e1.1	e1.2	23	14	4.8	83	76	5.0	.00
12	e1.9	6.9	9.0	e.95	e1.3	23	13	6.6	456	90	3.0	.00
13	e1.2	7.5	6.1	e.85	e1.5	22	13	2.8	307	81	70	.00
14	.92	6.3	7.2	e.90	e2.4	23	12	1.5	703	64	20	.00
15	1.2	6.1	9.4	e.90	e2.0	23	11	.69	1060	52	13	.00
16	1.1	8.0	8.5	e.83	e2.6	27	12	.64	611	49	7.1	.00
17	.96	6.7	1.2	e.87	e3.0	23	12	.71	412	47	5.1	.00
18	.96	6.9	.96	e.77	e5.5	27	11	31	312	40	2.7	.00
19	.95	7.7	1.0	e.72	e8.5	30	16	87	246	35	3.7	.00
20	1.0	8.3	.96	e.80	13	28	15	48	243	30	1.4	.00
21	1.4	9.5	.72	e.82	22	25	12	31	211	26	.83	.00
22	1.8	8.8	.70	e.80	35	24	11	23	178	22	1.5	.12
23	.80	44	.62	e.75	71	23	10	19	167	19	5.8	.00
24	2.1	24	.58	e.73	115	32	10	17	140	16	9.8	.00
25	1.4	18	.61	e.67	164	24	9.2	13	165	13	6.6	.00
26	1.1	16	.64	e.60	149	21	8.5	62	149	68	4.2	.00
27	3.9	16	.74	e.54	113	21	10	109	113	31	2.7	.00
28	2.1	14	1.1	e.58	87	20	8.9	116	138	19	1.9	.00
29	2.2	12	e1.5	e.59	78	19	8.2	103	110	14	1.2	.00
30	7.4	14	e1.2	e.55	---	18	7.2	102	98	11	.58	.00
31	4.9	---	e1.3	e.57	---	17	---	169	---	9.3	.34	---
TOTAL	114.39	308.6	182.93	26.99	884.84	889	382.0	1003.64	7063	1768.3	244.15	0.86
MEAN	3.69	10.3	5.90	.87	30.5	28.7	12.7	32.4	235	57.0	7.88	.029
MAX	13	44	15	1.4	164	67	18	169	1060	130	70	.27
MIN	.80	4.3	.58	.54	.59	17	7.2	.64	50	9.3	.34	.00
AC-FT	227	612	363	54	1760	1760	758	1990	14010	3510	484	1.7
CFSM	.01	.02	.01	.00	.05	.05	.02	.06	.42	.10	.01	.00
IN.	.01	.02	.01	.00	.06	.06	.03	.07	.47	.12	.02	.00

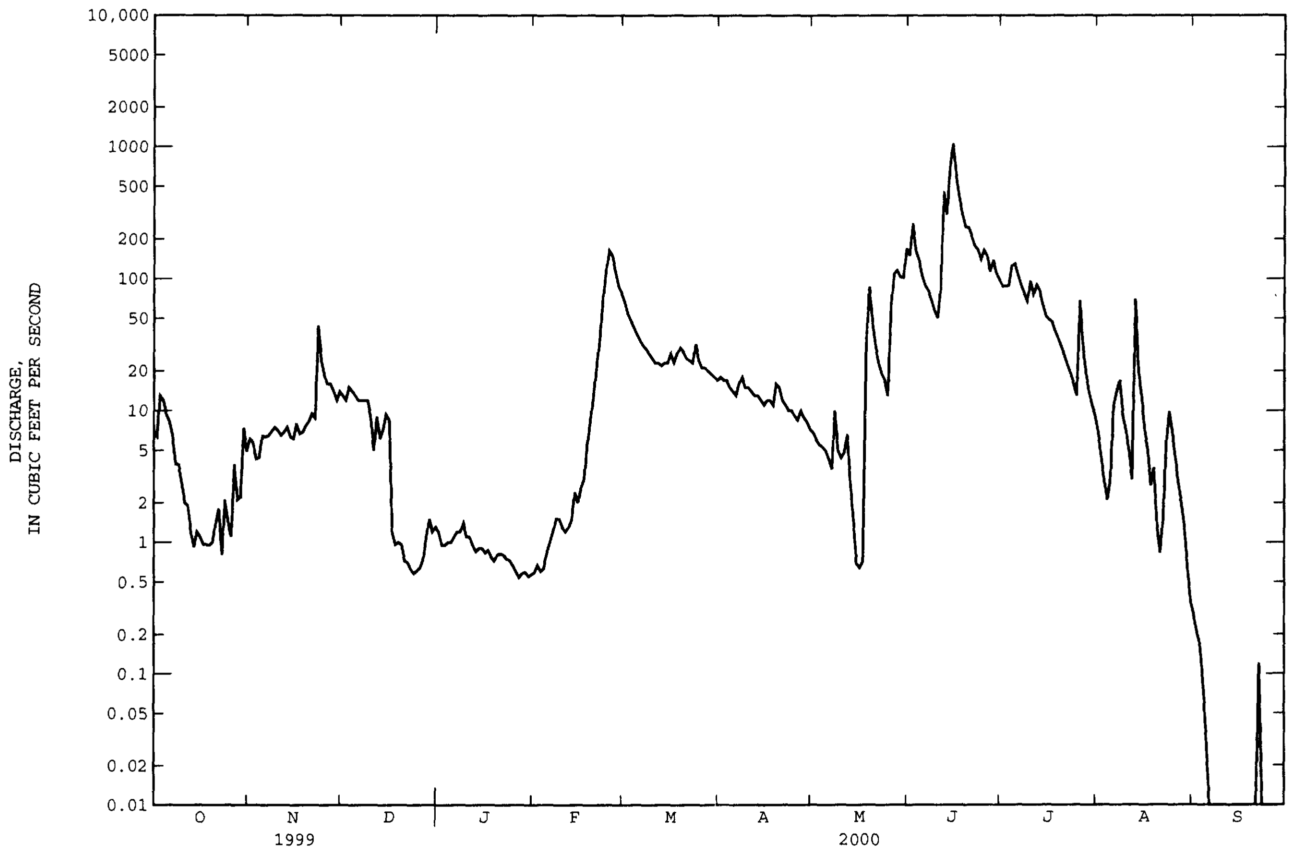
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	168	182	123	83.6	187	533	550	524	823	504	289	162
MAX	1079	1270	438	599	919	2026	2037	1421	2818	5220	3921	1157
(WY)	1974	1973	1997	1973	1973	1979	1965	1974	1998	1993	1993	1993
MIN	.000	.005	.003	.000	.000	8.71	3.62	6.71	.000	.000	.032	.029
(WY)	1957	1977	1977	1956	1956	1956	1956	1967	1977	1956	1956	2000

05471000 SOUTH SKUNK RIVER BELOW SQUAW CREEK NEAR AMES, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1953 - 2000	
ANNUAL TOTAL	159515.72		12868.70			
ANNUAL MEAN	437		35.2		344	
HIGHEST ANNUAL MEAN					1475	1993
LOWEST ANNUAL MEAN					5.95	1956
HIGHEST DAILY MEAN	5900	Jun 11	1060	Jun 15	20500	Jul 9 1993
LOWEST DAILY MEAN	.58	Dec 24	.00	Sep 6	.00	Dec 17 1953a
ANNUAL SEVEN-DAY MINIMUM	.66	Dec 21	.00	Sep 6	.00	Jan 11 1954
INSTANTANEOUS PEAK FLOW			1240	Jun 14	26500	Jul 9 1993
INSTANTANEOUS PEAK STAGE			14.10	Jun 14	25.57	Jun 27 1975
INSTANTANEOUS LOW FLOW			.00	Sep 4b		
ANNUAL RUNOFF (AC-FT)	316400		25530		249100	
ANNUAL RUNOFF (CFSM)	.79		.063		.62	
ANNUAL RUNOFF (INCHES)	10.67		.86		8.40	
10 PERCENT EXCEEDS	1290		97		827	
50 PERCENT EXCEEDS	126		8.1		110	
90 PERCENT EXCEEDS	3.9		.58		1.3	

a Many days in 1953-56, 1963-68, 1976-77, 2000.
b Many days.
e Estimated.



05471040 SQUAW CREEK NEAR COLFAX, IA

LOCATION.--Lat 41°39'33", long 93°16'14", in $NE^1/_4$ $NE^1/_4$ sec.15, T.79 N., R.21 W., Jasper County, Hydrologic Unit 07080105, on right bank at downstream side of bridge on county road S44 Ave. W.

DRAINAGE AREA.--18.4 mi^2.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--May 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is 785.96 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	2.1	2.1	e1.9	e1.3	3.3	2.3	2.9	65	14	4.4	1.9
2	2.9	2.1	2.1	e1.8	e1.3	3.1	2.2	2.8	34	13	4.3	1.8
3	3.2	2.1	2.1	e1.7	e1.3	3.0	2.1	2.8	23	13	4.3	1.8
4	3.0	2.2	2.1	e1.7	e1.3	3.0	2.1	2.6	19	24	4.2	1.6
5	2.8	2.1	2.1	e1.7	e1.3	3.0	2.1	2.5	16	14	4.1	1.6
6	2.6	2.1	2.0	e1.7	e1.2	2.9	2.0	2.5	13	12	4.0	1.5
7	2.5	2.1	2.1	e1.7	e1.1	2.9	2.2	2.5	13	11	3.6	1.5
8	2.6	2.1	2.0	e1.8	e1.2	2.9	2.2	4.7	11	10	4.8	1.6
9	2.6	2.1	2.0	e1.8	e1.2	2.8	2.1	3.5	9.2	10	3.7	1.4
10	2.6	2.0	2.0	e1.9	e1.2	2.8	2.1	3.3	8.6	39	3.5	1.3
11	2.5	2.0	2.0	e1.8	e1.2	2.7	2.5	3.0	46	17	3.3	1.4
12	2.5	2.0	2.1	e1.7	e1.2	2.8	2.2	2.8	23	13	3.2	1.2
13	2.4	2.0	1.9	e1.7	e1.2	2.7	2.1	2.5	61	11	12	1.1
14	2.4	1.9	2.1	e1.6	e1.3	2.7	2.0	2.5	123	10	4.3	1.3
15	2.4	1.9	2.1	e1.6	e1.4	2.8	2.0	2.4	44	9.5	3.6	1.1
16	2.3	1.9	3.6	e1.7	e1.5	2.6	2.1	2.3	31	9.1	3.3	1.1
17	2.3	1.9	2.0	e1.6	e1.7	2.6	2.2	2.3	24	8.3	3.2	1.1
18	2.3	1.9	1.9	e1.6	e1.6	2.7	2.0	19	21	7.9	3.1	1.0
19	2.4	1.8	e1.8	e1.5	e1.9	2.8	2.2	4.4	19	7.7	2.9	1.0
20	2.4	1.8	e1.7	e1.4	2.5	2.7	9.5	3.2	18	7.1	2.9	1.2
21	2.4	1.9	e1.7	e1.4	4.5	2.6	7.9	3.0	15	6.7	2.9	1.1
22	2.3	1.9	e1.5	e1.5	7.2	2.5	4.7	2.7	14	6.3	3.0	2.0
23	2.3	4.8	e1.5	e1.4	5.1	2.4	4.2	2.5	13	6.1	3.0	1.3
24	2.3	2.4	e1.5	e1.5	5.4	2.6	4.0	2.7	35	5.8	2.8	1.1
25	2.3	2.2	e1.6	e1.5	4.3	2.3	3.7	2.5	31	5.6	2.6	1.1
26	2.2	2.2	e1.7	e1.4	3.7	2.3	3.5	3.5	29	7.1	2.4	1.0
27	2.2	2.2	e1.7	e1.3	3.3	2.3	3.6	4.0	21	5.8	2.4	1.0
28	2.2	2.1	e1.8	e1.3	3.1	2.3	3.2	3.4	21	5.2	2.3	.91
29	2.2	2.1	e1.8	e1.3	3.3	2.2	2.9	3.2	18	5.1	2.2	.92
30	2.2	2.0	e1.8	e1.2	---	2.2	2.9	6.8	16	e4.8	2.1	.87
31	2.2	---	e1.8	e1.2	---	2.2	---	610	---	4.6	2.0	---
TOTAL	76.5	63.9	60.2	48.9	67.8	82.7	90.8	718.8	834.8	323.7	110.4	38.80
MEAN	2.47	2.13	1.94	1.58	2.34	2.67	3.03	23.2	27.8	10.4	3.56	1.29
MAX	3.2	4.8	3.6	1.9	7.2	3.3	9.5	610	123	39	12	2.0
MIN	2.2	1.8	1.5	1.2	1.1	2.2	2.0	2.3	8.6	4.6	2.0	.87
AC-FT	152	127	119	97	134	164	180	1430	1660	642	219	77
CFSM	.13	.12	.11	.09	.13	.14	.16	1.26	1.51	.57	.19	.07
IN.	.15	.13	.12	.10	.14	.17	.18	1.45	1.69	.65	.22	.08

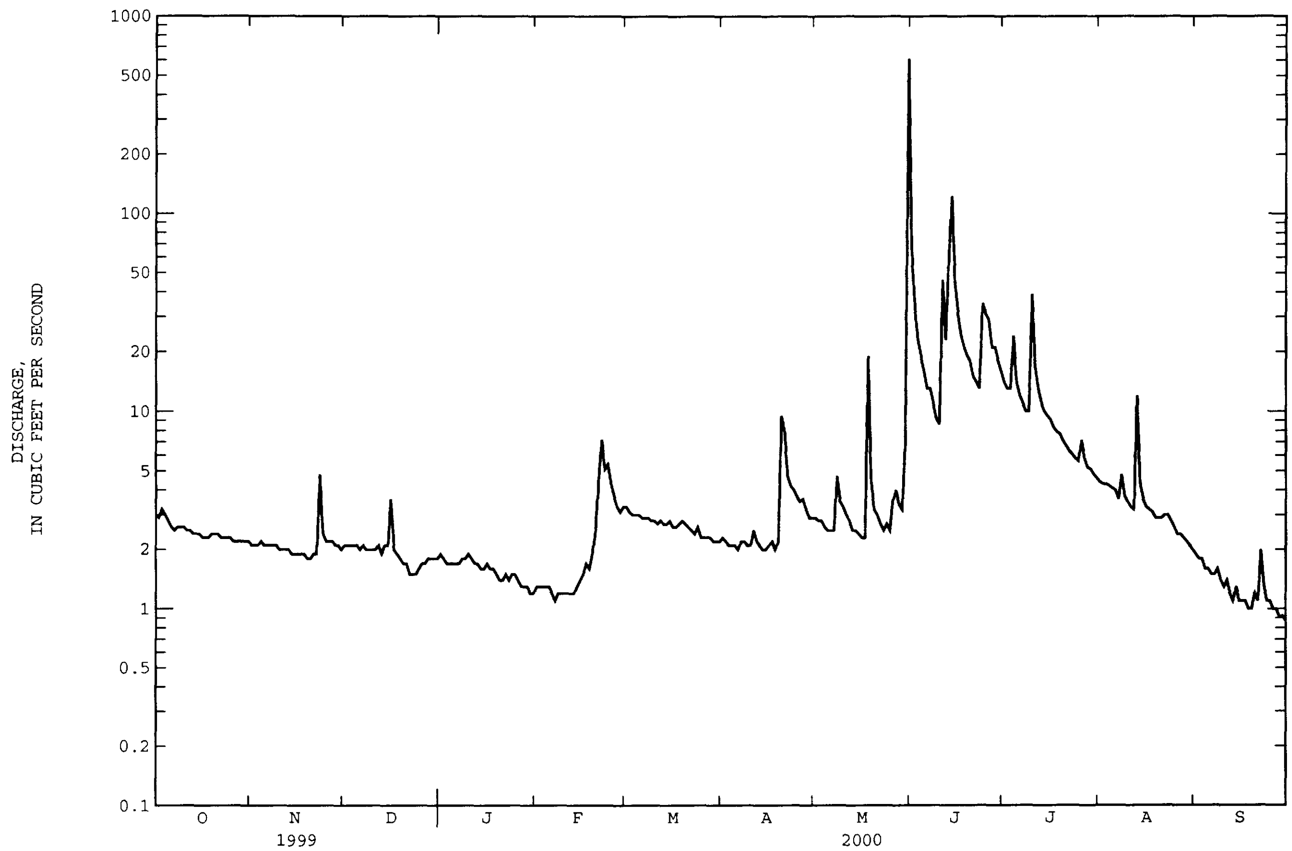
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4.47	5.46	4.40	4.23	22.9	11.7	15.5	39.5	34.4	13.7	6.76	2.05
MAX	8.91	11.3	9.33	9.52	65.0	32.1	45.4	65.7	83.0	34.3	15.8	3.80
(WY)	1998	1999	1998	1998	1996	1998	1998	1996	1998	1998	1999	1998
MIN	.90	1.44	1.31	1.58	2.34	2.67	3.03	23.2	12.5	7.55	2.90	1.03
(WY)	1996	1996	1996	2000	2000	2000	2000	2000	1997	1999	1997	1995

05471040 SQUAW CREEK NEAR COLFAX, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1995 - 2000	
ANNUAL TOTAL	4183.4		2517.30			
ANNUAL MEAN	11.5		6.88		14.1	
HIGHEST ANNUAL MEAN					25.4	1998
LOWEST ANNUAL MEAN					6.88	2000
HIGHEST DAILY MEAN	233	May 12	610	May 31	847	Jun 18 1998
LOWEST DAILY MEAN	1.5	Dec 22	.87	Sep 30	.30	Jan 7 1996
ANNUAL SEVEN-DAY MINIMUM	1.6	Dec 20	.99	Sep 24	.54	Jan 3 1996
INSTANTANEOUS PEAK FLOW			4740	May 31	7020	Jun 18 1998
INSTANTANEOUS PEAK STAGE			12.85	May 31	13.94	Jun 18 1998
INSTANTANEOUS LOW FLOW			.75	Sep 28a		
ANNUAL RUNOFF (AC-FT)	8300		4990		10200	
ANNUAL RUNOFF (CFSM)	.62		.37		.77	
ANNUAL RUNOFF (INCHES)	8.46		5.09		10.39	
10 PERCENT EXCEEDS	25		13		33	
50 PERCENT EXCEEDS	5.2		2.4		5.8	
90 PERCENT EXCEEDS	2.1		1.3		1.2	

a Also Sept. 29.
e Estimated.



05471040 SQUAW CREEK NEAR COLFAX, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1995 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1995 to current year.
WATER TEMPERATURES: May 1995 to current year.
SUSPENDED-SEDIMENT DISCHARGE: May 1995 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, 620 microsiemens Oct. 2, 1995; minimum daily, 170 microsiemens May 24, 1996.
WATER TEMPERATURES: Maximum daily, 32.0°C July 29, 1999; minimum daily, 0.0°C many days during winter.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,270 mg/L May 24, 1996; minimum daily mean, 6.0 mg/L Apr. 22, 1996.
SEDIMENT LOADS: Maximum daily, 11,400 tons June 18, 1998; minimum daily, 0.01 tons Jan. 6, 7, 1996.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 596 microsiemens Sept. 24; minimum daily, 208 microsiemens Apr. 14.
WATER TEMPERATURES: Maximum daily, 28.0°C Sept. 1, 11; minimum daily, 0.0°C Dec. 15-27, Jan. 3-5, 11, 13, 20-27, Jan. 30 to Feb. 6, Feb. 11-14, 17, 18.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,520 mg/L May 31; minimum daily mean, 8.0 mg/L Aug. 4.
SEDIMENT LOADS: Maximum daily, 7,540 tons May 31; minimum daily, 0.04 tons Sept. 28.

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	502	547	583	494	525	500	352	502	507	---	573	512
2	502	555	566	496	358	522	342	475	522	472	507	---
3	542	533	558	425	448	506	397	458	---	547	549	---
4	516	535	568	478	345	488	395	433	513	428	504	---
5	469	545	570	488	449	482	516	468	469	480	548	571
6	530	506	570	555	458	507	417	523	517	507	541	448
7	506	564	553	455	453	463	439	430	504	495	574	---
8	552	536	564	443	469	536	466	500	455	---	513	---
9	496	546	562	431	521	401	456	515	458	---	563	---
10	542	549	569	447	433	337	423	542	464	---	566	---
11	504	---	570	524	534	393	527	471	392	---	563	565
12	553	557	568	519	458	409	451	537	545	480	487	506
13	555	531	570	424	542	419	539	462	532	---	447	510
14	517	536	560	---	428	405	208	424	519	---	---	540
15	534	565	447	---	491	361	---	418	528	---	---	572
16	557	563	492	---	451	370	480	452	477	563	---	466
17	483	558	466	427	399	476	442	---	538	583	469	447
18	560	526	537	465	461	437	537	---	442	464	216	532
19	542	---	407	504	---	---	428	513	---	565	---	556
20	503	---	444	539	---	494	490	---	---	556	---	541
21	542	---	502	459	491	357	542	491	---	487	547	539
22	550	545	491	470	429	382	511	510	---	557	424	482
23	---	561	516	493	444	425	542	416	---	568	465	559
24	510	570	438	464	507	---	465	504	---	561	434	596
25	485	---	425	486	519	430	493	469	545	559	449	561
26	548	583	453	469	---	411	543	487	528	528	453	591
27	465	581	426	447	472	354	511	503	460	574	460	---
28	535	544	476	---	464	380	465	---	525	565	442	---
29	535	562	491	---	510	430	527	532	538	490	450	---
30	536	562	513	534	---	476	523	423	527	560	475	---
31	549	---	535	530	---	492	---	304	---	432	582	---

05471040 SQUAW CREEK NEAR COLFAX, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	12.0	6.0	2.0	1.0	9.0	14.0	19.0	16.0	---	25.0	28.0
2	13.0	7.0	9.0	3.0	1.0	9.0	16.0	21.0	19.0	23.0	26.0	---
3	7.0	9.0	10.0	1.0	1.0	10.0	11.0	19.0	---	21.0	23.0	---
4	11.0	10.0	8.0	1.0	1.0	13.0	13.0	22.0	17.0	21.0	25.0	---
5	15.0	11.0	5.0	1.0	1.0	14.0	18.0	24.0	17.0	21.0	25.0	22.0
6	15.0	10.0	4.0	2.0	1.0	17.0	17.0	24.0	19.0	24.0	26.0	21.0
7	17.0	11.0	5.0	2.0	2.0	18.0	7.0	24.0	20.0	21.0	26.0	---
8	17.0	15.0	6.0	2.0	2.0	14.0	12.0	19.0	22.0	---	26.0	---
9	17.0	16.0	5.0	2.0	2.0	5.0	17.0	15.0	22.0	---	27.0	---
10	15.0	12.0	5.0	2.0	2.0	6.0	8.0	16.0	23.0	---	27.0	---
11	17.0	---	5.0	1.0	1.0	6.0	9.0	24.0	19.0	---	27.0	28.0
12	20.0	13.0	4.0	2.0	1.0	7.0	12.0	21.0	21.0	18.3	26.0	26.0
13	15.0	14.0	3.0	1.0	1.0	10.0	17.0	16.0	22.0	---	25.0	25.0
14	16.0	10.0	2.0	---	1.0	10.0	22.0	16.0	18.0	---	---	23.0
15	19.0	10.0	1.0	---	2.0	9.0	---	16.0	21.0	---	---	21.0
16	14.0	9.0	1.0	---	2.0	9.0	11.0	20.0	22.0	25.0	---	21.0
17	11.0	9.0	1.0	2.0	1.0	10.0	11.0	---	20.0	24.0	21.0	19.0
18	10.0	12.0	1.0	2.0	1.0	4.0	21.0	---	21.0	18.0	21.0	24.0
19	10.0	---	1.0	2.0	---	---	22.0	18.0	---	21.0	---	19.0
20	12.0	---	1.0	1.0	---	6.0	10.0	---	---	22.0	---	17.0
21	14.0	---	1.0	1.0	2.0	10.0	9.0	21.0	---	22.0	21.0	17.0
22	11.0	9.0	1.0	1.0	5.0	11.0	18.0	22.0	---	22.0	21.0	16.0
23	---	8.0	1.0	1.0	4.0	14.0	19.0	21.0	---	22.0	22.0	14.0
24	8.0	7.0	1.0	1.0	5.0	---	17.0	22.0	---	23.0	24.0	12.0
25	12.0	---	1.0	1.0	11.0	14.0	19.0	21.0	21.0	24.0	25.0	16.0
26	11.0	7.0	1.0	1.0	---	13.0	18.0	14.0	21.0	23.0	24.0	15.0
27	15.0	9.0	1.0	1.0	11.0	12.0	19.0	14.0	21.0	26.0	23.0	---
28	15.0	7.0	2.0	---	10.0	12.0	19.0	---	18.0	24.0	24.0	---
29	16.0	5.0	4.0	---	10.0	15.0	19.0	21.0	22.0	22.0	24.0	---
30	15.0	5.0	3.0	1.0	---	15.0	19.0	22.0	22.0	24.0	26.0	---
31	14.0	---	3.0	1.0	---	15.0	---	18.0	---	26.0	27.0	---

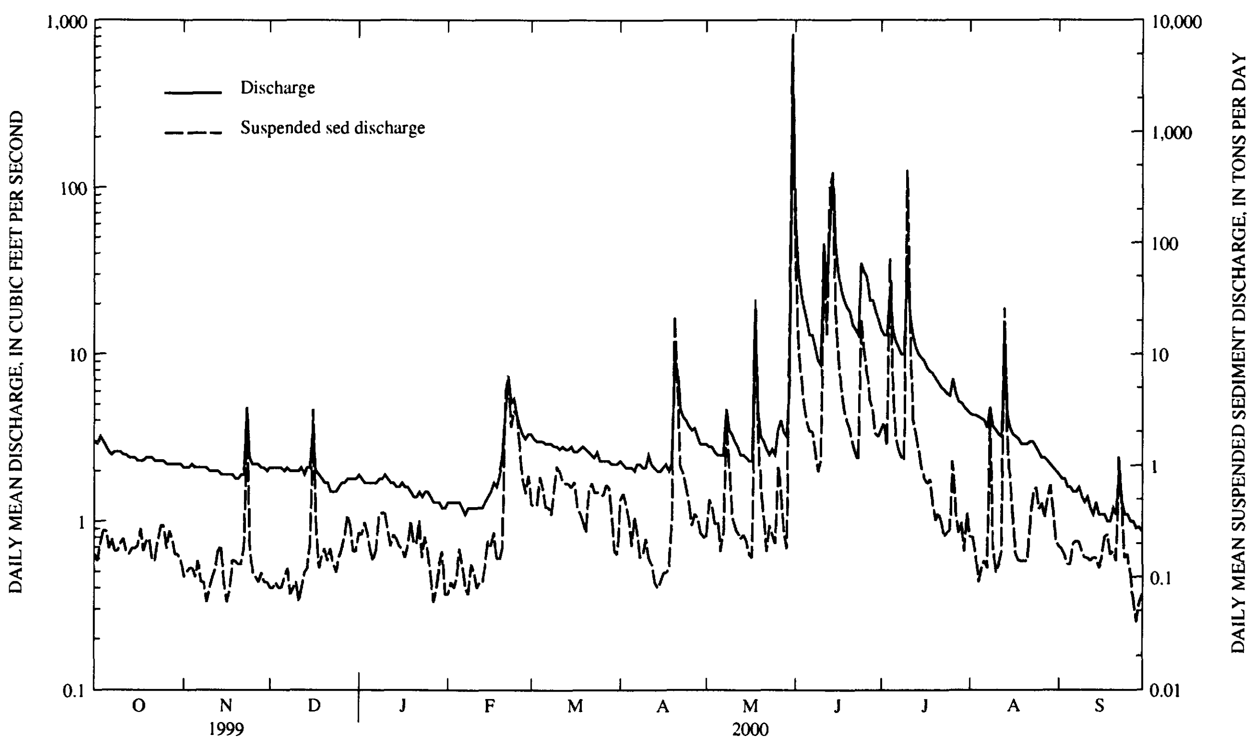
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	20	.16	17	.10	15	.08	48	.25	19	.07	49	.45
2	17	.14	19	.11	13	.08	50	.24	25	.09	52	.43
3	23	.20	20	.12	16	.09	67	.31	23	.08	56	.45
4	32	.26	20	.12	15	.08	52	.24	29	.10	97	.79
5	35	.26	18	.10	14	.08	36	.17	50	.18	77	.62
6	26	.18	25	.14	18	.10	30	.14	40	.13	53	.42
7	32	.22	15	.09	21	.12	40	.18	28	.08	53	.42
8	24	.17	17	.09	13	.07	74	.36	23	.07	46	.36
9	24	.17	10	.06	15	.08	79	.38	41	.13	84	.63
10	28	.20	15	.08	16	.09	72	.37	33	.11	131	.98
11	32	.22	19	.10	11	.06	56	.27	26	.08	119	.87
12	25	.17	21	.12	13	.08	41	.19	29	.09	96	.71
13	24	.16	31	.17	21	.11	52	.24	29	.09	93	.69
14	27	.18	35	.19	21	.12	51	.22	37	.13	94	.69
15	28	.18	17	.09	34	.20	44	.19	56	.21	85	.63
16	30	.19	12	.06	244	3.2	39	.18	47	.19	100	.71
17	45	.27	15	.08	56	.30	35	.15	54	.25	59	.42
18	27	.17	28	.14	25	.12	44	.19	34	.15	51	.37
19	32	.21	29	.14	31	.15	79	.32	28	.14	42	.31
20	34	.22	27	.13	39	.18	53	.20	26	.18	34	.25
21	21	.14	25	.13	31	.14	53	.20	229	4.6	87	.59
22	24	.14	36	.19	44	.18	78	.32	322	6.4	106	.70
23	33	.21	174	2.7	31	.13	41	.15	158	2.2	86	.57
24	46	.29	30	.20	26	.11	57	.23	217	3.1	83	.58
25	47	.29	18	.11	35	.15	42	.17	245	2.8	88	.55
26	29	.18	17	.10	39	.18	27	.10	152	1.5	86	.54
27	43	.26	16	.09	50	.23	17	.06	83	.73	107	.67
28	37	.22	19	.11	74	.36	23	.08	68	.56	102	.63
29	27	.16	17	.09	60	.29	36	.13	92	.81	57	.35
30	27	.16	16	.09	35	.17	53	.17	---	---	28	.17
31	23	.14	---	---	35	.17	23	.07	---	---	28	.16
TOTAL	---	6.12	---	6.04	---	7.50	---	6.47	---	25.25	---	16.71

05471040 SQUAW CREEK NEAR COLFAX, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	80	.50	27	.22	456	90	55	2.1	20	.23	38	.19
2	94	.56	65	.50	154	14	67	2.4	20	.23	37	.18
3	75	.44	57	.42	99	6.2	43	1.5	13	.16	33	.16
4	58	.33	41	.30	67	3.5	292	72	8	.09	30	.13
5	34	.19	46	.32	60	2.5	144	5.5	11	.12	29	.13
6	66	.35	24	.17	57	2.0	59	1.9	13	.14	48	.20
7	43	.25	36	.25	60	2.0	48	1.4	12	.12	52	.21
8	25	.15	164	2.4	48	1.4	45	1.2	191	2.7	48	.21
9	29	.16	108	.99	35	.88	42	1.1	19	.20	45	.17
10	39	.22	39	.35	45	1.1	496	454	12	.11	42	.15
11	23	.15	35	.28	489	79	182	19	15	.13	40	.15
12	22	.13	33	.25	210	15	76	2.7	20	.17	45	.14
13	15	.09	33	.22	486	314	61	1.9	811	26	49	.15
14	15	.08	35	.24	851	405	49	1.4	153	1.8	42	.15
15	18	.09	32	.21	196	24	39	1.0	76	.73	41	.12
16	19	.11	26	.16	124	10	31	.76	37	.33	51	.15
17	19	.11	24	.15	75	4.9	31	.69	19	.16	82	.23
18	22	.12	323	31	55	3.2	36	.75	17	.14	86	.24
19	53	.31	160	2.1	49	2.5	21	.45	17	.14	57	.16
20	618	22	69	.60	44	2.1	17	.32	18	.14	53	.17
21	194	4.6	44	.35	39	1.6	21	.38	18	.14	49	.14
22	82	1.0	23	.17	36	1.3	18	.31	37	.30	193	1.2
23	73	.82	42	.29	32	1.1	14	.23	71	.58	110	.41
24	58	.62	34	.24	142	20	16	.25	84	.64	48	.15
25	45	.45	29	.20	129	11	17	.26	57	.41	56	.16
26	30	.29	104	1.0	88	7.0	56	1.1	70	.46	34	.10
27	37	.37	49	.54	68	3.9	25	.40	53	.34	23	.06
28	40	.34	29	.26	53	3.0	18	.25	84	.52	18	.04
29	32	.25	21	.18	40	1.9	23	.31	110	.67	26	.06
30	30	.23	153	17	43	1.8	13	.17	68	.39	31	.07
31	---	---	2520	7540	---	---	32	.38	38	.21	---	---
TOTAL	---	35.31	---	7601.36	---	1035.88	---	576.11	---	38.50	---	5.78
YEAR		9361.03										



05471040 SQUAW CREEK NEAR COLFAX, IA--Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.--July 1995 to current year.

INSTRUMENTATION.--Tipping bucket rain gage.

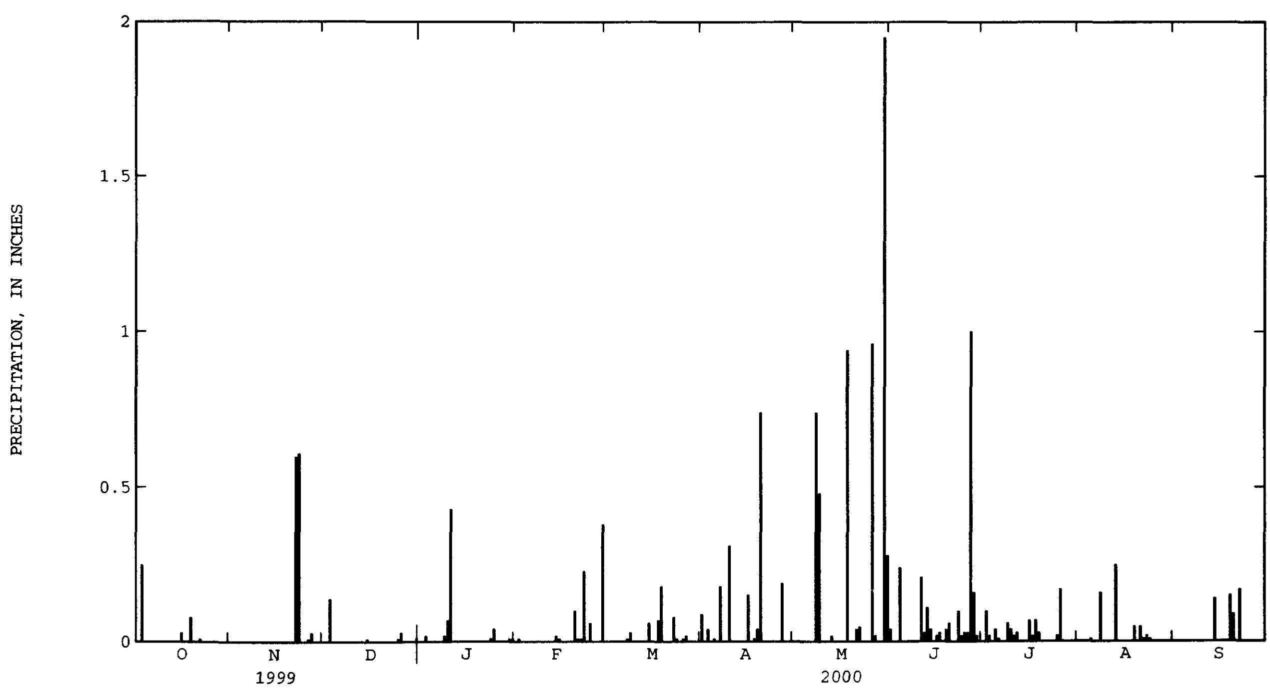
REMARKS.--Records good except for winter period, which is poor due to intermittent snow accumulation and subsequent melting.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily accumulation, 2.69 in., July 17, 1996.

EXTREMES FOR CURRENT YEAR.--Maximum daily accumulation, 1.95 in., May 30.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.09	.00	.04	.00	.00	.00
2	.00	.00	.00	.00	.01	.00	.00	.00	.00	.10	.00	.00
3	.25	.00	.14	.02	.00	.00	.04	.00	.00	.02	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.24	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.01	.00	.00	.04	.01	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
7	.00	.00	.00	.00	.00	.00	.18	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.01	.00	.74	.00	.00	.16	.00
9	.00	.00	.00	.02	.00	.03	.00	.48	.00	.06	.00	.00
10	.00	.00	.00	.07	.00	.00	.31	.00	.00	.04	.00	.00
11	.00	.00	.00	.43	.00	.00	.00	.00	.21	.02	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.03	.03	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.02	.11	.00	.25	.00
14	.00	.00	.00	.00	.02	.00	.00	.00	.04	.00	.00	.14
15	.00	.00	.01	.00	.01	.06	.00	.00	.00	.00	.00	.00
16	.03	.00	.00	.00	.00	.00	.15	.00	.02	.07	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.03	.02	.00	.00
18	.00	.00	.00	.00	.00	.07	.01	.94	.00	.07	.00	.00
19	.08	.00	.00	.00	.00	.18	.04	.00	.04	.03	.05	.15
20	.00	.00	.00	.00	.10	.00	.74	.00	.06	.00	.00	.09
21	.00	.00	.00	.00	.01	.00	.00	.04	.00	.00	.05	.00
22	.01	.60	.00	.00	.01	.00	.00	.05	.00	.00	.01	.17
23	.00	.61	.00	.00	.23	.08	.00	.00	.10	.00	.02	.00
24	.00	.00	.00	.01	.00	.01	.00	.00	.02	.00	.01	.00
25	.00	.00	.01	.04	.06	.00	.00	.00	.03	.02	.00	.00
26	.00	.01	.03	.00	.00	.01	.00	.96	.03	.17	.00	.00
27	.00	.03	.00	.00	.00	.02	.19	.02	1.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00
29	.00	.00	.00	.00	.38	.00	.00	.00	.02	.00	.00	.00
30	.00	.00	.00	.01	---	.00	.00	1.95	.00	.00	.00	.00
31	.00	---	.01	.01	---	.00	---	.28	---	.00	.00	---
TOTAL	0.37	1.25	0.20	0.61	0.83	0.47	1.76	5.48	2.18	0.70	0.56	0.55
MEAN	.01	.04	.01	.02	.03	.02	.06	.18	.07	.02	.02	.02
MAX	.25	.61	.14	.43	.38	.18	.74	1.95	1.00	.17	.25	.17
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00



05471050 SOUTH SKUNK RIVER AT COLFAX, IA

LOCATION.--Lat 41°40'55", long 93°14'47", in $NE^1/_4$ $NE^1/_4$ $SW^1/_4$ sec.1, T.79 N., R.21 W., Jasper County, Hydrologic Unit 07080105, on left bank 15 ft downstream of bridge on State Highway 117 at north edge of Colfax, 1 mi downstream from Sugar Creek, 2.8 mi upstream from Indian Creek, and at mile 191 upstream from mouth of Skunk River.

DRAINAGE AREA.--803 mi^2.

PERIOD OF RECORD.--June 1974 to June 1977, (operated as a partial-record low-flow measurement site), October 1985 to current year.

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published as miscellaneous water quality data in this report. U.S. Geological Survey data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	44	42	e40	e23	123	60	46	541	256	70	31
2	58	42	43	e41	e24	115	59	47	395	236	62	30
3	58	43	44	43	e26	104	61	45	404	226	60	30
4	58	44	43	36	e26	98	63	45	336	280	58	28
5	59	43	42	34	e24	95	62	43	294	309	58	26
6	56	42	39	33	e23	90	59	44	257	286	58	26
7	54	42	41	e31	e22	87	61	43	234	257	62	26
8	53	42	41	e30	e21	81	63	52	217	244	87	26
9	51	41	40	e28	e22	79	65	51	198	243	80	26
10	50	39	39	e27	e24	77	61	50	181	334	69	25
11	49	37	40	e30	e25	77	64	48	236	313	62	24
12	49	37	40	e29	e28	74	61	48	294	256	55	23
13	49	38	36	e26	e30	74	60	46	557	237	71	22
14	48	38	39	e23	e32	73	59	44	1040	220	81	24
15	49	38	39	e24	e35	73	58	43	1270	195	64	22
16	48	39	41	e23	e40	72	55	43	1010	179	56	22
17	46	39	45	e23	e36	71	53	44	691	165	53	22
18	46	39	51	e23	e39	72	52	58	545	156	52	21
19	47	39	45	e24	e42	76	51	60	461	151	50	21
20	47	38	40	e23	e48	77	61	81	426	141	48	25
21	46	39	37	e25	53	75	61	79	389	128	46	24
22	45	39	e34	e28	62	70	58	62	346	118	46	29
23	43	56	e35	e28	71	68	54	56	316	108	46	27
24	43	55	e34	e29	95	68	52	53	361	98	44	25
25	43	51	e32	e30	141	68	52	50	331	95	42	24
26	43	48	e32	e27	186	64	50	56	341	101	40	24
27	43	e45	e34	e24	169	62	51	74	313	135	38	23
28	43	e40	e34	e24	143	61	50	120	281	112	38	24
29	44	43	e34	e25	129	61	48	135	304	93	37	23
30	42	41	e39	e24	---	60	47	139	269	83	34	23
31	42	---	e38	e22	---	59	---	1700	---	77	34	---
TOTAL	1511	1261	1213	877	1639	2404	1711	3505	12838	5832	1701	746
MEAN	48.7	42.0	39.1	28.3	56.5	77.5	57.0	113	428	188	54.9	24.9
MAX	59	56	51	43	186	123	65	1700	1270	334	87	31
MIN	42	37	32	22	21	59	47	43	181	77	34	21
AC-FT	3000	2500	2410	1740	3250	4770	3390	6950	25460	11570	3370	1480
CFSM	.06	.05	.05	.04	.07	.10	.07	.14	.53	.23	.07	.03
IN.	.07	.06	.06	.04	.08	.11	.08	.16	.59	.27	.08	.03

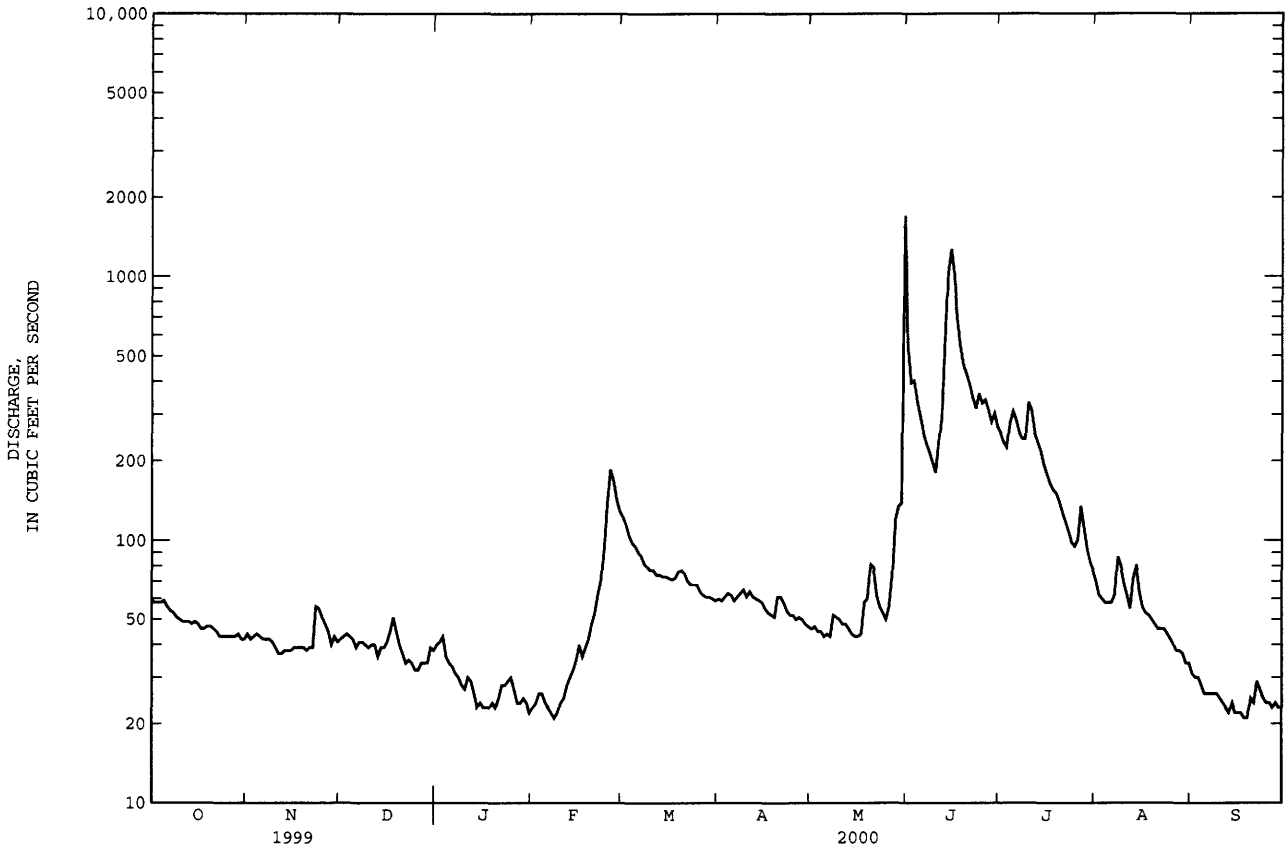
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	324	299	269	173	347	770	897	1083	1414	1027	541	307
MAX	1807	981	626	451	849	2094	2435	2481	3844	5640	3549	1911
(WY)	1987	1997	1993	1992	1997	1993	1991	1991	1998	1993	1993	1993
MIN	11.9	17.5	12.4	12.3	16.2	77.5	57.0	113	96.7	31.8	12.6	6.75
(WY)	1989	1989	1989	1989	1990	2000	2000	2000	1988	1988	1988	1988

05471050 SOUTH SKUNK RIVER AT COLFAX, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1986 - 2000	
ANNUAL TOTAL	228147		35238			
ANNUAL MEAN	625		96.3		622	
HIGHEST ANNUAL MEAN					1831	1993
LOWEST ANNUAL MEAN					69.6	1989
HIGHEST DAILY MEAN	5730	Jun 12	1700	May 31	13100	Jul 12 1993
LOWEST DAILY MEAN	32	Dec 25	21	Feb 8a	1.4	Aug 18 1988
ANNUAL SEVEN-DAY MINIMUM	34	Dec 22	22	Sep 13	3.2	Sep 8 1988
INSTANTANEOUS PEAK FLOW			3440	May 31	14200	Jul 12 1993
INSTANTANEOUS PEAK STAGE			13.60	May 31	21.53	Jul 12 1993
INSTANTANEOUS LOW FLOW			19	Sep 19	1.2	Aug 18 1988
ANNUAL RUNOFF (AC-FT)	452500		69890		450400	
ANNUAL RUNOFF (CFSM)	.78		.12		.77	
ANNUAL RUNOFF (INCHES)	10.57		1.63		10.52	
10 PERCENT EXCEEDS	1820		239		1520	
50 PERCENT EXCEEDS	244		48		270	
90 PERCENT EXCEEDS	41		25		37	

a Also Sept. 18 and 19.
e Estimated.



05471200 INDIAN CREEK NEAR MINGO, IA

LOCATION.--Lat 41°48'17", long 93°18'36", in NW$^1/_4$ NW$^1/_4$ sec.28, T.81 N., R.21 W., Jasper County, Hydrologic Unit 07080105, on right bank 30 ft downstream from bridge on State Highway 117, 0.7 mi downstream from Wolf Creek, 2.2 mi upstream from Byers Branch, 2.9 mi northwest of Mingo, and 11.3 mi upstream from South Skunk River.

DRAINAGE AREA.--276 mi^2.

PERIOD OF RECORD.--May 1958 to September 1975; October 1985 to current year.

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

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

REMARKS.--Records good except those for estimated daily discharge, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with telephone modem at station.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	8.0	21	e8.0	e4.6	32	13	8.8	132	115	26	5.5
2	6.2	5.3	20	e8.5	e4.6	28	13	8.4	85	104	22	5.2
3	6.5	5.8	19	e9.5	e5.0	23	13	8.3	61	101	19	4.7
4	7.2	6.5	17	e9.0	e5.5	24	12	8.2	56	198	17	4.4
5	7.8	7.3	16	e7.5	e4.8	21	12	7.9	56	281	16	4.4
6	6.9	6.6	17	e8.5	e5.5	27	12	7.5	43	199	16	3.9
7	5.8	9.7	16	e8.0	e6.5	28	13	7.5	36	147	14	3.4
8	5.2	7.2	14	e8.5	e8.0	15	14	9.3	31	122	16	3.5
9	5.5	7.4	12	e9.5	e9.5	15	14	10	e31	106	14	3.2
10	5.2	7.5	12	e11	e12	16	14	e10	e32	164	12	3.6
11	4.9	6.4	12	e10	e11	16	14	9.0	e34	202	11	3.0
12	5.1	14	11	e8.0	e9.0	16	13	8.5	116	153	9.9	2.1
13	4.8	20	9.5	e7.5	e9.5	16	13	17	329	124	e19	1.9
14	5.1	20	8.9	e7.0	e10	16	12	10	1140	104	32	1.8
15	7.4	24	8.7	e7.5	e14	16	12	8.5	792	90	20	1.9
16	9.4	21	e9.5	e8.0	e15	15	12	7.8	472	81	17	1.8
17	7.9	21	e9.0	e6.5	e14	15	13	7.3	331	86	13	2.2
18	7.5	22	e8.5	e7.0	e15	16	12	11	260	73	11	1.5
19	7.7	21	e8.5	e6.5	e14	18	12	19	215	66	10	1.7
20	8.1	21	e8.0	e5.5	e13	19	14	16	213	60	9.4	2.3
21	8.8	22	e7.0	e6.0	e12	16	14	12	200	52	8.9	1.8
22	8.1	23	e7.5	e7.0	e13	15	13	10	161	45	9.1	3.5
23	6.6	46	e8.0	e6.5	e15	15	11	9.0	137	39	9.0	4.8
24	6.5	56	e7.5	e6.0	e24	15	11	8.0	151	34	9.1	5.0
25	7.0	42	e7.0	e6.0	e90	15	10	7.5	128	30	8.2	2.6
26	6.7	32	e7.5	e5.5	76	15	9.7	9.8	144	51	8.2	2.0
27	6.5	28	e8.0	e4.8	49	14	9.9	20	135	96	7.7	1.9
28	6.5	e24	e7.5	e4.2	36	14	9.6	22	154	53	7.2	1.9
29	9.6	21	e8.0	e4.6	30	13	9.3	22	166	43	6.7	1.8
30	6.1	20	e9.0	e5.0	---	13	9.0	23	135	35	6.4	2.1
31	5.6	---	e8.5	e4.4	---	13	---	126	---	30	5.9	---
TOTAL	209.0	575.7	343.1	221.5	535.5	550	363.5	469.3	5976	3084	410.7	89.4
MEAN	6.74	19.2	11.1	7.15	18.5	17.7	12.1	15.1	199	99.5	13.2	2.98
MAX	9.6	56	21	11	90	32	14	126	1140	281	32	5.5
MIN	4.8	5.3	7.0	4.2	4.6	13	9.0	7.3	31	30	5.9	1.5
AC-FT	415	1140	681	439	1060	1090	721	931	11850	6120	815	177
CFSM	.02	.07	.04	.03	.07	.06	.04	.05	.72	.36	.05	.01
IN.	.03	.08	.05	.03	.07	.07	.05	.06	.81	.42	.06	.01

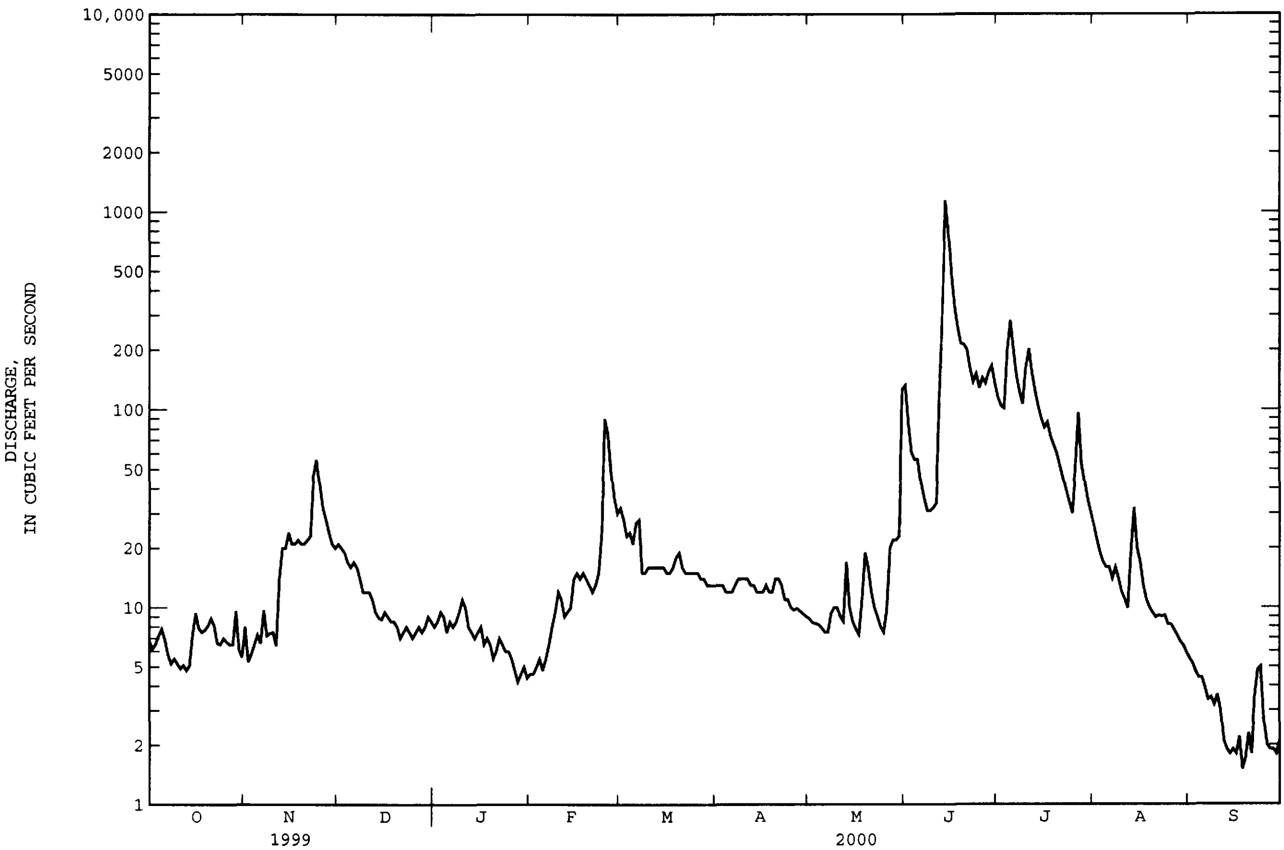
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	108	97.7	79.1	60.6	122	303	280	373	499	317	154	83.7
MAX	689	549	319	289	619	816	834	936	1732	2809	1500	678
(WY)	1987	1973	1973	1973	1971	1993	1965	1974	1998	1993	1993	1993
MIN	1.11	4.12	2.05	1.87	2.25	10.9	8.07	5.58	10.9	3.49	1.44	.91
(WY)	1972	1968	1990	1968	1967	1968	1989	1967	1989	1988	1988	1988

05471200 INDIAN CREEK NEAR MINGO, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1959 - 2000	
ANNUAL TOTAL	58780.8		12827.7			
ANNUAL MEAN	161		35.0		207	
HIGHEST ANNUAL MEAN					751	1993
LOWEST ANNUAL MEAN					11.9	1989
HIGHEST DAILY MEAN	1410	Jun 11	1140	Jun 14	12000	Jul 10 1993
LOWEST DAILY MEAN	4.8	Oct 13	1.5	Sep 18	.01	Aug 18 1989
ANNUAL SEVEN-DAY MINIMUM	5.1	Oct 8	1.8	Sep 13	.15	Aug 16 1989
INSTANTANEOUS PEAK FLOW			1350	Jun 14	23500	Jun 4 1991
INSTANTANEOUS PEAK STAGE			8.91	Jun 14	19.16	Jun 4 1991
INSTANTANEOUS LOW FLOW			1.3	Sep 19a		
ANNUAL RUNOFF (AC-FT)	116600		25440		149800	
ANNUAL RUNOFF (CFSM)	.58		.13		.75	
ANNUAL RUNOFF (INCHES)	7.92		1.73		10.18	
10 PERCENT EXCEEDS	458		92		485	
50 PERCENT EXCEEDS	68		12		71	
90 PERCENT EXCEEDS	7.0		5.0		4.8	

a Also Sept. 21 and 30.
e Estimated.



05471500 SOUTH SKUNK RIVER NEAR OSKALOOSA, IA

LOCATION.--Lat 41°21'21", long 92°39'24", in NW$^1/_4$ SW$^1/_4$ sec.25, T.76 N., R.16 W., Mahaska County, Hydrologic Unit 07080105, on left bank downstream from bridge on U.S. Highway 63, 0.3 mi downstream from Painter Creek, 4.0 mi north of Oskaloosa, 52.0 mi upstream from confluence with North Skunk River, and at mile 147.3 upstream from mouth of Skunk River. Gage was moved to the left bank on downstream side of the Highway 63 bridge on May 3, 1995.

DRAINAGE AREA.--1,635 mi^2.

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. WDR IA-95-1: Location.

GAGE.--Water-stage recorder. Datum of gage is 685.50 ft above sea level. Prior to Nov. 21, 1947, nonrecording gage at site 400 ft downstream at same datum. Accubar pressure sensor installed at site on May 3, 1995.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 25.8 ft, from floodmarks, discharge, 37,000 ft^3/s, from rating curve extended above 18,000 ft^3/s on basis of velocity-area study.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	99	106	e85	e55	294	123	143	2150	974	224	113
2	128	96	110	e100	e60	275	126	137	1120	889	211	108
3	130	96	113	e85	e65	257	127	132	791	1090	199	104
4	138	96	116	e70	e70	235	118	130	731	1370	188	99
5	134	98	113	e65	e65	222	115	126	624	1370	181	95
6	126	94	105	e60	e65	211	111	121	538	1270	178	93
7	125	97	101	e70	e70	204	112	118	476	1050	169	92
8	121	98	102	e90	e80	194	116	118	436	902	217	90
9	118	99	105	e120	e95	184	120	171	398	810	240	88
10	112	99	103	e140	e100	173	118	177	371	852	176	87
11	112	97	97	e130	e110	167	139	163	429	1250	158	80
12	109	96	99	e110	e130	165	134	145	925	1070	147	72
13	108	95	102	e100	e140	161	121	124	774	898	781	68
14	104	92	99	e85	e150	157	116	112	2570	805	757	73
15	105	94	102	e95	e140	157	116	113	2870	725	328	73
16	121	91	e60	e110	e120	154	112	108	2580	652	258	67
17	104	92	e48	e80	e110	146	119	107	1880	601	211	63
18	102	91	e50	e85	e100	147	130	105	1430	546	193	63
19	102	95	e55	e90	e100	162	123	137	1200	534	180	62
20	104	94	e60	e80	e85	171	178	180	1090	486	172	69
21	106	93	e50	e75	e110	167	367	157	1000	457	168	74
22	106	93	e46	e75	e150	163	274	170	921	421	168	104
23	103	201	e40	e70	e230	154	225	149	1020	391	166	195
24	98	205	e46	e50	e290	152	199	128	4050	e380	163	127
25	99	154	e60	e46	370	144	179	111	2900	e370	157	94
26	101	140	e80	e46	372	138	169	108	3910	e360	148	85
27	102	132	e65	e44	387	136	165	142	1730	339	140	80
28	102	122	e55	e46	356	127	169	167	1320	367	135	77
29	102	113	e60	e50	311	123	156	175	1210	349	127	72
30	100	105	e65	e55	---	126	146	192	1110	299	122	65
31	96	---	e75	e50	---	124	---	1670	---	276	118	---
TOTAL	3456	3267	2488	2457	4486	5390	4523	5836	42554	22153	6780	2632
MEAN	111	109	80.3	79.3	155	174	151	188	1418	715	219	87.7
MAX	138	205	116	140	387	294	367	1670	4050	1370	781	195
MIN	96	91	40	44	55	123	111	105	371	276	118	62
AC-FT	6850	6480	4930	4870	8900	10690	8970	11580	84410	43940	13450	5220
CFSM	.07	.07	.05	.05	.09	.11	.09	.12	.87	.44	.13	.05
IN.	.08	.07	.06	.06	.10	.12	.10	.13	.97	.50	.15	.06

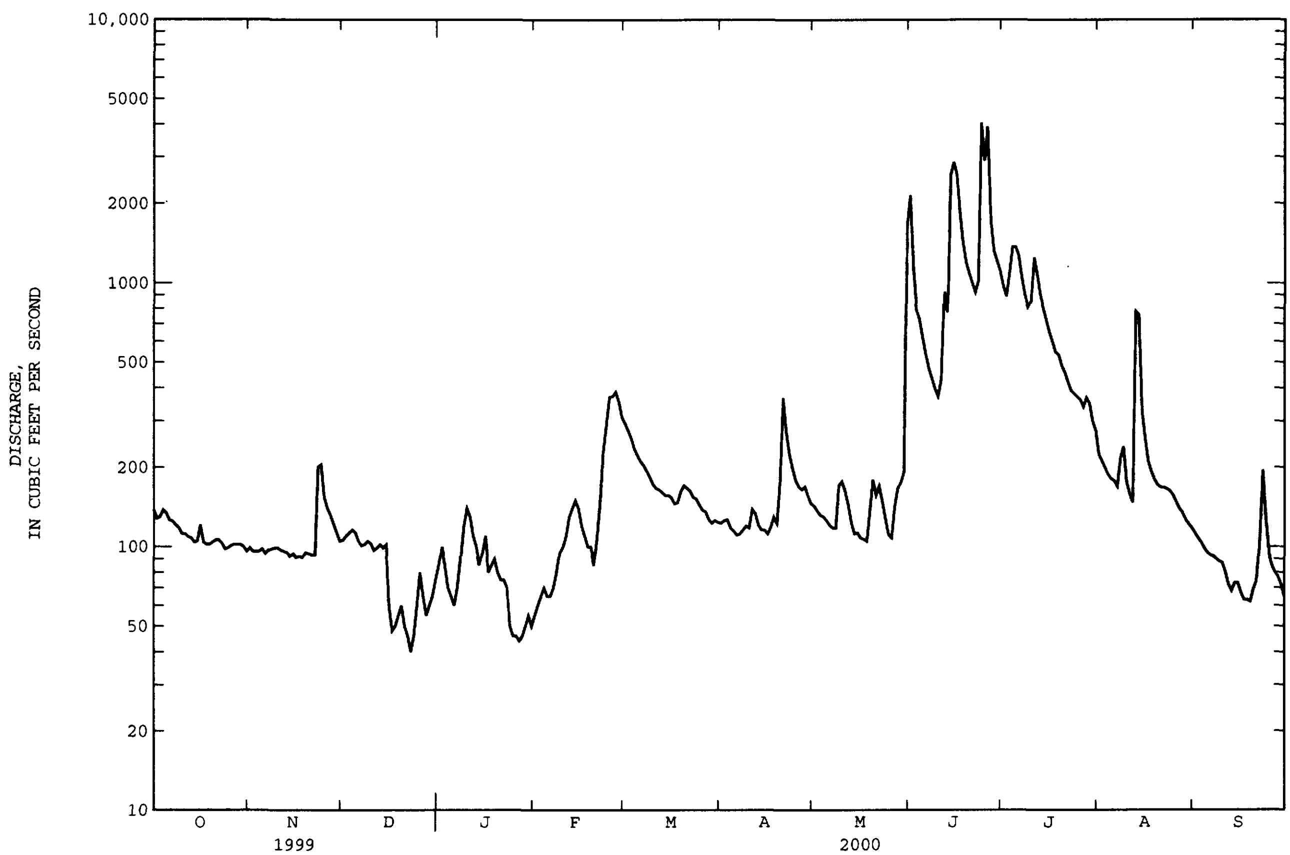
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	505	554	456	461	822	1598	1641	1707	2160	1432	664	472
MAX	3646	3576	2322	3906	3587	4841	5366	6168	9222	11770	7772	5140
(WY)	1987	1984	1983	1973	1973	1979	1983	1974	1947	1993	1993	1993
MIN	8.47	14.5	7.55	5.30	42.9	45.9	42.1	74.2	39.4	27.3	43.3	27.8
(WY)	1957	1957	1956	1956	1954	1954	1956	1956	1977	1977	1988	1956

05471500 SOUTH SKUNK RIVER NEAR OSKALOOSA, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1946 - 2000	
ANNUAL TOTAL	418650		106022			
ANNUAL MEAN	1147		290		1039	
HIGHEST ANNUAL MEAN					3884	1993
LOWEST ANNUAL MEAN					40.1	1956
HIGHEST DAILY MEAN	7110	Jun 13	4050	Jun 24	20400	Jul 15 1993
LOWEST DAILY MEAN	40	Dec 23	40	Dec 23	1.8	Oct 11 1956a
ANNUAL SEVEN-DAY MINIMUM	50	Dec 18	48	Jan 24	2.0	Oct 7 1956
INSTANTANEOUS PEAK FLOW			6190	Jun 25	20700	Jul 15 1993
INSTANTANEOUS PEAK STAGE			18.28	Jun 25	24.78	Jul 15 1993
ANNUAL RUNOFF (AC-FT)	830400		210300		752700	
ANNUAL RUNOFF (CFSM)	.70		.18		.64	
ANNUAL RUNOFF (INCHES)	9.53		2.41		8.63	
10 PERCENT EXCEEDS	3160		784		2580	
50 PERCENT EXCEEDS	580		124		451	
90 PERCENT EXCEEDS	98		70		56	

a Also Oct. 12 and 13, 1956.
e Estimated.



05472500 NORTH SKUNK RIVER NEAR SIGOURNEY, IA

LOCATION.--Lat 41°18'03", long 92°12'16", in $NE^1/_4$ $SE^1/_4$ sec.14, T.75 N., R.12 W., Keokuk County, Hydrologic Unit 07080106, on right bank 10 ft downstream from bridge on State Highway 149, 1.2 mi downstream from Cedar Creek, 2.2 mi south of Sigourney, 4.0 mi upstream from Bridge Creek, and 16.2 mi upstream from confluence with South Skunk River.

DRAINAGE AREA.--730 mi^2.

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

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1946-47 (M).

GAGE.--Water stage recorder. Datum of gage is 651.53 ft above sea level. Prior to June 10, 1953, nonrecording gage at same site and datum.

REMARKS.--Records good except those estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 22.8 ft, from floodmark, discharge, 14,500 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	34	40	e27	e17	111	45	91	400	669	152	56
2	41	32	38	e34	e19	104	45	84	517	553	140	53
3	37	30	38	e26	e20	100	45	79	266	697	128	51
4	36	30	41	e23	e23	98	46	74	191	1340	120	47
5	35	29	44	e21	e22	94	45	71	152	2240	115	45
6	35	32	43	e20	e22	90	43	68	138	1860	111	42
7	38	35	41	e21	e24	86	42	66	122	1070	107	39
8	36	31	38	e23	e28	81	43	64	108	807	130	38
9	35	32	36	e30	e30	71	42	76	98	650	120	37
10	33	31	36	e38	e34	63	45	87	91	562	126	36
11	32	32	37	e34	e42	60	51	105	86	664	119	36
12	33	30	36	e30	e40	56	54	93	106	932	110	41
13	34	31	33	e26	47	55	55	82	370	675	102	34
14	32	33	37	e25	48	55	52	72	720	538	104	33
15	32	32	36	e27	48	55	50	65	1760	451	146	30
16	44	32	e19	e30	e44	55	49	62	1250	392	144	27
17	40	32	e17	e22	e42	53	53	62	739	350	113	27
18	40	31	e18	e23	e42	52	50	63	544	318	96	25
19	44	31	e20	e25	e46	54	65	63	447	292	87	25
20	37	32	e22	e24	e42	57	497	60	389	274	83	30
21	34	31	e16	e22	54	61	632	99	353	249	80	31
22	31	32	e15	e22	76	61	489	89	321	236	77	40
23	31	53	e14	e21	125	59	293	81	510	235	75	137
24	33	95	e16	e17	202	57	204	77	1180	219	73	e100
25	32	104	e18	e16	330	55	158	69	1780	204	74	e80
26	31	78	e20	e16	272	54	131	66	3300	195	72	70
27	30	62	e18	e15	195	54	120	70	3530	177	69	56
28	31	51	e16	e16	151	52	112	75	1910	202	70	48
29	31	46	e18	e17	123	49	105	101	981	251	64	41
30	33	43	e21	e18	---	47	96	97	867	192	61	38
31	33	---	e24	e16	---	45	---	89	---	168	59	---
TOTAL	1096	1227	866	725	2208	2044	3757	2400	23226	17662	3127	1393
MEAN	35.4	40.9	27.9	23.4	76.1	65.9	125	77.4	774	570	101	46.4
MAX	52	104	44	38	330	111	632	105	3530	2240	152	137
MIN	30	29	14	15	17	45	42	60	86	168	59	25
AC-FT	2170	2430	1720	1440	4380	4050	7450	4760	46070	35030	6200	2760
CFSM	.05	.06	.04	.03	.10	.09	.17	.11	1.06	.78	.14	.06
IN.	.06	.06	.04	.04	.11	.10	.19	.12	1.18	.90	.16	.07

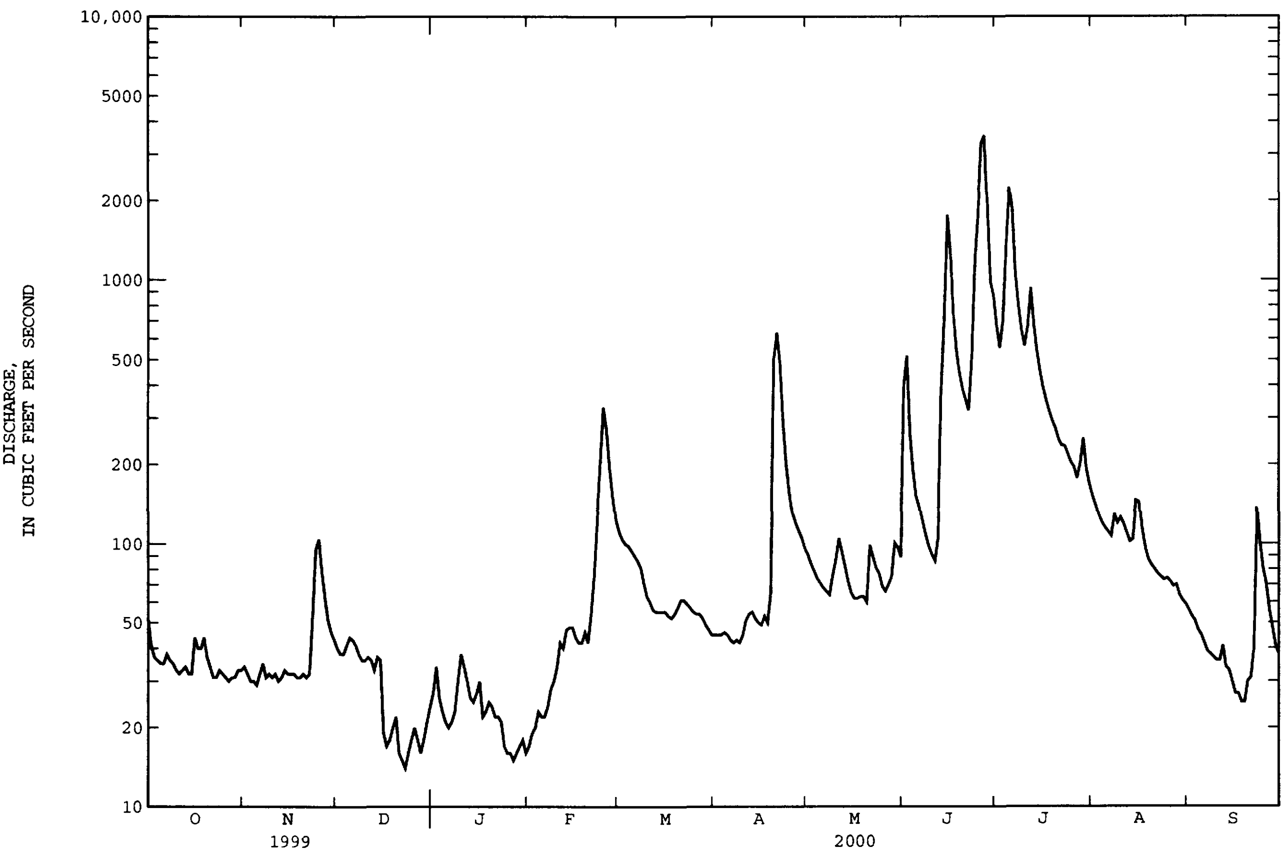
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	228	292	230	261	419	839	780	822	791	559	292	285
MAX	1603	1890	1208	1767	1311	2996	2826	4170	4145	5098	3668	2708
(WY)	1987	1962	1983	1946	1973	1979	1993	1974	1947	1993	1993	1993
MIN	.13	3.38	2.58	2.26	12.8	17.0	11.2	14.4	20.1	11.2	7.90	4.35
(WY)	1957	1957	1956	1954	1954	1954	1956	1956	1977	1977	1955	1956

05472500 NORTH SKUNK RIVER NEAR SIGOURNEY, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1946 - 2000	
ANNUAL TOTAL	164986		59731			
ANNUAL MEAN	452		163		483	
HIGHEST ANNUAL MEAN					2041	1993
LOWEST ANNUAL MEAN					27.7	1956
HIGHEST DAILY MEAN	2850	Jun 13	3530	Jun 27	23200	Mar 31 1960
LOWEST DAILY MEAN	14	Dec 23	14	Dec 23	.10	Oct 7 1956a
ANNUAL SEVEN-DAY MINIMUM	17	Dec 21	16	Jan 25	.10	Oct 7 1956
INSTANTANEOUS PEAK FLOW			3950	Jun 27	27500	Mar 31 1960
INSTANTANEOUS PEAK STAGE			16.83	Jun 27	25.33	Mar 31 1960
INSTANTANEOUS LOW FLOW			13	Dec 16		
ANNUAL RUNOFF (AC-FT)	327200		118500		350000	
ANNUAL RUNOFF (CFSM)	.62		.22		.66	
ANNUAL RUNOFF (INCHES)	8.41		3.04		8.99	
10 PERCENT EXCEEDS	1280		376		1190	
50 PERCENT EXCEEDS	230		53		170	
90 PERCENT EXCEEDS	31		23		19	

a Also Oct. 8 to Nov. 15, 1956.
e Estimated.



05473400 CEDAR CREEK NEAR OAKLAND MILLS, IA

LOCATION.--Lat. 40°55'20", long 91°40'10", in SE$^1/_4$ NW$^1/_4$ sec.28, T.71 N., R.7 W., Henry County, Hydrologic Unit 07080107, on left bank 30 ft upstream from bridge on county highway H46, 3.0 mi west of Oakland Mills, 2.9 mi upstream from Wolf Creek, and 4.3 mi upstream from mouth.

DRAINAGE AREA.--530 mi^2.

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1957 to 1977. July 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 565.07 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Occasional high-water measurements were made by U.S. Army Corps of Engineers in 1965, 1966, 1970, and 1974 and by U.S. Geological Survey in 1966 and 1967. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of April 22, 1973 reached a stage of 24.09 ft, discharge not determined. Flood of June 1905 reached a stage approximately 2 feet higher from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	3.3	9.1	e7.0	e4.2	65	13	22	22	623	57	11
2	13	3.4	8.7	e9.0	e4.6	74	13	22	18	448	48	10
3	10	3.9	8.4	e8.5	e6.0	52	13	22	16	449	47	9.3
4	8.6	4.3	8.8	e8.0	e6.5	41	13	20	16	1790	40	9.0
5	7.1	4.2	12	e7.5	e7.0	34	12	16	26	5930	36	7.9
6	11	4.2	14	e7.0	e7.0	29	12	14	29	6280	31	7.1
7	8.4	4.5	20	e6.5	e7.5	27	12	13	23	5510	28	6.7
8	6.2	5.0	20	10	e8.5	24	13	13	25	1500	28	6.6
9	4.5	5.3	17	12	e9.5	22	12	19	20	820	28	6.4
10	3.7	5.4	e12	15	e11	21	14	28	17	585	44	6.6
11	3.9	5.7	e8.0	19	e9.5	20	14	42	15	479	60	6.5
12	3.7	5.6	e6.0	30	e8.5	19	13	32	21	437	35	6.6
13	3.6	6.1	e5.0	25	e9.0	17	14	31	31	358	28	6.1
14	3.2	6.0	e5.5	19	e9.5	17	13	23	679	296	26	6.4
15	3.0	5.9	e6.0	13	e8.5	17	13	19	1320	246	28	5.9
16	5.3	5.6	e4.2	13	e7.5	17	15	16	609	210	21	7.2
17	4.7	5.7	e4.4	11	e7.0	16	15	14	313	184	24	7.1
18	27	6.5	e4.6	9.7	e6.5	16	14	12	203	166	20	7.6
19	12	6.1	e5.0	15	e6.0	20	17	12	134	157	17	6.5
20	8.1	5.9	e5.5	e9.5	e11	25	112	12	103	145	15	10
21	10	6.0	e4.6	e7.0	e21	32	143	28	82	129	14	14
22	7.3	6.1	e3.4	e5.5	e36	26	168	22	73	111	13	25
23	4.8	6.8	e3.0	e5.0	e70	23	102	17	330	100	14	347
24	3.2	7.4	e3.4	e4.4	e130	22	64	15	4370	89	13	107
25	2.4	12	e4.2	e4.2	252	20	44	13	5670	79	14	130
26	2.2	21	e5.5	e4.0	280	19	34	14	7110	78	15	98
27	2.8	23	e4.8	e3.8	148	18	29	22	7730	73	14	65
28	3.4	17	e4.6	e4.2	82	16	27	31	7570	72	15	60
29	3.5	13	e5.0	e4.4	60	16	26	38	5770	66	15	37
30	4.2	10	e5.5	e4.6	---	15	24	40	1020	60	13	26
31	4.3	---	e6.0	e4.0	---	13	---	28	---	56	13	---
TOTAL	212.1	224.9	234.2	305.8	1233.8	793	1028	670	43365	27526	814	1059.5
MEAN	6.84	7.50	7.55	9.86	42.5	25.6	34.3	21.6	1446	888	26.3	35.3
MAX	27	23	20	30	280	74	168	42	7730	6280	60	347
MIN	2.2	3.3	3.0	3.8	4.2	13	12	12	15	56	13	5.9
AC-FT	421	446	465	607	2450	1570	2040	1330	86010	54600	1610	2100
CFSM	.01	.01	.01	.02	.08	.05	.06	.04	2.71	1.67	.05	.07
IN.	.01	.02	.02	.02	.09	.06	.07	.05	3.03	1.92	.06	.07

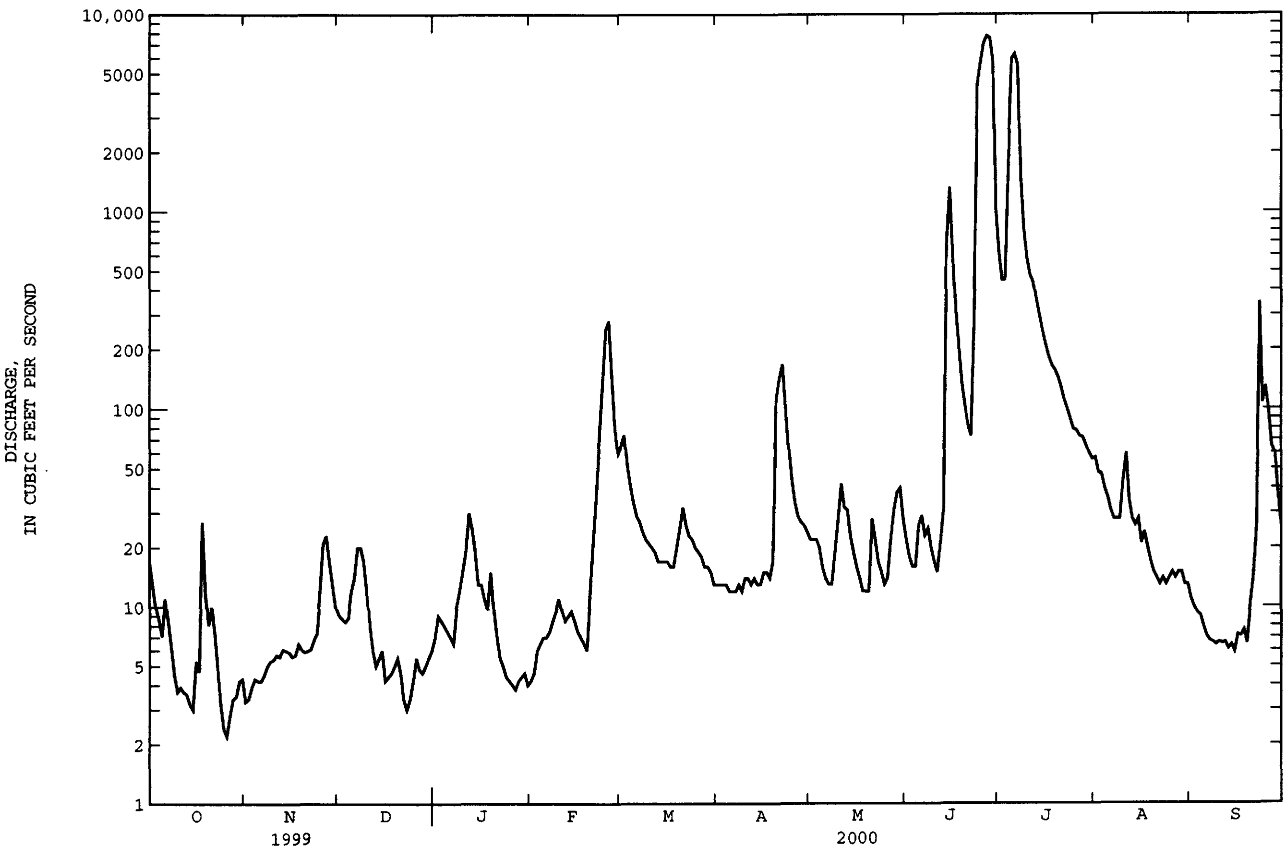
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	245	307	242	104	320	595	640	712	569	595	195	231
MAX	1711	1340	1364	545	1091	1987	1863	3116	2199	4565	2186	1245
(WY)	1987	1993	1983	1993	1985	1979	1983	1996	1990	1993	1993	1986
MIN	5.93	7.50	4.43	9.42	6.36	25.6	34.3	21.6	14.6	3.52	5.35	6.28
(WY)	1989	2000	1990	1997	1989	2000	2000	2000	1988	1988	1983	1991

05473400 CEDAR CREEK NEAR OAKLAND MILLS, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1978 - 2000	
ANNUAL TOTAL	105454.2		77466.3			
ANNUAL MEAN	289		212		396	
HIGHEST ANNUAL MEAN					1424	1993
LOWEST ANNUAL MEAN					73.0	1989
HIGHEST DAILY MEAN	4130	May 18	7730	Jun 27	11500	May 28 1996
LOWEST DAILY MEAN	2.2	Oct 26	2.2	Oct 26	.42	Sep 17 1988
ANNUAL SEVEN-DAY MINIMUM	3.1	Oct 24	3.1	Oct 24	.55	Sep 14 1988
INSTANTANEOUS PEAK FLOW			7870	Jun 27	12300	May 28 1996
INSTANTANEOUS PEAK STAGE			19.04	Jun 27	21.27	Jul 9 1993
INSTANTANEOUS LOW FLOW			2.2	Oct 26		
ANNUAL RUNOFF (AC-FT)	209200		153700		287200	
ANNUAL RUNOFF (CFSM)	.54		.40		.74	
ANNUAL RUNOFF (INCHES)	7.36		5.41		10.10	
10 PERCENT EXCEEDS	727		151		930	
50 PERCENT EXCEEDS	65		14		80	
90 PERCENT EXCEEDS	4.2		4.6		7.9	

e Estimated



05473450 BIG CREEK NEAR MT. PLEASANT, IA

LOCATION.--Lat. 45°00'26", long 91°33'05", in NW1/4 SE1/4 sec.28, T.72 N., R.6 W., Henry County, Hydrologic Unit 07080107, on right bank 20 ft upstream from bridge on old U.S. highway 218 (Mt. Pleasant business route) about 2 miles north of Mt. Pleasant, 1.6 miles upstream from Brandy Wine Creek, and 2.3 miles upstream from Lynn Creek.

DRAINAGE AREA.--58 mi^2.

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1957 to 1977. Oct. 1, 1997 to current year.

GAGE.--Water-stage recorder. Datum of gage is 643.00 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 21, 1973, discharge 9,580 ft^3/s, on basis of contracted-opening measurement.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.53	1.4	.67	e.70	e.42	29	3.4	17	43	43	4.1	.56
2	.45	1.1	.71	e.90	e.44	24	3.6	18	27	36	3.1	.58
3	.59	.71	.83	e.85	e.55	18	4.9	14	19	34	2.5	.53
4	.82	.58	1.0	e.80	e.65	16	4.7	13	19	134	2.2	.56
5	.68	.55	1.6	e.75	e.65	13	3.8	12	20	413	1.9	.54
6	.61	.58	1.2	e.70	e.65	11	3.6	12	15	185	2.4	.54
7	.44	.61	.85	e.65	e.70	9.3	4.4	12	12	113	1.8	.54
8	.45	.71	.88	.83	e.75	8.3	4.7	12	12	77	1.5	.58
9	.41	.69	1.5	1.5	e.90	8.6	4.4	24	11	57	1.2	.67
10	.44	.68	1.3	2.1	e1.0	6.8	3.8	128	9.4	47	1.1	.65
11	.45	.63	.92	1.9	e.90	5.2	4.7	93	9.6	42	.99	.63
12	.41	.65	e.60	1.6	e.85	5.3	3.8	64	23	43	.85	.67
13	.38	.64	e.50	1.3	e.90	5.2	3.4	40	184	49	.93	.40
14	.33	.63	e.55	.99	e.95	5.1	3.3	29	275	34	.98	.71
15	.33	.63	e.60	.90	e.85	5.2	3.7	23	186	28	.61	.79
16	1.2	.64	e.42	.96	e.75	5.7	13	24	106	23	.61	.79
17	1.2	.65	e.44	.88	e.70	4.2	12	24	67	20	.46	.67
18	.75	.63	e.46	.87	e.65	3.6	7.4	23	49	17	.43	.63
19	.61	.63	e.50	.94	e.65	6.9	6.7	17	38	17	.42	.59
20	.50	.62	e.55	e.75	e.75	7.7	118	13	35	15	.41	1.5
21	.48	.64	e.46	e.65	e1.7	6.4	195	14	30	12	.41	1.5
22	.48	.72	e.34	e.55	e4.6	5.1	102	15	22	9.7	.46	3.2
23	.45	.83	e.30	e.50	e11	4.6	69	17	84	8.1	.50	13
24	.41	.82	e.34	e.44	e25	5.6	47	14	327	6.9	.52	10
25	.44	.78	e.42	e.42	57	6.6	35	9.4	263	5.9	.52	11
26	.52	.76	e.55	e.40	177	5.3	28	8.8	531	12	.49	5.5
27	.46	.71	e.48	e.40	75	5.8	26	25	263	10	.46	3.2
28	.46	.70	e.46	e.42	36	6.4	25	32	111	7.8	.45	2.2
29	.51	.65	e.50	e.44	26	5.4	20	22	79	9.7	.49	1.8
30	.55	.65	e.55	e.46	---	4.2	17	18	57	7.0	.50	1.7
31	1.1	---	e.60	e.40	---	3.7	---	24	---	5.5	.56	---
TOTAL	17.44	21.22	21.08	25.95	427.96	257.2	781.3	811.2	2927.0	1521.6	33.85	66.23
MEAN	.56	.71	.68	.84	14.8	8.30	26.0	26.2	97.6	49.1	1.09	2.21
MAX	1.2	1.4	1.6	2.1	177	29	195	128	531	413	4.1	13
MIN	.33	.55	.30	.40	.42	3.6	3.3	8.8	9.4	5.5	.41	.40
AC-FT	35	42	42	51	849	510	1550	1610	5810	3020	67	131
CFSM	.01	.01	.01	.01	.25	.14	.45	.45	1.68	.85	.02	.04
IN.	.01	.01	.01	.02	.27	.16	.50	.52	1.88	.98	.02	.04

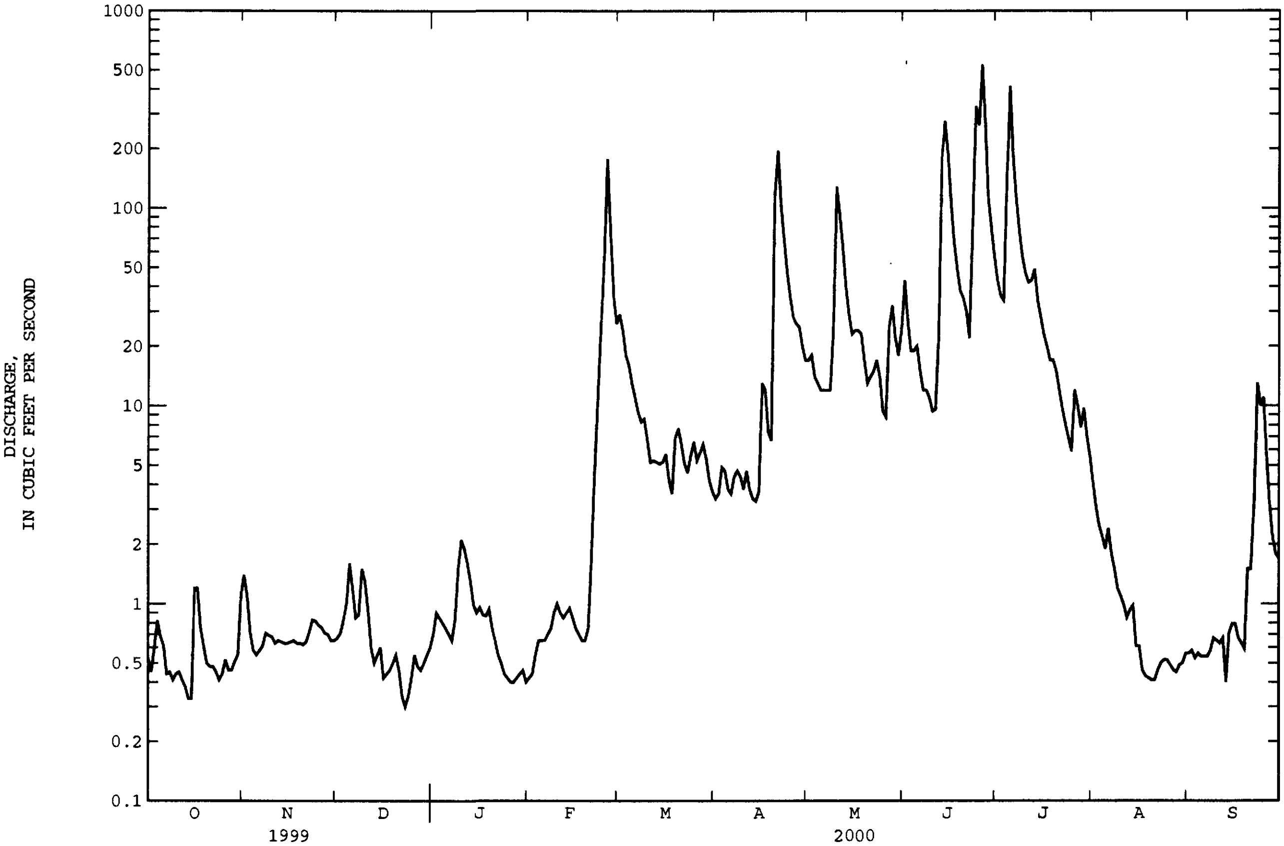
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	38.4	29.2	13.6	35.4	66.6	70.6	116	57.4	80.9	22.7	3.41	4.11
MAX	110	78.6	25.6	83.0	129	176	201	77.3	97.8	49.1	8.61	8.41
(WY)	1999	1999	1999	1998	1998	1998	1998	1998	1998	2000	1998	1998
MIN	.56	.71	.68	.84	14.8	8.30	26.0	26.2	47.2	2.67	.53	1.70
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	1999	1999	1999	1999

05473450 BIG CREEK NEAR MT. PLEASANT, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1997 - 2000	
ANNUAL TOTAL	10554.09		6912.03			
ANNUAL MEAN	28.9		18.9		44.6	
HIGHEST ANNUAL MEAN					68.1	1998
LOWEST ANNUAL MEAN					18.9	2000
HIGHEST DAILY MEAN	710	Apr 28	531	Jun 26	1600	Mar 31 1998
LOWEST DAILY MEAN	.11	Sep 26	.30	Dec 23	.11	Sep 26 1999
ANNUAL SEVEN-DAY MINIMUM	.17	Sep 20	.39	Oct 9	.17	Sep 20 1999
INSTANTANEOUS PEAK FLOW			574	Jun 26	2280	Mar 31 1998
INSTANTANEOUS PEAK STAGE			6.99	Jun 26	11.97	Mar 31 1998
INSTANTANEOUS LOW FLOW			.15	Sep 13		
ANNUAL RUNOFF (AC-FT)	20930		13710		32290	
ANNUAL RUNOFF (CFSM)	.50		.33		.77	
ANNUAL RUNOFF (INCHES)	6.77		4.43		10.44	
10 PERCENT EXCEEDS	75		42		106	
50 PERCENT EXCEEDS	6.7		1.5		12	
90 PERCENT EXCEEDS	.39		.46		.48	

e Estimated



05474000 SKUNK RIVER AT AUGUSTA, IA

LOCATION.--Lat 40°45'13", long 91°16'40", in NE$^1/_4$ NE$^1/_4$ sec.26, T.69 N., R.4 W., Des Moines County, Hydrologic Unit 07080107, on left bank 300 ft upstream from bridge on State Highway 394 at Augusta, 2.0 mi upstream from Long Creek, and at mile 12.5.

DRAINAGE AREA.--4,303 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September to November 1913, October 1914 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1915 (M), 1919-27 (M), 1932-34 (M), 1936, 1937-38 (M), 1942 (M). WSP 1438: Drainage area. WDR IA-71-1: 1966 (M).

GAGE.--Water-stage recorder. Datum of gage is 521.24 ft above NGVD. Prior to Nov. 15, 1913, nonrecording gage at site 400 ft upstream at datum about 0.7 ft higher. May 27, 1915 to Jan. 14, 1935, nonrecording gage at site 400 ft upstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1903, reached a stage of about 21 ft, discharge, about 45,000 ft^3/s. Stage and discharge for flood of April 1973 are believed to be the greatest since 1851.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	497	201	304	e140	e80	1360	352	684	643	4680	877	306
2	415	197	284	e170	e90	1270	337	638	915	3690	781	289
3	390	187	271	e160	e100	1100	333	599	2190	3230	704	268
4	367	186	268	e150	e110	983	327	575	2660	4190	645	255
5	344	188	304	e140	e120	896	308	545	1870	14100	586	239
6	308	192	322	e130	e120	830	306	508	1470	15800	557	221
7	290	192	316	e120	e130	779	300	497	1290	13300	562	216
8	280	191	303	e150	e140	727	315	487	1140	8840	541	219
9	271	195	324	e200	e160	681	308	489	1020	4690	501	212
10	266	199	315	e250	e170	630	298	651	939	3630	501	208
11	252	201	285	e220	e180	594	303	843	939	3130	597	209
12	242	191	260	e180	e200	558	311	1010	1060	2910	654	207
13	234	195	246	e150	e220	529	313	896	1130	3040	588	181
14	220	195	239	e140	e230	508	320	737	2970	3170	528	176
15	208	196	239	e150	e210	492	335	613	6400	2680	451	180
16	218	192	e180	e160	e190	489	340	534	6330	2280	563	180
17	260	186	e140	e140	e170	458	414	480	6580	2010	946	170
18	305	186	e120	e150	e160	443	523	455	5350	1820	731	165
19	318	191	e130	e170	e160	471	509	436	4250	1690	593	154
20	285	193	e140	e150	e150	513	927	552	3370	1560	501	190
21	260	188	e110	e130	e270	522	3240	515	2750	1420	436	213
22	245	184	e80	e110	e440	519	4530	432	2300	1290	399	279
23	223	195	e70	e95	e700	506	3300	436	2480	1150	376	602
24	207	204	e75	e85	e1100	500	2260	503	8060	1060	359	687
25	198	220	e90	e75	e1800	499	1640	475	12900	966	339	850
26	199	245	e120	e70	3350	472	1250	436	18600	910	333	1090
27	200	441	e95	e65	2290	450	1030	482	19300	943	326	832
28	202	491	e85	e70	1850	427	899	619	17900	875	317	667
29	203	413	e90	e75	1460	395	812	697	16900	821	318	526
30	202	345	e100	e80	---	387	736	615	9300	796	316	407
31	206	---	e120	e70	---	367	---	581	---	872	312	---
TOTAL	8315	6780	6025	4145	16350	19355	27176	18020	163006	111543	16238	10398
MEAN	268	226	194	134	564	624	906	581	5434	3598	524	347
MAX	497	491	324	250	3350	1360	4530	1010	19300	15800	946	1090
MIN	198	184	70	65	80	367	298	432	643	796	312	154
AC-FT	16490	13450	11950	8220	32430	38390	53900	35740	323300	221200	32210	20620
CFSM	.06	.05	.05	.03	.13	.14	.21	.13	1.26	.83	.12	.08
IN.	.07	.06	.05	.04	.14	.17	.23	.16	1.41	.96	.14	.09

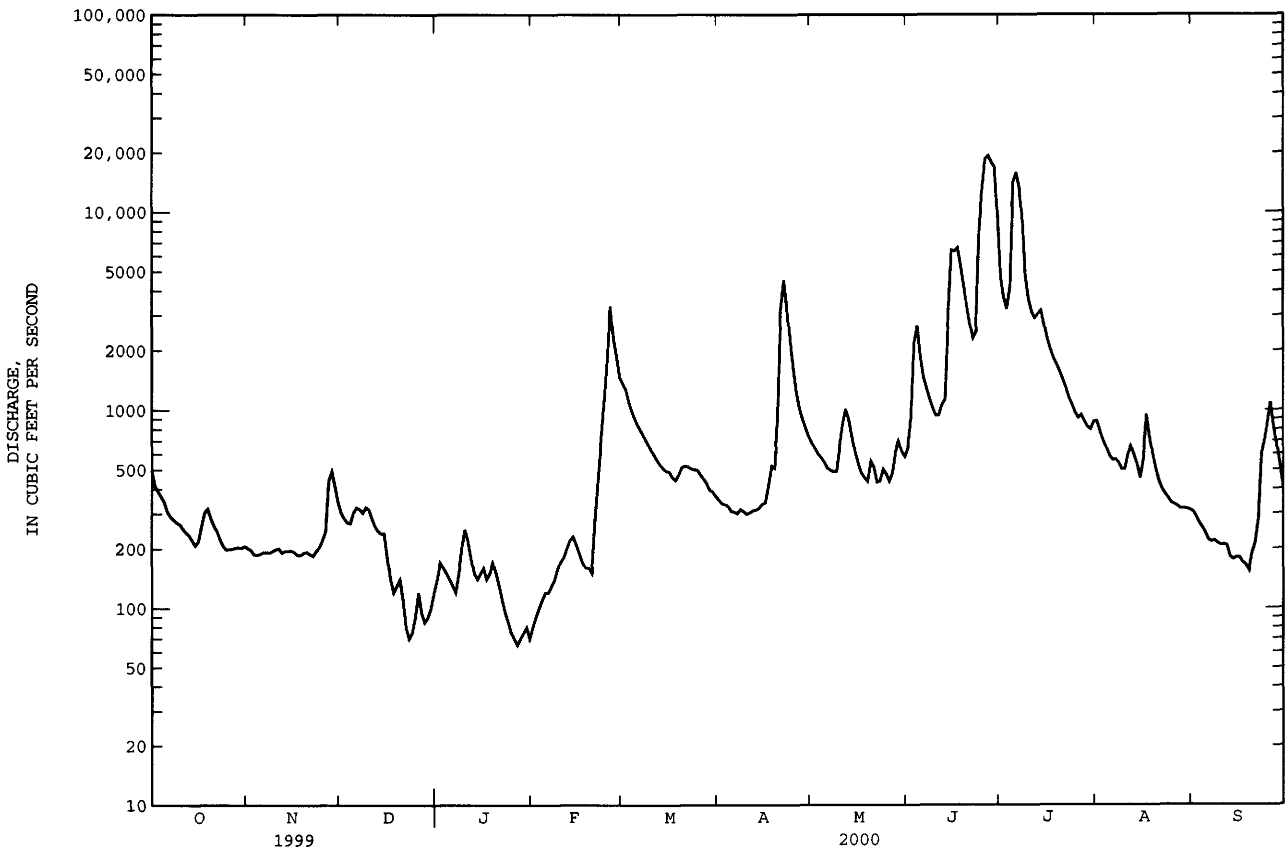
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1915 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1382	1563	1282	1312	2350	4306	4151	4068	4347	2872	1685	1617
MAX	11560	10020	8387	8090	7306	16560	18770	16780	19800	26860	18550	15460
(WY)	1987	1962	1983	1946	1984	1979	1973	1996	1947	1993	1993	1926
MIN	15.5	20.5	21.2	21.3	56.5	191	104	92.5	130	122	25.8	71.4
(WY)	1957	1957	1957	1940	1940	1957	1956	1934	1977	1988	1934	1953

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1915 - 2000	
ANNUAL TOTAL	980579		407351			
ANNUAL MEAN	2687		1113		2576	
HIGHEST ANNUAL MEAN					10200	1993
LOWEST ANNUAL MEAN					152	1934
HIGHEST DAILY MEAN	17800	Apr 29	19300	Jun 27	62600	Apr 23 1973
LOWEST DAILY MEAN	70	Dec 23	65	Jan 27	7.0	Aug 27 1934
ANNUAL SEVEN-DAY MINIMUM	88	Dec 22	72	Jan 25	7.4	Aug 26 1934
INSTANTANEOUS PEAK FLOW			19800	Jun 27	66800	Apr 23 1973
INSTANTANEOUS PEAK STAGE			15.18	Jun 27	27.05	Apr 23 1973
ANNUAL RUNOFF (AC-FT)	1945000		808000		1866000	
ANNUAL RUNOFF (CFSM)	.62		.26		.60	
ANNUAL RUNOFF (INCHES)	8.46		3.51		8.12	
10 PERCENT EXCEEDS	7420		2350		6780	
50 PERCENT EXCEEDS	1420		363		1070	
90 PERCENT EXCEEDS	198		140		149	

e Estimated



05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER QUALITY RECORDS

LOCATION.--Samples collected at bridge on State Highway 394, 300 ft downstream from gage.

PERIOD OF RECORD.--October 1975 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 950 microsiemens Dec. 20, 1979, Feb. 12, 1980; minimum daily, 149 microsiemens Mar. 6, 1993.
WATER TEMPERATURES: Maximum daily, 34.0°C July 20, 1980, Aug. 15-17, 1988, July 10-13, 1989, and July 15, 1995, and July 30, 1999; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,550 mg/L June 25, 1981; minimum daily mean, 1 mg/L Mar. 8, 9, 12, 1978, Jan. 5, 6, 1984.
SEDIMENT LOADS: Maximum daily, 499,000 tons Mar. 21, 1978; minimum daily, 1.4 tons Dec. 11, 1989.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 783 microsiemens Feb. 3; minimum daily, 224 microsiemens June 28.
WATER TEMPERATURES: Maximum daily, 29.0°C Sept. 1, 2; minimum daily, 0.0°C many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,900 mg/L June 25; minimum daily mean, 7 mg/L Feb. 1.
SEDIMENT LOADS: Maximum daily, 75,200 tons June 26; minimum daily, 1.5 tons Feb. 1.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	TIME	TEMPER-ATURE WATER (DEG C) (00010)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (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						
26...	1030	8.9	207	78	44	99
DEC						
08...	0840	2.5	296	11	8.8	99
JAN						
13...	1050	.1	152	27	11	77
FEB						
28...	1255	8.6	1880	141	716	98
28...	1315	--	--	--	--	--
APR						
10...	1215	12.0	313	61	52	99
MAY						
23...	1245	22.6	427	115	133	99
JUN						
27...	1310	21.9	20800	863	48500	93
JUL						
05...	1600	23.0	16400	1440	63800	91
AUG						
25...	1200	27.3	329	89	79	99
SEP						
29...	1300	17.8	522	115	162	99

DATE	TIME	NUMBER OF SAM-PLING POINTS (COUNT) (00063)	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									
26...	1030	--	--	--	--	--	--	--	--
NOV									
08...	0935	--	--	--	--	--	--	--	--
08...	0936	--	--	--	--	--	--	--	--
DEC									
08...	0840	--	--	--	--	--	--	--	--
JAN									
13...	1050	--	--	--	--	--	--	--	--
FEB									
28...	1255	--	--	--	--	--	--	--	--
28...	1315	2	0	4	53	88	95	97	100
APR									
10...	1215	--	--	--	--	--	--	--	--
MAY									
23...	1245	--	--	--	--	--	--	--	--
JUN									
27...	1310	--	--	--	--	--	--	--	--
JUL									
05...	1600	--	--	--	--	--	--	--	--
AUG									
25...	1200	--	--	--	--	--	--	--	--
SEP									
29...	1300	--	--	--	--	--	--	--	--

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	463	575	645	653	763	490	513	544	546	410	403	503
2	523	628	623	655	739	493	522	526	493	451	393	497
3	555	611	599	594	783	521	539	517	471	472	386	495
4	567	605	---	601	772	565	547	468	348	462	384	512
5	553	611	551	638	780	563	570	452	335	263	375	500
6	546	601	599	672	767	527	578	471	409	285	380	516
7	533	627	634	713	697	499	584	468	456	271	388	515
8	509	632	624	623	743	492	585	459	504	306	417	529
9	494	613	596	667	721	509	589	451	530	426	403	541
10	481	579	612	676	721	527	598	513	547	472	408	543
11	491	590	631	726	694	530	599	505	531	505	417	541
12	496	637	629	665	763	545	597	541	512	521	427	547
13	497	611	625	651	764	529	589	556	528	520	439	529
14	509	617	614	678	760	535	584	559	445	522	418	556
15	534	608	628	673	749	531	581	543	358	477	413	559
16	523	624	629	659	689	523	575	509	383	479	427	558
17	527	558	636	675	700	523	574	494	394	531	403	572
18	541	561	641	695	684	513	561	482	395	539	456	570
19	545	603	637	702	653	517	563	464	458	550	368	572
20	525	594	633	680	674	531	505	494	495	477	379	576
21	561	553	---	723	653	537	483	458	523	456	410	576
22	589	577	---	---	607	535	375	517	541	451	434	597
23	608	544	---	720	594	547	415	530	520	427	442	462
24	601	631	---	718	433	528	451	542	342	420	445	539
25	599	564	---	---	479	534	485	573	282	418	463	537
26	588	581	---	728	385	532	506	541	250	396	470	540
27	603	631	---	721	463	518	516	548	240	415	478	508
28	596	578	---	733	477	533	533	578	224	391	506	438
29	594	618	660	749	488	540	551	532	253	413	497	455
30	646	655	659	732	---	517	551	523	340	417	500	---
31	593	---	665	736	---	506	---	536	---	412	512	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	16.0	5.0	3.0	.0	8.0	11.0	18.0	28.0	21.0	24.0	29.0
2	---	9.0	10.0	6.0	1.0	8.0	11.0	21.0	23.0	24.0	24.0	29.0
3	---	11.0	10.0	2.0	.0	7.0	11.0	20.0	23.0	24.0	22.0	22.0
4	---	12.0	---	1.0	.0	11.0	11.0	22.0	18.0	21.5	24.0	20.0
5	---	13.0	4.0	1.0	1.0	8.0	17.0	23.0	18.0	20.0	22.0	19.0
6	---	15.0	4.0	.0	1.0	15.0	13.0	20.0	20.0	22.0	22.0	19.0
7	---	12.0	8.0	.0	1.0	18.0	10.0	20.0	21.0	22.0	25.0	23.0
8	---	16.0	8.0	1.0	1.0	18.0	5.0	25.0	24.0	21.0	25.0	24.0
9	---	17.0	6.0	1.0	3.0	9.0	8.0	26.0	25.0	23.0	25.0	21.0
10	---	15.0	5.0	4.0	2.0	6.0	10.0	18.0	23.0	24.0	26.0	24.0
11	---	13.0	4.0	1.0	1.0	9.0	9.0	22.0	23.0	23.0	26.0	25.0
12	---	12.0	4.0	.0	---	6.0	12.0	18.0	24.0	23.0	25.0	21.0
13	---	17.0	3.0	.0	---	6.0	16.0	16.0	24.0	25.0	20.0	22.0
14	---	11.0	4.0	.0	---	7.0	19.0	15.0	21.0	---	25.0	19.0
15	---	10.0	3.0	1.0	---	11.0	20.0	18.0	21.0	21.0	27.0	17.0
16	---	9.0	.0	1.0	1.0	10.0	15.0	20.0	20.0	23.0	25.0	17.0
17	---	10.0	.0	.0	1.0	10.0	10.0	21.0	17.0	24.0	25.0	20.0
18	---	13.0	.0	1.0	.0	5.0	16.0	24.0	19.0	19.0	24.0	21.0
19	---	8.0	1.0	1.0	.0	4.0	17.0	18.0	22.0	21.0	18.0	16.0
20	---	9.0	.0	.0	1.0	6.0	11.0	16.0	23.0	20.0	17.0	11.0
21	---	8.0	---	.0	5.0	9.0	14.0	18.0	23.0	22.0	21.0	14.0
22	---	10.0	---	---	8.0	10.0	10.0	17.0	25.0	20.0	21.0	16.0
23	---	10.0	---	.0	6.0	15.0	17.0	20.0	19.0	20.0	21.0	11.0
24	---	10.0	---	.0	6.0	16.0	15.0	24.0	18.0	23.0	25.0	9.0
25	14.0	8.0	---	---	7.0	11.0	16.0	20.0	19.0	23.0	25.0	8.0
26	13.0	8.0	---	.0	9.0	13.0	18.0	16.0	21.0	22.0	23.0	12.0
27	16.0	8.0	---	.0	7.0	13.0	17.0	17.0	19.0	24.0	20.0	9.0
28	18.0	6.0	---	.0	10.0	11.0	19.0	16.0	19.0	22.0	25.0	11.0
29	17.0	5.0	1.0	.0	10.0	14.0	18.0	14.0	21.0	20.0	24.0	17.8
30	16.0	2.0	1.0	.0	---	14.0	17.0	20.0	21.0	20.0	25.0	---
31	18.0	---	2.0	.0	---	16.0	---	25.0	---	23.0	27.0	---

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

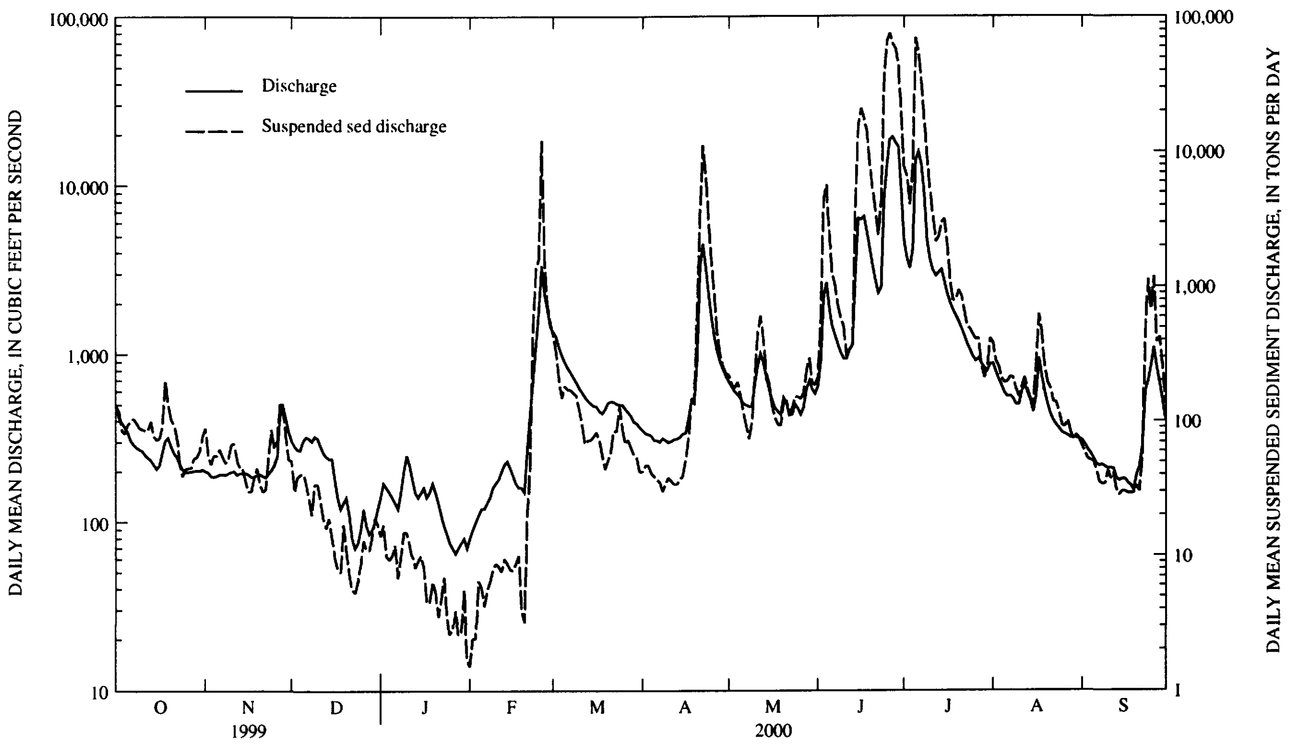
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	107	130	164	89	62	51	38	14	7	1.5	119	436
2	105	118	102	54	39	30	38	17	10	2.4	97	331
3	80	85	94	48	52	38	23	9.9	9	2.4	68	202
4	82	81	111	56	56	40	23	9.3	22	6.5	56	149
5	103	95	107	55	50	41	27	10	18	5.8	76	183
6	120	99	120	62	40	35	35	12	13	4.2	77	172
7	134	105	104	54	31	27	21	6.8	16	5.6	81	171
8	130	98	94	49	25	20	24	9.7	17	6.4	82	162
9	121	89	100	52	39	34	27	15	18	7.8	85	156
10	122	87	126	67	40	34	22	15	19	8.7	71	122
11	126	86	127	69	33	26	20	12	17	8.3	59	95
12	131	86	98	51	27	19	21	10	14	7.6	45	68
13	160	100	86	45	25	16	20	8.1	16	9.5	50	72
14	131	78	84	44	29	19	24	9.1	14	8.7	53	73
15	130	73	68	36	22	14	25	10	14	7.9	58	77
16	127	75	58	30	20	9.7	19	8.2	15	7.7	62	83
17	129	91	59	30	21	7.9	12	4.5	19	8.7	58	72
18	246	203	75	38	23	7.5	11	4.5	24	10	47	57
19	160	137	88	45	48	17	14	6.4	9	3.9	34	44
20	136	104	66	34	28	11	13	5.3	8	3.2	37	51
21	135	94	59	30	24	7.1	10	3.5	27	20	42	59
22	121	80	63	31	26	5.6	16	4.8	41	49	61	85
23	83	50	104	55	28	5.3	27	6.9	244	461	61	84
24	69	39	157	87	32	6.5	15	3.4	453	1350	97	131
25	81	44	106	63	36	8.7	13	2.6	331	1610	66	89
26	84	45	109	72	39	13	15	2.8	1290	12100	54	68
27	83	45	117	140	44	11	22	3.9	245	1550	60	73
28	97	53	91	121	49	11	14	2.6	146	733	56	64
29	100	54	70	78	58	14	13	2.6	139	546	52	56
30	110	60	55	52	71	19	26	5.6	---	---	51	54
31	138	77	---	---	52	17	9	1.7	---	---	43	42
TOTAL	---	2661	---	1737	---	615.3	---	237.2	---	18545.8	---	3581

DAY	MEA CON TRA (MG	LOAD (TONS/ DAY)	MEAN CONCE TRATI (MG/L	LOAD (TON DAY)	MEAN CONCEN TRATIO (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN TRATIO (MG/L)	LOAD (TONS/ DAY)	MEAN CONCE TRATI (MG/L	LOAD (TON DAY)	MEAN CONCE TRATI (MG/L	LOAD (TON DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	44	42	120	222	122	213	610	7690	160	379	79	65
2	52	47	109	188	225	570	665	6630	133	280	74	58
3	53	47	109	177	668	4390	463	4050	134	254	72	52
4	47	41	126	196	784	5700	592	7630	121	210	74	51
5	47	39	107	157	476	2430	1780	69600	122	193	77	50
6	45	37	87	119	312	1240	1270	54400	131	197	71	43
7	43	35	70	93	295	1020	903	32600	141	214	60	35
8	35	30	56	74	235	723	722	17200	145	212	57	34
9	41	34	73	97	213	589	708	8990	128	173	60	34
10	47	38	122	216	201	510	529	5210	113	152	76	43
11	44	36	189	433	121	306	399	3380	112	181	66	37
12	40	34	224	611	120	343	275	2160	120	212	73	41
13	40	34	171	417	118	369	286	2360	109	173	63	31
14	42	37	116	232	432	4020	352	3000	103	146	60	28
15	43	39	114	188	908	15700	444	3200	113	137	62	30
16	56	52	89	129	1220	20900	332	2050	167	265	62	30
17	66	74	82	106	984	17500	201	1100	245	622	63	29
18	102	146	77	94	984	14200	161	790	231	458	64	29
19	108	149	79	93	702	8090	175	797	157	252	69	29
20	218	602	91	137	578	5260	223	938	144	194	65	33
21	382	3550	103	143	493	3670	222	854	148	175	51	30
22	913	11200	97	114	389	2420	191	664	130	140	64	55
23	753	6790	106	125	603	4280	167	521	136	138	301	467
24	501	3090	112	153	1520	35400	171	487	118	115	605	1130
25	334	1500	119	152	1900	66100	169	442	100	92	274	676
26	255	868	125	147	1500	75200	165	406	102	91	395	1180
27	160	450	126	165	1200	62600	163	414	115	101	170	386
28	130	315	144	242	1200	58000	107	254	96	82	237	420
29	118	258	157	296	943	43200	95	211	85	73	185	260
30	114	227	117	194	716	18300	119	256	93	79	121	135
31	---	---	118	186	---	---	174	411	87	73	---	---
TOTAL	---	29841	---	5896	---	473243	---	238695	---	6063	---	5521

YEAR 786636.3

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued



05474500 MISSISSIPPI RIVER AT KEOKUK, IA

LOCATION.--Lat 40°23'37", long 91°22'27", in SE1/4 SW1/4 sec.30, T.65 N., R.4 W., Lee County, Hydrologic Unit 07080104, near right bank in tailwater of dam and powerplant of Union Electric Co. at Keokuk, 0.2 mi upstream from bridge on U.S. Highway 136, 2.7 mi upstream from Des Moines River, and at mile 364.2 upstream from Ohio River.

DRAINAGE AREA.--119,000 mi^2, approximately.

PERIOD OF RECORD.--January 1878 to current year.

GAGE.--Water-stage recorder. Datum of gage is 477.41 ft above sea level (levels by U.S. Army Corps of Engineers). Jan. 1, 1878 to May 1913, nonrecording gage at Galland (formerly Nashville), 8 mi upstream; zero of gage was set to low-water mark of 1864, or 496.52 ft above sea level.

REMARKS.--Discharge computed from records of operation of turbines in powerplant and spillway gates in dam. Minor flow regulation caused by powerplant since 1913 and navigation dams. Records for May 1913 to September 1937 adjusted for change in contents in Keokuk Reservoir, those after September 1937 unadjusted.

COOPERATION.--Records provided by Union Electric Co.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 6, 1851, reached a stage of 21.0 ft, present site and datum, estimated as 13.5 ft at Galland, discharge, 360,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48100	40600	40400	40100	28000	82300	55800	82600	102000	160000	62800	47000
2	46300	39500	37200	40900	27900	91500	55300	73500	108800	154000	64500	44300
3	52700	40100	36700	42200	32700	93000	54700	68500	113700	152000	60500	45400
4	46500	40300	40300	42800	33900	96000	52700	56400	140000	146000	56300	37300
5	45200	40200	44700	41500	34300	95700	54000	55300	144900	159000	52200	33500
6	44300	38100	46000	33700	34400	101500	52300	53100	150200	161000	58500	31900
7	44800	37100	44400	33400	32100	96100	50100	51000	153900	146000	49400	31500
8	42300	39200	44300	31000	32700	94100	47200	51400	161100	132000	48700	35600
9	43600	40100	43200	36900	34800	92600	46600	50000	161900	102000	55900	38000
10	46100	41300	43200	40200	35300	90700	48500	49300	164200	102000	54400	39100
11	47000	41100	41400	41200	35400	91600	49400	52500	166800	98100	52500	38200
12	44300	41800	40800	41900	35700	83200	47400	55400	165600	103000	48200	42900
13	44000	41400	39900	42100	34100	81100	43800	59700	166900	115000	40800	41800
14	44600	40400	42100	33000	34700	71800	43600	55800	175600	122000	39200	46400
15	42200	41200	41300	32200	34800	73300	44100	61700	189800	127000	38800	49000
16	40100	41500	39400	29500	37300	74200	40100	59200	203400	134000	41900	53900
17	39600	39700	39100	32200	38500	70200	45100	59200	208300	148000	48400	61300
18	40400	38700	37600	31700	41500	71700	47000	54000	209200	144000	49100	62700
19	36600	31800	31900	30200	39900	68900	44500	61400	201300	149000	52800	54800
20	39400	31000	27300	25800	33100	67600	56300	72400	185600	146000	51700	56100
21	38200	28400	22200	23600	33400	67100	81900	82300	172000	145000	52400	52000
22	39300	38200	21200	25700	35200	67100	101500	94800	162200	134000	56500	43100
23	38600	38400	21200	26600	35700	57600	87800	100600	158700	119000	62200	40300
24	38400	40500	22200	26800	41000	55300	96400	99000	166400	101000	64900	42800
25	37800	41000	21500	27400	50800	57300	85200	95800	172400	89300	58000	53400
26	38900	43400	21900	27500	79400	48200	83700	95500	183900	80000	47200	57800
27	39300	48900	25700	28500	95100	52700	82500	94800	181800	79000	44400	45200
28	39700	46800	25900	28500	100200	52000	86200	92400	176700	64000	45800	41200
29	41700	44700	27800	28900	92800	52000	91300	90200	174400	58900	42400	41800
30	42600	43700	31500	28700	---	54200	83600	83700	169100	65300	44200	41100
31	38900	---	38000	28000	---	55800	---	85300	---	59700	44300	---
TOTAL	1311500	1199100	1080300	1022700	1254700	2306400	1858600	2196800	4990800	3695300	1588900	1349400
MEAN	42310	39970	34850	32990	43270	74400	61950	70860	166400	119200	51250	44980
MAX	52700	48900	46000	42800	100000	102000	102000	101000	209000	161000	64900	62700
MIN	36600	28400	21200	23600	27900	48200	40100	49300	102000	58900	38800	31500
AC-FT	2601000	2378000	2143000	2029000	2489000	4575000	3687000	4357000	9899000	7330000	3152000	2677000
CFSM	.36	.34	.29	.28	.36	.63	.52	.60	1.40	1.00	.43	.38
IN.	.41	.37	.34	.32	.39	.72	.58	.69	1.56	1.16	.50	.42

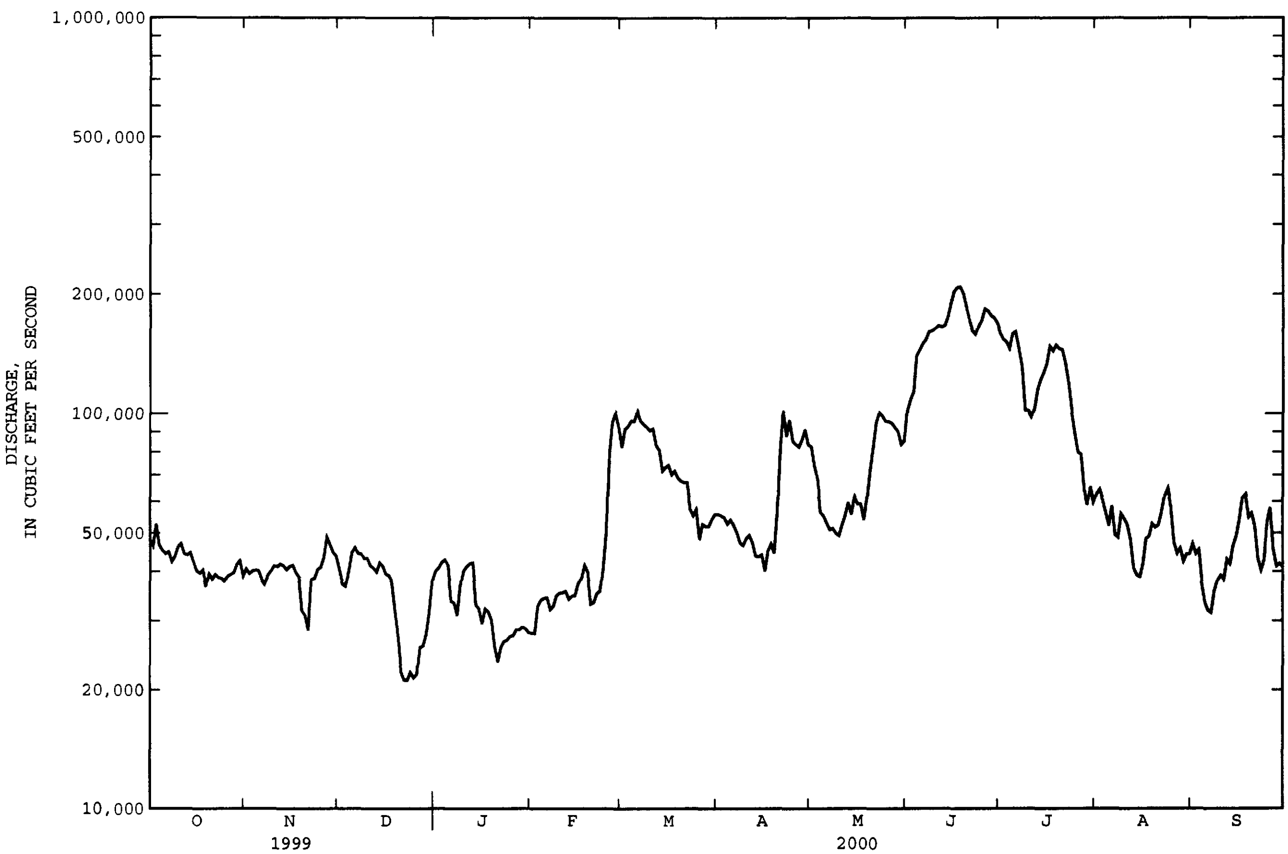
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1879 - 2000, BY WATER YEAR (WY)

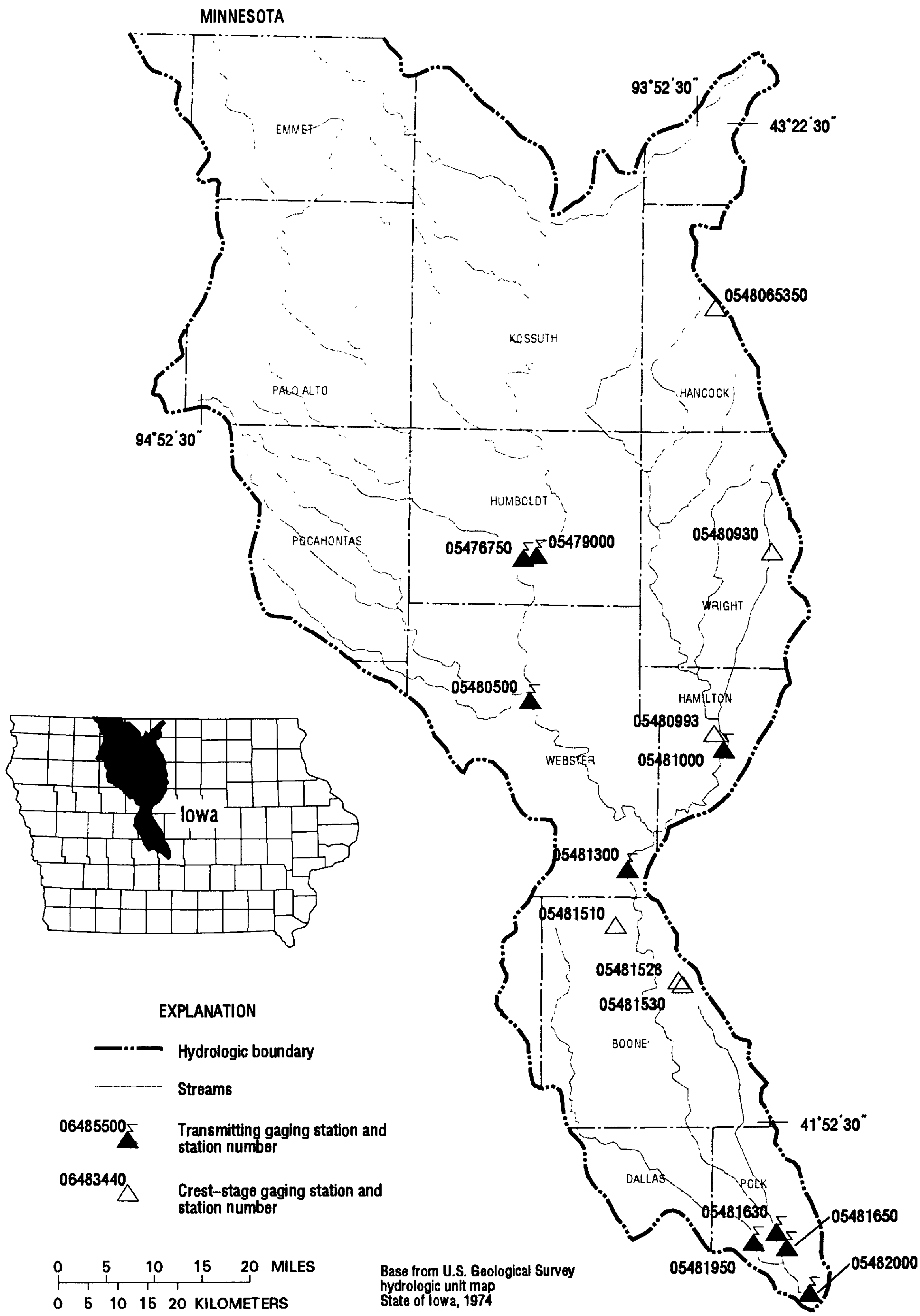
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	51030	51200	38600	36060	42590	80550	119600	107800	93760	74760	49750	47410
MAX	221100	211300	125600	101600	95620	185400	250100	260700	227300	385800	223000	163300
(WY)	1882	1882	1983	1973	1984	1973	1993	1888	1892	1993	1993	1993
MIN	16060	16020	13450	14650	15790	21780	32930	27600	17400	16280	13030	15530
(WY)	1934	1934	1934	1940	1899	1934	1895	1934	1934	1988	1936	1976

05474500 MISSISSIPPI RIVER AT KEOKUK, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1879 - 2000	
ANNUAL TOTAL	30993700		23854500			
ANNUAL MEAN	84910		65180		66140	
HIGHEST ANNUAL MEAN					162500	1993
LOWEST ANNUAL MEAN					21540	1934
HIGHEST DAILY MEAN	208000	May 28	209000	Jun 18	434000	Jul 10 1993
LOWEST DAILY MEAN	21200	Dec 22	21200	Dec 22	5000	Dec 27 1933
ANNUAL SEVEN-DAY MINIMUM	22300	Dec 21	22300	Dec 21	8270	Dec 25 1933
INSTANTANEOUS PEAK FLOW					446000	Jul 10 1993
INSTANTANEOUS PEAK STAGE					27.58	Jul 10 1993a
ANNUAL RUNOFF (AC-FT)	61480000		47320000		47910000	
ANNUAL RUNOFF (CFSM)	.71		.55		.56	
ANNUAL RUNOFF (INCHES)	9.69		7.46		7.55	
10 PERCENT EXCEEDS	171000		145000		133000	
50 PERCENT EXCEEDS	71400		47200		50700	
90 PERCENT EXCEEDS	38800		32200		23000	

a From floodmark.




MINNESOTA
93°52'30"
43°22'30"
94°52'30"
41°52'30"
EMMET
KOSSUTH
PALO ALTO
HANCOCK
HUMBOLDT
POCAHONTAS
WRIGHT
HAMILTON
WEBSTER
BOONE
DALLAS
POLK
0548065350
05480930
05476750
05479000
05480500
05480993
05481000
05481300
05481510
05481528
05481530
05481630
05481650
05481950
05482000
Iowa
EXPLANATION
Hydrologic boundary
Streams
06485500
Transmitting gaging station and station number
06483440
Crest-stage gaging station and station number
0 5 10 15 20 MILES
0 5 10 15 20 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05476750	Des Moines River at Humboldt, IA	232
05479000	East Fork Des Moines River at Dakota City, IA.	234
05480500	Des Moines River at Fort Dodge, IA	236
05481000	Boone River near Webster City, IA.	238
05481300	Des Moines River near Stratford, IA.	240
05481630	Saylorville Lake near Saylorville, IA.	242
05481650	Des Moines River near Saylorville, IA.	244
05481950	Beaver Creek near Grimes, IA	250
05482000	Des Moines River at Second Avenue at Des Moines, IA.	252

Crest Stage Gaging Stations

0548065350	Drainage Ditch 97 Tributary near Britt, IA	326
05480930	White Fox Creek at Clarion, IA	326
05480993	Brewers Creek Tributary near Webster City, IA.	327
05481510	Bluff Creek at Pilot Mound, IA	327
05481528	Peas Creek Tributary at Boone, IA.	327
05481530	Peas Creek at Boone, IA.	327

05476750 DES MOINES RIVER AT HUMBOLDT, IA

LOCATION.--Lat 42°43'12", long 94°13'06", in $SE^1/_4$ $SW^1/_4$ sec.1, T.91 N., R.29 W., Humboldt County, Hydrologic Unit 07100002 on left bank 5 ft downstream from First Avenue in city of Humboldt, .84 mi downstream of Reasoner Dam, about 700 ft downstream from City of Humboldt water plant, 3.2 mi upstream from Indian Creek, 3.9 mi upstream from East Fork Des Moines River, and at mile 334.3 upstream from mouth of Des Moines River.

DRAINAGE AREA.--2,256 mi^2.

PERIOD OF RECORD.--October 1964 to current year. Prior to October 1970, published as "West Fork Des Moines River at Humboldt."

GAGE.--Water stage recorder. Datum of gage is 1,053.54 ft above sea level. Prior to Oct. 3, 1966, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Daily nonrecording gage readings made from Mar. 7, 1940 to Sept. 30, 1964, but discharge not published for this period because of extreme regulation at dam 700 ft upstream from gage. Power generation and streamflow regulation discontinued August 1964. Low-flow discharges occasionally affected by minor regulation at Reasoner Dam. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23, 1947, reached a stage of 12.2 ft, discharge, 11,000 ft^3/s at present site and datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	112	95	e54	31	658	99	91	654	403	411	174
2	111	98	97	e52	33	469	94	83	627	467	368	159
3	112	97	102	e50	37	247	90	78	602	768	320	153
4	112	98	96	50	37	194	81	78	664	1020	289	143
5	115	99	89	e49	e36	185	e86	72	712	888	329	133
6	112	94	77	e48	e37	164	24	66	803	817	322	125
7	115	100	93	49	e38	148	84	62	798	718	299	126
8	115	104	96	54	e39	138	98	64	736	627	315	119
9	112	105	89	53	e40	136	102	61	666	547	307	117
10	110	102	80	53	e42	133	98	53	632	810	311	111
11	114	96	77	e48	e42	130	109	58	587	2050	298	109
12	115	96	e75	e35	e42	132	108	58	540	2310	269	94
13	106	100	e68	34	e42	135	112	40	600	1980	257	101
14	106	94	e63	35	e42	71	108	37	856	1840	235	116
15	110	192	e60	34	e42	101	95	34	1360	1550	226	98
16	104	129	e57	e34	e43	117	98	35	1270	1520	202	90
17	96	114	e56	e34	e44	125	98	30	1120	1570	401	89
18	99	112	e59	e35	e46	130	101	86	990	1280	686	90
19	100	105	e60	33	e48	126	138	242	886	1060	537	90
20	99	102	e60	e34	e49	126	134	1110	866	924	407	93
21	106	100	e62	e37	e55	119	118	870	736	812	337	86
22	102	100	e60	e40	e57	116	122	688	610	728	300	107
23	94	107	e60	e42	82	113	119	673	592	657	328	101
24	96	155	e62	e46	141	123	120	746	542	587	365	92
25	98	117	e63	e48	204	120	123	758	497	541	316	89
26	97	112	e65	50	276	118	121	745	473	543	277	90
27	99	108	e65	48	e283	114	118	727	460	731	244	89
28	97	103	e64	37	354	100	109	675	485	739	219	91
29	113	100	e64	37	413	107	99	682	466	606	197	90
30	132	92	e60	40	---	116	94	675	439	514	185	85
31	111	---	e56	49	---	108	---	668	---	453	178	---
TOTAL	3307	3243	2230	1342	2675	4919	3100	10345	21269	30060	9735	3250
MEAN	107	108	71.9	43.3	92.2	159	103	334	709	970	314	108
MAX	132	192	102	54	413	658	138	1110	1360	2310	686	174
MIN	94	92	56	33	31	71	24	30	439	403	178	85
AC-FT	6560	6430	4420	2660	5310	9760	6150	20520	42190	59620	19310	6450
CFSM	.05	.05	.03	.02	.04	.07	.05	.15	.31	.43	.14	.05
IN.	.05	.05	.04	.02	.04	.08	.05	.17	.35	.50	.16	.05

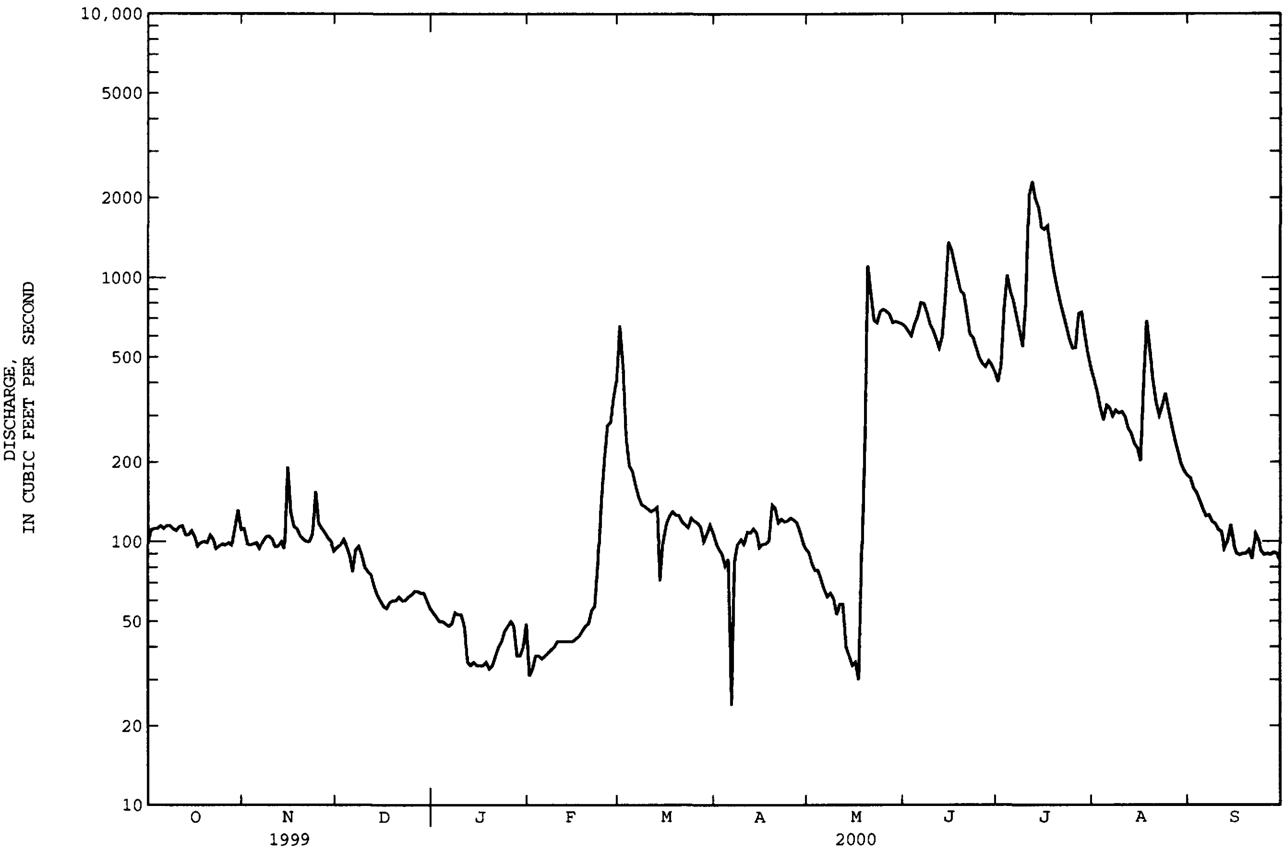
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	640	666	423	238	342	1291	2680	1906	1939	1595	707	525
MAX	3768	2656	1675	1078	1570	5110	8454	6261	9126	11540	4477	3097
(WY)	1987	1980	1983	1983	1983	1983	1969	1993	1993	1993	1993	1979
MIN	20.4	28.8	19.9	13.5	19.8	78.9	94.4	77.6	72.3	81.0	42.4	30.1
(WY)	1977	1977	1977	1977	1977	1968	1968	1968	1977	1976	1976	1976

05476750 DES MOINES RIVER AT HUMBOLDT, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1965 - 2000	
ANNUAL TOTAL	454460		95475			
ANNUAL MEAN	1245		261		1081	
HIGHEST ANNUAL MEAN					4136	1993
LOWEST ANNUAL MEAN					74.3	1977
HIGHEST DAILY MEAN	5320	Apr 24	2310	Jul 12	17800	Apr 14 1969
LOWEST DAILY MEAN	56	Dec 17	24	Apr 6	13	Nov 12 1976
ANNUAL SEVEN-DAY MINIMUM	59	Dec 15	34	Jan 13	13	Jan 12 1977
INSTANTANEOUS PEAK FLOW			2500	Jul 12	19000	Jul 13 1993
INSTANTANEOUS PEAK STAGE			6.38	Jul 12	15.40	Apr 14 1969
INSTANTANEOUS LOW FLOW			24	Apr 6		
ANNUAL RUNOFF (AC-FT)	901400		189400		782800	
ANNUAL RUNOFF (CFSM)	.55		.12		.48	
ANNUAL RUNOFF (INCHES)	7.49		1.57		6.51	
10 PERCENT EXCEEDS	3440		721		2850	
50 PERCENT EXCEEDS	606		109		462	
90 PERCENT EXCEEDS	96		43		67	

e Estimated



05479000 EAST FORK DES MOINES RIVER AT DAKOTA CITY, IA

LOCATION.--Lat 42°43'26", long 94°11'30", in $NW^1/_4$ $SE^1/_4$ sec.6, T.91 N., R.28 W., Humboldt County, Hydrologic Unit 07100003, on right bank 50 ft upstream from old mill dam, in city park at east edge of Dakota City, 500 ft upstream from bridge on county highway P56, 0.6 mi downstream from bridge on State Highway 3, 3.4 mi upstream from confluence with Des Moines River, and at mile 333.8 upstream from mouth of Des Moines River.

DRAINAGE AREA.--1,308 mi^2.

PERIOD OF RECORD.--March 1940 to current year. Prior to October 1954, published as "near Hardy".

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1944, 1945-47 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,038.71 ft above sea level. Prior to Oct. 1, 1954, nonrecording gage at site 8 mi upstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of September 1938 reached a stage of 17.4 ft, discharge, about 22,000 ft^3/s, site and datum in use during the period 1940-54.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	48	41	e28	e20	306	77	87	738	391	273	111
2	39	45	41	e27	e21	230	73	78	655	380	247	123
3	38	44	42	e29	e21	193	70	74	554	1080	219	140
4	37	41	40	e30	e21	167	67	71	550	1380	192	125
5	40	41	38	30	e21	151	64	66	552	1030	202	107
6	37	42	36	e28	e21	140	64	62	532	956	225	95
7	37	42	36	e26	e22	134	76	59	532	983	212	90
8	38	39	37	e25	e23	129	80	57	528	947	199	87
9	38	39	37	e27	e23	125	90	54	494	825	196	80
10	36	40	35	31	e24	119	91	55	453	1810	196	72
11	34	38	e32	31	e24	117	94	56	404	4460	193	70
12	35	40	e32	28	e24	116	99	55	358	3900	198	64
13	35	40	e31	28	e24	112	113	50	367	2530	187	61
14	35	40	e31	26	e23	109	119	44	1180	1950	175	65
15	35	37	e30	e25	e23	108	118	42	1240	1870	159	69
16	38	38	e31	e24	e22	103	117	41	1120	1930	143	65
17	36	37	e30	e24	e24	98	114	39	1200	1980	337	57
18	33	37	e29	e22	e25	99	114	56	1180	1920	554	53
19	34	37	e28	e22	e26	95	124	102	1160	1740	369	52
20	38	37	e27	e21	e27	93	122	129	1390	1460	278	52
21	37	37	e25	e19	e31	92	120	398	1230	1150	223	50
22	39	36	e24	e18	43	91	120	556	1020	923	200	55
23	41	47	e25	e22	65	89	124	582	956	727	194	57
24	39	47	e25	e21	97	93	125	506	895	588	228	55
25	37	45	e24	e20	207	91	121	409	755	523	205	50
26	38	46	e23	e19	446	90	116	360	628	570	178	48
27	38	43	e24	e20	502	90	108	366	532	548	157	47
28	38	44	e26	e18	553	88	105	394	477	471	141	48
29	41	43	e24	e18	451	87	96	427	449	396	129	44
30	52	41	e24	e20	---	87	93	542	427	346	117	42
31	50	---	e29	e19	---	84	---	671	---	305	110	---
TOTAL	1177	1231	957	746	2854	3726	3014	6488	22556	40069	6636	2134
MEAN	38.0	41.0	30.9	24.1	98.4	120	100	209	752	1293	214	71.1
MAX	52	48	42	31	553	306	125	671	1390	4460	554	140
MIN	33	36	23	18	20	84	64	39	358	305	110	42
AC-FT	2330	2440	1900	1480	5660	7390	5980	12870	44740	79480	13160	4230
CFSM	.03	.03	.02	.02	.08	.09	.08	.16	.57	.99	.16	.05
IN.	.03	.04	.03	.02	.08	.11	.09	.18	.64	1.14	.19	.06

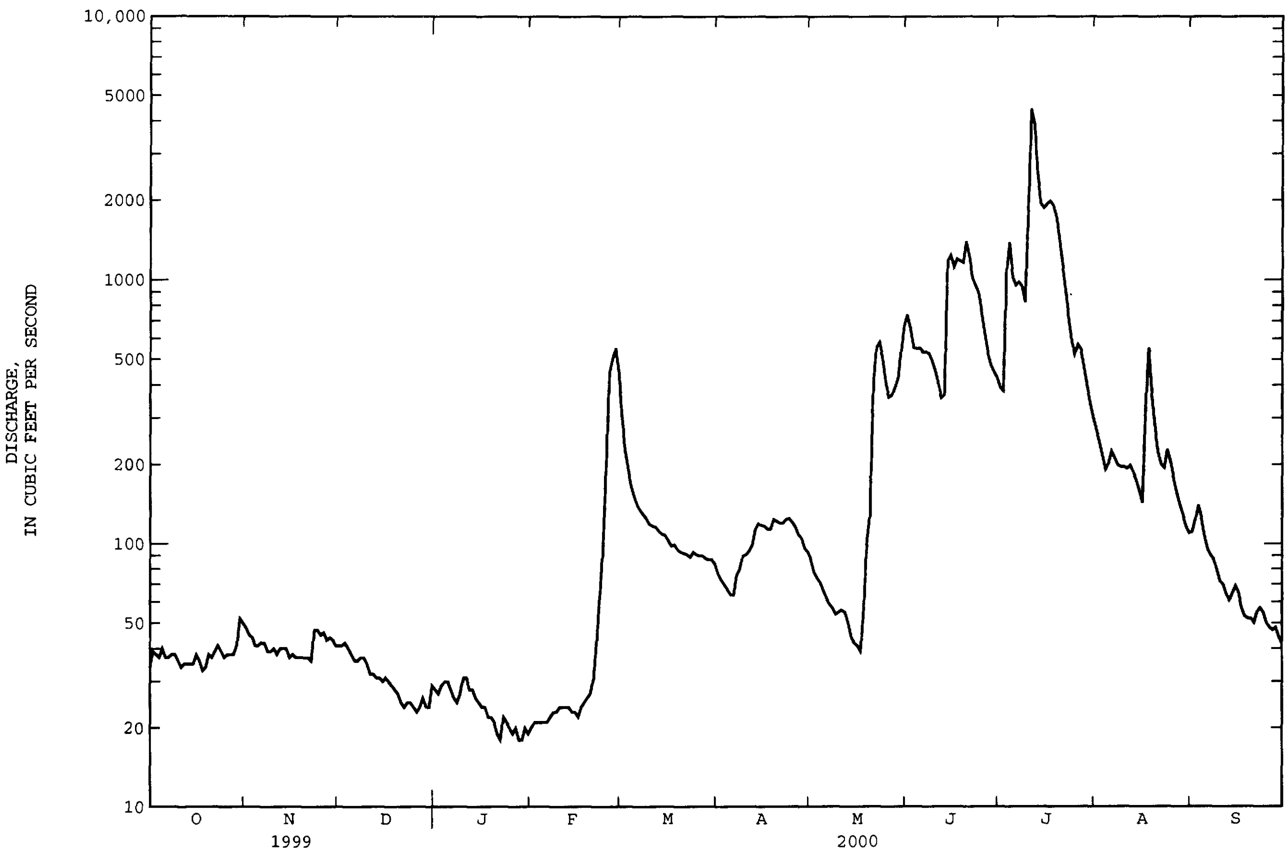
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	314	318	222	126	239	901	1408	1036	1287	872	388	324
MAX	1713	2042	1340	836	1602	4033	7004	5031	5908	6777	4114	2666
(WY)	1983	1942	1992	1992	1984	1983	1993	1991	1993	1993	1979	1979
MIN	12.0	14.2	8.45	5.12	10.4	39.4	58.8	75.7	36.3	13.7	15.5	7.40
(WY)	1959	1959	1977	1977	1959	1968	1977	1977	1977	1977	1976	1976

05479000 EAST FORK DES MOINES RIVER AT DAKOTA CITY, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1941 - 2000	
ANNUAL TOTAL	378679		91588			
ANNUAL MEAN	1037		250		620	
HIGHEST ANNUAL MEAN					2744	1993
LOWEST ANNUAL MEAN					29.7	1977
HIGHEST DAILY MEAN	6190	Jun 13	4460	Jul 11	17800	Jun 21 1954
LOWEST DAILY MEAN	23	Dec 26	18	Jan 22	4.8	Jan 11 1977a
ANNUAL SEVEN-DAY MINIMUM	24	Dec 21	19	Jan 25	4.8	Jan 8 1977
INSTANTANEOUS PEAK FLOW			4980	Jul 11	18800	Jun 21 1954
INSTANTANEOUS PEAK STAGE			14.87	Jul 11	24.02	Jun 21 1954
INSTANTANEOUS LOW FLOW			18	Jan 22b		
ANNUAL RUNOFF (AC-FT)	751100		181700		449400	
ANNUAL RUNOFF (CFSM)	.79		.19		.47	
ANNUAL RUNOFF (INCHES)	10.77		2.60		6.44	
10 PERCENT EXCEEDS	3000		636		1700	
50 PERCENT EXCEEDS	240		70		212	
90 PERCENT EXCEEDS	37		24		24	

a Also Jan. 12-14, 1977.
b Also Jan. 28, 29.
e Estimated.



05480500 DES MOINES RIVER AT FORT DODGE, IA

LOCATION.--Lat 42°30'22", long 94°12'04", in NW$^{1}/_{4}$ SW$^{1}/_{4}$ sec.19, T.89 N., R.28 W., Webster County, Hydrologic Unit 07100004, on right bank 400 ft upstream from Soldier Creek, 1,800 ft downstream from Illinois Central Railroad bridge in Fort Dodge, 2,000 ft downstream from Lizard Creek, and at mile 314.6.

DRAINAGE AREA.--4,190 mi^2.

PERIOD OF RECORD.--April 1905 to July 1906 (no winter records), October 1913 to September 1927 (published as "at Kalo"), October 1946 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1308: 1924, 1925 (M).

GAGE.--Water-stage recorder. Datum of gage is 969.38 ft above sea level. See WSP 1728 for history of changes prior to Dec. 8, 1949.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Occasional minor regulation caused by dam 0.8 mi upstream from gage. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform, U.S. National Weather Service Limited Automatic Remote Collector (LARC) and City of Fort Dodge gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163	154	144	e119	e85	659	198	219	1690	969	835	382
2	170	147	145	e110	e81	513	188	205	1530	959	769	369
3	177	140	160	e100	e78	445	182	195	1370	1700	687	373
4	176	137	167	e110	e80	384	169	188	1440	3000	621	353
5	176	136	150	e120	e83	340	163	183	1520	2550	669	320
6	170	135	140	e98	e78	320	129	174	1530	2200	674	291
7	163	134	133	e102	e76	301	128	169	1490	2030	649	279
8	167	137	145	e93	e77	288	197	175	1430	1860	674	267
9	168	138	148	e90	e79	287	201	171	1320	1660	625	253
10	164	138	140	e105	e81	269	205	164	1260	2360	636	236
11	157	136	127	e113	e80	266	212	165	1210	6880	599	226
12	160	134	e115	e105	e80	261	219	173	1090	7670	579	208
13	157	134	e108	e97	e78	261	229	163	1210	5980	720	197
14	146	134	e95	e93	e80	255	244	147	2950	4930	645	223
15	149	130	e105	e87	e82	186	240	142	3470	4230	571	208
16	153	204	e110	e88	e84	237	236	153	3040	4210	516	200
17	144	158	e110	e93	e87	228	243	142	2790	4500	801	188
18	141	149	e108	e86	e90	237	238	178	2570	4080	1630	174
19	140	149	e104	e83	e95	234	279	293	2360	3380	1450	170
20	143	140	e104	e91	e104	228	287	987	2990	2930	1080	177
21	146	139	e105	e85	e115	227	271	1380	2600	2370	865	167
22	148	139	e95	e90	139	222	269	1380	2020	1970	745	194
23	139	178	e95	e95	204	219	266	1370	1820	1680	701	216
24	139	167	e100	e94	293	230	263	1390	1690	1430	779	192
25	140	200	e95	e94	454	227	259	1320	1510	1270	741	185
26	136	169	e92	e92	711	221	259	1270	1330	1280	649	172
27	135	166	e90	e91	847	218	256	1340	1180	1410	567	167
28	136	156	e103	87	849	209	247	1270	1150	1430	506	160
29	140	152	e100	84	813	203	232	1270	1090	1210	457	154
30	190	148	e102	85	---	208	225	1370	1040	1050	417	145
31	166	---	e113	e80	---	208	---	1520	---	934	392	---
TOTAL	4799	4478	3648	2960	6083	8591	6734	19266	53690	84112	22249	6846
MEAN	155	149	118	95.5	210	277	224	621	1790	2713	718	228
MAX	190	204	167	120	849	659	287	1520	3470	7670	1630	382
MIN	135	130	90	80	76	186	128	142	1040	934	392	145
AC-FT	9520	8880	7240	5870	12070	17040	13360	38210	106500	166800	44130	13580
CFSM	.04	.04	.03	.02	.05	.07	.05	.15	.43	.65	.17	.05
IN.	.04	.04	.03	.03	.05	.08	.06	.17	.48	.75	.20	.06

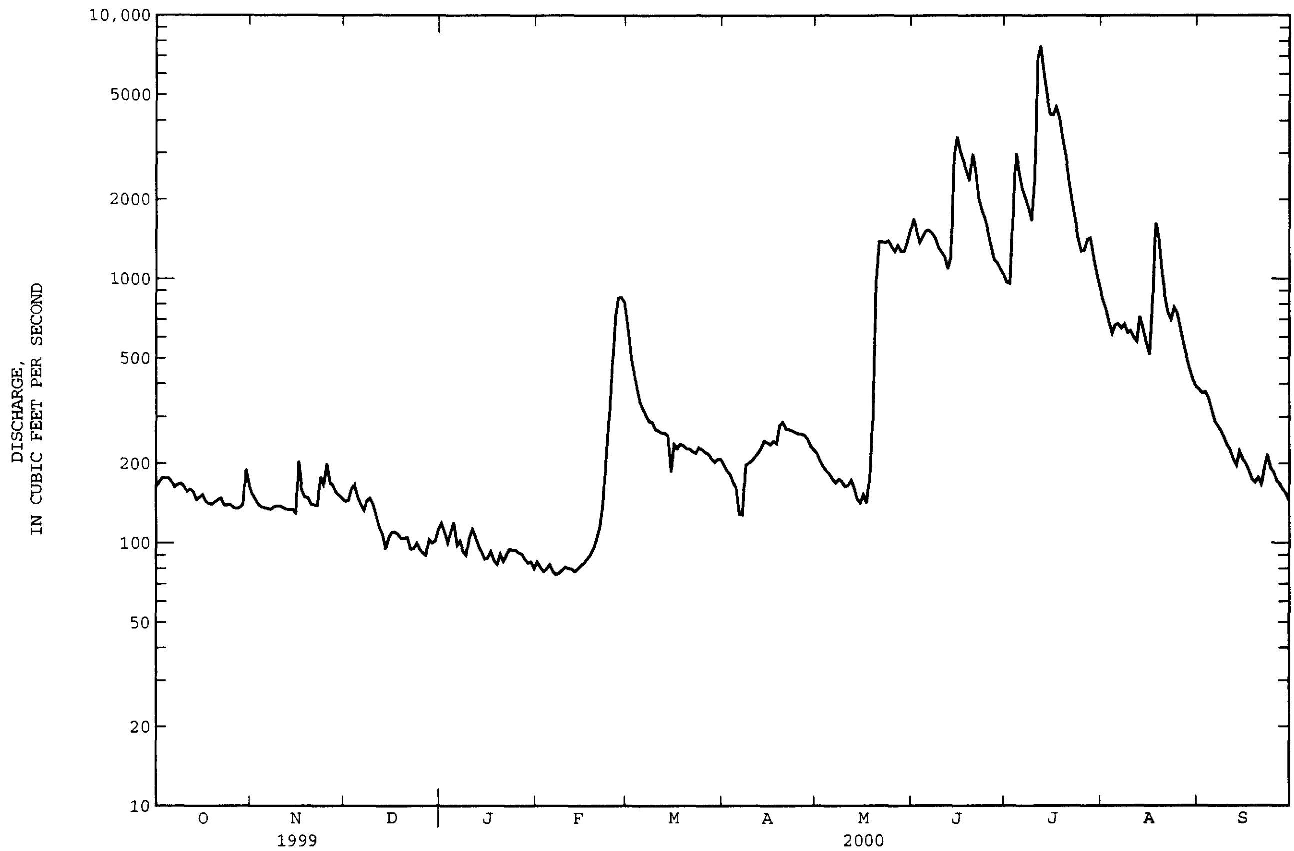
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	917	876	610	389	808	2566	4112	2954	3428	2401	1096	900
MAX	6120	4447	3698	2257	4352	11070	17530	10540	16150	21530	9264	6206
(WY)	1987	1983	1983	1983	1984	1983	1993	1991	1993	1993	1993	1979
MIN	32.8	54.5	34.7	24.0	35.5	141	224	149	138	75.2	69.0	49.9
(WY)	1957	1959	1977	1977	1959	1968	2000	1926	1977	1926	1976	1976

05480500 DES MOINES RIVER AT FORT DODGE, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1914 - 2000	
ANNUAL TOTAL	1004928		223456			
ANNUAL MEAN	2753		611		1756	
HIGHEST ANNUAL MEAN					7882	1993
LOWEST ANNUAL MEAN					143	1977
HIGHEST DAILY MEAN	13700	Apr 23	7670	Jul 12	35100	Apr 8 1965
LOWEST DAILY MEAN	90	Dec 27	76	Feb 7	14	Nov 3 1955
ANNUAL SEVEN-DAY MINIMUM	96	Dec 22	79	Feb 3	23	Jan 13 1977
INSTANTANEOUS PEAK FLOW			8700	Jul 12	35600	Apr 8 1965
INSTANTANEOUS PEAK STAGE			7.38	Jul 12	19.62	Jun 23 1947
INSTANTANEOUS LOW FLOW			76	Feb 7		
ANNUAL RUNOFF (AC-FT)	1993000		443200		1272000	
ANNUAL RUNOFF (CFSM)	.66		.15		.42	
ANNUAL RUNOFF (INCHES)	8.92		1.98		5.69	
10 PERCENT EXCEEDS	8280		1520		4680	
50 PERCENT EXCEEDS	850		200		650	
90 PERCENT EXCEEDS	138		93		103	

e Estimated



05481000 BOONE RIVER NEAR WEBSTER CITY, IA

LOCATION.--Lat 42°26'01", long 93°48'12", in $NW^1/_4$ $SE^1/_4$ sec.18, T.88 N., R.25 W., Hamilton County, Hydrologic Unit 07100005, on right bank 100 ft upstream from bridge on State Highway 17, 2.5 mi south of Webster City, and 3.2 mi downstream from Brewers Creek.

DRAINAGE AREA.--844 mi^2.

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1308: 1940 (M), WSP 1708: 1956.

GAGE.--Water-stage recorder. Datum of gage is 989.57 ft above sea level. Prior to June 26, 1940, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1896, 19.1 ft about June 10, 1918, from floodmarks, from information by local resident, discharge, 21,500 ft^3/s. Flood of June 18, 1932, reached a stage of 16.0 ft, discharge, 15,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	35	25	e18	e10	129	39	76	1450	342	129	47
2	14	28	25	e20	e10	106	39	69	1330	313	113	48
3	14	26	26	e21	e11	97	36	65	938	293	102	46
4	14	27	28	e20	e12	87	34	64	793	303	93	43
5	15	27	27	e16	e10	76	33	60	972	369	109	46
6	16	26	27	e18	e12	67	32	56	865	410	119	44
7	16	26	25	e17	e16	63	36	52	771	487	104	39
8	16	26	25	e19	e19	61	45	56	663	397	131	35
9	17	25	25	e21	e23	59	55	57	549	317	97	35
10	18	25	e24	e24	e27	55	62	54	468	560	80	32
11	17	25	e25	e23	e25	54	72	54	657	2850	71	30
12	17	24	e24	e18	e21	52	80	54	803	4050	65	27
13	17	24	e27	e17	e22	47	87	50	723	4130	63	27
14	16	24	e24	e15	e23	45	84	49	3410	2870	60	39
15	17	24	e23	e16	e30	46	79	45	4110	1890	56	45
16	18	24	e24	e17	e44	45	79	45	3150	1590	52	35
17	18	24	e21	e14	e40	43	78	47	2560	1200	84	29
18	18	25	e20	e15	e42	44	75	48	2160	880	116	28
19	20	25	e20	e14	e38	44	98	92	1810	e686	256	27
20	20	24	e19	e12	e34	44	121	172	1510	563	184	25
21	17	24	e16	e14	e30	44	121	187	1510	495	133	23
22	19	24	e17	e15	e44	44	123	151	1550	e423	112	31
23	19	32	e17	e14	e65	42	117	128	1360	e343	98	36
24	20	29	e16	e13	e100	45	108	112	1020	270	90	39
25	20	27	e15	e13	e190	46	103	96	833	230	80	30
26	20	27	e16	e12	323	45	97	109	e720	228	72	33
27	20	26	e17	e11	297	45	92	190	e611	286	65	31
28	22	25	e16	e9.0	251	44	86	375	511	254	61	27
29	23	25	e19	e10	166	42	83	592	438	198	56	25
30	34	26	e20	e11	---	40	82	583	387	165	52	21
31	37	---	e19	e9.0	---	39	---	626	---	145	50	---
TOTAL	583	779	672	486.0	1935	1740	2276	4414	38632	27537	2953	1023
MEAN	18.8	26.0	21.7	15.7	66.7	56.1	75.9	142	1288	888	95.3	34.1
MAX	37	35	28	24	323	129	123	626	4110	4130	256	48
MIN	14	24	15	9.0	10	39	32	45	387	145	50	21
MED	18	25	23	15	30	45	80	65	902	397	90	32
AC-FT	1160	1550	1330	964	3840	3450	4510	8760	76630	54620	5860	2030
CFSM	.02	.03	.03	.02	.08	.07	.09	.17	1.53	1.05	.11	.04
IN.	.03	.03	.03	.02	.09	.08	.10	.19	1.70	1.21	.13	.05

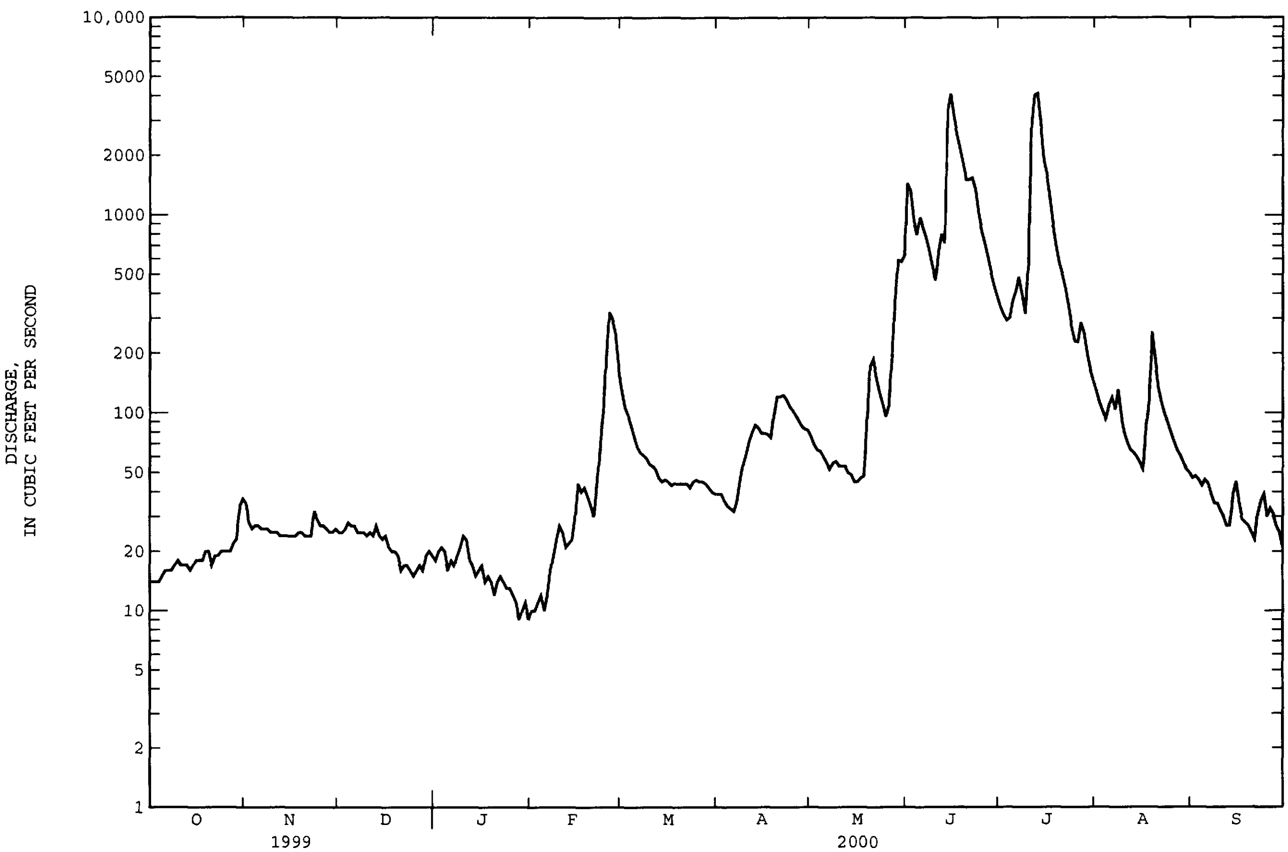
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	238	219	144	98.3	253	797	931	801	1074	585	249	213
MAX	1771	1395	1181	568	1847	2826	4307	4315	4239	4715	2942	2501
(WY)	1987	1993	1983	1983	1984	1973	1965	1991	1984	1993	1993	1965
MIN	6.66	11.0	4.62	.32	3.60	32.5	33.7	46.0	14.1	8.66	9.79	6.48
(WY)	1950	1950	1977	1977	1950	1968	1957	1968	1977	1977	1949	1976

05481000 BOONE RIVER NEAR WEBSTER CITY, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1941 - 2000	
ANNUAL TOTAL	278280		83030.0			
ANNUAL MEAN	762		227		467	
HIGHEST ANNUAL MEAN					1861	1993
LOWEST ANNUAL MEAN					36.1	1956
HIGHEST DAILY MEAN	8130	May 18	4130	Jul 13	19500	Jun 22 1954
LOWEST DAILY MEAN	13	Sep 30	9.0	Jan 28a	.00	Feb 7 1977
ANNUAL SEVEN-DAY MINIMUM	14	Sep 28	10	Jan 27	.01	Feb 1 1977
INSTANTANEOUS PEAK FLOW			4340	Jun 15	20300	Jun 22 1954
INSTANTANEOUS PEAK STAGE			8.01	Jun 15	18.55	Jun 22 1954
INSTANTANEOUS LOW FLOW			13	Oct 1b		
ANNUAL RUNOFF (AC-FT)	552000		164700		338300	
ANNUAL RUNOFF (CFSM)	.90		.27		.55	
ANNUAL RUNOFF (INCHES)	12.27		3.66		7.52	
10 PERCENT EXCEEDS	2520		586		1200	
50 PERCENT EXCEEDS	160		44		138	
90 PERCENT EXCEEDS	19		16		16	

a Also Jan. 31.
b Also Oct. 2, 31.
e Estimated.



05481300 DES MOINES RIVER NEAR STRATFORD, IA

LOCATION.--Lat 42°15'04", long 93°59'52", in NW$^1/_4$ NE$^1/_4$ sec.21, T.86 N., R.27 W., Webster County, Hydrologic Unit 07100004, on right bank 6 ft downstream from bridge on State Highway 175, 0.1 mi downstream from Skillet Creek, 4.0 mi southwest of Stratford, 7.3 mi downstream from Boone River, and at mile 276.7.

DRAINAGE AREA.--5,452 mi^2.

PERIOD OF RECORD.--October 1967 to current year in reports of U.S. Geological Survey. Replacement station for 05481500 "near Boone", which operated April 1920 to September 1968. Records not necessarily equivalent.

GAGE.--Water-stage recorder. Datum of gage is 894.00 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Occasional minor regulation caused by dam at Fort Dodge. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1903, reached a stage of 25.4 ft, from high-water mark, site and datum then in use, discharge, 43,600 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210	224	212	e140	e95	934	303	341	2470	1420	1050	382
2	204	215	208	e135	e90	723	298	337	3070	1310	945	373
3	208	203	213	e145	e88	608	282	325	2550	1430	867	364
4	213	195	226	e160	e93	545	277	315	2160	2300	776	349
5	212	189	223	e150	e95	488	269	309	2320	3090	746	343
6	213	191	213	e125	e87	444	259	304	2380	2740	826	322
7	217	189	208	e130	e91	420	251	295	2270	e2540	755	297
8	203	189	202	e125	e96	406	240	298	2120	e2300	759	281
9	206	194	203	e135	e103	383	292	318	1940	e2050	773	274
10	203	191	e180	e150	e110	382	306	302	1750	e1890	671	256
11	204	192	e160	e170	e105	365	319	291	1890	5330	653	240
12	201	192	e145	e165	e100	360	337	297	1990	11400	615	228
13	195	190	e137	e145	e102	356	357	289	1780	11000	673	222
14	199	184	e150	e135	e104	353	374	283	4380	8760	729	210
15	191	185	e150	e120	e112	345	364	276	8150	6470	636	226
16	188	183	e165	e110	e128	303	363	272	7450	5610	569	229
17	191	227	e160	e120	e125	322	369	275	6030	5460	558	218
18	188	214	e150	e105	e133	328	377	277	5290	5060	848	208
19	183	201	e150	e110	e135	336	376	336	4580	4370	1540	198
20	184	203	e145	e105	e138	330	419	419	4300	3660	1390	200
21	185	197	e135	e90	e150	327	441	1110	4560	3160	1060	200
22	180	194	e120	e100	e210	327	433	1410	4010	2630	846	201
23	178	214	e120	e110	e270	322	422	1400	3480	2230	738	221
24	179	245	e125	e105	e400	324	413	1390	3030	1910	681	235
25	177	233	e120	e103	631	325	403	1380	2620	1650	730	219
26	179	242	e110	e95	771	320	395	1360	2330	1550	682	209
27	177	224	e115	e95	958	312	389	1580	1970	1520	608	199
28	175	219	e120	e94	997	306	379	1550	1840	1690	541	201
29	182	213	e130	e90	953	305	365	1660	1670	1570	489	200
30	207	211	e135	e98	---	299	353	1840	1530	1340	443	191
31	239	---	e145	e89	---	298	---	1910	---	1170	405	---
TOTAL	6071	6143	4975	3749	7470	12196	10425	22749	95910	108610	23602	7496
MEAN	196	205	160	121	258	393	348	734	3197	3504	761	250
MAX	239	245	226	170	997	934	441	1910	8150	11400	1540	382
MIN	175	183	110	89	87	298	240	272	1530	1170	405	191
AC-FT	12040	12180	9870	7440	14820	24190	20680	45120	190200	215400	46810	14870
CFSM	.04	.04	.03	.02	.05	.07	.06	.13	.59	.64	.14	.05
IN.	.04	.04	.03	.03	.05	.08	.07	.16	.65	.74	.16	.05

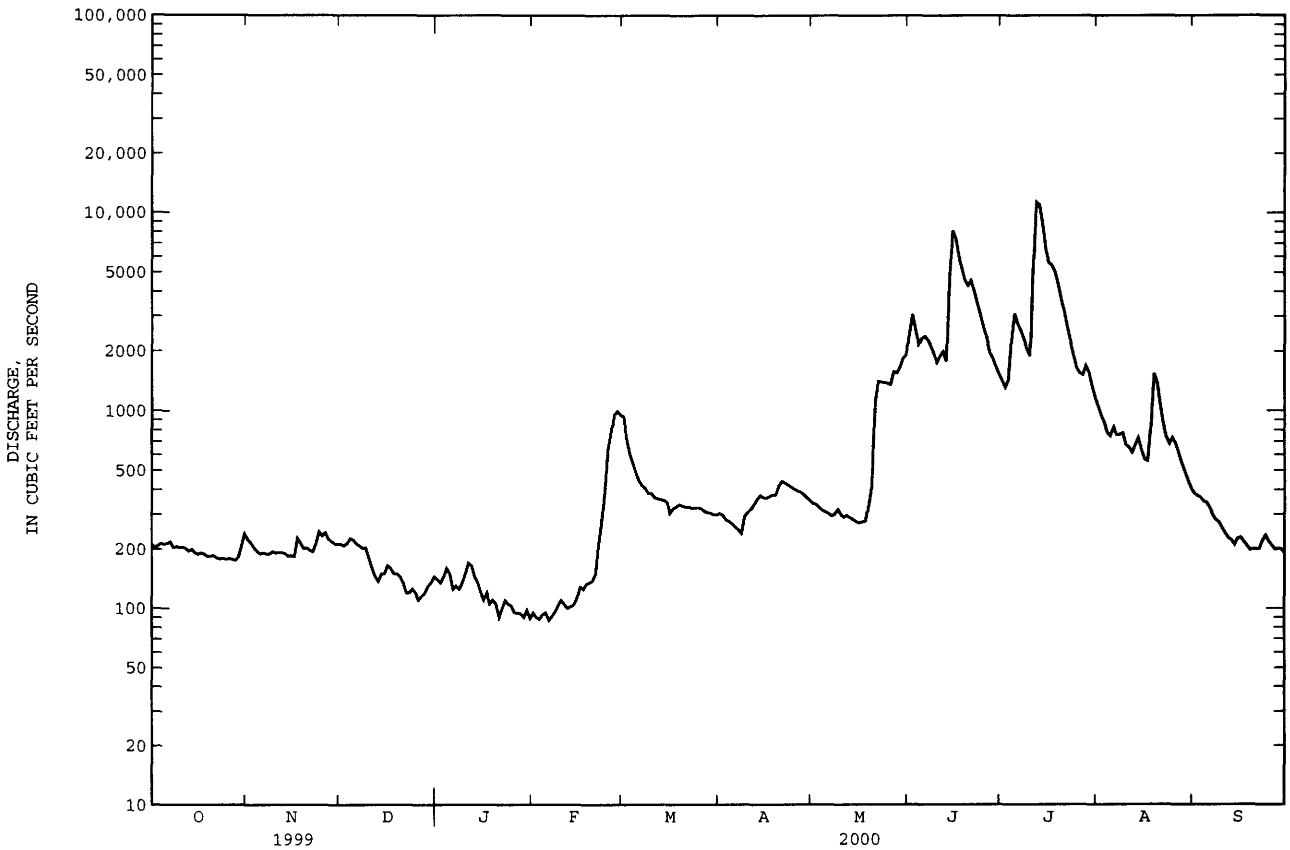
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1658	1724	1257	755	1306	4283	6518	5397	6026	4435	1985	1343
MAX	8763	5745	5267	3267	7061	13920	22020	16010	21310	27250	13500	7546
(WY)	1987	1993	1983	1992	1984	1983	1993	1991	1993	1993	1993	1993
MIN	69.4	96.3	44.4	18.7	57.7	204	348	296	177	156	122	69.5
(WY)	1977	1977	1977	1977	1977	1968	2000	1968	1977	1977	1976	1976

05481300 DES MOINES RIVER NEAR STRATFORD, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1968 - 2000	
ANNUAL TOTAL	1452373		309396			
ANNUAL MEAN	3979		845		3061	
HIGHEST ANNUAL MEAN					10400	1993
LOWEST ANNUAL MEAN					254	1977
HIGHEST DAILY MEAN	22800	Apr 24	11400	Jul 12	41400	Apr 2 1993
LOWEST DAILY MEAN	110	Dec 26	87	Feb 6	13	Jan 23 1977a
ANNUAL SEVEN-DAY MINIMUM	119	Dec 22	91	Jan 31	14	Jan 22 1977
INSTANTANEOUS PEAK FLOW			12100	Jul 12	423000	Apr 2 1993
INSTANTANEOUS PEAK STAGE			13.45	Jul 12	25.68	Apr 2 1993
INSTANTANEOUS LOW FLOW			173	Oct 28b	13	Jan 23 1977
ANNUAL RUNOFF (AC-FT)	2881000		613700		2218000	
ANNUAL RUNOFF (CFSM)	.73		.16		.56	
ANNUAL RUNOFF (INCHES)	9.91		2.11		7.63	
10 PERCENT EXCEEDS	12500		2240		8340	
50 PERCENT EXCEEDS	1230		294		1360	
90 PERCENT EXCEEDS	187		120		185	

a Also Jan. 24, 1977.
b Also Oct. 29.
e Estimated.



05481630 SAYLORVILLE LAKE NEAR SAYLORVILLE, IA

LOCATION.--Lat 41°42'13", long 93°41'21", in SE 1/4 SW 1/4 sec.30, T.80 N., R.24 W., Polk County, Hydrologic Unit 07100004, in control tower of Saylorville Dam, 3.2 mi northwest of Saylorville, 4.2 mi upstream from Beaver Creek, and at mile 213.7.

DRAINAGE AREA.--5,823 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is at sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam completed in 1976. Storage began in April 1977. Release controlled at intake structure to forechamber of 22 ft diameter concrete conduit through dam. Ungated chute spillway 430 ft in length at right end of dam at elevation 884 ft, contents, 570,000 acre-ft. Conservation pool at elevation 836 ft, contents, 90,000 acre-ft, surface area, 5,950 acres. Flood pool elevation at 890 ft, contents, 586,000 acre-ft, surface area, 16,700 acres. Reservoir is used for flood control, low-flow augmentation, conservation and recreation. Storage tables for water years 1985-1986 published as day second-feet instead of acre-feet storage.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 717,000 acre-ft July 13, 1993; maximum elevation, 892.00 ft July 14, 1993; minimum daily contents, 45,000 acre-ft May 15, 1985; minimum elevation, 832.61 ft Jan. 19, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 108,000 acre-ft June 7-9,14,22-24, and July 6; maximum elevation, 840.21 June 8; minimum daily contents, 79,400 acre-ft Feb. 9; minimum elevation, 835.70 ft Feb. 9.

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

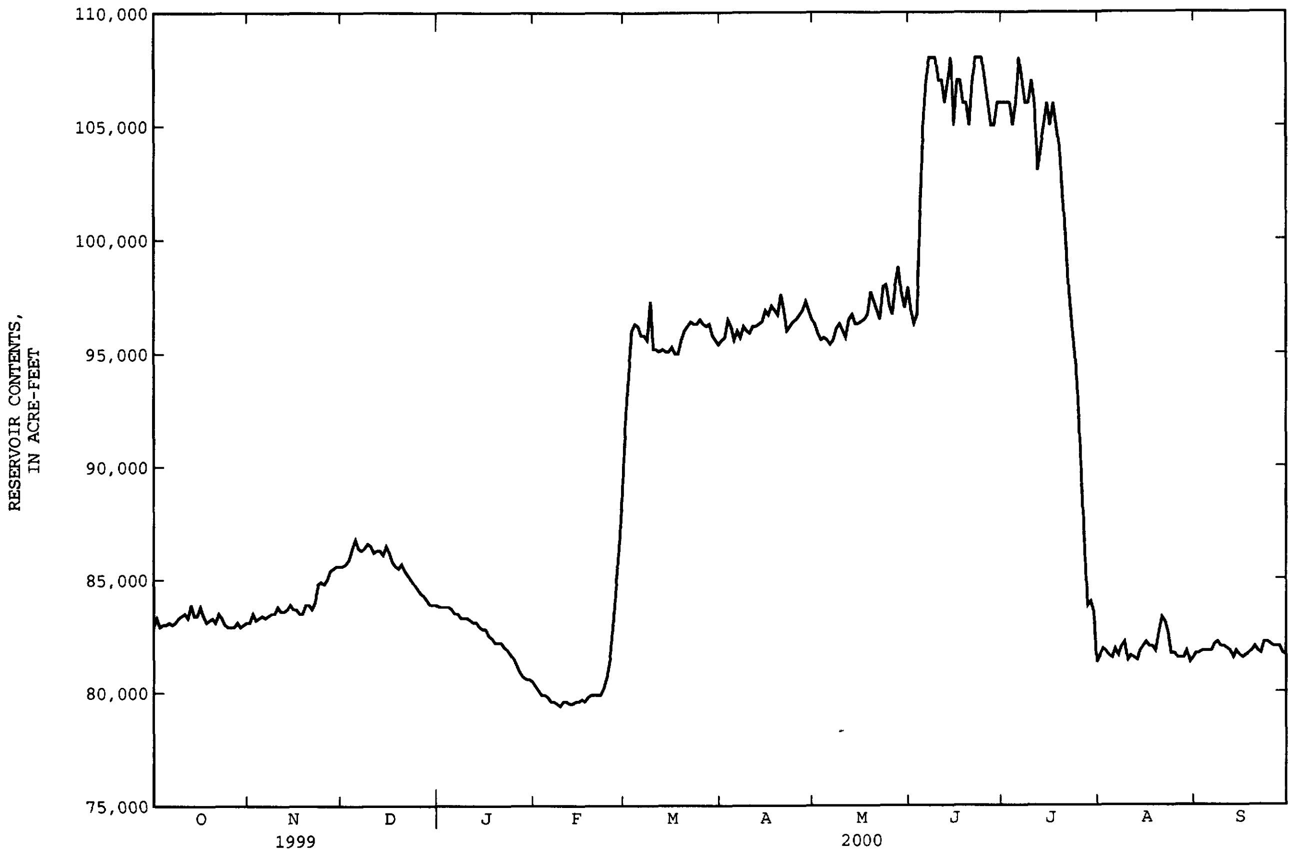
800	0	820	18,500	840	112,000	860	274,000	880	507,000
805	260	825	34,300	845	147,000	865	324,000	885	582,000
810	2,140	830	55,600	850	186,000	870	380,000	890	672,000
815	7,460	835	80,500	855	229,000	875	440,000		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82900	83100	85600	83800	80300	92000	95600	96300	96900	106000	81600	81700
2	83300	83500	85700	83800	80100	94100	95700	95900	96300	106000	81900	e81700
3	82900	83200	85900	83800	79900	96000	96500	95600	96700	106000	81800	e81800
4	83000	83300	86400	83800	79900	96300	96200	95700	101000	105000	81600	e81800
5	83000	83400	86800	83700	79800	96200	95600	95600	105000	106000	81500	e81800
6	83100	83300	86400	83500	79600	95800	96000	95400	107000	108000	81900	81800
7	83000	83400	86300	83500	79600	95800	95700	95600	108000	107000	81600	82100
8	83100	83500	86400	83300	79500	95600	96200	96100	108000	106000	82000	82200
9	83300	83500	86600	83300	79400	97300	96000	96300	108000	106000	82200	82000
10	83400	83800	86500	83300	79600	95200	95900	96000	107000	107000	81400	82000
11	83500	83600	86200	83200	79600	95200	96200	95700	107000	106000	81600	81900
12	83300	83600	86300	83100	79500	95100	96200	96500	106000	103000	81500	81800
13	83900	83700	86300	83100	79500	95200	96300	96700	107000	104000	81400	81500
14	83400	83900	86100	82900	79600	95100	96400	96300	108000	105000	81800	81800
15	83400	83700	86500	82800	79600	95100	96900	96300	105000	106000	82000	81600
16	83800	83700	86200	82800	79700	95300	96700	96400	107000	105000	82200	81500
17	83400	83500	85800	82500	79600	95000	97100	96500	107000	106000	82000	81600
18	83100	83500	85600	82400	79800	95000	96900	96700	106000	105000	82000	81700
19	83200	83900	85500	82200	79900	95600	96700	97700	106000	104000	81800	81800
20	83300	83900	85700	e82200	e79900	96000	97600	97300	105000	102000	82600	82000
21	83100	83700	85400	82200	79900	96200	96900	96900	107000	100000	83300	81800
22	83500	84000	85200	82000	79900	96400	96000	96500	108000	97700	83100	81700
23	83300	84800	e85000	81900	80200	96300	96200	97900	108000	96200	82600	82200
24	83000	84900	84800	81700	80700	96300	96400	98000	108000	94800	81700	82200
25	82900	84800	84600	81500	81500	96500	96500	97100	107000	92800	81700	82100
26	82900	85000	e84400	81200	83000	96300	96700	96700	106000	89500	81500	82000
27	82900	85400	e84300	80900	84800	96200	96900	98000	105000	86500	81500	82000
28	83100	85500	84100	80700	86600	96300	97300	98800	105000	83800	81500	82000
29	82900	85600	83900	80600	88900	95800	96900	97600	106000	84000	81800	81700
30	83000	85600	83900	80600	---	95600	96500	97000	106000	83500	81300	81600
31	83100	---	83900	80500	---	95400	---	97900	---	81300	e81500	---
MEAN	83200	84000	85600	82500	80700	95600	96400	96700	105000	100000	81900	81800
MAX	83900	85600	86800	83800	88900	97300	97600	98800	108000	108000	83300	82200
MIN	82900	83100	83900	80500	79400	92000	95600	95400	96300	81300	81300	81500

e Estimated

05481630 SAYLORVILLE LAKE NEAR SAYLORVILLE, IA--Continued



05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA

LOCATION.--Lat 41°40'50", long 93°40'05", SW1/4 NE1/4 NE1/4 sec.5, T.79 N., R.24 W., Polk County, Hydrologic Unit 07100004, on left bank 5 ft upstream of Fisher Bridge on county highway R6F, 2.0 mi west of Saylorville, 2.1 mi downstream from Rock Creek, 2.3 mi downstream from Saylorville Dam, 2.3 mi upstream from Beaver Creek, and at mile 211.4.

DRAINAGE AREA.--5,841 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 787.42 ft above NGVD (levels by U. S. Army Corps of Engineers). Prior to Aug. 6, 1970, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Saylorville Lake (Station 05481630) 2.3 mi upstream since Apr. 12, 1977. U.S. Army Corps of Engineers satellite data collection platform and U.S. National Weather Service Limited Automatic Remote Collector (LARC) at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft^3/s Apr. 10, 1965, gage height, 24.02 ft; minimum daily discharge, 13 ft^3/s Jan. 25, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1893, 24.5 ft June 24, 1954, from floodmarks, discharge, 60,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	205	196	190	e260	193	178	260	521	2820	1920	1150	525
2	201	192	190	e270	215	176	264	435	2780	1920	1160	424
3	199	193	190	e280	216	513	262	363	1820	1920	1160	340
4	196	194	187	e260	214	769	264	366	1110	1960	989	336
5	198	194	185	e250	216	770	274	367	1090	2430	858	342
6	197	194	201	e260	216	664	273	279	1690	3270	952	345
7	198	196	220	e270	220	570	271	212	2400	3640	899	349
8	200	196	224	e260	224	573	275	215	2650	3100	908	355
9	199	197	223	e260	234	563	276	331	2570	2480	1150	361
10	198	195	222	e260	230	461	275	334	2340	2700	937	368
11	197	195	222	e240	208	369	279	216	2340	3480	766	368
12	197	193	224	e230	207	373	278	193	2170	6990	750	352
13	187	194	223	e220	210	376	281	185	2240	9820	711	291
14	200	193	223	e230	211	377	286	186	3470	9930	710	229
15	226	193	229	e240	216	379	352	182	5250	7960	700	215
16	231	193	218	e230	207	378	407	180	7250	6310	698	192
17	227	193	e200	e230	192	307	412	175	7310	5590	685	194
18	194	195	e190	e240	194	242	413	181	6330	5580	682	193
19	163	192	e200	e250	194	242	412	336	5370	5560	675	206
20	178	190	e190	e230	194	243	574	430	4440	5290	1110	219
21	208	191	e170	e240	201	247	767	553	4030	4700	1460	220
22	182	191	e160	e250	214	324	532	652	4030	3930	1450	223
23	194	201	e200	264	206	399	358	1110	4120	3290	1480	219
24	196	191	e210	275	182	407	354	1670	4170	3110	768	216
25	197	190	231	287	188	402	353	1650	3810	3200	888	217
26	196	190	228	281	180	402	351	1340	3540	3170	848	218
27	199	189	230	250	176	404	351	1430	2890	2880	760	220
28	199	189	232	182	177	402	443	1890	2130	2060	686	224
29	200	188	246	171	179	406	523	2130	1900	1790	680	226
30	197	188	e250	162	---	412	523	2150	1910	2290	579	230
31	198	---	e250	163	---	334	---	2700	---	1740	505	---
TOTAL	6157	5786	6558	7495	5914	12662	10943	22962	99970	124010	27754	8417
MEAN	199	193	212	242	204	408	365	741	3332	4000	895	281
MAX	231	201	250	287	234	770	767	2700	7310	9930	1480	525
MIN	163	188	160	162	176	176	260	175	1090	1740	505	192
AC-FT	12210	11480	13010	14870	11730	25120	21710	45550	198300	246000	55050	16700
CFSM	.03	.03	.04	.04	.03	.07	.06	.13	.57	.68	.15	.05
IN.	.04	.04	.04	.05	.04	.08	.07	.15	.64	.79	.18	.05

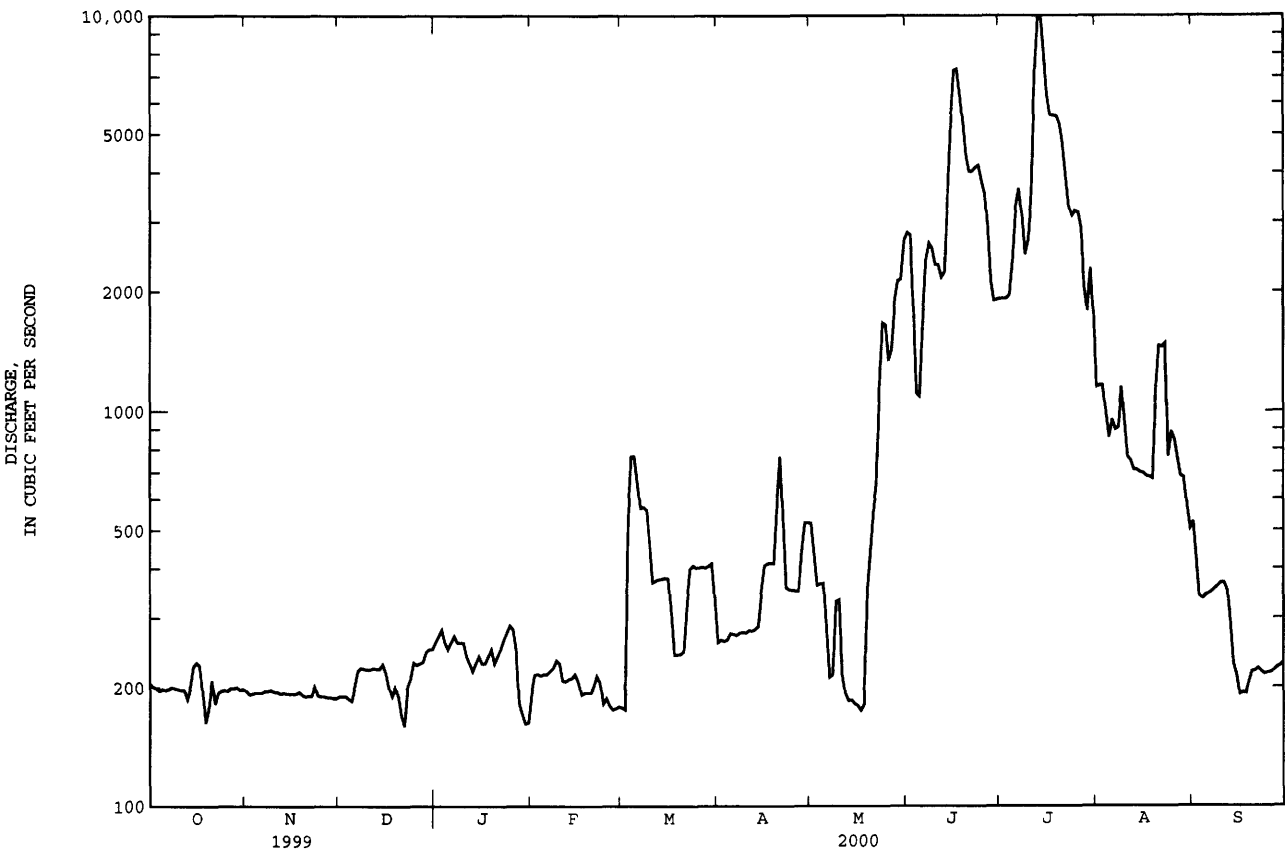
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1841	2138	1722	961	1613	4405	6833	6376	7091	6572	3183	2123
MAX	7161	6210	5345	3605	6591	13800	17790	18170	19540	32820	15440	13450
(WY)	1987	1987	1983	1983	1984	1983	1993	1993	1991	1993	1993	1993
MIN	194	190	205	190	204	362	365	741	877	254	212	225
(WY)	1990	1990	1990	1991	2000	1981	2000	2000	1988	1988	1989	1988

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1978 - 2000	
ANNUAL TOTAL	1532784		338628			
ANNUAL MEAN	4199		925		3745	
HIGHEST ANNUAL MEAN					11320	1993
LOWEST ANNUAL MEAN					487	1989
HIGHEST DAILY MEAN	14500	Apr 20	9930	Jul 14	44300	Jul 21 1993
LOWEST DAILY MEAN	160	Dec 22	160	Dec 22	144	Nov 29 1977
ANNUAL SEVEN-DAY MINIMUM	187	Dec 17	179	Feb 25	165	Mar 5 1978
INSTANTANEOUS PEAK FLOW			10600	Jul 14	45700	Jul 21 1993
INSTANTANEOUS PEAK STAGE			11.36	Jul 14	24.22	Jul 21 1993
INSTANTANEOUS LOW FLOW			154	Jan 30a		
ANNUAL RUNOFF (AC-FT)	3040000		671700		2713000	
ANNUAL RUNOFF (CFSM)	.72		.16		.64	
ANNUAL RUNOFF (INCHES)	9.76		2.16		8.71	
10 PERCENT EXCEEDS	12300		2720		10800	
50 PERCENT EXCEEDS	1810		267		1960	
90 PERCENT EXCEEDS	194		190		243	

a Also Jan. 31.
e Estimated.



05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD: October 1961 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1967 to current year.
WATER TEMPERATURES: October 1961 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 microsiemens Feb. 18, 1977; minimum daily, 90 microsiemens Feb. 19, 1971.
WATER TEMPERATURES: Maximum daily, 36.0°C June 29, 1971; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 5,400 mg/L May 14, 1970; minimum daily mean, 1 mg/L Jan. 8, 1965, Sept. 1, 1988, Feb. 9, July 8, 1990.
SEDIMENT LOADS: Maximum daily, 148,000 tons June 12, 1966; minimum daily, 0.56 tons Sept. 1, 1988.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 732 microsiemens Jan. 15; minimum daily, 423 microsiemens July 17.
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 10; minimum daily, 2.5°C Dec. 19 and Jan. 27.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 103 mg/L May 12; minimum daily mean, 7.0 mg/L Feb. 5 and 22.
SEDIMENT LOADS: Maximum daily, 828 tons June 16; minimum daily, 4.0 tons Feb. 22.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	TIME	TEMPER-ATURE WATER (DEG C) (00010)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (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...	1040	8.5	160	27	12	99
DEC						
14...	1530	4.1	--	--	--	--
14...	1545	4.1	232	14	8.8	79
MAR						
07...	0920	6.7	--	--	--	--
APR						
18...	1000	9.5	413	97	108	92
MAY						
31...	1640	19.4	2880	82	638	93
JUL						
19...	1052	24.8	5570	21	316	89
AUG						
24...	0835	22.8	649	23	40	98

DATE	TIME	NUMBER OF SAM-PLING POINTS (COUNT) (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT												
20...	0925	--	--	--	--	--	--	--	--	--	--	--
20...	1040	--	--	--	--	--	--	--	--	--	--	--
25...	1135	--	--	--	--	--	--	--	--	--	--	--
DEC												
14...	1530	3	0	1	4	12	23	34	47	62	86	100
14...	1545	--	--	--	--	--	--	--	--	--	--	--
14...	1620	--	--	--	--	--	--	--	--	--	--	--
JAN												
27...	1345	--	--	--	--	--	--	--	--	--	--	--
31...	1223	--	--	--	--	--	--	--	--	--	--	--
MAR												
07...	0810	--	--	--	--	--	--	--	--	--	--	--
07...	0920	3	1	1	5	12	17	20	28	47	84	100
APR												
18...	0925	--	--	--	--	--	--	--	--	--	--	--
18...	1000	--	--	--	--	--	--	--	--	--	--	--
MAY												
16...	1500	--	--	--	--	--	--	--	--	--	--	--
23...	0730	--	--	--	--	--	--	--	--	--	--	--
31...	1640	--	--	--	--	--	--	--	--	--	--	--
JUL												
19...	0915	--	--	--	--	--	--	--	--	--	--	--
19...	1052	--	--	--	--	--	--	--	--	--	--	--
AUG												
24...	0810	--	--	--	--	--	--	--	--	--	--	--
24...	0835	--	--	--	--	--	--	--	--	--	--	--
SEP												
14...	1105	--	--	--	--	--	--	--	--	--	--	--
14...	1145	--	--	--	--	--	--	--	--	--	--	--

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	576	---	648	---	---	682	612	627	660	---	556	550
2	580	614	660	694	615	667	636	631	---	632	557	551
3	---	620	655	697	---	---	665	658	609	603	549	547
4	590	618	---	---	649	---	633	624	---	570	553	555
5	597	---	660	---	706	695	672	---	656	539	---	554
6	590	---	---	712	621	660	---	638	662	620	551	547
7	593	628	---	709	---	692	653	---	657	616	559	554
8	593	628	---	683	697	599	---	627	605	620	552	559
9	600	630	---	719	648	645	626	627	---	542	552	549
10	599	---	656	717	---	---	644	661	661	616	551	---
11	590	---	658	---	---	---	644	662	582	609	---	559
12	601	---	657	---	---	---	657	---	655	614	551	559
13	600	---	655	---	---	604	655	---	636	518	537	552
14	600	---	664	646	675	640	---	672	642	621	541	554
15	---	---	---	732	712	670	639	670	653	572	---	554
16	---	638	---	---	675	---	---	676	618	499	536	---
17	---	633	---	650	665	665	672	672	647	423	539	---
18	---	635	652	722	---	656	636	650	638	503	535	---
19	---	627	688	---	---	---	630	642	598	508	545	---
20	610	---	---	---	638	638	636	---	579	508	535	---
21	---	---	---	---	678	610	666	596	531	508	534	---
22	---	640	---	727	712	636	---	682	610	---	535	---
23	---	622	---	---	625	653	672	678	---	460	535	560
24	600	642	---	---	662	708	682	626	623	572	544	565
25	612	---	---	---	667	625	---	546	614	598	548	---
26	610	---	---	---	631	644	675	---	587	577	---	566
27	612	---	---	672	683	---	615	670	618	572	---	566
28	608	---	671	---	691	638	635	663	622	---	554	565
29	608	---	666	---	706	624	---	672	618	---	547	---
30	---	648	666	609	---	695	620	651	---	---	565	---
31	---	---	680	---	---	628	---	616	---	560	554	---
TOTAL	11969	8823	9936	9689	13356	14974	14875	16137	15581	14580	14215	10566
MAX	612	648	688	732	712	708	682	682	662	632	565	566
MIN	576	614	648	609	615	599	612	546	531	423	534	547

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

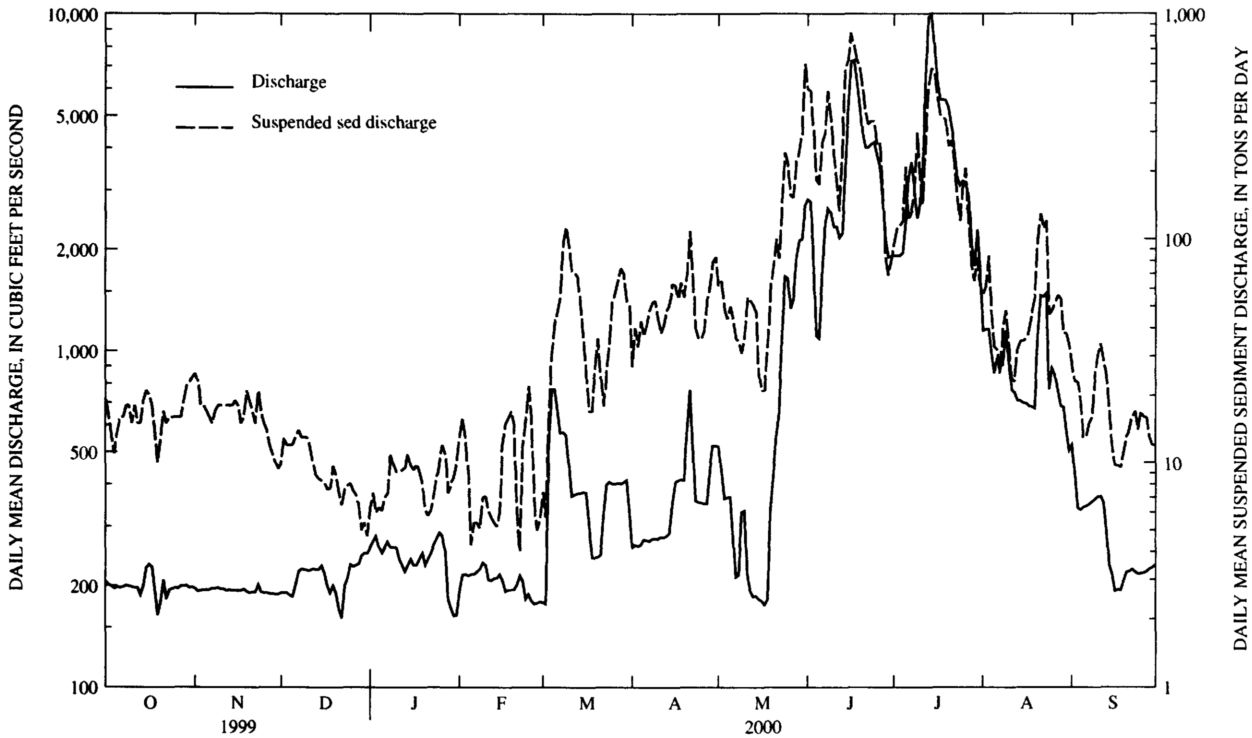
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	---	9.0	---	---	6.5	10.0	19.0	21.0	---	28.0	24.0
2	13.0	8.5	8.0	3.0	5.0	---	13.0	21.0	---	27.0	29.0	25.0
3	---	12.0	10.0	3.0	---	---	8.5	17.0	22.0	23.5	24.5	28.5
4	13.0	12.0	---	---	3.5	---	8.5	21.0	---	24.0	25.0	24.5
5	15.5	---	4.0	---	4.0	11.0	10.0	---	20.0	25.0	---	26.0
6	---	---	---	5.0	5.0	9.0	---	22.0	21.0	23.0	28.0	23.0
7	16.0	14.5	---	4.0	---	11.5	9.0	---	20.0	24.5	26.0	26.0
8	15.5	17.0	---	5.5	6.0	11.0	---	19.0	23.0	28.0	26.0	24.0
9	15.5	12.0	---	6.5	7.5	5.5	13.0	15.0	---	28.0	25.5	24.0
10	19.5	---	6.0	5.5	---	---	9.5	17.0	24.5	25.0	30.0	---
11	15.0	---	6.0	---	---	---	8.0	18.5	23.0	26.0	---	26.0
12	16.0	---	8.0	---	---	---	8.0	---	26.0	26.0	26.0	21.0
13	13.5	---	7.5	---	---	10.5	10.0	---	25.0	28.0	27.0	23.0
14	13.5	---	4.0	5.0	5.0	10.5	---	19.5	22.0	28.0	29.0	22.0
15	---	---	---	4.5	5.0	8.0	10.0	18.0	23.0	27.0	---	22.5
16	---	10.0	---	---	3.5	---	---	21.5	22.5	25.5	28.0	---
17	---	12.0	---	3.0	3.0	6.0	10.0	19.0	22.0	26.0	27.0	---
18	---	13.0	3.0	4.0	---	5.5	11.0	18.0	24.0	25.0	26.5	---
19	---	8.0	2.5	---	---	---	12.0	15.0	24.0	24.3	23.5	---
20	8.0	---	---	---	4.0	8.0	10.0	---	23.5	26.0	24.5	---
21	---	---	---	---	4.5	8.0	14.0	20.5	22.0	25.0	25.0	---
22	---	11.5	---	3.0	7.0	9.5	---	18.0	25.5	---	23.5	---
23	---	8.0	---	---	9.0	9.0	15.0	20.0	---	26.0	24.5	15.0
24	12.0	8.5	---	---	7.0	10.0	16.0	23.5	23.0	24.5	23.5	19.0
25	12.0	---	---	---	10.0	10.0	---	22.0	25.0	25.0	25.0	---
26	13.0	---	---	---	7.0	14.5	14.0	---	23.5	24.0	---	21.0
27	11.0	---	---	2.5	6.0	---	14.0	18.0	26.5	25.0	---	22.5
28	12.0	---	4.5	---	7.5	8.0	15.0	18.0	23.0	---	25.0	17.5
29	14.0	---	6.5	---	9.0	10.5	---	17.5	25.0	---	23.0	---
30	---	8.0	5.0	3.5	---	8.5	15.0	21.0	---	---	28.0	---
31	---	---	4.0	---	---	11.0	---	20.0	---	27.5	27.0	---

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	35	19	46	25	20	10	9	6.3	25	13	15	7.4
2	30	16	45	23	25	13	10	7.3	28	16	12	5.7
3	24	13	34	18	23	12	8	6.0	22	13	11	16
4	21	11	35	18	23	12	9	6.3	15	8.9	15	30
5	27	14	33	17	24	12	9	6.1	7	4.3	20	42
6	30	16	30	16	23	13	10	7.0	9	5.4	28	49
7	30	16	28	15	23	14	10	7.3	9	5.4	36	55
8	33	18	32	17	22	13	15	11	8	5.1	63	97
9	33	18	33	18	22	13	14	9.8	11	7.0	74	113
10	28	15	33	18	21	13	13	9.1	11	7.1	74	92
11	33	18	34	18	21	12	14	9.1	11	6.1	72	72
12	29	15	34	18	17	10	15	9.3	10	5.7	70	71
13	29	15	35	18	15	8.8	16	9.5	10	5.4	67	68
14	36	19	35	18	14	8.5	17	11	9	5.2	49	50
15	34	21	36	19	13	8.3	15	9.7	10	6.0	35	36
16	32	20	35	18	14	8.2	15	9.3	21	12	25	26
17	30	18	29	15	14	7.6	16	9.9	29	15	21	17
18	27	14	30	16	15	7.7	14	9.1	31	16	27	17
19	24	10	40	21	18	9.7	12	8.1	32	17	40	26
20	26	13	37	19	17	8.7	10	6.2	28	15	55	36
21	30	17	33	17	16	7.3	9	5.8	11	5.9	37	25
22	30	15	30	15	15	6.5	9	6.1	7	4.0	20	18
23	30	16	38	21	14	7.6	10	7.1	22	12	23	25
24	30	16	33	17	14	7.9	12	8.6	31	15	31	34
25	31	16	29	15	13	8.1	13	10	42	22	50	54
26	31	16	27	14	12	7.5	16	12	34	16	52	57
27	30	16	24	12	12	7.2	15	11	14	6.7	60	65
28	36	19	22	11	10	6.5	15	7.3	10	5.0	68	74
29	41	22	20	10	8	5.0	17	8.0	12	5.6	64	70
30	43	23	18	9.4	8	5.4	20	8.7	---	---	48	53
31	44	24	---	---	7	4.7	23	9.9	---	---	55	50
TOTAL	---	519	---	506.4	---	288.2	---	261.9	---	280.8	---	1451.1

DAY	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCENTRATION (MG/L)	LOAD (TONS/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	38	27	44	62	61	462	18	96	18	56	20	28
2	56	40	56	65	61	457	21	112	19	61	20	23
3	47	33	49	48	63	309	22	114	27	84	25	23
4	60	43	45	44	61	183	23	120	17	46	21	19
5	50	37	50	50	59	175	32	209	14	33	14	13
6	56	41	58	44	60	270	14	121	13	32	14	13
7	65	48	63	36	46	299	13	131	11	25	16	15
8	70	52	60	35	64	456	20	158	17	41	16	16
9	72	53	36	31	51	355	45	298	16	48	25	24
10	59	44	42	36	38	239	26	183	13	34	31	30
11	50	38	96	55	29	182	15	143	11	24	34	34
12	55	41	103	53	23	133	15	290	11	23	30	29
13	63	48	101	51	43	261	18	486	17	32	32	25
14	66	51	94	47	60	568	21	574	18	35	27	17
15	66	63	51	25	44	627	26	546	19	35	20	12
16	57	62	44	21	43	828	26	437	19	36	19	9.7
17	48	54	44	21	37	730	24	358	21	39	18	9.7
18	57	64	67	33	37	628	23	347	26	48	18	9.5
19	49	55	65	58	40	586	23	340	30	55	19	11
20	40	69	65	75	40	479	18	258	33	100	22	13
21	52	108	67	100	34	375	22	274	33	129	23	14
22	47	68	46	82	30	324	20	217	28	111	26	16
23	42	40	48	144	30	334	17	156	30	120	28	17
24	38	36	54	243	30	335	14	120	22	46	24	14
25	38	36	49	218	26	262	19	168	20	48	28	17
26	41	39	43	156	28	268	24	207	23	52	26	16
27	57	54	39	153	22	171	15	116	27	56	26	16
28	50	60	43	221	14	82	14	76	29	54	22	13
29	56	79	44	252	13	69	13	65	21	38	20	12
30	59	83	51	297	16	80	13	82	24	38	19	12
31	---	---	82	602	---	---	14	63	25	34	---	---
TOTAL	---	1566	---	3358	---	10527	---	6865	---	1613	---	520.9
YEAR	27757.3											


DAILY MEAN DISCHARGE, IN CUBIC FEET PER SECOND
DAILY MEAN SUSPENDED SEDIMENT DISCHARGE, IN TONS PER DAY
Discharge
Suspended sed discharge
10,000
5,000
2,000
1,000
500
200
100
1,000
100
10
1
O
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M
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J
A
S
1999
2000

05481950 BEAVER CREEK NEAR GRIMES, IA

LOCATION.--Lat 41°41'18", long 93°44'06", in $SW^1/_4$ $SW^1/_4$ sec.35, T.80 N., R.25 W., Polk County, Hydrologic Unit 07100004, on left bank 10 ft upstream from bridge on Northwest 70th Avenue, 0.5 mi downstream from Little Beaver Creek, 2.5 mi east of Grimes, and 6 mi upstream from mouth.

DRAINAGE AREA.--358 mi^2.

PERIOD OF RECORD.--April 1960 to current year.

REVISED RECORDS.--WDR IA-77-1: 1974 (P), WDR IA-95-1:location.

GAGE.--Water stage recorder. Datum of gage is 806.98 ft above sea level. Prior to Aug. 31, 1966, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	13	19	e9.5	e6.5	75	29	21	113	79	22	1.2
2	15	15	20	e11	e6.5	68	29	21	101	74	20	.95
3	15	16	20	e12	e7.5	64	28	21	88	79	18	.88
4	16	15	20	e11	e8.0	62	28	20	101	169	16	.87
5	16	15	25	e8.0	e6.0	59	27	21	122	282	15	.69
6	15	14	27	e8.5	e6.5	58	26	20	119	480	14	.59
7	14	13	24	e7.5	e7.0	54	26	20	103	383	12	.53
8	13	15	22	e8.0	e8.0	51	28	26	93	263	20	.42
9	13	16	22	e9.0	e8.5	50	26	23	84	194	13	.52
10	13	15	20	e11	e10	49	26	23	77	187	11	.81
11	13	15	20	e10	e9.5	46	28	24	74	288	8.5	.48
12	12	15	23	e9.5	e8.0	45	26	24	75	230	7.6	.30
13	11	14	20	e9.0	e10	44	25	22	83	181	7.6	.28
14	11	14	19	e8.5	e11	42	23	21	182	151	6.9	.29
15	12	14	e16	e9.0	e15	41	23	21	221	127	5.6	.28
16	11	15	e18	e9.5	e14	40	24	19	214	111	5.0	.28
17	11	15	e11	e7.5	e12	39	25	19	173	99	4.5	.26
18	11	15	e7.0	e8.0	e11	38	24	29	144	87	4.6	.23
19	12	15	e9.0	e7.5	e14	40	24	40	126	80	3.9	.26
20	13	15	e7.0	e7.0	e17	39	26	40	121	74	3.7	.35
21	12	15	e5.5	e9.0	e21	38	25	38	119	67	3.5	.30
22	12	15	e6.5	e10	31	37	24	33	119	59	3.6	1.8
23	18	29	e7.5	e9.0	40	36	23	31	112	53	3.6	1.1
24	16	30	e6.5	e8.5	57	37	22	31	106	47	3.2	.47
25	14	26	e6.0	e8.5	80	35	22	29	93	43	2.8	.46
26	12	25	e7.0	e8.0	93	33	22	32	92	42	2.6	.32
27	12	24	e8.5	e7.0	86	33	22	42	83	41	2.4	.28
28	12	21	e7.5	e6.0	79	31	22	67	81	36	2.3	.27
29	13	20	e9.0	e6.5	73	31	22	99	85	32	1.7	.24
30	14	19	e11	e7.5	---	30	22	108	84	28	1.5	.23
31	13	---	e10	e6.0	---	29	---	141	---	25	1.3	---
TOTAL	411	518	454.0	267.0	756.0	1374	747	1126	3388	4091	247.4	15.94
MEAN	13.3	17.3	14.6	8.61	26.1	44.3	24.9	36.3	113	132	7.98	.53
MAX	18	30	27	12	93	75	29	141	221	480	22	1.8
MIN	11	13	5.5	6.0	6.0	29	22	19	74	25	1.3	.23
AC-FT	815	1030	901	530	1500	2730	1480	2230	6720	8110	491	32
CFSM	.04	.05	.04	.02	.07	.12	.07	.10	.32	.37	.02	.00
IN.	.04	.05	.05	.03	.08	.14	.08	.12	.35	.43	.03	.00

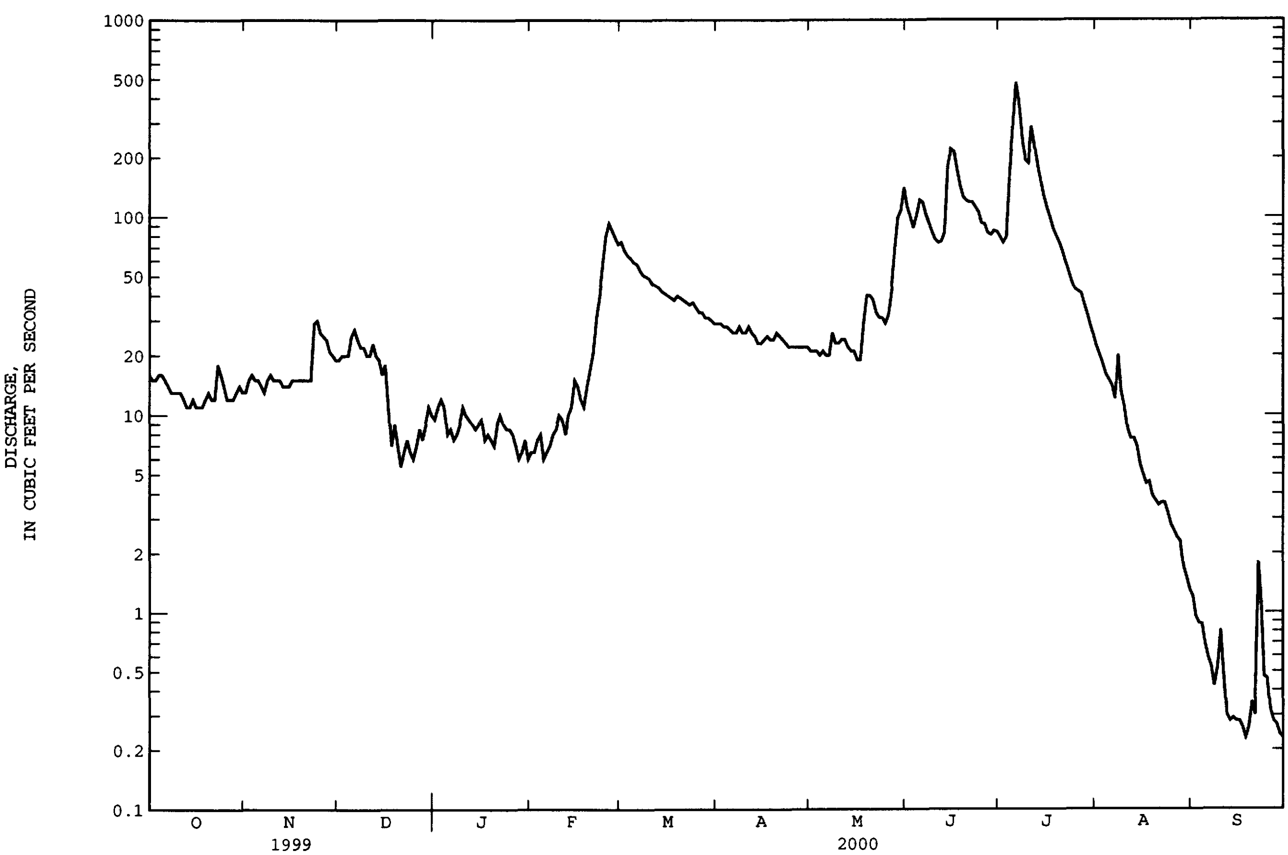
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	101	120	100	62.0	125	347	384	421	473	288	111	73.1
MAX	724	655	486	305	526	1171	1275	1419	1434	2160	695	654
(WY)	1974	1973	1983	1974	1973	1979	1965	1974	1998	1993	1993	1993
MIN	.058	.63	.77	.002	.35	3.98	3.26	1.11	1.41	.24	.73	.26
(WY)	1989	1967	1977	1977	1977	1981	1981	1981	1977	1977	1988	1988

05481950 BEAVER CREEK NEAR GRIMES, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1961 - 2000	
ANNUAL TOTAL	112891.0		13395.34			
ANNUAL MEAN	309		36.6		217	
HIGHEST ANNUAL MEAN					575	1993
LOWEST ANNUAL MEAN					17.3	1981
HIGHEST DAILY MEAN	3270	Jun 12	480	Jul 6	11500	Jul 10 1993
LOWEST DAILY MEAN	5.5	Dec 21	.23	Sep 18a	.00	Sep 8 1970b
ANNUAL SEVEN-DAY MINIMUM	6.6	Dec 20	.27	Sep 13	.00	Oct 7 1971
INSTANTANEOUS PEAK FLOW			533	Jul 5	14300	Jul 10 1993
INSTANTANEOUS PEAK STAGE			6.36	Jul 5	16.58	Jul 10 1993
INSTANTANEOUS LOW FLOW			.19	Sep 30		
ANNUAL RUNOFF (AC-FT)	223900		26570		157400	
ANNUAL RUNOFF (CFSM)	.86		.10		.61	
ANNUAL RUNOFF (INCHES)	11.73		1.39		8.25	
10 PERCENT EXCEEDS	919		93		559	
50 PERCENT EXCEEDS	110		19		73	
90 PERCENT EXCEEDS	13		2.7		2.2	

a Also Sept. 30.
b Also Sept. 11-13, 1970, Sept. 17,18, Oct. 7-17, 1971, many days during 1977.
e Estimated.



05482000 DES MOINES RIVER AT SECOND AVENUE AT DES MOINES, IA

LOCATION.--Lat 41°36'45", long 93°37'15", in NE$^1/_4$ NE$^1/_4$ sec.34, T.79 N., R.24 W., Polk County, Hydrologic Unit 07100004, on right bank 5 ft upstream from 2nd Avenue or State Highway 60 bridge in Des Moines, 1.8 miles upstream from Des Moines Electric Company dam, 2.8 miles upstream from Raccoon River, and 4.5 miles downstream from Beaver Creek.

DRAINAGE AREA.--6,245 mi^2.

PERIOD OF RECORD.--October 1902 to August 1903, October 1914 to February 1915 (gage heights and discharge measurements only); March 1915 to September 1961, October 1996 to current year.

REVISED RECORDS-- WSP 1308: 1915-19, 1921, 1923, 1933, 1943(M). WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 773.68 ft above sea level and at city datum. Prior to August 21, 1941, staff, chain, or recording gages at several sites within 3 mi of present site at various datums.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Saylorville Dam 6.8 mi. upstream, since Apr. 12, 1977. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform, and U.S. Weather Service Limited Automated Remote Collector (LARC) at station.

EXTREMES FOR PERIOD OF RECORD--Maximum discharge 60,200 ft^3/sec on June 24, 1954, gage height 30.16; minimum unregulated daily discharge 24 ft^3/sec Jan. 29, 30, 1940.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e240	195	216	255	e200	e190	362	522	3240	e1900	e1300	516
2	e220	191	218	255	e220	e190	359	e460	3140	e1900	e1400	473
3	e220	199	218	255	e230	549	351	e320	2230	e1900	e1300	381
4	e210	202	212	254	e220	948	347	e200	1370	e2000	e1100	379
5	e210	199	205	249	e220	941	354	e340	1260	e2300	e800	378
6	e200	198	224	258	e220	871	324	e270	1670	e3000	e800	379
7	e200	201	245	270	e230	699	339	e230	2480	e3600	e850	369
8	e210	202	249	269	e240	705	344	e240	2570	e3200	e900	345
9	e210	206	243	268	e250	647	337	e340	2660	e2600	e1000	347
10	e200	202	242	268	e240	576	352	e360	2580	e3000	e950	347
11	e200	204	248	247	e230	446	357	e270	2610	e3400	e750	342
12	e200	211	249	239	e220	442	340	e220	2520	e5500	e850	324
13	e190	213	253	229	e220	452	341	e210	2700	e10000	e800	305
14	e200	207	255	237	e220	451	347	e220	e3600	e10000	e800	245
15	e230	210	255	244	e230	449	366	e210	e5000	8120	e750	e220
16	e240	217	e230	239	e220	446	419	e200	e6500	6340	e750	e200
17	e230	218	e200	246	e200	422	424	e190	e7000	5550	e700	e180
18	e210	223	e190	254	e210	354	432	e240	e6000	5580	e700	e160
19	e190	218	e200	264	e210	342	432	473	e4800	5550	e700	e180
20	e200	220	e190	247	e210	339	584	610	e4000	5370	742	e220
21	e220	223	e170	250	e220	339	852	697	e3600	4870	1500	e210
22	e190	204	e180	252	e230	366	695	799	e3800	4150	1510	301
23	e200	269	e200	256	e220	444	e380	806	e4000	3450	e1500	275
24	e200	215	e210	263	e200	460	e380	1680	e4000	3160	e800	e250
25	e210	213	233	281	e210	460	e360	1810	e3600	3310	e900	e240
26	e200	213	236	252	e200	460	e360	1610	e3800	3340	888	e230
27	e200	211	236	266	e190	462	e380	1550	e3000	3000	804	e230
28	e200	229	239	e210	e190	449	425	1950	e2200	2210	695	e220
29	e210	222	243	e180	e200	451	519	2260	e1900	1700	639	e210
30	e200	213	250	e170	---	458	522	2270	e1900	2280	646	e200
31	199	---	253	e170	---	438	---	3140	---	1940	509	---
TOTAL	6439	6348	6992	7597	6300	15246	12384	24697	99730	124220	28333	8656
MEAN	208	212	226	245	217	492	413	797	3324	4007	914	289
MAX	240	269	255	281	250	948	852	3140	7000	10000	1510	516
MIN	190	191	170	170	190	190	324	190	1260	1700	509	160
AC-FT	12770	12590	13870	15070	12500	30240	24560	48990	197800	246400	56200	17170
CFSM	.03	.03	.04	.04	.03	.08	.07	.13	.53	.64	.15	.05
IN.	.04	.04	.04	.05	.04	.09	.07	.15	.59	.74	.17	.05

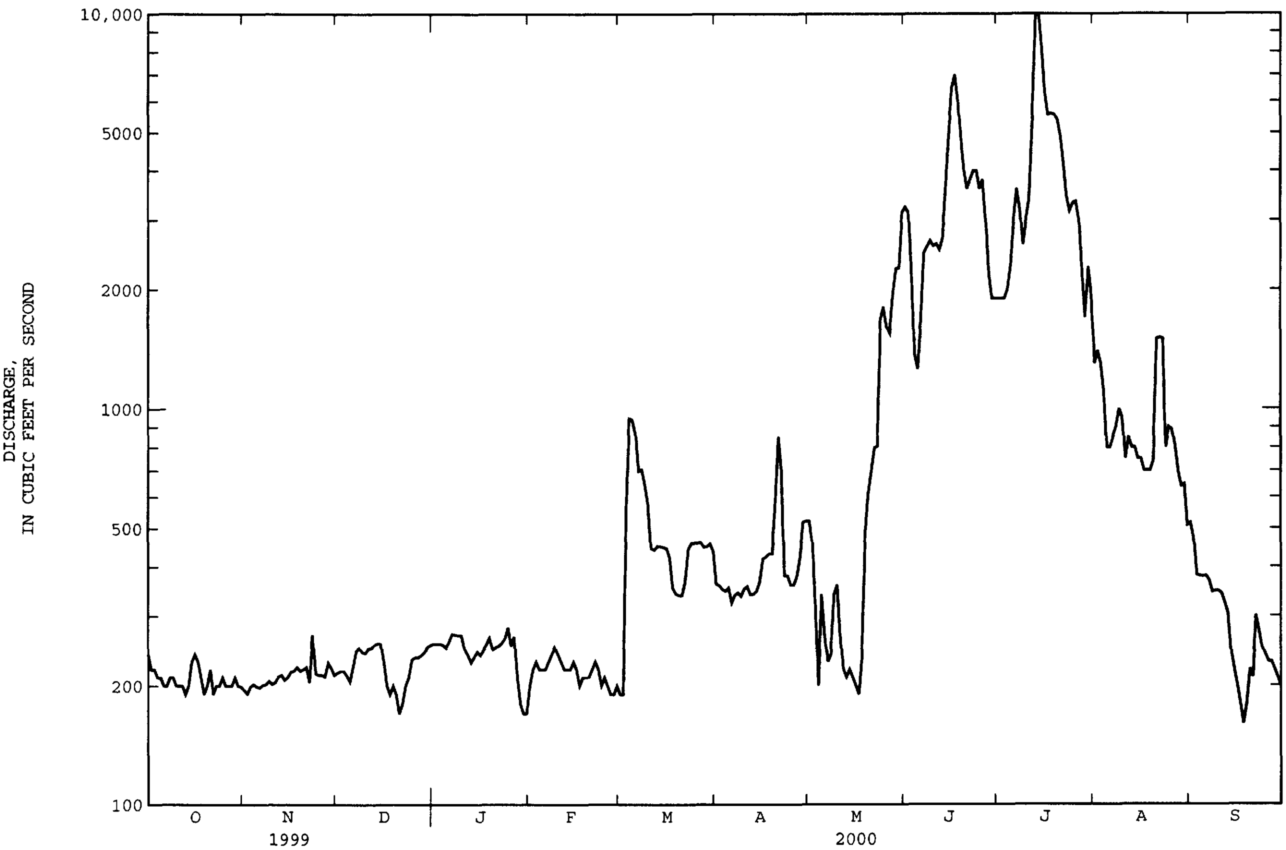
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2000, BY WATER YEAR (WY)

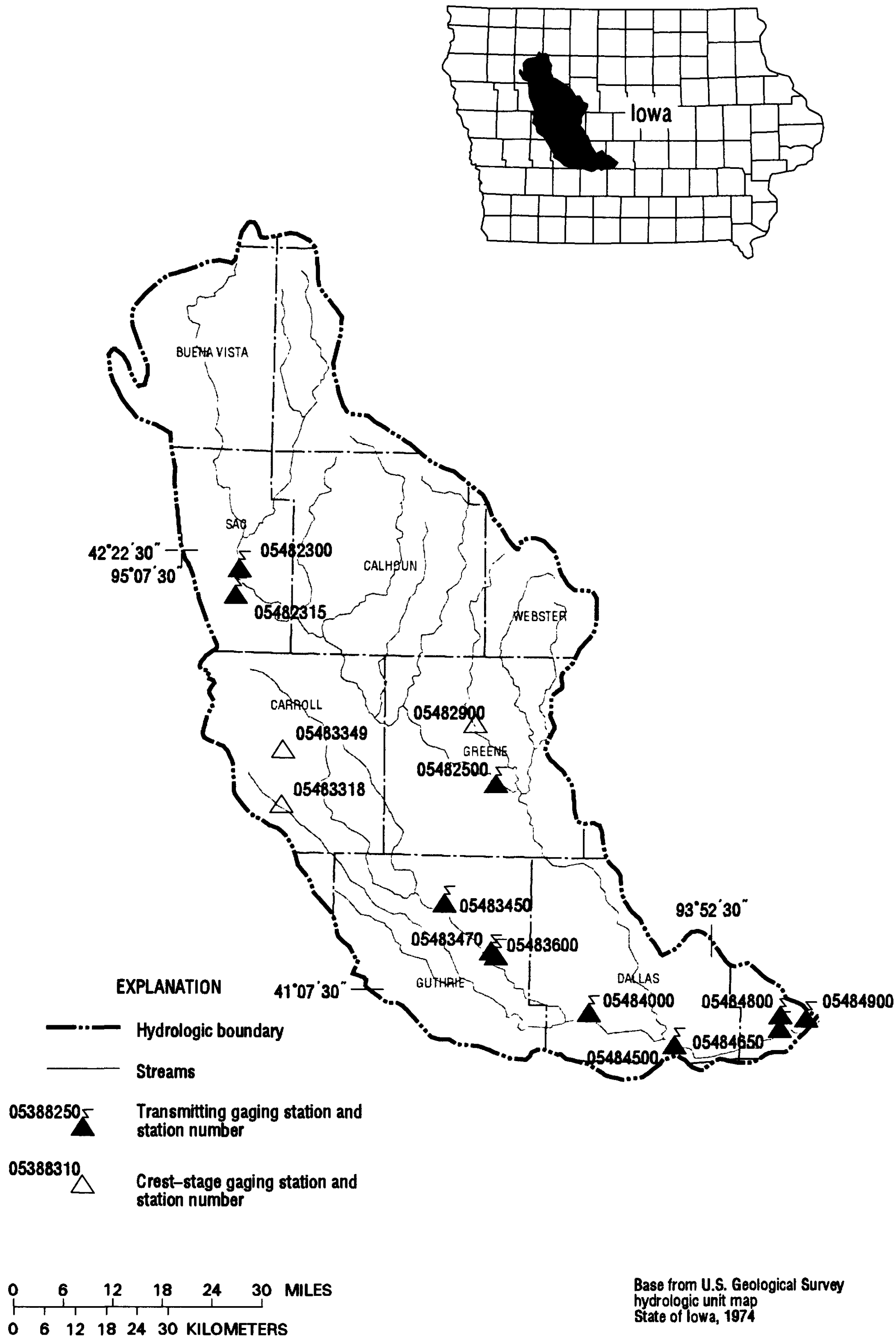
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	588	1534	1320	647	2002	4070	8004	6934	7115	6518	2156	406
MAX	818	2871	2696	1231	2775	9385	11510	12870	11850	8820	3490	630
(WY)	1999	1997	1997	1997	1997	1997	1999	1999	1999	1999	1998	1998
MIN	208	212	226	245	217	492	413	797	3324	4007	914	289
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000

05482000 DES MOINES RIVER AT SECOND AVENUE AT DES MOINES, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1997 - 2000	
ANNUAL TOTAL	1661394		346942			
ANNUAL MEAN	4552		948		3443	
HIGHEST ANNUAL MEAN					4926	1999
LOWEST ANNUAL MEAN					948	2000
HIGHEST DAILY MEAN	15600	Apr 11	10000	Jul 13	16000	Apr 10 1998
LOWEST DAILY MEAN	170	Dec 21	160	Sep 18	160	Sep 18 2000
ANNUAL SEVEN-DAY MINIMUM	190	Dec 17	190	Dec 17	190	Dec 17 1999
INSTANTANEOUS PEAK FLOW			10000	Jul 13	16000	Apr 10 1998a
INSTANTANEOUS PEAK STAGE			18.20	Jul 13	19.59	Apr 10 1998a
ANNUAL RUNOFF (AC-FT)	3295000		688200		2494000	
ANNUAL RUNOFF (CFSM)	.73		.15		.55	
ANNUAL RUNOFF (INCHES)	9.90		2.07		7.49	
10 PERCENT EXCEEDS	13500		3000		10400	
50 PERCENT EXCEEDS	1970		303		1500	
90 PERCENT EXCEEDS	206		200		240	

a Also April 11.
e Estimated.





Base from U.S. Geological Survey
hydrologic unit map
State of Iowa, 1974

Gaging Stations

05482300	North Raccoon River near Sac City, IA.	256
05482315	Black Hawk Lake at Lake View, IA	258
05482500	North Raccoon River near Jefferson, IA	260
05483450	Middle Raccoon River near Bayard, IA	262
05483470	Lake Panorama at Panora, IA.	264
05483600	Middle Raccoon River at Panora, IA	266
05484000	South Raccoon River at Redfield, IA.	268
05484500	Raccoon River at Van Meter, IA	270
05484650	Raccoon River at 63rd Street, Des Moines, IA	272
05484800	Walnut Creek at Des Moines, IA	274
05484900	Raccoon River at Fleur Drive, Des Moines, IA	276

Crest Stage Gaging Stations

05482900	Hardin Creek near Farlin, IA	327
05483318	Brushy Creek near Templeton, IA.	327
05483349	Middle Raccoon River Tributary at Carroll, IA.	327

05482300 NORTH RACCOON RIVER NEAR SAC CITY, IA

LOCATION.--Lat 42°21'16", long 94°59'26", in $NW^1/_4$ $NW^1/_4$ sec.13, T.87 N., R.36 W., Sac County, Hydrologic Unit 07100006, on right bank 5 ft downstream from bridge on county highway, 2.1 mi upstream from Indian Creek, 0.3 mi upstream from Drainage Ditch 73, 4.6 mi south of Sac City, 167.1 miles upstream of mouth of Raccoon River, and at mile 367.6 upstream from mouth of Des Moines River.

DRAINAGE AREA.--700 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,146.03 ft above sea level. Prior to Oct. 1, 1987 at site 1.7 miles downstream at datum 1.43 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1954, reached a stage of 15.61 ft, from floodmark, discharge, 7,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	21	20	e18	e10	56	25	23	77	26	17	97
2	24	22	21	e20	e10	45	24	25	71	25	14	80
3	25	20	22	e21	e11	36	23	26	70	39	14	74
4	25	21	25	e20	e12	33	23	26	63	405	14	70
5	22	20	23	e16	e10	32	22	25	61	395	20	60
6	26	21	20	e18	e12	31	22	23	76	267	25	51
7	24	20	17	e17	e16	29	22	19	65	184	24	47
8	20	20	20	e19	e19	31	24	19	56	132	24	46
9	22	20	22	e21	e23	32	25	20	50	98	26	43
10	21	21	e20	e24	e28	32	26	21	44	79	54	e36
11	21	21	e21	e23	e25	30	25	22	41	86	47	e28
12	20	21	18	e18	e21	31	27	21	37	135	31	23
13	21	22	e23	e17	e22	29	24	21	43	132	22	21
14	21	22	e21	e15	e23	30	24	20	71	123	378	22
15	22	23	e20	e16	e30	32	20	20	111	95	675	26
16	20	22	e23	e17	e44	32	21	20	149	69	438	23
17	20	23	e21	e14	e40	29	23	24	111	70	324	21
18	20	21	e20	e15	e42	34	22	24	86	94	1090	21
19	20	23	e20	e14	e38	36	23	27	71	74	1150	20
20	22	23	e19	e12	e34	34	23	31	63	58	780	24
21	21	23	e16	e14	e30	33	23	29	60	49	519	24
22	21	21	e17	e15	e34	32	23	26	54	43	374	28
23	21	32	e17	e14	e40	32	22	22	48	38	349	33
24	21	29	e16	e13	e55	33	20	23	44	34	592	34
25	21	27	e15	e13	138	31	18	23	43	31	421	30
26	20	26	e16	e12	143	30	17	27	46	33	305	26
27	20	25	e17	e11	94	28	21	42	43	33	237	23
28	22	22	e16	e9.0	64	26	23	53	43	35	188	23
29	22	21	e19	e10	53	25	24	59	34	29	153	22
30	22	20	e20	e11	---	25	23	53	30	23	133	21
31	21	---	e19	e9.0	---	24	---	61	---	20	111	---
TOTAL	670	673	604	486.0	1121	993	682	875	1861	2954	8549	1097
MEAN	21.6	22.4	19.5	15.7	38.7	32.0	22.7	28.2	62.0	95.3	276	36.6
MAX	26	32	25	24	143	56	27	61	149	405	1150	97
MIN	20	20	15	9.0	10	24	17	19	30	20	14	20
AC-FT	1330	1330	1200	964	2220	1970	1350	1740	3690	5860	16960	2180
CFSM	.03	.03	.03	.02	.06	.05	.03	.04	.09	.14	.39	.05
IN.	.04	.04	.03	.03	.06	.05	.04	.05	.10	.16	.45	.06

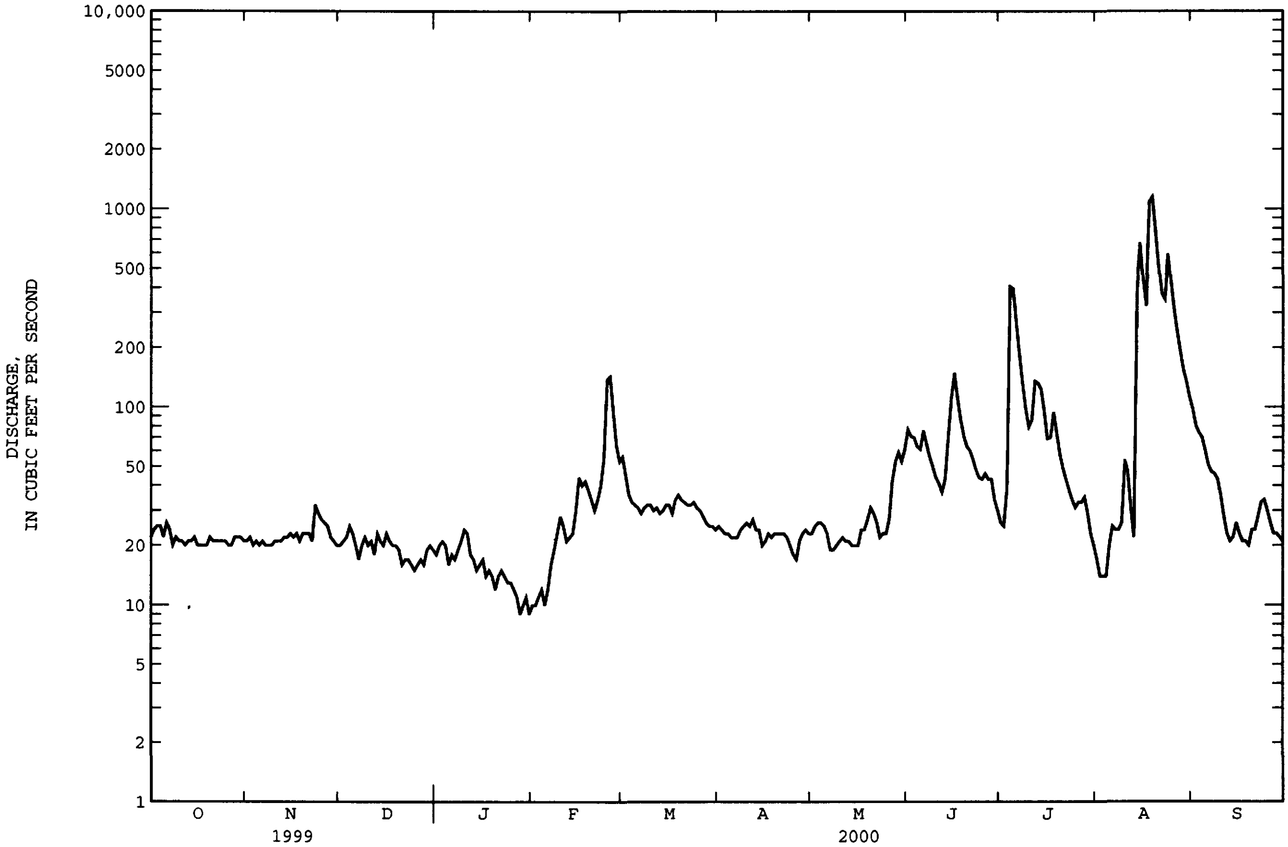
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	242	216	136	92.8	181	631	794	642	846	495	233	229
MAX	1782	1005	641	498	1038	2723	2726	2077	3344	3096	1188	1966
(WY)	1983	1984	1983	1983	1984	1983	1983	1991	1984	1993	1993	1962
MIN	6.39	9.44	4.39	.87	1.16	27.2	22.7	28.2	24.7	23.0	9.29	7.80
(WY)	1959	1959	1959	1977	1959	1968	2000	2000	1977	1977	1976	1976

05482300 NORTH RACCOON RIVER NEAR SAC CITY, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1959 - 2000	
ANNUAL TOTAL	163896		20565.0			
ANNUAL MEAN	449		56.2		395	
HIGHEST ANNUAL MEAN					1331	1983
LOWEST ANNUAL MEAN					25.3	1977
HIGHEST DAILY MEAN	3990	Apr 23	1150	Aug 19	12400	Mar 23 1979
LOWEST DAILY MEAN	15	Dec 25	9.0	Jan 28a	.00	Jan 30 1977b
ANNUAL SEVEN-DAY MINIMUM	16	Dec 21	10	Jan 27	.01	Jan 29 1977
INSTANTANEOUS PEAK FLOW			1390	Aug 18	13100	Mar 23 1979
INSTANTANEOUS PEAK STAGE			10.85	Aug 18	20.14	Jun 17 1990
ANNUAL RUNOFF (AC-FT)	325100		40790		286200	
ANNUAL RUNOFF (CFSM)	.64		.080		.56	
ANNUAL RUNOFF (INCHES)	8.71		1.09		7.67	
10 PERCENT EXCEEDS	1310		88		1020	
50 PERCENT EXCEEDS	120		24		134	
90 PERCENT EXCEEDS	20		17		16	

a Also Jan. 31.
b Also Jan. 31 to Feb. 4, 1977.
e Estimated.



05482315 BLACK HAWK LAKE AT LAKE VIEW, IA

LOCATION.--Lat 42°18'15", long 95°02'30", in $NW^1/_4$ $SE^1/_4$ sec.33, T.87 N., R.36 W., Sac County, Hydrologic Unit 07100006, on south shore across from swimming beach at Lake View and 2 mi. upstream from lake outlet.

DRAINAGE AREA.--23.3 mi^2.

PERIOD OF RECORD.--April 1970 to September 1975; April 1978 to September 1992, October 1994 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,218.50 ft above sea level and 2.00 ft below crest of spillway of dam at outlet. Prior to June 25, 1970, nonrecording gage at lake outlet.

REMARKS.--Gage height was considered reliable for the year. Lake is formed by concrete dam with ungated overflow spillway at elevation 1,220.50 ft. above sea level. Lake is used for conservation and recreation. Area of lake is approximately 957 acres. U.S. Geological Survey satellite data collection platform at station.

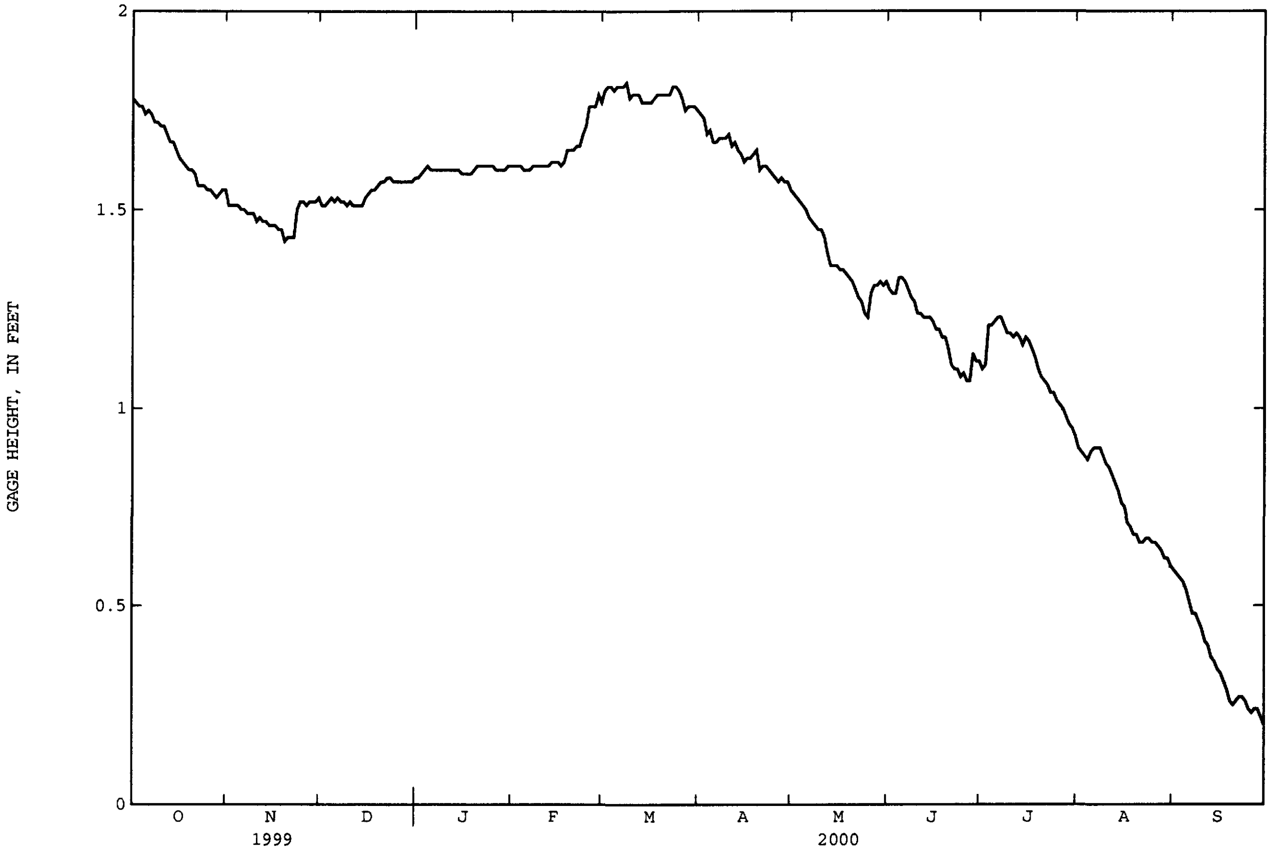
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 4.34 ft June 22, 1996; minimum, 0.02 ft Sept. 26, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 1.85 ft Mar. 8; minimum, 0.14 ft Sept. 20. Both readings affected by wind.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.78	1.51	1.51	1.58	1.61	1.80	1.74	1.54	1.30	1.10	.90	.59
2	1.77	1.51	1.51	1.59	1.61	1.81	1.73	1.53	1.29	1.11	.89	.58
3	1.76	1.51	1.52	1.60	1.61	1.81	1.69	1.52	1.29	1.21	.88	.57
4	1.76	1.51	1.53	1.61	1.60	1.80	1.70	1.51	1.33	1.21	.87	.56
5	1.74	1.50	1.52	1.60	1.60	1.81	1.67	1.50	1.33	1.22	.89	.54
6	1.75	1.50	1.53	1.60	1.60	1.81	1.67	1.48	1.32	1.23	.90	.51
7	1.74	1.49	1.52	1.60	1.61	1.81	1.68	1.47	1.30	1.23	.90	.48
8	1.72	1.49	1.52	1.60	1.61	1.82	1.68	1.46	1.28	1.21	.90	.48
9	1.72	1.49	1.51	1.60	1.61	1.78	1.68	1.45	1.27	1.19	.88	.46
10	1.71	1.47	1.52	1.60	1.61	1.79	1.69	1.45	1.24	1.19	.86	.44
11	1.71	1.48	1.51	1.60	1.61	1.79	1.66	1.43	1.24	1.18	.85	.41
12	1.69	1.47	1.51	1.60	1.61	1.79	1.67	1.39	1.23	1.19	.83	.40
13	1.67	1.47	1.51	1.60	1.62	1.77	1.65	1.36	1.23	1.18	.81	.37
14	1.67	1.46	1.51	1.60	1.62	1.77	1.64	1.36	1.23	1.16	.79	.36
15	1.65	1.46	1.53	1.59	1.62	1.77	1.62	1.36	1.22	1.18	.76	.34
16	1.63	1.46	1.54	1.59	1.61	1.77	1.63	1.35	1.20	1.17	.75	.33
17	1.62	1.45	1.55	1.59	1.62	1.78	1.63	1.35	1.20	1.15	.71	.31
18	1.61	1.45	1.55	1.59	1.65	1.79	1.64	1.34	1.18	1.13	.70	.29
19	1.60	1.42	1.56	1.60	1.65	1.79	1.65	1.33	1.18	1.10	.68	.26
20	1.60	1.43	1.57	1.61	1.65	1.79	1.60	1.32	1.15	1.08	.68	.25
21	1.59	1.43	1.57	1.61	1.66	1.79	1.61	1.30	1.11	1.07	.66	.26
22	1.56	1.43	1.58	1.61	1.66	1.79	1.61	1.28	1.10	1.06	.66	.27
23	1.56	1.50	1.58	1.61	1.69	1.81	1.60	1.27	1.10	1.04	.67	.27
24	1.56	1.52	1.57	1.61	1.71	1.81	1.59	1.24	1.08	1.04	.67	.26
25	1.55	1.52	1.57	1.61	1.76	1.80	1.58	1.23	1.09	1.02	.66	.24
26	1.55	1.51	1.57	1.60	1.76	1.78	1.57	1.29	1.07	1.01	.66	.23
27	1.54	1.52	1.57	1.60	1.76	1.75	1.58	1.31	1.07	1.00	.65	.24
28	1.53	1.52	1.57	1.60	1.79	1.76	1.57	1.31	1.14	.98	.64	.24
29	1.54	1.52	1.57	1.60	1.77	1.76	1.57	1.32	1.12	.96	.62	.22
30	1.55	1.53	1.57	1.61	---	1.76	1.55	1.31	1.12	.95	.62	.20
31	1.55	---	1.58	1.61	---	1.75	---	1.32	---	.93	.60	---
MEAN	1.64	1.48	1.54	1.60	1.65	1.79	1.64	1.38	1.20	1.11	.76	.37
MAX	1.78	1.53	1.58	1.61	1.79	1.82	1.74	1.54	1.33	1.23	.90	.59
MIN	1.53	1.42	1.51	1.58	1.60	1.75	1.55	1.23	1.07	.93	.60	.20

05482315 BLACK HAWK LAKE AT LAKE VIEW, IA--Continued



05482500 NORTH RACCOON RIVER NEAR JEFFERSON, IA

LOCATION.--Lat 41°59'17", long 94°22'36", in SW$^1/_4$ NW$^1/_4$ sec.20, T.83 N., R.30 W., Greene County, Hydrologic Unit 07100006, on right bank 20 ft downstream from bridge on State Highway 4, 0.1 mi downstream from Drainage Ditch 33 and 40, 1.9 mi south of Jefferson, 4.7 mi upstream from Hardin Creek, 92.0 miles upstream of mouth of Raccoon River, and at mile 292.5 upstream from mouth of Des Moines River.

DRAINAGE AREA.--1,619 mi^2.

PERIOD OF RECORD.--March 1940 to current year. Prior to April 1940, monthly discharge only, published in WSP 1308. Prior to October 1955, published as "Raccoon River near Jefferson".

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940 (M), 1950-51.

GAGE.--Water-stage recorder. Datum of gage is 967.09 ft above sea level. Prior to Apr. 22, 1946, nonrecording gage at site 4 mi upstream at different datum. Apr. 22 to June 25, 1946, nonrecording gage, June 26, 1946 to Sept. 30, 1955, water-stage recorder, Oct. 1, 1955 to Apr. 30, 1958, nonrecording gage, at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	89	107	101	32	221	69	49	153	106	31	185
2	48	70	107	103	36	222	68	48	138	108	27	178
3	51	66	110	96	42	209	66	45	138	153	22	172
4	52	67	110	e65	42	187	60	46	160	195	21	162
5	57	69	110	e60	e38	171	56	41	205	370	21	143
6	56	64	113	e70	47	151	52	35	189	722	21	129
7	58	61	119	e67	53	138	56	34	163	655	21	120
8	56	63	117	77	e55	127	61	34	157	485	21	110
9	54	68	113	80	68	118	66	37	150	368	21	106
10	58	67	100	80	74	111	66	32	135	319	21	97
11	52	63	96	e65	e70	107	65	37	130	249	20	88
12	49	66	111	e70	e80	106	79	30	110	215	20	62
13	51	71	98	e60	84	104	86	22	113	198	30	59
14	47	71	90	e70	e80	98	87	24	115	195	34	49
15	56	65	121	84	90	98	68	24	118	185	23	38
16	55	66	e85	e55	94	97	68	27	114	216	19	35
17	47	68	56	e60	e85	91	66	27	130	251	349	35
18	43	77	59	e70	75	97	80	24	163	176	368	36
19	46	80	79	e60	100	104	85	48	171	160	294	31
20	47	78	e55	e48	e90	103	66	63	166	163	695	29
21	50	80	e36	e50	e110	102	63	43	147	155	851	28
22	46	82	e34	e60	143	100	70	33	127	134	677	35
23	42	112	e40	e55	188	96	75	29	111	116	534	33
24	44	125	e44	e48	258	99	65	29	112	101	439	33
25	48	132	56	e46	281	101	61	26	105	86	384	33
26	49	135	62	e40	331	95	48	36	107	75	507	41
27	51	128	e55	e34	341	91	40	46	102	63	433	42
28	52	120	67	e36	319	83	43	94	122	46	350	40
29	64	113	77	32	258	79	44	132	122	35	276	35
30	102	111	87	35	---	74	47	153	122	34	230	32
31	111	---	102	32	---	71	---	151	---	35	199	---
TOTAL	1694	2527	2616	1909	3564	3651	1926	1499	4095	6369	6959	2216
MEAN	54.6	84.2	84.4	61.6	123	118	64.2	48.4	136	205	224	73.9
MAX	111	135	121	103	341	222	87	153	205	722	851	185
MIN	42	61	34	32	32	71	40	22	102	34	19	28
AC-FT	3360	5010	5190	3790	7070	7240	3820	2970	8120	12630	13800	4400
CFSM	.03	.05	.05	.04	.08	.07	.04	.03	.08	.13	.14	.05
IN.	.04	.06	.06	.04	.08	.08	.04	.03	.09	.15	.16	.05

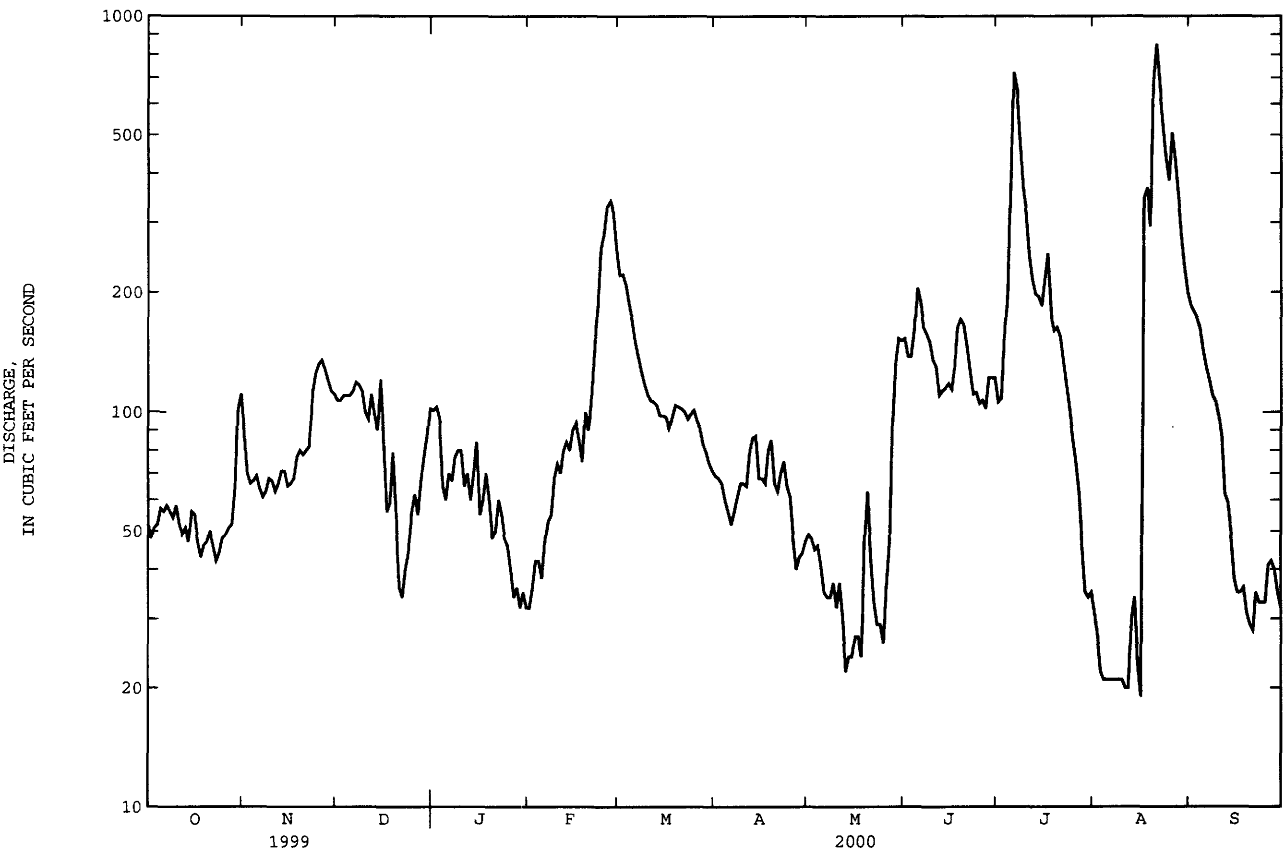
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	430	386	270	201	415	1265	1534	1401	1860	1044	494	391
MAX	3654	2011	1228	1045	2407	4990	5650	4702	6831	7584	3007	2823
(WY)	1974	1974	1974	1973	1984	1983	1983	1984	1984	1993	1993	1962
MIN	5.04	19.8	13.4	3.58	6.89	68.5	46.3	48.4	61.9	18.1	12.1	16.6
(WY)	1957	1956	1977	1977	1977	1956	1956	2000	1977	1956	1956	1955

05482500 NORTH RACCOON RIVER NEAR JEFFERSON, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1941 - 2000	
ANNUAL TOTAL	464315		39025			
ANNUAL MEAN	1272		107		808	
HIGHEST ANNUAL MEAN					2615	1993
LOWEST ANNUAL MEAN					32.8	1956
HIGHEST DAILY MEAN	10200	Apr 24	851	Aug 21	23200	Jun 24 1947
LOWEST DAILY MEAN	34	Dec 22	19	Aug 16	.60	Oct 5 1956
ANNUAL SEVEN-DAY MINIMUM	45	Oct 18	21	Aug 6	.91	Oct 4 1956
INSTANTANEOUS PEAK FLOW			918	Aug 20a	29100	Jun 23 1947
INSTANTANEOUS PEAK STAGE			6.64	Aug 20	22.30	Jun 23 1947
INSTANTANEOUS LOW FLOW			16	Aug 16		
ANNUAL RUNOFF (AC-FT)	921000		77410		585300	
ANNUAL RUNOFF (CFSM)	.79		.066		.50	
ANNUAL RUNOFF (INCHES)	10.67		.90		6.78	
10 PERCENT EXCEEDS	3750		196		2040	
50 PERCENT EXCEEDS	422		74		287	
90 PERCENT EXCEEDS	57		33		42	

a Also Aug. 21.
e Estimated.



05483450 MIDDLE RACCOON RIVER NEAR BAYARD, IA

LOCATION.--Lat 41°46'43", long 94°29'33", in SW$^1/_4$ SW$^1/_4$ sec.32, T.81 N., R.31 W., Guthrie County, Hydrologic Unit 07100007, on left bank 15 ft downstream from bridge on State Highway 25, 0.2 mi downstream from Battle Run Creek, 1.8 mi upstream from Springbrook Creek, 5.8 mi southeast of Bayard, 10.3 mi upstream from dam at Lake Panorama, at mile 78.0 mi. upstream from mouth of Raccoon River, and at mile 279.2 upstream from mouth of Des Moines River.

DRAINAGE AREA.--375 mi^2.

PERIOD OF RECORD.--March 1979 to current year. Occasional low-flow measurements, water years 1976, 1977.

GAGE.--Water-stage recorder. Datum of gage is 1,040.00 ft above sea level. Prior to June 23, 1979, nonrecording gage at present site and datum.

REMARKS.--Records are good, except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Geological Survey data collection platform with telephone modem and U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 3, 1973 reached a stage of 21.63 ft, from contracted-opening measurement, discharge, 14,600 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	63	53	e75	e38	106	57	47	e84	70	43	23
2	60	60	53	e75	e44	98	56	46	e72	69	40	23
3	61	60	53	e70	e55	89	56	46	60	72	40	22
4	61	60	56	e42	e50	85	56	46	64	92	40	22
5	61	59	56	e40	e46	81	54	44	109	130	38	22
6	60	60	52	e46	e60	78	54	44	97	403	37	20
7	62	58	51	e44	e65	72	56	43	81	251	37	20
8	58	57	52	e48	e63	69	60	45	72	146	38	20
9	58	56	52	e60	e80	73	60	59	65	111	35	19
10	57	55	49	e65	e70	75	61	56	60	109	33	20
11	56	54	47	e46	e55	68	64	48	61	124	32	18
12	56	53	51	e55	e65	65	61	47	54	102	32	17
13	57	53	49	e44	e75	64	57	44	131	91	34	17
14	56	52	44	e46	e60	64	56	42	128	75	35	17
15	57	53	48	e60	66	64	56	41	110	70	30	16
16	58	52	e38	e46	92	64	59	41	88	108	29	17
17	56	52	e40	e50	60	62	62	41	77	100	29	16
18	56	52	e44	e60	85	65	62	115	69	e74	29	16
19	59	52	e48	e50	96	70	56	344	63	65	29	16
20	60	52	e34	e44	e60	70	56	207	68	59	29	18
21	59	52	e26	e42	66	66	55	145	61	56	30	17
22	58	53	e25	e55	78	63	51	109	55	53	29	20
23	57	69	e32	e48	109	63	50	87	51	50	30	21
24	57	83	e34	e46	150	64	49	74	53	47	32	24
25	58	66	e42	e44	144	63	48	64	59	49	30	22
26	59	59	e50	e40	149	60	47	68	76	61	27	20
27	58	58	e46	e38	120	60	49	95	65	94	27	18
28	58	56	e55	e40	100	59	50	119	64	56	26	18
29	59	53	e65	e44	97	58	52	102	126	50	26	18
30	85	53	e70	e44	---	58	49	92	86	48	25	17
31	88	---	e75	e42	---	57	---	88	---	45	24	---
TOTAL	1865	1715	1490	1549	2298	2153	1659	2489	2309	2930	995	574
MEAN	60.2	57.2	48.1	50.0	79.2	69.5	55.3	80.3	77.0	94.5	32.1	19.1
MAX	88	83	75	75	150	106	64	344	131	403	43	24
MIN	56	52	25	38	38	57	47	41	51	45	24	16
AC-FT	3700	3400	2960	3070	4560	4270	3290	4940	4580	5810	1970	1140
CFSM	.16	.15	.13	.13	.21	.19	.15	.21	.21	.25	.09	.05
IN.	.19	.17	.15	.15	.23	.21	.16	.25	.23	.29	.10	.06

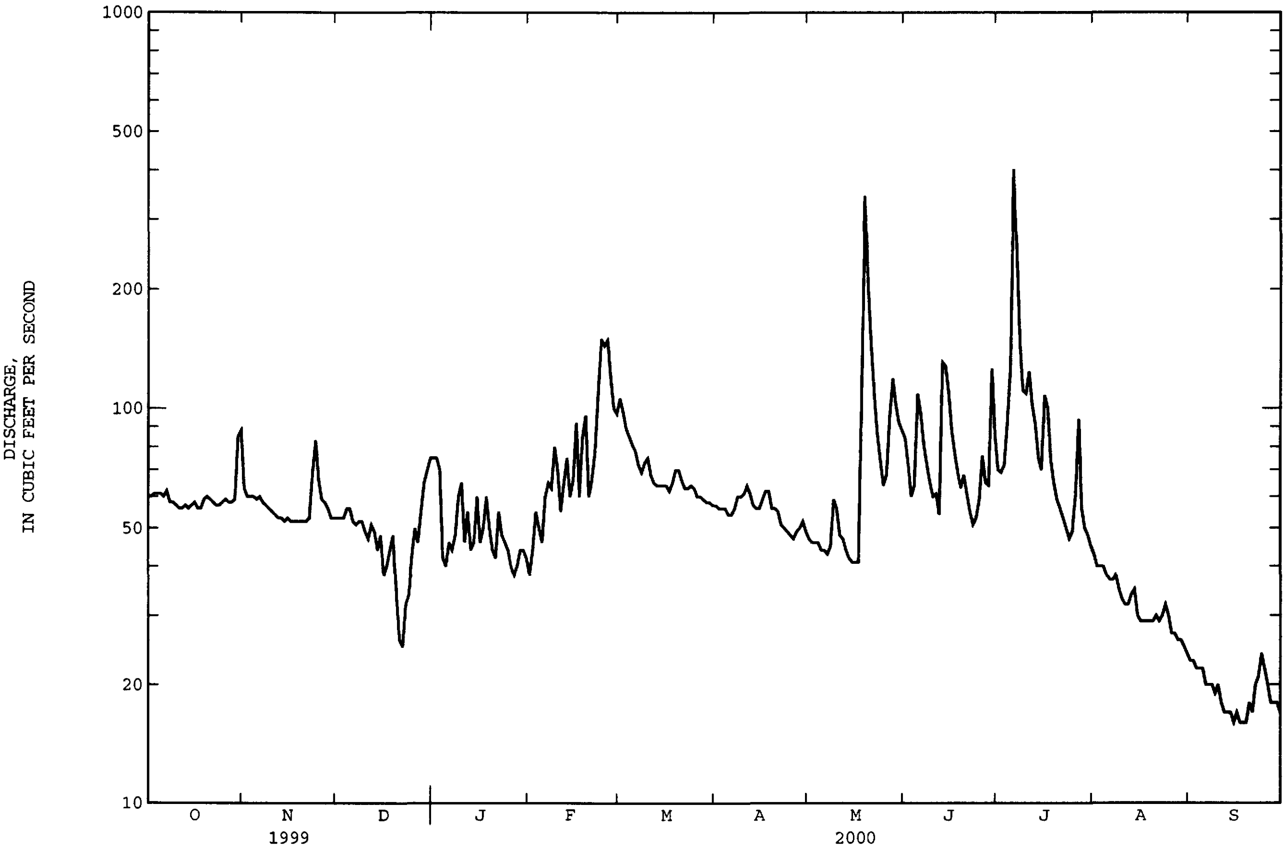
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	116	122	121	91.4	195	285	402	446	539	431	186	111
MAX	587	376	347	175	645	907	1035	993	1667	2653	673	466
(WY)	1987	1993	1993	1993	1983	1993	1991	1984	1990	1993	1993	1993
MIN	20.1	18.3	12.5	13.8	27.4	23.3	22.9	51.6	77.0	40.2	32.1	18.8
(WY)	1981	1981	1981	1981	1990	1981	1981	1981	2000	1980	2000	1980

05483450 MIDDLE RACCOON RIVER NEAR BAYARD, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1980 - 2000	
ANNUAL TOTAL	113216		22026			
ANNUAL MEAN	310		60.2		254	
HIGHEST ANNUAL MEAN					677	1993
LOWEST ANNUAL MEAN					54.1	1981
HIGHEST DAILY MEAN	2560	Jul 3	403	Jul 6	18100	Jul 9 1993
LOWEST DAILY MEAN	25	Dec 22	16	Sep 15a	5.5	Jun 13 1981
ANNUAL SEVEN-DAY MINIMUM	34	Dec 19	16	Sep 13	7.3	Jun 8 1981
INSTANTANEOUS PEAK FLOW			568	Jul 6	27500	Jul 9 1993
INSTANTANEOUS PEAK STAGE			12.13	Jul 6	29.02	Jul 9 1993
INSTANTANEOUS LOW FLOW			15	Sep 18b		
ANNUAL RUNOFF (AC-FT)	224600		43690		183900	
ANNUAL RUNOFF (CFSM)	.83		.16		.68	
ANNUAL RUNOFF (INCHES)	11.23		2.18		9.20	
10 PERCENT EXCEEDS	820		92		568	
50 PERCENT EXCEEDS	130		56		114	
90 PERCENT EXCEEDS	53		27		34	

a Also Sept. 17-19.
b Also Sept. 19.
e Estimated.



05483470 LAKE PANORAMA AT PANORA, IOWA

LOCATION.--Lat 41°41'44", long 94°22'53", in $SW^1/_4$ $NE^1/_4$ sec.31, T.80 N., R.30 W., Guthrie County, Hydrologic Unit 07100007, in gate control building of dam on Middle Raccoon River, 0.5 mi upstream from State Highway 44, 1.0 mi west of Panora, 4.4 mi upstream from Bay Branch, 67.7 mi. upstream from mouth of Raccoon River, and at mile 268.8 upstream from mouth of Des Moines River.

DRAINAGE AREA.--433 mi^2.

PERIOD OF RECORD.--May 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,000.00 ft above sea level.

REMARKS.--Lake is formed by earthfill dam with 100 ft bascule gate and concrete chute spillway, and 300 ft earthen emergency spillway. Low-flow outlet is 30-inch conduit and gate valve through dam. Dam was completed in August, 1970 and began filling April 27, 1971. Total storage, 60,000 acre-ft, surface area, 2,900 acres, at top of dam, elevation 1,068 ft. Storage unknown at top of spillway, elevation 1,048 ft. Normal storage, 19,700 acre-ft, surface area, 1,270 acres with bascule gate closed, elevation 1,045 ft. Dead storage unknown with bascule gate open, elevation 1,036 ft. Present lake classification is utility (industrial) but is also used for recreation. U.S. Geological Survey data collection platform with telephone modem at station.

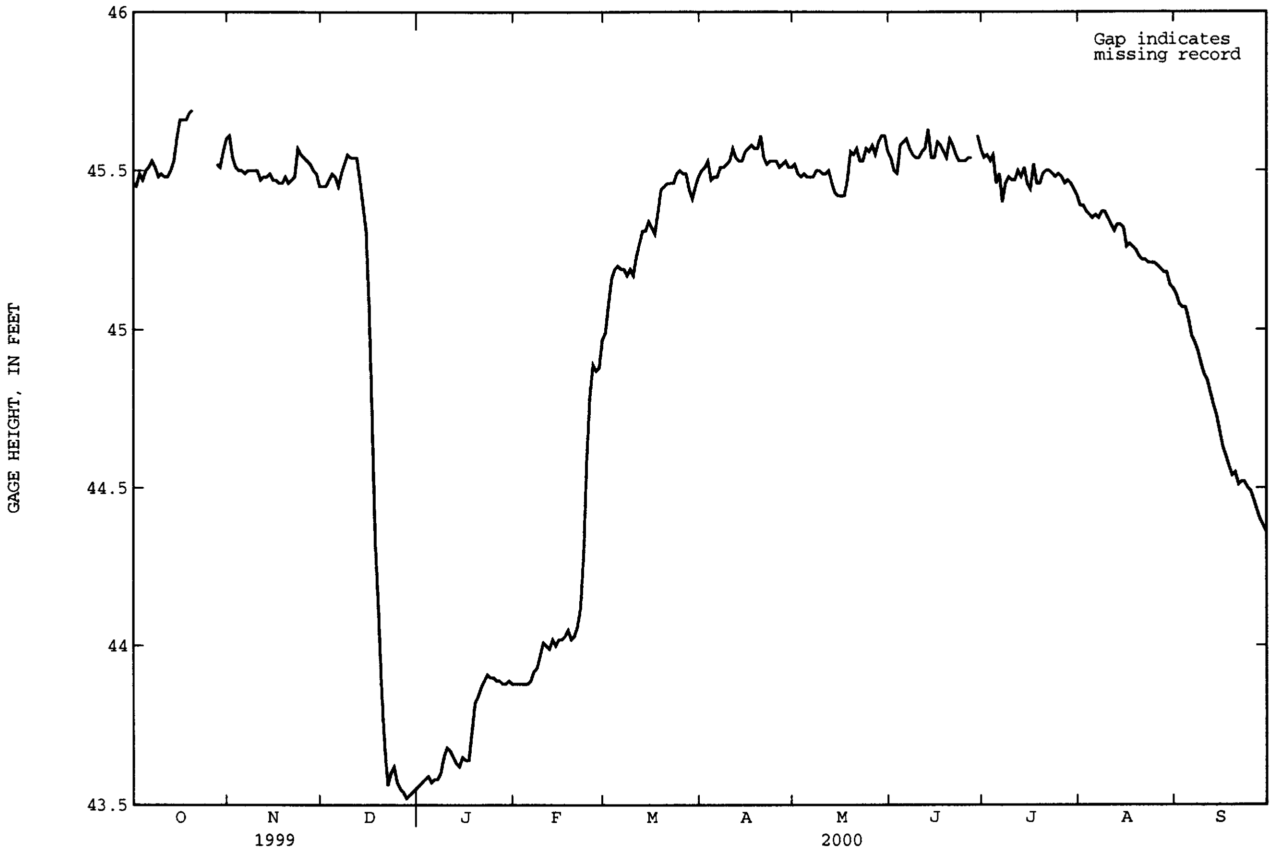
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height,50.68 ft July 9, 1993; minimum, 41.56 ft Oct. 15, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 45.75 ft June 13; minimum recorded, 43.50 ft Dec. 28.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45.46	45.61	45.45	43.56	43.88	44.99	45.50	45.52	45.54	45.54	45.39	45.11
2	45.45	45.54	45.45	43.57	43.88	45.08	45.51	45.49	45.50	45.55	45.39	45.08
3	45.49	45.51	45.47	43.58	43.88	45.16	45.53	45.48	45.49	45.53	45.37	45.07
4	45.47	45.50	45.49	43.59	43.88	45.19	45.47	45.49	45.58	45.55	45.36	45.07
5	45.50	45.50	45.48	43.57	43.88	45.20	45.48	45.48	45.59	45.46	45.35	45.03
6	45.51	45.49	45.45	43.58	43.89	45.19	45.48	45.48	45.60	45.49	45.36	44.98
7	45.53	45.50	45.49	43.58	43.92	45.19	45.51	45.48	45.57	45.40	45.35	44.96
8	45.51	45.50	45.52	43.60	43.93	45.17	45.51	45.50	45.55	45.46	45.37	44.93
9	45.48	45.50	45.55	43.65	43.97	45.19	45.52	45.50	45.54	45.48	45.37	44.89
10	45.49	45.50	45.54	43.68	44.01	45.17	45.53	45.49	45.54	45.47	45.35	44.86
11	45.48	45.47	45.54	43.67	44.00	45.23	45.57	45.49	45.56	45.47	45.33	44.84
12	45.48	45.48	45.54	43.65	43.99	45.27	45.54	45.50	45.57	45.50	45.31	44.80
13	45.50	45.48	45.47	43.63	44.02	45.31	45.53	45.46	45.63	45.48	45.33	44.76
14	45.53	45.49	45.39	43.62	44.00	45.31	45.53	45.43	45.54	45.51	45.33	44.73
15	45.60	45.47	45.31	43.65	44.02	45.34	45.56	45.42	45.54	45.46	45.32	44.68
16	45.66	45.47	45.07	43.64	44.02	45.32	45.57	45.42	45.59	45.44	45.26	44.63
17	45.66	45.46	44.71	43.64	44.03	45.30	45.58	45.42	45.58	45.52	45.27	44.60
18	45.66	45.46	44.32	43.73	44.05	45.37	45.57	45.47	45.56	45.46	45.26	44.57
19	45.68	45.48	44.12	43.82	44.02	45.44	45.57	45.56	45.54	45.46	45.25	44.54
20	45.69	45.46	43.86	43.84	44.03	45.45	45.61	45.55	45.60	45.49	45.23	44.55
21	---	45.47	43.68	43.87	44.06	45.46	45.54	45.57	45.58	45.50	45.22	44.51
22	---	45.48	43.56	43.89	44.12	45.46	45.52	45.53	45.55	45.50	45.22	44.52
23	---	45.57	43.60	43.91	44.29	45.46	45.53	45.53	45.53	45.49	45.21	44.52
24	---	45.55	43.62	43.90	44.59	45.49	45.53	45.57	45.53	45.48	45.21	44.50
25	---	45.54	43.57	43.90	44.79	45.50	45.53	45.56	45.53	45.49	45.21	44.49
26	---	45.53	43.55	43.89	44.89	45.49	45.51	45.58	45.54	45.48	45.20	44.46
27	---	45.52	43.54	43.89	44.87	45.49	45.52	45.55	45.54	45.46	45.19	44.43
28	45.52	45.50	43.52	43.88	44.88	45.44	45.53	45.59	---	45.47	45.18	44.40
29	45.51	45.49	43.53	43.88	44.97	45.41	45.51	45.61	45.61	45.46	45.18	44.38
30	45.56	45.45	43.54	43.89	---	45.45	45.51	45.61	45.57	45.44	45.14	44.36
31	45.60	---	43.55	43.88	---	45.48	---	45.56	---	45.42	45.13	---
MEAN	45.54	45.50	44.63	43.73	44.16	45.32	45.53	45.51	45.56	45.48	45.28	44.71
MAX	45.69	45.61	45.55	43.91	44.97	45.50	45.61	45.61	45.63	45.55	45.39	45.11
MIN	45.45	45.45	43.52	43.56	43.88	44.99	45.47	45.42	45.49	45.40	45.13	44.36

05483470 LAKE PANORAMA AT PANORA, IOWA--Continued



05483600 MIDDLE RACCOON RIVER AT PANORA, IA

LOCATION.--Lat 41°41'14", long 94°22'15", in $NE^1/_4$ $NW^1/_4$ sec.5, T.79 N., R.30 W., Guthrie County, Hydrologic Unit 07100007, on left bank 15 ft downstream from bridge on Soldier Trail, 0.2 mi southwest of Panora, 1.5 mi upstream from Andy's Branch, 1.6 mi downstream from Lake Panorama, 18.1 mi upstream from mouth, 66.1 mi. upstream from mouth of Raccoon River, and at mile 267.2 upstream from mouth of Des Moines River.

DRAINAGE AREA.--440 mi^2.

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

REVISED RECORDS.--WDR IA-74-1: 1973 (P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 991.20 ft above sea level.

REMARKS.--Records are good, except those for estimated daily discharges, which are poor. City of Panora diverts approximately 100 acre-ft/yr upstream of station. Flow regulated by dam on Lake Panorama since August 1970. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and data collection platform at station. U.S. Geological Survey data collection platform with telephone modem at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1953, reached a stage of 14.3 ft, from floodmark, discharge, about 14,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	94	72	82	49	78	52	55	102	74	44	23
2	69	79	73	85	49	54	60	50	74	138	41	25
3	65	71	78	78	49	71	69	49	55	115	39	24
4	82	70	83	66	50	81	55	50	80	178	39	20
5	55	71	84	59	50	84	49	50	89	551	37	27
6	58	68	60	61	46	83	44	50	108	440	40	23
7	74	69	55	63	46	82	50	49	100	244	37	20
8	94	70	61	48	50	77	52	55	81	145	41	22
9	79	71	69	59	54	79	54	55	66	119	41	27
10	70	72	69	65	60	46	55	54	64	167	40	21
11	68	65	70	63	57	42	63	57	67	114	37	25
12	68	68	93	61	55	50	60	59	67	129	35	22
13	62	71	115	58	60	59	58	53	136	86	42	24
14	29	69	110	58	59	61	53	45	216	78	45	23
15	42	66	146	62	60	68	58	44	92	147	44	17
16	56	64	191	61	59	67	61	43	78	73	35	26
17	56	63	249	40	57	46	65	43	75	113	35	20
18	56	64	204	26	63	43	60	55	73	96	24	20
19	60	69	177	38	57	57	61	301	65	62	23	20
20	62	64	176	40	58	62	73	172	75	49	28	20
21	67	68	149	44	64	62	55	140	73	54	32	20
22	74	72	75	48	65	63	50	121	67	54	33	20
23	68	97	49	50	48	63	52	76	62	55	32	21
24	65	93	75	49	70	71	52	67	60	55	31	20
25	67	93	82	50	131	71	50	62	146	61	31	20
26	64	89	77	48	157	72	49	103	96	93	30	20
27	65	86	76	47	127	71	54	146	67	104	26	20
28	68	82	74	47	73	67	56	81	71	58	30	20
29	67	78	75	48	76	47	53	102	105	56	29	20
30	78	73	78	49	---	40	53	110	116	53	25	20
31	88	---	80	49	---	47	---	105	---	50	24	---
TOTAL	2062	2229	3125	1702	1899	1964	1676	2502	2626	3811	1070	650
MEAN	66.5	74.3	101	54.9	65.5	63.4	55.9	80.7	87.5	123	34.5	21.7
MAX	94	97	249	85	157	84	73	301	216	551	45	27
MIN	29	63	49	26	46	40	44	43	55	49	23	17
AC-FT	4090	4420	6200	3380	3770	3900	3320	4960	5210	7560	2120	1290
CFSM	.15	.17	.23	.12	.15	.14	.13	.18	.20	.28	.08	.05
IN.	.17	.19	.26	.14	.16	.17	.14	.21	.22	.32	.09	.05

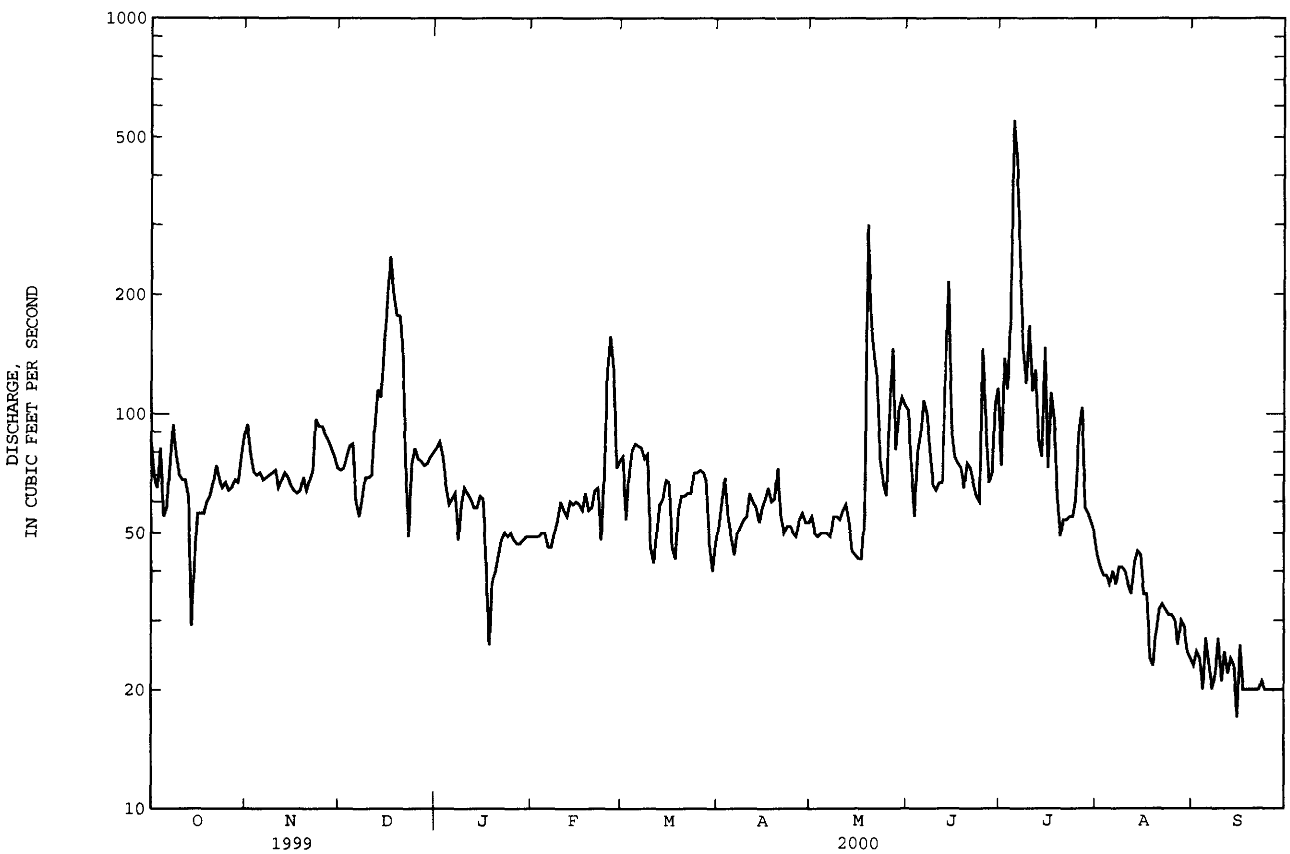
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	127	147	127	102	223	369	396	485	494	399	170	139
MAX	670	588	356	439	838	1479	1222	1458	1646	2731	668	528
(WY)	1987	1973	1993	1973	1971	1979	1984	1974	1990	1993	1996	1973
MIN	19.5	12.8	7.60	6.95	27.8	20.2	26.4	20.0	9.40	5.56	22.2	19.3
(WY)	1981	1971	1971	1971	1972	1981	1977	1977	1977	1977	1971	1980

05483600 MIDDLE RACCOON RIVER AT PANORA, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1971 - 2000a	
ANNUAL TOTAL	126479		25316			
ANNUAL MEAN	347		69.2		265	
HIGHEST ANNUAL MEAN					701	1973
LOWEST ANNUAL MEAN					38.6	1977
HIGHEST DAILY MEAN	2780	Jul 3	551	Jul 5	17500	Jul 10 1993
LOWEST DAILY MEAN	29	Oct 14	17	Sep 15	.00	Jun 9 1977b
ANNUAL SEVEN-DAY MINIMUM	52	Oct 13	20	Sep 24	3.1	Jul 8 1977
INSTANTANEOUS PEAK FLOW			2500	Jul 5	22400	Jul 9 1993
INSTANTANEOUS PEAK STAGE			7.59	Jul 5	20.04	Jul 9 1993
INSTANTANEOUS LOW FLOW			8.7	Sep 15		
ANNUAL RUNOFF (AC-FT)	250900		50210		191800	
ANNUAL RUNOFF (CFSM)	.79		.16		.60	
ANNUAL RUNOFF (INCHES)	10.69		2.14		8.18	
10 PERCENT EXCEEDS	901		106		587	
50 PERCENT EXCEEDS	165		61		110	
90 PERCENT EXCEEDS	64		28		31	

a Post regulation.
b Also June 10, 1977, result of gate operations at Lake Panorama.



05484000 SOUTH RACCOON RIVER AT REDFIELD, IA

LOCATION.--Lat 41°35'22", long 94°09'04", in $SW^1/_4$ $NE^1/_4$ sec.2, T.78 N., R.29 W., Dallas County, Hydrologic Unit 07100007, on right bank 20 ft upstream from bridge on H Avenue, 3.4 mi. downstream from bridge on U.S. Highway 6, 3.4 mi. downstream from Middle Raccoon River, 14.3 mi. upstream from mouth, 44.6 miles upstream of mouth of Raccoon River, and at mile 245.6 upstream from mouth of Des Moines River.

DRAINAGE AREA.--994 mi^2.

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940, WDR IA-87-1:datum.

GAGE.--Water-stage recorder. Datum of gage is 888.88 ft above sea level. Prior to June 12, 1946, nonrecording gage, June 12, 1946 to Sept. 30, 1986, water-stage recorder at site 2.4 mi upstream at datum 7.55 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	176	192	149	176	e105	292	135	122	213	236	145	68
2	184	183	154	189	e105	219	140	120	201	198	138	69
3	158	160	164	192	e120	199	144	114	161	434	134	72
4	184	160	169	e160	e130	212	142	114	231	377	133	68
5	174	162	163	e140	e115	215	128	116	219	1680	130	61
6	158	157	148	e150	e125	208	122	114	215	1720	125	69
7	158	156	124	e160	e130	209	118	112	210	1040	123	69
8	186	161	132	e130	137	209	137	123	195	496	127	71
9	192	167	137	142	142	199	135	134	169	361	127	69
10	174	166	132	166	166	176	147	125	153	350	117	71
11	164	159	131	e160	163	134	195	123	156	361	112	68
12	158	153	144	e140	125	140	169	125	159	347	106	68
13	163	158	176	e130	129	154	150	116	186	323	112	64
14	142	160	177	e135	143	161	143	104	515	248	119	69
15	121	150	192	143	140	164	134	99	326	247	113	67
16	139	149	225	e140	161	169	140	101	245	306	105	61
17	139	145	293	e115	139	159	162	105	219	283	95	70
18	137	148	288	118	120	133	153	340	204	259	96	65
19	143	152	244	e85	e125	155	155	440	197	219	91	63
20	152	145	e230	e90	e130	168	154	462	211	196	89	66
21	158	147	e220	105	156	168	157	283	210	181	81	64
22	160	154	e150	120	212	164	132	252	186	175	89	69
23	158	234	e140	e110	267	165	125	211	175	169	94	74
24	149	224	e170	e105	359	169	126	182	174	165	92	70
25	153	196	e180	e110	361	174	122	163	259	169	87	68
26	159	185	e165	e105	492	161	118	188	674	174	86	69
27	155	185	e155	e100	374	159	130	314	313	360	82	66
28	158	173	e150	e100	274	152	137	253	243	247	79	67
29	157	162	158	e105	221	149	130	222	259	182	80	64
30	169	153	170	e110	---	121	121	232	317	166	75	63
31	195	---	185	e110	---	119	---	226	---	153	72	---
TOTAL	4973	4996	5415	4041	5366	5376	4201	5735	7195	11822	3254	2022
MEAN	160	167	175	130	185	173	140	185	240	381	105	67.4
MAX	195	234	293	192	492	292	195	462	674	1720	145	74
MIN	121	145	124	85	105	119	118	99	153	153	72	61
AC-FT	9860	9910	10740	8020	10640	10660	8330	11380	14270	23450	6450	4010
CFSM	.16	.17	.18	.13	.19	.17	.14	.19	.24	.38	.11	.07
IN.	.19	.19	.20	.15	.20	.20	.16	.21	.27	.44	.12	.08

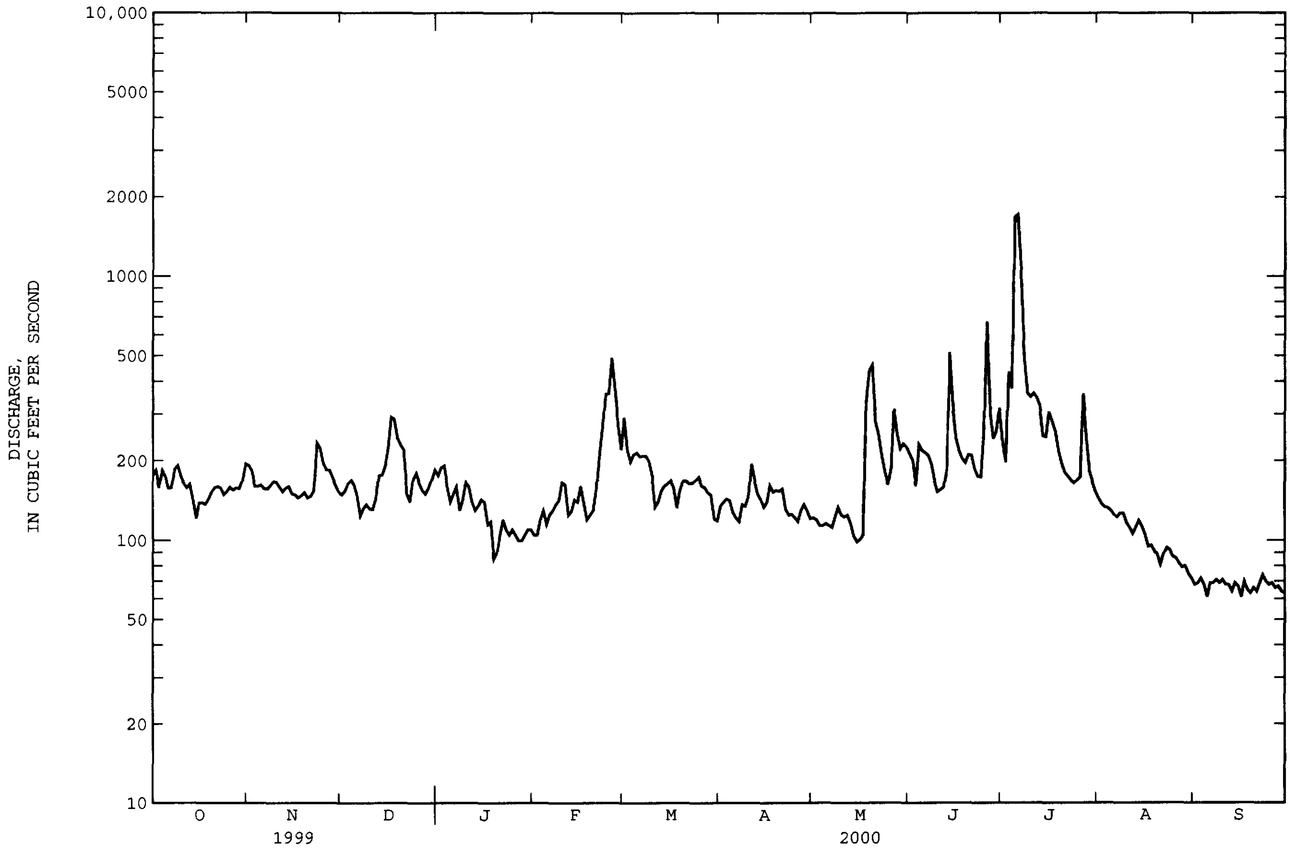
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	236	238	196	177	400	825	768	873	1041	659	375	286
MAX	1501	1162	826	565	1785	3112	2474	3005	5017	5494	2745	1385
(WY)	1987	1973	1993	1983	1971	1979	1984	1974	1947	1993	1993	1993
MIN	28.6	36.2	32.4	30.4	35.5	74.2	50.0	62.9	43.2	57.4	37.8	36.0
(WY)	1941	1956	1956	1950	1956	1981	1956	1967	1977	1954	1955	1955

05484000 SOUTH RACCOON RIVER AT REDFIELD, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1941 - 2000	
ANNUAL TOTAL	324671		64396			
ANNUAL MEAN	890		176		506	
HIGHEST ANNUAL MEAN					1632	1993
LOWEST ANNUAL MEAN					91.4	1968
HIGHEST DAILY MEAN	8470	May 21	1720	Jul 6	33600	Jul 10 1993
LOWEST DAILY MEAN	120	Jan 10	61	Sep 5a	17	Aug 4 1977
ANNUAL SEVEN-DAY MINIMUM	135	Dec 6	65	Sep 15	20	Jan 24 1954
INSTANTANEOUS PEAK FLOW			3850	Jul 5	44000	Jul 10 1993
INSTANTANEOUS PEAK STAGE			8.61	Jul 5	29.04	Jul 2 1958
INSTANTANEOUS LOW FLOW			59	Sep 5		
ANNUAL RUNOFF (AC-FT)	644000		127700		366600	
ANNUAL RUNOFF (CFSM)	.89		.18		.51	
ANNUAL RUNOFF (INCHES)	12.15		2.41		6.92	
10 PERCENT EXCEEDS	2310		255		1120	
50 PERCENT EXCEEDS	381		154		208	
90 PERCENT EXCEEDS	150		84		60	

a Also Sept. 16.
e Estimated.



05484500 RACCOON RIVER AT VAN METER, IA

LOCATION.--Lat 41°32'02", long 93°56'59", in $SW^1/_4$ $SW^1/_4$ sec.22, T.78 N., R.27 W., Dallas County, Hydrologic Unit 07100006, on right bank 10 ft downstream from bridge on county highway R16, 0.3 mi northeast of Van Meter, 0.7 mi upstream from small left bank tributary, 1.1 mi downstream from confluence of North and South Raccoon Rivers, 29.1 mi upstream from mouth, and at mile 230.5 upstream from mouth of Des Moines River.

DRAINAGE AREA.--3,441 mi^2.

PERIOD OF RECORD.--April 1915 to current year. Prior to October 1934, monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1927 (M), WSP 1438: Drainage area, WSP 1508: 1915 (M), 1925 (M), 1926, 1933 (M), 1939 (M), 1947 (M), 1949 (M).

GAGE.--Water-stage recorder. Datum of gage is 841.16 ft above sea level. See WSP 1308 for history of changes prior to Aug. 8, 1934.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in the report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	251	287	271	e210	e170	572	264	252	539	622	e440	357
2	273	273	283	e220	e160	505	273	253	494	556	e380	330
3	257	249	297	e240	e150	443	262	244	450	659	e360	313
4	255	244	292	e210	e160	462	255	249	533	895	e320	280
5	298	247	273	e180	e170	456	257	251	594	2180	e300	246
6	257	244	262	e210	e160	437	246	245	551	3750	e290	227
7	265	250	252	e190	e160	438	235	244	572	2800	e280	223
8	269	262	246	e200	e170	416	242	264	536	1930	e320	220
9	298	270	254	e220	e150	358	262	248	478	1470	e300	216
10	282	256	253	e240	e160	338	259	244	441	1280	e280	209
11	259	245	243	e220	e180	305	316	263	421	1240	e260	200
12	271	242	259	e200	e190	292	299	261	427	1230	e240	169
13	250	254	275	e180	e170	296	284	222	454	1180	e230	169
14	249	250	280	e170	e180	311	284	218	939	1020	e220	162
15	226	240	e260	e190	e190	307	255	211	939	846	e220	147
16	225	234	e150	e210	e180	297	252	218	707	814	e210	138
17	224	239	e240	e180	e190	291	271	224	e550	800	e200	141
18	213	254	e230	e190	e150	278	292	377	e500	758	e190	142
19	217	239	e230	e170	e170	277	300	575	e480	e700	e260	125
20	234	237	e200	e160	e160	302	288	725	e500	e650	e380	123
21	257	241	e180	e170	e260	310	288	494	e550	e600	e360	119
22	255	247	e190	e180	387	316	273	440	e550	e550	e800	127
23	237	325	e200	e180	459	317	262	383	e525	e500	e700	132
24	230	351	e180	e170	578	324	253	331	e500	e460	e650	121
25	240	314	e170	e170	613	328	253	302	e550	e440	e550	117
26	249	309	e180	e170	744	316	248	289	e950	e480	e500	115
27	265	316	e200	e160	700	299	247	428	e900	551	e460	113
28	260	305	e180	e150	629	280	265	482	e650	780	500	112
29	258	281	e220	e160	575	281	254	452	580	666	490	113
30	241	268	e230	e170	---	271	255	516	643	e550	441	107
31	269	---	e220	e180	---	255	---	540	---	e480	407	---
TOTAL	7834	7973	7200	5850	8315	10678	7994	10445	17503	31437	11538	5313
MEAN	253	266	232	189	287	344	266	337	583	1014	372	177
MAX	298	351	297	240	744	572	316	725	950	3750	800	357
MIN	213	234	150	150	150	255	235	211	421	440	190	107
AC-FT	15540	15810	14280	11600	16490	21180	15860	20720	34720	62360	22890	10540
CFSM	.07	.08	.07	.05	.08	.10	.08	.10	.17	.29	.11	.05
IN.	.08	.09	.08	.06	.09	.12	.09	.11	.19	.34	.12	.06

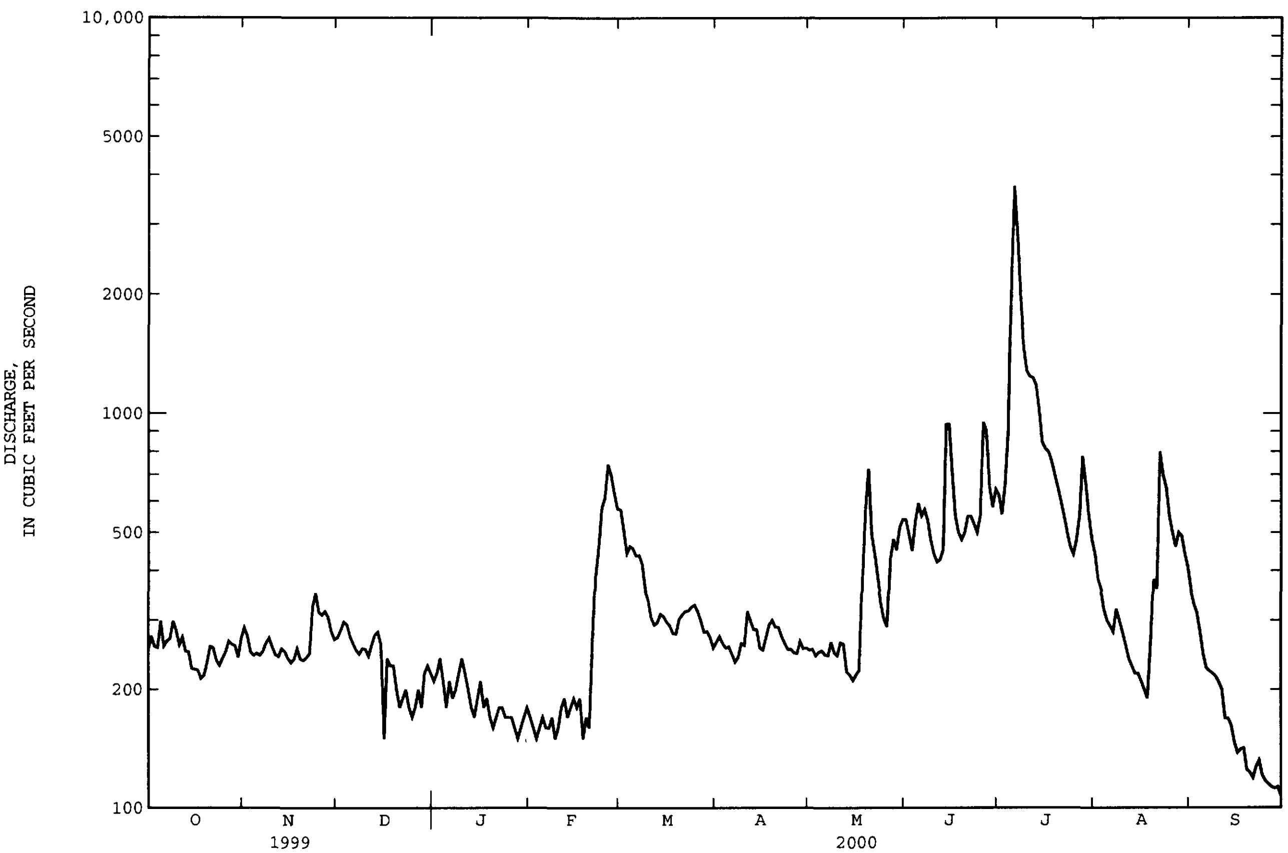
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	826	775	571	490	1000	2598	2651	2610	3303	1905	994	867
MAX	6840	4774	3085	3461	5438	10480	10630	9257	13970	17260	7414	7222
(WY)	1974	1973	1983	1932	1984	1979	1983	1984	1947	1993	1993	1926
MIN	48.6	51.5	31.0	17.2	31.5	146	125	121	112	68.1	28.1	43.1
(WY)	1940	1938	1938	1940	1940	1931	1956	1934	1977	1936	1936	1939

05484500 RACCOON RIVER AT VAN METER, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1916 - 2000	
ANNUAL TOTAL	1009410		132080			
ANNUAL MEAN	2766		361		1549	
HIGHEST ANNUAL MEAN					5717	1993
LOWEST ANNUAL MEAN					166	1956
HIGHEST DAILY MEAN	15800	May 21	3750	Jul 6	57500	Jul 10 1993
LOWEST DAILY MEAN	150	Dec 16	107	Sep 30	10	Jan 22 1940
ANNUAL SEVEN-DAY MINIMUM	186	Dec 20	114	Sep 24	10	Jan 22 1940
INSTANTANEOUS PEAK FLOW			5410	Jul 6	70100	Jul 10 1993
INSTANTANEOUS PEAK STAGE			8.00	Jul 6	26.34	Jul 10 1993
INSTANTANEOUS LOW FLOW			97	Sep 28		
ANNUAL RUNOFF (AC-FT)	2002000		262000		1122000	
ANNUAL RUNOFF (CFSM)	.80		.10		.45	
ANNUAL RUNOFF (INCHES)	10.91		1.43		6.12	
10 PERCENT EXCEEDS	9050		604		3920	
50 PERCENT EXCEEDS	1210		262		600	
90 PERCENT EXCEEDS	245		170		115	

a Also Jan. 23-31, 1940.
e Estimated.



05484650 RACCOON RIVER AT 63RD STREET, DES MOINES, IA

LOCATION.--Lat 41°33'49", long 93°42'13", in $SW^1/_4$ $NE^1/_4$ sec.14, T.78 N., R.25 W., Polk County, Hydrologic Unit 07100006, on left bank, at upstream side of bridge on State Highway 28, 2.9 mi. upstream from Walnut Creek, 8.6 mi. upstream from mouth of Raccoon River, and at mile 210.0 upstream from mouth of Des Moines River.

DRAINAGE AREA.-- 3529 mi^2.

PERIOD OF RECORD.-- October 1991 to current year. October 1991 to September 1996 gage height record only.

GAGE.--Water-stage recorder. Datum of gage is 773.91 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. National Weather Service Limited Automatic Remote Collector (LARC) and U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	329	332	307	e220	e200	616	288	262	503	673	363	325
2	346	336	303	e240	e170	607	296	260	487	587	336	293
3	352	327	305	e260	e160	524	290	259	463	621	313	271
4	327	305	316	e240	e180	510	285	257	512	916	297	248
5	352	298	317	e190	e200	519	280	254	608	1500	286	225
6	335	294	308	e220	e180	510	265	254	565	3770	276	205
7	317	290	291	e200	e180	494	267	257	565	2900	261	197
8	316	291	274	e210	e200	477	266	291	550	2060	306	189
9	341	297	276	e230	e170	457	272	290	504	1580	270	183
10	345	297	280	e260	e180	436	285	279	457	1370	257	177
11	325	292	271	e240	e200	411	333	281	449	1290	239	171
12	316	288	270	e210	e210	375	329	315	445	1330	224	154
13	309	286	276	e200	e190	372	301	279	493	1170	217	147
14	300	288	310	e180	e200	376	280	e253	743	989	213	146
15	289	287	e280	e200	e210	379	269	e234	1050	846	204	137
16	270	279	e170	e220	e190	371	263	e219	801	812	198	129
17	277	280	e250	e190	e200	364	272	203	644	775	191	121
18	276	282	e240	e200	e170	357	287	264	586	765	183	121
19	275	279	e240	e180	e180	346	285	532	543	732	228	120
20	279	279	e230	e170	e170	361	316	624	532	636	361	128
21	287	277	e190	e180	e240	366	302	531	558	566	354	124
22	289	279	e200	e190	351	365	291	417	553	531	483	141
23	287	382	e210	e190	420	355	268	383	537	502	682	138
24	282	400	e190	e180	522	359	264	339	517	466	628	133
25	279	380	e180	e180	601	357	261	294	558	436	546	128
26	287	355	e190	e180	670	355	256	295	978	447	481	119
27	292	360	e210	e170	737	340	257	348	934	461	430	117
28	291	355	e190	e160	670	331	268	466	658	751	468	115
29	293	338	e230	e180	628	321	271	437	618	594	455	112
30	294	314	e240	e190	---	315	268	446	681	471	405	113
31	300	---	e230	e220	---	291	---	522	---	414	364	---
TOTAL	9457	9347	7774	6280	8579	12617	8435	10345	18092	30961	10519	4927
MEAN	305	312	251	203	296	407	281	334	603	999	339	164
MAX	352	400	317	260	737	616	333	624	1050	3770	682	325
MIN	270	277	170	160	160	291	256	203	445	414	183	112
AC-FT	18760	18540	15420	12460	17020	25030	16730	20520	35890	61410	20860	9770
CFSM	.09	.09	.07	.06	.08	.12	.08	.09	.17	.28	.10	.05
IN.	.10	.10	.08	.07	.09	.13	.09	.11	.19	.33	.11	.05

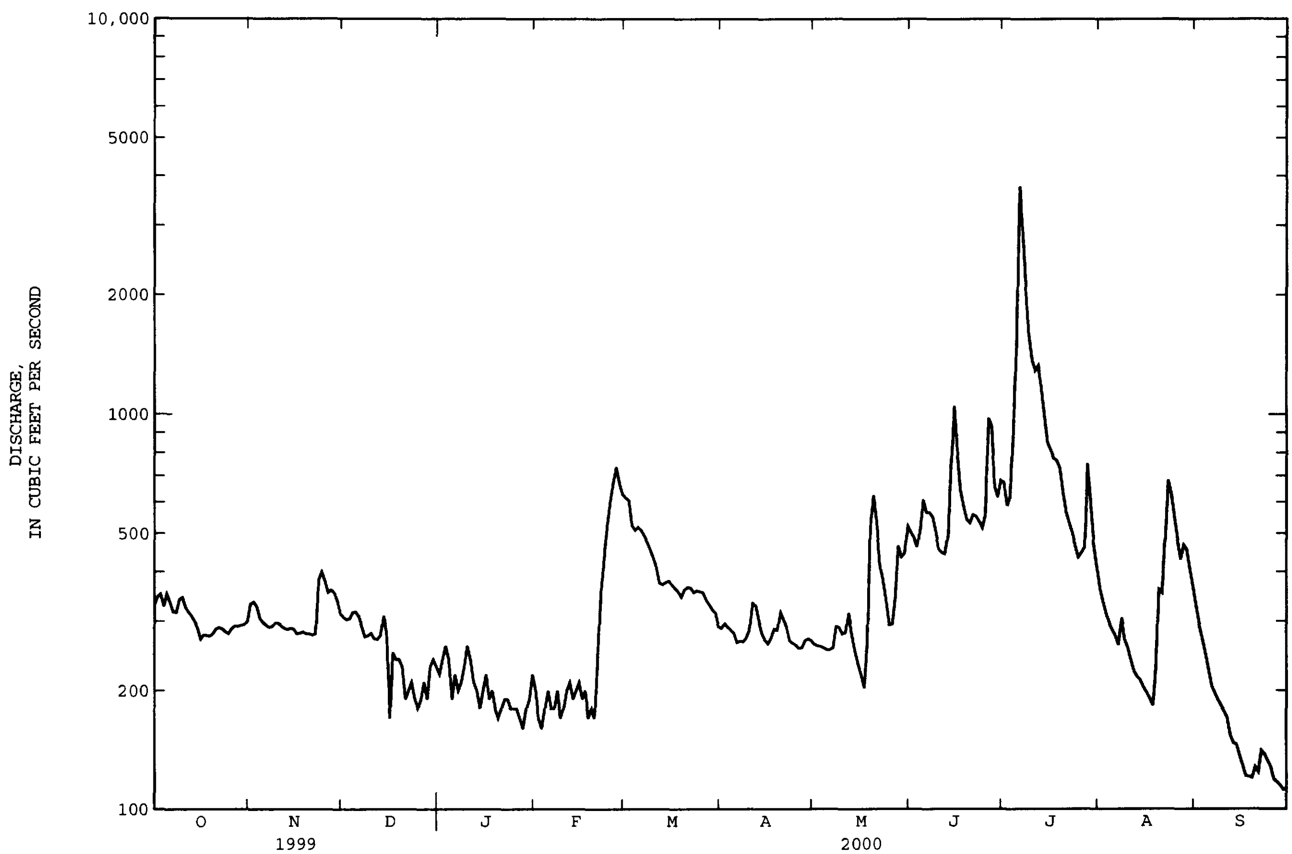
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	628	1047	801	570	1652	2118	5125	4187	5927	3604	1114	415
MAX	1142	2484	1873	1236	3205	3528	9591	7830	12460	7560	2220	694
(WY)	1997	1997	1997	1997	1997	1997	1999	1999	1998	1998	1998	1998
MIN	305	312	251	203	296	407	281	334	603	999	339	164
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000

05484650 RACCOON RIVER AT 63RD STREET, DES MOINES, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1997 - 2000	
ANNUAL TOTAL	1098503		137333			
ANNUAL MEAN	3010		375		2261	
HIGHEST ANNUAL MEAN					3352	1998
LOWEST ANNUAL MEAN					375	2000
HIGHEST DAILY MEAN	20200	May 22	3770	Jul 6	36300	Jun 16 1998
LOWEST DAILY MEAN	170	Dec 16	112	Sep 29	112	Sep 29 2000
ANNUAL SEVEN-DAY MINIMUM	196	Dec 21	120	Sep 24	120	Sep 24 2000
INSTANTANEOUS PEAK FLOW			4700	Jul 6	40300	Jun 16 1998
INSTANTANEOUS PEAK STAGE			27.52	Jul 6	40.77	Jul 11 1993
INSTANTANEOUS LOW FLOW			111	Sep 29, 30		
ANNUAL RUNOFF (AC-FT)	2179000		272400		1638000	
ANNUAL RUNOFF (CFSM)	.85		.11		.64	
ANNUAL RUNOFF (INCHES)	11.58		1.45		8.70	
10 PERCENT EXCEEDS	9360		617		5880	
50 PERCENT EXCEEDS	1250		291		860	
90 PERCENT EXCEEDS	280		180		270	

e Estimated



05484800 WALNUT CREEK AT DES MOINES, IA

LOCATION.--Lat 41°35'14", long 93°42'11", in $SW^1/_4$ $SE^1/_4$ sec.2, T.78 N., R.25 W., Polk County, Hydrologic Unit 07100006, on left bank, 25 ft downstream from bridge on 63rd Street in Des Moines, and 2.2 mi upstream from Raccoon River.

DRAINAGE AREA.--78.4 mi^2.

PERIOD OF RECORD.--October 1971 to current year.

REVISED RECORDS.--WDR IA-73-1: 1972. WDR IA-75-1: 1973-74.

GAGE.--Water-stage recorder. Datum of gage is 801.04 ft above sea level (levels by Iowa Natural Resources Council).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance published in this report as miscellaneous water quality data. U.S. National Weather Service Limited Automatic Remote Collector (LARC) at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	e3.0	4.7	e5.0	4.4	35	15	8.1	26	11	4.4	.00
2	2.8	e3.4	4.5	e5.5	4.3	23	7.7	8.0	16	33	3.9	.00
3	8.0	e3.6	6.7	e6.0	5.1	19	7.0	7.5	12	35	4.2	.13
4	4.9	e3.2	5.3	e5.5	5.0	16	6.7	7.5	126	189	3.7	.00
5	3.6	e3.2	4.3	e5.0	5.0	15	6.7	6.9	44	735	5.7	.00
6	3.0	e3.0	4.0	6.2	5.5	14	6.8	6.3	30	213	3.1	.01
7	2.9	e2.9	3.8	6.8	6.4	14	21	5.9	27	77	2.4	.00
8	2.7	3.3	3.8	6.9	6.8	13	20	46	20	49	64	.00
9	2.6	4.2	3.8	7.1	7.1	14	10	25	16	40	8.6	.00
10	2.7	4.8	3.6	7.1	7.7	9.6	32	12	14	166	4.2	.00
11	e2.7	4.1	3.6	6.0	6.7	8.4	28	7.9	28	48	2.5	.00
12	e2.6	4.2	3.7	6.2	6.3	8.3	13	54	24	66	2.1	.00
13	e2.4	4.2	3.6	5.0	7.2	7.8	8.7	9.7	123	39	26	.00
14	e2.4	4.0	4.4	4.8	7.4	7.7	8.0	5.6	122	32	4.2	5.3
15	e2.5	4.0	e3.2	5.5	9.0	7.7	8.0	4.4	46	27	2.0	.01
16	e2.3	4.6	e3.4	5.1	8.4	7.4	9.1	4.1	34	24	1.2	.00
17	e2.3	4.5	e3.0	5.5	7.4	7.0	12	4.0	26	21	1.1	.00
18	e2.3	4.7	e2.8	5.4	7.0	9.2	8.0	67	22	23	1.2	.11
19	e2.5	4.3	e2.9	5.6	e8.0	20	7.7	27	19	19	1.5	2.8
20	e2.8	4.8	e2.7	6.1	e10	12	56	12	23	18	2.7	4.1
21	e2.6	4.6	e2.5	4.6	e14	8.5	22	7.3	16	16	1.4	.83
22	e2.7	6.7	e3.0	5.3	e20	7.6	13	5.8	12	14	2.3	33
23	e3.5	102	e3.2	4.9	e30	7.1	10	5.7	35	11	4.2	1.9
24	e3.4	20	e3.0	4.2	34	17	8.8	4.4	27	10	2.7	.30
25	e3.0	10	e2.8	4.6	52	8.7	8.3	3.6	65	12	2.0	.12
26	e2.7	6.9	e3.4	3.9	40	7.1	7.9	61	50	36	1.2	.07
27	e2.7	7.9	e3.8	3.5	25	7.0	12	29	24	16	.65	.12
28	e2.7	5.6	e3.6	3.6	19	7.1	10	17	35	8.9	.60	.07
29	e2.9	4.6	e4.6	3.5	50	5.8	8.8	14	21	6.9	.24	.00
30	e3.2	4.4	e5.5	3.9	---	6.7	8.2	15	14	6.3	.00	.09
31	e3.0	---	e5.0	4.5	---	6.6	---	120	---	4.6	.00	---
TOTAL	93.9	250.7	118.2	162.8	418.7	357.3	400.4	611.7	1097	2006.7	163.99	48.96
MEAN	3.03	8.36	3.81	5.25	14.4	11.5	13.3	19.7	36.6	64.7	5.29	1.63
MAX	8.0	102	6.7	7.1	52	35	56	120	126	735	64	33
MIN	2.3	2.9	2.5	3.5	4.3	5.8	6.7	3.6	12	4.6	.00	.00
AC-FT	186	497	234	323	830	709	794	1210	2180	3980	325	97
CFSM	.04	.11	.05	.07	.18	.15	.17	.25	.47	.83	.07	.02
IN.	.04	.12	.06	.08	.20	.17	.19	.29	.52	.95	.08	.02

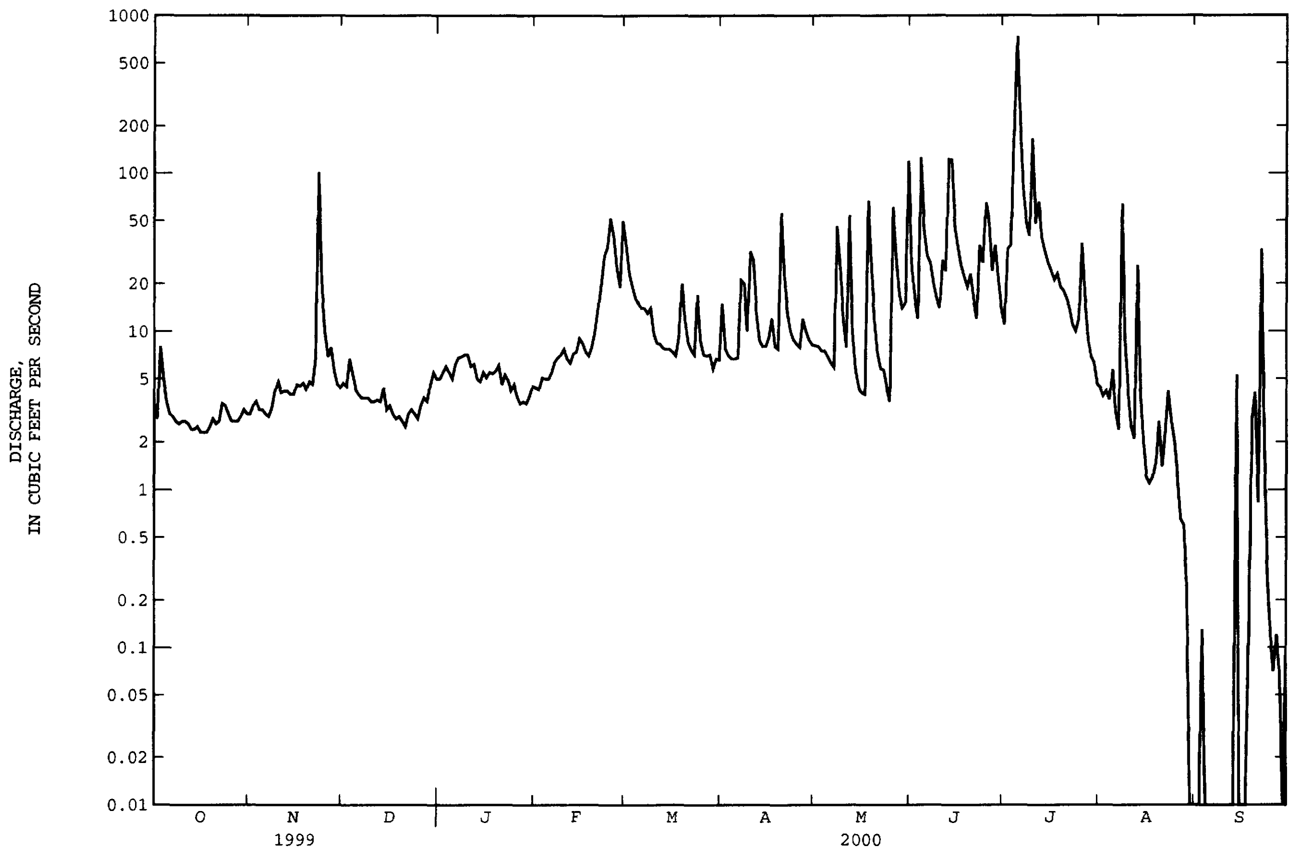
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	31.6	37.8	31.2	22.7	45.1	72.8	99.9	122	123	84.5	47.8	30.2
MAX	166	147	119	123	178	214	310	390	385	427	329	214
(WY)	1974	1973	1983	1974	1973	1990	1973	1996	1990	1993	1993	1993
MIN	1.33	.88	.17	.001	.48	3.17	2.71	6.36	7.62	2.96	4.37	.57
(WY)	1972	1977	1977	1977	1977	1981	1981	1977	1977	1985	1976	1976

05484800 WALNUT CREEK AT DES MOINES, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1972 - 2000	
ANNUAL TOTAL	23119.4		5730.35			
ANNUAL MEAN	63.3		15.7		62.4	
HIGHEST ANNUAL MEAN					158	1993
LOWEST ANNUAL MEAN					10.3	1989
HIGHEST DAILY MEAN	1450	May 21	735	Jul 5	4520	Jul 1 1973
LOWEST DAILY MEAN	2.3	Oct 16	.00	Aug 30b	.00	Jan 3 1977a
ANNUAL SEVEN-DAY MINIMUM	2.4	Oct 13	.00	Sep 7	.00	Jan 3 1977a
INSTANTANEOUS PEAK FLOW			2430	Jul 5	12500	May 10 1986
INSTANTANEOUS PEAK STAGE			11.19	Jul 5	18.32	May 10 1986
ANNUAL RUNOFF (AC-FT)	45860		11370		45230	
ANNUAL RUNOFF (CFSM)	.81		.20		.80	
ANNUAL RUNOFF (INCHES)	10.97		2.72		10.82	
10 PERCENT EXCEEDS	151		33		146	
50 PERCENT EXCEEDS	24		6.1		24	
90 PERCENT EXCEEDS	3.1		1.8		2.6	

a Many days in 1977, Aug. 21, 1994, and many days in 2000.
b Many days.
e Estimated.



05484900 RACCOON RIVER AT FLEUR DRIVE, DES MOINES, IA

LOCATION.--Lat 41°34'54", long 93°38'34", in NW$^1/_4$ NE$^1/_4$ sec.8, T.78 N., R.24 W., Polk County, Hydrologic Unit 07100006, on downstream side of Fleur Drive bridge(SW 18th St.) attached to handrail 465 ft. from right edge of bridge, 3.0 miles downstream from Walnut Creek, 2.6 miles upstream from mouth, and at mile 204.1 above mouth of Des Moines River.

DRAINAGE AREA.-- 3,625 mi^2.

PERIOD OF RECORD.-- June 1984 to current year; June 1984 to September 1996 gage-height record only.

GAGE.--Water-stage recorder. Datum of gage is 780.70 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in the report as miscellaneous water quality data. Discharges are affected by withdrawal by Des Moines Water Works. U.S. National Weather Service Limited Automatic Remote Collector (LARC) at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	317	275	286	e210	e110	512	215	318	514	901	444	223
2	328	277	284	e220	e100	502	219	296	495	871	381	198
3	354	280	290	e240	e95	440	208	265	487	971	375	179
4	346	247	295	e220	e100	431	190	308	628	1420	374	173
5	353	240	292	e190	e110	447	205	314	617	2480	388	148
6	345	244	289	e210	e100	455	237	308	592	4970	391	123
7	327	231	280	e200	e100	438	253	302	597	e3900	350	128
8	325	232	269	e210	e120	422	278	376	594	e2800	643	147
9	345	239	277	e220	e110	410	259	354	567	e2100	326	144
10	351	244	273	e220	e120	396	297	333	545	e1700	303	130
11	334	235	273	e210	e130	360	380	323	557	e1500	192	115
12	324	231	272	e190	e140	317	354	357	570	e1600	183	104
13	316	226	275	e180	e130	307	314	275	684	1140	208	98
14	287	228	274	e170	e140	308	280	249	876	1010	174	127
15	258	233	e230	e180	e150	321	260	237	1000	852	161	128
16	247	229	e150	e200	e140	311	247	231	774	809	161	85
17	256	233	e200	e180	e180	305	270	233	644	789	162	84
18	257	227	e190	e190	e160	309	275	376	587	755	183	87
19	256	238	e190	e150	e220	313	277	574	558	774	201	90
20	260	228	e180	e120	e210	319	369	640	572	665	381	114
21	264	233	e170	e130	e250	327	306	596	603	584	393	88
22	266	263	e180	e140	348	325	282	440	609	538	411	174
23	270	417	e190	e140	315	313	255	398	636	518	543	126
24	264	352	e180	e130	345	321	243	357	616	485	507	120
25	260	335	e170	e130	467	311	240	319	653	464	450	112
26	247	316	e180	e120	512	313	296	363	1040	559	411	99
27	230	317	e200	e110	559	292	320	380	1070	559	358	92
28	235	301	e190	e95	520	276	327	456	842	984	378	81
29	236	295	e210	e100	518	255	327	450	767	850	359	92
30	243	290	e230	e110	---	250	325	444	846	629	304	98
31	249	---	e220	e120	---	199	---	604	---	496	265	---
TOTAL	8950	7936	7189	5235	6499	10805	8308	11476	20140	38673	10360	3707
MEAN	289	265	232	169	224	349	277	370	671	1248	334	124
MAX	354	417	295	240	559	512	380	640	1070	4970	643	223
MIN	230	226	150	95	95	199	190	231	487	464	161	81
AC-FT	17750	15740	14260	10380	12890	21430	16480	22760	39950	76710	20550	7350
CFSM	.08	.07	.06	.05	.06	.10	.08	.10	.19	.34	.09	.03
IN.	.09	.08	.07	.05	.07	.11	.09	.12	.21	.40	.11	.04

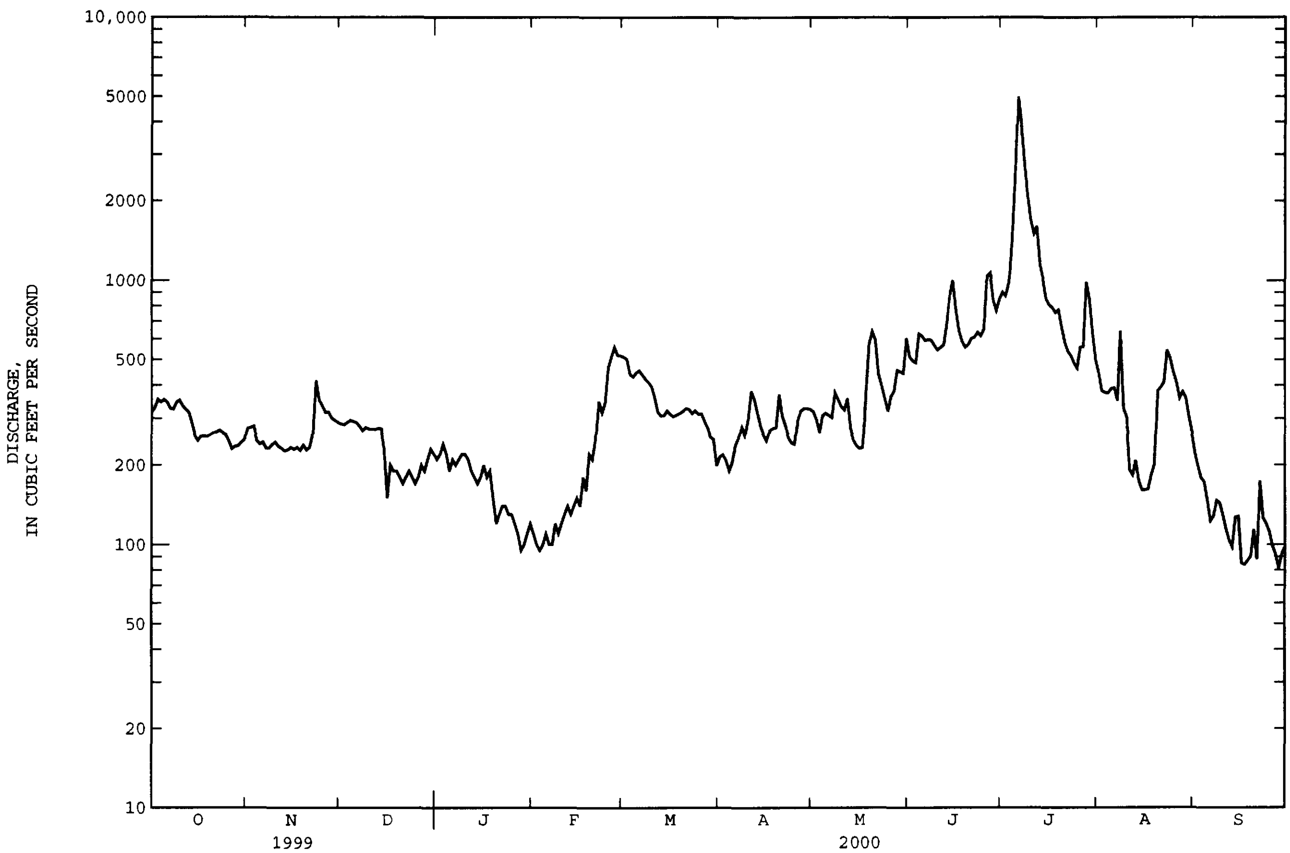
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2000, BY WATER YEAR (WY)

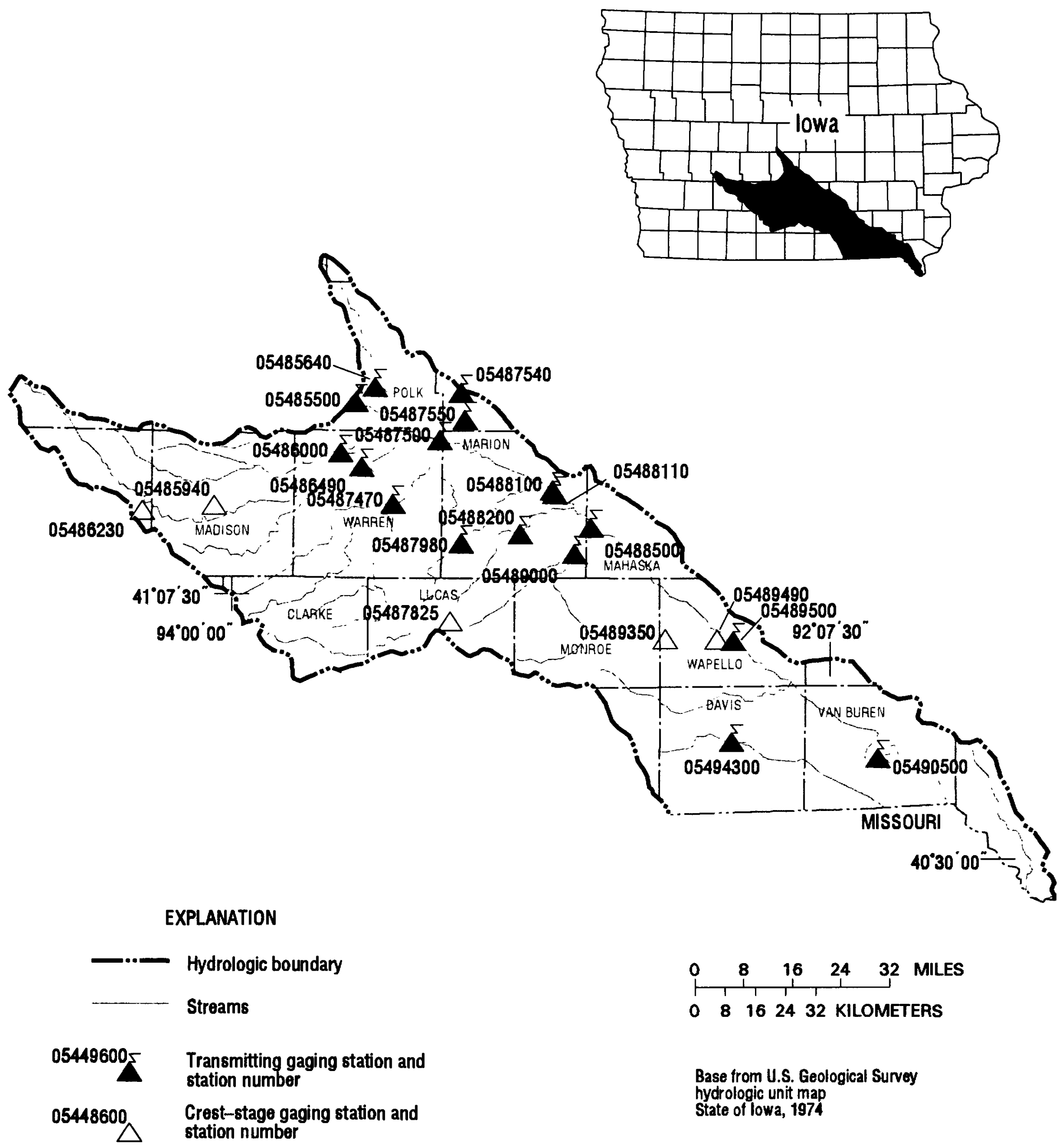
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	615	1040	780	549	1660	2114	5251	4253	6034	3625	1109	368
MAX	1139	2527	1873	1235	3280	3525	9905	7915	12570	7266	2252	664
(WY)	1997	1997	1997	1997	1997	1997	1999	1999	1998	1998	1998	1998
MIN	289	265	232	169	224	349	277	370	671	1248	334	124
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000

05484900 RACCOON RIVER AT FLEUR DRIVE, DES MOINES, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1997 - 2000	
ANNUAL TOTAL	1114704		139278			
ANNUAL MEAN	3054		381		2278	
HIGHEST ANNUAL MEAN					3350	1998
LOWEST ANNUAL MEAN					381	2000
HIGHEST DAILY MEAN	20400	May 22	4970	Jul 6	40100	Jun 16 1998
LOWEST DAILY MEAN	150	Dec 16	81	Sep 28	81	Sep 28 2000
ANNUAL SEVEN-DAY MINIMUM	179	Dec 20	97	Sep 15	97	Sep 15 2000
INSTANTANEOUS PEAK FLOW			5760	Jul 6		
INSTANTANEOUS PEAK STAGE			7.46	Jul 6	26.80	Jul 11 1993
INSTANTANEOUS LOW FLOW			56	Sep 18		
ANNUAL RUNOFF (AC-FT)	2211000		276300		1650000	
ANNUAL RUNOFF (CFSM)	.84		.10		.63	
ANNUAL RUNOFF (INCHES)	11.44		1.43		8.54	
10 PERCENT EXCEEDS	9530		631		5840	
50 PERCENT EXCEEDS	1240		280		850	
90 PERCENT EXCEEDS	240		128		232	

e Estimated




Iowa
05485640
05487540
POLK
05485500
05487550
05487500
MARION
05486000
05488110
05486490
05488100
05485940
05487470
WARREN
05488200
MADISON
05486230
05487980
05488500
MAHASKA
05489000
41°07'30"
LUCAS
05489490
05489500
CLARKE
05487825
94°00'00"
05489350
92°07'30"
MONROE
WAPELLO
DAVIS
VAN BUREN
05494300
05490500
MISSOURI
40°30'00"
EXPLANATION
Hydrologic boundary
Streams
05449600
Transmitting gaging station and station number
05448600
Crest–stage gaging station and station number
0 8 16 24 32 MILES
0 8 16 24 32 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05485500	Des Moines River blw Raccoon River at Des Moines, IA	280
05485640	Fourmile Creek at Des Moines, IA	282
05486000	North River near Norwalk, IA	284
05486490	Middle River near Indianola, IA	286
05487470	South River near Ackworth, IA	288
05487500	Des Moines River near Runnells, IA	290
05487540	Walnut Creek near Prairie City, IA	292
05487550	Walnut Creek near Vandalia, IA	298
05487980	White Breast Creek near Dallas, IA	304
05488100	Lake Red Rock near Pella, IA	306
05488110	Des Moines River near Pella, IA	308
05488200	English Creek near Knoxville, IA	310
05488500	Des Moines River near Tracy, IA	312
05489000	Cedar Creek near Bussey, IA	314
05489500	Des Moines River at Ottumwa, IA	316
05490500	Des Moines River at Keosauqua, IA	318
05494300	Fox River at Bloomfield, IA	320

Crest Stage Gaging Stations

05485940	Cedar Creek Tributary No. 2 near Winterset, IA	327
05486230	Bush Branch Creek near Stanzel, IA	327
05487825	Little White Breast Creek Tributary near Chariton, IA	327
05489350	South Avery Creek near Blakesburg, IA	328
05489490	Bear Creek at Ottumwa, IA	328

05485500 DES MOINES RIVER BELOW RACCOON RIVER AT DES MOINES, IA

LOCATION.--Lat 41°34'40", long 93°36'19", in SW $^1/_4$ NE $^1/_4$ sec.10, T.78 N., R.24 W., Polk County, Hydrologic Unit 07100008, on left bank 40 ft downstream from bridge on Southeast 6th Street at Des Moines, 0.5 mi downstream from Raccoon River and Scott Street Dam, and at mile 201.0.

DRAINAGE AREA.--9,879 mi^2.

PERIOD OF RECORD.--April 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1943 (P).

GAGE.--Water-stage recorder. Datum of gage is 762.52 ft above sea level. Prior to Oct. 1, 1951, and Oct. 1, 1953 to Sept. 30, 1959, water-stage recorder upstream of Scott Street Dam, 0.8 mi upstream at datum 11.16 ft higher. Oct. 1, 1951 to Sept. 30, 1953, Oct. 1, 1959 to April 24, 1997 water-stage recorder .3 mi downstream at current datum, and Oct. 1, 1959 to Sept. 30, 1961, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Des Moines municipal water supply is taken from infiltration galleries on Raccoon River, 3.5 mi upstream from station. At times, water is pumped from Raccoon River into recharge basins or into Waterworks Reservoir, capacity 4,800 acre-ft. Effluent from sewage treatment plant enters the river 2.3 mi downstream from station. Net effect of diversions not known. Flow regulated by Saylorville Lake (station 05481630) 12.7 mi upstream, since Apr. 12, 1977. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and data collection platform, U.S. National Weather Service Limited Automatic Remote Collector (LARC), and U.S. Geological Survey data logger at station.

COOPERATION.--Average monthly pumpage from galleries provided by Des Moines Water Works.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 116,000 ft^3/s July 11,1993, gage height, 34.29; minimum daily discharge, 26 ft^3/s Jan. 16-29, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1893, that of June 26, 1947, site and datum then in use. Flood of May 31, 1903, reached a stage of 20.9 ft, from flood profile, at Scott Street site and datum, by office of Des Moines City Engineer.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	456	e480	487	e470	e300	e700	539	707	3370	2490	1580	869
2	449	461	483	e490	314	e680	536	e750	3280	2420	1510	770
3	483	482	496	530	297	974	521	e650	2610	2470	1490	599
4	470	437	498	492	306	1430	502	e550	2050	3050	1380	582
5	470	434	494	492	303	1420	502	e700	1940	4630	1120	545
6	465	437	505	458	309	1320	480	e650	2230	7820	1140	525
7	445	429	529	473	305	1100	529	e600	2950	7290	1150	507
8	441	429	516	468	315	1110	542	e650	3080	5670	1430	489
9	447	439	508	483	343	1120	510	e700	3030	4250	1370	484
10	465	440	511	486	353	1100	584	e700	2710	4310	1280	475
11	442	437	514	432	340	883	685	e600	2720	4570	925	459
12	434	433	513	e420	364	832	610	e600	2620	7770	926	431
13	422	429	525	e400	369	807	571	e500	2850	10800	991	391
14	416	426	559	e400	344	808	533	e460	4150	11200	887	328
15	442	429	558	e420	370	830	554	e440	6050	8770	872	298
16	432	436	415	e430	370	784	672	e420	7680	7060	882	257
17	428	437	e400	e410	391	718	676	e420	7720	6140	869	246
18	425	429	e380	e430	322	626	695	560	6730	6100	868	226
19	375	434	e390	415	381	636	669	932	5730	6070	888	239
20	382	430	e370	408	360	622	993	1200	4880	5760	1380	292
21	440	435	e340	342	445	630	1140	1280	4400	5170	1960	290
22	408	454	e320	353	524	677	942	1180	4400	4410	2040	465
23	422	883	e390	404	e550	815	590	1440	4500	3760	2700	342
24	431	607	e390	417	e570	832	564	2070	4520	3460	e1700	323
25	428	581	e410	375	e750	800	556	2060	4290	3570	e1550	304
26	428	545	e410	412	e700	798	511	1940	4480	3650	1560	296
27	431	546	e430	363	e750	756	548	1890	4080	3360	e1400	298
28	e440	542	e420	305	e700	720	595	2360	2940	2940	e1340	289
29	e460	528	e460	e270	e700	743	745	2670	2520	2380	1230	283
30	e440	493	e480	e270	---	741	724	2680	2480	2650	1120	284
31	e460	---	e470	e280	---	660	---	3560	---	2390	902	---
TOTAL	13577	14402	14171	12798	12445	26672	18818	35919	116990	156380	40440	12186
MEAN	438	480	457	413	429	860	627	1159	3900	5045	1305	406
MAX	483	883	559	530	750	1430	1140	3560	7720	11200	2700	869
MIN	375	426	320	270	297	622	480	420	1940	2380	868	226
AC-FT	26930	28570	28110	25380	24680	52900	37330	71250	232000	310200	80210	24170
CFSM	.04	.05	.05	.04	.04	.09	.06	.12	.39	.51	.13	.04
IN.	.05	.05	.05	.05	.05	.10	.07	.14	.44	.59	.15	.05

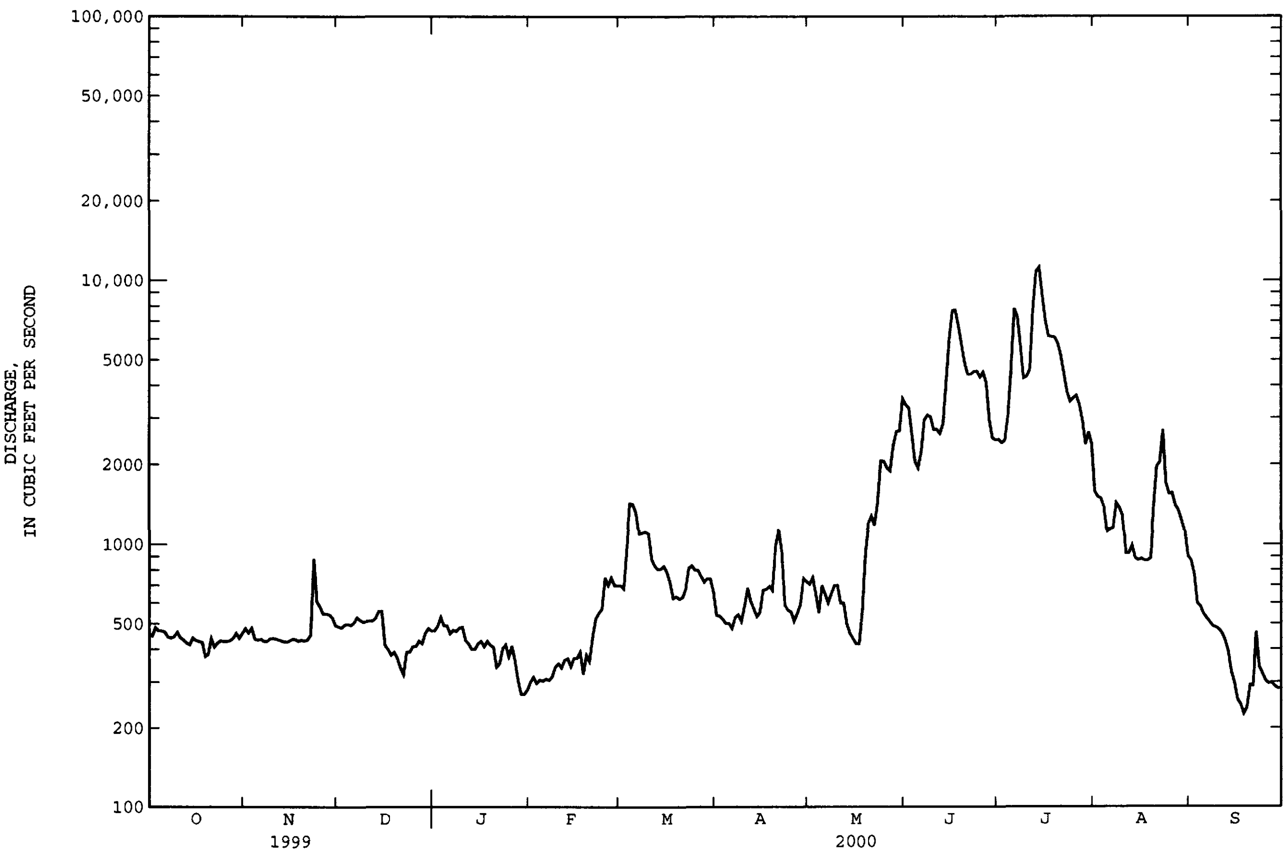
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3162	3550	3019	1847	3277	8090	11830	11630	13000	11170	5233	3545
MAX	15060	10610	9045	6439	12400	23530	27620	28190	35250	55960	26050	21430
(WY)	1987	1993	1983	1983	1984	1983	1993	1993	1984	1993	1993	1993
MIN	438	363	342	310	343	560	627	1159	1716	739	441	406
(WY)	2000	1990	1990	1981	1978	1981	2000	2000	1988	1988	1988	2000

05485500 DES MOINES RIVER BELOW RACCOON RIVER AT DES MOINES, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1978 - 2000a	
ANNUAL TOTAL	2757844		474798			
ANNUAL MEAN	7556		1297		6622	
HIGHEST ANNUAL MEAN					19180	1993
LOWEST ANNUAL MEAN					1036	1989
HIGHEST DAILY MEAN	32700	May 22	11200	Jul 14	113000	Jul 11 1993
LOWEST DAILY MEAN	320	Dec 22	226	Sep 18	200	Mar 12 1978b
ANNUAL SEVEN-DAY MINIMUM	369	Dec 18	264	Sep 15	236	Mar 7 1978
INSTANTANEOUS PEAK FLOW			11800	Jul 14	116000	Jul 11 1993
INSTANTANEOUS PEAK STAGE			17.16	Jul 14	34.29	Jul 11 1993
ANNUAL RUNOFF (AC-FT)	5470000		941800		4798000	
ANNUAL RUNOFF (CFSM)	.76		.13		.67	
ANNUAL RUNOFF (INCHES)	10.38		1.79		9.11	
10 PERCENT EXCEEDS	22900		3490		18200	
50 PERCENT EXCEEDS	3300		549		3410	
90 PERCENT EXCEEDS	434		353		570	

a Post regulation.
b Also Mar. 13, 1978.
e Estimated.



05485640 FOURMILE CREEK AT DES MOINES, IA

LOCATION.--Lat 41°36'50", long 93°32'43", in NE1/4 NE1/4 sec.32, T.79 N., R.23 W., Polk County, Hydrologic Unit 07100008, on right bank 20 ft downstream from bridge on Easton Blvd., 4.4 mi downstream from Muchikinock Creek, and 5.0 mi upstream from Des Moines River.

DRAINAGE AREA.--92.7 mi^2.

PERIOD OF RECORD.--October 1971 to current year.

REVISED RECORDS.--WDR IA-75-1: 1974 (P).

GAGE.--Water-stage recorder. Datum of gage is 795.87 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. National Weather Service Limited Automatic Remote Collector (LARC) at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.8	7.8	8.4	e12	e6.0	43	14	9.7	411	54	12	5.0
2	7.6	6.0	13	e13	e5.5	26	13	8.6	248	52	11	4.6
3	9.3	6.0	19	e13	e6.0	25	13	9.1	171	57	10	4.9
4	9.8	7.5	21	e13	e6.5	24	12	8.7	168	153	11	4.0
5	9.1	6.6	20	e11	e7.0	23	12	8.9	120	120	11	4.1
6	8.8	6.6	19	e12	e6.0	21	12	9.2	97	78	e8.7	3.9
7	7.9	6.4	e16	e11	e5.5	20	16	8.3	82	61	e8.3	3.9
8	9.0	7.1	e14	e12	e8.0	20	20	39	71	54	37	4.2
9	10	6.5	e13	e15	e9.5	20	15	20	59	53	12	3.4
10	9.1	6.9	e11	e15	e9.0	19	18	15	51	128	9.2	3.2
11	7.7	8.0	e10	e12	e9.5	17	22	12	101	118	7.6	4.5
12	8.0	11	e9.0	e11	e8.0	17	13	17	206	78	7.5	4.2
13	7.6	14	e9.0	e10	e7.5	17	10	12	265	58	21	4.0
14	7.5	15	e9.0	e8.0	e8.0	17	11	11	766	45	10	4.3
15	9.6	16	e10	e9.0	e9.0	17	12	11	333	35	7.2	4.0
16	9.3	17	e10	e9.0	e10	16	14	10	204	31	6.7	4.5
17	10	19	e9.5	e8.0	e12	15	17	11	127	29	6.5	4.6
18	9.2	21	e9.0	e8.0	e15	16	13	95	102	27	6.8	4.2
19	7.8	26	e9.0	e8.0	e20	21	14	91	88	e27	6.0	4.5
20	9.0	24	e9.0	e7.0	e26	18	40	41	93	29	6.4	4.6
21	10	9.0	e10	e7.0	37	16	21	29	81	26	6.6	4.3
22	11	10	e11	e7.5	57	14	13	24	72	25	7.0	18
23	7.4	51	e11	e8.5	43	15	12	22	73	23	7.1	8.1
24	8.8	14	e10	e8.0	41	17	11	22	205	22	6.6	6.1
25	8.8	9.4	e9.5	e7.0	50	16	11	20	109	22	5.7	6.0
26	9.7	8.0	e11	e7.0	47	14	9.9	45	102	41	5.6	6.0
27	8.9	7.9	e12	e6.0	36	14	10	54	74	27	5.7	5.2
28	9.4	7.8	e12	e6.0	29	12	10	39	77	22	5.1	3.2
29	9.2	7.4	e12	e5.5	33	13	9.5	34	72	22	5.3	3.1
30	7.1	7.4	e13	e6.0	---	12	9.8	36	63	20	5.0	2.7
31	11	---	e12	e6.5	---	12	---	1320	---	e14	5.2	---
TOTAL	276.4	370.3	371.4	292.0	567.0	567	428.2	2092.5	4691	1551	280.8	147.3
MEAN	8.92	12.3	12.0	9.42	19.6	18.3	14.3	67.5	156	50.0	9.06	4.91
MAX	11	51	21	15	57	43	40	1320	766	153	37	18
MIN	7.1	6.0	8.4	5.5	5.5	12	9.5	8.3	51	14	5.0	2.7
AC-FT	548	734	737	579	1120	1120	849	4150	9300	3080	557	292
CFSM	.10	.13	.13	.10	.21	.20	.15	.73	1.69	.54	.10	.05
IN.	.11	.15	.15	.12	.23	.23	.17	.84	1.88	.62	.11	.06

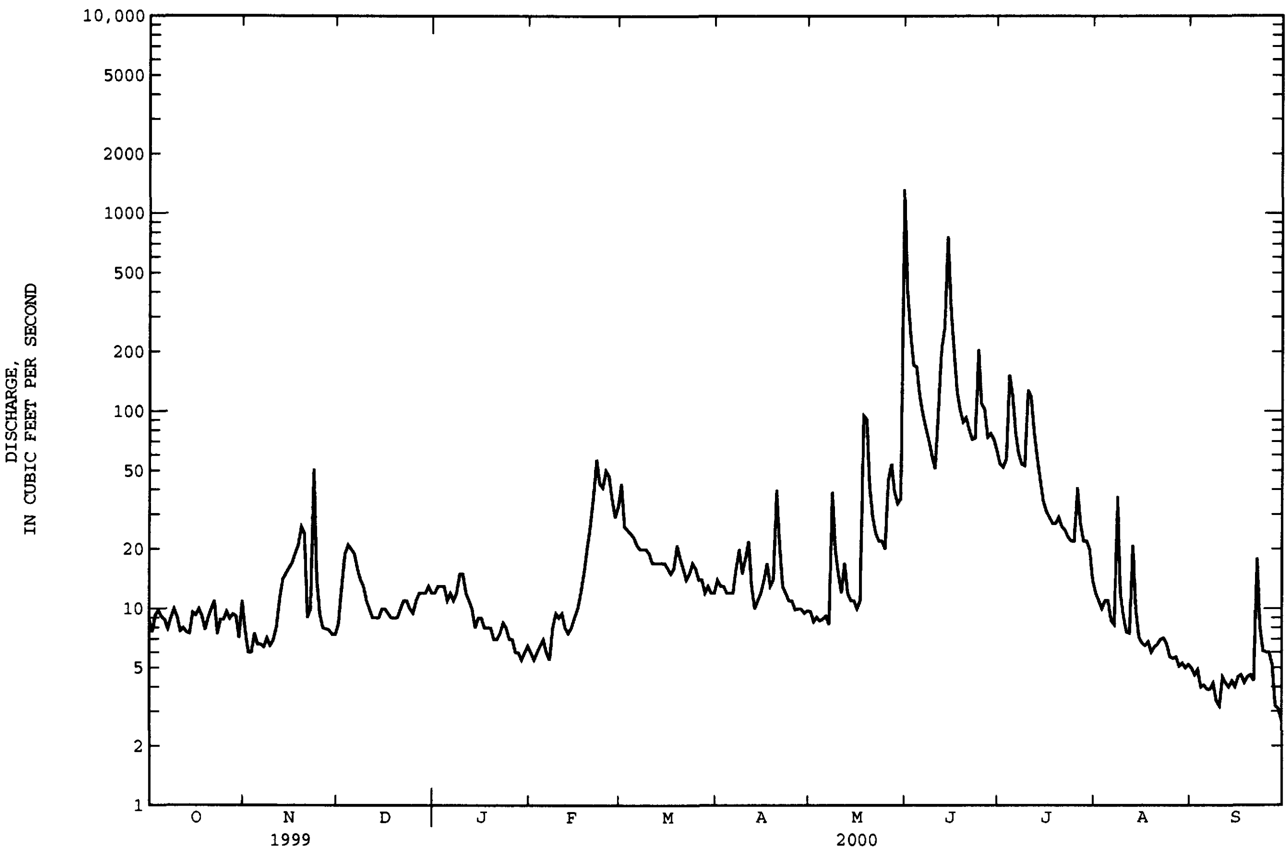
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	40.5	45.7	34.9	24.0	50.0	97.4	122	146	160	104	49.6	36.5
MAX	258	317	124	118	206	292	354	462	505	607	363	270
(WY)	1987	1984	1983	1974	1973	1979	1973	1974	1998	1993	1993	1993
MIN	1.36	1.57	.25	.001	.55	4.04	3.67	6.67	.73	.074	1.66	1.37
(WY)	1989	1977	1977	1977	1977	1981	1981	1977	1977	1977	1988	1988

05485640 FOURMILE CREEK AT DES MOINES, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1972 - 2000	
ANNUAL TOTAL	26009.2		11634.9			
ANNUAL MEAN	71.3		31.8		75.9	
HIGHEST ANNUAL MEAN					204	1993
LOWEST ANNUAL MEAN					7.97	1981
HIGHEST DAILY MEAN	1100	May 21	1320	May 31	3570	Jun 9 1974
LOWEST DAILY MEAN	6.0	Nov 2	2.7	Sep 30	.00	Jan 2 1977a
ANNUAL SEVEN-DAY MINIMUM	6.6	Nov 2	3.8	Sep 4	.00	Jan 2 1977a
INSTANTANEOUS PEAK FLOW			2100	May 31	5600	Jun 18 1998
INSTANTANEOUS PEAK STAGE			11.73	May 31	15.00	Jun 18 1998
INSTANTANEOUS LOW FLOW			2.1	Sep 11, 30		
ANNUAL RUNOFF (AC-FT)	51590		23080		55000	
ANNUAL RUNOFF (CFSM)	.77		.34		.82	
ANNUAL RUNOFF (INCHES)	10.44		4.67		11.13	
10 PERCENT EXCEEDS	167		65		179	
50 PERCENT EXCEEDS	32		12		27	
90 PERCENT EXCEEDS	8.3		6.0		2.9	

a No flow many days in 1977.
e Estimated.



05486000 NORTH RIVER NEAR NORWALK, IA

LOCATION.--Lat 41°27'25", long 93°39'10", in $NW^1/_4$ $SW^1/_4$ sec.20, T.77 N., R.24 W., Warren County, Hydrologic Unit 07100008, on left bank 10 ft downstream from bridge on county highway R57, 1.7 mi southeast of Norwalk, 5.2 mi upstream from Middle Creek, and 6.2 mi downstream from Badger Creek.

DRAINAGE AREA.--349 mi^2.

PERIOD OF RECORD.--February 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1946. WDR IA-76-1: 1975 (P).

GAGE.--Water-stage recorder. Datum of gage is 788.45 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to June 12, 1946, nonrecording gage at same site and datum. Jan. 7 to Oct. 11, 1960, nonrecording gage at site 2.1 mi upstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	e5.5	7.9	e7.5	e4.4	42	7.2	8.1	8.1	115	21	e4.6
2	11	e5.0	7.8	e9.0	e4.6	38	7.3	8.2	7.5	87	12	e4.0
3	9.6	e5.5	8.0	e9.5	e4.8	33	7.1	7.8	7.0	91	8.3	e3.6
4	9.3	e6.5	8.0	e8.5	e5.0	41	7.3	7.3	8.8	99	7.6	e3.4
5	7.5	e5.5	8.0	e7.0	e4.6	33	7.3	7.0	16	298	7.3	e3.2
6	6.2	e6.5	8.1	e8.0	e4.8	27	7.0	6.8	30	666	7.1	e2.9
7	5.6	e8.0	8.2	e6.5	e5.0	22	7.0	6.6	15	516	6.9	e3.0
8	5.9	e7.0	8.3	e7.0	e5.5	18	7.3	6.8	7.9	283	20	e3.2
9	6.2	e6.5	8.3	e7.5	e6.0	15	7.4	7.0	6.5	194	7.5	e3.4
10	6.2	e6.0	8.6	e8.0	e7.0	13	8.5	7.2	5.9	145	7.0	e3.8
11	e6.0	e6.0	8.5	e7.0	e6.5	13	16	7.6	5.8	115	5.9	e4.0
12	e5.5	e6.5	8.4	e6.5	e6.0	9.8	26	7.4	8.1	115	5.6	e3.6
13	e5.0	e7.5	8.6	e6.0	e6.5	8.6	36	7.1	74	112	5.9	e3.4
14	e6.0	e7.0	9.3	e5.5	e7.0	8.5	55	13	242	89	5.2	e3.6
15	e6.5	e7.5	8.7	e6.0	e7.5	8.6	37	13	182	65	4.7	e3.2
16	e6.0	e7.5	10	e6.5	e7.0	8.4	27	7.3	156	52	4.6	e3.4
17	e6.5	e8.0	11	e6.0	e6.5	8.3	23	7.4	85	62	4.2	e3.6
18	e7.5	e8.5	e6.0	e6.5	e6.0	8.6	21	8.4	46	69	4.2	4.1
19	e6.5	8.0	e7.0	e5.5	e6.5	9.0	21	8.1	28	80	4.9	3.4
20	e7.0	8.5	e5.5	e4.8	e7.5	9.2	44	7.1	17	113	5.3	3.6
21	e6.5	8.8	e4.4	e5.0	9.9	9.3	74	8.9	10	72	5.8	3.3
22	e5.5	16	e5.0	e5.5	20	9.3	63	14	8.2	46	6.1	4.7
23	e5.0	39	e6.0	e5.5	31	9.1	41	8.4	13	32	6.6	4.8
24	e5.5	44	e5.0	e5.0	53	9.6	31	7.9	76	20	e6.0	3.7
25	e6.0	34	e4.6	e5.5	74	9.4	21	6.8	154	13	e5.5	3.2
26	e5.5	28	e5.5	e5.0	111	8.8	14	6.8	559	9.0	e5.0	2.6
27	e6.0	25	e6.5	e4.6	91	8.3	10	6.9	812	8.3	e5.5	2.6
28	e5.5	17	e6.0	e4.4	59	7.9	9.1	7.6	324	209	e6.0	2.5
29	e6.0	10	e7.5	e4.8	51	7.8	8.9	7.9	206	134	e5.5	1.9
30	e6.5	8.4	e9.0	e5.0	---	7.4	8.5	7.2	153	60	e5.0	1.7
31	e6.0	---	e8.0	e4.2	---	7.3	---	8.1	---	33	e4.4	---
TOTAL	206.0	367.2	231.7	193.3	618.6	468.2	659.9	249.7	3271.8	4002.3	216.6	102.0
MEAN	6.65	12.2	7.47	6.24	21.3	15.1	22.0	8.05	109	129	6.99	3.40
MAX	12	44	11	9.5	111	42	74	14	812	666	21	4.8
MIN	5.0	5.0	4.4	4.2	4.4	7.3	7.0	6.6	5.8	8.3	4.2	1.7
AC-FT	409	728	460	383	1230	929	1310	495	6490	7940	430	202
CFSM	.02	.04	.02	.02	.06	.04	.06	.02	.31	.37	.02	.01
IN.	.02	.04	.02	.02	.07	.05	.07	.03	.35	.43	.02	.01

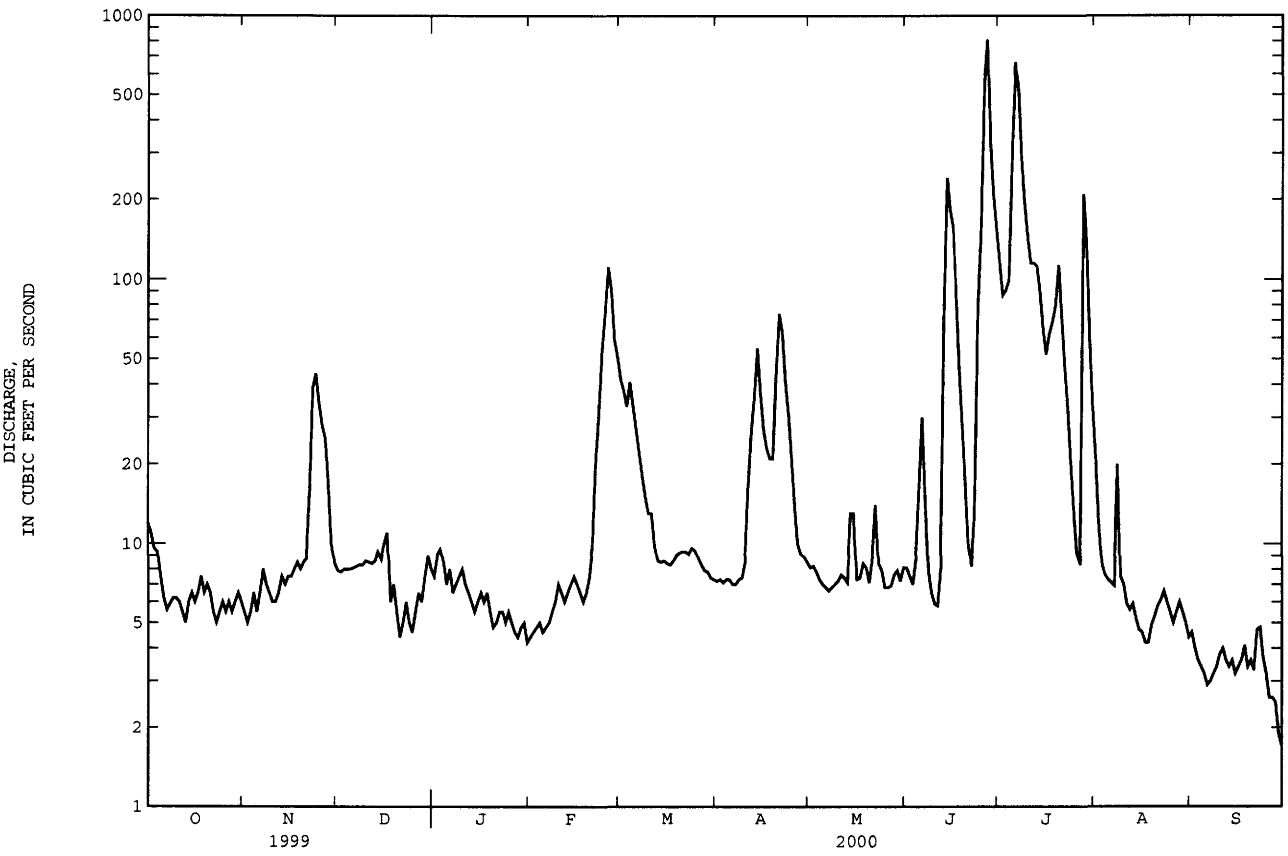
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	78.0	102	75.3	78.1	161	333	351	359	383	196	112	92.2
MAX	593	747	567	739	911	1041	1401	1699	3260	1722	1185	1007
(WY)	1987	1973	1993	1973	1973	1965	1973	1996	1947	1993	1993	1993
MIN	.20	.37	.36	.38	3.21	3.90	1.22	3.71	1.58	1.10	.21	.26
(WY)	1950	1956	1956	1954	1956	1954	1956	1967	1977	1977	1968	1957

05486000 NORTH RIVER NEAR NORWALK, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1941 - 2000	
ANNUAL TOTAL	92832.1		10587.3			
ANNUAL MEAN	254		28.9		193	
HIGHEST ANNUAL MEAN					709	1993
LOWEST ANNUAL MEAN					8.08	1968
HIGHEST DAILY MEAN	2870	May 24	812	Jun 27	21600	Jun 13 1947
LOWEST DAILY MEAN	4.4	Sep 25	1.7	Sep 30	.00	Jul 20 1954a
ANNUAL SEVEN-DAY MINIMUM	4.7	Sep 19	2.6	Sep 24	.00	Jul 25 1954a
INSTANTANEOUS PEAK FLOW			1040	Jun 27	32000	Jun 13 1947b
INSTANTANEOUS PEAK STAGE			13.75	Jun 27	25.30	Jun 13 1947c
INSTANTANEOUS LOW FLOW			1.5	Sep 29	.00	Jul 20 1954
ANNUAL RUNOFF (AC-FT)	184100		21000		140000	
ANNUAL RUNOFF (CFSM)	.73		.083		.55	
ANNUAL RUNOFF (INCHES)	9.89		1.13		7.53	
10 PERCENT EXCEEDS	699		66		444	
50 PERCENT EXCEEDS	74		7.5		45	
90 PERCENT EXCEEDS	6.0		4.6		2.4	

a Many days 1954-58.
b From rating curve extended above 9,000 ft^3/s on basis of velocity-area studies.
c From floodmark.
e Estimated.



05486490 MIDDLE RIVER NEAR INDIANOLA, IA

LOCATION.--Lat 41°25'27", long 93°35'09", in $SW^1/_4$ $SE^1/_4$ sec.35, T.77 N., R.24 W., Warren County, Hydrologic Unit 07100008, on right bank 10 ft downstream from bridge on county highway, 0.4 mi upstream from Cavitt Creek, 1.5 mi upstream from bridge on U.S. Highway 69, and 4.6 mi northwest of Indianola.

DRAINAGE AREA.--503 mi^2.

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940 (M), 1941, 1944, 1946, 1949 (M).

GAGE.--Water-stage recorder. Datum of gage is 776.15 ft above sea level (U.S. Army Corps of Engineers bench mark). Prior to June 11, 1946, June 9, 1947 to Nov. 23, 1948, and Sept. 8, 1951 to Oct. 30, 1952, nonrecording gage; and June 11, 1946 to June 8, 1947 (destroyed by flood), Nov. 24, 1948 to Sept. 7, 1951, Oct. 31, 1952 to Sept. 30, 1962, water-stage recorder at site 1.6 mi downstream at datum 2.81 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	18	21	e19	e11	48	23	27	23	143	52	11
2	30	17	21	e22	e12	41	23	25	19	118	48	11
3	28	17	21	e24	e14	40	22	24	16	160	44	11
4	28	17	20	e21	e15	46	22	23	24	147	42	10
5	26	17	20	e18	e13	40	21	22	24	842	39	9.7
6	25	17	20	e20	e14	36	20	20	19	996	36	9.2
7	24	17	23	e17	e15	34	21	20	16	396	34	8.9
8	23	16	23	e18	e18	32	21	21	15	292	48	8.7
9	24	16	23	e20	e20	30	21	23	14	201	38	8.4
10	23	18	22	e23	e22	29	22	23	14	159	33	8.2
11	22	17	22	e21	e20	28	29	23	15	134	30	7.7
12	22	16	23	e19	e18	27	27	21	316	154	28	7.4
13	22	16	25	e18	e21	27	25	19	132	124	e28	7.0
14	20	16	26	e16	e23	27	32	18	532	107	e26	6.9
15	20	16	24	e18	e30	26	32	18	323	99	24	7.5
16	21	16	e26	e20	e28	25	30	17	130	108	21	6.4
17	19	16	e21	e17	e25	24	30	18	107	102	20	6.2
18	21	16	e14	e18	e23	25	29	19	73	102	19	5.9
19	21	16	e18	e15	e25	27	27	18	59	140	18	5.8
20	20	16	e14	e14	e28	28	194	17	52	130	18	6.4
21	20	17	e11	e16	e32	28	195	16	47	100	17	5.9
22	20	19	e13	e18	e40	29	85	16	43	81	17	10
23	19	31	e15	e16	49	28	57	21	73	71	17	10
24	19	32	e13	e15	54	28	43	18	228	64	16	8.6
25	19	31	e12	e17	66	26	36	16	321	61	15	7.6
26	18	32	e14	e15	99	25	32	18	3370	59	15	6.4
27	20	31	e16	e13	77	24	31	20	915	56	14	5.5
28	19	28	e15	e11	78	23	31	20	497	56	14	5.5
29	18	24	e19	e12	57	24	29	19	277	83	13	5.1
30	18	21	e23	e14	---	24	27	18	191	76	13	4.7
31	17	---	e21	e10	---	23	---	21	---	59	12	---
TOTAL	679	597	599	535	947	922	1237	619	7885	5420	809	232.6
MEAN	21.9	19.9	19.3	17.3	32.7	29.7	41.2	20.0	263	175	26.1	7.75
MAX	33	32	26	24	99	48	195	27	3370	996	52	11
MIN	17	16	11	10	11	23	20	16	14	56	12	4.7
MED	21	17	21	18	23	28	29	20	66	108	21	7.6
AC-FT	1350	1180	1190	1060	1880	1830	2450	1230	15640	10750	1600	461
CFSM	.04	.04	.04	.03	.06	.06	.08	.04	.52	.35	.05	.02
IN.	.05	.04	.04	.04	.07	.07	.09	.05	.58	.40	.06	.02

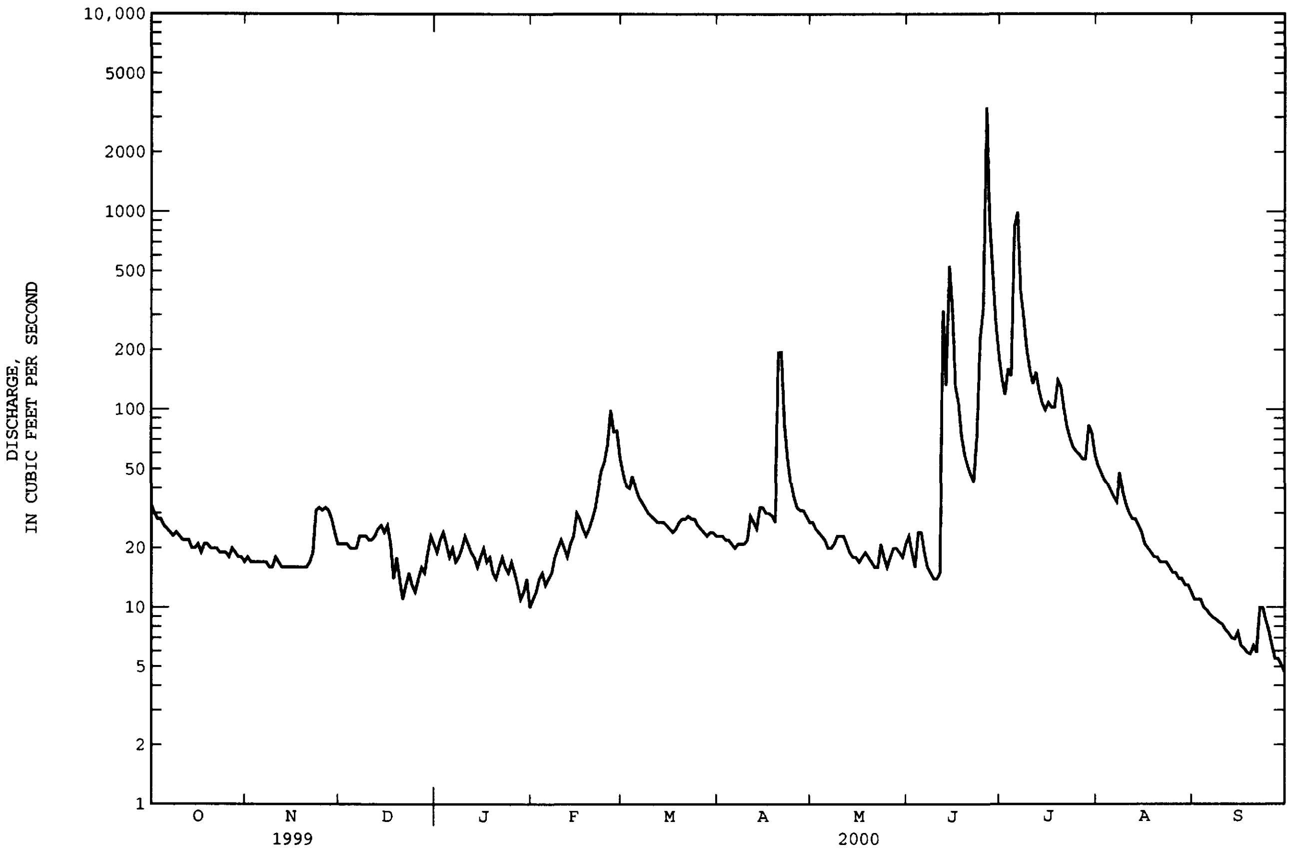
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	114	135	116	105	232	465	494	513	513	278	168	175
MAX	928	961	1070	646	1415	1417	1983	2053	4094	3121	1419	1460
(WY)	1974	1973	1983	1973	1973	1962	1973	1996	1947	1993	1993	1992
MIN	4.28	2.80	1.62	1.02	4.68	7.35	4.81	10.1	3.81	5.20	4.47	3.92
(WY)	1969	1956	1956	1977	1977	1954	1956	1956	1977	1977	1968	1968

05486490 MIDDLE RIVER NEAR INDIANOLA, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1941 - 2000	
ANNUAL TOTAL	126264		20481.6			
ANNUAL MEAN	346		56.0		275	
HIGHEST ANNUAL MEAN					1006	1993
LOWEST ANNUAL MEAN					17.8	1968
HIGHEST DAILY MEAN	6050	Apr 16	3370	Jun 26	21400	Jun 13 1947
LOWEST DAILY MEAN	11	Dec 21	4.7	Sep 30	.11	Jul 2 1977
ANNUAL SEVEN-DAY MINIMUM	13	Dec 20	6.2	Sep 24	.51	Jun 29 1977
INSTANTANEOUS PEAK FLOW			5210	Jun 26	34000	Jun 13 1947
INSTANTANEOUS PEAK STAGE			16.41	Jun 26	28.27	Jun 13 1947a
INSTANTANEOUS LOW FLOW			4.4	Sep 30		
ANNUAL RUNOFF (AC-FT)	250400		40630		199500	
ANNUAL RUNOFF (CFSM)	.69		.11		.55	
ANNUAL RUNOFF (INCHES)	9.34		1.51		7.44	
10 PERCENT EXCEEDS	891		99		610	
50 PERCENT EXCEEDS	90		22		71	
90 PERCENT EXCEEDS	19		12		8.8	

a From floodmark.
e Estimated.



05487470 SOUTH RIVER NEAR ACKWORTH, IA

LOCATION.--Lat 41°20'14", long 93°29'10", in $SE^1/_4$ $SE^1/_4$ sec.34, T.76 N., R.23 W., Warren County, Hydrologic Unit 07100008, on right bank 15 ft downstream from bridge on county highway, 0.5 mi downstream from Otter Creek, and 2.2 mi southwest of Ackworth.

DRAINAGE AREA.--460 mi^2.

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1941, 1945 (M), 1946.

GAGE.--Water-stage recorder. Datum of gage is 769.97 ft above sea level. Prior to June 12, 1946, nonrecording gage, June 13, 1946 to Apr. 13, 1960, water-stage recorder, and Apr. 14, 1960 to Sept. 30, 1961, nonrecording gage, all at site 4.0 mi downstream at datum 8.06 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1930 reached a stage of 24.5 ft, from information by local residents, discharge, about 30,000 ft^3/s, at site 4.0 mi downstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	6.7	12	e7.5	e4.4	48	11	13	2.7	112	14	6.7
2	9.9	6.1	12	e8.5	e4.6	e74	13	12	3.3	93	12	6.9
3	12	6.3	14	e9.5	e5.5	e67	11	11	3.6	187	11	6.1
4	16	8.0	15	e8.5	e6.0	e54	9.6	8.9	24	189	11	6.1
5	14	7.0	14	e7.0	e5.0	e42	8.5	7.8	62	1240	11	5.7
6	11	7.8	12	e8.0	e5.5	e33	7.6	7.0	29	1170	12	5.4
7	9.8	10	13	e6.5	e6.0	e27	7.9	6.8	8.5	317	69	5.5
8	8.5	7.7	13	e7.0	e7.0	21	11	7.5	4.6	171	171	5.8
9	8.6	7.6	12	e7.5	e7.5	18	9.8	14	3.8	111	221	6.5
10	8.3	6.5	12	e9.0	e8.5	16	13	15	3.5	88	54	6.7
11	7.5	6.5	13	e8.5	e8.0	15	24	11	632	77	31	6.7
12	7.2	7.0	14	e7.5	e7.0	14	19	8.2	674	114	22	6.0
13	6.6	7.5	12	e7.0	e8.0	13	16	5.8	840	123	38	5.4
14	7.3	7.4	11	e6.5	e9.0	13	13	5.0	3690	66	22	5.9
15	8.0	7.6	e9.5	e7.5	e12	14	11	4.6	688	51	18	5.3
16	7.8	7.6	e12	e8.0	e11	13	12	4.5	216	85	14	5.6
17	9.0	8.0	e8.5	e6.5	e10	12	17	4.5	118	67	12	5.8
18	9.8	8.4	e5.5	e7.0	e9.0	13	15	6.5	80	50	11	8.2
19	8.5	7.6	e7.0	e6.0	e11	18	13	5.2	61	166	11	5.4
20	9.4	7.4	e5.5	e5.5	e17	23	117	4.7	52	113	12	8.8
21	8.7	8.2	e4.4	e6.5	e30	24	143	4.7	41	58	11	9.0
22	7.0	9.0	e5.0	e7.5	64	e22	70	4.6	32	40	11	23
23	6.4	51	e6.0	e6.5	109	e20	45	4.0	125	32	12	16
24	6.5	53	e5.0	e6.0	141	19	31	3.8	240	27	11	15
25	6.9	37	e4.6	e6.5	123	17	25	3.7	894	25	10	15
26	6.9	26	e5.5	e6.0	89	17	19	6.9	3350	27	9.3	13
27	7.2	19	e6.5	e5.0	70	15	19	6.3	693	24	8.5	8.8
28	6.9	15	e6.0	e4.4	54	12	21	5.1	291	21	11	6.3
29	7.4	14	e7.5	e4.8	45	11	18	4.2	217	23	9.8	5.6
30	7.6	12	e9.0	e5.5	---	11	16	3.7	149	21	7.7	5.1
31	7.1	---	e8.0	e4.2	---	11	---	3.4	---	16	7.0	---
TOTAL	270.8	392.9	294.5	211.9	887.0	727	766.4	213.4	13228.0	4904	885.3	241.3
MEAN	8.74	13.1	9.50	6.84	30.6	23.5	25.5	6.88	441	158	28.6	8.04
MAX	16	53	15	9.5	141	74	143	15	3690	1240	221	23
MIN	6.4	6.1	4.4	4.2	4.4	11	7.6	3.4	2.7	16	7.0	5.1
AC-FT	537	779	584	420	1760	1440	1520	423	26240	9730	1760	479
CFSM	.02	.03	.02	.01	.07	.05	.06	.01	.96	.34	.06	.02
IN.	.02	.03	.02	.02	.07	.06	.06	.02	1.07	.40	.07	.02

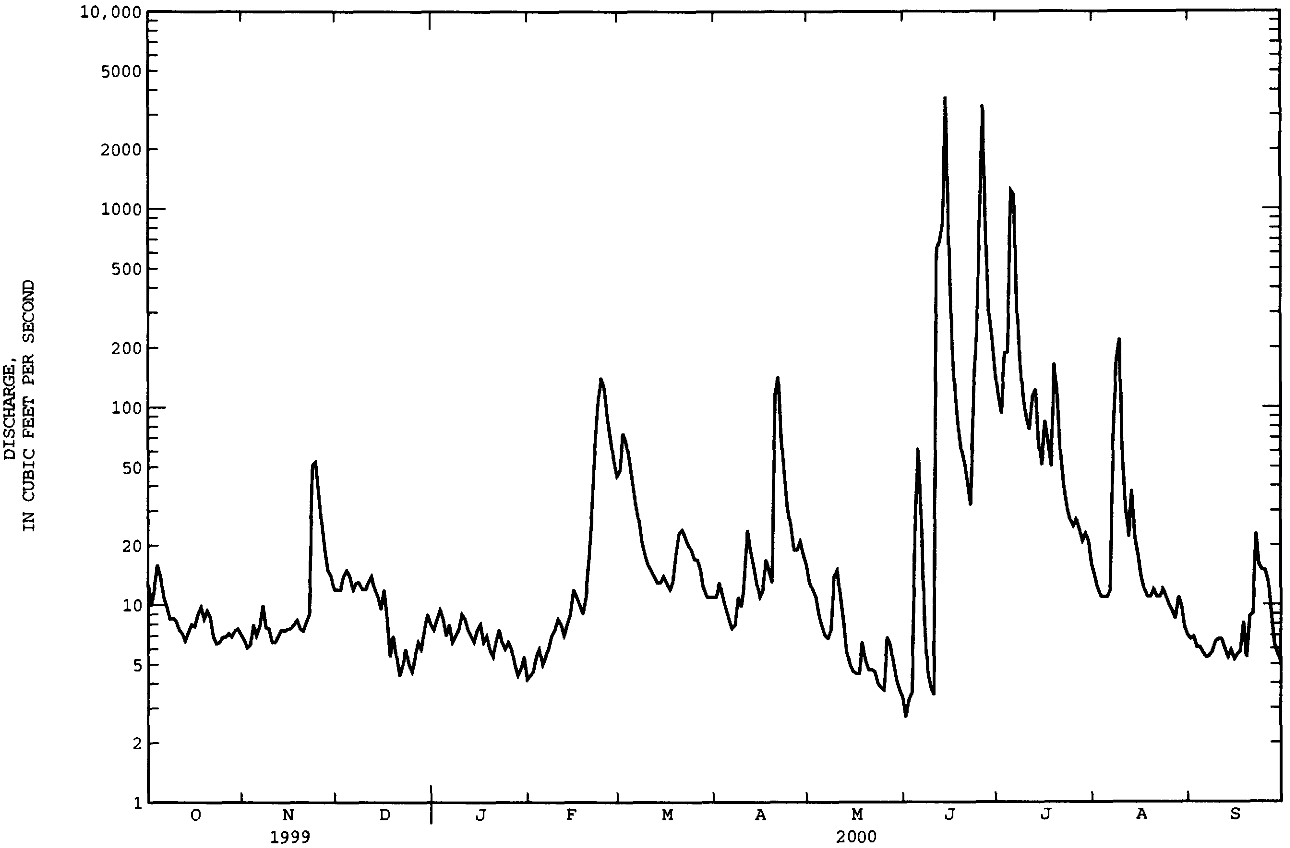
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	111	127	111	103	218	445	462	468	479	262	131	154
MAX	1283	906	1022	901	1209	1568	1937	1962	4305	3870	1546	1332
(WY)	1974	1962	1983	1974	1973	1960	1973	1959	1947	1993	1993	1993
MIN	.35	1.05	.88	1.05	3.70	3.61	1.70	6.88	1.79	1.48	2.02	1.05
(WY)	1957	1957	1956	1956	1989	1957	1956	2000	1977	1977	1957	1957

05487470 SOUTH RIVER NEAR ACKWORTH, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1941 - 2000	
ANNUAL TOTAL	93405.5		23022.5			
ANNUAL MEAN	256		62.9		255	
HIGHEST ANNUAL MEAN					966	1993
LOWEST ANNUAL MEAN					16.1	1989
HIGHEST DAILY MEAN	7350	Apr 16	3690	Jun 14	31400	Jun 17 1990
LOWEST DAILY MEAN	4.4	Dec 21	2.7	Jun 1	.00	Sep 19 1956a
ANNUAL SEVEN-DAY MINIMUM	5.1	Dec 20	3.7	May 28	.00	Sep 19 1956a
INSTANTANEOUS PEAK FLOW			6580	Jun 25	38100	Jun 17 1990
INSTANTANEOUS PEAK STAGE			16.60	Jun 25	32.85	Jul 5 1981
INSTANTANEOUS LOW FLOW			2.4	Jun 1	.00	Sep 19 1956a
ANNUAL RUNOFF (AC-FT)	185300		45670		185100	
ANNUAL RUNOFF (CFSM)	.56		.14		.56	
ANNUAL RUNOFF (INCHES)	7.55		1.86		7.55	
10 PERCENT EXCEEDS	515		88		486	
50 PERCENT EXCEEDS	38		11		41	
90 PERCENT EXCEEDS	7.6		5.4		3.2	

a Also Sept. 30 to Oct. 13, 1956.
e Estimated.



05487500 DES MOINES RIVER NEAR RUNNELLS, IA

LOCATION.--Lat 41°29'19", long 93°20'17", in SE$^1/_4$ NW$^1/_4$ sec.12, T.77 N., R.22 W., Polk County, Hydrologic Unit 07100008, on left bank 10 ft downstream from bridge on State Highway 316, 0.2 mi downstream from South River River, 0.5 mi upstream from Camp Creek, 2.2 mi southeast of Runnells, 37.2 mi upstream from Red Rock Dam, and at mi 179.5.

DRAINAGE AREA.--11,655 mi^2.

PERIOD OF RECORD.--October 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 700.00 ft above sea level (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records good except those for estimated daily discharge, which are poor. Flow regulated by Saylorville Lake (station 05481630) 34.2 mi upstream. Stage-discharge relation is affected at times by backwater from Lake Red Rock (05488100). U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods occurred on May 31, 1903; June 14, 1947; June 26, 1947; and June 24, 1954. No gage height or discharge was determined. Gage height and discharge information is available for these floods at other sites on the Des Moines River.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	761	e750	e600	e600	e440	e1100	732	e800	e4600	5540	e1900	940
2	659	e700	e600	e650	e480	e1000	652	e850	3750	4780	e1700	942
3	756	e750	e650	e750	e420	e1300	e600	e750	3440	4770	e1600	776
4	788	e650	e650	e700	e440	e1700	e600	e650	2510	5050	e1500	649
5	653	e550	e600	e650	e400	e1600	e550	e750	2540	7620	e1300	669
6	790	e600	e650	e600	e420	1480	e550	e700	2650	14300	e1400	638
7	794	e550	e700	e650	e400	1340	e650	e650	e4000	13000	e1500	588
8	642	e500	e650	e600	e440	1460	e650	e750	e4400	10900	e1800	613
9	711	e550	e650	e650	e480	e1200	e600	e800	4230	7920	e1700	651
10	723	e600	e600	e700	e500	1220	e650	e800	4150	6520	e1600	641
11	754	e550	e650	e600	e460	1090	e800	e700	4530	6070	e1300	601
12	724	e550	e650	e600	e500	1110	e750	e650	6170	7540	e1200	492
13	528	e550	e700	e550	e550	940	e700	e550	5210	11800	e1400	510
14	723	e500	e780	e550	e500	1020	e650	e500	e12000	13300	e1200	472
15	697	e550	514	e600	e650	918	e650	e480	e9000	11700	e1100	355
16	604	e550	e480	e650	808	952	e750	e460	e11000	9300	e1100	323
17	642	e600	e460	e600	930	1140	e800	469	10200	7340	e1000	297
18	765	e550	e440	e650	960	1160	e800	418	9260	6850	e1100	348
19	672	e600	e550	e600	979	1020	e850	712	8010	6910	e1200	310
20	725	e550	e500	e550	1070	1030	e1400	970	6950	6860	e1400	338
21	737	e500	e460	e460	1140	1080	e1600	1230	5850	5950	1550	435
22	491	e800	e440	e480	1250	1160	e1200	1270	5700	e5000	1910	e550
23	e550	e1100	e550	e550	1440	1340	e800	1260	5870	e4400	2370	e440
24	e600	e950	e500	e600	1560	1230	e750	1510	7860	e3800	2850	e400
25	e550	e850	e550	e500	1710	1170	e700	1760	8590	e4000	1030	e380
26	e500	e800	e550	e550	1490	1130	e650	e2200	16800	e4200	1560	e360
27	e550	e750	e600	e460	1350	793	e700	e2100	12800	e4000	1440	e360
28	e600	e700	e550	e420	1490	874	e750	e2700	10700	e3600	1310	e340
29	e650	e650	e600	e380	1230	973	e850	e2900	8670	e3000	1270	e340
30	e600	e650	e650	e380	---	890	e800	e3600	7020	e3200	1300	e320
31	e700	---	e600	e400	---	802	---	e5500	---	e3000	1070	---
TOTAL	20639	19500	18124	17680	24487	35222	23184	39439	208460	212220	45660	15078
MEAN	666	650	585	570	844	1136	773	1272	6949	6846	1473	503
MAX	794	1100	780	750	1710	1700	1600	5500	16800	14300	2850	942
MIN	491	500	440	380	400	793	550	418	2510	3000	1000	297
AC-FT	40940	38680	35950	35070	48570	69860	45990	78230	413500	420900	90570	29910
CFSM	.06	.06	.05	.05	.07	.10	.07	.11	.60	.59	.13	.04
IN.	.07	.06	.06	.06	.08	.11	.07	.13	.67	.68	.15	.05

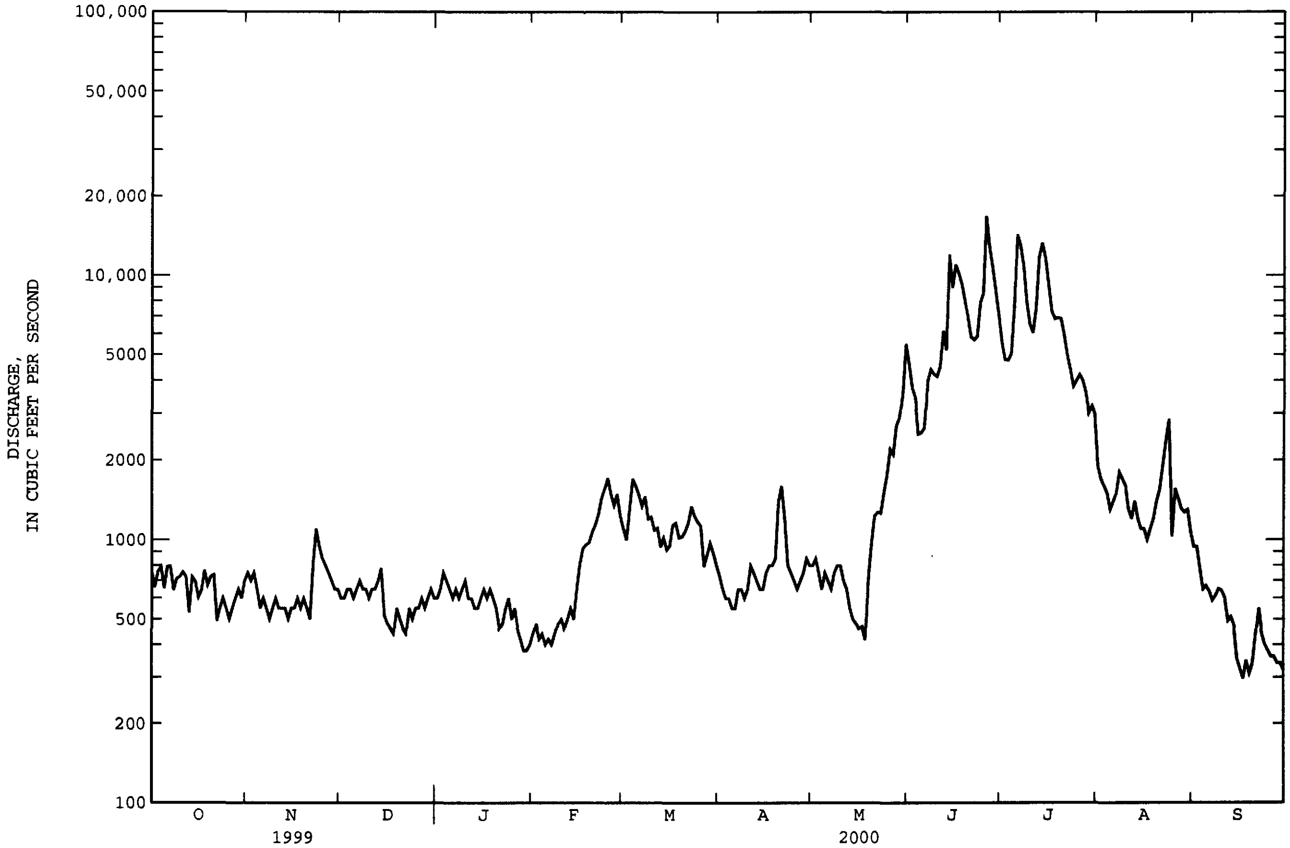
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3835	4047	3638	2063	3578	9141	13440	14590	16290	14680	6981	4147
MAX	18040	12660	10000	6237	8557	18390	30380	32740	40530	68140	32990	26320
(WY)	1987	1993	1992	1992	1997	1993	1993	1993	1991	1993	1993	1993
MIN	621	524	473	450	500	1136	773	1272	1777	840	534	503
(WY)	1990	1990	1990	1990	1990	2000	2000	2000	1988	1988	1988	2000

05487500 DES MOINES RIVER NEAR RUNNELLS, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1986 - 2000	
ANNUAL TOTAL	3476201		679693			
ANNUAL MEAN	9524		1857		8053	
HIGHEST ANNUAL MEAN					22980	1993
LOWEST ANNUAL MEAN					1200	1989
HIGHEST DAILY MEAN	50000	May 22	16800	Jun 26	133000	Jul 11 1993
LOWEST DAILY MEAN	440	Dec 18	297	Sep 17	297	Sep 17 2000
ANNUAL SEVEN-DAY MINIMUM	476	Dec 16	344	Sep 15	344	Sep 15 2000
INSTANTANEOUS PEAK FLOW			18700	Jun 26	134000	Jul 11 1993
INSTANTANEOUS PEAK STAGE			52.15	Jun 26	82.88	Jul 11 1993
ANNUAL RUNOFF (AC-FT)	6895000		1348000		5834000	
ANNUAL RUNOFF (CFSM)	.82		.16		.69	
ANNUAL RUNOFF (INCHES)	11.10		2.17		9.39	
10 PERCENT EXCEEDS	28000		5510		21000	
50 PERCENT EXCEEDS	4520		750		4080	
90 PERCENT EXCEEDS	600		471		650	

e Estimated



05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA

LOCATION.--Lat 41°36'05", long 93°16'14", in NE$^1/_4$ NE$^1/_4$ sec.5, T.78 N., R.21 W., Jasper County, Hydrologic Unit 07100008, on left bank downstream side of bridge on Highway 163.

DRAINAGE AREA.--6.78 mi^2.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--May 1995 to current year.

GAGE.--Water-stage recorder. Concrete control. Datum of gage is 826.33 ft above sea level.

REMARKS.--Records good except those for estimated daily discharge, which are poor. Periodic observations of water temperature and specific conductance are published in report as miscellaneous water quality data. U.S. Geological Survey rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	.86	.81	.75	.55	2.1	1.1	2.4	25	7.6	2.1	.47
2	1.1	.86	.81	.76	.59	1.8	1.1	2.3	17	7.1	1.9	.46
3	1.3	.92	.85	.72	.56	1.7	1.1	2.2	14	6.8	1.8	.40
4	1.2	.92	.76	.60	.52	1.6	1.1	2.2	13	7.5	1.7	.38
5	1.2	.85	.75	.65	.56	1.5	1.1	2.1	12	6.6	1.7	.38
6	1.1	.82	.73	.62	.59	1.4	1.0	2.1	10	5.8	1.7	.33
7	1.0	.88	.77	.57	.60	1.4	1.1	2.1	9.5	5.4	1.5	.31
8	1.0	.91	.73	.64	.65	1.4	1.1	3.0	8.5	5.1	2.2	.28
9	1.1	.88	.69	.74	.97	1.3	1.1	3.0	7.7	5.0	1.6	.27
10	1.0	.82	.65	.71	.90	1.3	1.3	3.0	7.2	11	1.4	.25
11	1.0	.81	.66	.63	.68	1.2	1.4	2.9	19	6.6	1.3	.23
12	1.0	.82	.66	.58	.64	1.2	1.2	2.7	19	5.6	1.2	.18
13	.99	.82	.63	.49	.66	1.2	1.2	2.5	29	5.0	2.4	.21
14	1.0	.77	.67	.56	.63	1.2	1.2	2.5	46	4.7	1.5	.25
15	1.0	.74	.66	.64	.97	1.2	1.2	2.5	20	4.4	1.3	.21
16	.95	.73	.59	.53	.79	1.1	1.4	2.5	15	4.2	1.2	.22
17	.91	.73	.62	.56	.69	1.1	1.5	2.5	13	3.9	1.2	.21
18	.96	.74	.60	.57	.69	1.2	1.4	6.1	12	3.9	1.1	.19
19	1.0	.68	.63	.54	.67	1.2	1.4	4.7	11	3.8	1.1	.18
20	.99	.70	.59	.56	.66	1.2	6.4	3.9	11	3.5	1.1	.25
21	.98	.71	.59	.60	2.0	1.2	5.1	3.8	9.2	3.3	1.0	.21
22	.89	.71	.50	.58	2.9	1.2	3.9	3.5	8.0	3.2	1.1	.68
23	.88	2.4	.59	.55	2.6	1.2	3.4	3.4	8.0	3.0	1.0	.31
24	.93	1.1	.49	.63	2.7	1.2	3.1	3.1	16	2.9	.96	.28
25	.95	1.0	.54	.56	2.1	1.1	2.9	2.8	13	2.8	.85	.27
26	.91	1.0	.62	e.49	1.8	1.2	2.7	3.8	13	3.1	.78	.24
27	.90	.92	.60	e.46	1.6	1.1	2.8	4.3	11	2.8	.73	.23
28	.91	.82	.76	e.40	1.5	1.1	2.5	4.0	10	2.6	.70	.22
29	.93	.78	.84	e.50	1.9	1.1	2.4	3.9	9.1	2.5	.62	.20
30	.88	.79	.79	e.55	---	1.1	2.4	3.8	8.1	2.3	.57	.18
31	.88	---	.72	.54	---	1.1	---	127	---	2.2	.52	---
TOTAL	31.04	26.49	20.90	18.28	32.67	39.9	60.6	220.6	424.3	144.2	39.83	8.48
MEAN	1.00	.88	.67	.59	1.13	1.29	2.02	7.12	14.1	4.65	1.28	.28
MAX	1.3	2.4	.85	.76	2.9	2.1	6.4	127	46	11	2.4	.68
MIN	.88	.68	.49	.40	.52	1.1	1.0	2.1	7.2	2.2	.52	.18
AC-FT	62	53	41	36	65	79	120	438	842	286	79	17
CFSM	.15	.13	.10	.09	.17	.19	.30	1.05	2.09	.69	.19	.04
IN.	.17	.15	.11	.10	.18	.22	.33	1.21	2.33	.79	.22	.05

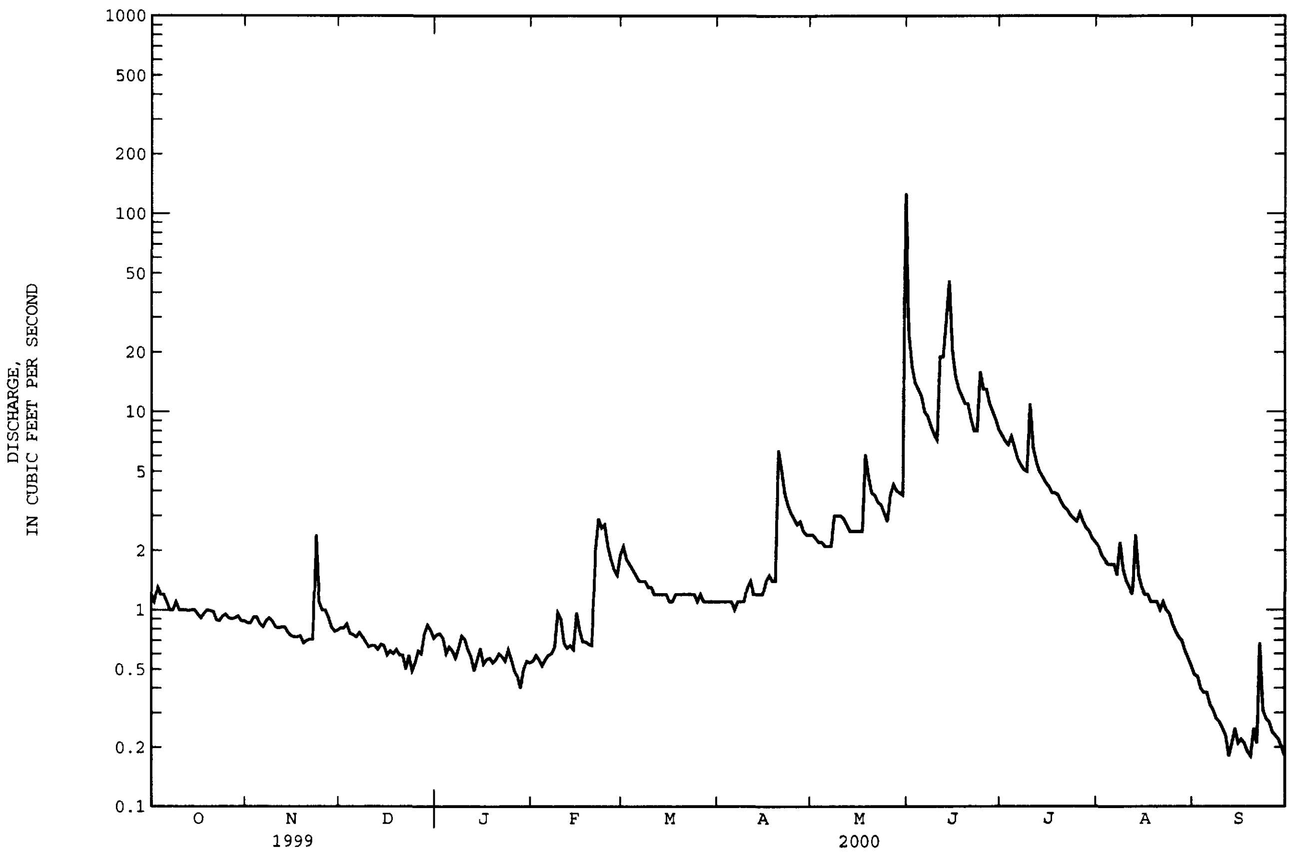
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1.57	2.21	1.59	1.61	7.38	4.29	5.60	14.4	15.8	6.27	4.12	1.02
MAX	3.48	5.69	3.22	3.73	19.8	11.9	13.1	25.0	31.8	13.8	10.5	1.97
(WY)	1999	1999	1998	1998	1996	1998	1998	1996	1998	1998	1999	1999
MIN	.20	.40	.54	.59	1.13	1.29	1.41	7.12	6.61	3.79	1.26	.28
(WY)	1996	1996	1996	2000	2000	2000	1996	2000	1997	1997	1997	2000

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1996 - 2000	
ANNUAL TOTAL	1885.43		1067.29			
ANNUAL MEAN	5.17		2.92		5.47	
HIGHEST ANNUAL MEAN					9.24	1998
LOWEST ANNUAL MEAN					2.92	2000
HIGHEST DAILY MEAN	107	Aug 12	127	May 31	210	May 24 1996
LOWEST DAILY MEAN	.49	Dec 24	.18	Sep 12a	.04	Jan 7 1996
ANNUAL SEVEN-DAY MINIMUM	.56	Dec 20	.21	Sep 12	.16	Oct 20 1995
INSTANTANEOUS PEAK FLOW			659	May 31	1350	Jun 18 1998
INSTANTANEOUS PEAK STAGE			8.25	May 31	9.66	Jun 18 1998
INSTANTANEOUS LOW FLOW			.16	Sep 12b	.00	Nov 10 1995
ANNUAL RUNOFF (AC-FT)	3740		2120		3960	
ANNUAL RUNOFF (CFSM)	.76		.43		.81	
ANNUAL RUNOFF (INCHES)	10.34		5.86		10.97	
10 PERCENT EXCEEDS	11		6.7		12	
50 PERCENT EXCEEDS	2.7		1.1		2.5	
90 PERCENT EXCEEDS	.79		.51		.40	

a Also Sept. 19, 30.
b Also Sept. 19.
e Estimated.



05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1995 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1995 to current year.
WATER TEMPERATURES: April 1995 to current year.
SUSPENDED-SEDIMENT DISCHARGE: May 1995 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, 801 microsiemens Feb. 17, 1997; minimum daily, 159 microsiemens May 24, 1996.
WATER TEMPERATURES: Maximum daily, 31.0°C July 29, 1999; minimum daily, 0.0°C many days during winter.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,130 mg/L July 22, 1998; minimum daily mean, 5 mg/L Dec. 4, 1998.
SEDIMENT LOADS: Maximum daily, 1,080 tons May 24, 1996; minimum daily, 0.003 tons Nov. 28, 1995.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 576 microsiemens Sept. 23; minimum daily, 348 microsiemens Feb. 21.
WATER TEMPERATURES: Maximum daily, 29.2°C Sept. 1; minimum daily, 0.0°C Jan. 20, 27, and Feb. 4, 8.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 949 mg/L May 31; minimum daily mean, 7 mg/L Feb. 14.
SEDIMENT LOADS: Maximum daily, 459 tons May 31; minimum daily, 0.01 tons Jan. 13, 14, 18, and Feb. 5, 14.

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	470	475	409	436	514	503	496	451	443
2	---	---	---	474	442	---	410	---	513	414	562	473
3	537	---	---	464	460	422	405	520	505	409	510	532
4	---	---	---	475	477	460	474	516	441	---	466	446
5	---	---	---	400	477	499	484	436	448	452	---	490
6	442	---	---	485	415	418	---	416	433	463	563	542
7	---	---	---	436	467	450	---	404	---	418	456	506
8	---	---	---	423	427	390	493	528	489	494	573	---
9	---	548	---	447	439	353	---	521	404	474	532	510
10	---	---	---	442	474	372	428	455	416	545	546	---
11	---	---	---	476	462	397	464	511	502	523	508	545
12	---	---	---	446	463	434	440	---	530	492	472	496
13	---	---	---	414	494	472	469	423	530	534	503	562
14	---	---	---	478	459	449	469	465	497	473	560	---
15	---	---	551	424	418	389	492	427	530	550	566	566
16	---	---	---	472	418	409	496	413	505	---	564	532
17	---	---	---	480	427	520	441	519	---	556	557	453
18	---	---	---	485	---	444	462	486	466	503	513	455
19	---	---	---	460	429	456	429	527	414	531	513	477
20	---	---	---	462	460	399	562	442	482	450	501	543
21	---	---	---	436	348	533	526	494	404	557	521	555
22	---	---	---	405	411	424	515	526	412	487	459	445
23	---	---	---	498	478	507	506	488	475	447	545	576
24	---	---	---	521	520	513	472	---	490	428	442	575
25	---	---	---	468	403	389	510	530	531	463	427	506
26	---	---	---	444	404	463	454	466	538	547	---	525
27	---	---	---	462	426	389	465	536	517	473	526	535
28	---	---	---	454	479	386	430	480	440	565	456	498
29	---	---	455	477	492	412	502	464	500	501	529	490
30	---	---	---	455	---	406	---	424	481	556	442	533
31	---	---	---	396	---	394	---	367	---	---	448	---

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	2.0	.4	9.9	13.6	18.0	21.9	17.5	19.0	29.2
2	---	---	---	---	1.4	---	16.0	---	17.5	23.4	26.1	22.5
3	7.5	---	---	1.0	.3	9.9	11.7	19.3	18.4	18.1	21.4	29.0
4	---	---	---	.8	.0	5.6	10.1	24.1	16.4	---	25.1	21.7
5	---	---	---	.9	1.0	14.0	13.0	21.0	15.0	19.6	---	22.9
6	8.0	---	---	.7	2.1	19.0	---	20.4	19.2	20.0	26.1	19.9
7	---	---	---	1.7	.8	19.3	---	19.9	---	18.8	22.0	23.2
8	---	---	---	1.7	.0	13.8	14.3	16.5	23.6	20.6	25.4	---
9	---	8.6	---	---	1.3	4.5	---	15.9	20.0	22.6	23.4	26.8
10	---	---	---	---	.2	5.6	7.3	17.5	23.0	21.3	26.1	---
11	---	---	---	.9	1.0	8.0	7.7	24.5	19.7	22.6	18.4	26.9
12	---	---	---	---	---	7.0	14.4	---	20.2	20.5	26.1	23.9
13	---	---	---	1.3	1.2	11.4	20.3	13.7	20.5	21.3	21.0	22.4
14	---	---	---	1.1	.7	10.7	18.3	17.9	18.8	19.8	28.0	---
15	---	---	1.7	2.1	2.0	7.4	14.0	10.8	18.8	24.7	23.3	19.0
16	---	---	---	---	3.2	9.3	9.7	21.2	20.5	---	22.5	22.4
17	---	---	---	---	1.0	10.8	12.0	15.4	---	19.8	20.7	20.7
18	---	---	---	1.3	---	3.0	22.1	13.2	19.1	16.9	18.2	23.0
19	---	---	---	1.2	.4	3.2	23.7	10.1	21.8	21.8	21.2	18.2
20	---	---	---	.0	2.2	3.6	8.9	14.3	22.2	19.2	20.3	16.0
21	---	---	---	.7	2.2	5.6	14.2	22.4	19.6	16.2	22.3	18.3
22	---	---	---	.3	5.2	7.5	18.7	19.2	18.9	20.7	22.3	14.6
23	---	---	---	.1	7.7	16.8	14.0	21.8	19.1	14.8	20.7	14.1
24	---	---	---	.9	8.9	17.2	18.1	---	17.7	18.9	20.7	10.8
25	---	---	---	.3	10.6	15.4	20.3	19.4	19.9	18.3	24.2	18.2
26	---	---	---	1.6	5.4	10.8	19.8	13.6	16.4	22.2	---	18.9
27	---	---	---	.0	12.2	15.1	19.3	15.0	21.2	21.6	23.0	15.0
28	---	---	---	1.6	10.0	14.5	18.7	13.7	18.2	24.2	24.7	19.5
29	---	---	---	1.0	9.3	16.6	15.7	19.7	22.7	21.3	20.7	19.3
30	---	---	---	.3	---	16.0	---	17.6	16.8	21.7	24.7	19.8
31	---	---	---	.1	---	17.2	---	18.0	---	---	28.6	---

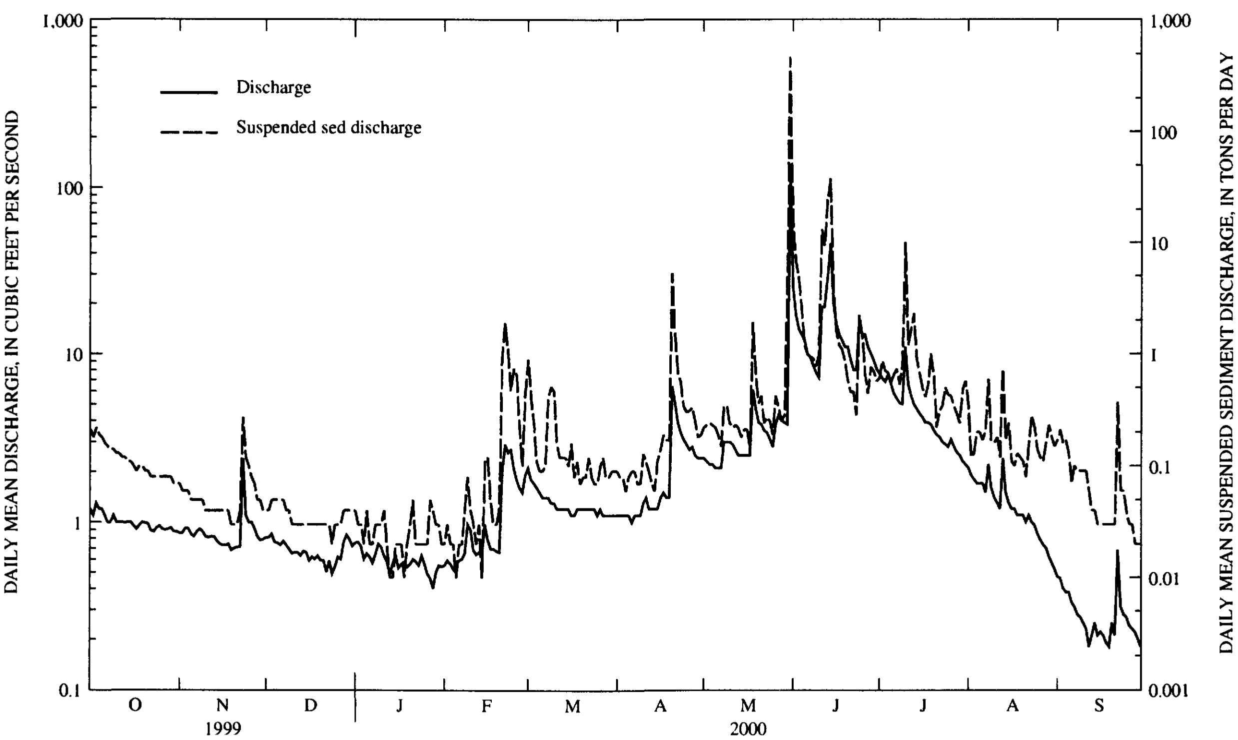
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	65	.21	28	.07	20	.04	18	.04	12	.02	154	.89
2	62	.18	27	.06	20	.04	13	.03	19	.03	92	.43
3	60	.22	26	.06	24	.05	15	.03	12	.02	52	.24
4	59	.19	25	.06	25	.05	14	.02	11	.02	26	.11
5	57	.18	24	.05	24	.05	20	.04	8	.01	22	.09
6	55	.16	23	.05	23	.05	11	.02	11	.02	23	.09
7	53	.15	22	.05	22	.05	11	.02	10	.02	25	.10
8	51	.14	21	.05	21	.04	17	.03	23	.04	111	.41
9	50	.14	20	.05	20	.04	16	.03	31	.08	145	.51
10	48	.13	20	.04	19	.03	15	.03	16	.04	133	.46
11	46	.13	20	.04	19	.03	24	.04	16	.03	48	.16
12	45	.12	19	.04	18	.03	12	.02	14	.02	36	.12
13	43	.12	19	.04	17	.03	8	.01	15	.03	38	.12
14	42	.11	19	.04	16	.03	10	.01	7	.01	38	.12
15	41	.11	19	.04	17	.03	10	.02	31	.11	31	.10
16	39	.10	18	.04	17	.03	13	.02	57	.12	53	.16
17	38	.09	18	.04	17	.03	13	.02	27	.05	28	.08
18	37	.10	18	.04	16	.03	9	.01	17	.03	34	.11
19	36	.10	18	.03	16	.03	15	.02	19	.03	20	.07
20	35	.09	17	.03	16	.03	20	.03	22	.04	25	.08
21	34	.09	17	.03	19	.03	32	.05	100	.96	26	.08
22	33	.08	21	.04	18	.03	11	.02	251	1.9	39	.12
23	32	.08	42	.27	18	.03	13	.02	145	1.0	23	.08
24	32	.08	39	.12	17	.02	11	.02	61	.47	20	.07
25	31	.08	34	.10	17	.03	12	.02	129	.74	24	.07
26	31	.08	30	.08	17	.03	18	.02	130	.64	33	.10
27	31	.08	27	.07	16	.03	38	.05	49	.21	38	.12
28	31	.08	24	.05	19	.04	33	.04	26	.10	28	.08
29	30	.08	21	.05	17	.04	21	.03	70	.43	27	.08
30	30	.07	20	.04	19	.04	17	.03	---	---	30	.09
31	29	.07	---	---	19	.04	13	.02	---	---	33	.09
TOTAL	---	3.64	---	1.77	---	1.10	---	0.81	---	7.22	---	5.43

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	28	.09	34	.22	217	15	29	.60	62	.35	132	.17
2	25	.08	38	.23	141	6.6	44	.86	23	.12	169	.21
3	26	.08	39	.24	124	4.7	38	.70	26	.13	147	.16
4	21	.06	39	.23	70	2.5	33	.67	43	.20	162	.17
5	29	.08	38	.22	39	1.2	31	.55	43	.20	124	.13
6	33	.09	33	.19	35	.98	41	.65	39	.17	78	.07
7	28	.09	27	.15	37	.94	49	.73	52	.21	116	.10
8	24	.07	41	.34	40	.91	38	.53	88	.59	124	.09
9	23	.07	41	.34	37	.77	60	.81	40	.17	122	.09
10	35	.13	29	.24	51	.99	284	10	40	.16	132	.09
11	29	.11	29	.22	198	13	66	1.2	50	.18	141	.09
12	26	.09	31	.23	172	9.3	111	1.6	35	.12	130	.06
13	23	.07	32	.22	189	24	171	2.3	98	.72	70	.04
14	20	.06	27	.18	245	38	73	.92	41	.17	60	.04
15	34	.11	31	.21	70	3.8	54	.65	66	.24	60	.03
16	36	.14	31	.21	38	1.6	45	.51	33	.11	55	.03
17	46	.19	21	.14	33	1.2	38	.41	31	.10	56	.03
18	44	.17	78	1.9	33	1.1	49	.52	42	.13	58	.03
19	43	.17	51	.67	28	.86	102	1.0	41	.12	59	.03
20	241	5.3	34	.36	20	.59	65	.63	38	.11	48	.03
21	102	1.5	41	.42	18	.45	24	.22	30	.08	44	.03
22	63	.66	25	.24	21	.46	36	.31	56	.16	152	.37
23	61	.56	30	.27	13	.28	42	.34	101	.28	75	.06
24	41	.34	29	.25	46	2.2	64	.50	83	.22	80	.06
25	38	.30	25	.19	41	1.5	58	.43	61	.14	49	.04
26	41	.31	37	.42	18	.66	49	.42	55	.12	42	.03
27	44	.33	29	.33	15	.44	45	.34	54	.11	41	.03
28	36	.25	23	.25	28	.76	42	.29	87	.16	40	.02
29	27	.18	26	.28	28	.69	36	.24	140	.23	41	.02
30	29	.19	290	3.3	26	.57	77	.48	120	.18	40	.02
31	---	---	949	459	---	---	97	.57	108	.15	---	---
TOTAL	---	11.87	---	471.69	---	136.05	---	29.98	---	6.13	---	2.37
YEAR		678.06										



05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA--Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.--July 1995 to current year.

INSTRUMENTATION.--Tipping bucket rain gage.

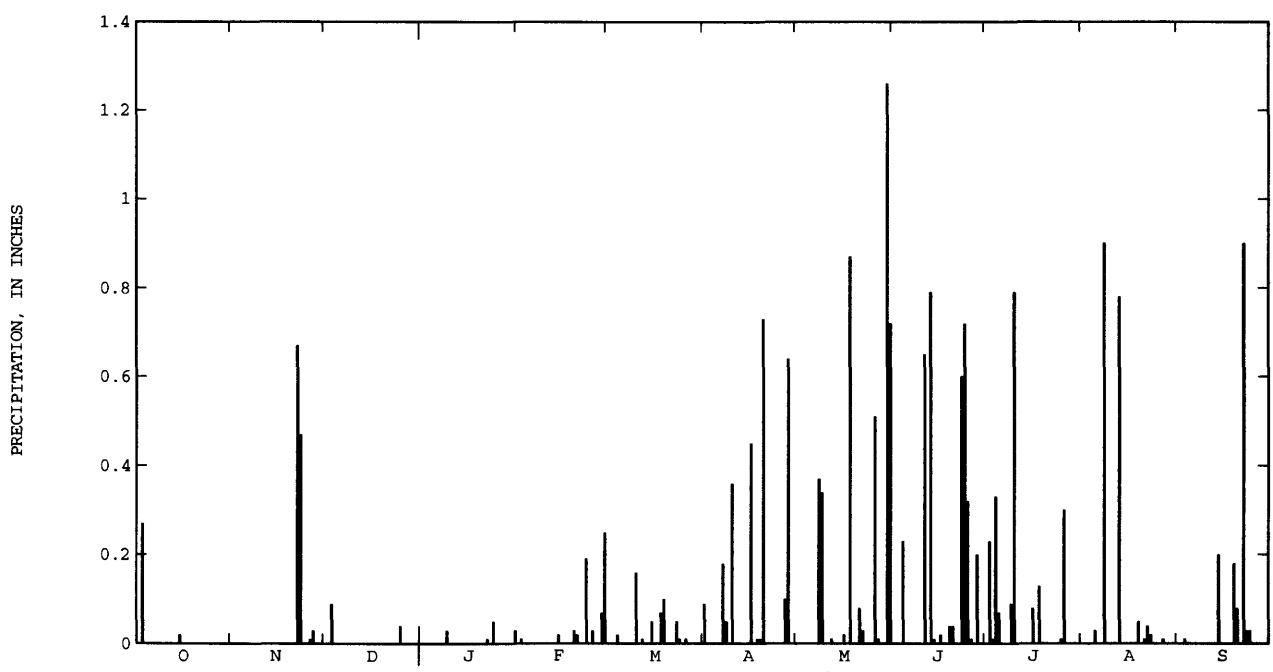
REMARKS.--Records good except for winter period, which is poor due to intermittent snow accumulation and subsequent melting.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily accumulation, 2.53 in., July 17, 1996.

EXTREMES FOR CURRENT YEAR.--Maximum daily accumulation, 1.26 in., May 30.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.01	.00	.00	.00	.00	.23	.00	.00
3	.27	.00	.09	.00	.00	.00	.00	.00	.00	.01	.00	.01
4	.00	.00	.00	.00	.00	.02	.00	.00	.23	.33	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.03	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.18	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.05	.37	.00	.00	.90	.00
9	.00	.00	.00	.03	.00	.00	.00	.34	.00	.09	.00	.00
10	.00	.00	.00	.00	.00	.16	.36	.00	.00	.79	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.65	.00	.00	.00
12	.00	.00	.00	.00	.00	.01	.00	.01	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.79	.00	.78	.00
14	.00	.00	.00	.00	.02	.00	.00	.00	.01	.00	.00	.20
15	.02	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.45	.02	.02	.08	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.07	.01	.87	.00	.13	.00	.00
19	.00	.00	.00	.00	.03	.10	.01	.00	.04	.00	.05	.18
20	.00	.00	.00	.00	.02	.00	.73	.00	.04	.00	.00	.08
21	.00	.00	.00	.00	.00	.00	.00	.08	.00	.00	.01	.00
22	.00	.67	.00	.01	.00	.00	.00	.03	.00	.00	.04	.90
23	.00	.47	.00	.00	.19	.05	.00	.00	.60	.00	.02	.03
24	.00	.00	.00	.05	.00	.01	.00	.00	.72	.00	.00	.03
25	.00	.00	.04	.00	.03	.00	.00	.00	.32	.01	.00	.00
26	.00	.01	.00	.00	.00	.01	.00	.51	.01	.30	.00	.00
27	.00	.03	.00	.00	.00	.00	.10	.01	.00	.00	.01	.00
28	.00	.00	.00	.00	.07	.00	.64	.00	.20	.00	.00	.00
29	.00	.00	.00	.00	.25	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	1.26	.00	.00	.00	.00
31	.00	---	.00	.03	---	.00	---	.72	---	.00	.00	---
TOTAL	0.29	1.18	0.13	0.12	0.62	0.48	2.62	4.22	3.63	2.04	1.84	1.43
MEAN	.01	.04	.00	.00	.02	.02	.09	.14	.12	.07	.06	.05
MAX	.27	.67	.09	.05	.25	.16	.73	1.26	.79	.79	.90	.90
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00



05487550 WALNUT CREEK NEAR VANDALIA, IA

LOCATION.--Lat 41°32'13", long 93°15'32", in $NW^1/_4$ $NE^1/_4$ sec.27, T.78 N., R.21 W., Jasper County, Hydrologic Unit 07100008, on right bank downstream side of bridge.

DRAINAGE AREA.--20.3 mi^2.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--October 1994 to current year.

GAGE.--Water-stage recorder. Concrete control. Datum of gage is 785.15 ft above sea level.

REMARKS.--Records good except those for estimated daily discharge, which are poor. Periodic observations of water temperature and specific conductance are published in report as miscellaneous water quality data. U.S. Geological Survey rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e4.4	2.4	e1.9	1.7	1.3	7.3	e3.0	6.0	57	20	6.1	1.1
2	e4.2	2.2	e1.9	1.8	1.1	5.4	e3.0	5.6	33	20	5.8	1.3
3	e4.6	2.4	e2.0	1.4	1.1	5.1	e3.0	5.5	22	20	5.5	1.1
4	e4.8	2.9	e1.8	1.1	1.1	5.0	e3.0	5.6	21	52	5.1	1.1
5	e4.6	2.5	e1.7	.69	1.0	5.1	e2.9	5.3	18	30	5.3	1.2
6	e4.0	2.4	e1.7	1.1	1.1	4.8	e3.1	5.2	16	22	5.2	1.0
7	3.6	2.3	2.0	.91	1.3	4.9	e3.1	5.2	14	20	4.8	1.0
8	3.7	2.6	2.4	1.2	1.3	4.8	e3.1	6.3	14	18	10	1.1
9	3.7	2.6	1.7	1.7	2.2	4.3	e3.2	6.9	14	17	5.4	.77
10	3.5	e2.5	1.7	1.9	3.3	4.0	e4.0	6.6	13	61	4.4	.61
11	3.2	e2.4	1.9	.98	2.2	3.9	5.4	6.3	24	25	4.0	.58
12	3.3	e2.5	2.1	1.0	1.4	3.7	3.6	6.2	39	21	3.8	.44
13	3.1	e2.4	1.7	.72	1.4	3.8	3.7	5.9	26	19	8.9	.52
14	3.2	e2.3	2.2	.57	1.3	3.4	3.6	6.5	105	17	5.1	1.7
15	3.4	e2.2	1.7	1.0	2.0	3.3	3.6	7.8	41	15	4.1	1.1
16	3.5	e2.2	1.0	1.1	2.9	e3.0	3.9	9.8	26	15	3.6	.76
17	3.2	e2.2	1.3	.95	1.7	e3.1	5.3	11	21	14	3.5	.84
18	3.6	e2.2	1.0	1.0	1.2	e3.2	3.6	23	20	14	3.5	.68
19	3.7	e2.0	1.3	1.1	1.2	e3.2	2.8	12	19	14	3.2	.64
20	3.5	e2.1	1.2	.89	1.1	e3.2	32	8.5	19	12	3.0	1.0
21	3.6	e2.1	.61	.66	9.8	e3.2	15	8.2	17	11	2.9	.82
22	3.4	e2.1	.89	.89	12	e3.2	10	7.7	15	11	3.1	4.8
23	2.9	7.1	1.1	1.2	9.5	e3.2	8.6	7.2	23	10	3.1	2.8
24	2.9	2.5	1.1	.73	10	e3.1	7.5	6.9	110	10	2.7	1.4
25	3.0	1.9	.95	.77	6.6	e3.2	7.0	6.2	67	9.2	2.3	1.4
26	2.9	2.4	1.3	.74	6.0	e3.1	6.7	8.4	71	9.4	2.1	1.0
27	2.6	2.2	1.3	.48	4.8	e3.0	7.2	11	32	8.9	1.9	.96
28	2.0	e1.9	1.2	.39	4.6	e3.0	6.3	9.1	32	8.3	2.0	.82
29	2.1	e1.8	2.0	.44	6.0	e3.0	5.7	9.0	25	7.8	1.8	.69
30	2.[illegible]	e1.9	2.0	.49	---	e3.0	5.6	8.8	21	7.2	1.4	.73
31	2.2	---	1.3	.67	---	e3.0	---	224	---	6.6	1.2	---
TOTAL	104.9	73.2	47.95	30.27	100.5	118.5	178.5	461.7	975	545.4	124.8	33.96
MEAN	3.38	2.44	1.55	.98	3.47	3.82	5.95	14.9	32.5	17.6	4.03	1.13
MAX	4.8	7.1	2.4	1.9	12	7.3	32	224	110	61	10	4.8
MIN	2.0	1.8	.61	.39	1.0	3.0	2.8	5.2	13	6.6	1.2	.44
AC-FT	208	145	95	60	199	235	354	916	1930	1080	248	67
CFSM	.17	.12	.08	.05	.17	.19	.29	.73	1.60	.87	.20	.06
IN.	.19	.13	.09	.06	.18	.22	.33	.85	1.79	1.00	.23	.06

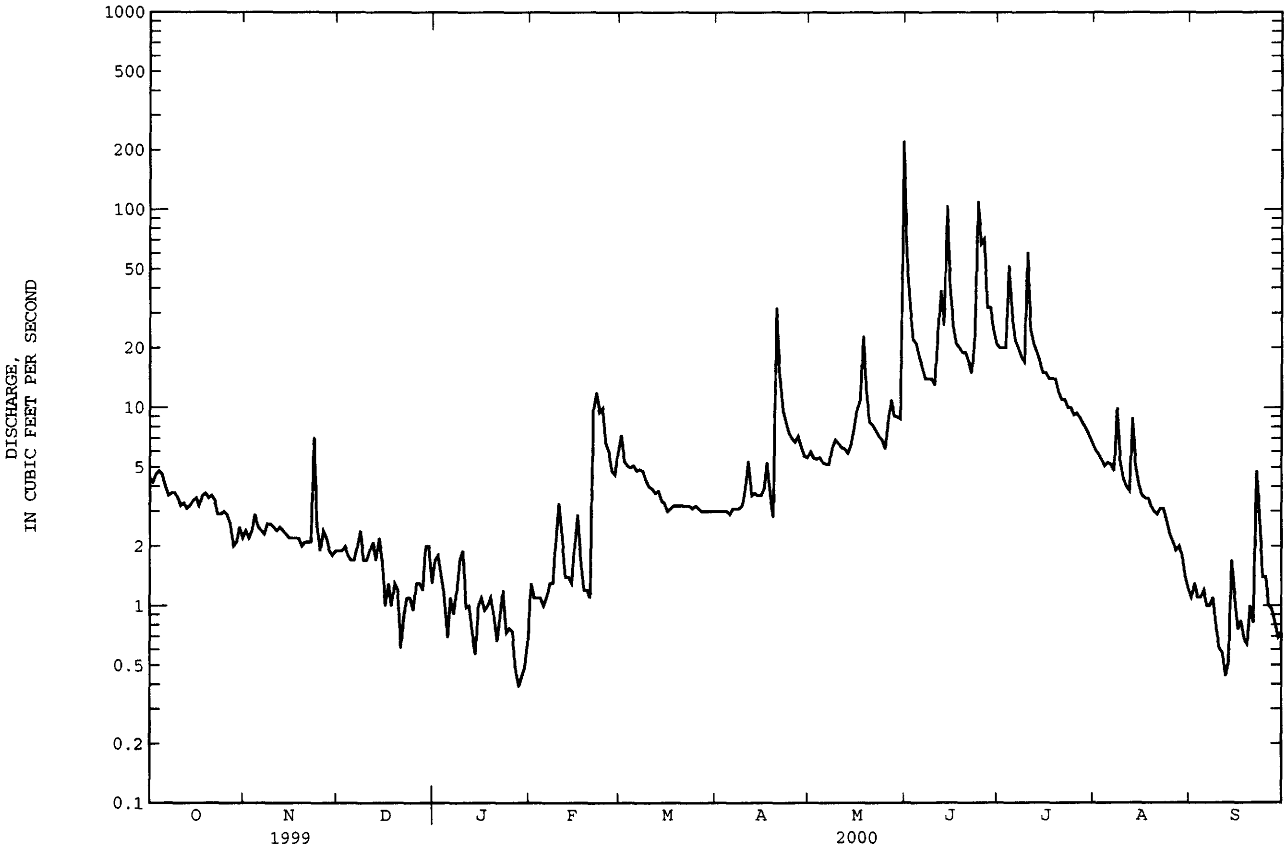
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.46	5.01	3.91	4.00	21.2	13.1	21.9	50.0	37.9	18.4	9.45	2.45
MAX	7.81	13.5	8.41	10.3	58.8	38.0	47.4	86.1	97.8	42.4	31.2	7.02
(WY)	1999	1999	1998	1998	1996	1998	1995	1996	1998	1998	1999	1999
MIN	.21	.49	1.02	.98	3.47	3.82	5.62	14.9	15.2	7.12	2.44	.89
(WY)	1995	1995	1995	2000	2000	2000	1996	2000	1995	1997	1997	1997

05487550 WALNUT CREEK NEAR VANDALIA, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1995 - 2000	
ANNUAL TOTAL	5638.05		2794.68			
ANNUAL MEAN	15.4		7.64		15.8	
HIGHEST ANNUAL MEAN					27.5	1998
LOWEST ANNUAL MEAN					7.64	2000
HIGHEST DAILY MEAN	238	Aug 12	224	May 31	573	May 24 1996
LOWEST DAILY MEAN	.61	Dec 21	.39	Jan 28	.10	Dec 7 1994
ANNUAL SEVEN-DAY MINIMUM	1.0	Dec 19	.57	Jan 25	.14	Oct 9 1994
INSTANTANEOUS PEAK FLOW			591	May 31	1380	Jun 14 1998
INSTANTANEOUS PEAK STAGE			7.32	May 31	10.85	Jun 14 1998
INSTANTANEOUS LOW FLOW			.07	Dec 16	.01	Jan 8 1996
ANNUAL RUNOFF (AC-FT)	11180		5540		11480	
ANNUAL RUNOFF (CFSM)	.76		.38		.78	
ANNUAL RUNOFF (INCHES)	10.33		5.12		10.60	
10 PERCENT EXCEEDS	28		18		35	
50 PERCENT EXCEEDS	9.6		3.2		6.2	
90 PERCENT EXCEEDS	2.1		1.0		.78	

e Estimated



05487550 WALNUT CREEK AT VANDALIA, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1995 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1995 to current year.
WATER TEMPERATURES: March 1995 to current year.
SUSPENDED-SEDIMENT DISCHARGE: March 1995 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, 771 microsiemens Oct. 10, 1995; minimum daily, 137 microsiemens Feb. 18, 1997.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 13, 1995; minimum daily, 0.0°C many days in winter.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,120 mg/L Mar. 30, 1998; minimum daily mean, 6.0 mg/L Feb. 9, 1997.
SEDIMENT LOADS: Maximum daily, 4,600 tons Mar. 30, 1998; minimum daily, 0.01 tons Feb. 2-3, 1996.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 530 microsiemens Aug. 16; minimum daily, 249 microsiemens May 18.
WATER TEMPERATURES: Maximum daily, 29.6°C Aug. 31; minimum daily, 0.0°C Dec. 15 and Jan. 20.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,570 mg/L May 31; minimum daily mean, 8 mg/L Feb. 8.
SEDIMENT LOADS: Maximum daily, 1,380 tons May 31; minimum daily, 0.02 tons Dec. 21.

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	415	420	475	435	474	470	408	512	442
2	---	---	---	447	430	---	451	---	490	508	492	463
3	490	---	---	440	440	393	395	479	504	446	500	486
4	---	---	---	429	420	371	408	---	497	---	528	476
5	---	---	---	460	494	427	477	482	502	364	---	527
6	438	---	---	399	438	481	434	451	465	483	519	469
7	---	---	---	392	437	342	456	475	---	478	466	471
8	---	---	---	378	446	405	440	478	495	494	449	---
9	---	503	---	376	441	337	---	465	446	495	491	416
10	---	---	---	440	440	340	436	495	477	398	515	---
11	---	---	---	439	427	360	461	492	430	485	488	500
12	---	---	---	505	414	354	495	---	512	487	510	501
13	---	---	---	519	437	357	453	428	510	513	392	438
14	---	---	---	477	428	352	474	501	472	484	521	---
15	---	---	514	425	392	320	452	428	471	503	522	494
16	---	---	---	474	428	398	451	451	472	---	530	460
17	---	---	---	457	372	374	447	425	---	500	525	479
18	---	---	---	440	---	374	442	249	467	494	528	485
19	---	---	---	439	380	356	473	419	367	505	511	484
20	---	---	---	405	371	344	326	495	435	438	513	492
21	527	---	---	408	372	358	457	491	408	506	518	---
22	---	---	---	400	352	380	459	500	358	446	477	444
23	---	---	---	433	373	334	465	---	395	435	506	407
24	---	---	---	400	425	304	458	500	---	453	416	454
25	---	---	---	382	467	297	459	499	478	511	428	520
26	---	---	---	409	466	362	470	504	441	499	---	517
27	---	---	---	483	468	397	463	490	488	511	513	519
28	---	---	---	447	456	399	437	517	447	493	444	488
29	---	---	441	400	419	445	470	512	447	435	446	504
30	---	---	---	490	---	---	---	504	453	495	431	470
31	---	---	---	433	---	427	---	329	---	466	523	---

05487550 WALNUT CREEK AT VANDALIA, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	2.0	.9	9.4	13.7	20.1	23.7	18.3	21.0	28.7
2	---	---	---	1.0	1.6	---	17.7	---	18.3	24.7	21.1	23.5
3	8.5	---	---	1.0	.3	7.7	12.3	19.9	19.6	21.1	23.3	28.3
4	---	---	---	.3	.1	5.8	14.7	---	16.8	---	24.1	22.7
5	---	---	---	1.0	1.3	14.1	16.2	25.1	16.0	21.1	---	22.2
6	9.5	---	---	1.4	2.0	13.7	17.8	20.7	18.9	21.7	25.8	19.3
7	---	---	---	1.4	1.0	16.9	7.9	19.8	---	20.0	23.4	22.8
8	---	---	---	1.3	.0	15.8	13.2	19.8	24.2	22.0	26.5	---
9	---	11.5	---	2.1	1.1	5.9	---	16.7	24.0	23.6	25.4	26.5
10	---	---	---	1.1	.7	5.5	7.9	17.3	24.2	22.7	27.2	---
11	---	---	---	1.0	1.6	4.4	8.7	23.4	20.1	22.5	20.7	26.5
12	---	---	---	.8	.9	6.3	12.3	---	21.3	20.8	28.3	23.3
13	---	---	---	.8	1.1	8.3	18.4	11.1	21.2	21.8	22.0	22.4
14	---	---	---	.9	.4	6.6	20.7	17.6	18.6	22.0	28.5	---
15	---	---	.0	1.9	2.5	5.8	12.2	13.1	17.9	23.6	27.8	18.8
16	---	---	---	.5	.2	7.0	10.8	21.7	20.7	---	20.5	20.2
17	---	---	---	.5	.6	6.7	11.6	17.6	---	20.7	21.8	19.9
18	---	---	---	2.6	---	4.0	20.2	10.4	18.8	19.0	19.6	19.8
19	---	---	---	.8	.7	2.9	22.1	11.0	21.8	21.9	22.0	19.1
20	---	---	---	.0	1.9	3.2	9.9	15.0	19.7	19.6	21.2	16.2
21	9.0	---	---	.3	3.2	5.6	13.0	21.2	21.1	17.4	22.9	---
22	---	---	---	1.9	3.8	8.0	18.3	21.7	20.0	20.0	22.7	14.5
23	---	---	---	.4	3.6	16.1	16.3	---	20.7	16.4	21.3	14.3
24	---	---	---	1.7	4.4	16.3	18.6	23.4	---	19.2	21.7	11.9
25	---	---	---	.4	7.8	15.0	19.7	22.5	20.5	19.7	25.3	15.7
26	---	---	---	1.3	6.7	13.2	19.8	16.0	17.2	23.1	---	16.7
27	---	---	---	.1	10.3	14.8	18.9	23.5	20.7	21.9	23.9	14.4
28	---	---	---	.9	10.6	13.1	19.1	14.2	18.7	25.9	25.4	18.0
29	---	---	3.0	.5	9.5	15.5	15.7	21.4	21.9	23.1	22.2	17.5
30	---	---	---	1.5	---	---	---	19.2	17.7	23.5	24.0	18.0
31	---	---	---	.2	---	16.5	---	18.0	---	25.9	29.6	---

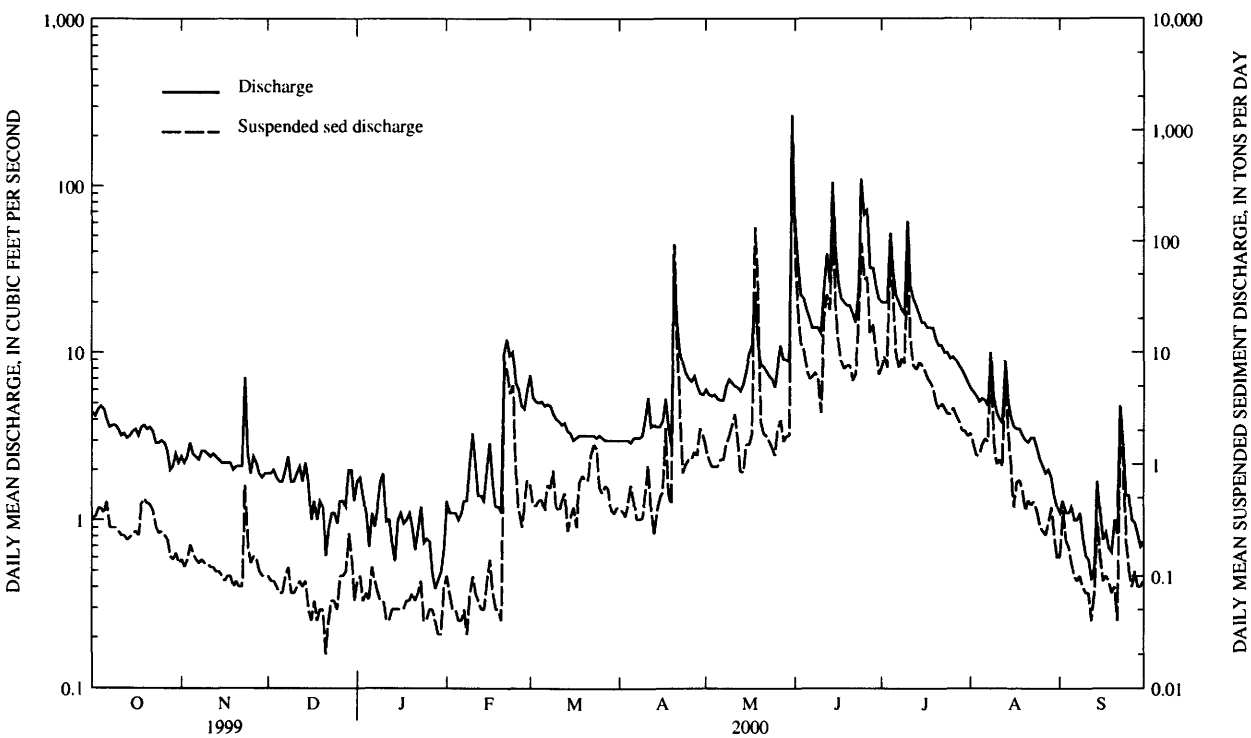
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	28	.33	22	.14	19	.10	19	.09	31	.10	32	.65
2	30	.34	21	.12	18	.09	21	.10	21	.07	29	.43
3	32	.40	21	.14	17	.09	15	.06	16	.05	30	.42
4	31	.40	24	.19	17	.08	25	.07	17	.05	35	.47
5	29	.36	23	.16	16	.07	32	.06	14	.04	35	.48
6	43	.46	22	.14	15	.07	43	.12	12	.04	30	.38
7	28	.27	21	.13	17	.10	38	.09	13	.05	49	.65
8	27	.27	20	.14	19	.12	22	.07	8	.03	48	.61
9	27	.27	19	.13	16	.07	13	.06	12	.07	76	.88
10	27	.25	19	.13	15	.07	12	.06	11	.10	38	.41
11	26	.23	18	.12	16	.08	16	.04	13	.07	36	.38
12	26	.23	18	.12	16	.09	13	.04	16	.06	46	.46
13	26	.21	17	.11	17	.08	26	.05	12	.05	54	.55
14	25	.22	17	.11	14	.09	31	.05	14	.05	27	.25
15	26	.24	16	.10	11	.05	20	.05	16	.09	39	.34
16	26	.25	15	.09	14	.04	16	.05	17	.14	51	.41
17	27	.23	17	.10	17	.06	19	.05	16	.07	32	.27
18	46	.44	16	.10	15	.04	21	.06	17	.05	80	.69
19	49	.49	15	.08	15	.05	21	.06	16	.05	92	.79
20	47	.45	15	.09	14	.05	29	.07	14	.04	85	.73
21	45	.44	14	.08	11	.02	33	.06	141	8.5	82	.71
22	42	.38	14	.08	16	.04	30	.07	207	6.8	138	1.2
23	35	.27	33	.65	20	.06	28	.09	166	4.3	170	1.5
24	30	.24	28	.19	20	.06	22	.04	182	5.1	171	1.4
25	30	.25	25	.13	21	.05	17	.04	51	.91	72	.62
26	30	.23	24	.15	28	.10	26	.05	24	.39	66	.55
27	30	.21	23	.14	27	.10	35	.05	21	.27	79	.64
28	27	.15	22	.11	31	.11	39	.04	35	.44	75	.61
29	24	.14	20	.10	44	.24	21	.03	45	.72	48	.39
30	24	.16	20	.10	27	.15	20	.03	---	---	45	.36
31	23	.13	---	---	17	.06	40	.08	---	---	50	.41
TOTAL	---	8.94	---	4.17	---	2.48	---	1.88	---	28.70	---	18.64

05487550 WALNUT CREEK AT VANDALIA, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	48	.39	86	1.4	480	78	136	7.5	117	1.9	50	.15
2	47	.38	72	1.1	256	23	166	9.1	96	1.5	106	.38
3	42	.34	65	.95	200	12	136	7.3	82	1.2	69	.21
4	54	.44	64	.96	193	11	438	84	88	1.2	60	.18
5	83	.65	66	.95	146	7.0	376	32	102	1.5	40	.13
6	56	.47	76	1.1	138	5.8	168	10	119	1.7	38	.10
7	38	.32	78	1.1	158	6.1	130	7.1	124	1.6	35	.09
8	38	.32	89	1.5	179	6.6	178	8.7	305	9.4	36	.10
9	38	.33	96	1.8	153	5.6	172	8.0	116	1.7	39	.08
10	49	.53	125	2.2	83	2.9	372	74	88	1.0	43	.07
11	67	.98	165	2.8	252	21	204	14	102	1.1	45	.07
12	40	.39	104	1.7	289	33	134	7.6	93	.96	35	.04
13	23	.23	54	.87	257	24	138	7.0	272	7.4	47	.07
14	38	.38	48	.85	452	141	178	8.1	146	2.0	64	.30
15	50	.47	73	1.5	235	27	186	7.6	89	.98	52	.15
16	51	.57	58	1.5	180	13	170	6.9	43	.41	41	.09
17	141	2.1	67	1.9	148	8.2	152	5.8	73	.69	44	.10
18	57	.55	1160	133	129	7.1	146	5.4	76	.72	52	.09
19	58	.44	1050	40	145	7.6	128	4.7	67	.59	39	.07
20	651	93	102	2.4	150	7.6	108	3.5	47	.38	28	.08
21	286	13	84	1.9	125	5.6	103	3.1	61	.47	19	.04
22	97	2.7	88	1.8	156	6.4	121	3.5	51	.43	113	1.9
23	36	.84	82	1.6	223	18	115	3.2	55	.46	140	1.1
24	50	1.0	74	1.4	306	96	102	2.8	49	.36	57	.21
25	58	1.1	71	1.2	237	45	112	2.8	44	.27	28	.11
26	62	1.1	92	2.1	236	47	126	3.2	44	.25	29	.08
27	69	1.3	87	2.5	168	15	114	2.7	46	.23	42	.11
28	68	1.2	63	1.6	201	18	105	2.4	54	.30	38	.08
29	136	2.1	75	1.8	165	11	96	2.0	87	.41	42	.08
30	117	1.8	74	1.8	112	6.3	105	2.0	57	.22	43	.09
31	---	---	1570	1380	---	---	101	1.8	44	.14	---	---
TOTAL	---	129.42	---	1597.28	---	715.8	---	347.8	---	41.47	---	6.35
YEAR		2902.93										



05487550 WALNUT CREEK AT VANDALIA, IA--Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.--April 1995 to current year.

INSTRUMENTATION.--Tipping bucket rain gage.

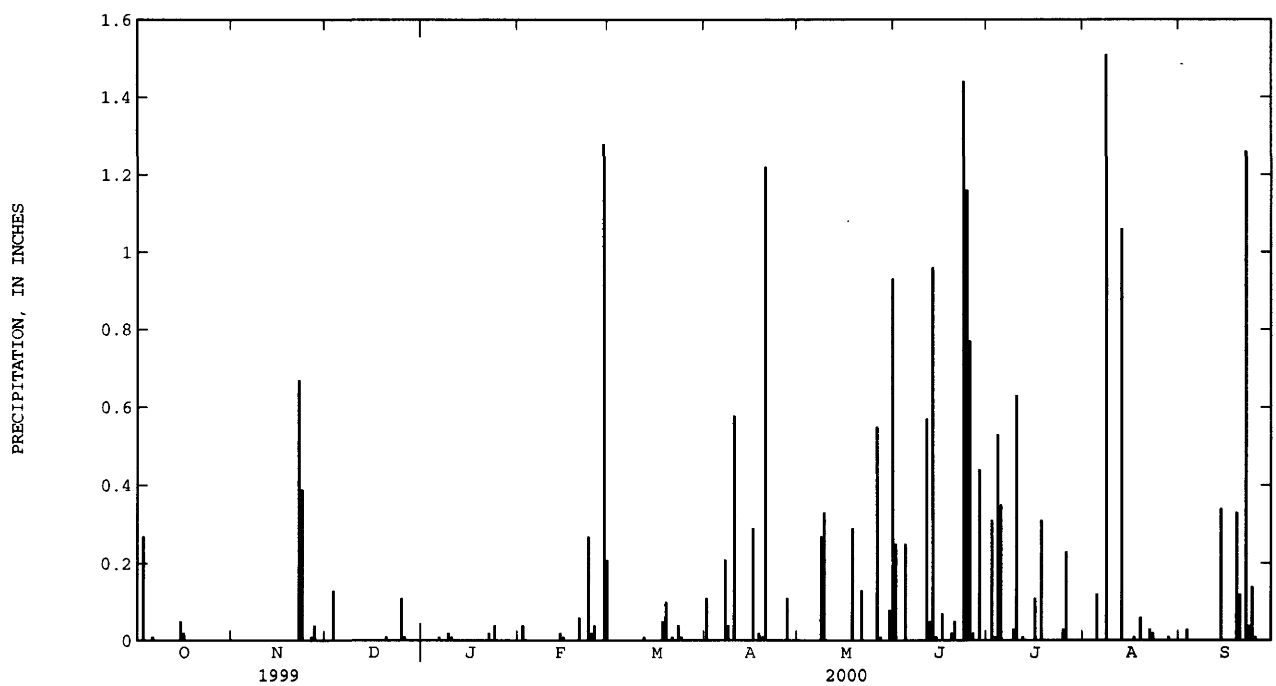
REMARKS.--Records good except for the winter period, which is poor due to intermittent snow accumulation and subsequent melting.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily accumulation, 4.72 in., May 9, 1996.

EXTREMES FOR CURRENT YEAR.--Maximum daily accumulation, 1.44 in., June 23.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.11	.00	.25	.00	.00	.00
2	.00	.00	.00	.00	.04	.00	.00	.00	.00	.31	.00	.00
3	.27	.00	.13	.00	.00	.00	.00	.00	.00	.01	.00	.03
4	.00	.00	.00	.00	.00	.00	.00	.00	.25	.53	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.35	.12	.00
6	.01	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.21	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.04	.27	.00	.00	1.51	.00
9	.00	.00	.00	.02	.00	.00	.00	.33	.00	.03	.00	.00
10	.00	.00	.00	.01	.00	.00	.58	.00	.00	.63	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.57	.00	.00	.00
12	.00	.00	.00	.00	.00	.01	.00	.00	.05	.01	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.96	.00	1.06	.00
14	.00	.00	.00	.00	.02	.00	.00	.00	.01	.00	.00	.34
15	.05	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00
16	.02	.00	.00	.00	.00	.00	.29	.00	.07	.11	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
18	.00	.00	.00	.00	.00	.05	.02	.29	.00	.31	.00	.00
19	.00	.00	.00	.00	.00	.10	.01	.00	.02	.00	.06	.33
20	.00	.00	.01	.00	.06	.00	1.22	.00	.05	.00	.00	.12
21	.00	.00	.00	.00	.00	.01	.00	.13	.00	.00	.00	.00
22	.00	.67	.00	.02	.00	.00	.00	.00	.00	.00	.03	1.26
23	.00	.39	.00	.00	.27	.04	.00	.00	1.44	.00	.02	.04
24	.00	.00	.00	.04	.02	.01	.00	.00	1.16	.00	.00	.14
25	.00	.00	.11	.00	.04	.00	.00	.00	.77	.03	.00	.01
26	.00	.01	.01	.00	.00	.00	.00	.55	.02	.23	.00	.00
27	.00	.04	.00	.00	.00	.00	.11	.01	.00	.00	.00	.00
28	.00	.00	.00	.00	1.28	.00	.00	.00	.44	.00	.01	.00
29	.00	.00	.00	.00	.21	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.08	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.93	---	.00	.00	---
TOTAL	0.35	1.11	0.26	0.10	1.95	0.22	2.59	2.59	6.06	2.55	2.82	2.27
MEAN	.01	.04	.01	.00	.07	.01	.09	.08	.20	.08	.09	.08
MAX	.27	.67	.13	.04	1.28	.10	1.22	.93	1.44	.63	1.51	1.26
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00



05487980 WHITE BREAST CREEK NEAR DALLAS, IA

LOCATION.--Lat 41°14'41", long 93°16'08", in NW1/4 NW1/4 sec.3, T.74 N., R.21 W., Marion County, Hydrologic Unit 07100008, on left bank 15 ft downstream from bridge on county highway, 0.5 mi downstream from Kirk Branch, and 1.7 mi northwest of Dallas.

DRAINAGE AREA.--342 mi^2.

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 759.21 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 11, 1962 reached a stage of 28.87 ft, from floodmark, discharge, about 12,000 ft^3/s. Flood of June 6, 1947 may have been slightly higher.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	4.5	11	e16	e6.0	29	8.5	9.9	4.9	58	14	7.8
2	5.3	4.3	11	e17	e6.5	24	8.9	10	11	45	9.9	7.3
3	5.2	3.9	12	e15	e7.5	28	8.7	10	18	40	8.2	6.5
4	6.2	3.9	13	e14	e9.5	23	8.5	9.3	22	124	7.5	5.6
5	6.8	4.1	13	e12	e9.5	18	8.0	8.9	51	1830	10	5.3
6	6.0	4.3	12	e11	e9.5	16	7.6	8.1	24	719	8.7	4.5
7	4.5	4.8	12	e9.5	e10	13	7.8	7.5	13	191	45	4.3
8	4.1	4.4	12	e12	e11	13	8.9	7.2	10	116	369	4.2
9	4.3	4.6	12	e15	e13	12	9.9	9.1	8.1	84	281	3.9
10	4.2	4.7	11	e19	e16	11	12	12	6.3	64	79	3.7
11	4.0	6.2	e11	e16	e14	10	17	12	853	57	46	3.3
12	3.7	4.3	e10	e13	e12	11	15	9.2	617	60	32	2.9
13	3.4	4.5	e9.0	e9.5	e13	9.4	12	7.5	701	57	70	2.6
14	3.4	3.9	e10	e8.5	e11	9.8	10	7.1	2570	40	34	2.7
15	3.3	4.2	e10	e10	e10	9.6	10	5.8	501	31	28	2.5
16	4.6	4.1	e7.0	e12	e9.5	9.5	10	5.3	128	27	22	2.6
17	7.5	4.3	e8.0	e9.5	e9.0	9.2	11	5.6	69	44	17	2.9
18	7.1	4.4	e9.0	e10	e9.0	9.3	12	6.0	42	40	14	2.5
19	6.2	4.7	e9.5	e11	e8.5	13	10	5.9	32	48	13	2.5
20	5.1	5.0	e11	e10	e12	17	152	5.5	28	32	13	4.4
21	4.6	4.3	e10	e9.0	e19	17	87	5.2	23	24	12	4.7
22	4.0	4.7	e8.0	e9.0	e32	16	36	5.4	18	19	12	6.6
23	4.2	36	e7.0	e7.5	e60	15	26	4.8	38	16	12	15
24	4.0	47	e8.0	e6.5	116	13	22	4.6	1610	14	13	21
25	4.0	35	e11	e6.0	90	12	17	4.6	1630	13	12	13
26	4.2	24	e13	e5.5	62	11	14	5.0	4180	13	11	13
27	4.2	18	e11	e5.5	43	9.6	14	6.4	849	12	10	9.2
28	4.1	13	e10	e5.5	32	9.6	14	7.1	193	12	11	6.2
29	4.4	12	e11	e6.0	26	8.7	13	8.4	116	11	9.6	4.9
30	4.6	11	e12	e6.5	---	8.4	11	6.4	78	11	8.4	4.0
31	5.0	---	e13	e5.5	---	8.3	---	5.3	---	14	8.1	---
TOTAL	149.7	294.1	327.5	322.5	686.5	423.4	601.8	225.1	14444.3	3866	1240.4	179.6
MEAN	4.83	9.80	10.6	10.4	23.7	13.7	20.1	7.26	481	125	40.0	5.99
MAX	7.5	47	13	19	116	29	152	12	4180	1830	369	21
MIN	3.3	3.9	7.0	5.5	6.0	8.3	7.6	4.6	4.9	11	7.5	2.5
AC-FT	297	583	650	640	1360	840	1190	446	28650	7670	2460	356
CFSM	.01	.03	.03	.03	.07	.04	.06	.02	1.41	.36	.12	.02
IN.	.02	.03	.04	.04	.07	.05	.07	.02	1.57	.42	.13	.02

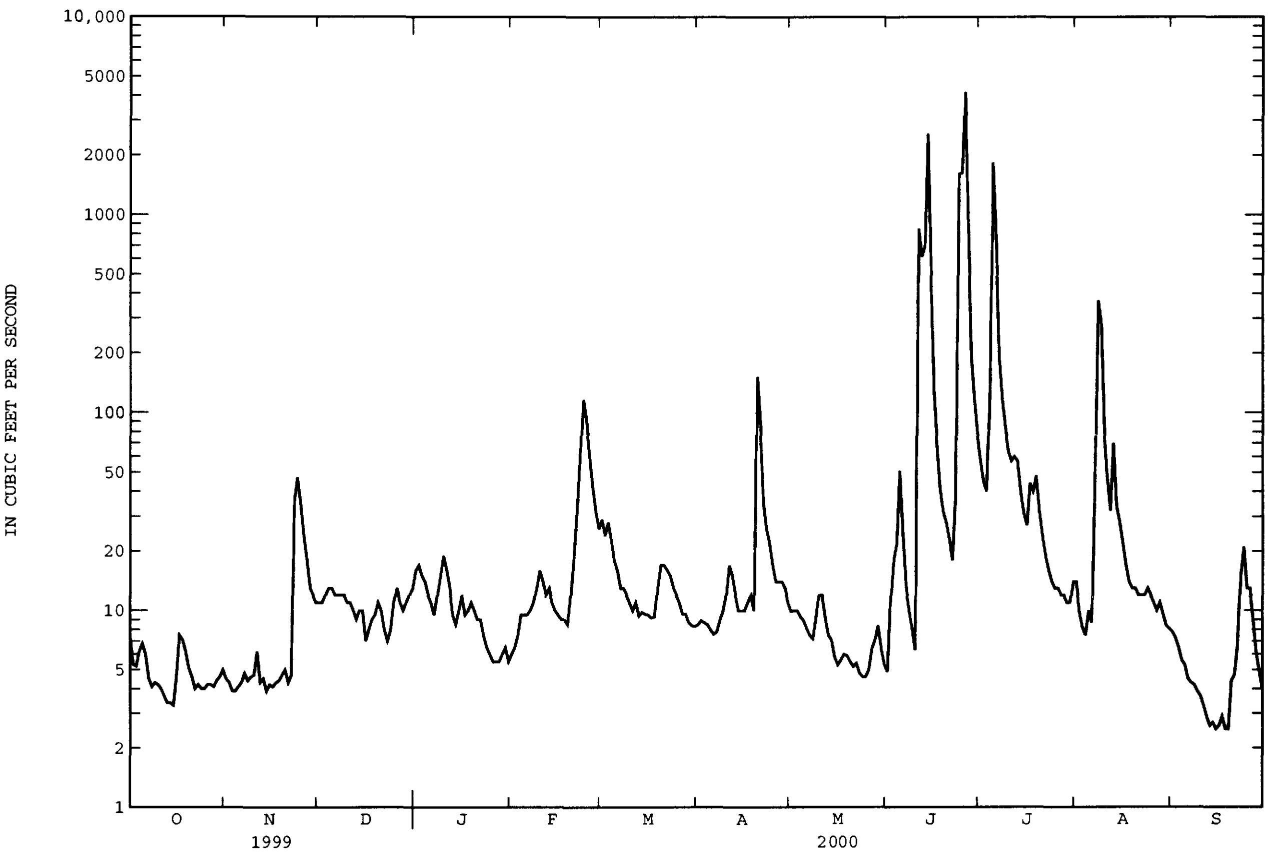
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	120	115	110	65.2	169	336	455	396	282	289	121	185
MAX	1153	756	718	601	718	1056	1592	1823	1146	3641	1202	1902
(WY)	1974	1984	1983	1974	1973	1998	1991	1996	1967	1993	1993	1992
MIN	1.16	1.35	.80	.49	1.82	4.05	3.85	6.44	5.13	1.47	2.09	1.11
(WY)	1990	1977	1964	1977	1964	1964	1989	1980	1977	1988	1971	1968

05487980 WHITE BREAST CREEK NEAR DALLAS, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1963 - 2000	
ANNUAL TOTAL	77960.4		22760.9			
ANNUAL MEAN	214		62.2		220	
HIGHEST ANNUAL MEAN					816	1993
LOWEST ANNUAL MEAN					17.1	1989
HIGHEST DAILY MEAN	5230	Apr 16	4180	Jun 26	24700	Sep 16 1992
LOWEST DAILY MEAN	3.3	Oct 15	2.5	Sep 15a	.02	Oct 14 1989
ANNUAL SEVEN-DAY MINIMUM	3.7	Sep 20	2.6	Sep 13	.05	Aug 9 1989
INSTANTANEOUS PEAK FLOW			6390	Jun 25	37300	Jul 16 1982
INSTANTANEOUS PEAK STAGE			18.40	Jun 25	33.45	Jul 16 1982
INSTANTANEOUS LOW FLOW			2.0	Sep 19		
ANNUAL RUNOFF (AC-FT)	154600		45150		159600	
ANNUAL RUNOFF (CFSM)	.62		.18		.64	
ANNUAL RUNOFF (INCHES)	8.48		2.48		8.75	
10 PERCENT EXCEEDS	444		49		438	
50 PERCENT EXCEEDS	48		10		35	
90 PERCENT EXCEEDS	4.4		4.3		2.7	

a Also Sept. 18 and 19.
e Estimated.



05488100 LAKE RED ROCK NEAR PELLA, IA

LOCATION.--Lat 41°22'11", long 92°58'48", in $NE^1/_4$ $NW^1/_4$ sec.19, T.76 N., R.18 W., Marion County, Hydrologic Unit 07100008, at outlet works near right end of Red Rock Dam on Des Moines River, 1.4 mi upstream from Lake Creek, 4.5 mi southwest of Pella, and at mile 142.3.

DRAINAGE AREA.--12,323 mi^2.

PERIOD OF RECORD.--March 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam completed in 1969. Storage began in March 1969. Releases controlled through 14 concrete conduits extending through the concrete ogee spillway section into the stilling basin. Inlet invert elevation at 690 ft above sea level. Maximum design discharge through the conduits is 37,500 ft^3/s but normal flood control operation limits maximum outflow to 30,000 ft^3/s. Spillway section consists of 5 tainter gates, 41 ft wide and 45 ft high, on concrete ogee crest at elevation 736 ft. The storage capacity of the reservoir at full flood-control pool level, 780 ft, is 1,489,900 acre-ft, surface area, 65,440 acres. Conservation pool level, 742 feet, is 265,500 acre-feet, surface area, 19,100 acres. Reservoir is used for flood control, low-flow augmentation, conservation and recreation. Normal operation will maintain an elevation of 742 ft with minimum release of 300 ft^3/s and maximum release of 30,000 ft^3/s during the non-growing season, providing discharges at Ottumwa and Keosauqua do not exceed 30,000 ft^3/s and 35,000 ft^3/s respectively. Storage tables for water years 1985-1986 published as day second-feet instead of acre-feet storage.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 1,933,000 acre-ft July 12, 13, 1993; maximum elevation, 782.67 ft July 13, 1993; minimum daily contents, 43,900 acre-ft May 24, 1985, minimum elevation, 719.68 ft Feb. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 388,000 acre-ft June 28; maximum elevation, 748.55 ft June 28; minimum daily contents, 245,000 acre-ft Sept. 22; minimum elevation, 741.94 ft Aug. 13.

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

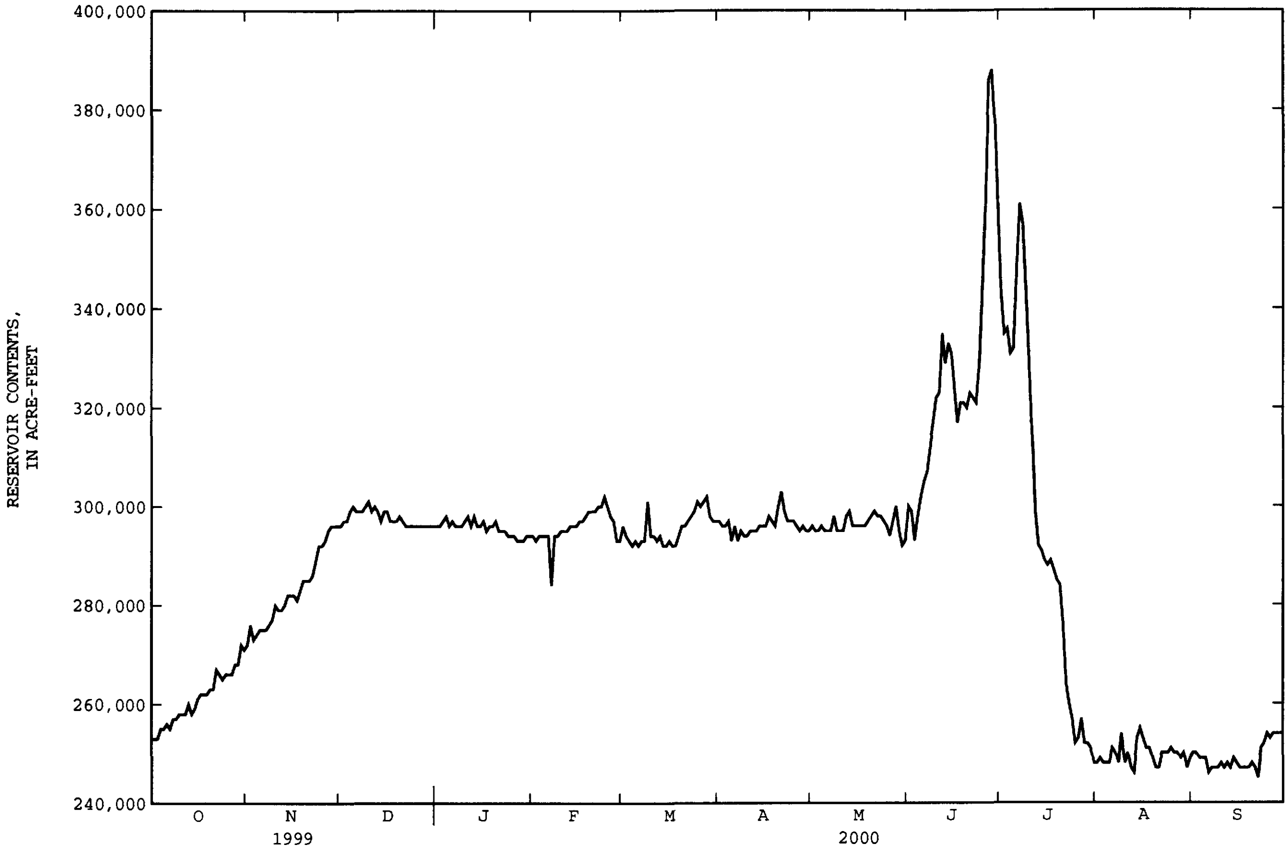
700	300	720	27,700	740	226,000	760	754,000	780	1,751,000
705	1,200	725	50,700	745	324,000	765	948,000	785	2,109,000
710	3,940	730	89,200	750	445,000	770	1,178,000		
715	11,900	735	149,000	755	589,000	775	1,444,000		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	253000	272000	296000	296000	294000	296000	297000	296000	300000	343000	248000	250000
2	253000	276000	297000	296000	293000	294000	296000	295000	299000	335000	249000	e250000
3	253000	273000	297000	297000	294000	293000	296000	295000	293000	336000	248000	e249000
4	255000	274000	299000	298000	294000	292000	297000	296000	298000	331000	248000	e249000
5	255000	275000	300000	296000	294000	293000	293000	295000	302000	332000	248000	249000
6	256000	275000	299000	297000	294000	292000	296000	295000	305000	348000	251000	246000
7	255000	275000	299000	296000	284000	293000	293000	295000	307000	361000	250000	247000
8	257000	276000	299000	296000	294000	293000	295000	298000	312000	357000	248000	247000
9	257000	277000	300000	296000	294000	301000	294000	295000	317000	344000	254000	247000
10	258000	280000	301000	297000	295000	294000	e294000	295000	322000	330000	248000	248000
11	258000	279000	299000	298000	295000	294000	295000	295000	323000	315000	250000	247000
12	258000	279000	300000	296000	295000	293000	295000	298000	335000	299000	247000	248000
13	260000	280000	299000	298000	296000	294000	295000	299000	329000	292000	246000	247000
14	258000	282000	297000	296000	296000	292000	296000	296000	333000	291000	253000	249000
15	259000	282000	299000	296000	296000	292000	296000	296000	331000	289000	255000	248000
16	261000	282000	299000	297000	297000	293000	296000	296000	324000	288000	253000	247000
17	262000	281000	297000	295000	297000	292000	298000	296000	317000	289000	251000	247000
18	262000	283000	297000	296000	298000	292000	297000	296000	321000	287000	251000	247000
19	262000	285000	297000	296000	299000	294000	296000	297000	321000	285000	249000	247000
20	263000	285000	298000	297000	e299000	296000	300000	298000	320000	284000	247000	248000
21	263000	285000	297000	295000	299000	296000	303000	299000	323000	276000	247000	247000
22	267000	286000	296000	295000	300000	297000	299000	298000	322000	264000	250000	245000
23	266000	289000	296000	295000	300000	298000	297000	298000	321000	260000	250000	251000
24	265000	292000	296000	294000	302000	299000	297000	297000	329000	257000	250000	252000
25	266000	292000	296000	294000	300000	301000	297000	296000	345000	252000	251000	254000
26	266000	293000	296000	294000	298000	300000	296000	294000	362000	253000	250000	253000
27	266000	295000	296000	293000	297000	301000	295000	297000	386000	257000	250000	254000
28	268000	296000	296000	293000	293000	302000	296000	300000	388000	252000	249000	254000
29	268000	296000	296000	293000	293000	298000	295000	295000	377000	252000	250000	254000
30	272000	296000	296000	294000	---	297000	295000	292000	360000	251000	247000	254000
31	271000	---	296000	294000	---	297000	---	293000	---	248000	e249000	---
MEAN	261000	283000	298000	296000	296000	295000	296000	296000	327000	295000	250000	249000
MAX	272000	296000	301000	298000	302000	302000	303000	300000	388000	361000	255000	254000
MIN	253000	272000	296000	293000	284000	292000	293000	292000	293000	248000	246000	245000

e Estimated

05488100 LAKE RED ROCK NEAR PELLA, IA--Continued



05488110 DES MOINES RIVER NEAR PELLA, IA

LOCATION.--Lat 41°21'38", long 92°58'23", in SW 1/4 SW 1/4 SE 1/4 sec.19, T.76 N., R.18 W., Marion County, Hydrologic Unit 07100009, on right bank, 0.4 mile downstream of outlet of Red Rock Reservoir, and 0.75 mile upstream of Lake Creek.

DRAINAGE AREA.--12,330 mi^2.

PERIOD OF RECORD.--October 1992 to current year.

GAGE.--Water-stage recorder. Datum of gage is 600.00 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Lake Red Rock (station 05488100) 0.4 mi upstream. Periodic observations of water temperature and specific conductance are published as in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	575	279	503	683	473	1310	974	843	4200	8770	2140	844
2	475	273	504	672	481	1330	870	859	5830	4880	1490	849
3	468	300	497	672	453	1330	773	767	2870	4150	1490	848
4	470	302	482	649	454	1340	780	700	906	4980	1320	845
5	475	299	472	699	476	1340	799	714	894	5750	1010	852
6	485	306	494	677	480	1270	802	720	913	5210	1360	757
7	486	306	497	685	473	1180	708	726	924	9740	1700	654
8	470	303	494	686	480	1190	618	716	924	13400	1710	648
9	469	306	482	678	482	1140	633	700	935	12900	3480	543
10	466	290	684	666	461	1160	645	706	1740	12300	2180	460
11	478	299	848	656	463	1160	622	585	1850	12100	1710	451
12	479	297	969	676	477	1070	640	482	5750	11200	1450	441
13	454	300	1050	661	470	972	644	458	7450	10500	675	406
14	467	291	831	677	469	982	647	468	10800	11800	759	369
15	382	298	652	671	465	773	631	469	13000	10700	1290	345
16	279	312	670	672	466	632	634	460	11200	8370	1460	302
17	285	327	675	695	481	557	619	453	8220	7380	1440	296
18	300	329	685	665	479	466	643	431	6930	7380	1440	304
19	301	307	671	654	470	450	653	545	6730	7390	1240	309
20	311	314	660	e675	473	444	1310	838	5420	8840	1030	283
21	310	322	690	e650	593	452	2590	1190	4870	e9500	1020	275
22	264	316	684	e675	746	453	2470	1340	4870	7850	1600	284
23	291	304	680	e675	1020	468	1420	1340	4230	5520	2190	264
24	312	305	681	e650	1830	542	986	1800	3930	5240	1880	262
25	313	310	681	e650	2390	811	990	2150	5550	4210	1640	266
26	316	310	650	e625	2370	985	993	1410	5730	3260	1510	269
27	314	416	665	585	2360	952	892	1350	6110	4610	e1500	267
28	303	491	669	489	1820	1060	814	2560	9900	4140	e1500	273
29	315	492	681	484	1340	1060	832	3230	11400	3020	e1300	276
30	303	503	678	473	---	977	842	2790	11400	3590	1070	280
31	303	---	683	477	---	977	---	2440	---	3260	849	---
TOTAL	11919	9807	20262	19902	23895	28833	27474	34240	165476	231940	46433	13522
MEAN	384	327	654	642	824	930	916	1105	5516	7482	1498	451
MAX	575	503	1050	699	2390	1340	2590	3230	13000	13400	3480	852
MIN	264	273	472	473	453	444	618	431	894	3020	675	262
AC-FT	23640	19450	40190	39480	47400	57190	54490	67920	328200	460100	92100	26820
CFSM	.03	.03	.05	.05	.07	.08	.07	.09	.45	.61	.12	.04
IN.	.04	.03	.06	.06	.07	.09	.08	.10	.50	.70	.14	.04

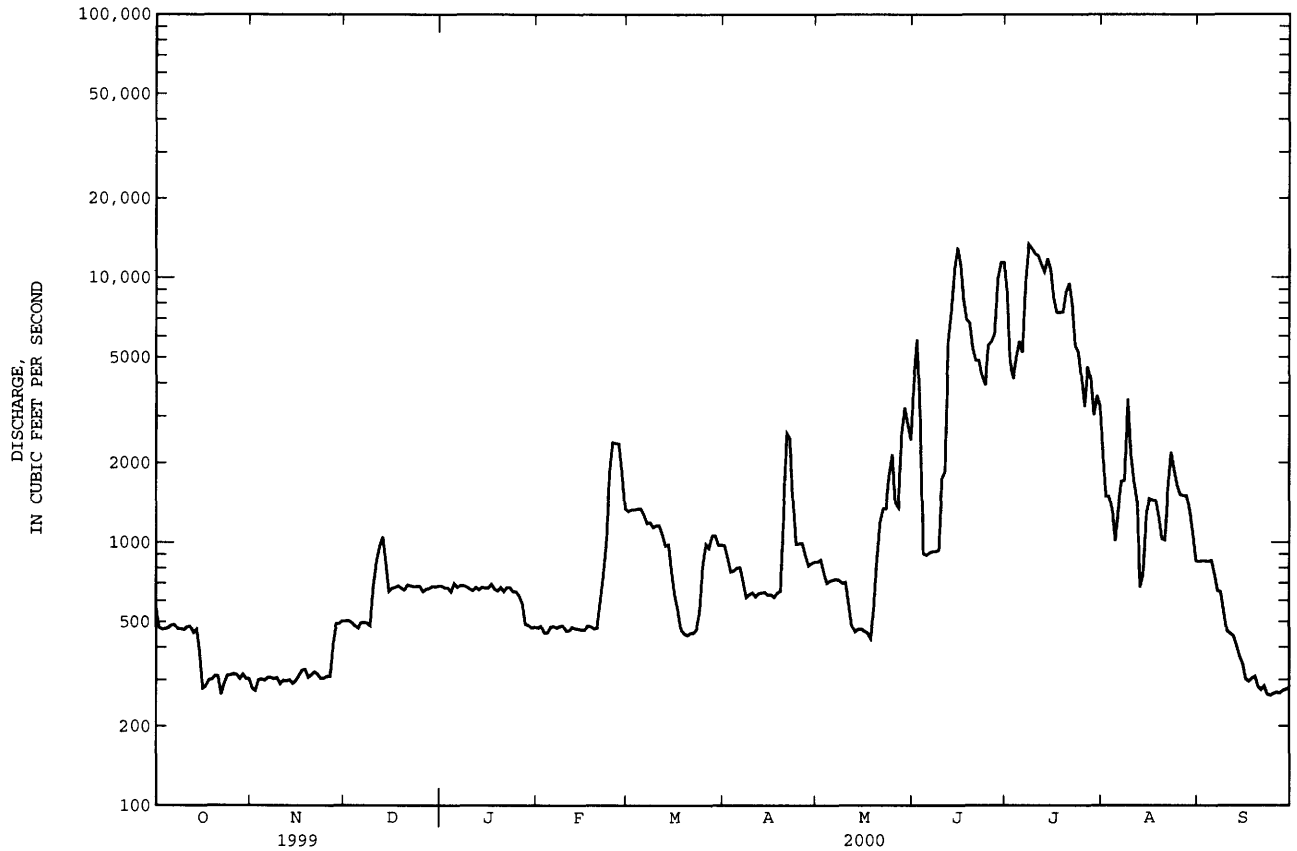
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3575	4172	4295	2097	4418	8789	13490	14040	16360	22480	10510	5271
MAX	11150	11990	12380	3997	8246	17480	22040	28520	27950	79340	44600	33490
(WY)	1994	1993	1993	1993	1997	1993	1998	1993	1993	1993	1993	1993
MIN	384	327	654	642	824	930	916	1105	5516	7039	1498	451
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	2000	1997	2000	2000

05488110 DES MOINES RIVER NEAR PELLA, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1993 - 2000	
ANNUAL TOTAL	3185589		633703			
ANNUAL MEAN	8728		1731		9153	
HIGHEST ANNUAL MEAN					24360	1993
LOWEST ANNUAL MEAN					1731	2000
HIGHEST DAILY MEAN	31600	Apr 21	13400	Jul 8	104000	Jul 12 1993
LOWEST DAILY MEAN	264	Oct 22	262	Sep 24	262	Sep 24 2000
ANNUAL SEVEN-DAY MINIMUM	293	Oct 16	268	Sep 23	268	Sep 23 2000
INSTANTANEOUS PEAK FLOW			15500	Jun 15	105000	Jul 12 1993
INSTANTANEOUS PEAK STAGE			92.48	Jun 15	109.71	Jul 12 1993
ANNUAL RUNOFF (AC-FT)	6319000		1257000		6631000	
ANNUAL RUNOFF (CFSM)	.71		.14		.74	
ANNUAL RUNOFF (INCHES)	9.61		1.91		10.09	
10 PERCENT EXCEEDS	21700		5220		21600	
50 PERCENT EXCEEDS	4560		681		4600	
90 PERCENT EXCEEDS	315		305		722	

e Estimated



05488200 ENGLISH CREEK NEAR KNOXVILLE, IA

LOCATION.--Lat 41°18'02", long 93°02'43", in NE$^1/_4$ SE$^1/_4$ sec.16, T.75 N., R.19 W., Marion County, Hydrologic Unit 07100009, on left bank 30 ft from left upstream abutment of bridge on State Highway 92, 3 mi east of Knoxville, and 11.4 mi upstream from mouth at Des Moines River.

DRAINAGE AREA.--90.1 mi^2.

PERIOD OF RECORD.--July 1985 to current year.

REVISED RECORDS.--WDR IA-97:(M)

GAGE.--Water-stage recorder. Datum of gage is 721.79 ft above sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 16, 1982 reached a stage of 30.28 ft, gage datum, discharge 28,000 ft^3/s, from contracted-opening indirect computations.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.0	e1.1	e2.5	e2.2	e.90	7.9	1.8	2.0	1.4	27	2.0	1.0
2	e.80	e1.0	e2.5	e2.6	e1.0	6.3	1.7	1.8	2.2	24	2.3	.81
3	e.75	e1.0	e2.9	e2.4	e1.1	6.0	1.7	1.7	1.5	28	2.3	.83
4	e.85	e1.1	e3.0	e2.3	e1.2	5.1	1.5	1.6	2.3	175	2.1	.72
5	e1.1	e1.2	e3.2	e1.4	e1.3	4.6	1.5	1.6	2.7	482	1.9	.56
6	e1.0	e1.4	e3.2	e1.3	e1.4	4.4	1.3	1.5	6.8	1080	1.9	.49
7	e.95	e1.3	e3.2	e1.0	e1.5	4.1	1.4	1.6	3.2	159	1.9	.48
8	e.85	e1.2	e3.0	e1.2	e1.6	3.9	1.6	1.8	1.9	67	11	.48
9	e.90	e1.4	e2.8	e2.4	e2.0	3.6	1.4	2.6	1.4	42	31	.41
10	e.85	e1.5	e2.7	e4.0	e3.4	3.3	1.6	2.8	.94	33	10	.41
11	e.75	e1.7	e3.0	e2.4	e2.8	3.2	3.5	2.5	125	29	4.5	.61
12	e.80	e1.5	e2.6	e2.1	e2.2	3.0	3.2	2.5	510	27	3.2	.28
13	e.90	e1.3	e2.2	e1.8	e2.3	2.8	2.8	2.3	222	29	97	.25
14	e.70	e1.2	e2.2	e1.4	e2.5	3.0	2.4	2.0	955	20	77	.33
15	e.65	e1.3	e1.8	e1.5	e2.8	2.8	2.0	1.8	290	12	17	.30
16	e.85	e1.1	e1.4	e1.6	e2.5	2.6	2.0	1.8	58	9.2	7.6	.30
17	e1.9	e1.1	e1.6	e1.4	e2.4	2.4	2.3	1.7	33	8.1	4.4	.30
18	e1.7	e1.2	e1.8	e1.5	e2.3	2.6	2.1	1.7	22	7.9	3.9	.29
19	e1.6	e1.2	e2.0	e1.6	e2.2	3.4	2.2	1.6	16	10	3.6	.28
20	e1.4	e1.5	e2.1	e1.4	e3.2	3.4	20	1.5	13	12	2.8	.40
21	e1.1	e1.4	e1.7	e1.3	e10	3.7	35	3.0	10	7.1	2.2	.48
22	e1.1	e6.0	e1.3	e1.2	e25	3.7	17	2.4	7.4	5.1	2.3	1.6
23	e1.2	e19	e1.0	e.85	39	3.3	6.9	1.9	241	4.2	2.7	4.0
24	e1.1	e8.5	e1.1	.80	38	3.3	4.3	1.6	1090	3.7	2.7	2.9
25	e1.2	e5.0	e1.3	e.75	33	2.7	3.2	1.4	1660	2.7	2.7	2.5
26	e1.2	e4.8	e1.9	e.70	19	2.5	2.4	1.8	1580	2.7	2.3	1.1
27	e1.1	e4.2	e1.8	e.70	12	2.3	2.6	3.1	745	3.6	2.1	.70
28	e1.0	e3.2	e1.6	e.70	7.9	2.2	2.3	2.5	104	3.2	1.8	.57
29	e1.1	e2.9	e1.7	e.74	7.1	2.1	1.9	2.0	61	2.6	1.3	.43
30	e1.2	e2.6	e1.8	e.80	---	2.0	2.0	1.8	39	2.2	1.2	.38
31	e1.3	---	e2.0	e.70	---	1.8	---	1.7	---	2.1	1.2	---
TOTAL	32.90	82.9	66.9	46.74	231.60	108.0	135.6	61.6	7805.74	2320.4	309.9	24.19
MEAN	1.06	2.76	2.16	1.51	7.99	3.48	4.52	1.99	260	74.9	10.0	.81
MAX	1.9	19	3.2	4.0	39	7.9	35	3.1	1660	1080	97	4.0
MIN	.65	1.0	1.0	.70	.90	1.8	1.3	1.4	.94	2.1	1.2	.25
AC-FT	65	164	133	93	459	214	269	122	15480	4600	615	48
CFSM	.01	.03	.02	.02	.09	.04	.05	.02	2.89	.83	.11	.01
IN.	.01	.03	.03	.02	.10	.04	.06	.03	3.22	.96	.13	.01

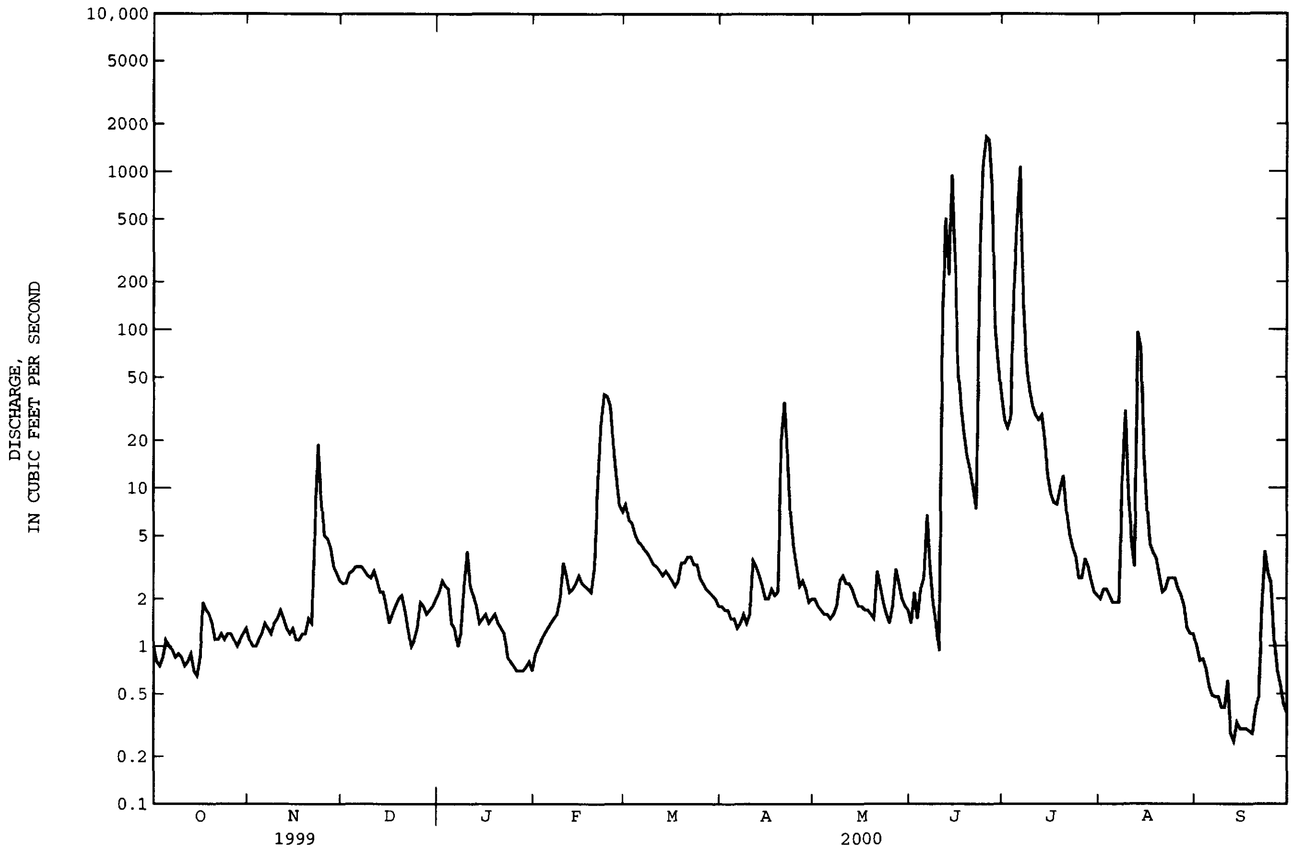
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	27.1	24.6	25.3	14.7	42.3	93.2	123	142	97.5	94.7	32.2	35.7
MAX	161	100	112	51.8	134	335	476	514	260	1039	285	159
(WY)	1987	1993	1993	1998	1997	1993	1991	1996	2000	1993	1993	1992
MIN	.48	.76	.31	.66	.50	2.05	1.03	1.99	2.27	.18	.17	.026
(WY)	1995	1989	1989	1989	1989	1989	1989	2000	1992	1988	1988	1991

05488200 ENGLISH CREEK NEAR KNOXVILLE, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1985 - 2000	
ANNUAL TOTAL	21459.39		11226.47			
ANNUAL MEAN	58.8		30.7		63.5	
HIGHEST ANNUAL MEAN					214	1993
LOWEST ANNUAL MEAN					6.71	1989
HIGHEST DAILY MEAN	1420	Jun 11	1660	Jun 25	8610	Jul 5 1993
LOWEST DAILY MEAN	.29	Sep 26	.25	Sep 13	.00	Sep 12 1988a
ANNUAL SEVEN-DAY MINIMUM	.33	Sep 20	.29	Sep 12	.00	Sep 25 1991
INSTANTANEOUS PEAK FLOW			2100	Jun 25	18900	Jul 5 1993
INSTANTANEOUS PEAK STAGE			20.77	Jun 25	27.88	Jul 5 1993
ANNUAL RUNOFF (AC-FT)	42560		22270		45990	
ANNUAL RUNOFF (CFSM)	.65		.34		.70	
ANNUAL RUNOFF (INCHES)	8.86		4.64		9.57	
10 PERCENT EXCEEDS	120		23		102	
50 PERCENT EXCEEDS	13		2.1		9.6	
90 PERCENT EXCEEDS	.80		.81		.38	

a Also Sept. 13-17, 1989, Aug. 8-13, 1989, Sept. 6-10, 21, and Sept. 25 to Oct. 3, 1991.
e Estimated.



05488500 DES MOINES RIVER NEAR TRACY, IA

LOCATION.--Lat 41°16'53", long 92°51'34", in NW1/4 SE1/4 sec.19, T.75 N., R.17 W., Mahaska County, Hydrologic Unit 07100009, on right bank 250 ft upstream from abandoned Bellefountaine Bridge, 0.8 mi east of Tracy, 3.1 mi upstream from Cedar Creek, 3.8 mi downstream from bridge on newly located State Highway 92, 6.4 mi downstream from English Creek, and at mile 130.4.

DRAINAGE AREA.--12,479 mi^2.

PERIOD OF RECORD.--March 1920 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1920 (M), 1922 (M), 1933.

GAGE.--Water-stage recorder. Datum of gage is 670.91 ft above sea level. Prior to June 26, 1940 and June 30, 1952 to Nov. 4, 1960 nonrecording gage, and June 27, 1940 to June 29, 1952 water-stage recorder, at site 250 ft downstream at same datum.

REMARKS.--Records good except those for periods of estimated daily discharges, which are fair. Flow regulated by Lake Red Rock (station 05488100) 11.9 mi upstream, since March 12, 1969. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers gage-height telemeter and satellite data collection platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 155,000 ft^3/s, June 14, 1947, gage height, 26.5 ft; minimum daily discharge, 40 ft^3/s Jan. 29 to Feb. 2, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1851, that of June 14, 1947. Flood of May 31, 1903, reached a stage of about 25 ft, discharge, about 130,000 ft^3/s. Minimum daily discharge since at least 1910, that of Jan. 29 to Feb. 1, 1940.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	744	322	594	813	e625	1530	1070	972	3820	10100	2580	960
2	573	305	596	814	638	1520	1010	972	6280	5870	1640	959
3	566	311	597	816	607	1520	890	917	3870	4320	1630	959
4	550	314	597	817	599	1520	880	771	1010	5520	1510	959
5	543	314	593	e850	593	1520	884	762	962	7020	1190	958
6	542	310	593	831	583	1480	872	755	959	7060	1300	912
7	541	314	597	804	543	1350	836	754	962	9550	1840	758
8	539	313	597	804	512	1340	683	754	959	14200	1910	749
9	530	311	595	807	514	1330	677	761	959	13900	3140	682
10	527	311	704	804	511	1330	683	744	1480	13100	3080	515
11	522	304	1010	796	499	1330	697	658	2330	12900	1560	508
12	526	314	1090	799	501	1260	685	497	5530	12200	1910	508
13	525	312	1240	e775	508	1110	677	483	8890	11100	981	491
14	518	307	1110	e800	508	1100	675	481	11300	12400	857	423
15	487	309	822	797	513	990	677	480	15000	11600	1370	398
16	359	313	816	790	503	718	686	481	12000	9250	1610	295
17	326	341	818	e800	504	668	685	480	9600	7720	1610	286
18	326	342	818	e825	518	513	677	483	7100	7700	1600	280
19	326	346	827	e800	508	501	683	546	7290	7700	1490	287
20	326	337	817	e825	508	497	1210	853	5950	8830	1150	312
21	326	339	e825	e825	596	497	2800	1270	5130	10600	1150	291
22	323	344	e850	e800	833	490	2980	1560	5110	8930	1490	364
23	310	496	e825	e800	1100	486	1950	1570	5160	5810	2430	372
24	320	385	e825	e825	1900	541	1190	1870	6480	5390	2230	335
25	326	357	826	e800	2750	778	1180	2390	7440	4730	1830	320
26	326	351	807	e650	2740	1090	1170	1900	10600	3500	1740	311
27	323	409	807	e625	2710	1080	1110	1430	7400	4410	1610	296
28	326	583	e800	e625	2310	1140	982	2520	10000	4750	1620	286
29	322	591	809	e625	1560	1230	972	3460	12300	3280	1600	281
30	323	593	816	e625	---	1080	972	3200	12200	3660	1360	280
31	317	---	812	e625	---	1070	---	2730	---	3700	971	---
TOTAL	13438	10798	24433	23992	27294	32609	31143	37504	188071	250800	51989	15335
MEAN	433	360	788	774	941	1052	1038	1210	6269	8090	1677	511
MAX	744	593	1240	850	2750	1530	2980	3460	15000	14200	3140	960
MIN	310	304	593	625	499	486	675	480	959	3280	857	280
AC-FT	26650	21420	48460	47590	54140	64680	61770	74390	373000	497500	103100	30420
CFSM	.03	.03	.06	.06	.08	.08	.08	.10	.50	.65	.13	.04
IN.	.04	.03	.07	.07	.08	.10	.09	.11	.56	.75	.15	.05

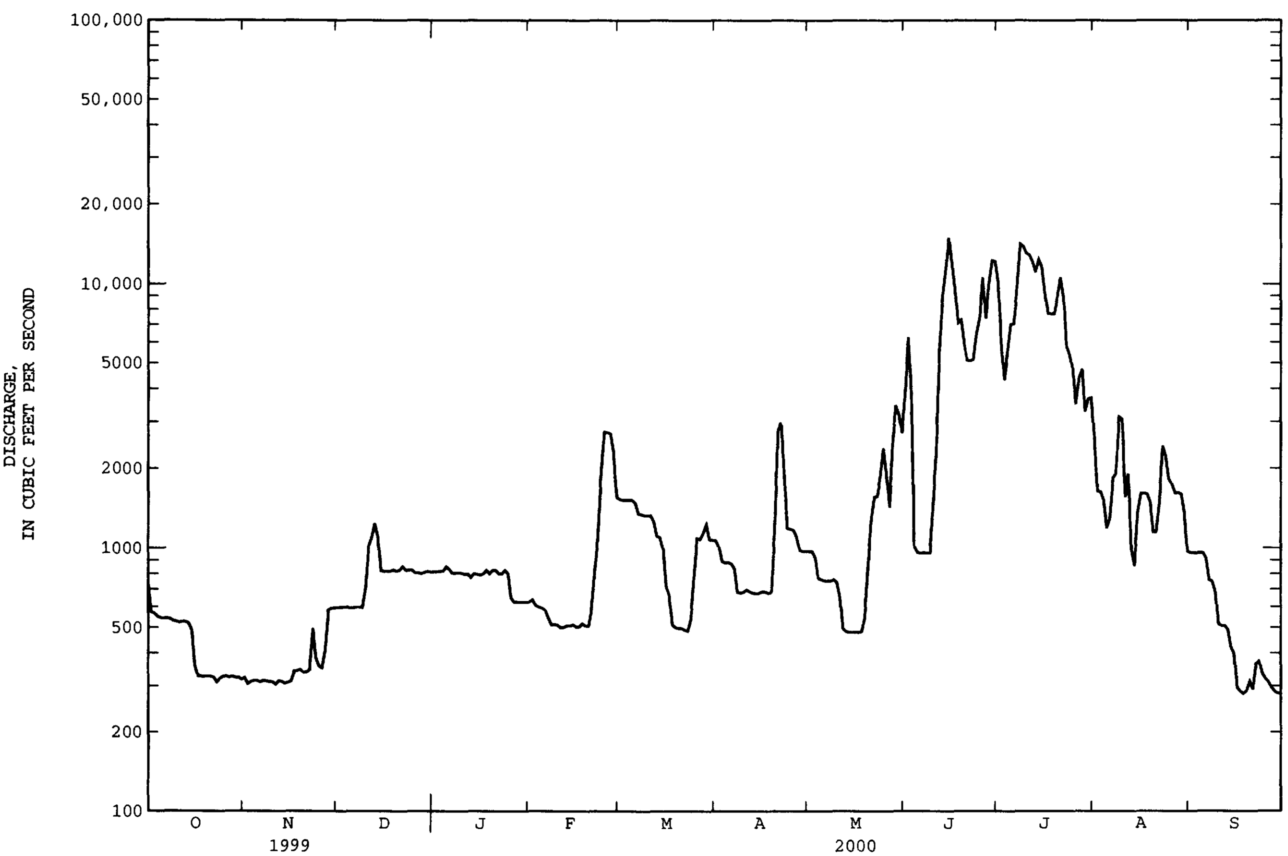
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3641	4658	3897	2586	4471	9144	11970	11850	13190	13850	8044	4278
MAX	17190	19160	12540	11510	15560	21520	24370	28280	30260	80800	45240	33670
(WY)	1974	1987	1983	1973	1973	1983	1998	1993	1984	1993	1993	1993
MIN	318	340	344	305	276	746	866	425	277	220	591	342
(WY)	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1989	1976

05488500 DES MOINES RIVER NEAR TRACY, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1970 - 2000a	
ANNUAL TOTAL	3425616		707406			
ANNUAL MEAN	9385		1933		7646	
HIGHEST ANNUAL MEAN					24450	1993
LOWEST ANNUAL MEAN					898	1977
HIGHEST DAILY MEAN	33400	Apr 21	15000	Jun 15	107000	Jul 12 1993
LOWEST DAILY MEAN	304	Nov 11	280	Sep 18	165	Feb 20 1977
ANNUAL SEVEN-DAY MINIMUM	310	Nov 9	301	Sep 24	210	Oct 9 1980
INSTANTANEOUS PEAK FLOW			17300	Jun 15	109000	Jul 12 1993
INSTANTANEOUS PEAK STAGE			8.97	Jun 15	24.16	Jul 12 1993
ANNUAL RUNOFF (AC-FT)	6795000		1403000		5539000	
ANNUAL RUNOFF (CFSM)	.75		.15		.61	
ANNUAL RUNOFF (INCHES)	10.21		2.11		8.32	
10 PERCENT EXCEEDS	23200		5830		19200	
50 PERCENT EXCEEDS	4630		816		3980	
90 PERCENT EXCEEDS	345		326		560	

a Post regulation.
e Estimated.



05489000 CEDAR CREEK NEAR BUSSEY, IA

LOCATION.--Lat 41°13'09", long 92°54'38", at SW corner sec.11, T.74 N., R.18 W., Marion County, Hydrologic Unit 07100009, on left bank 10 ft downstream from bridge on State Highway 156, 0.8 mi downstream from North Cedar Creek, 1.6 mi northwest of Bussey, 3.0 mi upstream from Honey Creek, and 8.9 mi upstream from mouth.

DRAINAGE AREA.--374 mi^2.

PERIOD OF RECORD.--October 1947 to current year.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water stage recorder. Datum of gage is 682.15 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to Feb. 21, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1946 reached a stage of 28.45 ft on upstream side and 28.05 ft on downstream side of bridge, levels to floodmarks by U.S. Army Corps of Engineers, discharge, 31,500 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	e5.5	7.4	5.6	e3.2	48	9.3	23	20	115	27	3.8
2	3.9	e5.0	7.1	7.3	e3.2	42	10	23	40	97	18	4.1
3	4.6	e4.6	7.7	12	e3.4	34	11	22	35	141	13	4.7
4	5.2	e4.4	10	13	e3.4	30	10	22	27	287	9.3	4.5
5	5.5	e4.6	11	12	e3.6	28	9.3	20	65	1240	6.6	3.8
6	4.9	e5.0	11	10	3.8	27	8.3	19	55	2550	7.4	3.8
7	4.1	e5.5	11	8.6	4.1	25	8.9	18	28	380	19	3.9
8	4.5	e4.8	10	8.0	4.8	23	11	19	17	211	137	4.1
9	3.7	e5.0	8.8	11	6.2	21	13	24	12	138	223	4.2
10	3.6	e5.5	8.5	20	9.4	18	15	40	8.0	109	60	4.6
11	3.4	e6.5	11	e22	12	16	20	45	60	98	26	6.4
12	3.4	e4.8	10	e13	16	15	22	30	312	91	14	5.0
13	3.9	e5.0	8.1	e9.0	18	15	19	20	430	104	62	4.1
14	3.9	e4.2	8.1	e7.0	17	15	14	15	1100	74	111	4.7
15	10	e4.6	e6.5	e6.0	18	16	11	13	209	59	37	3.6
16	20	e4.2	e5.0	e8.0	e16	16	11	12	95	52	17	3.4
17	18	e4.4	e4.6	e6.5	e15	15	13	12	62	52	9.5	3.3
18	25	e4.6	e4.4	e7.0	e14	14	14	13	38	49	7.0	3.5
19	12	e4.8	e5.0	7.9	e13	20	13	14	22	67	5.8	3.9
20	9.3	e4.6	5.8	7.8	e12	29	140	13	17	69	5.6	6.3
21	e5.5	e4.5	4.9	6.1	e15	31	242	13	19	51	5.6	5.4
22	e4.8	e5.0	4.3	5.7	e23	25	99	15	e95	34	6.0	12
23	e5.0	91	4.1	5.4	189	20	63	20	e850	26	6.8	85
24	e4.6	139	4.0	4.9	245	20	47	18	e3600	20	7.2	117
25	e4.6	56	3.9	4.7	204	18	36	12	2650	17	6.9	58
26	e5.0	27	4.0	4.3	122	15	28	12	5760	17	6.3	78
27	e4.8	16	4.1	3.7	106	14	28	20	1470	20	5.2	39
28	e4.6	12	4.2	e3.0	69	12	28	32	324	16	14	17
29	e5.0	9.8	4.7	e3.4	53	10	29	29	211	13	6.7	8.4
30	e5.5	8.7	5.2	e3.6	---	9.5	23	20	150	18	4.7	5.5
31	e6.0	---	5.2	e3.0	---	9.5	---	16	---	28	4.2	---
TOTAL	210.0	466.6	209.6	249.5	1222.1	651.0	1005.8	624	17781.0	6243	888.8	511.0
MEAN	6.77	15.6	6.76	8.05	42.1	21.0	33.5	20.1	593	201	28.7	17.0
MAX	25	139	11	22	245	48	242	45	5760	2550	223	117
MIN	3.4	4.2	3.9	3.0	3.2	9.5	8.3	12	8.0	13	4.2	3.3
AC-FT	417	926	416	495	2420	1290	2000	1240	35270	12380	1760	1010
CFSM	.02	.04	.02	.02	.11	.06	.09	.05	1.58	.54	.08	.05
IN.	.02	.05	.02	.02	.12	.06	.10	.06	1.77	.62	.09	.05

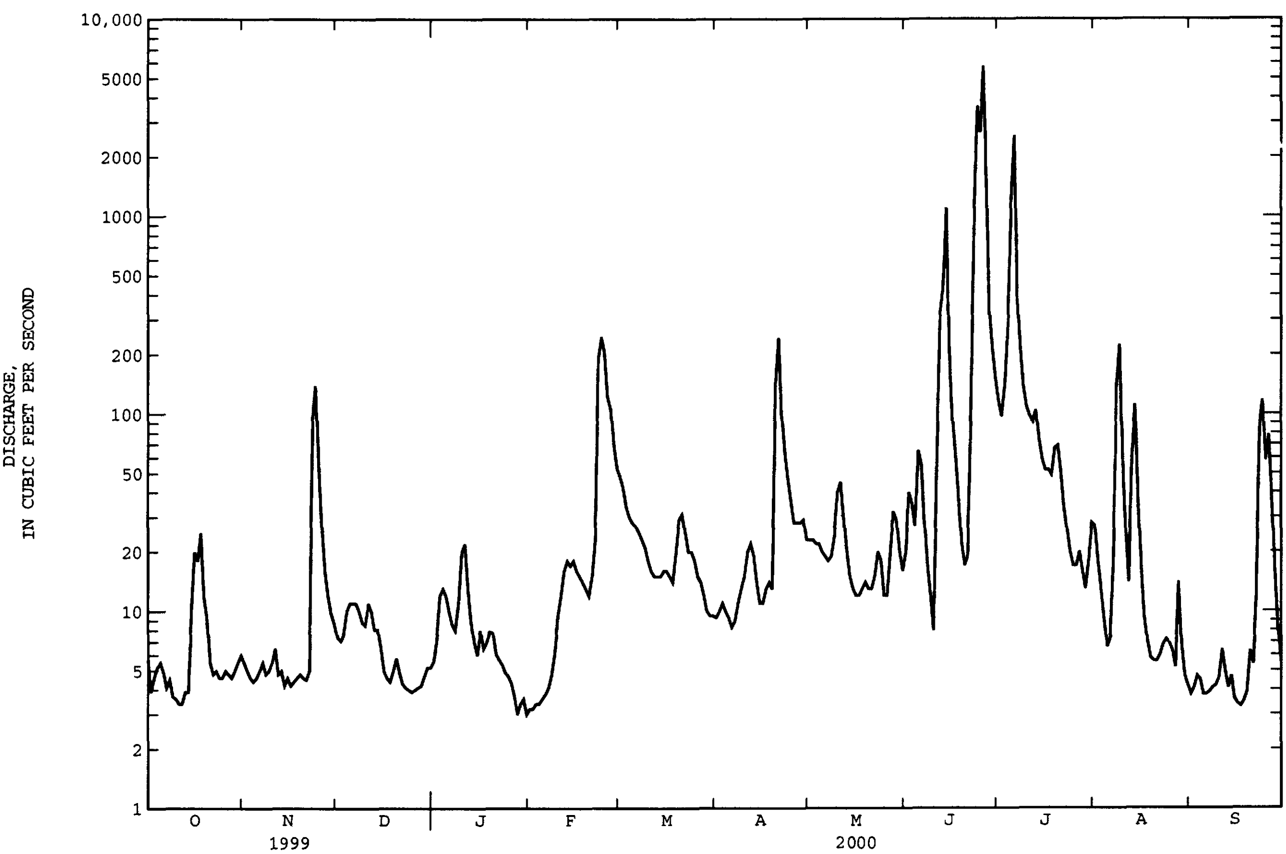
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	111	131	91.4	87.1	228	407	421	417	305	286	108	153
MAX	950	1331	844	894	952	1371	1552	1797	1258	3846	1070	1384
(WY)	1974	1962	1983	1974	1949	1960	1973	1996	1967	1982	1993	1992
MIN	.18	.33	.39	.20	2.29	3.78	.79	7.19	2.74	2.26	2.51	.60
(WY)	1957	1956	1956	1956	1954	1954	1956	1956	1977	1988	1953	1953

05489000 CEDAR CREEK NEAR BUSSEY, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1948 - 2000	
ANNUAL TOTAL	82925.2		30062.4			
ANNUAL MEAN	227		82.1		229	
HIGHEST ANNUAL MEAN					768	1993
LOWEST ANNUAL MEAN					29.4	1989
HIGHEST DAILY MEAN	5740	Apr 28	5760	Jun 26	42000	Jul 3 1982
LOWEST DAILY MEAN	3.4	Oct 11	3.0	Jan 28a	.00	Sep 6 1955b
ANNUAL SEVEN-DAY MINIMUM	3.8	Oct 8	3.3	Jan 28	.00	Sep 6 1955
INSTANTANEOUS PEAK FLOW			6870	Jun 26	96000	Jul 3 1982
INSTANTANEOUS PEAK STAGE			19.96	Jun 26	34.61	Jul 3 1982
ANNUAL RUNOFF (AC-FT)	164500		59630		165500	
ANNUAL RUNOFF (CFSM)	.61		.22		.61	
ANNUAL RUNOFF (INCHES)	8.25		2.99		8.30	
10 PERCENT EXCEEDS	416		97		405	
50 PERCENT EXCEEDS	38		12		37	
90 PERCENT EXCEEDS	4.7		4.1		2.6	

a Also Jan. 31.
b Also Sept. 7-20, 1955, Oct. 11, 12, 1956, Aug. 12, 13, 1989.
e Estimated.



05489500 DES MOINES RIVER AT OTTUMWA, IA

LOCATION.--Lat 41°00'39", long 92°24'40", in $SE^1/_4$ $NE^1/_4$ sec.25, T.72 N., R.14 W., Wapello County, Hydrologic Unit 07100009, on right bank 15 ft downstream from Colorado and Eastern Railroad Bridge at Ottumwa, 0.4 mi downstream from Ottumwa powerplant, 6.5 mi upstream from Village Creek, 9.5 mi downstream from South Avery Creek, and at mile 94.1.

DRAINAGE AREA.--13,374 mi^2.

PERIOD OF RECORD.--March 1917 to current year (published as "at Eldon" October 1930 to March 1935). Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 525: 1917-20. WSP 1308: 1917-23 (M), 1925-27 (M), 1931. WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 622.00 ft above sea level. Prior to Sept. 30, 1930, nonrecording gage at Market Street Bridge 1,700 ft upstream at datum 0.83 ft higher. Oct. 1, 1930 to Mar. 31, 1935, nonrecording gage at Eldon 15 mi downstream at different datum. Apr. 1, 1935 to Oct. 25, 1963, water-stage recorder at site 1,100 ft downstream at Vine Street Bridge at datum 0.77 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Prior to Dec. 12, 1958 and since Nov. 30, 1960, diurnal fluctuation at low and medium stages are caused by powerplant upstream of station about $^1/_2$ mile. Flow regulated by Lake Red Rock (station 05488100) 48.2 mi upstream since March 12, 1969. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 135,000 ft^3/s June 7, 1947, gage height, 20.2 ft, site and datum then in use; minimum daily discharge, 26 ft^3/s Oct. 25, 1990, when gates at dam in Ottumwa were closed.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1850, that of June 7, 1947. Flood of May 31, 1903, reached a stage of 19.4 ft, former site and datum at Vine Street Bridge or about 22 ft at Market Street Bridge, from information by U.S. Army Corps of Engineers and U.S. National Weather Service, discharge, about 140,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1090	233	581	662	698	1460	936	987	2510	12700	2900	751
2	665	313	462	619	562	1330	906	752	4820	8500	2010	802
3	513	281	522	874	507	1520	897	833	5070	6750	1660	662
4	592	327	513	567	694	1510	728	873	2290	7660	1560	844
5	385	309	556	479	673	1110	720	484	704	12300	1220	679
6	399	125	695	818	462	1530	773	763	769	15300	1130	776
7	324	535	372	610	444	1100	812	639	825	9080	1580	886
8	122	125	620	754	473	1410	741	704	955	14200	1950	561
9	136	375	385	748	474	1140	614	701	775	15300	2190	605
10	579	229	485	615	467	1000	552	661	913	13800	3900	641
11	559	303	615	762	465	1440	768	680	1640	13500	1820	391
12	360	371	823	643	535	1050	546	538	5090	13200	1710	315
13	522	340	1080	651	273	1060	654	553	10600	11400	1710	562
14	365	331	1060	543	407	946	594	278	10600	11800	1380	334
15	430	124	1110	768	414	759	660	319	15900	12400	1170	442
16	525	375	493	760	518	982	523	518	11800	10500	1290	293
17	281	277	724	612	420	419	961	306	10900	7910	1660	292
18	316	252	623	694	534	764	453	307	6340	7610	1360	292
19	298	356	719	658	507	407	631	455	7180	7510	1600	253
20	367	392	785	735	487	429	2090	349	6040	7400	1460	221
21	354	124	606	572	337	440	2840	906	4800	9770	694	454
22	246	313	545	813	558	473	3310	988	4620	9920	1090	344
23	375	705	786	804	850	497	2620	1510	8320	6350	1810	800
24	108	709	723	610	1480	509	1850	1470	33400	5230	2210	577
25	332	359	844	929	2530	452	1050	1850	20400	4880	1990	660
26	360	451	835	848	2620	735	982	2190	26400	3540	1480	324
27	300	452	699	876	2510	1060	996	1710	14400	3230	1790	549
28	349	420	680	691	2490	919	999	1300	9990	4930	1360	367
29	129	353	684	635	1890	888	988	2770	13200	3290	1590	339
30	384	644	694	624	---	986	703	3140	13100	3060	1520	301
31	411	---	816	440	---	1010	---	2630	---	3720	1130	---
TOTAL	12176	10503	21135	21414	25279	29335	31897	32164	254351	276740	51924	15317
MEAN	393	350	682	691	872	946	1063	1038	8478	8927	1675	511
MAX	1090	709	1110	929	2620	1530	3310	3140	33400	15300	3900	886
MIN	108	124	372	440	273	407	453	278	704	3060	694	221
AC-FT	24150	20830	41920	42470	50140	58190	63270	63800	504500	548900	103000	30380
CFSM	.03	.03	.05	.05	.07	.07	.08	.08	.63	.67	.13	.04
IN.	.03	.03	.06	.06	.07	.08	.09	.09	.71	.77	.14	.04

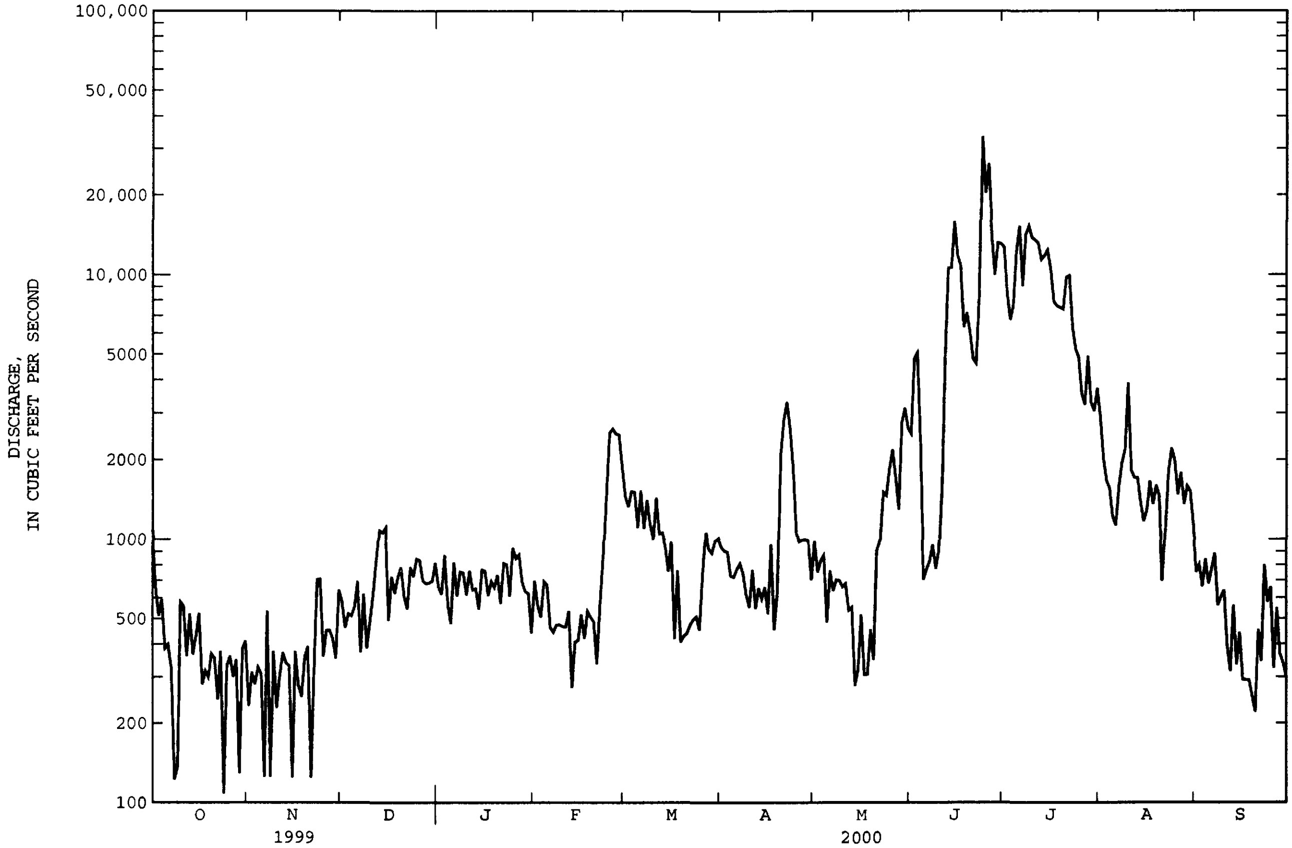
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4033	5061	4341	2938	4890	9965	12780	12820	13890	14620	8464	4691
MAX	18390	19250	13980	12380	16470	21750	25330	29770	31980	85570	47380	34790
(WY)	1974	1987	1993	1973	1973	1983	1983	1993	1984	1993	1993	1993
MIN	353	327	381	290	328	891	962	519	282	238	610	366
(WY)	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1988	1976

05489500 DES MOINES RIVER AT OTTUMWA, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1970 - 2000a	
ANNUAL TOTAL	3525065		782235			
ANNUAL MEAN	9658		2137		8223	
HIGHEST ANNUAL MEAN					26350	1993
LOWEST ANNUAL MEAN					1120	1977
HIGHEST DAILY MEAN	36400	Apr 28	33400	Jun 24	110000	Jul 12 1993
LOWEST DAILY MEAN	108	Oct 24	108	Oct 24	26	Oct 25 1990b
ANNUAL SEVEN-DAY MINIMUM	271	Nov 15	271	Nov 15	182	Jul 7 1977
INSTANTANEOUS PEAK FLOW			38800	Jun 24	112000	Jul 12 1993
INSTANTANEOUS PEAK STAGE			12.07	Jun 24	22.15	Jul 12 1993
ANNUAL RUNOFF (AC-FT)	6992000		1552000		5957000	
ANNUAL RUNOFF (CFSM)	.72		.16		.61	
ANNUAL RUNOFF (INCHES)	9.81		2.18		8.35	
10 PERCENT EXCEEDS	23300		6470		20300	
50 PERCENT EXCEEDS	5050		732		4480	
90 PERCENT EXCEEDS	366		326		649	

a Post regulation.
b Gates at dam in Ottumwa closed.



05490500 DES MOINES RIVER AT KEOSAUQUA, IA

LOCATION.--Lat 40°43'40", long 91°57'34", in SE1/4 SW1/4 sec.36, T.69 N., R.10 W., Van Buren County, Hydrologic Unit 07100009, on right bank 10 ft upstream from bridge on State Highway 1 at Keosauqua, 4.0 mi downstream from Chequest Creek, and at mile 51.3.

DRAINAGE AREA.--14,038 mi^2.

PERIOD OF RECORD.--May 1903 to July 1906, April to December 1910, August 1911 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 525: 1913-20. WSP 1438: Drainage area. WSP 1508: 1903, 1905-6, 1915- 18 (M), 1922 (M), 1924-26 (M), 1932-34 (M), 1937, 1942 (M).

GAGE.--Water-stage recorder. Datum of gage is 547.36 ft above sea level. Prior to Dec. 24, 1933, nonrecording gage, and Dec. 25, 1933, to Sept. 30, 1972, water-stage recorder, at same site at datum 10.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Prior to Dec. 21, 1958, and since Nov. 30, 1960, some diurnal fluctuation at medium and low stages caused by power plant at Ottumwa. Flow regulated by Lake Red Rock (station 05488100) 91.0 mi upstream, since March 12, 1969. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 146,000 ft^3/s June 1, 1903, gage height, 27.85 ft, from floodmark, datum then in use; minimum daily discharge, 40 ft^3/s Jan. 30, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1851, reached a stage of 24 ft, discharge not determined.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1410	455	711	e800	e600	2170	1230	937	2910	13100	4530	1240
2	1200	522	669	e750	e500	1820	1160	1030	3360	11200	3510	872
3	886	360	701	e900	e500	1650	1110	1050	6000	8830	2470	900
4	472	425	667	e750	e700	1840	1090	775	4940	9000	2160	834
5	808	425	847	e600	e700	1830	1010	1090	2350	14200	2040	887
6	443	480	777	e500	e550	1380	727	568	1090	19100	1660	913
7	436	425	853	e700	e500	1830	1070	962	771	12900	1580	721
8	460	375	616	e800	e550	1330	886	691	1030	11700	2190	1090
9	339	525	715	e850	e550	1760	1040	869	1090	15100	2510	575
10	213	312	715	e700	e500	1320	603	972	996	14600	2970	831
11	387	454	550	e750	e500	1220	974	875	1050	14000	4460	674
12	646	360	688	e700	e600	1710	627	843	3500	13600	1910	556
13	467	409	1060	e700	e400	1290	875	746	8370	12800	2220	447
14	554	494	1120	e650	e440	1290	553	666	10600	11800	2010	586
15	494	461	1460	e800	e480	1200	970	560	13900	12800	1660	512
16	671	456	1180	e850	e550	1100	540	374	13800	12100	1390	503
17	678	303	1030	e650	e480	1080	977	570	11400	10100	1540	452
18	516	428	712	e700	e440	842	829	605	9430	8670	1930	381
19	382	383	822	719	e600	804	875	468	6940	8620	1500	376
20	435	404	951	1150	e550	619	811	566	7330	8540	1800	435
21	446	511	746	548	e440	582	2420	500	6230	9260	1630	406
22	486	483	708	647	559	588	3390	968	5300	10800	940	528
23	459	311	653	1040	810	600	3640	1200	5830	9640	1090	1180
24	368	893	1040	694	1320	628	2870	1720	37600	6780	2070	1290
25	488	928	999	772	2050	643	1960	1700	31200	6220	2340	1110
26	287	656	e1000	877	3170	612	1240	2250	32200	5970	2080	873
27	459	527	e850	918	3020	697	1170	2630	21300	4390	1580	657
28	458	596	e750	977	2980	1280	1170	1930	12000	4640	1900	637
29	449	597	e750	e800	2840	1150	1160	1690	12000	5810	1470	624
30	439	494	e800	e700	---	1090	1140	3410	13500	4100	1740	504
31	337	---	e850	e650	---	1180	---	3550	---	4100	1650	---
TOTAL	16573	14452	25990	23642	27879	37135	38117	36765	288017	314470	64530	21594
MEAN	535	482	838	763	961	1198	1271	1186	9601	10140	2082	720
MAX	1410	928	1460	1150	3170	2170	3640	3550	37600	19100	4530	1290
MIN	213	303	550	500	400	582	540	374	771	4100	940	376
AC-FT	32870	28670	51550	46890	55300	73660	75610	72920	571300	623800	128000	42830
CFSM	.04	.03	.06	.05	.07	.09	.09	.08	.68	.72	.15	.05
IN.	.04	.04	.07	.06	.07	.10	.10	.10	.76	.83	.17	.06

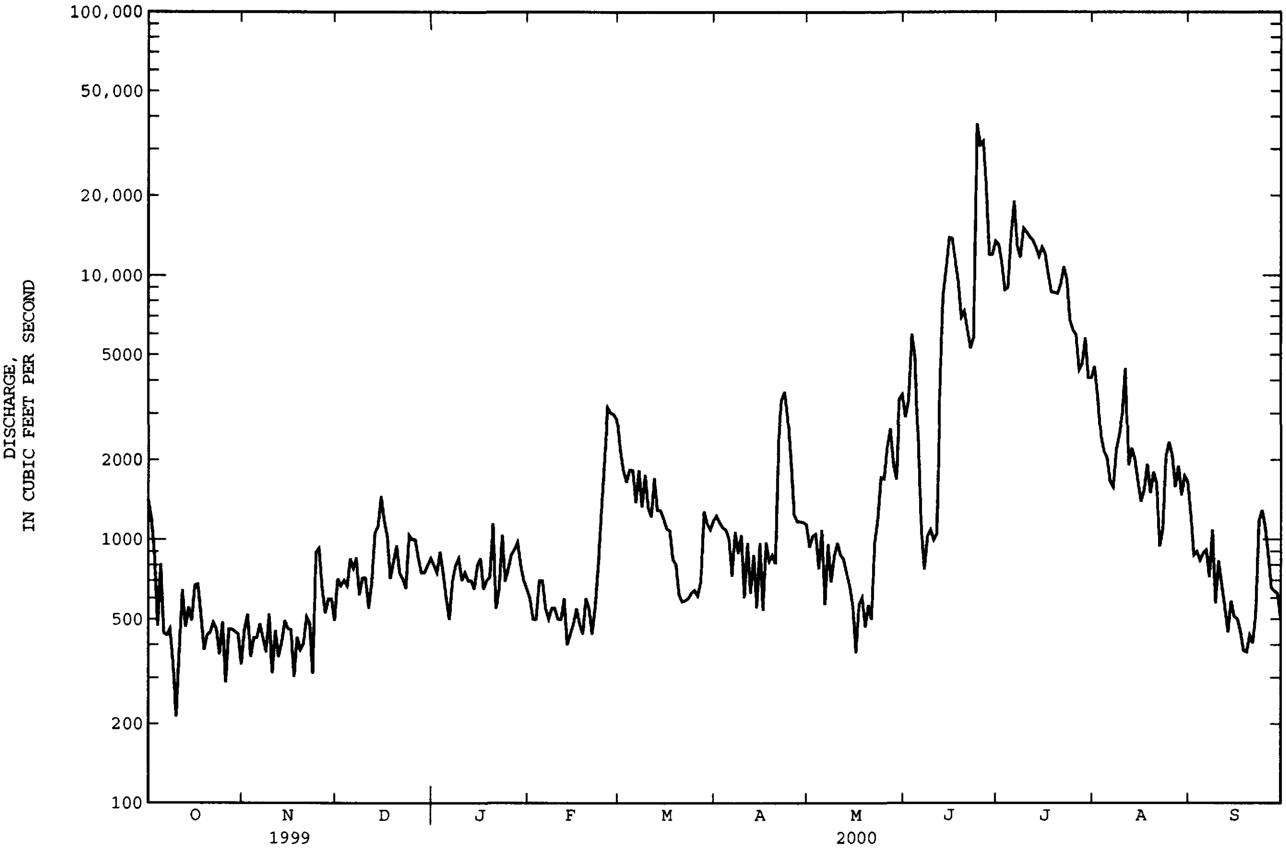
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4247	5211	4560	3109	5193	10440	13440	13630	14230	15140	8691	5080
MAX	19850	19320	14510	13120	17370	22200	30030	31260	30900	86150	47320	35210
(WY)	1974	1987	1983	1973	1973	1983	1973	1993	1984	1993	1993	1993
MIN	383	332	385	291	331	1170	1224	696	300	258	528	362
(WY)	1977	1977	1977	1977	1977	1981	1977	1977	1977	1977	1989	1976

05490500 DES MOINES RIVER AT KEOSAUQUA, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1970 - 2000a	
ANNUAL TOTAL	3610823		909164			
ANNUAL MEAN	9893		2484		8595	
HIGHEST ANNUAL MEAN					26920	1993
LOWEST ANNUAL MEAN					1303	1977
HIGHEST DAILY MEAN	39000	Apr 16	37600	Jun 24	108000	Jul 13 1993
LOWEST DAILY MEAN	213	Oct 10	213	Oct 10	115	Oct 27 1990
ANNUAL SEVEN-DAY MINIMUM	403	Nov 17	403	Nov 17	204	Jul 3 1977
INSTANTANEOUS PEAK FLOW			49400	Jun 24	111000	Jul 12 1993
INSTANTANEOUS PEAK STAGE			23.07	Jun 24	32.66	Jul 13 1993
ANNUAL RUNOFF (AC-FT)	7162000		1803000		6227000	
ANNUAL RUNOFF (CFSM)	.70		.18		.61	
ANNUAL RUNOFF (INCHES)	9.57		2.41		8.32	
10 PERCENT EXCEEDS	23400		7640		21200	
50 PERCENT EXCEEDS	5270		876		4790	
90 PERCENT EXCEEDS	465		451		700	

a Post regulation.
e Estimated.



05494300 FOX RIVER AT BLOOMFIELD, IA

LOCATION.--Lat 40°46'10", long 92°25'05", in $SW^1/_4$ $SE^1/_4$ sec.13, T.69 N., R.14 W., Davis County, Hydrologic Unit 0711000, on left bank 15 ft. downstream from bridge on county road V20, 1.3 miles north of county courthouse at Bloomfield, and 8.6 miles downstream from North Fox Creek.

DRAINAGE AREA.-- 87.7 mi^2

PERIOD OF RECORD.--October 1957 to September 1973, May 1997 to current year.

GAGE.--Water-stage recorder. Datum of gage is 755.57 ft above sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 9, 1905 and June 18, 1946, exceeded all other known floods at this location, stage and discharge unknown. Also flood of May 6, 1960 reached a stage of 24.02 ft., gage datum; discharge 8,600 cfs (Slope-Area Measurement).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.55	e.44	e1.2	e1.4	e.85	e7.5	e1.6	e1.1	e.60	3.3	3.2	.95
2	e.75	e.46	e1.3	e1.6	e.90	e8.0	e1.4	e1.0	e.55	2.4	2.5	.95
3	e.95	e.48	e1.4	e1.3	e.95	e8.5	e1.2	e.95	e.42	12	2.2	.80
4	e1.1	e.55	e1.5	e1.1	e1.0	e6.5	e1.0	e1.1	e.48	224	2.4	.83
5	e.75	e.60	e1.7	e.95	e1.1	e5.5	e.95	e1.0	e.50	458	2.0	.81
6	e.65	e.70	e3.2	e.90	e1.2	e4.6	e1.2	e1.1	e.55	402	2.0	.80
7	e.55	e.75	e3.0	e.85	e1.2	e4.0	e.95	e1.0	e.65	41	2.3	.82
8	e.50	e.80	e2.8	e.80	e1.4	e3.6	e.90	e.95	e.45	18	42	.82
9	e.48	e.90	e2.6	e.95	e1.6	e3.2	e.85	e1.1	e.40	11	28	.77
10	e.46	e.75	e3.8	e1.1	e1.8	e2.9	e1.1	e.95	e.38	8.9	8.2	.72
11	e.44	e.80	e2.3	e1.4	e2.1	e2.7	e.90	e.80	e.80	11	4.8	.78
12	e.42	e.85	e1.8	e.95	e1.7	e2.5	e.75	e.60	115	6.8	3.4	.64
13	e.40	e.90	e1.5	e.85	e1.8	e2.3	e.64	e.50	35	8.1	13	.66
14	e.36	e.80	e1.3	e.80	e1.9	e2.1	e.60	e.44	84	4.7	17	.69
15	e.42	e.75	e1.2	e.75	e1.8	e2.0	e.64	e.40	42	3.2	5.0	.70
16	e.65	e.80	e1.1	e.80	e1.9	e1.9	e.70	e.36	17	2.7	2.5	.70
17	e.55	e.85	e1.2	e.75	e2.1	e1.8	e.75	e.38	12	2.5	1.9	.71
18	e.50	e.90	e1.0	e.80	e2.3	e1.8	e.80	e.30	9.5	26	1.6	.69
19	e.48	e.90	e1.1	e.85	e2.5	e3.0	e.90	e.26	7.6	184	1.4	.68
20	e.46	e.95	e1.0	e1.0	e2.7	e4.6	e1.6	e.24	7.2	26	1.4	1.2
21	e.55	e.95	e.95	e1.3	e2.9	e4.4	e2.8	e.28	6.3	13	1.3	1.6
22	e.50	e1.1	e.90	e1.2	e9.0	e3.6	e1.8	e.25	5.2	8.9	1.3	2.1
23	e.48	e1.3	e.85	e1.1	e7.5	e3.2	e1.6	e.23	7.3	6.8	1.3	43
24	e.50	e2.1	e.80	e1.0	e6.5	e2.8	e1.4	e.21	116	5.5	1.3	38
25	e.60	e1.4	e.90	e.95	e8.5	e2.6	e1.3	e.18	76	4.5	1.3	50
26	e.55	e1.3	e1.0	e.90	e7.0	e2.3	e1.2	e.32	474	3.9	1.2	38
27	e.60	e1.2	e.95	e.85	e6.0	e2.0	e1.4	e.75	35	3.7	1.2	9.4
28	e.65	e1.1	e1.0	e.80	e5.5	e1.8	e1.6	e2.2	14	3.2	1.1	4.2
29	e.46	e1.0	e1.1	e.75	e8.0	e1.6	e1.4	e1.1	8.4	3.2	1.0	2.5
30	e.40	e1.1	e1.2	e.75	---	e1.6	e1.3	e.80	5.9	2.8	.99	2.2
31	e.42	---	e1.3	e.80	---	e1.8	---	e.65	---	3.7	1.0	---
TOTAL	17.13	27.48	46.95	30.30	93.70	106.7	35.23	21.50	1083.18	1514.8	159.79	206.72
MEAN	.55	.92	1.51	.98	3.23	3.44	1.17	.69	36.1	48.9	5.15	6.89
MAX	1.1	2.1	3.8	1.6	9.0	8.5	2.8	2.2	474	458	42	50
MIN	.36	.44	.80	.75	.85	1.6	.60	.18	.38	2.4	.99	.64
AC-FT	34	55	93	60	186	212	70	43	2150	3000	317	410
CFSM	.01	.01	.02	.01	.04	.04	.01	.01	.41	.56	.06	.08
IN.	.01	.01	.02	.01	.04	.05	.01	.01	.46	.64	.07	.09

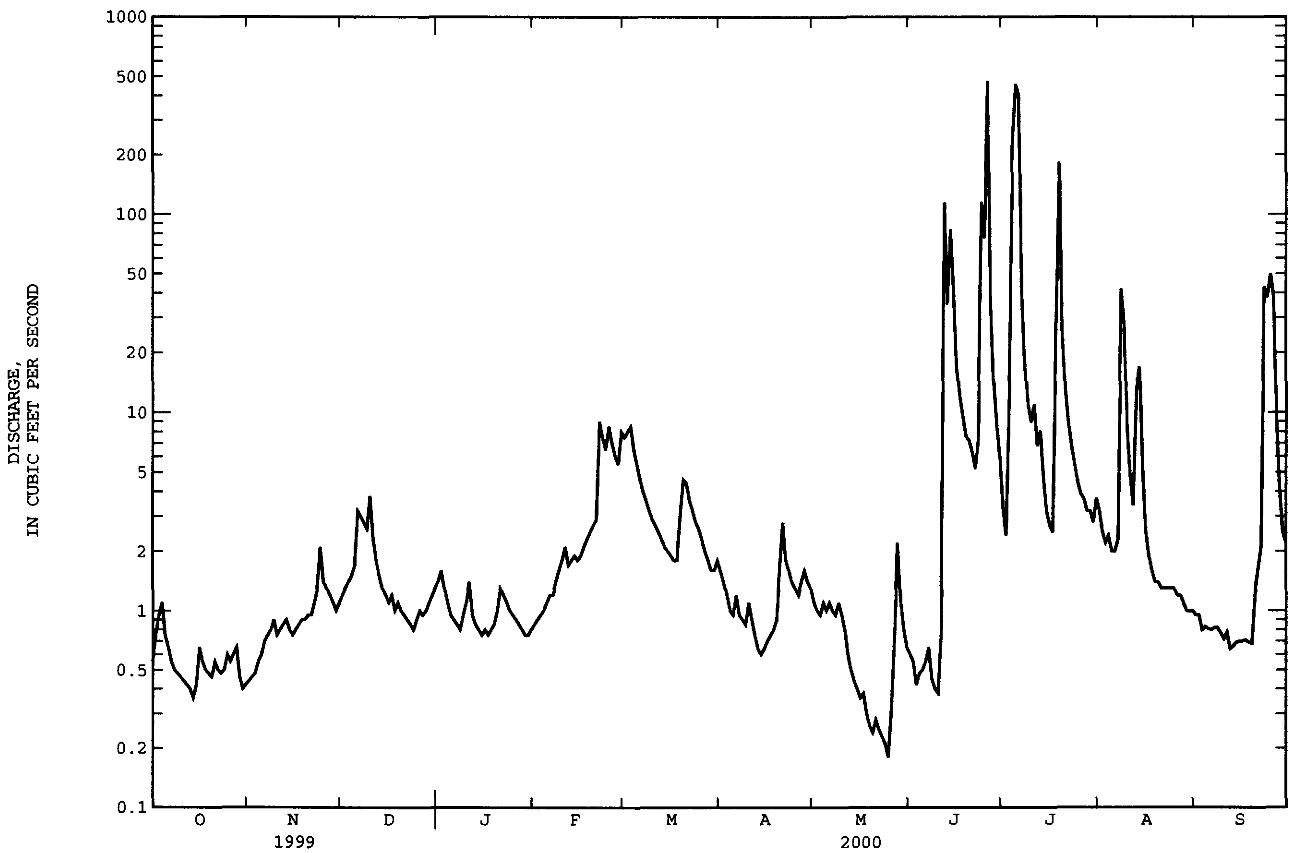
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	35.2	25.5	22.5	31.9	57.5	102	104	74.2	34.9	27.6	32.6	42.2
MAX	178	222	115	127	158	291	370	325	179	163	254	377
(WY)	1960	1962	1971	1973	1959	1960	1973	1973	1967	1969	1970	1970
MIN	.21	.53	.32	.59	.67	1.07	1.17	.69	.73	1.09	.20	.27
(WY)	1964	1965	1964	1964	1964	1964	2000	2000	1963	1972	1961	1999

05494300 FOX RIVER AT BLOOMFIELD, IA--Continued

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1958 - 2000	
ANNUAL TOTAL	17123.99		3343.48			
ANNUAL MEAN	46.9		9.14		49.6	
HIGHEST ANNUAL MEAN					117	1973
LOWEST ANNUAL MEAN					8.40	1964
HIGHEST DAILY MEAN	2000	May 17	474	Jun 26	4370	May 6 1960
LOWEST DAILY MEAN	.17	Sep 19	.18	May 25	.00	Oct 1 1957
ANNUAL SEVEN-DAY MINIMUM	.18	Sep 16	.24	May 19	.00	Oct 1 1957
INSTANTANEOUS PEAK FLOW			1440	Jul 5	8600	May 6 1960
INSTANTANEOUS PEAK STAGE			9.75	Jul 5	24.02	May 6 1960
ANNUAL RUNOFF (AC-FT)	33970		6630		35940	
ANNUAL RUNOFF (CFSM)	.53		.10		.57	
ANNUAL RUNOFF (INCHES)	7.26		1.42		7.69	
10 PERCENT EXCEEDS	100		8.6		74	
50 PERCENT EXCEEDS	4.9		1.2		4.6	
90 PERCENT EXCEEDS	.40		.50		.46	

e Estimated



The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage 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.

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS

[+--not determined, a--peak stage did not reach bottom of gage, b--ice affected, c--old gage datum, d--estimate, e--peak affected by backwater]

Station name and number	Location and drainage area	Period of record	Water year 2000 maximum: Date	Gage height (ft)	Dis-charge (ft^3/s)	Period of record maximum: Date	Gage height (ft)	Dis-charge (ft^3/s)
UPPER IOWA RIVER BASIN								
Dry Run Creek near Decorah, IA (05387490)	Lat 43°17'29",long 91°48'33"in SE1/4, sec.20, T.98 N., R.8 W., Winneshiek County, Hydrologic Unit 07060002, on State Highway 9, 0.5 mi west of Decorah. Drainage area 21.0 mi^2.	1978-	06-01-00	19.84	3,300	08-16-93	20.80	4,620
Waterloo Creek near Dorchester, IA (05388310)	Lat 43°27'04", long 91°30'18", in NW1/4, sec.25, T.100 N., R.6 W., Allamakee County, Hydrologic Unit 07060002, on State Highway 76, 1.4 mi south of Dorchester. Drainage area 46.6 mi^2.	1966-	08-02-00	9.57	1,300	07-01-78	14.80	9,380
MISSISSIPPI RIVER BASIN								
Mississippi River tributary at McGregor, IA (05389501)	Lat 43°01'12", long 91°11'25", in N1/4, sec.27, T.95 N., R.3 W., Clayton County, Hydrologic Unit 07060001,at culvert on County Road X50, at intersection with U.S. Highway 18 (Business Route), in McGregor. Drainage area 0.72 mi^2.	1991-	06-01-00	(+)	(+)	03-31-93	13.13	(+)
TURKEY RIVER BASIN								
French Hollow Creek near Elkader, IA (05412030)	Lat 42°50'19", long 91°24'25", in SW1/4, sec.26, T.93 N.,R.5 W., Clayton County, Hydrologic Unit 07060004, at culvert on State Highway 13, 1.1 mi south of Elkader. Drainage area 3.56 mi^2.	1991-	04-20-00	12.57	^{d}895	05-17-99	18.30	(+)
LITTLE MAQUOKETA RIVER BASIN								
Little Maquoketa River at Graf, IA (05414350)	Lat 42°30'09", long 90°51'50", in SE1/4 NW1/4, sec.20, T.89 N., R.1 E., Dubuque County, Hydrologic Unit 07060003, at bridge on county highway, 300 ft downstream from Illinois Central railroad bridge, 0.5 mi northeast of Graf. Drainage area 39.6 mi^2.	1951-	06-14-00	7.97	1,420	07-08-51	15.78	7,220
Middle Fork Little Maquoketa River Rickardsville, IA (05414400	Lat 42°33'38", long 90°51'35", in SE1/4, sec.32, T.90 N., R.1 E., Dubuque County, Hydrologic Unit 07060003, at bridge on county highway, 2 mi southeast of Rickardsville. Drainage area 30.2 mi^2.	1951-	2000	(a)	<172	08-02-72	27.70	23,000
North Fork Little Maquoketa River near Rickardsville, IA (05414450)	Lat 42°35'09", long 90°51'20", near NW corner, sec.28, T.90 N., R.1 E., Dubuque County, Hydrologic Unit 07060003, at bridge on county highway, 1 mi northeast of Rickardsville. Drainage area 21.6 mi^2.	1951-	06-14-00	7.48	1,060	08-02-72	14.02	7,180

Station name and number	Location and drainage area	Period of record	Water year 2000 maximum Date	Gage height (ft)	Discharge (ft^3/s)	Period of record maximum Date	Gage height (ft)	Discharge (ft^3/s)
LITTLE MAQUOKETA RIVER BASIN--continued								
Little Maquoketa River near Durango, IA (05414500) (Continuous record site Oct. 1934 to Jan. 1982)	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 upstream from bridge on county highway 300 ft upstream from Cloie Branch, 1.7 mi. east of Durango, 5.6 mi. northwest of court house at Dubuque, and 6.4 mi. upstream from mouth. Drainage area 130 mi^2.	1934-1993, 1996-	2000	(a)	(a)	08-02-72	23.13	40,000
Little Maquoketa River tributary at Dubuque, IA (05414600)	Lat 42°32'38", long 90°41'38", near NW corner, sec.11, T.89 N., R.2 E, Dubuque County, Hydrologic Unit 07060003, at bridge on State Highway 386, near north city limits of Dubuque. Drainage area 1.54 mi^2.	1951-	06-14-00	10.35	[d]85.7	07-31-57	[c]7.98	[d]1,650
Bloody Run tributary near Sherrill, IA (05414605)	Lat 42°37'13", long 90°45'44", in SE1/4, sec.7, T.90 N., R.2 E., Dubuque County, Hydrologic Unit 07060003, at culvert on county road 1.6 mi northeast of Sherrill. Drainage area 0.59 mi^2	1991-	06-14-00	12.06	[d]84.0	06-15-91	19.27	[d]692
LAMONT CREEK BASIN								
Lamont Creek tributary at Lamont, IA (05416200)	Lat 42°35'22", long 91°38'52", in SE1/4, sec.22, T.90 N., R.7 W., Buchanan County, Hydrologic Unit 07060006, at culvert on State Highway 187, 0.8 mi southwest of Lamont. Drainage area 1.78 mi^2.	1991-	06-01-00	20.13	[d]635	06-01-00	20.13	[d]635
MAQUOKETA RIVER BASIN								
Sand Creek near Manchester, IA (05416972)	Lat 42°26'57", long 91°28'50", in SE1/4, sec.12, T.88 N., R.6 W., Delaware County, Hydrologic Unit 07060006, at culvert on State Highway 13, 2.7 mi southwest of Manchester. Drainage area 11.0 mi^2.	1991-	06-13-00	14.33	1,880	07-11-93	(+)	(+)
Williams Creek near Charlotte, IA (05418645)	Lat 41°55'55", long 90°31'44", in SE1/4, sec.6, T.82 N., R.4 E., Clinton County, Hydrologic Unit 07060006, at culvert on County Road Y70, 5 mi southwest of Charlotte, 2.1 mi north of County Highway E63. Drainage area 1.77 mi^2.	1990-	06-14-00	7.51	(+)	05-29-96	13.02	(+)
WAPSIPINICON RIVER BASIN								
Little Wapsipinicon River tributary near Riceville, IA (05420600)	Lat 43°21'31", long 92°29'08", near SW1/4 corner, sec. 27, T.99 N., R.14 W., Howard County, Hydrologic Unit 07080102, at culvert on county highway, 3.5 mi east of Riceville. Drainage area 1.10 mi^2.	1953-	06-14-00	7.66	(+)	06-14-00	7.66	(+)
Little Wapsipinicon River near Oran, IA (05420850)	Lat 42°42'53", long 92°02'29", near NW corner, sec.9, T.91 N., R.10 W., Fayette County, Hydrologic Unit 07080102, at bridge on State Highway 3, 2 mi northeast of Oran. Drainage area 94.1 mi^2.	1966-	05-31-00	88.02	1,740	05-17-99	94.15	12,800
Buck Creek near Oran, IA (05420875)	Lat 42°42'53", long 92°07'33", in NE1/4, sec.10, T.91 N., R.11 W., Bremer County, Hydrologic Unit 07080102, at bridge on State Highway 3, 2.5 mi northwest of Oran. Drainage area 37.9 mi^2.	1966-	06-13-00	87.99	561	05-17-99	91.02	(+)

Station name and number	Location and drainage area	Period of record	Water year 2000 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
WAPSIPINICON RIVER BASIN--continued								
Pine Creek tributary near Winthrop, IA (05421100)	Lat 42°29'17", long 91°47'10", in SW1/4, sec.27, T.89 N., R.8 W., Buchanan County, Hydrologic Unit 07080102, at culvert on county road, 2.5 mi northwest of Winthrop. Drainage area 0.33 mi^2.	1953-	06-13-00	6.83	[d]169	07-17-68	8.97	[d]334
Wapsipinicon River tributary at Winthrop, IA (05421300) (formerly published as: "Pine Creek trib. no. 2 at Winthrop")	Lat 42°28'06", long 91°44'33", at N1/4 corner sec.2, T.88 N., R.8 W., Buchanan County, Hydrologic Unit 07080102, at culvert on State Highway 939, near west city limits of Winthrop. Drainage area 0.70 mi^2.	1953-	04-20-00	5.32	18.5	07-17-68	7.26	570
Silver Creek at Welton, IA (05421890)	Lat 41°54'54", long 90°36'00", in NW1/4, sec.15, T.82 N., R.3 E., Clinton County, Hydrologic Unit 07080103, at bridge on U.S. Highway 61, at north edge of Welton. Drainage area 9.03 mi^2.	1966-	06-14-00	88.23	899	05-17-74	89.77	[d]4,820
IOWA RIVER BASIN								
Westmain drainage ditch 1 & 2 at Britt, IA (05448400) Low-flow site April 1958 to Sept. 1976	Lat 43°06'09", long 93°47'04", in SW1/4, sec.27, T.96 N., R.25 W., Hancock County, Hydrologic Unit 07080207, at bridge on U.S. Highway 18, near east city limits of Britt. Drainage area 21.2 mi^2.	1966-	2000	(a)	<53.0	04-28-75	83.59	372
East Branch Iowa River above Hayfield, IA (05448600)	Lat 43°09'21", long 93°41'21", at S1/4 corner sec.4, T.96 N., R.24 W., Hancock County, Hydrologic Unit 07080207, at bridge on county highway, 1.5 mi southeast of Hayfield. Drainage area 2.23 mi^2.	1953-	06-14-00	2.72	(+)	04-06-65	7.31	250
Honey Creek tributary near Radcliffe, IA (0545129280)	Lat 42°19'44", long 93°25'28", in SW1/4, sec.21, T.87 N., R.22 W., Hardin County, Hydrologic Unit 07080207, at culvert on county road highway S27, 1.1 mi northeast of Radcliffe. Drainage area 3.29 mi^2.	1991-	07-10-00	(+)	(+)	05-10-95	100.14	(+)
Stein Creek near Clutier, IA (05451955)	Lat 42°04'46", long 92°18'00", in NE1/4, sec.24, T.84 N., R.13 W., Tama County, Hydrologic Unit 07080208, at bridge on county highway E36, 5 mi east of Clutier. Drainage area 23.4 mi^2.	1971-	07-10-00	73.94	928	06-15-82	77.92	11,400
Price Creek at Amana, IA (05453200)	Lat 41°48'18", long 91°52'23", in SE1/4, sec.22, T.81 N., R.9 W., Iowa County, Hydrologic Unit 07080208, at bridge on State Highway 151, near north edge of Amana. Drainage area 29.1 mi^2.	1966-	07-27-00	86.68	3,200	06-17-90	88.80	(+)
North Fork tributary to Mill Creek near Solon, IA (05453430)	Lat 41°50'24", long 91°30'04" in NW1/4, sec.12, T.81 N., R.6 W., Johnson County, Hydrologic Unit 07080208, at culvert on State Highway 1, 2 mi north of Solon. Drainage area 0.78 mi^2.	1990-1993, 1994-	06-13-00	12.27	(+)	07-16-92	(+)	(+)
Clear Creek tributary near Williamsburg, IA (05454180)	Lat 41°41'16", long 91°57'02", in SE1/4, sec.36, T.80 N., R.10 W., Iowa County, Hydrologic Unit 07080209, at culvert on county road, 4 mi northeast of Williamsburg, 1 mi south of county highway F35. Drainage area 0.37 mi^2.	1990-	07-27-00	47.56	183	06-17-90	48.76	291
North English River near Montezuma, IA (05455140)	Lat 41°38'51", long 92°34'16", in SW1/4, sec.14, T.79 N., R.15 W., Poweshiek County, Hydrologic Unit 07080209, at bridge on county highway, 5.0 mi northwest of Montezuma. Drainage area 31.0 mi^2.	1972-	2000	(a)	<1020	07-20-78	28.18	4,640

Station name and number	Location and drainage area	Period of record	Water year 2000 maximum Date	Gage height (ft)	Dis-charge (ft^3/s)	Period of record maximum Date	Gage height (ft)	Dis-charge (ft^3/s)
			IOWA RIVER BASIN--continued					
North English River at Guernsey, IA (05455210)	Lat 41°38′42″, long 92°21′28″, at NW corner sec.22, T.79 N., R.13 W., Poweshiek County, Hydrologic Unit 07080209, at bridge on State Highway 21, 1 mi southwest of Guernsey. Drainage area 81.5 mi^2.	1960, 1966-	07-10-00	83.88	3,460	06-15-82	87.43	7,460
Deep River at Deep River, IA (05455230)	Lat 41°35′29″, long 92°21′18″, in SW1/4, sec.3, T.78 N., R.13 W., Poweshiek County, Hydrologic Unit 07080209, at bridge on State Highway 21, 1 mi northeast of Deep River. Drainage area is 30.5 mi^2.	1960, 1966-	2000	(a)	<696	[c]05-14-70	83.85	6,200
Bulgers Run near Riverside, IA (05455550)	Lat 41°29′02″, long 91°37′36″, in SE1/4, sec.11, T.77 N., R.7 W., Washington County, Hydrologic Unit 07080209, at bridge on State Highway 22, 2.5 mi west of Riverside. Drainage area 6.31 mi^2.	1965-	2000	(a)	<428	09-21-65	89.04	3,080
Deer Creek near Carpenter, IA (05457440)	Lat 43°24′54″, long 92°59′05″, in NW1/4 sec.9, T.99 N., R.18 W., Mitchell County, Hydrologic Unit 07080201, at bridge on State Highway 105, 1.5 mi east of Carpenter. Drainage area 91.6 mi^2.	1966-	2000	(a)	<1,270	07-18-93	84.65	3,460
Gizzard Creek tributary near Bassett, IA (0545776680)	Lat 43°04′01″,long 92°34′31″, in SE1/4, sec.2, T.95 N., R.15 W., Floyd County, Hydrologic Unit 07080201, at culvert on U.S. Highway 18, 3.3 mi west of Bassett. Drainage area 3.42 mi^2.	1990-	06-14-00	102.21	(+)	07-21-99	103.00	(+)
Spring Creek near Mason City, IA (05459490)	Lat 43°12′48″, long 93°12′38″, in SE1/4, sec.16, T.97 N., R.20 W., Cerro Gordo County, Hydrologic Unit 07080203, at bridge on U.S. Highway 65, 4 mi north of Mason City. Drainage area 29.3 mi^2.	1966-	06-14-00	86.61	(+)	07-21-99	91.05	(+)
Willow Creek near Mason City, IA (05460100)	Lat 43°08′55″, long 93°16′07″, near center sec.12, T.96 N., R.21 W., Cerro Gordo County, Hydrologic Unit 07080203, at bridge on U.S. Highway 18, 3.5 mi west of Mason City. Drainage area 78.6 mi^2.	1966-	07-02-00	88.71	390	07-21-99	21.92	1,150
Miller Creek near Eagle Center, IA (05464025)	Lat 42°19′22″, long 92°20′50″, in NW1/4, sec.27, T.87 N., R.13 W., Black Hawk County, Hydrologic Unit 07080205, at culvert on State Highway 21, 1.3 mi southeast of Eagle Center. Drainage area is 9.14 mi^2.	1991-	07-10-00	(+)	(+)	06-11-98	47.60	(+)
Prairie Creek tributary near Van Horne, IA (05464535)	Lat 41°59′33″, long 92°05′06″, in NW1/4, sec.24, T.83 N., R.11 W., Benton County, Hydrologic Unit 07080205, at culvert on County Highway V66, 1.1 mi south of Van Horne. Drainage area is 0.94 mi^2.	1991-	07-26-00	14.33	[d]330	05-26-97	18.14	[d]571
Thunder Creek at Blairstown, IA (05464562)	Lat 41°54′12″, long 92°05′03″, in NE1/4, sec.23, T.82 N., R.11 W., Benton County, Hydrologic unit 07080205, at culvert on county highway V66, near city limits of Blairstown. Drainage area 0.96 mi^2.	1991-	07-27-00	14.75	[d]302	08-16-93	16.12	[d]540
North Fork Long Creek at Ainsworth, IA (05465150)	Lat 41°16′51″, long 91°32′16″, Long Creek at in SW1/4, sec.22, T.75 N., R.6 W., Washington County, Hydrologic Unit 07080209, at bridge on U.S. Highway 218, 1 mi southeast of Ainsworth. Drainage area 30.2 mi^2.	1951, 1965-	06-14-00	89.22	1,630	05-10-96	93.40	(+)

Station name and number	Location and drainage area	Period of record	Water year 2000 maximum Date	Gage height (ft)	Discharge (ft^3/s)	Period of record maximum Date	Gage height (ft)	Discharge (ft^3/s)
IOWA RIVER BASIN--continued								
Haight Creek at Kingston, IA (05469350)	Lat 40°58′14″, long 91°02′30″, in NW1/4, sec.12, T.71 N., R.2 W., Des Moines County, Hydrologic Unit 07080104, at culvert on State Highway 99, 0.5 mi south of Kingston. Drainage area 2.67 mi^2.	1990-	06-24-00	11.45	(+)	06-16-90	15.18	(+)
SKUNK RIVER BASIN								
Mud Lake drainage ditch 71, at Jewell, IA (05469860)	Lat 42°18′52″, long 93°38′23″, in SW1/4, sec.27, T.87 N., R.24 W., Hamilton County, Hydrologic Unit 07080105, at bridge on U.S. Highway 69, in Jewell. Drainage area 65.4 mi^2.	1966-	08-06-00	84.74	391	07-09-93	91.32	3,700
Long Dick Creek near Ellsworth, IA (05469970)	Lat 42°18′37″, long 93°32′06″, in NW1/4, sec.33, T.87 N., R.23 W., Hamilton County, Hydrologic Unit 07080105, at culvert on State Highway 175, 2.2 mi east of Ellsworth. Drainage area 6.08 mi^2.	1991-	07-10-00	(a)	(+)	08-17-93	94.73	(+)
Keigley Branch near Story City, IA (05469990)	Lat 42°09′01″, long 93°37′13″, in NW1/4, sec.26, T.85 N., R.24 W., Story County, Hydrologic Unit 07080105, at bridge on U.S. Highway 69, 3 mi south of Story City. Drainage area 31.0 mi^2.	1966-	2000	(a)	<228	06-17-96	92.26	[d]3,440
Snipe Creek tributary at Melbourne, IA (0547209280)	Lat 41°56′08″, long 93°05′08″, in SE1/4, sec.5, T.82 N., R.19 W., Marshall County, Hydrologic Unit 07080106, at culvert on county highway E63, 0.5 mi east of Melbourne. Drainage area 1.61 mi^2.	1990-	06-14-00	(a)	(+)	06-17-90	17.39	[d]492
Middle Creek near Lacey, IA (05472390)	Lat 41°25′17″, long 92°23′04″, at N1/4 corner sec.1, T.76 N., R.16 W., Mahaska County, Hydrologic Unit 07080106, at bridge on U.S. Highway 63, 1.5 mi northwest of Lacey. Drainage area 23.0 mi^2.	1966-	06-24-00	87.82	1,610	04-24-76	90.06	9,650
Skunk River tributary near Richland, IA (05472555)	Lat 41°15′50″, long 91°57′52″, in NE1/4, sec.35, T.75 N., R.10 W., Keokuk County, Hydrologic Unit 07080107, at culvert on county highway W15, 4.9 mi north of Richland, 5.1 mi south of State Highway 92. Drainage area 0.19 mi^2.	1990-	06-26-00	14.67	[d]43	06-15-98	15.62	[d]70
			Record:					
			06-20-90	15.46	[d]65			
			04-19-91	(+)	(+)			
			07-03-92	15.13	[d]55			
			06-08-93	15.22	[d]58			
			1994	(a)	[d]<4			
			1995	(a)	[d]<4			
			05-10-96	15.70	[d]72			
			06-29-97	14.22	[d]31			
			06-15-98	15.62	[d]70			
			1999	[b]14.57	(+)			
DES MOINES RIVER BASIN								
Drainage Ditch 97 tributary near Britt, IA (0548065350)	Lat 43°06′42″, long 93°54′22″, in SW1/4, sec.22, T.96 N., R.26 W., Hancock County, Hydrologic Unit 07100005, at culvert on county road, 5.4 mi northwest of Britt. Drainage area 0.94 mi^2. (Revised)	1991-	06-14-00	93.85	(+)	07-09-93	94.53	(+)
White Fox Creek at Clarion, IA (05480930)	Lat 42°43′55″, long 93°42′26″, in NW1/4, sec.5, T.91 N., R.24 W., Wright County, Hydrologic Unit 07100005, at bridge on State Highway 3, 1.5 mi east of Clarion. Drainage area 13.3 mi^2.	1966-	07-10-00	90.28	369	06-29-95	92.91	[d]1,700

Station name and number	Location and drainage area	Period of record	Water year 2000 maximum: Date	Water year 2000 maximum: Gage height (ft)	Water year 2000 maximum: Discharge (ft^3/s)	Period of record maximum: Date	Period of record maximum: Gage height (ft)	Period of record maximum: Discharge (ft^3/s)
DES MOINES RIVER BASIN--continued								
Brewers Creek tributary near Webster City, IA (05480993)	Lat 42°26'57", long 93°51'59", in NW1/4, sec.10, T.88 N., R.26, W., Hamilton County, Hydrologic Unit 07100005, at culvert on U.S. Highway 20, 2.5 mi southwest of Webster City. Drainage area 1.58 mi^2.	1990-	2000	96.11	(+)	06-04-91	99.25	(+)
Bluff Creek at Pilot Mound, IA (05481510)	Lat 42°09'59", long 94°01'11", in NW1/4, sec.20 T.85 N., R.27 W., Boone County, Hydrologic Unit 07100004, at bridge on county road E18 at northwest edge of Pilot Mound. Drainage area 23.5 mi^2. (Revised)	1966-	2000	(a)	<40	07-09-93	89.25	1,450
Peas Creek Tributary at Boone, IA (05481528)	Lat 42°02'06", long 93°51'13", in SW1/4, sec.35, T.84 N., R.26 W., Boone County, Hydrologic Unit 07100004, at culvert on Corporal Rodger Snedden Drive, at intersection with U.S. Highway 30, at the south edge of Boone city limits. Drainage area 0.30 mi^2.	1990-	05-18-00	91.16	(+)	06-17-96	94.59	(+)
Peas Creek at Boone, IA (05481530)	Lat 42°02'04", long 93°51'25", in SE1/4, sec.34, T.84 N., R.26 W., Boone County, Hydrologic Unit 07100004, at culvert on U.S. Highway 30, at the southeast side of Boone city limits. Drainage area 1.69 mi^2.	1990-	05-18-00	(a)	(+)	06-15-98	103.05	(+)
Hardin Creek near Farlin, IA (05482900)	Lat 42°05'34, long 94°25'39", in NE1/4 NW1/4 NW1/4, sec. 14, T.84 N., R.31 W., Greene County, Hydrologic Unit 07100006, at bridge on county highway, 1.5 mi northeast of Farlin. Drainage area 101 mi^2.	1951-	2000	(a)	<484	07-09-93	13.97	3,010
Brushy Creek near Templeton, IA (05483318)	Lat 41°56'45", long 94°52'45", in SW1/4 NW 1/4 NW 1/4, sec.1, T.82 N., R.35 W., Carroll County, Hydrologic Unit 07100007, at bridge on U.S. Highway 71, 4 mi northeast of Templeton. Drainage area 45.0 mi^2.	1966-	2000	(a)	(+)	07-09-93	93.48	19,000
Middle Raccoon River tributary at Carroll, IA (05483349)	Lat 42°02'30", long 94°52'43", in NW1/4 NW1/4 SW1/4, sec. 36, T. 84 N,.R.35 W., Carroll County Hydrologic Unit 07100007, at bridge on U.S. Highway 71, 1.1 mi south of Carroll. Drainage area 6.58 mi^2.	1966-	07-06-00	21.40	277	06-17-96	25.88	4,600
Cedar Creek tributary No. 2 near Winterset, IA (05485940)	Lat 41°19'49", long 94°03'05", in SW1/4, sec.35, T.76 N., R.28 W., Madison County, Hydrologic Unit 07100008, at culvert on State Highway 92, 0.5 mi west of U.S. Highway 169, 1 mi west of Winterset. Drainage area 1.02 mi^2.	1990-	06-27-00	94.49	(+)	05-24-96	98.58	(+)
Bush Branch Creek near Stanzel, IA (05486230)	Lat 41°18'57", long 94°16'42", in SW1/4, sec.2, T.75 N., R.30 W., Adair County, Hydrologic Unit 07100008, at culvert on State Highway 92, 1 mi west of Stanzel. Drainage area is 3.02 mi^2.	1990-	2000	(a)	(+)	09-15-92	97.06	(+)
Little White Breast Creek tributary near Chariton, IA (05487825)	Lat 41°03'36", long 93°18'12", in SW1/4, sec. 5, T.72 N., R.21 W., Lucas County, Hydrologic Unit 07100008, at culvert on State Highway 14, 2.0 mi north of Chariton. Drainage area 0.05 mi^2.	1990-	06-26-00	17.67	[d]26.3	08-19-93	18.93	[d]56.2

Station name and number	Location and drainage area	Period of record	Water year 2000 maximum Date	Gage height (ft)	Discharge (ft^3/s)	Period of record maximum Date	Gage height (ft)	Discharge (ft^3/s)
	DES MOINES RIVER BASIN--continued							
South Avery Creek near Blakesburg, IA (05489350)	Lat 41°00'59", long 92°37'32", in SE1/4, sec.19, T.72 N., R.15 W., Wapello County, Hydrologic Unit 07100009, at bridge on U.S. Highway 34, 3.5 mi north of Blakesburg. Drainage area 33.1 mi^2.	1965-	07-05-00	83.71	4,140	07-03-82	90.20	(+)
Bear Creek at Ottumwa, IA (05489490)	Lat 41°00'52", long 92°27'44", in NW1/4, sec.27, T.72 N., R.14 W., Wapello County, Hydrologic Unit 07100009, at bridge on U.S. Highway 34, near west edge of Ottumwa. Drainage area 22.9 mi^2.	1965-	06-23-00	92.10	3,520	09-21-65	92.80	4,000

The following water temperature and specific conductance measurements were made at the indicated sites during water year 2000.

05387500 - Upper Iowa River at Decorah, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
MAY				
03...	1233	167	19.2	440

05388250 - Upper Iowa River near Dorchester, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
OCT				
06...	0950	367	9.4	582
NOV				
15...	1536	294	6.1	572
DEC				
14...	1110	244	1.0	588
FEB				
16...	0855	213	.1	577
MAR				
20...	1615	348	4.4	558
MAY				
03...	0934	230	19.3	428
JUN				
01...	1610	11000	17.8	242
08...	1120	2710	16.4	550
JUL				
25...	1011	834	19.4	551
SEP				
05...	1450	427	19.2	583

05389200 - Bloody Run Trib at Spook Cave near Froelich, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
OCT				
04...	1005	4.9	8.5	749
DEC				
14...	1310	4.5	6.9	750
JAN				
20...	0845	4.6	.7	736
FEB				
14...	1035	3.9	4.7	740
APR				
10...	1020	4.4	8.0	--
MAY				
01...	1705	3.9	15.3	702
JUN				
13...	0910	6.8	12.4	724
JUL				
25...	0905	4.2	13.0	734
SEP				
05...	1025	3.9	12.2	739

05389250 - Bloody Run Site No. 2 near Giard, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
OCT				
04...	1140	10	7.8	736
DEC				
14...	1405	8.8	4.7	729
FEB				
14...	1135	7.0	2.0	719
MAR				
20...	1730	7.1	5.9	685
APR				
10...	1155	7.2	7.0	514
MAY				
01...	1600	6.7	19.4	589
JUN				
13...	1040	12	13.3	692
JUL				
25...	0800	10	14.5	705
AUG				
16...	1350	7.2	17.0	485
SEP				
05...	1130	8.1	12.7	731

05411200 - Sny Magill Creek No. 3 Site near Clayton, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
OCT				
04...	1350	3.9	9.6	696
NOV				
15...	1240	3.4	5.0	685
DEC				
13...	1345	3.4	2.1	693
JAN				
19...	1010	3.8	.1	661
FEB				
14...	1530	9.8	3.8	640
MAR				
20...	1505	3.0	5.4	664
APR				
10...	1023	2.7	5.2	687
MAY				
01...	1440	2.8	19.7	570
JUN				
12...	1355	3.9	15.3	650
JUL				
24...	1515	4.2	18.4	636
AUG				
16...	1015	3.2	16.0	659
SEP				
05...	1515	3.0	15.7	686

05411230 - West Fork Sny Magill Creek near Clayton, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
OCT				
04...	1240	2.7	9.4	668
NOV				
15...	1320	12	6.6	539
DEC				
13...	1300	2.2	3.4	661
JAN				
19...	0925	2.3	.2	661
FEB				
14...	1235	2.0	2.7	651
MAR				
20...	1405	1.8	5.4	651
APR				
10...	0945	2.2	5.1	663
MAY				
01...	1335	1.8	17.1	612
JUN				
12...	1442	2.1	13.7	625
JUL				
24...	1425	2.3	16.2	634
AUG				
16...	0925	2.2	13.8	663
SEP				
05...	1220	2.0	13.9	659

05411260 - North Cedar Creek near Clayton, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 04...	1525	2.3	9.7	634	APR 10...	1315	1.7	5.2	613
NOV 15...	1010	2.1	4.3	631	MAY 01...	1050	2.1	13.0	611
DEC 13...	1510	2.0	1.9	625	JUN 12...	1055	3.5	14.7	608
JAN 19...	1130	1.8	.8	--	JUL 24...	1225	2.5	15.6	612
FEB 14...	1445	1.7	1.5	617	AUG 16...	0825	1.4	15.7	631
MAR 20...	1105	1.9	3.4	607	SEP 05...	1420	1.5	16.1	625

05411290 - Sny Magill Tributary near Clayton, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 04...	1430	1.0	10.8	655	APR 10...	1119	.78	6.3	621
NOV 15...	1155	.81	6.3	642	MAY 01...	1230	.89	14.6	595
DEC 13...	1430	1.1	4.3	663	JUN 12...	1250	1.4	13.6	622
JAN 19...	1045	1.1	1.2	624	JUL 24...	1405	1.8	15.6	630
FEB 14...	1410	.58	5.3	623	AUG 16...	1100	1.3	16.0	--
MAR 20...	1300	.72	5.7	621	SEP 05...	1345	.87	15.3	652

05411300 - Sny Magill Creek No. 2 Site near Clayton, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 04...	1620	13	10.4	664	APR 10...	1222	10	6.1	641
NOV 15...	1110	12	5.3	655	MAY 01...	1150	11	13.8	624
DEC 13...	1600	13	3.4	661	JUN 12...	1205	15	14.7	627
JAN 19...	1235	10	1.5	649	JUL 24...	1325	13	16.1	636
FEB 14...	1320	2.7	2.2	690	AUG 16...	1155	10	15.5	--
MAR 20...	1205	11	4.5	641	SEP 05...	1515	10	16.0	651

05412100 - Roberts Creek above Saint Olaf, IA (RC-2)

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 05...	1540	3.1	14.3	605	MAY 01...	1654	4.3	24.4	559
NOV 16...	1435	2.7	4.4	637	JUN 13...	1305	34	19.4	672
DEC 15...	1510	4.4	.7	692	JUL 25...	1120	16	21.4	580
FEB 15...	1305	2.2	.6	693	SEP 06...	1215	6.8	19.7	652
MAR 21...	1645	8.1	6.5	614					

05412400 - Volga River at Littleport, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 04...	1030	132	7.9	498	APR 20...	1126	1280	9.6	316
NOV 16...	1140	83	4.4	592	MAY 01...	1155	255	18.3	567
DEC 14...	1640	92	2.6	600	JUN 12...	0955	310	21.1	569
FEB 15...	1110	81	.8	585	JUL 24...	0950	169	20.8	545
MAR 22...	1528	134	8.6	575	SEP 06...	1330	89	19.3	567

05412500 - Turkey River at Garber, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 04...	1330	678	9.7	621	MAY 01...	1408	808	19.8	575
NOV 16...	1005	458	3.5	612	JUN 12...	1320	1810	21.2	579
DEC 14...	1530	444	2.2	629	JUL 24...	1335	1040	22.8	588
FEB 15...	0940	352	.2	611	SEP 06...	1530	629	20.8	591
MAR 22...	1340	618	7.7	601					

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)

05418400 - North Fork Maquoketa River near Fulton, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
NOV 19...	0916	231	7.5	675	MAY 04...	1155	259	19.5	644
DEC 16...	1135	190	.2	635	JUN 27...	1615	745	19.8	461
FEB 17...	0950	194	.1	646	AUG 16...	1255	206	24.7	660
MAR 22...	1325	195	9.9	662	SEP 19...	1415	195	18.5	676

05420500 - Mississippi River at Clinton, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
OCT 13...	1230	38200	15.9	410	JUN 06...	1200	106000	18.5	338
14...	0920	36800	13.0	377	06...	1300	106000	19.5	338
NOV 29...	1540	35500	5.2	398	29...	1045	99400	22.2	372
30...	0950	35700	4.3	376	JUL 10...	1340	52500	28.0	420
MAR 13...	1115	59900	7.2	365	AUG 08...	1430	39500	25.4	397
13...	1210	60800	8.9	400	SEP 11...	1240	32800	24.0	367
APR 17...	1230	40800	9.6	339					
MAY 08...	1230	34000	22.0	319					
08...	1340	34300	23.8	330					
22...	1030	72000	16.5	338					

05421000 - Wapsipinicon River at Independence, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
OCT 06...	1125	91	12.0	452	MAY 01...	0852	658	17.7	462
NOV 15...	0911	137	8.0	463	JUN 15...	1135	5000	18.7	351
DEC 16...	1445	213	.2	481	JUL 26...	1600	531	22.4	339
FEB 16...	1240	113	1.6	517	SEP 05...	0855	162	22.0	445
MAR 20...	0910	326	2.9	445					

05422000 - Wapsipinicon River near De Witt, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
NOV 08...	1558	--	10.9	454	APR 25...	1510	3540	15.0	457
15...	1420	389	7.8	483	JUN 06...	1345	5850	19.0	382
DEC 15...	1445	419	2.7	525	JUL 18...	1440	4190	25.1	397
FEB 01...	1430	361	.0	593	AUG 28...	1400	653	25.0	347
MAR 13...	1455	1010	8.3	474					

05422470 - Crow Creek at Bettendorf, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
NOV 16...	0740	1.1	3.4	857	APR 26...	0735	25	9.7	687
DEC 15...	1020	2.0	2.9	829	JUN 06...	1755	24	18.8	682
FEB 01...	1200	1.8	.0	1460	JUL 19...	0850	8.7	18.5	738
MAR 16...	1305	6.9	8.6	701	AUG 29...	0730	4.1	22.8	749

05422560 - Duck Creek at 110th Ave at Davenport, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
NOV 15...	0920	1.1	3.9	669	APR 25...	0925	34	8.2	602
DEC 14...	1000	1.7	1.7	665	JUN 07...	0915	21	12.9	606
FEB 01...	0920	1.8	.0	649	JUL 18...	0915	10	17.1	649
MAR 16...	0850	9.5	3.9	627	AUG 28...	0920	1.2	20.6	651

05422600 - Duck Creek at DC Golf Course at Davenport, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV					APR				
15...	1115	3.7	6.6	771	25...	1130	89	11.3	678
DEC					JUN				
15...	1145	6.6	2.9	797	07...	0720	62	14.8	689
FEB					JUL				
01...	1055	7.8	.0	3300	18...	1135	27	21.3	699
MAR					AUG				
16...	1050	25	6.1	720	28...	1100	41	22.3	532

05449500 - Iowa River near Rowan, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT					MAY				
14...	1140	51	10.5	618	22...	1145	157	20.0	710
DEC					JUN				
07...	0940	34	2.4	650	26...	1450	417	20.0	664
JAN					AUG				
25...	0905	28	.0	764	14...	1010	50	24.5	458
MAR					SEP				
08...	1255	121	15.0	710	26...	1035	31	11.0	682
APR									
21...	0940	178	7.0	679					

05451210 - South Fork Iowa River NE of New Providence, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT					APR				
05...	1030	3.1	10.4	534	06...	1035	4.3	9.8	563
NOV					MAY				
02...	1033	3.3	5.1	565	02...	1050	4.4	17.9	564
DEC					JUN				
08...	1010	5.5	.6	538	05...	1045	183	16.5	610
JAN					JUL				
06...	1048	4.1	.0	620	06...	1100	87	23.4	670
31...	1023	6.4	.0	657	AUG				
MAR					10...	1025	13	24.0	476
07...	1053	9.5	14.1	522	SEP				
					07...	1040	3.3	20.4	548

05451500 - Iowa River at Marshalltown, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT					APR				
25...	1550	126	9.4	585	17...	1225	216	8.3	538
DEC					MAY				
09...	1037	137	1.1	560	30...	1305	566	19.9	607
FEB					JUL				
14...	1205	103	.0	678	10...	1330	3300	23.8	395
MAR					AUG				
14...	0800	218	4.7	612	21...	1142	264	20.1	384

05451700 - Timber Creek near Marshalltown, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT					APR				
25...	1740	6.3	10.0	616	17...	1440	11	9.7	502
DEC					MAY				
09...	1318	7.2	2.5	645	30...	1525	16	21.6	504
FEB					JUL				
01...	1215	4.9	.0	661	10...	1706	649	20.2	524
MAR					AUG				
14...	1026	11	4.5	601	21...	1500	17	19.4	582

05451900 - Richland Creek near Haven, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV					APR				
09...	1245	3.3	17.9	516	24...	1225	4.7	17.4	491
DEC					JUN				
13...	1210	3.0	.0	505	08...	1200	10	29.5	444
JAN					JUL				
31...	1025	2.2	.0	535	17...	1130	28	20.2	517
MAR					AUG				
14. .	1145	4.3	5.7	445	30...	1210	6.3	22.6	516

05452000 - Salt Creek near Elberon, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV				
09...	1410	16	14.2	547
DEC				
13...	1345	19	.5	618
JAN				
31...	1200	9.8	.0	636
MAR				
14...	1300	20	6.7	560
APR				
24...	1410	48	17.2	590
JUN				
08...	1340	92	22.2	575
14...	1300	1490	18.5	180
JUL				
17...	1345	195	22.4	569
AUG				
30...	1350	37	24.6	563

05452200 - Walnut Creek near Hartwick, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV				
08...	1350	2.8	15.3	464
DEC				
13...	1045	3.4	.0	545
JAN				
28...	1220	1.7	.0	587
MAR				
14...	1035	4.4	6.4	449
APR				
24...	1050	8.2	14.9	469
JUN				
08...	1030	13	21.3	469
JUL				
17...	1010	43	20.8	504
AUG				
30...	1055	7.5	22.5	507

05453000 - Big Bear Creek at Ladora, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV				
09...	1305	9.5	14.8	601
DEC				
13...	0910	6.2	.0	570
JAN				
31...	0900	6.5	.0	676
MAR				
14...	0835	14	3.7	559
APR				
24...	0905	49	11.6	522
JUN				
08...	0905	60	19.0	520
14...	1540	1050	18.6	284
JUL				
17...	0815	143	21.5	516
AUG				
30...	0845	21	21.4	539

05453100 - Iowa River at Marengo, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT				
25...	1130	238	7.8	607
NOV				
10...	1050	244	11.5	622
DEC				
16...	1035	204	.0	126
JAN				
31...	1435	143	.0	744
MAR				
15...	1405	400	7.4	612
APR				
07...	1040	277	11.3	424
27...	1125	446	18.0	450
JUN				
09...	1030	1480	23.3	575
JUL				
20...	1000	2140	22.0	578
AUG				
25...	1310	564	25.2	383

05453520 - Iowa River below Coralville Dam nr Coralville,

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
FEB				
23...	1050	522	3.4	584
JUN				
21...	1110	4600	22.7	427
27...	1048	3980	23.7	462

05454000 - Rapid Creek near Iowa City, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV				
02...	1325	.51	7.2	652
DEC				
13...	1315	.67	1.0	592
JAN				
26...	1430	.44	.0	686
MAR				
08...	1020	2.4	11.5	555
APR				
12...	1435	1.4	21.2	586
20...	1640	33	11.6	473
MAY				
31...	0930	117	18.9	253
JUN				
14...	0855	341	17.3	289
JUL				
13...	1440	22	22.5	585

05454220 - Clear Creek near Oxford, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV				
02...	1120	1.2	5.7	797
DEC				
13...	1100	1.5	.2	774
JAN				
27...	1045	1.8	.0	943
MAR				
06...	1405	5.7	12.3	657
APR				
20...	1410	53	12.0	548
MAY				
31...	1105	73	18.8	416
JUN				
14...	1100	863	18.3	170
JUL				
12...	1515	99	19.9	550
AUG				
21...	1145	13	20.2	595

05454300 - Clear Creek near Coralville, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV				
02...	0940	3.7	4.8	725
30...	1000	5.8	.0	801
DEC				
10...	1025	5.9	6.4	805
13...	0955	4.0	.0	799
16...	1105	3.0	.0	799
23...	1155	2.7	.0	910
28...	1036	6.1	.0	813
29...	1007	2.4	.0	1100
JAN				
18...	0930	8.8	.1	814
24...	1200	4.6	.0	853
FEB				
01...	1450	4.4	.0	876
25...	1045	57	3.8	573
MAR				
06...	1200	12	11.5	623
APR				
20...	1220	38	13.6	743
MAY				
30...	1110	17	17.7	661
JUN				
14...	1000	1750	18.4	249
JUL				
12...	1240	151	21.0	675
AUG				
21...	1010	20	19.2	647

05454500 - Iowa River at Iowa City, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT				
21...	1142	252	12.9	541
25...	1355	135	12.8	560
27...	1110	185	11.9	564
28...	1020	161	12.6	567
NOV				
03...	1130	163	12.4	569
DEC				
14...	1050	375	5.5	513
JAN				
11...	1325	342	3.2	556
25...	1145	248	1.5	576
MAR				
06...	1015	644	7.2	638
APR				
07...	1250	198	11.6	541
18...	1440	481	12.7	528
JUN				
02...	1255	3920	20.5	464
JUL				
14...	1010	5330	27.3	492
AUG				
28...	1235	559	24.8	492

05455100 - Old Mans Creek near Iowa City, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT				
25...	0830	4.6	4.2	586
NOV				
10...	0835	--	9.8	638
DEC				
09...	1425	7.5	4.5	592
JAN				
21...	1120	5.0	.0	718
FEB				
29...	1510	32	9.4	556
APR				
12...	1540	19	11.4	586
MAY				
23...	1635	38	22.5	514
JUN				
14...	1310	2590	18.4	168
JUL				
07...	1410	217	21.9	490
AUG				
24...	1505	30	25.5	523
SEP				
29...	1450	44	17.1	514

05455500 - English River at Kalona, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT				
25...	1020	13	6.2	512
DEC				
09...	1300	24	4.3	550
JAN				
21...	1010	17	.0	567
FEB				
29...	1345	120	8.4	451
APR				
12...	1410	48	9.3	466
MAY				
24...	1410	85	23.1	452
JUL				
07...	1245	642	22.4	424
AUG				
22...	1500	47	22.6	497

05455700 - Iowa River near Lone Tree, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV				
16...	1535	217	8.8	633
DEC				
14...	1520	492	5.0	551
FEB				
07...	1015	279	.0	645
MAR				
15...	0910	570	8.0	627
APR				
26...	1520	1150	18.1	668
JUN				
09...	1425	2160	24.9	498
15...	1050	9800	19.5	260
JUL				
20...	1420	4740	25.9	459
AUG				
29...	1405	657	26.1	488

05458000 - Little Cedar River near Ionia, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT				
20...	1425	65	9.0	455
DEC				
01...	0740	48	.3	509
JAN				
25...	1425	33	.0	462
MAR				
01...	0750	176	4.2	441
APR				
12...	0815	63	4.8	464
MAY				
17...	0820	48	17.8	450
JUN				
14...	1100	3670	18.5	175
28...	1240	344	22.2	460
AUG				
09...	0750	82	22.3	446
SEP				
20...	0827	43	14.2	450

05458500 - Cedar River at Janesville, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 20...	0733	565	7.2	526
NOV 30...	1120	432	2.2	602
JAN 26...	1130	306	.2	642
FEB 29...	1035	1370	13.1	321
APR 10...	1220	425	6.6	474
MAY 16...	1005	342	17.3	313
JUN 27...	1130	2730	25.8	471
AUG 07...	1500	838	28.8	399
SEP 20...	1248	404	16.9	471

05458900 - West Fork Cedar River at Finchford, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 20...	1400	119	13.4	480
NOV 29...	1402	120	4.0	545
JAN 26...	1000	79	.1	621
FEB 28...	1300	359	9.1	461
APR 10...	1415	232	12.8	478
MAY 15...	1305	173	19.8	525
JUN 27...	0835	2330	19.7	430
AUG 07...	1310	263	25.8	521
SEP 21...	1310	94	17.6	485

05459500 - Winnebago River at Mason City, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 21...	0910	84	7.2	670
DEC 01...	1140	67	3.3	683
JAN 25...	1135	48	.0	812
MAR 01...	1255	495	7.1	605
APR 12...	1050	159	5.8	651
MAY 17...	1250	368	17.1	500
JUN 14...	1355	1960	19.9	371
JUN 29...	0830	723	21.4	582
AUG 09...	1330	170	26.6	647
SEP 19...	1155	48	20.8	682

05462000 - Shell Rock River at Shell Rock, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 20...	1005	444	7.4	607
NOV 30...	1350	363	2.8	675
JAN 26...	0810	249	.2	750
FEB 29...	1330	1220	14.7	444
APR 11...	1245	444	7.0	515
MAY 16...	1240	308	20.0	461
JUN 27...	1505	2740	24.3	543
AUG 08...	1500	633	26.6	475
SEP 20...	0820	287	15.4	521

05463000 - Beaver Creek at New Hartford, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 19...	1536	56	8.3	565
NOV 29...	1110	45	.0	480
JAN 27...	0910	26	.0	321
FEB 28...	1120	133	5.1	562
APR 10...	1050	68	8.7	554
MAY 15...	1111	48	20.4	475
JUN 26...	1000	723	21.6	395
AUG 07...	1010	86	25.2	492
SEP 21...	1335	29	14.8	487

05464000 - Cedar River at Waterloo, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT 28...	1335	1380	11.1	537
NOV 30...	0710	1220	1.5	650
JAN 26...	1640	833	1.1	664
FEB 29...	1000	4200	7.9	444
APR 11...	0750	1440	6.1	513
MAY 16...	0700	1160	14.5	445
JUN 26...	1440	11200	23.5	464
AUG 08...	0750	2440	22.5	448
SEP 21...	1545	1030	17.6	460

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05464500 - Cedar River at Cedar Rapids, IA									
OCT 20...	1000	1640	10.5	517	APR 06...	1155	1720	12.3	417
NOV 30...	1250	1730	4.1	544	MAY 15...	1145	1460	16.7	376
JAN 11...	1045	1380	.3	616	JUN 28...	1530	14700	21.4	468
FEB 22...	1145	1280	1.1	660	AUG 07...	0833	3430	24.3	405
MAR 16...	0733	2090	5.6	535	SEP 18...	1455	1360	21.9	379
05465000 - Cedar River near Conesville, IA									
NOV 16...	1310	1830	8.2	615	JUN 07...	1455	15500	20.7	426
DEC 14...	1315	1890	3.6	521	JUL 19...	1435	24500	23.8	461
MAR 15...	1140	2640	9.0	540	AUG 29...	1150	2860	25.5	427
APR 26...	1210	4160	16.6	517					
05470000 - South Skunk River near Ames, IA									
OCT 27...	1120	4.2	10.6	746	MAY 19...	1205	32	16.7	632
DEC 06...	1305	6.8	2.8	870	JUN 29...	1020	61	20.8	662
JAN 26...	0945	3.2	1.1	831	AUG 16...	0945	8.7	23.4	513
MAR 07...	1050	14	14.0	721	SEP 27...	0925	1.7	12.4	665
APR 20...	1010	7.2	13.7	734					
05470500 - Squaw Creek at Ames, IA									
OCT 27...	1315	3.4	11.2	720	APR 20...	0900	11	14.6	702
DEC 07...	1100	5.5	1.8	695	MAY 19...	1035	57	13.3	583
JAN 26...	1152	2.5	.0	950	JUN 29...	0900	42	18.3	663
MAR 06...	1535	22	14.0	706	AUG 15...	1555	1.8	31.0	821
05471000 - South Skunk River below Squaw Creek near Ames,									
OCT 27...	1625	4.2	14.3	825	APR 19...	1705	13	24.3	559
DEC 07...	0852	11	.0	732	MAY 19...	0935	125	14.0	512
JAN 26...	1335	.60	1.2	945	JUN 28...	1535	129	22.8	618
MAR 07...	0840	32	11.0	742	AUG 15...	1420	12	30.0	552
05471050 - South Skunk River at Colfax, IA									
OCT 26...	1145	42	10.8	701	APR 19...	1050	48	13.8	652
DEC 15...	0850	40	1.3	715	JUN 05...	1815	288	18.7	604
FEB 15...	1000	35	.0	687	JUL 11...	1208	307	24.6	648
MAR 15...	0826	72	6.4	670	AUG 22...	1655	44	23.9	629
05471200 - Indian Creek near Mingo, IA									
OCT 26...	1350	6.7	11.3	752	APR 17...	1807	12	12.6	655
DEC 15...	1045	9.9	1.0	804	MAY 03...	1811	22	28.6	538
FEB 14...	1448	9.7	1.3	487	JUL 11...	0956	202	21.7	723
MAR 14...	1411	16	8.7	700	AUG 21...	1730	8.9	23.5	616

05471500 - South Skunk River near Oskaloosa, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT				
14...	1642	102	13.8	580
NOV				
22...	1010	97	5.2	669
JAN				
12...	1437	115	.1	628
FEB				
16...	1320	125	.0	610
APR				
05...	1305	115	12.6	614
MAY				
09...	0942	189	18.3	568
JUN				
19...	1315	1190	21.9	621
26...	1745	2770	21.9	374
JUL				
31...	1128	265	24.1	572
SEP				
12...	1025	74	20.7	590

05472500 - North Skunk River near Sigourney, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT				
12...	0805	31	13.3	590
NOV				
22...	0850	30	5.6	625
JAN				
10...	0815	38	.0	613
FEB				
14...	0750	49	.1	632
APR				
03...	0842	45	11.1	544
MAY				
09...	0823	66	20.1	537
JUN				
19...	1150	448	20.9	466
26...	1545	3390	20.8	202
JUL				
31...	0918	170	22.9	441
SEP				
12...	0825	42	21.8	564

05473400 - Cedar Creek near Oakland Mills, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT				
27...	1310	3.0	11.1	833
DEC				
09...	1100	17	4.6	752
JAN				
13...	1320	28	.2	946
FEB				
29...	0955	60	7.8	570
APR				
12...	1050	12	8.0	799
MAY				
24...	1040	16	21.8	641
JUN				
26...	1915	7540	22.5	161
27...	1605	7830	22.6	163
JUL				
06...	1130	6120	22.7	200
AUG				
22...	1050	13	23.7	579
SEP				
29...	1200	36	16.5	452

05473450 - Big Creek near Mt. Pleasant, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT				
27...	1455	.42	10.9	707
DEC				
07...	1550	.83	4.5	1100
JAN				
13...	1455	1.3	.5	920
FEB				
29...	1140	25	8.5	508
APR				
12...	1215	3.5	9.6	590
MAY				
24...	1200	13	20.8	549
JUL				
06...	0900	194	19.1	498
AUG				
22...	1220	.46	23.2	643
SEP				
29...	1015	1.7	14.4	492

05476750 - Des Moines River at Humboldt, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV				
04...	1150	100	7.3	766
DEC				
07...	1425	89	6.1	764
JAN				
27...	1515	57	1.1	935
MAR				
08...	0845	136	14.0	760
APR				
24...	1205	113	16.9	774
MAY				
24...	1045	753	20.3	726
JUN				
27...	1200	453	23.2	676
AUG				
17...	0950	309	19.6	619
SEP				
27...	0935	87	14.2	718

05479000 - East Fork Des Moines River at Dakota City, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV				
04...	1325	37	5.9	845
DEC				
07...	1210	38	3.3	817
JAN				
27...	1235	20	.0	1040
MAR				
08...	1010	127	13.0	731
APR				
24...	1335	127	17.8	685
MAY				
23...	1210	583	19.3	538
JUN				
27...	1020	540	21.6	696
AUG				
17...	0845	236	21.6	614
SEP				
27...	1125	50	16.8	752

05480500 - Des Moines River at Fort Dodge, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT					APR				
01...	0935	167	13.6	641	20...	1445	298	12.0	693
28...	0915	1050	12.9	505	MAY				
NOV					24...	1405	1320	20.4	613
04...	1315	140	7.6	743	JUN				
DEC					30...	0830	1020	22.4	664
08...	1340	150	6.7	670	AUG				
JAN					14...	1315	615	28.0	467
28...	1415	86	.0	1040	SEP				
MAR					28...	1415	157	17.1	1150
06...	1005	322	10.0	737					

05481000 - Boone River near Webster City, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
NOV					FEB				
03...	1430	25	14.2	718	07...	0945	17	.0	1060
DEC					14...	0850	23	.0	1000
06...	0951	27	.0	788	23...	1025	62	.2	712
15...	1140	22	1.6	845	28...	1200	264	3.9	403
22...	1010	17	.0	542	APR				
27...	1205	17	.0	998	21...	1145	120	11.5	616
JAN					MAY				
03...	1230	22	.0	899	22...	1345	144	24.1	581
11...	1325	22	1.9	899	JUN				
18...	1338	15	.0	1000	29...	1245	435	22.0	711
25...	1146	13	.0	1150	AUG				
31...	0820	9.6	.0	1140	16...	1430	52	25.4	589
					SEP				
					27...	1145	31	16.0	681

05481300 - Des Moines River near Stratford, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
OCT					APR				
26...	0920	177	6.4	638	20...	0855	413	12.8	573
DEC					JUN				
13...	0900	137	.5	950	07...	1230	2270	20.7	707
JAN					JUL				
25...	1405	103	.0	1130	18...	1045	4900	23.9	634
MAR					AUG				
07...	1350	413	18.0	650	22...	1050	853	21.6	627

05481950 - Beaver Creek near Grimes, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
OCT					APR				
27...	0800	12	7.7	774	18...	0805	25	8.0	695
DEC					MAY				
13...	1250	24	1.6	688	30...	1045	106	20.9	686
JAN					JUL				
31...	1055	6.0	.0	1040	17...	1005	99	25.2	715
MAR					AUG				
07...	1120	53	17.0	710	23...	1350	3.9	27.3	962

05482000 - Des Moines River at 2nd Avenue, Des Moines, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
OCT					APR				
05...	1300	270	13.5	646	19...	1440	433	15.5	678
NOV					JUN				
10...	0730	201	11.2	659	06...	1500	1900	19.8	662
DEC					JUL				
15...	0935	247	2.1	718	18...	0930	5590	25.4	512
MAR					AUG				
07...	1250	690	11.2	750	22...	0910	1500	23.4	540

05482300 - North Raccoon River near Sac City, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
NOV					APR				
03...	1050	19	5.0	1000	25...	1020	17	15.0	928
DEC					JUN				
13...	0945	22	.0	1060	13...	1010	34	23.0	854
JAN					JUL				
26...	0945	12	.0	970	18...	1845	87	21.5	701
MAR					AUG				
13...	1105	28	6.0	920	23...	0930	302	21.0	656

05482500 - North Raccoon River near Jefferson, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV 09...	0835	64	10.5	744	APR 26...	0940	62	14.5	664
DEC 14...	0850	44	.0	898	JUN 14...	1715	114	22.0	497
JAN 28...	1440	36	.0	1020	JUL 18...	1625	169	24.0	559
MAR 14...	0830	98	5.5	761	AUG 31...	0815	203	25.0	670

05483450 - Middle Raccoon River near Bayard, IA

DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)	DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)
NOV 09...	1240	57	13.0	643	APR 25...	1650	48	22.5	631
DEC 13...	1545	41	2.0	694	JUN 15...	1505	102	23.5	632
JAN 31...	1710	41	.0	744	JUL 19...	0830	64	19.0	651
MAR 13...	1630	64	10.5	691	AUG 30...	1615	24	31.5	598

05483600 - Middle Raccoon River at Panora, IA

DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)	DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)
NOV 08...	1515	69	11.0	551	JUN 15...	0930	91	21.0	533
DEC 13...	1330	118	4.5	573	JUL 19...	1215	68	25.0	480
FEB 01...	0925	49	1.0	664	AUG 31...	1020	24	27.0	484
MAR 13...	1430	58	7.5	609	SEP 15...	1845	19	--	--
APR 26...	1330	48	14.0	583					

05484000 - South Raccoon River at Redfield, IA

DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)	DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)
NOV 08...	1220	160	9.5	498	APR 26...	1600	119	20.5	485
DEC 13...	1125	163	.5	533	JUN 15...	1215	325	21.0	494
FEB 01...	1150	105	.0	566	JUL 19...	1425	208	23.0	493
MAR 13...	1115	154	4.5	523	AUG 31...	1230	73	27.5	450

05484500 - Raccoon River at Van Meter, IA

DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)	DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)
OCT 26...	1322	274	11.6	501	JUN 05...	1335	602	21.4	480
DEC 13...	0930	252	2.2	525	JUL 18...	1250	749	24.1	503
FEB 01...	0920	170	.0	680	AUG 22...	1430	760	21.8	525
MAR 06...	1000	462	9.3	587	SEP 20...	1015	124	16.5	516
APR 17...	1005	272	7.7	534					

05484650 - Raccoon River at 63rd Street at Des Moines, IA

DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)	DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)
NOV 08...	1330	286	17.7	514	MAY 30...	1435	447	23.0	505
DEC 13...	1420	276	7.8	533	JUL 17...	1615	741	29.7	496
JAN 31...	1430	223	.0	773	AUG 21...	1240	351	21.9	536
MAR 06...	1225	511	11.7	623	SEP 18...	1400	126	25.2	490
APR 17...	1220	270	10.8	532					

05484800 - Walnut Creek at Des Moines, IA

DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)	DATE	TIME	DIS-CHARGE (00061)	TEMPER-ATURE (00010)	SPE-CIFIC CON-DUCT-ANCE (00095)
NOV 08...	1055	3.3	11.4	789	APR 17...	1645	8.6	12.4	680
DEC 13...	1145	3.7	3.2	722	JUN 06...	1320	30	20.9	667
JAN 30...	1240	4.2	2.4	990	JUL 17...	1155	21	25.9	722
MAR 08...	1515	11	15.1	718	AUG 22...	1230	2.3	22.7	767

05484900 - Raccoon River at Fleur Drive, Des Moines, IA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
NOV 08...	1550	224	11.7	532	MAY 30...	1650	438	23.0	505
DEC 14...	1310	277	2.6	504	JUL 18...	0730	712	24.6	510
JAN 31...	1405	117	.0	777	AUG 22...	0730	335	22.8	473
MAR 06...	1515	456	12.6	626	SEP 20...	1445	111	18.0	507
APR 17...	1425	266	10.9	542					
19...	1745	268	21.0	529					

05485500 - Des Moines River blw Raccoon Riv at Des Moines,

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
OCT 26...	0830	420	7.5	633	JUN 07...	0810	2940	19.6	666
DEC 14...	1530	551	2.2	737	JUL 18...	1533	6090	25.2	503
JAN 27...	1125	339	.0	717	AUG 23...	1115	2360	26.7	715
MAR 07...	1540	1080	13.9	732	SEP 18...	1210	224	23.7	580
APR 18...	1155	660	13.8	680					

05485640 - Fourmile Creek at Des Moines, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
OCT 05...	1450	9.4	14.0	809	APR 18...	0753	14	7.7	777
NOV 09...	0915	7.0	11.1	793	MAY 31...	1404	1440	20.0	335
DEC 13...	1530	8.9	1.0	902	JUL 11...	1446	110	23.1	718
FEB 15...	1542	8.8	.0	951	AUG 23...	1342	7.3	24.4	645
MAR 15...	1730	15	5.8	799					

05486000 - North River near Norwalk, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
NOV 09...	0730	6.8	9.9	619	APR 18...	1605	20	13.8	476
DEC 14...	0930	9.8	3.0	537	JUN 06...	1410	28	19.0	268
FEB 01...	0810	4.4	.0	608	JUL 18...	1640	68	23.1	449
MAR 08...	0800	18	13.0	508	AUG 22...	1455	6.0	22.1	501

05486490 - Middle River near Indianola, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
NOV 09...	1050	15	12.2	559	APR 18...	1425	29	19.6	520
DEC 15...	0745	23	.4	568	JUN 06...	1600	17	29.6	541
FEB 01...	1020	11	.0	690	JUL 19...	1015	140	20.0	461
MAR 08...	1050	32	15.3	511	AUG 21...	1425	17	22.5	515

05487470 - South River near Ackworth, IA

DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)	DATE	TIME	DISCHARGE (00061)	TEMPERATURE (00010)	SPECIFIC CONDUCTANCE (00095)
NOV 09...	1350	6.9	15.4	494	APR 19...	1235	13	19.6	440
DEC 15...	0910	9.5	.0	501	JUN 05...	1540	84	19.8	384
FEB 01...	1215	4.4	.0	550	JUL 19...	0745	107	19.4	401
MAR 08...	1250	21	17.9	466	AUG 21...	1615	10	25.6	447

05487500 - Des Moines River near Runnells, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)	DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
NOV					MAY				
02...	1110	695	12.1	601	18...	1133	468	21.4	550
DEC					22...	1422	1250	22.9	618
14...	1130	774	2.3	708	JUN				
FEB					01...	0956	4560	22.1	557
16...	0912	813	1.4	705	JUL				
MAR					19...	1522	6960	24.2	523
13...	1120	1010	7.6	689	AUG				
APR					23...	0745	2310	23.6	554
19...	0925	826	14.0	615	SEP				
					13...	1000	536	20.5	632
					19...	1325	318	20.2	668

05487980 - White Breast Creek near Dallas, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)	DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
OCT					APR				
13...	1320	3.2	14.7	572	04...	1202	8.2	11.7	698
NOV					MAY				
23...	1220	54	7.3	647	10...	1310	13	17.3	616
JAN					JUN				
11...	1242	16	.1	765	22...	1043	19	23.5	459
FEB					AUG				
15...	1207	10	.6	811	02...	0705	10	23.8	522

05488110 - Des Moines River near Pella, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)	DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
OCT					APR				
14...	0930	464	13.3	539	05...	0736	818	8.4	629
19...	0930	287	13.3	557	MAY				
19...	1020	301	13.3	557	11...	0747	494	15.4	624
27...	0950	302	11.3	570	JUN				
NOV					22...	0654	5100	22.5	573
23...	0810	299	9.3	577	AUG				
JAN					02...	1420	1500	25.3	539
12...	0852	665	.9	596					
FEB									
16...	0755	454	1.5	667					

05488200 - English Creek near Knoxville, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)	DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
OCT					MAY				
13...	1602	.88	14.1	920	10...	1540	2.6	15.7	996
NOV					JUN				
23...	1000	19	7.4	663	21...	1741	10	23.3	597
JAN					26...	1135	1390	20.0	157
11...	1500	2.4	.5	1280	AUG				
FEB					02...	1000	2.3	23.2	882
15...	1415	2.8	.5	1440					
APR									
04...	1527	1.5	10.7	1120					

05488500 - Des Moines River near Tracy, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)	DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
OCT					APR				
14...	1150	540	14.4	570	05...	1032	822	9.4	723
19...	1510	311	11.6	594	MAY				
NOV					11...	1020	694	16.6	634
22...	1230	323	9.4	597	JUN				
JAN					22...	1508	5120	25.0	573
12...	1020	635	.0	597	AUG				
FEB					02...	1145	1590	26.4	543
16...	1045	501	1.6	672					

05489000 - Cedar Creek near Bussey, IA

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)	DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)
OCT					MAY				
12...	1028	3.6	15.8	759	09...	1247	23	18.8	752
NOV					JUN				
22...	1520	5.2	6.8	837	19...	1607	20	23.3	588
JAN					26...	1320	6260	19.2	162
10...	1010	17	.5	798	JUL				
FEB					31...	1631	33	25.1	718
14...	1010	18	.0	769	SEP				
APR					12...	1323	4.8	24.4	772
03...	1058	11	11.0	781					

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05489500 - Des Moines River at Ottumwa, IA									
OCT					MAY				
27...	1010	281	9.8	829	25...	1125	3320	22.0	645
29...	0905	115	12.0	851	JUL				
DEC					06...	1700	14000	23.5	340
09...	0850	847	5.5	732	AUG				
JAN					24...	1230	2160	26.2	564
19...	0915	638	.1	705	SEP				
MAR					28...	1600	370	17.7	693
01...	1035	1960	6.4	660					
APR									
11...	1040	1120	9.7	717					
05490500 - Des Moines River at Keosauqua, IA									
OCT					MAY				
26...	1410	238	12.4	652	25...	1520	1900	25.5	643
DEC					JUL				
08...	1145	590	2.6	735	07...	0940	13900	23.8	368
JAN					AUG				
19...	1250	704	.0	728	25...	1440	2220	29.0	552
MAR					SEP				
01...	1520	2080	10.0	670	28...	1110	510	15.9	610
APR									
11...	1415	1010	10.2	730					
05494300 - Fox River at Bloomfield, IA.									
OCT					MAY				
26...	1615	.39	10.8	557	25...	1235	.19	22.9	527
DEC					JUL				
08...	1340	2.8	2.3	580	06...	1410	149	24.2	211
JAN					AUG				
19...	1045	.82	.0	560	24...	1010	1.3	23.8	492
MAR					SEP				
01...	1250	7.5	8.2	546	28...	1310	4.1	15.2	367
APR									
11...	1220	1.0	10.6	571					

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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
	Length	
inch (in.)	2.54×10^{1}	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^{0}	kilometer
	Area	
acre	4.047x103	square meter
	4.047x10-1	square hectometer
	4.047x10-3	square kilometer
square mile (mi2)	2.590x100	square kilometer
	Volume	
gallon (gal)	3.785x100	liter
	3.785x100	cubic decimeter
	3.785x10-3	cubic meter
million gallons (Mgal)	3.785x103	cubic meter
	3.785x10-3	cubic hectometer
cubic foot (ft3)	2.832x101	cubic decimeter
	2.832x10-2	cubic meter
cubic-foot-per-second day [(ft3/s) d]	2.447x103	cubic meter
	2.447x10-3	cubic hectometer
acre-foot (acre-ft)	1.233x103	cubic meter
	1.233x10-3	cubic hectometer
	1.233x10-6	cubic kilometer
	Flow	
cubic foot per second (ft3/s)	2.832x101	liter per second
	2.832x101	cubic decimeter per
second		
	2.832x10-2	cubic meter per second
gallon per minute (gal/min)	6.309x10-2	liter per second
	6.309x10-2	cubic decimeter per
second		
	6.309x10-5	cubic meter per second
million gallons per day (Mgal/d)	4.381x101	cubic decimeter per
second		
	4.381x10-2	cubic meter per second
	Mass	
ton (short)	9.072x10-1	megagram or metric ton

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

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