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Water Resources Data
Iowa
Water Year 2001

Volume 1. Surface Water—Mississippi River Basin

Water-Data Report IA-01-1

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 2001

2000

OCTOBER

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2001

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

Water Resources Data Iowa Water Year 2001

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-01-1

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

Gale A. Norton, Secretary

U.S. GEOLOGICAL SURVEY

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For information on the water program in Iowa, write to:

District Chief, Water Resources Division
U.S. Geological Survey
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Iowa City, Iowa 52244

2002

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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This report was prepared in cooperation with the State of Iowa and with other agencies under the general supervision of Greg M. Nalley, Chief Hydrologic Surveillence Section, and Robin G. Middlemis-Brown, District Chief, Iowa.

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13. ABSTRACT *(Maximum 200 words)*
Water resources data for Iowa for the 2001 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 94 gaging stations; stage or contents for 6 lakes and reservoirs and 7 streams; water quality for 1 stream-gaging station; sediment records for 11 stream-gaging stations; and precipitation record for 7 precipitation stations. Also included are data for 58 crest-stage partial record stations.

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SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

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

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
Lower Pine Lake at Eldora, Ia. (e)	05451000	15.9	1936-70
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	1972-95
Storm Lake at Storm Lake, Ia. (e)	05482140	28.3	1970-75
Big Cedar Creek near Varina, Ia. (d)	05482170	80.0	1950-91
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
South Coal Creek near Bussey, Ia. (d)	05489090	12.9	1977-81
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	05412056	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. Sed.	1972-86 1972-76; 1977-81; 1991-00
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.*	1959-86
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; 1955-68 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 2001 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 132 gaging stations; stage records for 9 lakes and reservoirs; water-quality records for 4 gaging stations; sediment records for 13 gaging stations; and water levels for 163 ground-water observation wells. Also included are peak-flow data for 92 crest-stage partial-record stations, water-quality data from 86 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-01-1." 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 2001 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
Lake Panorama 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
Ottumwa Water and Hydro Plant
City of Waterloo Water Pollution Control Plant
City of Waverly
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 Cedar Falls
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 73 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, and Ameren-Union Electric Company.

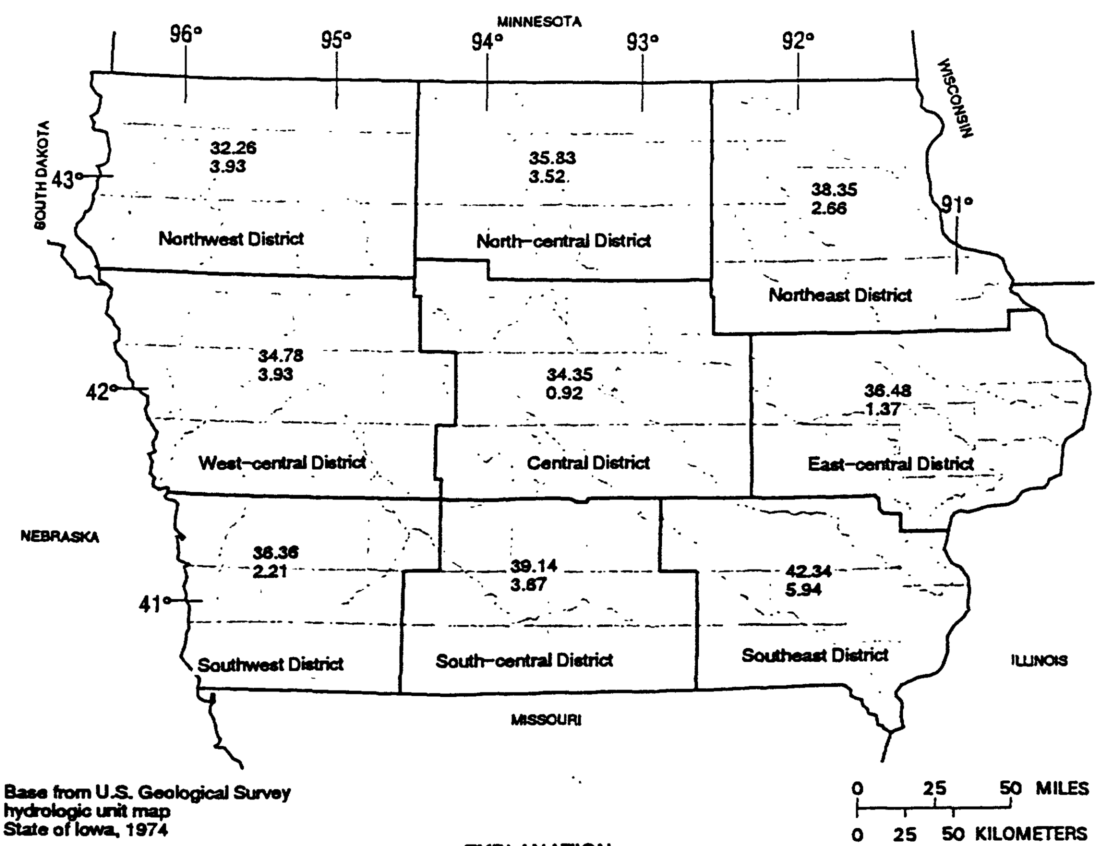
Organizations that supplied data are acknowledged in the station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

For water year 2001 (October 1, 2000 to September 30, 2001) climatological conditions were slightly above normal. Recorded precipitation for the year ranged from 5.94 inches greater than normal in the Southeast Iowa Climatological District to 0.92 inches greater than normal in the Central Iowa Climatological District (fig. 1). Precipitation recorded for the State averaged 38.18 inches, which was 3.07 inches below normal, or 109 percent of the normal 33.11 inches for 1961-90 (table 1). Overall, water year 2001 was the 28th wettest and 21st coldest for 128 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., 2001)]

Annual runoff for the period of record at index stations 05464500 Cedar River at Cedar Rapids, 05480500 Des Moines River at Fort Dodge, and 06810000 Nishnabotna River above Hamburg are shown in figure 2. The water-year 2001 runoff at Cedar Rapids was 4,384,000 acre-feet, which is 1,660,000 acre-feet greater than the mean annual runoff for the period of record, 2,724,000 acre-feet. The water-year 2001 runoff at Fort Dodge was 2,512,000 acre-feet, which is 1,240,000 acre-feet greater than the mean for the period of record, 1,272,000 acre-feet. The water-year 2001 runoff at Hamburg was 949,000 acre-feet, which is 29,200 acre-feet greater than the mean for the period of record, 919,800 acre-feet.



EXPLANATION

38.18 Precipitation during water year 2001, in inches
3.07 Precipitation deviation from long-term average (1961-90), in inches

Figure 1. Precipitation record for the National Weather Service's designated Climatological Districts for water year 2001 (source: Harry Hillaker, State Climatologist, Iowa Department of Agriculture and Land Stewardship, written commun., 2001)

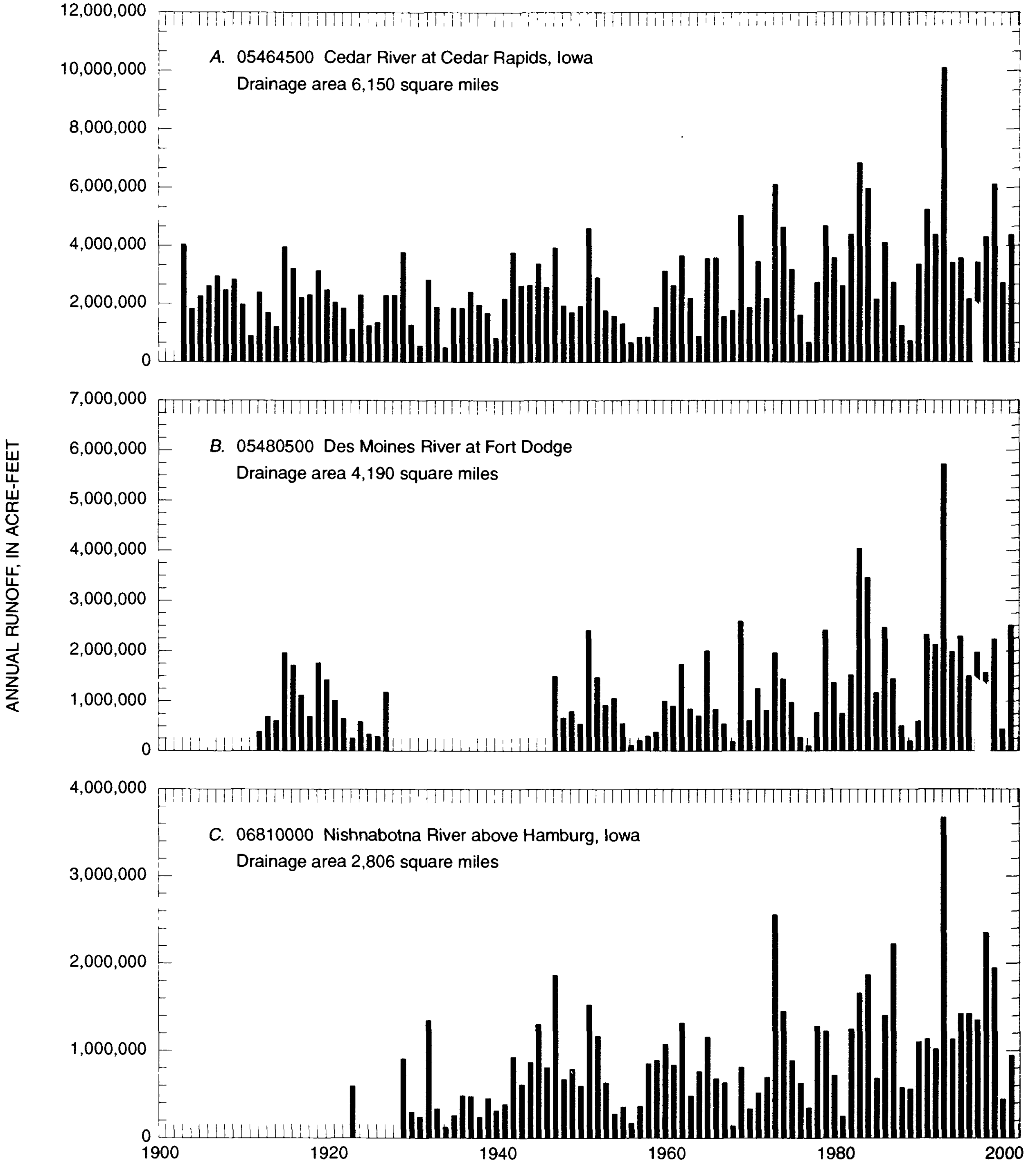


Figure 2. Annual runoff for period of record at index stations.

Table 1. Monthly and annual precipitation during the 2001 water year as a percentage of normal precipitation (1961-90).
[Source: Harry Hillaker, State Climatologist, Iowa Department of Agriculture and Land Stewardship, written commun., 2001]

National Weather Service Climatological District	2000			2001									
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Annual
Northwest	130	210	133	235	137	31	211	145	85	113	66	68	114
North-central	95	169	182	148	164	55	128	197	79	104	56	86	111
Northeast	45	127	164	140	187	49	103	155	98	76	84	152	108
West-central	93	166	156	228	184	49	113	185	87	59	113	99	113
Central	65	127	160	171	190	55	102	163	75	61	79	133	103
East-central	51	77	117	151	354	61	89	168	90	84	74	114	104
Southwest	67	141	107	224	328	69	116	171	94	82	25	113	106
South-central	50	85	139	196	299	100	103	184	127	62	65	108	110
Southeast	65	66	99	194	401	97	102	228	123	62	91	87	116
Statewide	73	124	139	183	245	63	117	177	93	78	74	108	109

The locations of the active continuous-record gaging stations in Iowa for water year 2001 are shown in figure 3. The locations of the active crest-stage gaging stations are shown in figure 4.

Suspended Sediment

Daily suspended-sediment discharge data (hereafter referred to as sediment discharge) were collected at 13 streamflow-gaging stations in Iowa during the 2001 water year. Four stations have 23 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; two stations on the Missouri River have 15 years of record: 06610000 Missouri River at Omaha, Nebraska and 06807000 Missouri River at Nebraska City, Nebraska; two stations in northeast Iowa have 10 years of record: 05389400 Bloody Run Creek near Marquette and 05411400 Sny Magill Creek near Clayton; two new sediment stations were established in northeast/east-central Iowa to monitor sediment movement in the Maquoketa River Basin; 05416900 Maquoketa River at Manchester and 05418500 Maquoketa River near Maquoketa; three stations in central Iowa have 6 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 7 of 13 stations occurred between March 12-23, after a significant rain event. Two others peaked August 2.

Mississippi River at McGregor, which has most of its drainage basin in Minnesota and Wisconsin, had an annual sediment discharge of 1,385,000 tons, which was the eleventh lowest sediment discharge in 26 years of record, and 82.9 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 2001 was 133,782 tons. This

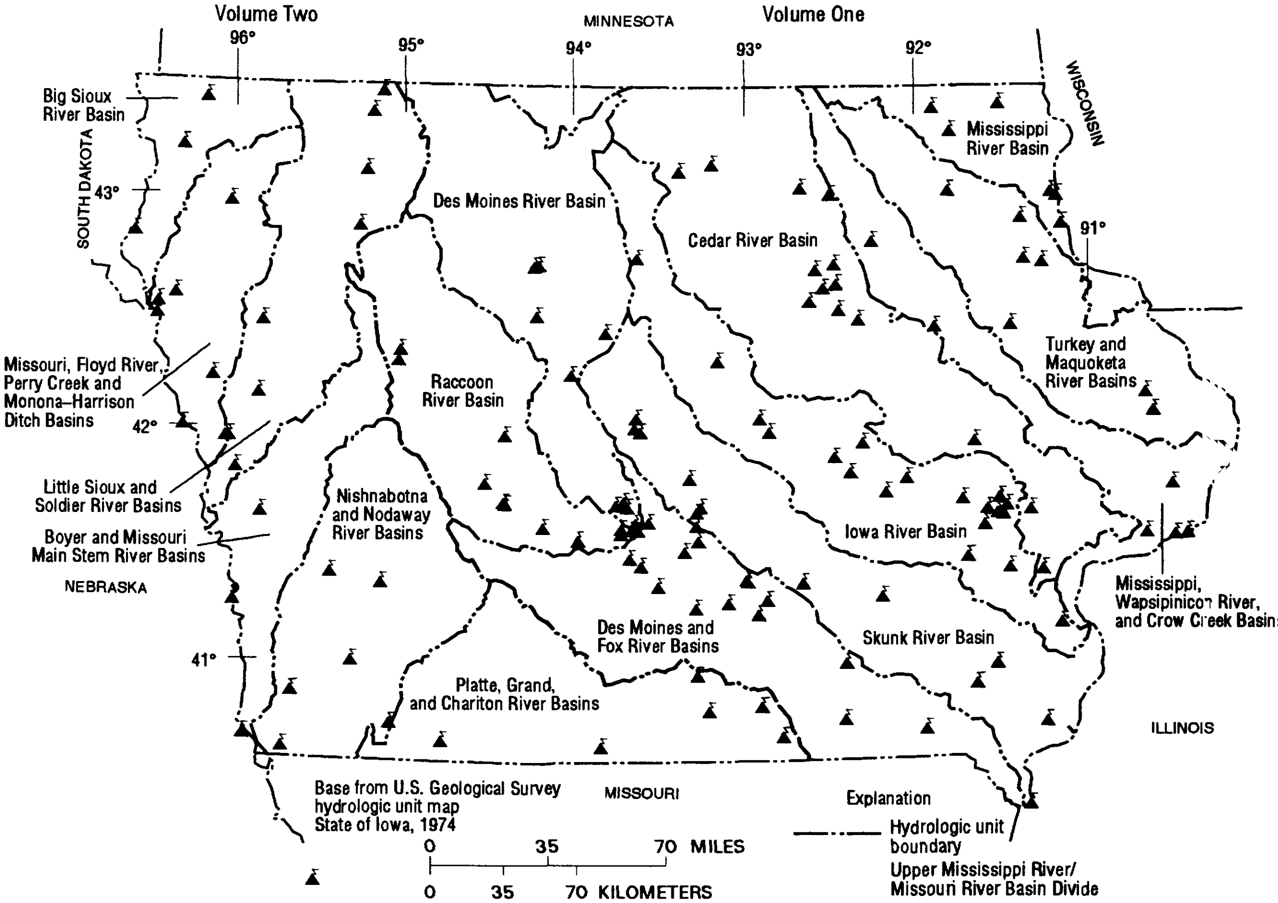


Figure 3. Location of active continuous-record gaging stations in Iowa, water year 2001. [See drainage basin maps in indicated volume for gaging-station identification.]

represents 55 percent of the 24-year mean sediment discharge. The mean annual sediment discharge since dam completion is 241,700 tons (fig. 6).

Sediment discharges for Iowa River at Wapello and Skunk River at Augusta in southeast Iowa were indicative of the near-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 108 percent of normal precipitation. Wapello had an annual sediment discharge of 2.22 million tons. This represents 82.6 percent of the 23-year mean sediment discharge of 2.69 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 116 percent of normal for water year 2001. The 2001 annual sediment discharge for Skunk River at Augusta was 3.27 million tons, which is 118 percent of the 26-year mean sediment discharge of 2.77 million tons (fig. 6).

The 2001 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 1,722 tons, of which approximately 24.6 percent was measured during the month of August. The annual runoff was 41.9 percent of the 10-year mean sediment discharge of 4,107 tons. The annual sediment discharge for Sny Magill

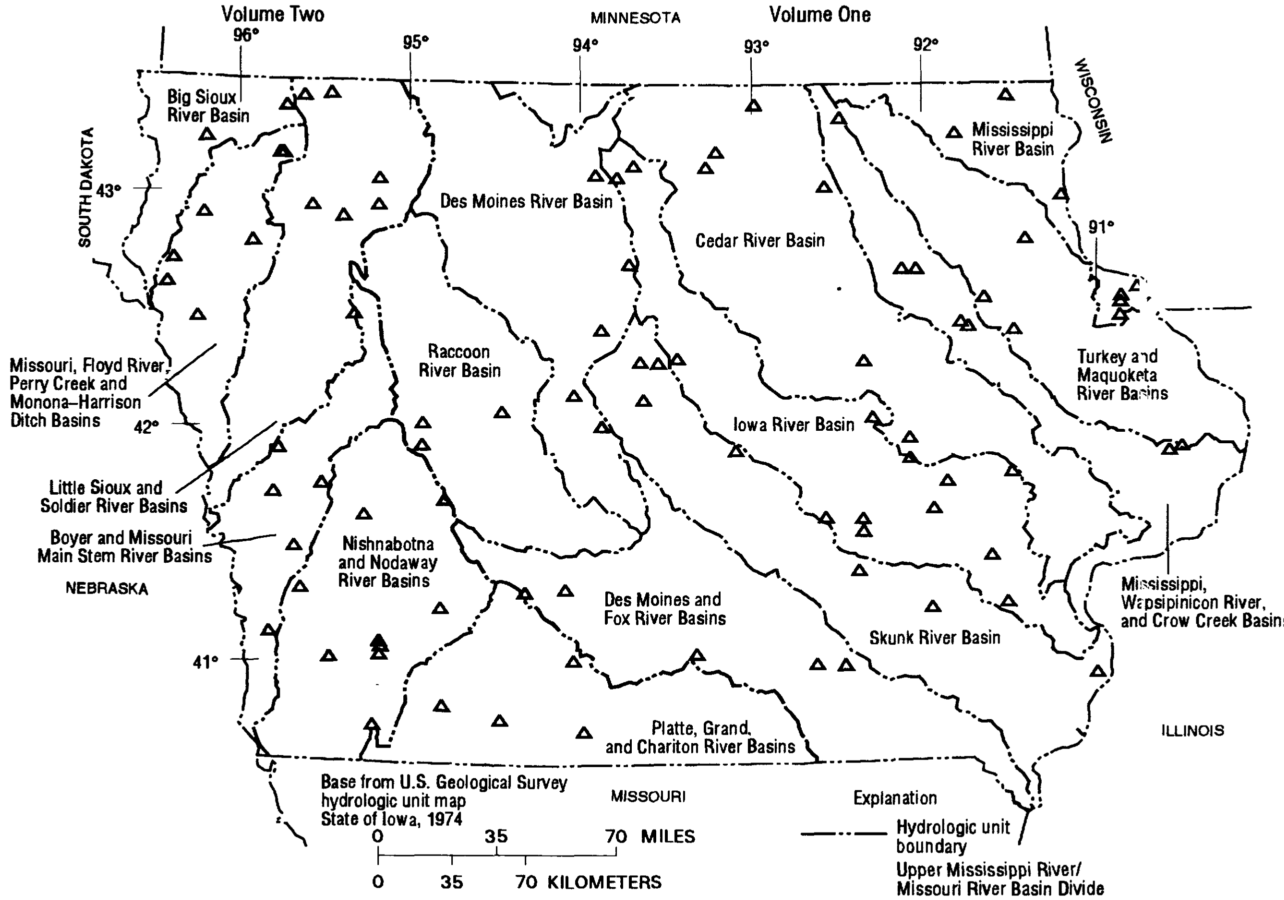


Figure 4. Location of active crest-stage gaging stations in Iowa, water year 2001. [See drainage basin maps in indicated volume for gaging-station identification.]

Creek near Clayton (05411400) was 3,161 tons. This runoff represents 68.6 percent of the 10-year mean sediment discharge of 4,610 tons. Fifty-four percent of Sny Magill's annual sediment discharge was measured in August, and approximately 39 percent of the yearly total was measured on August 2. 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 new station in northeast Iowa, Maquoketa River at Manchester (05416900), was 33,680 tons; 45.9 percent of the yearly total was measured in March. The station in east-central Iowa, Maquoketa River near Maquoketa (05418500), had an annual sediment discharge of 334,400 tons. Thirty-six percent of the yearly total was measured in March.

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 annual sediment discharge for Squaw Creek near Colfax (05471040) was 5,942 tons. Sixty-eight percent of Squaw Creek's annual sediment discharge was measured in March. The annual sediment discharge for Walnut Creek near Prairie City (05487540) was 916 tons, while Walnut Creek near Vandalia (05487550) was 6,357 tons of annual sediment discharge. Vandalia has a drainage area approximately three times the size of Prairie City, but had about 6.9 times the amount of sediment discharge of Prairie City.

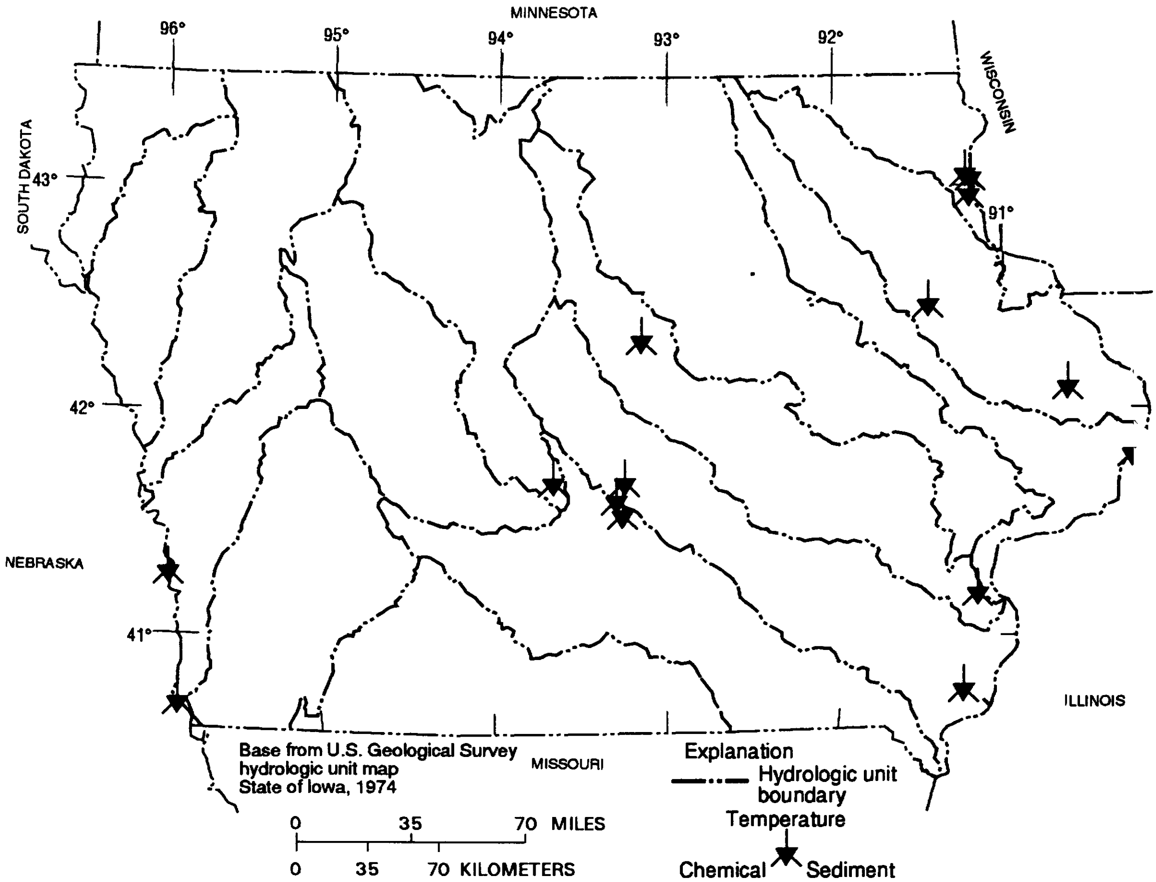


Figure 5. Location of active sediment and surface-water quality stations in Iowa, water year 2001.

The two Missouri River stations (fig. 5) have large drainage areas, which the sediment discharges reflect. The annual sediment discharge at Omaha was 15.9 million tons, which was 75 percent of the 15-year mean of 21.3 million tons. The annual sediment discharge at Nebraska City was 23.0 million tons, which was 70 percent of the 15-year mean of 32.9 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 163 wells monitored on a quarterly, monthly, or intermittent basis in Iowa during water year 2001 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: <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.

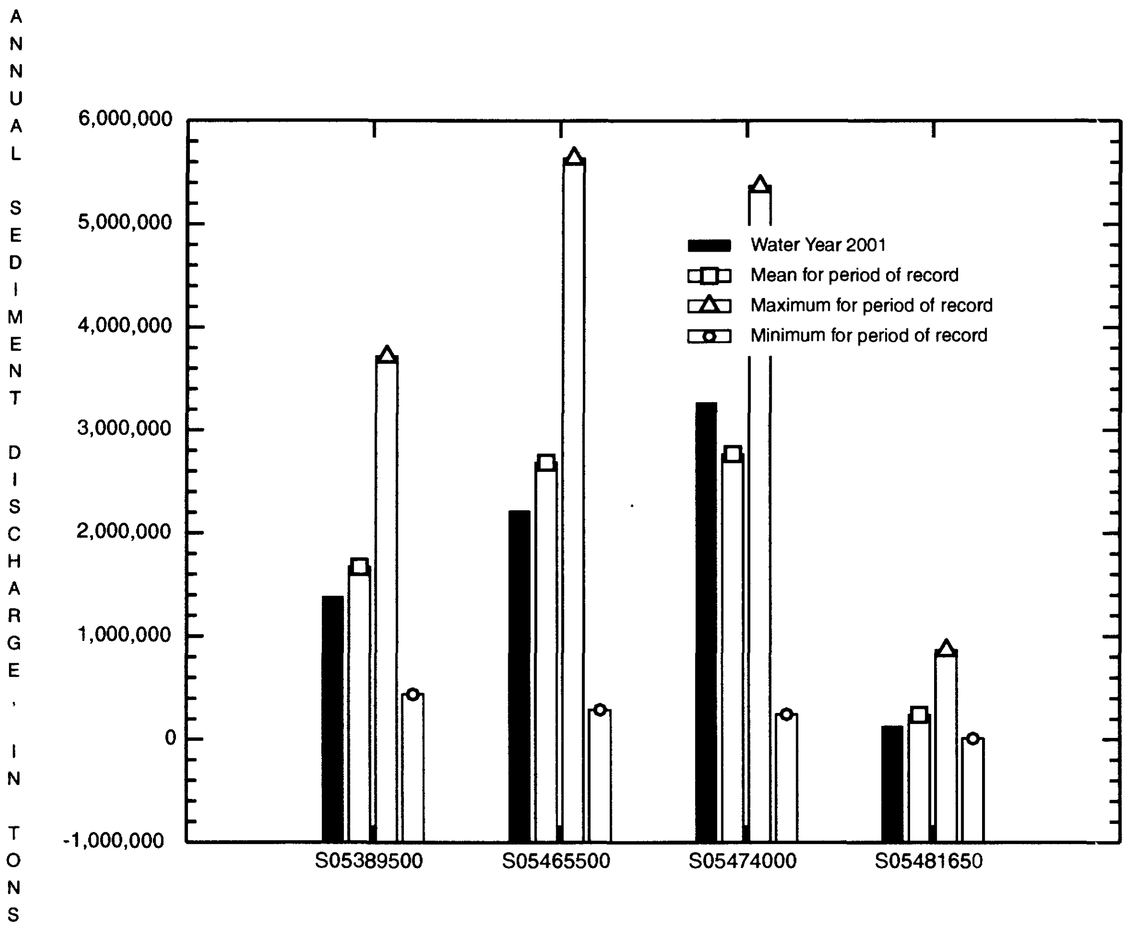


Figure 6. Comparison of annual sediment discharge for water year 2001 with mean, previous maximum, and previous minimum annual sediment discharges for periods of record at four long-term daily sediment stations in Iowa.

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.

Four wells completed in an unconsolidated aquifer recorded a new historical water level during the 2001 water year. One well recorded a high historical water level (table 2). Three wells recorded low historical water levels (table 3).

Table 2. Historical high water level measured during the 2001 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
Adams	410247094324801	Glacial Drift	2.30	05/08/2001	1.38	05/09/1996

Table 3. Historical low water level measured during the 2001 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	5.45	11/30/2000	3.08	12/06/1996
Carroll	420643094403701	Alluvial	12.53	02/12/2001	11.99	05/07/1996
Mills	405641095365101	Buried Channel	170.00	07/30/2001	144.30	06/13/1990

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.

Eighteen wells completed in bedrock aquifers recorded new historical water levels during the 2001 water year. Four wells recorded historical high water levels (table 4), and 14 wells recorded historical low water levels (table 5).

Table 4. Historical high water level measured during the 2001 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
Jasper	413908093071100	Cambrian-Ordovician	182	12/18/2000	--	--
Linn	421207091312201	Silurian	8.0	05/09/2001	10	08/09/1999
Pottawat-tamie	412407095391201	Cambrian-Ordovician	72.17	05/09/2001	122.74	05/11/2000
Washington	412750091495201	Mississippian	0.31	05/08/2001	0.59	11/04/1998

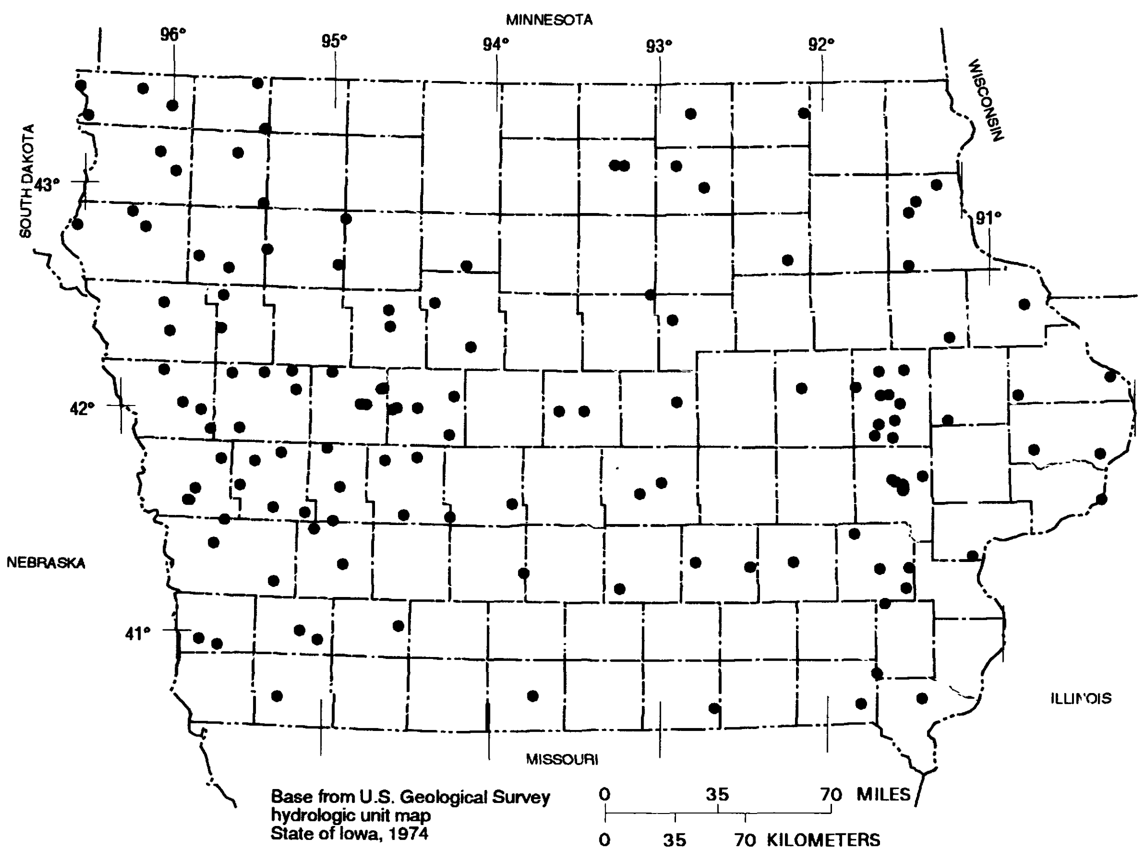


Figure 7. Location of wells in the ground-water-level observation network in Iowa, water year 2001.

Table 5. Historical low water level measured during the 2001 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
Carroll	420233094475901	Cretaceous	24.85	11/08/2000	23.72	11/07/1995
Clinton	414921090450401	Silurian	104	08/09/2001	97	05/15/2000 08/15/2000
Decatur	4044220934456002	Cambrian-Ordovician	445.22	07/26/2001	443.10	05/11/2000 08/09/2000
Floyd	430200092435303	Devonian	83.41	02/14/2001	82.06	02/06/1996
Floyd	430200092435304	Devonian	89.07	02/14/2001	88.43	02/06/1996
Ida	422215095390811	Cretaceous	208.27	11/20/2000	207.84	08/07/2000
Jasper	413908093071100	Cambrian-Ordovician	205	03/24/2001	--	--
Johnson	413929091322401	Cambrian-Ordovician	222	06/21/2001	216	04/30/1998
Johnson	414132091345502	Silurian	252.77	07/31/2000	253.83	07/09/2001
Johnson	414132091345503	Silurian	314	08/13/2001 08/28/2001	310	07/27/2000
Johnson	414145091350101	Cambrian-Ordovician	419	08/13/2001 08/28/2001	419	12/19/2000
Lee	404306091270201	Cambrian-Ordovician	271.77	08/07/2001	269.12	08/14/2000
Madison	411727093483001	Mississippian	281.43	07/26/2001	281.01	08/09/2000
Shelby	413255095070401	Shelby	43.23	12/04/2000	43.03	02/24/2000

Surface-Water Quality

Surface-water-quality data was collected in Iowa during water year 2001 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). The combined drainage area of the two stations is approximately 408,000 square miles. Land use throughout the two drainage basins is primarily agricultural. Fifteen water samples were collected at Missouri River at Omaha, and fourteen water sample were collected at Mississippi River at Clinton during the 2001 water year.

Nearly all the samples collected at the two stations contained detectable concentrations of agricultural chemicals. Dissolved nitrite plus nitrate as nitrogen (hereafter referred to as nitrate) were common during the 2001 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 0.209 mg/L on August 15 to 2.95 mg/L, on April 24.

Nitrate concentrations at Omaha ranged from 0.084 mg/L on October 3 to 2.96 mg/L, on May 7. Nitrate concentrations in water samples did not exceed 10 mg/L, which is the U.S. Environmental Protection Agency (USEPA), Maximum Contaminate

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 analysis were completed for 29 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. Some of the detections of herbicide concentrations were at very low detection limits and are marked with an "E" code for an estimated value. An "E" code means the compound was detected but that the value is approaching quantifiable limits. Acetochlor was detected 11 times at Omaha and ten times at Clinton. The largest herbicide concentration was 4.38 ug/L (micrograms per liter) of atrazine in the water sample collected from the Missouri River on June 15. The largest overall concentration of acetochlor, alachlor, atrazine, cyanazine, and metolachlor in a single event was also on the Missouri River on June 15. This water sample had 0.420 ug/L of acetochlor, 0.014 ug/L of alachlor, 4.38 ug/L of atrazine, E0.014 ug/L of cyanazine, and 0.976 ug/L of metolachlor. The only herbicide that exceeded USEPA MCL's (USEPA,1992, Fact sheet: EPA 570/9-91-012FS, December 1992) was atrazine on June 15.

Herbicide concentrations were generally larger in samples collected during May, June, and July than in samples collected at other times during water year 2001. Water samples collected in October through February had the lowest overall concentrations of the five herbicides during the 2001 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 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 2001 water year is the tenth year of this program to determine possible ground-water-quality trends.

Ground-Water Monitoring Network

During the 2001 water year, a total of 86 ground-water samples were collected from municipal wells located 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. Two types of surficial aquifers and four types vulnerable bedrock aquifers were sampled. The 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 (3) Cretaceous aquifers comprised of fine- to coarse-grained sandstones of the Dakota Group (4) Mississippian aquifers composed primarily of porous limestones and dolomites (5) Silurian-Devonian aquifers composed of porous and fractured limestones and dolomites; and (6) Cambrian-Ordovician aquifers comprised of sandstones and dolomitic sandstones of the Jordon Formation. Samples were collected during July, August, and September 2001. All samples were analyzed by the University of Iowa Hygienic Laboratory. All samples were analyzed for common ions, nutrients, and herbicides. In addition, most samples were sampled for volatile organic compounds (VOCs) and radio chemistry. However, in a few cases only wells less than 300 feet deep were analyzed for VOCs and only wells deeper than 300 feet were analyzed for radio chemistry. 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 was detected in 37 of the 86 samples and ammonia was detected in 52 of the 86 samples analyzed for these compounds. One or more herbicides were detected in 24 of the 86 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 0.05 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 2001
[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	86	1	<0.05 µg/L	0.51 µg/L
Ammonia	86	52	.20 mg/L	6.5 mg/L
Alachlor	86	1	< 0.05 µg/L	0.22 µg/L
Atrazine	86	12	< 0.05 µg/L	0.19 µg/L
Butylate	86	0	< 0.05 µg/L	< 0.05 µg/L
Cyanazine	86	0	< 0.05 µg/L	< 0.05 µg/L
Deethylatrazine	86	10	< 0.05 µg/L	0.097 µg/L
Deisopropylatrazine	86	1	< 0.05 µg/L	0.12 µg/L
Metolachlor	86	6	< 0.05 µg/L	2.3 µg/L
Metribuzin	86	0	< 0.05 µg/L	< 0.05 µg/L
Nitrate	86	37	< 0.10 mg/L	18.0 mg/L
Prometone	86	2	< 0.05 µg/L	0.11 µg/L
Trifluralin	86	2	< 0.05 µg/L	0.05 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 24 of 86 samples. The median concentration for the 24 samples with detections above 3.0 mg/L was 3.7 mg/L. Concentrations in five samples exceeded 10 mg/L, which is the U.S. Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL) for public drinking water. The median nitrate concentration for all samples was <0.10 mg/L. The maximum nitrate concentration detected was 18 mg/L. Of the 37 samples with detectable nitrate concentrations, 49 percent were from the alluvial aquifers, 13 percent were from the glacial drift and buried channel aquifers, and 38 percent were from the bedrock aquifers.

Nine commonly used herbicides and two atrazine degradation products (deethylatrazine and deisopropylatrazine) were analyzed for during the 2001 water year. Atrazine was the most commonly detected herbicide (14 percent), followed by deethylatrazine (12 percent) and metolachlor (7 percent). No sample contained herbicide concentrations that exceeded the MCL or proposed MCL of any of the analytes. The largest concentration of any herbicide compound detected was a metolachlor concentration of 2.3 µg/L. No detectable amounts of butylate, cyanazine, or metribuzin were found in any of the samples.

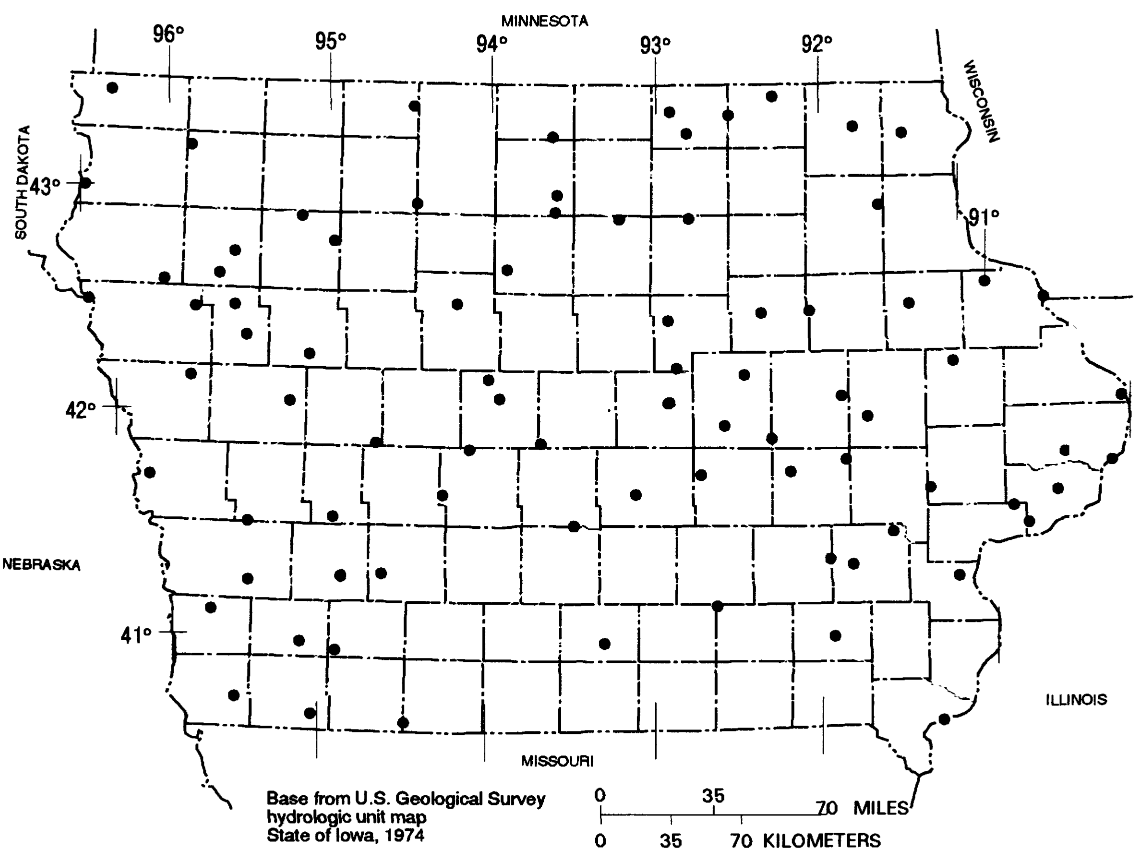


Figure 8. Location of active ground-water-quality monitoring wells in Iowa.

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

Radio chemical 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 additional 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 (fig. 9).

Latitude and longitude coordinates for wells:

1. 414315091252001
2. 414315091252002
3. 414316091251901

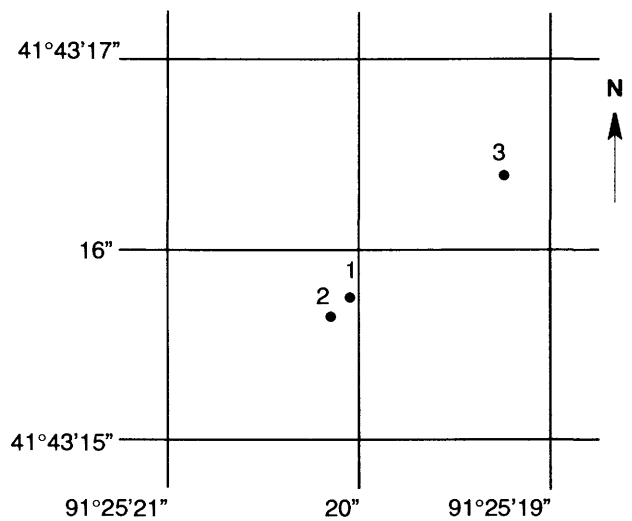


Figure 9. Latitude-longitude well number.

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. 10). 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.

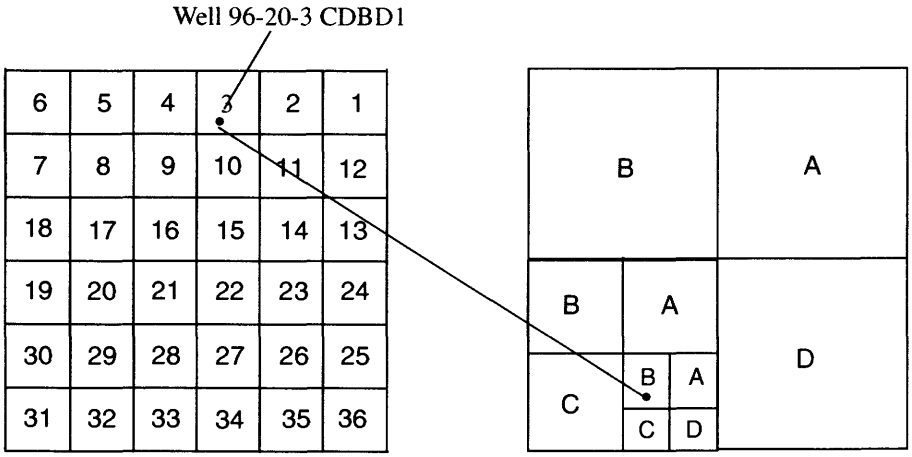


Figure 10. Local well-numbering system.

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 errors in published water-quality records are discovered after publication, appropriate updates are made in the U.S. Geological Survey's distributed data system, NWIS, and subsequently to its web-based National data system, NWISWEB [http://water.usgs.gov/nwis/nwis]. Because of 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 NWIS or NWISWEB to ensure the most recent updates. Updates to NWISWEB are currently made on an annual basis.

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 or 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 for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. A1, A3, and A4; Book 9, Chap.A1-A9.

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 samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily, or in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples 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 Program Office, Illinois State Water Survey, 2204 Griffith Drive, Champaign, Il 61820-7495 (217-333-7873).

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, radio nuclides 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

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Terms such as algae, water level, precipitation are used in their common everyday meanings, definitions of which are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting English units to International System (SI) Units on the inside of the back cover.

Acid neutralizing capacity (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an "unfiltered" sample (formerly reported as alkalinity).

Acre-foot (AC-FT, acre-ft) is a unit of volume, commonly used to measure quantities of water used or stored, equivalent to the volume of water required to cover 1 acre to a depth of 1 foot and equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters. (See also "Annual runoff")

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes ATP an excellent indicator of the presence of living material in water. A measurement of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

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 that is discharged ("runs off") from a drainage basin in a year. Data reports may present annual runoff data as volumes in acre-feet, as discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches.

Annual 7-day minimum is the lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values are reported herein for the calendar year and the water year (October 1 to September 30). Most low-flow frequency analyses use a climatic year (April 1-March 31), which tends to prevent the low-flow period from being artificially split between adjacent years. 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.)

Aroclor is the registered trademark for a group of polychlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Aroclors are assigned specific 4-digit reference numbers dependent upon molecular type and degree of substitution of the biphenyl ring hydrogen atoms by chlorine atoms. The first two digits of a numbered aroclor represent the molecular type and the last two digits represent the weight percent of the hydrogen substituted chlorine.

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

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

Bacteria are microscopic unicellular organisims, 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.

Base discharge (for peak discharge) is a discharge value, determined for selected stations, above which peak discharge data are published. The base discharge at each station is selected so that an average of about three peaks per year will be published.

Base flow is sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced streamflows. Natural base flow is sustained largely by ground-water discharge.

Bedload is material in transport that is supported primarily by the streambed. In this report, bedload is considered to consist of particles in transit from the bed to an elevation equal to the top of the bedload sampler nozzle (ranging from 0.25 to 0.5 ft) that are retained in the bedload sampler. A sample collected with a pressure-differential bedload sampler may also contain a component of the suspended load.

Bedload discharge (tons per day) is rate of sediment moving as bedload, reported as dry weight, that passes through a cross section in a given time. NOTE: Bedload discharge values in this report may include a component of the suspended-sediment discharge. A correction may be necessary when computing the total sediment discharge by summing the bedload discharge and the suspended-sediment discharge. (See also "Bedload" and "Sediment")

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed. (See also "Bedload" and "Sediment")

Benthic organisms are the group of organisms inhabiting the bottom of an aquatic environment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are useful as indicators of water quality.

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

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

Biomass pigment ratio is an indicator of the total proportion of periphyton which are autotrophic (plants). This is also called the Autotrophic Index.

Blue-green algae (*Cyanophyta*) are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

Bottom material (See "Bed material")

Cells/volume refers to the number of cells of any organism that is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample volume, and are generally reported as cells or units per milliliter (mL) or liter (L).

Cells volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are frequently used in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (μm^3) is determined by obtaining critical cell measurements on cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

$$\text{sphere } 4/3\ \pi r^3 \quad \text{cone } 1/3\ \pi r^3 h \quad \text{cylinder } \pi r^3 h.$$

pi is the ratio of the circumference to the diameter of a circle; pi = 3.14159...
From cell volume, total algal biomass expressed as biovolume (μm^3/mL) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes over all species.

Cfs-day (See "Cubic foot per second-day")

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with BOD or with carbonaceous organic pollution from sewage or industrial wastes. [See also "Biochemical oxygen demand (BOD)"]

Clostridium perfringens *(C. perfringens)* is a spore-forming bacterium that is common in the feces of human and other warm-blooded animals. Clostridial spores are being used experimentally as an indicator of past fecal contamination and presence of microorganisms that are resistant to disinfection and environmental stresses. (See also "Bacteria")

Coliphages are viruses that infect and replicate in coliform bacteria. They are indicative of sewage contamination of waters and of the survival and transport of viruses in the environment.

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. (See also "Aquifer")

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 where data are collected with sufficient frequency to define daily mean values and variations within a day.

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 gage. 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 or approximately 449 gallons per minute, or 0.02832 cubic meters per second. The term "second-feet" sometimes is used synonymously with "cubic feet per second" but is now obsolete.

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, 1.98347 acre-feet, 646,317 gallons, or 2,446.6 cubic meters. The daily-mean discharges reported in the daily-value data tables are numerically equal to the daily volumes in cfs-days, and the totals also represent volumes in cfs-days.

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. (See also "Annual runoff")

Daily mean suspended-sediment concentration is the time-weighted concentration of suspended sediment passing a stream cross section during a 24-hour day. (See also "Daily mean suspended-sediment concentration," "Sediment," and "Suspended-sediment concentration")

Daily-record station is a site where data are collected with sufficient frequency to develop a record of one or more data values per day. The frequency of data collection can range from continuous recording to periodic sample or data collection on a daily or near-daily basis.

Data Collection Platform (DCP) is an electronic instrument that collects, processes, and stores data from various sensors, and transmits the data by satellite data relay, line-of-sight radio, and/or landline telemetry.

Data logger is a microprocessor-based data acquisition system designed specifically to acquire, process, and store data. Data are usually downloaded from onsite data loggers for entry into office data systems.

Datum is a surface or point relative to which measurements of height and/or horizontal position are reported. A vertical datum is a horizontal surface used as the zero point for measurements of gage height, stage, or elevation; a horizontal datum is a reference for positions given in terms of latitude-longitude, State Plane coordinates, or UTM coordinates. (See also "Gage datum," "Land-surface datum," "National Geodetic Vertical Datum of 1929," and "North American Vertical Datum of 1988")

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

Diel is of or pertaining to a 24-hour period of time; a regular daily cycle.

Discharge, or flow, is the rate that matter passes through a cross section of a stream channel or other water body per unit of time. The term commonly refers to the volume of water (including, unless otherwise stated, any sediments or other constituents suspended or dissolved in the water) that passes a cross section in a stream channel, canal, pipeline, etc., within a given period of time (cubic feet per second). Discharge also can apply to the rate at which constituents such as suspended sediment, bedload, and dissolved or suspended chemical constituents, pass through a cross section, in which cases the quantity is expressed as the mass of constituent that passes the cross section in a given period of time (tons per day).

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 and State agencies that collect water-quality data. Determinations of "dissolved" constituent concentrations are made on sample water that has been filtered.

Dissolved oxygen (DO) is the molecular oxygen (oxygen gas) dissolved in water. The concentration in water 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 concentration. Photosynthesis and respiration by plants commonly cause diurnal variations in dissolved-oxygen concentration in water from some streams.

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

Diversity index (H) (Shannon Index) is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

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

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

Drainage area of a stream at a specific location is that area upstream from the location, measured in a horizontal plane, that has a common outlet at the site for its surface runoff from precipitation that normally drains by gravity into a stream. Drainage areas 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 contains a drainage system with a common outlet for its surface runoff. (See "Drainage area")

Dry mass refers to the mass of residue present after drying in an oven at 105 °C, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass. (See also "Ash mass," "Biomass," and "Wet mass")

Dry weight refers to the weight of animal tissue after it has been dried in an oven at 65 °C until a constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue. (See also "Wet weight")

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. (See also "Bacteria")

EPT Index is the total number of distinct taxa within the insect orders Ephemeroptera, Plecoptera, and Trichoptera. This index summarizes the taxa richness within the aquatic insects that are generally considered pollution sensitive, the index usually decreases with pollution.

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. (See also "Bacteria")

Estimated (E) value of a concentration is reported when an analyte is detected and all criteria for a positive result are met. If the concentration is less than the method detection limit (MDL), an 'E' code will be reported with the value. If the analyte is qualitatively identified as present, but the quantitative determination is substantially more uncertain, the National Water Quality Laboratory will identify the result with an 'E' code even though the measured value is greater than the MDL. A value reported with an 'E' code should be used with caution. When no analyte is detected in a sample, the default reporting value is the MDL preceded by a less than sign (<).

Euglenoids (*Euglenophyta*) are a group of algae that are usually free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark. (See also "Phytoplankton")

Extractable organic halides (EOX) are organic compounds that contain halogen atoms such as chlorine. These organic compounds are semi-volatile and extractable by ethyl acetate from air-dried streambed sediments. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of the streambed sediments.

Fecal coliform bacteria 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. (See also "Bacteria")

Fecal streptococcal bacteria are present in the intestine of warm-blooded animals and are ubiquitous in the environment. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms that produce red or pink colonies within 48 hours at 35 °C plus or minus 1.0 °C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Fire algae (*Pyrrhophyta*) are free-swimming unicells characterized by a red pigment spot. (See also "Phytoplankton")

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 a horizontal surface used as a zero point for measurement of stage or gage height. This surface usually is located slightly below the lowest point of the stream bottom such that the gage height is usually slightly larger than the maximum depth of water. Because the gage datum itself is not an actual physical object, the datum usually is defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gage is set to agree with the reference marks. Gage datum is a local datum that is maintained independently of any National geodetic datum. However, if the elevation of the gage datum relative to the National datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929) has been determined, then the gage readings can be converted to elevations above the National datum by adding the elevation of the gage datum to the gage reading.

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

Gage values are values that are recorded, transmitted and/or computed from a gaging station. Gage values typically are collected at 5-, 15-, or 30-minute intervals.

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.

Gas chromatography/flame ionization detector (GC/FID) is a laboratory analytical method used as a screening technique for semivolatile organic compounds that are extractable from water in methylene chloride.

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

Habitat quality index is the qualitative description (level 1) of instream habitat and riparian conditions surrounding the reach sampled. Scores range from 0 to 100 percent with higher scores indicative of desirable habitat conditions for aquatic life. Index only applicable to wadable streams.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations (primarily calcium and magnesium) and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

High tide is the maximum height reached by each rising tide. The high-high and low-high tides are the higher and lower of the two high tides, respectively, of each tidal day. *See NOAA web site: http://www.co-ops.nos.noaa.gov/tideglos.html*

Hilsenhoff's Biotic Index (HBI) is an indicator of organic pollution which uses tolerance values to weight taxa abundances; usually increases with pollution. It is calculated as follows:

$$HBI = sum\frac{(n)(a)}{N}$$

where n is the number of individuals of each taxon, a is the tolerance value of each taxon, and N is the total number of organisms in the sample.

Horizontal datum (See "Datum")

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 index stations referred to in this report are four continuous-record gaging stations that have been selected as representative of streamflow patterns for their respective regions. Station locations are shown on index maps.

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 USGS. Each hydrologic unit is identified by an 8-digit number.

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. (See also "Annual runoff")

Instantaneous discharge is the discharge at a particular instant of time. (See also "Discharge")

Laboratory Reporting Level (LRL) is generally equal to twice the yearly determined long-term method detection level (LT-MDL). The LRL controls false negative error. The probability of falsely reporting a non-detection for a sample that contained an analyte at a concentration equal to or greater than the LRL is predicted to be less than or equal to 1 percent. The value of the LRL will be reported with a "less than" (<) remark code for samples in which the analyte was not detected. The National Water Quality Laboratory collects quality-control data from selected analytical methods on a continuing basis to determine LT-MDLs and to establish LRLs. These values are reevaluated annually based on the most current quality-control data and may, therefore, change. [Note: In several previous NWQL documents (Connor and others, 1998; NWQL Technical Memorandum 98.07, 1998), the LRL was called the non-detection value or NDV—a term that is no longer used.)

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

Light-attenuation coefficient, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation

$$I = I_o e^{-\lambda L},$$

where I_o is the source light intensity, I is the light intensity at length L (in meters) from the source, λ is the light-attenuation coefficient, and e is the base of the natural logarithm. The light attenuation coefficient is defined as

$$\lambda = -\frac{1}{L}\log_e\frac{I}{I_o} .$$

Lipid is any one of a family of compounds that are insoluble in water and that make up one of the principal components of living cells. Lipids include fats, oils, waxes, and steroids. Many environmental contaminants such as organochlorine pesticides are lipophilic.

Long-Term Method Detection Level (LT–MDL) is a detection level derived by determining the standard deviation of a minimum of 24 method detection limit (MDL) spike sample measurements over an extended period of time. LT–MDL data are collected on a continuous basis to assess year-to-year variations in the LT–MDL. The LT–MDL controls false positive error. The chance of falsely reporting a concentration at or greater than the LT–MDL for a sample that did not contain the analyte is predicted to be less than or equal to 1 percent.

Low tide is the minimum height reached by each falling tide. The high-low and low-low tides are the higher and lower of the two low tides, respectively, of each tidal day. *See NOAA web site: http://www.co-ops.nos.noaa.gov/tideglos.html*

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that are usually arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

Mean concentration of suspended sediment (Daily mean suspended-sediment concentration) is the time-weighted concentration of suspended sediment passing a stream cross section during a given time period. (See also "Daily mean suspended-sediment concentration" and "Suspended-sediment concentration")

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

Mean high or low tide is the average of all high or low tides, respectively, over a specific period.

Mean sea level is a local tidal datum. It is the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; for example, monthly mean sea level and yearly mean sea level. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. (See also "Datum")

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.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is determined from the analysis of a sample in a given matrix containing the analyte. At the MDL concentration, the risk of a false positive is predicted to be less than or equal to 1 percent.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

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. One microgram per liter is equivalent to 1 part per billion.

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.

Minimum Reporting Level (MRL) is the smallest measured concentration of a constituent that may be reliably reported by using a given analytical method (Timme, 1995).

Miscellaneous site, miscellaneous station, or miscellaneous sampling site is a site where streamflow, sediment, and/or water-quality data or water-quality or sediment samples are collected once, or more often on a random or discontinuous basis to provide better areal coverage for defining hydrologic and water-quality conditions over a broad area in a river basin.

Most probable number (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

Multiple-plate samplers are artificial substrates of known surface area used for obtaining benthic invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

Nanograms per liter (NG/L, ng/L) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It was formerly called "Sea Level Datum of 1929" or "mean sea level." Although the datum was derived from the mean sea level at 26 tide stations, 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* (See "North American Vertical Datum of 1988")

Natural substrate refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives. (See also "Substrate.")

Nekton are the consumers in the aquatic environment and consist of large free-swimming organisms that are capable of sustained, directed mobility.

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.

North American Vertical Datum of 1988 (NAVD 1988) is a fixed reference adopted as the official civilian vertical datum for elevations determined by Federal surveying and mapping activities in the U.S. This datum was established in 1991 by minimum-constraint adjustment of the Canadian, Mexican, and U.S. first-order terrestrial leveling networks.

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), particulate organic carbon (POC), or total organic carbon (TOC).

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. Organic mass is expressed in the same units as for ash mass and dry mass. (See also "Ash mass," "Biomass," and "Dry mass")

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

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

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 USGS 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, as 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.

Peak flow (peak stage) is an instantaneous local maximum value in the continuous time series of streamflows or stages, preceded by a period of increasing values and followed by a period of decreasing values. Several peak values ordinarily occur in a year. The maximum peak value in a year is called the annual peak; peaks lower than the annual peak are called secondary peaks. Occasionally, the annual peak may not be the maximum value for the year; in such cases, the maximum value occurs at midnight at the beginning or end of the year, on the recession from or rise toward a higher peak in the adjoining year. If values are recorded at a discrete series of times, the peak recorded value may be taken as an approximation to the true peak, which may occur between the recording instants. If the values are recorded with finite precision, a sequence of equal recorded values may occur at the peak; in this case, the first value is taken as the peak.

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, mass, or volume.

Percent shading is determined by using a clinometer to estimate left and right bank shading. The values are added together and divided by 180 to determine percent shading relative to a horizontal surface.

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

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

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.

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

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactive nuclide represented by a curie (Ci). A curie is the quantity of radioactive nuclide that yields 3.7×10^{10} radioactive disintegrations per second (dps). A picocurie yields 0.037 dps, or 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers. Concentrations are expressed as a number of cells per milliliter (cells/mL of sample).

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

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

Primary productivity (carbon method) is expressed as milligrams of carbon per area per unit time [mg C/(m^2/time)] for periphyton and macrophytes or per volume [mg C/(m^3/time)] for phytoplankton. Carbon method defines the amount of carbon dioxide consumed as measured by
radioactive carbon (carbon-14). The carbon-14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

Primary productivity (oxygen method) is expressed as milligrams of oxygen per area per unit time [mg O/(m^2/time)] for periphyton and macrophytes or per volume [mg O/(m^3/time)] for phytoplankton. Oxygen method defines production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

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 bed (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. (See also "Bed material")

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.

Return period (See "Recurrence interval")

River mileage is the curvilinear distance, in miles, measured upstream from the mouth along the meandering path of a stream channel in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council, and typically used to denote location along a river.

Runoff is the quantity of water that is discharged ("runs off") from a drainage basin in a given time period. Runoff data may be presented as volumes in acre-feet, as mean discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches. (See also "Annual runoff")

Sea level, as used in this report, refers to one of the two commonly used national vertical datums, (NGVD 1929 or NAVD 1988). See separate entries for definitions of these datums. See conversion of units page (inside back cover) for identification of the datum used in this report.

Sediment is solid material that originates mostly from disintegrated rocks; when transported by, suspended in, or deposited from water, it is referred to as "fluvial sediment." Sediment 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 and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of precipitation.

Seven-day 10-year low flow (7Q10) is the discharge below which the annual 7-day minimum flow falls in 1 year out of 10 on the long-run average. The recurrence interval of the 7Q10 is 10 years; the chance that the annual 7-day minimum flow will be less than the 7Q10 is 10 percent in any given year. (See also "Recurrence interval" and "Annual 7-day minimum")

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. Sodium hazard in water is an index that can be used to evaluate the suitability of water for irrigating crops.

Specific electrical conductance (conductivity) is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved substances in water 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.

Stable isotope ratio (per MIL/MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific waters, to evaluate mixing of different waters, as an aid in determining reaction rates, and other chemical or hydrologic processes.

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.

Substrate is the physical surface upon which an organism lives.

Substrate Embeddedness Class is a visual estimate of riffle streambed substrate larger than gravel that is surrounded or covered by fine sediment (<2mm, sand or finer). Below are the class categories expressed as percent covered by fine sediment:

0	< no gravel or larger substrate		
1	> 75%		
2	51-75%	4	5-25%
3	26-50%	5	< 5%

Surface area of a lake is that area (acres) encompassed by the boundary of the lake as shown on USGS topographic maps, or other available maps or photographs. Because surface area changes with lake stage, surface areas listed in this report represent those determined for the stage at the time the maps or photographs were obtained.

Surficial bed material is the upper surface (0.1 to 0.2 ft) of the bed material such as that material which is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is operationally defined as 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 water-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 directly analyzing the suspended material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent. (See also "Suspended")

Suspended sediment is the sediment maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid. (See also "Sediment")

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 analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (See also "Sediment" and "Suspended sediment")

Suspended-sediment discharge (tons/day) is the rate of sediment transport, as measured by dry mass or volume, 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. (See also "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Suspended-sediment load is a general term that refers to a given characteristic of the material in suspension that passes a point during a specified period of time. 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. (See also "Sediment")

Suspended, total is the total amount of a given constituent in the part of a water-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 directly analyzing portions of the suspended material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent. (See also "Suspended")

Suspended solids, total residue at 105 °C concentration is the concentration of inorganic and organic material retained on a filter, expressed as milligrams of dry material per liter of water (mg/L). An aliquot of the sample is used for this analysis.

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.

Taxa richness is the total number of distinct species or groups and usually decreases with pollution. (See also "Percent Shading")

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

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

Temperature preferences:

Cold – preferred water temperature for the species is less than 20 °C or spawning temperature preference less than 16 °C and native distribution is considered to be predominantly north of 45° N. latitude.

Warm – preferred water temperatures for the species is greater than 20 °C or spawning temperature preference greater than 16 °C and native distribution is considered to be predominantly south of 45° N. latitude.

Cool – intermediate between cold and warm water temperature preferences.

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

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water resulting from the mixing of flow proportionally to the duration of the concentration.

Tons per acre-foot (T/acre-ft) is the dry mass (tons) of a constituent per unit volume (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 a common chemical or sediment discharge unit. It is the quantity of a substance in solution, in suspension, or as bedload that passes a stream section during a 24-hour period. It is equivalent to 2,000 pounds per day, or 0.9072 metric tons per day.

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

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. (See also "Bacteria")

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 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 length (fish) is the straight-line distance from the anterior point of a fish specimen's snout, with the mouth closed, to the posterior end of the caudal (tail) fin, with the lobes of the caudal fin squeezed together.

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

Total organism count is the number of organisms collected and enumerated in any particular sample. (See also "Organism count/volume.")

Total recoverable is the amount of a given constituent in a whole-water sample after a 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 for whole-water samples, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures may produce different analytical results.

Total sediment discharge is the mass of suspended-
sediment plus bed-load transport, measured as dry weight, that passes a cross section in a given time. It is a rate and is reported as tons per day. (See also "Sediment," "Suspended sediment," "Suspended-Sediment Concentration," "Bedload," and "Bedload discharge")

Total sediment load or total load is the sediment in transport as bedload and suspended-sediment load. The term may be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It differs from total sediment discharge in that load refers to the material whereas discharge refers to the quantity of material, expressed in units of mass per unit time. (See also "Sediment," "Suspended-Sediment Load," and "Total load")

Trophic group:

Filter feeder – diet composed of suspended plant and/or animal material.

Herbivore – diet composed predominantly of plant material.

Invertivore – diet composed predominantly of invertebrates.

Omnivore – diet composed of at least 25-percent plant and 25-percent animal material.

Piscivore – diet composed predominantly of fish.

Turbidity is the reduction in the transparency of a solution due to the presence of suspended and some dissolved substances. The measurement technique records the collective optical properties of the solution that cause light to be scattered and attenuated rather than transmitted in straight lines; the higher the intensity of scattered or attenuated light, the higher the value of the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU). Depending on the method used, the turbidity units as NTU can be defined as the intensity of light of a specified wavelength scattered or attenuated by suspended particles or absorbed at a method specified angle, usually 90 degrees, from the path of the incident light. Currently approved methods for the measurement of turbidity in the USGS include those that conform to EPA Method 180.1, ASTM D1889-00, and ISO 7027. Measurements of turbidity by these different methods and different instruments are unlikely to yield equivalent values. Consequently, the method of measurement and type of instrument used to derive turbidity records should be included in the "REMARKS" column of the Annual Data Report.

Ultraviolet (UV) absorbance (absorption) at 254 or 280 nanometers is a measure of the aggregate concentration of the mixture of UV absorbing organic materials dissolved in the analyzed water, such as lignin, tannin, humic substances, and various aromatic compounds. UV absorb-
ance (absorption) at 254 or 280 nanometers is measured in UV absorption units per centimeter of pathlength of UV light through a sample.

Vertical datum (See "Datum")

Volatile organic compounds (VOCs) 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 VOCs are human-made 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 table is the level in the saturated zone at which the pressure is equal to the atmospheric pressure.

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

Water year in USGS 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, 2001, is called the "2001 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.

Wet mass is the mass of living matter plus contained water. (See also "Biomass" and "Dry mass")

Wet weight refers to the weight of animal tissue or other substance including its contained water. (See also "Dry weight")

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

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

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 p.

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 p.

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 p.

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

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 p.

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

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 p.

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 p.

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 p.

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

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

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

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

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

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

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 p.

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

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 p.

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 p.

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

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

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

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

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

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 p.

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

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

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

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 p.

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 p.

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 p.

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

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 p.

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 p.

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 p.

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 p.

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

Section C. Sedimentation and Erosion Techniques

3-C1. *Fluvial sediment concepts,* by H.P. Guy: USGS–TWRI book 3, chap. C1. 1970. 55 p.

3-C2. *Field methods for measurement of fluvial sediment,* by T.K. Edwards and G.D. Glysson: USGS–TWRI book 3, chap. C2. 1999. 89 p.

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

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 p.

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

Section B. Surface Water

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

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

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

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 p.

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 p.

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 p.

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 p.

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 p.

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 p.

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 p.

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 p.

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 p.

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 p.

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 p.

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 p.

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 p.

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: USGS–TWRI book 6, chap. A5,1996. 125 p.

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 p.

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 p.

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 p.

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 p.

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

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 p.

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 p.

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 p.

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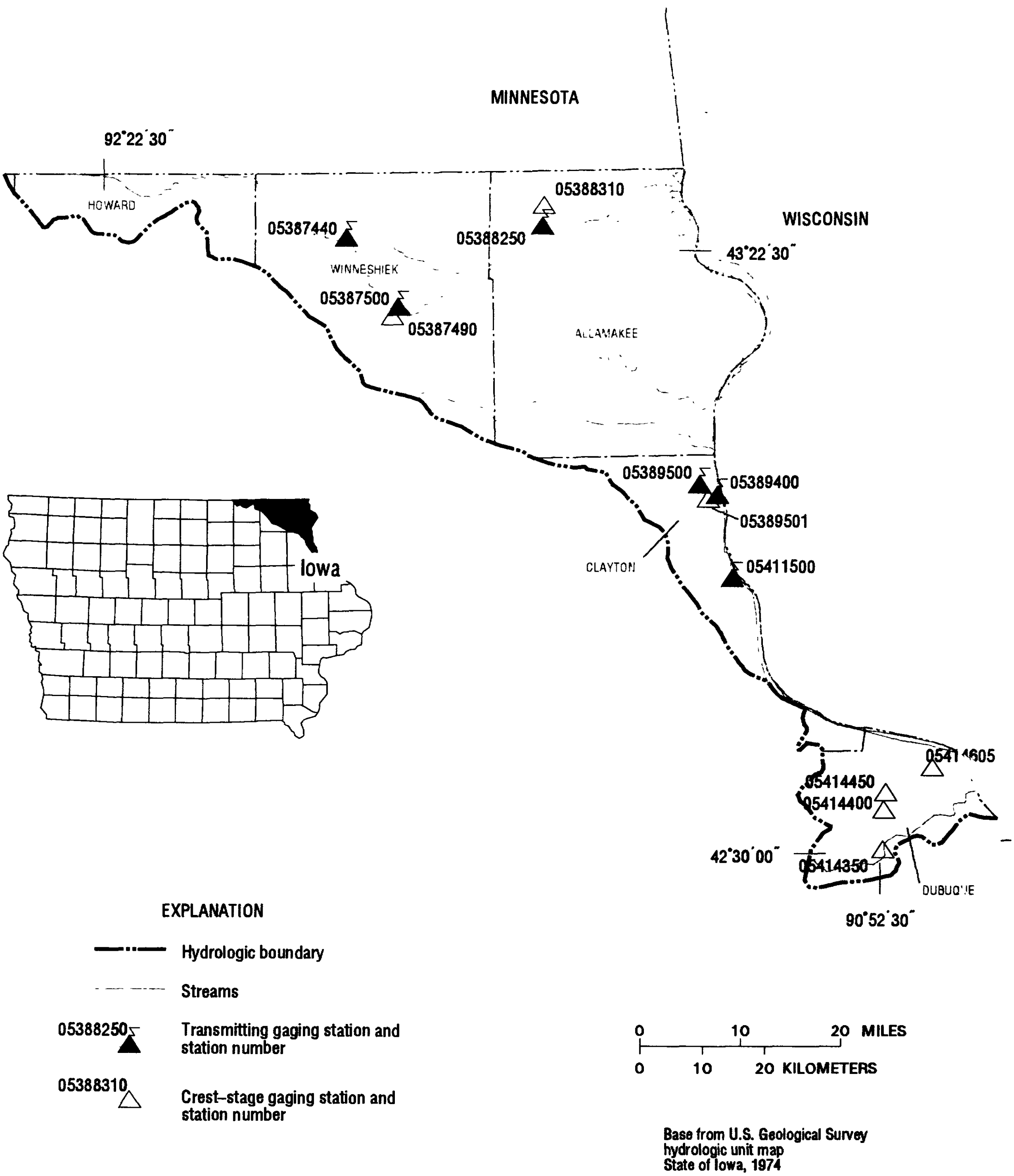
MINNESOTA
WISCONSIN
92°22'30"
43°22'30"
42°30'00"
90°52'30"
HOWARD
WINNESHIEK
ALLAMAKEE
CLAYTON
Iowa
05388310
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05387500
05387490
05389500
05389400
05389501
05411500
05414450
05414400
05414350
EXPLANATION
Hydrologic boundary
Streams
05388250
Transmitting 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

Crest Stage Gaging Stations

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 current year.

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.

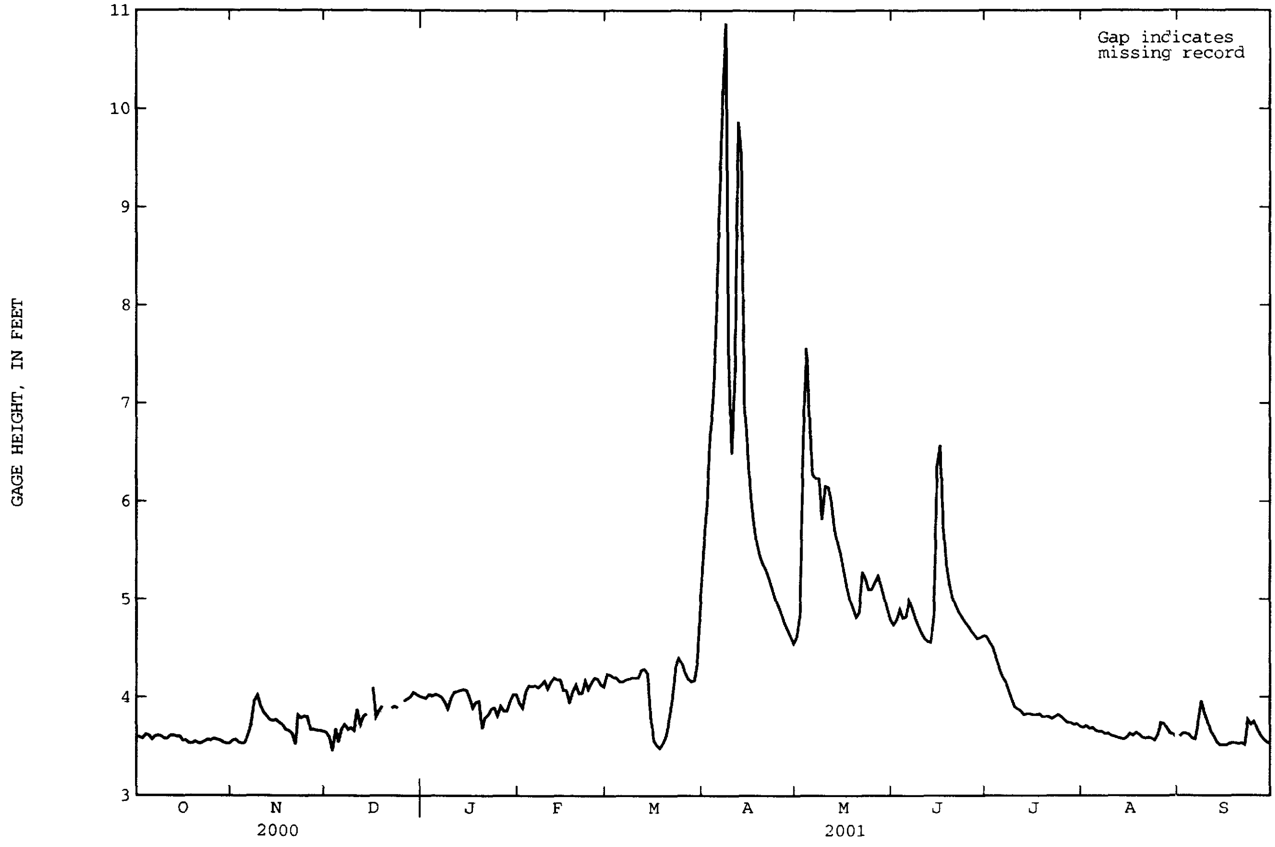
EXTREMES FOR CURRENT WATER YEAR.--Maximum gage height 12.04 ft Apr. 8; minimum gage height 3.30 ft Dec. 3, 5.

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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.60	3.56	3.64	4.00	3.94	4.24	5.52	4.62	4.74	4.62	3.69	3.60
2	3.59	3.57	3.59	3.99	3.89	4.23	5.94	4.85	4.79	4.56	3.71	3.63
3	3.58	3.54	3.45	4.03	4.06	4.21	6.66	6.71	4.90	4.51	3.68	3.63
4	3.62	3.53	3.68	4.01	4.12	4.20	7.02	7.57	4.81	4.41	3.69	3.62
5	3.61	3.54	3.54	4.03	4.11	4.16	7.84	6.82	4.82	4.29	3.66	3.58
6	3.57	3.63	3.68	4.02	4.12	4.16	9.04	6.28	4.99	4.21	3.65	3.57
7	3.60	3.74	3.72	4.00	4.10	4.18	10.11	6.24	4.91	4.16	3.65	3.74
8	3.61	3.96	3.67	3.95	4.13	4.19	10.87	6.24	4.81	4.07	3.63	3.96
9	3.60	4.02	3.69	3.88	4.17	4.20	7.41	5.82	4.73	3.98	3.63	3.84
10	3.58	3.91	3.66	3.99	4.09	4.20	6.49	6.16	4.66	3.90	3.61	3.75
11	3.58	3.84	3.88	4.05	4.16	4.20	7.25	6.15	4.60	3.88	3.60	3.65
12	3.61	3.81	3.72	4.06	4.20	4.28	9.87	6.00	4.57	3.86	3.59	3.60
13	3.61	3.77	3.81	4.07	4.18	4.29	9.55	5.73	4.56	3.82	3.58	3.54
14	3.60	3.76	3.83	4.08	4.18	4.24	7.02	5.58	4.83	3.83	3.57	3.51
15	3.60	3.77	---	4.07	4.07	3.83	6.57	5.46	6.36	3.83	3.59	3.51
16	3.56	3.74	4.10	3.99	4.07	3.56	6.09	5.30	6.58	3.82	3.63	3.51
17	3.56	3.72	3.80	3.89	3.94	3.51	5.80	5.13	5.75	3.82	3.61	3.53
18	3.53	3.67	3.86	3.95	4.06	3.48	5.58	5.00	5.36	3.83	3.64	3.53
19	3.53	3.66	3.91	3.96	4.13	3.53	5.45	4.91	5.16	3.80	3.62	3.53
20	3.55	3.63	---	3.68	4.04	3.61	5.36	4.82	5.02	3.80	3.59	3.52
21	3.53	3.52	---	3.79	4.04	3.77	5.30	4.87	4.94	3.80	3.58	3.53
22	3.53	3.82	3.89	3.82	4.17	3.99	5.21	5.28	4.87	3.78	3.59	3.51
23	3.55	3.79	3.91	3.88	4.08	4.32	5.11	5.21	4.82	3.80	3.58	3.77
24	3.57	3.81	3.89	3.89	4.15	4.40	5.01	5.10	4.77	3.82	3.56	3.72
25	3.56	3.80	---	3.81	4.20	4.35	4.93	5.10	4.73	3.80	3.62	3.75
26	3.58	3.67	3.96	3.91	4.19	4.25	4.85	5.17	4.68	3.77	3.74	3.67
27	3.57	3.67	3.98	3.86	4.13	4.19	4.76	5.24	4.64	3.74	3.73	3.61
28	3.56	3.66	4.00	3.86	4.11	4.16	4.69	5.14	4.60	3.74	3.68	3.57
29	3.54	3.66	4.05	3.96	---	4.17	4.62	5.02	4.61	3.72	3.63	3.54
30	3.53	3.65	4.03	4.03	---	4.36	4.55	4.90	4.63	3.73	3.62	3.53
31	3.53	---	4.01	4.03	---	4.97	---	4.79	---	3.70	3.59	---
MEAN	3.57	3.71	3.81	3.95	4.10	4.11	6.48	5.52	4.94	3.95	3.63	3.62
MAX	3.62	4.02	4.10	4.08	4.20	4.97	10.87	7.57	6.58	4.62	3.74	3.96
MIN	3.53	3.52	3.45	3.68	3.89	3.48	4.55	4.62	4.56	3.70	3.56	3.51

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 $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ 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 current year.

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.

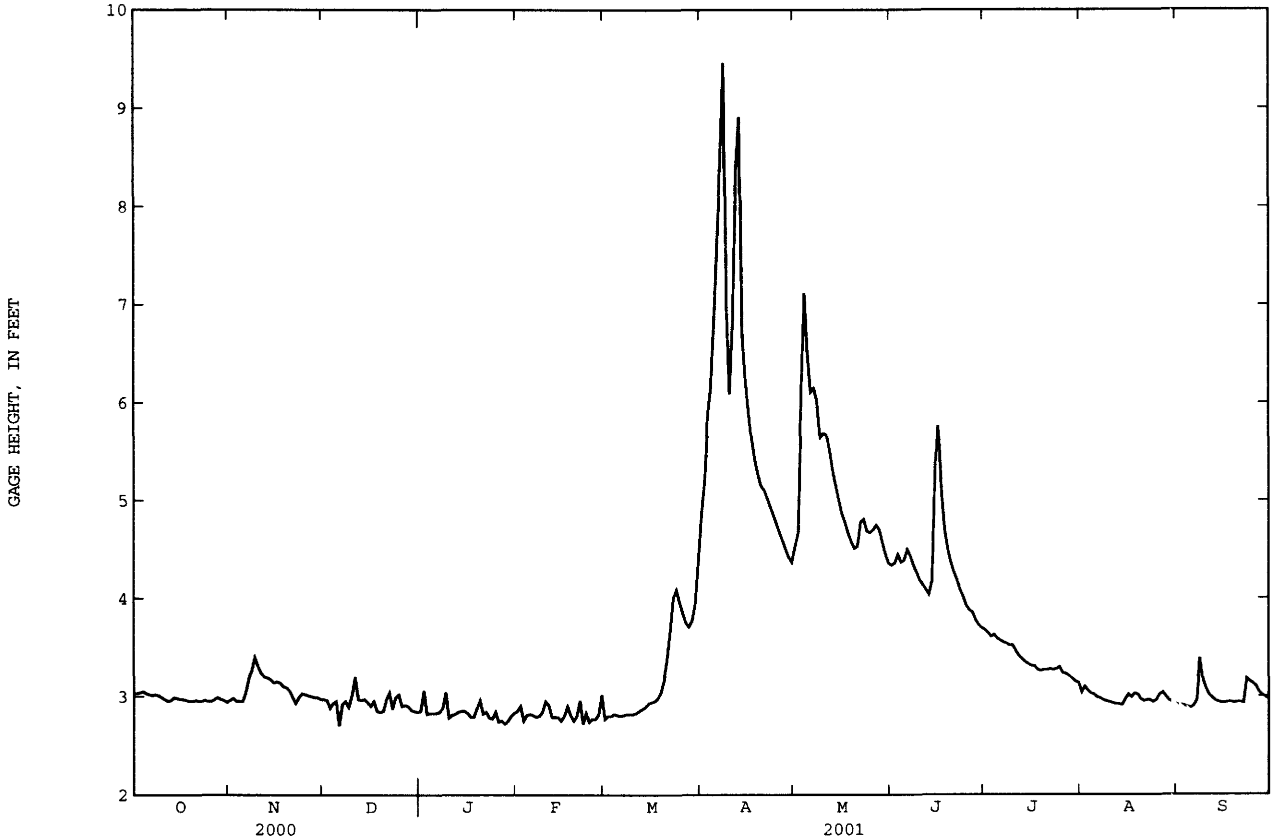
EXTREMES FOR CURRENT WATER YEAR.--Maximum gage height 10.06 ft Apr. 8; minimum gage height 2.57 Dec. 6.

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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.03	2.96	2.97	2.85	2.85	2.77	4.87	4.53	4.34	3.68	3.04	2.91
2	3.03	2.98	2.96	3.06	2.90	2.80	5.22	4.67	4.36	3.65	3.10	2.91
3	3.04	2.95	2.88	2.82	2.75	2.80	5.86	6.11	4.45	3.61	3.06	2.90
4	3.05	2.95	2.93	2.83	2.81	2.82	6.16	7.12	4.37	3.63	3.03	2.89
5	3.03	2.95	2.95	2.83	2.82	2.81	6.84	6.51	4.39	3.59	3.02	2.88
6	3.02	3.04	2.70	2.83	2.81	2.80	7.69	6.11	4.50	3.57	2.99	2.90
7	3.01	3.19	2.92	2.84	2.79	2.81	8.48	6.15	4.44	3.55	2.98	2.96
8	3.02	3.26	2.95	2.88	2.80	2.82	9.46	6.02	4.34	3.54	2.96	3.39
9	3.01	3.40	2.89	3.04	2.84	2.82	6.99	5.65	4.27	3.52	2.95	3.16
10	2.99	3.31	3.01	2.78	2.95	2.82	6.09	5.69	4.19	3.52	2.94	3.07
11	2.97	3.24	3.20	2.81	2.91	2.83	6.81	5.68	4.14	3.46	2.93	3.01
12	2.95	3.20	2.97	2.82	2.79	2.85	8.35	5.51	4.09	3.41	2.92	2.98
13	2.96	3.19	2.96	2.84	2.79	2.87	8.91	5.31	4.04	3.38	2.92	2.95
14	2.99	3.17	2.97	2.85	2.79	2.89	6.69	5.15	4.18	3.35	2.91	2.94
15	2.98	3.14	2.94	2.85	2.75	2.93	6.25	5.01	5.39	3.33	2.97	2.93
16	2.97	3.15	2.90	2.83	2.80	2.94	5.92	4.87	5.77	3.31	3.02	2.93
17	2.97	3.14	2.95	2.79	2.90	2.95	5.63	4.78	5.10	3.31	2.99	2.94
18	2.96	3.10	2.85	2.79	2.81	2.98	5.41	4.67	4.71	3.27	3.03	2.94
19	2.95	3.09	2.84	2.88	2.75	3.04	5.27	4.58	4.51	3.26	3.02	2.93
20	2.95	3.06	2.85	2.96	2.80	3.17	5.15	4.51	4.37	3.27	2.97	2.94
21	2.96	2.99	2.97	2.82	2.96	3.38	5.11	4.53	4.27	3.27	2.95	2.94
22	2.95	2.93	3.04	2.84	2.72	3.67	5.03	4.78	4.19	3.28	2.96	2.93
23	2.95	2.99	2.87	2.78	2.83	4.01	4.94	4.81	4.09	3.27	2.96	3.18
24	2.96	3.03	2.99	2.77	2.74	4.09	4.85	4.69	4.02	3.28	2.94	3.15
25	2.95	3.02	3.02	2.84	2.77	3.96	4.76	4.67	3.93	3.30	2.96	3.13
26	2.95	3.01	2.90	2.74	2.77	3.85	4.67	4.70	3.88	3.24	3.02	3.10
27	2.97	3.00	2.91	2.75	2.82	3.75	4.59	4.75	3.86	3.23	3.04	3.04
28	2.99	2.99	2.90	2.72	3.02	3.71	4.50	4.70	3.78	3.21	3.00	3.01
29	2.97	2.99	2.86	2.75	---	3.77	4.42	4.57	3.73	3.18	2.96	2.99
30	2.96	2.97	2.85	2.80	---	3.95	4.37	4.45	3.70	3.15	2.94	2.97
31	2.94	---	2.84	2.83	---	4.39	---	4.36	---	3.14	2.92	---
MEAN	2.98	3.08	2.93	2.83	2.82	3.23	5.98	5.15	4.31	3.38	2.98	3.00
MAX	3.05	3.40	3.20	3.06	3.02	4.39	9.46	7.12	5.77	3.68	3.10	3.39
MIN	2.94	2.93	2.70	2.72	2.72	2.77	4.37	4.36	3.70	3.14	2.91	2.88

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e320	282	255	e94	e120	e180	1660	1020	982	607	e290	265
2	e320	323	250	e90	e100	e200	2040	1130	1010	577	e300	266
3	e320	291	235	e96	e130	e210	2810	1900	994	561	e310	264
4	e340	274	228	e110	e150	e190	3110	4480	1010	549	e290	256
5	e330	270	e110	e120	e140	e170	3840	3940	997	528	e280	255
6	e330	286	e120	e130	e130	e150	5270	3140	1050	510	e270	274
7	e320	350	e140	e120	e120	e160	6670	3240	1080	496	e280	353
8	e310	368	e170	e100	e160	e170	8370	2940	1020	489	e290	707
9	e300	396	e150	e86	e150	e180	7150	2590	969	480	309	555
10	e290	422	e160	e100	e140	e190	3170	2430	931	477	287	395
11	287	391	e150	e120	e130	e180	3280	2480	893	461	281	342
12	285	374	e130	e140	e200	e190	6500	2260	884	451	279	308
13	293	359	e150	e160	e180	e200	8780	2050	844	449	274	281
14	306	351	e170	e170	e170	e220	4940	1830	852	436	269	265
15	295	340	e200	e150	e160	248	3200	1680	1340	417	282	261
16	285	339	e210	e130	e150	264	2680	1540	2180	397	312	259
17	284	330	e180	e110	e140	269	2260	1390	1990	387	303	267
18	281	317	e150	e100	e170	275	1980	1270	1540	389	308	266
19	276	308	e120	e90	e220	302	1790	1170	1320	393	302	265
20	275	e260	e140	e86	e200	357	1650	1120	1160	366	290	262
21	272	e220	e120	e100	e194	477	1640	1160	1070	362	282	268
22	274	e200	e100	e110	e200	702	1530	1180	1010	364	288	262
23	282	e220	e110	e120	e220	1030	1440	1400	938	e365	284	429
24	281	e260	e92	e110	e240	1190	1330	1310	857	e346	279	463
25	282	312	e80	e100	e250	1070	1250	1260	795	e325	310	379
26	280	282	e100	e110	e200	928	1170	1230	747	e325	295	364
27	277	269	e94	e100	e180	841	1090	1240	698	e320	307	340
28	279	263	e86	e110	e160	798	1030	1230	666	e300	307	318
29	276	262	e100	e130	---	828	970	1150	645	e290	293	304
30	272	257	e110	e140	---	977	925	1070	628	e280	280	292
31	274	---	e100	e130	---	1270	---	1010	---	e270	272	---
TOTAL	9096	9176	4510	3562	4704	14416	93525	56840	31100	12967	9003	9785
MEAN	293	306	145	115	168	465	3118	1834	1037	418	290	326
MAX	340	422	255	170	250	1270	8780	4480	2180	607	312	707
MIN	272	200	80	86	100	150	925	1010	628	270	269	255
AC-FT	18040	18200	8950	7070	9330	28590	185500	112700	61690	25720	17860	19410
CFSM	.38	.40	.19	.15	.22	.60	4.05	2.38	1.35	.54	.38	.42
IN.	.44	.44	.22	.17	.23	.70	4.52	2.75	1.50	.63	.43	.47

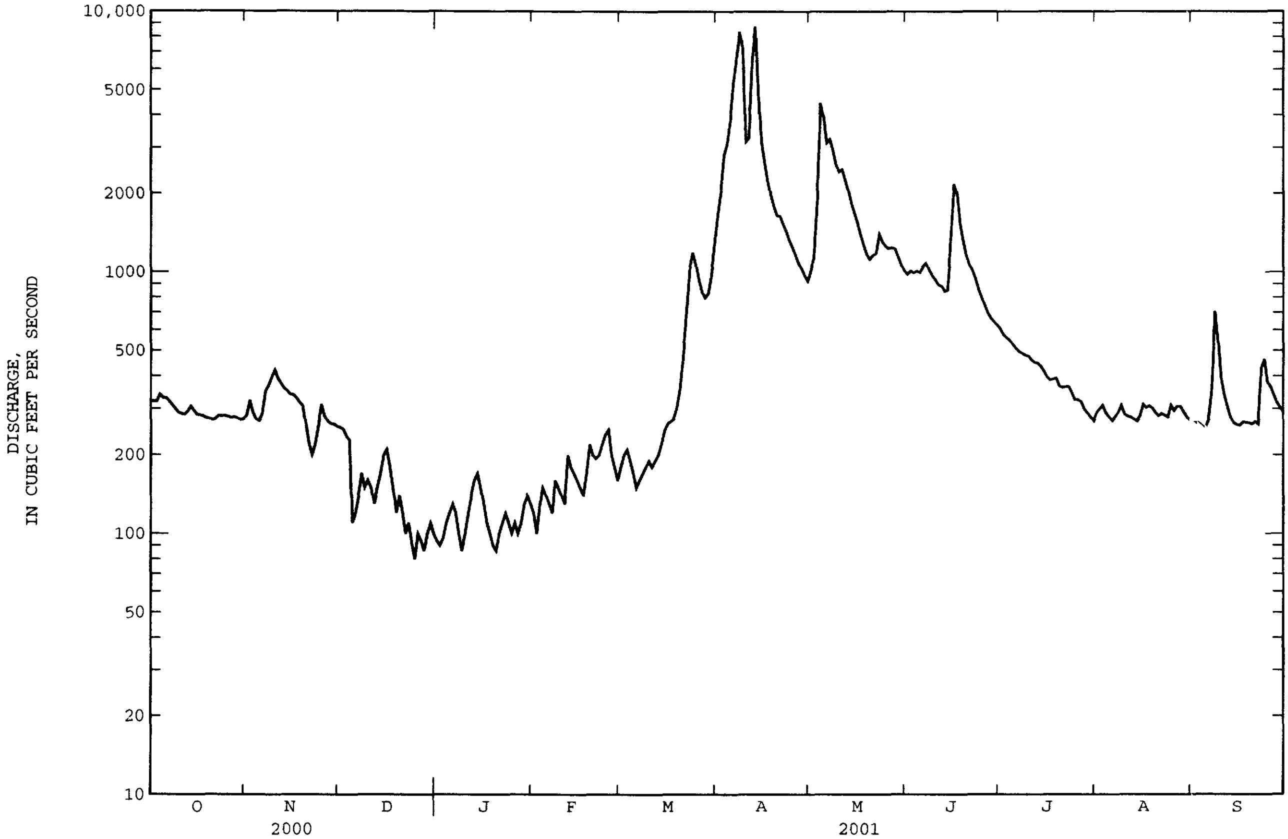
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	416	441	354	261	405	1019	1120	847	912	694	582	454
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1939 - 2001	
ANNUAL TOTAL	267206		258684			
ANNUAL MEAN	730		709		628	
HIGHEST ANNUAL MEAN					1726	1993
LOWEST ANNUAL MEAN					178	1977
HIGHEST DAILY MEAN	11700	Jun 2	8780	Apr 13	15100	Aug 17 1993
LOWEST DAILY MEAN	80	Dec 25	80	Dec 25	30	Sep 23 1939
ANNUAL SEVEN-DAY MINIMUM	95	Dec 22	95	Dec 22	49	Sep 20 1939
MAXIMUM PEAK FLOW			11100	Apr 9	22000	Aug 17 1993
MAXIMUM PEAK STAGE			15.99	Apr 9	20.00	Aug 17 1993
ANNUAL RUNOFF (AC-FT)	530000		513100		455300	
ANNUAL RUNOFF (CFSM)	.95		.92		.82	
ANNUAL RUNOFF (INCHES)	12.91		12.50		11.09	
10 PERCENT EXCEEDS	1550		1580		1360	
50 PERCENT EXCEEDS	326		293		370	
90 PERCENT EXCEEDS	150		120		140	

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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	16	13	11	11	12	28	21	32	21	33	24
2	23	22	12	9.8	8.7	12	28	23	32	20	135	25
3	22	17	12	11	10	12	30	45	30	20	26	26
4	22	16	13	11	11	12	28	47	30	21	19	26
5	22	16	11	11	11	12	31	43	39	21	17	26
6	21	17	11	11	11	12	32	40	34	21	17	36
7	20	19	12	11	10	12	30	41	33	21	16	46
8	20	17	13	10	11	12	26	36	32	22	15	52
9	19	16	11	9.4	12	12	32	34	31	22	16	32
10	18	16	13	9.5	11	13	25	37	31	21	16	29
11	18	16	11	9.9	10	13	28	58	30	20	16	28
12	19	17	13	10	12	14	36	40	31	20	17	29
13	19	16	14	10	12	14	31	36	23	20	17	27
14	18	17	14	11	12	14	29	34	23	20	18	26
15	18	16	14	11	12	16	27	32	21	20	22	26
16	18	17	14	10	12	17	26	31	19	21	23	26
17	17	16	13	9.1	11	16	24	29	18	21	20	28
18	14	16	12	8.5	12	18	23	28	47	21	22	27
19	15	16	11	9.6	13	21	23	28	27	23	21	27
20	15	15	12	6.8	13	25	24	27	24	21	21	27
21	15	13	12	8.1	11	31	23	29	24	21	24	35
22	15	14	12	8.4	12	45	22	27	23	23	27	27
23	17	14	12	8.8	11	53	23	27	22	23	26	61
24	16	14	11	8.7	12	40	21	28	21	24	26	36
25	15	15	e10	8.1	12	31	19	26	20	24	85	30
26	15	15	11	9.2	12	27	20	26	19	22	31	28
27	15	15	11	9.1	11	24	19	26	19	22	28	25
28	15	14	11	8.9	10	22	18	26	19	22	26	22
29	15	13	11	10	---	24	18	24	20	23	26	23
30	16	13	11	12	---	24	19	24	21	24	26	22
31	15	---	12	12	---	27	---	29	---	22	26	---
TOTAL	549	474	373	303.9	316.7	637	763	1002	795	667	858	902
MEAN	17.7	15.8	12.0	9.80	11.3	20.5	25.4	32.3	26.5	21.5	27.7	30.1
MAX	23	22	14	12	13	53	36	58	47	24	135	61
MIN	14	13	10	6.8	8.7	12	18	21	18	20	15	22
AC-FT	1090	940	740	603	628	1260	1510	1990	1580	1320	1700	1790
CFSM	.52	.46	.35	.29	.33	.60	.75	.95	.78	.63	.81	.88
IN.	.60	.52	.41	.33	.35	.69	.83	1.09	.87	.73	.94	.98

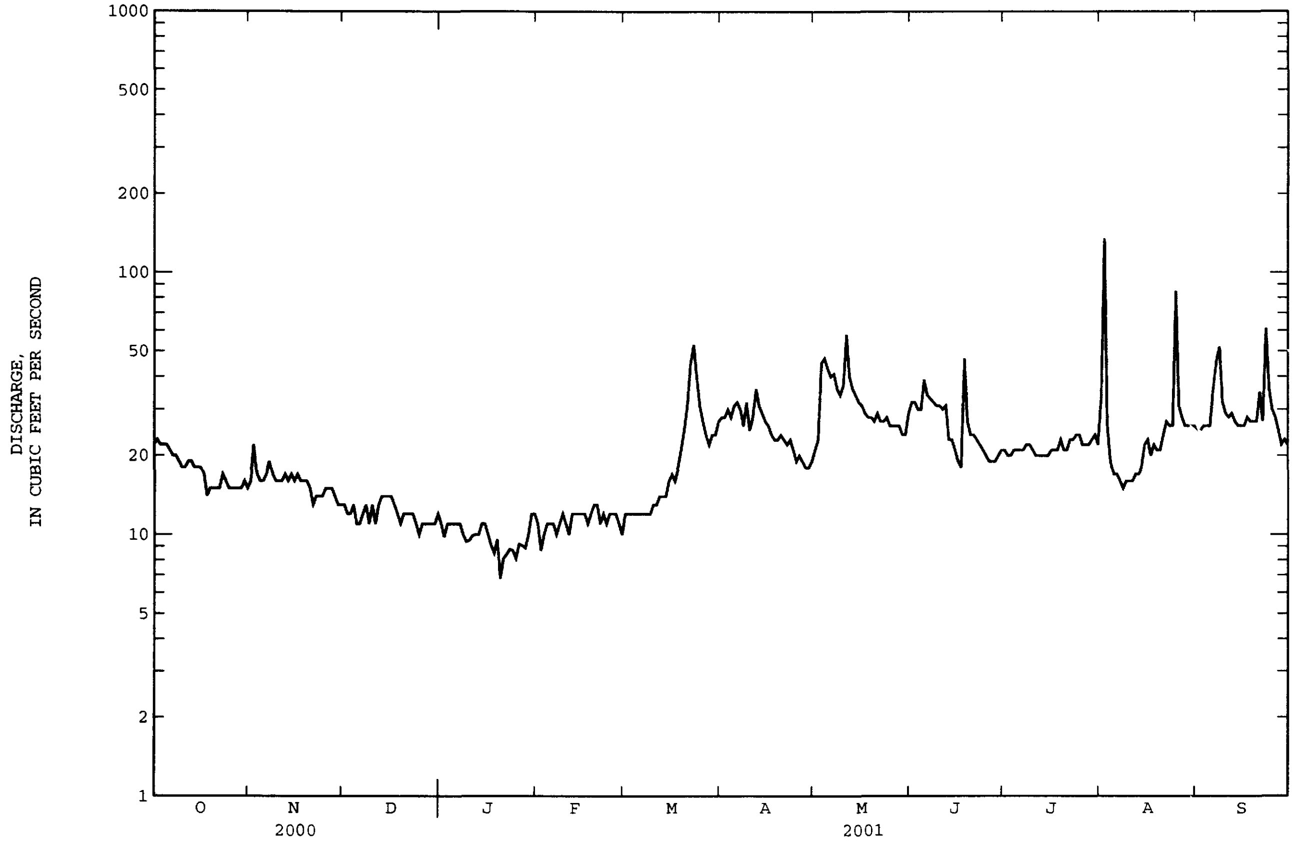
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	20.7	21.8	17.9	16.1	22.0	29.9	27.8	31.2	31.6	28.2	26.8	23.5
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	9.80	11.3	19.0	15.2	17.3	16.4	15.9	12.9	13.7
(WY)	1998	1998	1998	2001	2001	2000	1997	1997	1997	1997	1997	1997

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1992 - 2001	
ANNUAL TOTAL	7612		7640.6			
ANNUAL MEAN	20.8		20.9		24.8	
HIGHEST ANNUAL MEAN					42.1	1993
LOWEST ANNUAL MEAN					17.2	1997
HIGHEST DAILY MEAN	142	Feb 23	135	Aug 2	550	Mar 31 1993
LOWEST DAILY MEAN	10	Dec 25	6.8	Jan 20	6.8	Jan 20 2001
ANNUAL SEVEN-DAY MINIMUM	11	Dec 24	8.3	Jan 20	8.3	Jan 20 2001
MAXIMUM PEAK FLOW			512	Aug 2	1820	Feb 18 1997
MAXIMUM PEAK STAGE			6.31	Aug 2	7.68	Feb 18 1997
ANNUAL RUNOFF (AC-FT)	15100		15160		17970	
ANNUAL RUNOFF (CFSM)	.61		.61		.73	
ANNUAL RUNOFF (INCHES)	8.30		8.33		9.87	
10 PERCENT EXCEEDS	27		31		37	
50 PERCENT EXCEEDS	19		20		21	
90 PERCENT EXCEEDS	14		11		13	

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, 668 microsiemens May 17; minimum daily, 336 microsiemens Sep. 6.
WATER TEMPERATURES: Maximum daily, 25.0°C June 8; minimum daily, 3.0°C several days Dec. to Mar.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 540 mg/L Aug. 2; minimum daily mean, 6 mg/L Oct. 17, 18.
SEDIMENT LOADS: Maximum daily, 266 tons Aug. 2; minimum daily, 0.20 tons Oct. 29.

EXTREMES FOR CURRENT YEAR.--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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						
17...	1430	11.6	14	9	.35	75
NOV						
28...	0910	3.4	14	49	1.9	66
FEB						
20...	1345	5.0	13	69	2.4	48
MAR						
28...	1010	5.7	22	33	1.9	57
APR						
30...	1125	15.9	19	45	2.3	40
JUN						
13...	1030	15.2	21	110	6.2	97
JUL						
10...	1100	17.7	22	87	5.2	64
AUG						
20...	1730	18.4	21	59	3.3	32

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	499	443	474	---	568	---	485	517	---	542	---
2	401	432	---	548	587	538	623	563	---	519	585	---
3	---	479	---	487	---	---	613	565	---	564	502	435
4	578	---	430	445	---	---	517	532	518	525	---	438
5	---	---	500	486	647	553	567	---	522	562	---	475
6	584	470	439	---	603	564	561	---	533	567	537	366
7	426	424	462	---	546	578	---	545	558	---	590	473
8	506	486	435	483	617	571	---	575	625	---	---	507
9	457	487	---	532	576	571	605	567	---	603	---	---
10	442	---	---	550	558	---	628	518	---	434	---	531
11	473	461	454	446	---	---	559	596	628	456	---	464
12	417	---	452	524	522	503	631	---	517	466	---	505
13	505	479	431	---	456	500	564	---	560	524	---	456
14	440	465	432	---	535	490	---	518	---	---	380	462
15	---	574	449	526	548	480	---	525	---	---	---	---
16	---	512	---	528	561	552	570	519	---	626	---	---
17	468	428	---	520	---	---	613	668	---	535	---	543
18	---	490	478	533	---	---	564	637	---	503	---	546
19	463	---	503	455	560	503	570	---	---	559	---	453
20	495	443	459	---	564	595	601	---	---	466	425	478
21	---	461	476	---	548	571	---	563	---	---	385	571
22	---	477	435	514	516	500	---	523	---	---	---	504
23	558	---	---	520	544	575	569	571	---	488	---	491
24	423	434	---	637	---	---	532	525	---	507	---	457
25	450	---	489	591	---	---	570	588	614	531	---	457
26	545	436	438	587	414	568	---	---	532	473	---	492
27	---	426	542	---	566	533	---	---	637	563	---	524
28	493	450	462	---	414	537	---	658	567	---	383	478
29	---	496	487	615	---	570	---	660	544	---	584	---
30	468	441	---	600	---	560	470	646	---	500	---	---
31	521	---	---	---	---	---	---	---	---	487	---	---

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	9.0	8.0	3.0	---	4.0	---	16.0	19.0	---	11.0	---
2	13.0	10.0	---	4.0	4.0	4.0	8.0	16.0	---	21.0	12.0	---
3	---	11.0	---	4.0	---	---	8.0	15.0	---	20.0	12.0	20.0
4	12.0	---	6.0	4.0	---	---	7.0	16.0	18.0	20.0	---	20.0
5	---	---	6.0	5.0	3.0	4.0	9.0	---	18.0	---	---	20.0
6	11.0	11.0	5.0	---	4.0	4.0	8.0	---	20.0	22.0	11.0	20.0
7	10.0	10.0	6.0	---	3.0	4.0	---	17.0	22.0	---	11.0	20.0
8	12.0	9.0	8.0	4.0	4.0	4.0	---	17.0	25.0	---	---	21.0
9	13.0	8.0	---	4.0	4.0	4.0	10.0	15.0	---	21.0	---	---
10	14.0	---	---	5.0	3.0	---	10.0	16.0	---	17.7	---	18.0
11	15.0	7.0	9.0	4.0	---	---	9.0	18.0	22.0	9.0	---	18.0
12	15.0	---	6.0	3.0	4.0	4.0	10.0	---	20.0	10.0	---	20.0
13	16.0	8.0	6.0	---	4.0	5.0	8.0	---	15.5	9.0	---	18.0
14	14.0	9.0	7.0	---	5.0	6.0	---	18.0	---	---	16.5	18.0
15	---	9.0	7.0	5.0	4.0	---	---	17.0	---	---	---	---
16	---	10.0	---	3.6	4.0	4.0	9.0	16.0	---	8.0	---	---
17	12.0	11.0	---	---	---	---	8.0	17.0	---	8.0	---	15.0
18	---	12.0	6.0	---	---	---	14.0	16.0	---	8.0	---	16.0
19	11.0	---	7.0	---	4.0	3.0	13.0	---	---	9.0	---	15.0
20	10.0	11.0	5.0	---	4.0	4.0	14.0	---	---	10.0	18.4	18.0
21	---	11.0	6.0	---	3.0	7.0	---	17.0	---	---	15.0	18.0
22	---	12.0	6.0	4.0	4.0	8.0	---	18.0	---	---	---	18.0
23	9.0	---	---	3.0	3.0	7.0	15.0	17.0	---	11.0	---	16.0
24	12.4	11.0	---	4.0	---	---	15.0	16.0	---	11.0	---	15.0
25	9.0	---	5.0	4.0	---	---	16.0	17.0	14.0	12.0	---	15.0
26	10.0	10.0	3.0	3.0	3.0	7.0	---	---	18.0	10.0	---	15.0
27	---	10.0	5.0	---	4.0	8.0	---	---	20.0	10.0	---	15.0
28	10.0	12.0	4.0	---	3.0	9.0	---	18.0	24.0	---	16.8	14.0
29	---	8.0	3.0	5.0	---	7.0	---	19.0	21.0	---	---	---
30	11.0	9.0	---	4.0	---	9.0	15.9	18.0	---	11.0	---	---
31	12.0	---	---	---	---	---	---	---	---	12.0	---	---

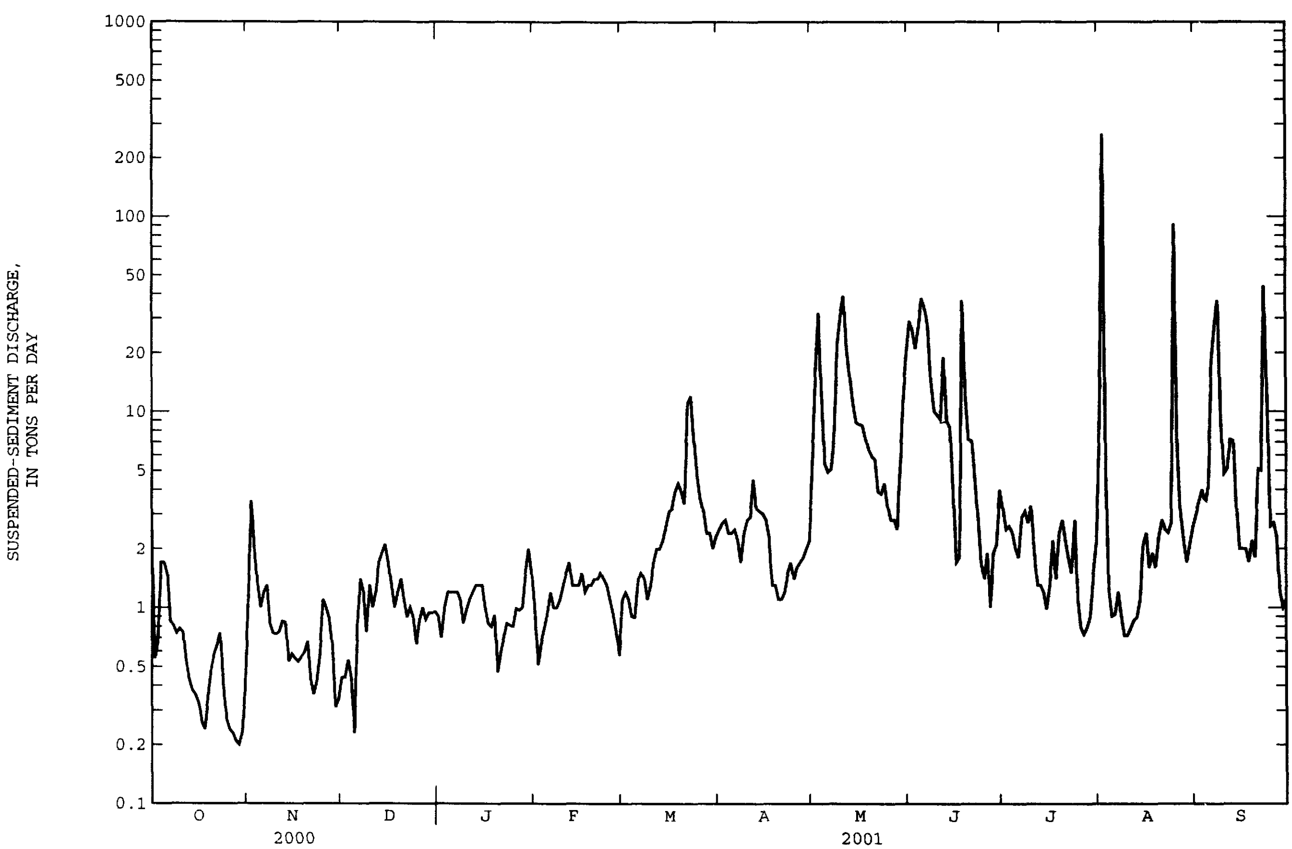
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	37	2.5	32	1.1	13	.44	30	.90	34	.98	32	1.1
2	9	.55	71	3.5	13	.44	27	.70	22	.51	36	1.2
3	13	.69	55	2.0	16	.54	36	1.0	23	.66	31	1.1
4	32	1.7	35	1.3	13	.44	42	1.2	26	.78	27	.90
5	33	1.7	28	1.0	8	.23	40	1.2	32	.93	27	.89
6	29	1.5	30	1.2	28	.81	40	1.2	41	1.2	44	1.4
7	17	.85	30	1.3	41	1.4	40	1.2	37	1.0	47	1.5
8	17	.81	21	.83	35	1.2	39	1.1	33	1.0	42	1.4
9	15	.74	20	.74	25	.75	33	.83	33	1.1	33	1.1
10	17	.78	19	.73	40	1.3	38	.97	45	1.3	40	1.3
11	16	.75	19	.75	33	1.0	42	1.1	52	1.5	47	1.7
12	11	.53	21	.85	35	1.2	45	1.2	52	1.7	53	2.0
13	9	.43	22	.84	47	1.7	45	1.3	43	1.3	54	2.0
14	8	.38	13	.53	53	1.9	45	1.3	41	1.3	56	2.2
15	7	.36	15	.58	54	2.1	44	1.3	41	1.3	61	2.6
16	7	.33	14	.55	47	1.7	38	1.0	45	1.5	68	3.1
17	6	.26	14	.53	40	1.3	34	.83	42	1.2	74	3.2
18	6	.24	14	.56	32	1.0	35	.80	39	1.3	80	3.9
19	9	.35	15	.59	38	1.2	35	.92	35	1.3	76	4.3
20	12	.48	17	.67	42	1.4	26	.47	40	1.4	57	3.9
21	14	.58	13	.43	34	1.1	27	.60	49	1.4	40	3.4
22	16	.65	10	.36	28	.89	31	.71	48	1.5	86	11
23	16	.74	11	.42	31	1.0	35	.83	47	1.4	80	12
24	11	.41	16	.59	30	.89	35	.81	40	1.3	66	7.2
25	9	.27	28	1.1	24	.65	37	.80	33	1.1	56	4.7
26	8	.24	25	1.0	30	.86	40	.99	29	.94	50	3.6
27	7	.23	22	.88	34	1.0	40	.97	25	.76	49	3.1
28	7	.21	17	.63	28	.87	42	1.0	20	.57	42	2.4
29	6	.20	9	.31	31	.94	56	1.5	---	---	37	2.4
30	7	.23	10	.34	31	.94	64	2.0	---	---	31	2.0
31	12	.38	---	---	30	.95	50	1.5	---	---	32	2.3
TOTAL	---	20.07	---	26.21	---	32.14	---	32.23	---	32.23	---	94.89

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	34	2.5	96	5.5	338	29	58	3.2	68	9.5	45	3.0
2	36	2.7	233	15	301	26	46	2.5	540	266	52	3.5
3	35	2.8	257	32	261	21	48	2.6	61	4.9	58	4.0
4	32	2.4	97	12	337	27	42	2.4	23	1.2	47	3.3
5	29	2.4	46	5.4	358	38	36	2.0	19	.90	60	4.2
6	29	2.5	45	4.9	367	34	33	1.8	20	.92	156	18
7	27	2.2	46	5.1	305	27	50	2.9	27	1.2	227	28
8	24	1.7	80	7.7	166	14	53	3.1	22	.91	259	37
9	28	2.4	239	22	121	10	45	2.7	17	.72	103	9.0
10	39	2.8	309	31	114	9.6	59	3.3	17	.72	60	4.8
11	36	2.9	244	39	113	9.1	38	2.0	18	.78	68	5.1
12	47	4.5	191	21	234	19	24	1.3	19	.86	94	7.2
13	39	3.2	152	15	144	9.0	24	1.3	20	.89	99	7.1
14	39	3.1	115	11	133	8.3	21	1.2	22	1.1	47	3.3
15	40	3.0	100	8.8	65	3.8	18	.98	34	2.1	28	2.0
16	41	2.8	101	8.6	32	1.7	23	1.3	37	2.4	28	2.0
17	36	2.3	107	8.5	38	1.8	38	2.2	29	1.6	26	2.0
18	21	1.3	95	7.3	278	37	24	1.4	31	1.9	23	1.7
19	21	1.3	86	6.4	167	12	37	2.4	28	1.6	30	2.2
20	17	1.1	79	5.9	111	7.2	49	2.8	40	2.3	24	1.8
21	18	1.1	72	5.7	107	7.1	39	2.2	42	2.8	57	5.1
22	20	1.2	52	3.9	72	4.6	29	1.8	34	2.5	67	5.0
23	24	1.5	52	3.8	47	2.8	24	1.5	34	2.4	270	44
24	30	1.7	57	4.3	31	1.7	44	2.8	38	2.7	119	12
25	27	1.4	46	3.3	25	1.4	17	1.1	297	92	32	2.6
26	30	1.6	41	2.8	37	1.9	14	.79	73	6.3	35	2.7
27	33	1.7	39	2.8	21	1.0	12	.73	40	3.0	33	2.3
28	36	1.8	37	2.5	37	1.9	13	.79	31	2.2	20	1.2
29	40	2.0	76	5.0	40	2.1	14	.90	25	1.7	17	1.0
30	43	2.2	160	11	67	4.0	22	1.5	30	2.1	18	1.1
31	---	---	245	19	---	---	36	2.2	37	2.6	---	---
TOTAL	---	66.1	---	336.2	---	373.0	---	59.69	---	422.80	---	226.2
YEAR		1721.76										



05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA--Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Tipping bucket rain gage.

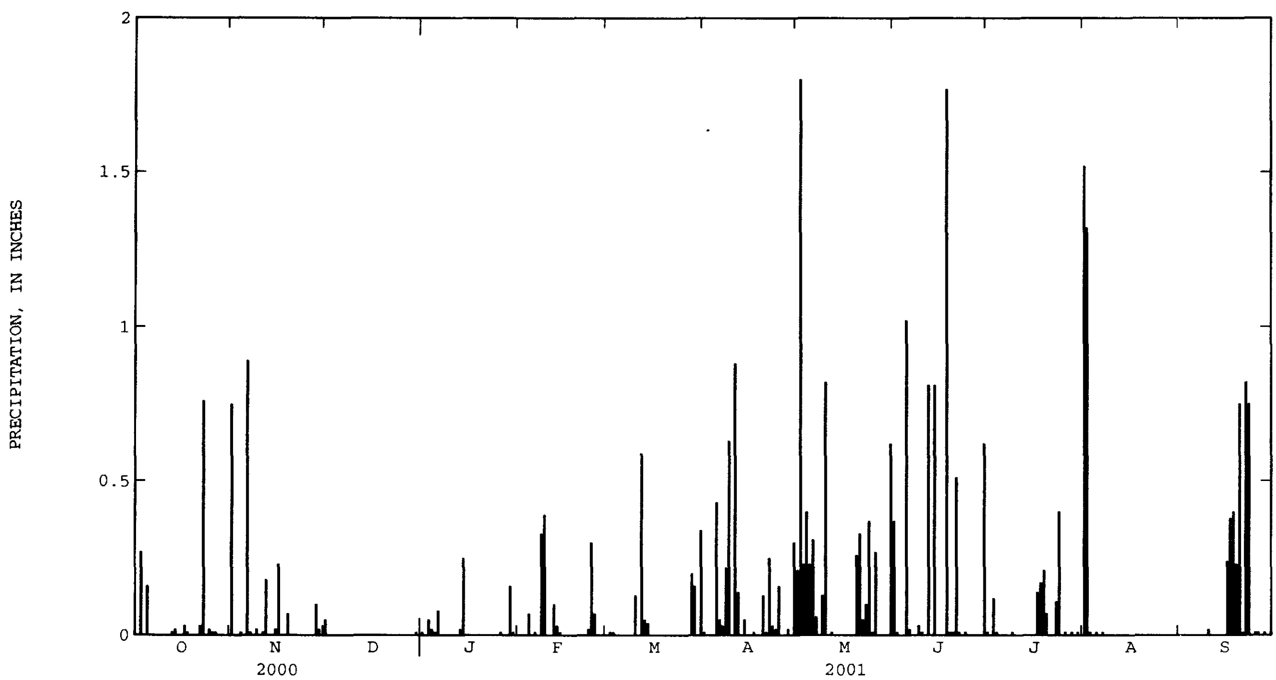
REMARKS.--Water years 1992-1995 in files at the District office. Records good except for winter period, which is pocr due to intermittent snow accumulation and subsequent melting.

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

EXTREME FOR CURRENT YEAR.--Maximum daily accumulation, 1.80 in., May 2.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.75	.05	.01	.00	.00	.01	.21	.37	.01	1.52	.00
2	.00	.00	.00	.00	.00	.01	.00	1.80	.01	.00	1.32	.00
3	.27	.00	.00	.05	.00	.01	.00	.23	.00	.12	.01	.00
4	.00	.01	.00	.02	.07	.00	.00	.40	.00	.01	.00	.00
5	.16	.00	.00	.01	.00	.00	.43	.23	1.02	.00	.01	.00
6	.00	.89	.00	.08	.01	.00	.05	.31	.02	.00	.00	.00
7	.00	.01	.00	---	.00	.00	.03	.06	.00	.00	.01	.00
8	.00	.00	.00	---	.33	.00	.22	.00	.00	.00	.00	.00
9	.00	.02	.00	---	.39	.00	.63	.13	.03	.01	.00	.00
10	.00	.00	.00	.00	.00	.13	.00	.82	.01	.00	.00	.02
11	.00	.01	.00	.00	.00	.00	.88	.00	.00	.00	.00	.00
12	.00	.18	.00	.00	.10	.59	.14	.01	.81	.00	.00	.00
13	.01	.00	.00	.02	.03	.05	.00	.00	.00	.00	.00	.00
14	.02	.00	.00	.25	.01	.04	.05	.00	.81	.00	.00	.00
15	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.24
17	.03	.00	.00	.00	.00	.00	.01	.00	.00	.14	.00	.38
18	.01	.00	.00	.00	.00	.00	.00	.00	1.77	.17	.00	.40
19	.00	.07	.00	.00	.00	.00	.00	.00	.01	.21	.00	.23
20	.00	.00	.00	.00	.00	.00	.13	.26	.01	.07	.00	.75
21	.00	.00	.00	.00	.00	.00	.01	.33	.51	.00	.00	.01
22	.03	.00	.00	.00	.00	.00	.25	.05	.01	.00	.00	.82
23	.76	.00	.00	.00	.02	.00	.03	.10	.00	.11	.00	.75
24	.00	.00	---	.00	.30	.00	.02.	.37	.01	.40	.00	.00
25	.02	.00	---	.00	.07	.00	.16	.01	.00	.00	.00	.01
26	.01	.00	.00	.01	.00	.00	.00	.27	.00	.01	.00	.01
27	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.10	.00	.00	.00	.20	.02	.00	.00	.01	.00	.01
29	.00	.02	.00	.16	---	.16	.00	.00	.00	.00	.00	.00
30	.00	.00	.01	.01	---	.00	.30	.00	.62	.01	.00	.01
31	.00	---	.00	.00	---	.34	---	.62	---	.00	.00	---
TOTAL	1.34	2.31	0.06	0.62	1.33	1.53	3.37	6.21	6.02	1.28	2.87	3.64
MEAN	.04	.08	.00	.02	.05	.05	.11	.20	.20	.04	.09	.12
MAX	.76	.89	.05	.25	.39	.59	.88	1.80	1.77	.40	1.52	.82
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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e14300	16200	32200	e27100	e28500	e26000	37600	223000	90800	98700	31300	21200
2	e14400	22100	29400	e27100	e28200	e25900	40200	225000	92300	94500	e31000	21200
3	e13100	26400	24900	e28200	e28100	e25900	41900	224000	91700	89900	e35400	21500
4	e13300	26400	23400	e29500	e28100	e26900	45400	222000	89900	86100	e36900	22600
5	13900	26300	22700	e29400	e27800	e26900	52400	217000	88600	81800	e37000	21700
6	e14100	25600	e20800	e29200	e25300	e26700	60500	212000	87300	76700	e41000	e20400
7	e14500	29100	e18700	e28700	e24000	e26700	68800	206000	85900	71000	e45600	20500
8	e13500	33000	e15900	e28700	e24100	e26800	76500	197000	84400	63800	e45500	24400
9	e11100	38100	e15200	e28300	e24600	27600	84600	187000	83100	57800	e44900	29400
10	e9800	40200	e15200	e26800	e26700	26700	93700	177000	81700	50900	33300	29200
11	e11300	40400	e16400	e25800	e26300	25900	101000	167000	79500	45900	27200	29900
12	e11900	40800	e18500	e26000	e26300	26500	111000	156000	77000	44200	e21300	30600
13	16100	40300	e19000	e26200	e26200	26500	124000	145000	75000	41900	e19700	29700
14	17800	39600	e19300	e26500	e26200	25200	147000	136000	72400	37600	e21800	25700
15	18500	39600	e20400	e27800	e26200	25100	172000	128000	72200	31400	e19400	18700
16	15200	41000	e20300	e27900	e26000	26400	197000	121000	74200	30700	e19500	17500
17	e14400	42400	e19900	e28000	e25800	27700	217000	115000	78100	31500	21900	16800
18	e7300	41800	e19600	e28000	e25800	27800	230000	110000	82700	31700	22000	19200
19	e11100	38500	e19500	e28200	e25500	27400	240000	105000	89000	31600	21800	24100
20	12400	36500	e20200	e28300	e25000	27300	246000	98300	93200	35700	22600	19400
21	15600	33800	e20900	e28000	e24900	27400	247000	90700	94000	37100	24000	17900
22	15700	34500	e21000	e27000	e24800	30400	241000	81900	94300	37400	26300	17700
23	9270	35400	e21600	e24000	e24800	31900	234000	72700	95200	35500	27800	19200
24	10500	32800	e21600	e22000	e24800	32100	227000	78700	97300	34600	25500	22400
25	14500	30200	e21600	e21000	e24800	32400	220000	88400	100000	34300	23800	25000
26	17800	26800	e21600	e20000	e25000	33400	214000	85900	103000	35000	24200	26100
27	18000	24200	e21600	e21900	e25600	34600	210000	84700	105000	35800	25300	25900
28	18000	25400	e21700	e23400	e26000	34600	210000	84700	106000	35500	25200	23100
29	14100	29300	e21700	e25100	---	33500	213000	85800	104000	34700	20000	17900
30	10200	31700	e21700	e26800	---	34600	219000	87000	102000	32900	14200	e18000
31	12100	---	e21700	e28500	---	35900	---	88800	---	31800	e16000	---
TOTAL	423770	988400	648200	823400	725400	892700	4621600	4300600	2669800	1518000	851400	676900
MEAN	13670	32950	20910	26560	25910	28800	154100	138700	88990	48970	27460	22560
MAX	18500	42400	32200	29500	28500	35900	247000	225000	106000	98700	45600	30600
MIN	7300	16200	15200	20000	24000	25100	37600	72700	72200	30700	14200	16800
AC-FT	840500	1960000	1286000	1633000	1439000	1771000	9167000	8530000	5296000	3011000	1689000	1343000
CFSM	.20	.49	.31	.39	.38	.43	2.28	2.06	1.32	.73	.41	.33
IN.	.23	.54	.36	.45	.40	.49	2.55	2.37	1.47	.84	.47	.37

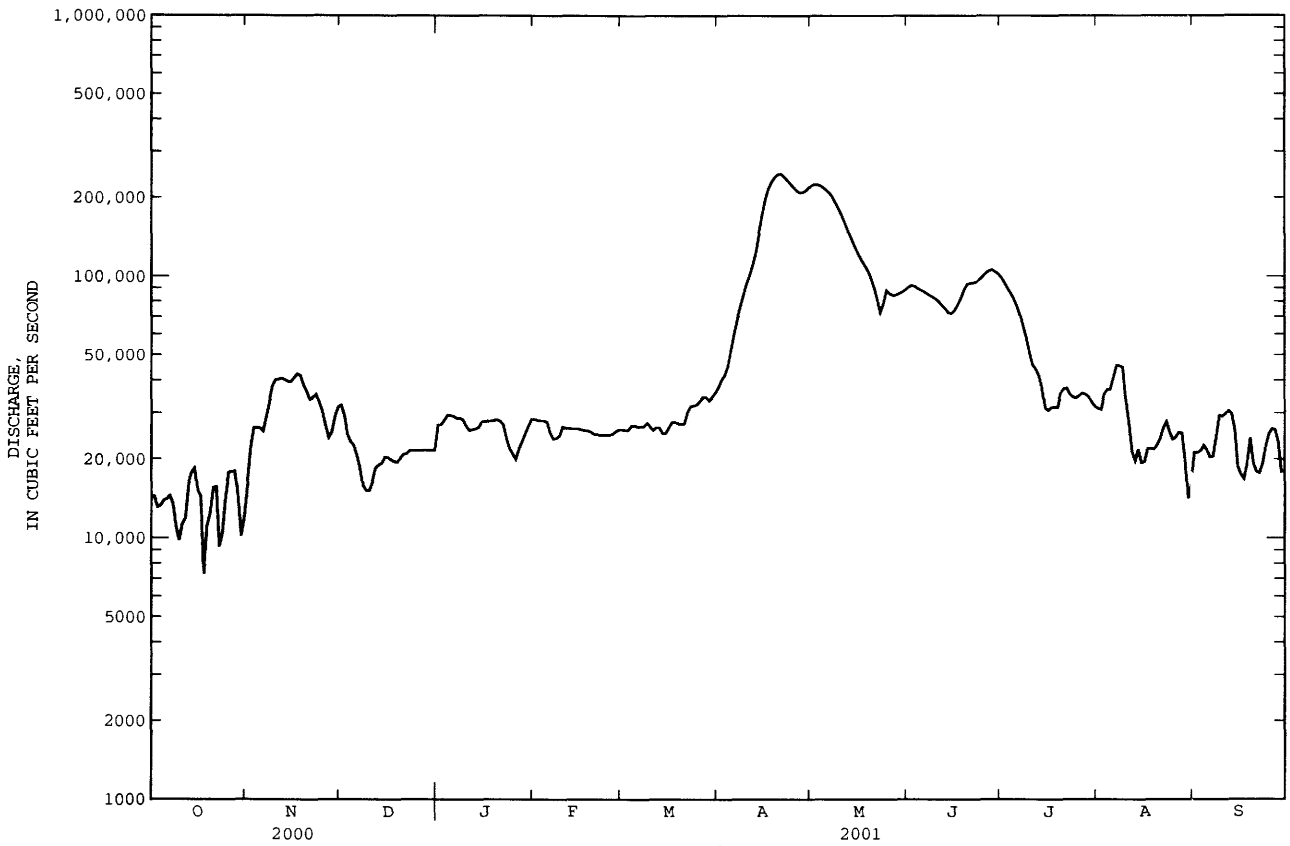
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	28550	29400	22260	19370	20170	39500	76230	62190	49980	41290	28220	28660
MAX	114600	64840	59200	35700	48540	103800	164800	138700	112600	142200	84430	72890
(WY)	1987	1983	1992	1983	1984	1983	1965	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1936 - 2001	
ANNUAL TOTAL	11830570		19140170			
ANNUAL MEAN	32320		52440		37200	
HIGHEST ANNUAL MEAN					64720	1993
LOWEST ANNUAL MEAN					17400	1977
HIGHEST DAILY MEAN	78000	Jun 8	247000	Apr 21	276000	Apr 24 1965
LOWEST DAILY MEAN	7300	Oct 18	7300	Oct 18	6200	Dec 9 1936
ANNUAL SEVEN-DAY MINIMUM	11700	Oct 18	11700	Oct 18	6490	Dec 7 1936
MAXIMUM PEAK FLOW			248000	Apr 21		
MAXIMUM PEAK STAGE			23.75	Apr 20a	25.38	Apr 24 1965
ANNUAL RUNOFF (AC-FT)	23470000		37960000		26950000	
ANNUAL RUNOFF (CFSM)	.48		.78		.55	
ANNUAL RUNOFF (INCHES)	6.52		10.55		7.49	
10 PERCENT EXCEEDS	58400		110000		75900	
50 PERCENT EXCEEDS	27200		28100		27600	
90 PERCENT EXCEEDS	15500		17800		13300	

a Also Apr. 21.
e Estimated.



05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected from right bank dock 1.2 mi upstream 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. April 1981 to March 6, 1997, samples collected from right bank dock, 0.3 mi downstream from discharge station.

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, 1987.
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, 584 microsiemens Oct. 2; minimum daily, 334 microsiemens Sep. 3.
WATER TEMPERATURES: Maximum daily, 29.0°C, June 25, July 2, 6; minimum daily, 0.0°C Jan. 12, 17.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 71 mg/L June 4; minimum daily mean, 3 mg/L Nov. 27-30 and Dec. 26-28.
SEDIMENT LOADS: Maximum daily, 35,300 tons Apr. 22; minimum daily, 110 tons Oct. 24.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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						
17...	1120	13.1	15000	11	446	96
MAR						
27...	1015	--	32200	10	869	99
APR						
19...	1530	--	233000	47	29600	83
MAY						
10...	1430	17.0	186000	25	12600	93
JUL						
25...	1200	27.3	33300	14	1260	98
AUG						
22...	1445	23.1	27200	18	1320	96

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	400	394	431	---	---	---	---	453	---	412	---
2	584	---	---	---	484	416	394	---	---	434	---	---
3	---	---	---	446	---	---	---	---	---	---	416	334
4	---	---	447	---	---	---	461	---	465	436	---	---
5	500	---	---	430	483	416	---	---	---	---	---	396
6	---	408	447	---	---	---	---	---	---	436	---	---
7	---	---	---	---	482	458	---	---	446	---	---	382
8	---	397	451	429	---	---	---	---	---	---	---	---
9	395	---	---	---	476	439	---	---	448	429	---	---
10	---	394	---	455	---	---	---	341	---	---	---	411
11	401	---	456	---	---	---	---	---	442	---	---	---
12	---	---	---	427	419	481	---	---	---	405	---	375
13	401	---	453	---	---	---	---	---	---	---	---	---
14	399	394	---	---	418	---	---	---	---	---	---	402
15	---	---	448	432	---	---	---	---	---	---	---	---
16	---	397	---	---	416	462	---	---	---	416	---	---
17	---	---	---	449	---	---	---	---	---	---	---	409
18	---	400	437	---	---	---	---	---	---	412	---	---
19	400	---	---	446	416	432	---	---	373	---	---	347
20	403	402	430	---	---	---	---	---	---	412	---	---
21	---	---	---	---	417	422	---	---	---	---	---	---
22	---	404	434	448	---	---	---	---	---	---	400	---
23	---	---	---	---	416	388	---	---	---	408	---	---
24	---	---	---	---	---	---	---	---	---	---	---	365
25	---	---	440	448	---	---	---	---	435	428	---	---
26	---	---	---	---	416	391	---	---	---	---	---	382
27	---	---	440	470	---	---	---	---	438	408	---	---
28	---	394	---	---	414	392	---	---	---	---	---	391
29	---	---	438	466	---	---	---	---	435	---	---	---
30	394	396	---	---	---	---	---	---	---	411	---	---
31	---	---	---	468	---	---	---	---	---	---	---	---

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	7.0	3.0	2.0	---	---	---	---	23.0	---	11.0	---
2	12.0	---	---	---	1.0	1.0	14.0	---	---	29.0	---	---
3	---	---	---	2.0	---	---	---	---	---	---	10.0	25.0
4	---	---	3.0	---	---	---	15.0	---	22.0	28.0	---	---
5	9.0	---	---	1.0	1.0	1.0	---	---	---	---	---	25.0
6	---	8.0	4.0	---	---	---	---	---	---	29.0	---	---
7	---	---	---	---	2.0	2.0	---	---	23.0	---	---	25.0
8	---	6.0	3.0	1.0	---	---	---	---	---	---	---	---
9	7.0	---	---	---	1.0	2.0	---	---	24.0	27.0	---	---
10	---	7.0	---	2.0	---	---	---	17.0	---	---	---	22.0
11	6.0	---	4.0	---	---	---	---	---	26.0	---	---	---
12	---	---	---	.0	2.0	2.0	---	---	---	9.0	---	22.0
13	8.0	---	3.0	---	---	---	---	---	---	---	---	---
14	9.0	8.0	---	---	2.0	---	---	---	---	---	---	22.0
15	---	---	3.0	1.0	---	---	---	---	---	---	---	---
16	---	7.0	---	---	1.0	2.0	---	---	---	10.0	---	---
17	---	---	---	.0	---	---	---	---	---	---	---	19.0
18	---	6.0	3.0	---	---	---	---	---	---	11.0	---	---
19	9.0	---	---	1.0	1.0	3.0	---	---	22.7	---	---	19.0
20	7.0	6.0	5.0	---	---	---	---	---	---	10.0	---	---
21	---	---	---	---	1.0	5.0	---	---	---	---	---	---
22	---	5.0	6.0	1.0	---	---	---	---	---	---	23.1	---
23	---	---	---	---	2.0	11.0	---	---	---	12.0	---	---
24	---	---	---	---	---	---	---	---	---	---	---	17.0
25	---	---	4.0	---	---	---	---	---	29.0	27.3	---	---
26	---	---	---	---	2.0	13.0	---	---	---	---	---	16.0
27	---	---	2.0	1.0	---	---	---	---	28.0	12.0	---	---
28	---	.5	---	---	1.0	14.0	---	---	---	---	---	16.0
29	---	---	2.0	1.0	---	---	---	---	28.0	---	---	---
30	5.0	11.0	---	---	---	---	---	---	---	13.0	---	---
31	---	---	---	2.0	---	---	---	---	---	---	---	---

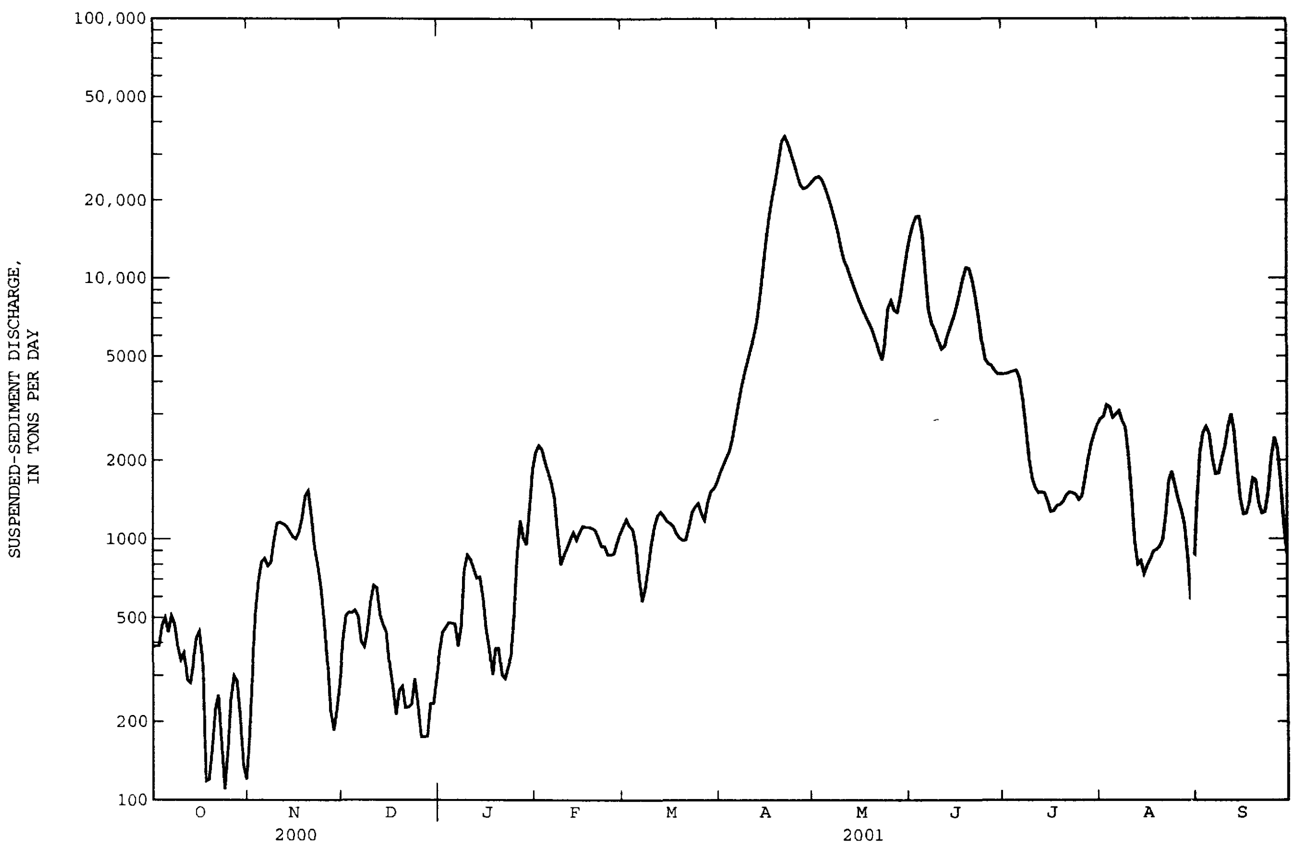
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	386	5	177	5	409	5	366	28	2150	16	1120
2	10	389	6	318	6	508	6	439	30	2280	17	1190
3	11	389	8	520	7	524	6	457	29	2200	16	1120
4	13	467	10	693	8	521	6	478	26	1970	15	1090
5	14	501	12	819	9	534	6	476	24	1800	13	944
6	14	439	12	843	9	505	6	473	24	1640	10	721
7	13	509	11	788	8	404	5	387	22	1430	8	577
8	13	474	10	814	9	386	6	465	16	1040	9	651
9	13	390	10	990	11	451	10	764	12	797	11	781
10	13	344	11	1150	14	575	12	868	12	865	13	960
11	12	366	11	1160	15	664	12	836	13	923	16	1120
12	9	289	10	1140	13	649	11	772	14	994	17	1230
13	7	281	10	1120	10	513	10	707	15	1060	18	1270
14	7	340	10	1070	9	469	10	716	14	990	17	1220
15	8	417	10	1020	8	441	8	600	15	1060	17	1170
16	10	444	9	1000	6	329	6	452	16	1120	17	1150
17	9	350	9	1060	5	269	5	378	16	1110	15	1120
18	6	118	11	1200	4	212	4	302	16	1110	14	1050
19	4	120	14	1460	5	263	5	381	16	1100	14	1010
20	5	158	15	1530	5	273	5	382	16	1080	13	989
21	6	222	13	1220	4	226	4	302	15	1010	13	992
22	6	253	10	927	4	227	4	292	14	937	14	1110
23	5	166	8	794	4	233	5	324	14	937	15	1260
24	4	110	7	655	5	292	6	356	13	870	15	1330
25	5	155	6	493	4	233	9	510	13	870	16	1370
26	6	242	4	346	3	175	16	864	13	878	14	1250
27	6	300	3	219	3	175	20	1180	14	968	13	1180
28	6	285	3	185	3	176	16	1010	15	1050	15	1380
29	5	209	3	222	4	234	14	949	---	---	17	1520
30	4	136	3	283	4	234	18	1300	---	---	17	1560
31	4	120	---	---	5	293	24	1850	---	---	18	1650
TOTAL	---	9369	---	24216	---	11397	---	19636	---	34239	---	35085

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	19	1790	41	23800	61	14500	16	4280	34	2870	27	1370
2	19	1910	41	24500	66	16100	16	4300	35	2930	37	2130
3	19	2040	41	24700	70	17300	17	4350	34	3250	44	2540
4	19	2170	40	23900	71	17400	18	4390	32	3190	45	2680
5	19	2430	38	22300	61	14700	19	4420	29	2900	42	2510
6	20	2850	35	20500	44	10300	19	4120	27	2990	37	2040
7	20	3330	33	18700	32	7530	17	3420	25	3080	32	1770
8	21	3860	31	16900	29	6690	14	2670	23	2830	29	1780
9	21	4350	29	15100	28	6310	12	2030	22	2670	28	2010
10	21	4850	26	13100	26	5770	11	1710	20	2110	28	2240
11	22	5390	25	11700	24	5330	12	1570	18	1500	34	2670
12	22	5930	25	11000	26	5470	12	1500	17	978	37	3000
13	23	6790	24	10100	29	5980	13	1510	15	798	32	2560
14	25	8410	24	9350	33	6460	14	1500	14	824	25	1850
15	28	10900	24	8670	36	7010	14	1390	14	733	24	1420
16	31	14000	24	8080	39	7760	15	1270	15	790	25	1240
17	33	17400	23	7550	43	8770	16	1280	15	833	27	1250
18	36	20600	23	7100	46	9990	16	1340	15	896	28	1390
19	39	23800	23	6710	48	11000	16	1350	15	906	29	1710
20	44	28300	23	6300	45	10900	16	1390	16	932	29	1680
21	51	33700	22	5780	40	9840	16	1470	16	991	27	1370
22	54	35300	22	5220	34	8530	15	1510	18	1220	26	1250
23	51	33100	23	4840	28	7140	15	1500	23	1660	25	1270
24	48	30400	28	5740	23	5750	16	1480	25	1810	27	1510
25	45	27700	34	7650	19	4880	15	1410	24	1600	32	2050
26	43	25200	35	8180	17	4680	16	1460	22	1420	35	2440
27	40	23000	33	7510	17	4620	18	1710	19	1290	32	2210
28	39	22200	32	7370	16	4420	21	2020	17	1140	25	1660
29	40	22400	37	8490	15	4280	24	2310	14	867	21	1140
30	40	23000	45	10400	15	4290	28	2530	13	586	18	875
31	---	---	54	12500	---	---	31	2730	17	734	---	---
TOTAL	---	447100	---	373740	---	253700	---	69920	---	51328	---	55615
YEAR		1385345										



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05411400 SNY MAGILL CREEK NEAR CLAYTON, IA

LOCATION.--Lat 42°56'55", long 91°11'10", in SW¼ NE¼ NW¼ 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 September 30, 2001 (discontinued).

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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	12	10	e6.8	e9.2	9.6	23	16	22	22	41	15
2	10	14	10	e6.4	e9.6	9.6	23	18	22	19	126	14
3	10	12	9.3	7.9	e10	9.7	24	56	20	18	22	14
4	11	12	10	7.6	e11	9.2	23	35	20	18	17	14
5	10	12	8.1	7.7	e9.6	8.5	25	31	24	16	15	13
6	10	14	8.0	7.5	e9.8	8.4	25	30	23	16	14	16
7	9.5	16	10	7.0	e10	8.9	24	28	22	16	14	21
8	9.6	13	9.9	5.8	e11	7.4	22	25	21	16	13	45
9	9.8	13	9.2	e6.0	e13	5.5	28	23	20	15	12	23
10	10	12	10	e6.3	e12	5.9	25	30	20	15	12	20
11	10	12	6.6	e6.7	e10	5.9	28	37	20	15	12	18
12	10	13	10	e6.8	e11	8.3	32	28	34	15	12	18
13	10	13	11	e6.6	e12	8.6	28	25	22	14	11	17
14	10	12	11	e6.2	e13	11	26	24	22	14	11	16
15	10	11	10	e6.0	e11	12	25	24	23	14	14	16
16	10	12	10	e5.6	e10	e13	23	22	20	14	16	16
17	11	11	9.0	e5.0	e9.0	e15	21	22	19	15	13	20
18	11	11	e8.0	e4.6	e10	e17	20	21	35	15	18	18
19	11	11	e7.7	e5.0	e11	e20	20	20	24	15	15	25
20	11	11	e7.5	e4.8	10	e25	20	21	22	15	14	24
21	11	9.1	e7.4	e5.6	8.0	e30	20	23	23	15	13	29
22	11	9.3	e7.0	e6.0	9.2	e36	19	21	22	14	21	24
23	13	10	e6.6	e6.6	8.7	e31	18	21	21	15	17	95
24	12	10	e6.5	e7.0	11	e26	17	21	20	15	15	39
25	12	10	e6.4	e7.3	13	e24	16	21	20	16	83	32
26	12	11	e6.7	e7.7	11	e22	15	21	19	14	36	27
27	12	11	e7.1	e8.3	9.5	e21	15	22	19	14	27	24
28	11	10	e7.6	e9.0	8.3	19	15	20	19	14	21	23
29	11	11	8.9	e9.6	---	21	14	19	19	14	18	22
30	11	10	8.5	e10	---	21	14	19	22	13	17	21
31	11	---	e7.4	e9.5	---	23	---	19	---	13	16	---
TOTAL	330.7	348.4	265.4	212.9	290.9	492.5	648	763	659	474	706	719
MEAN	10.7	11.6	8.56	6.87	10.4	15.9	21.6	24.6	22.0	15.3	22.8	24.0
MAX	13	16	11	10	13	36	32	56	35	22	126	95
MIN	9.5	9.1	6.4	4.6	8.0	5.5	14	16	19	13	11	13
AC-FT	656	691	526	422	577	977	1290	1510	1310	940	1400	1430
CFSM	.39	.42	.31	.25	.38	.58	.78	.89	.80	.55	.83	.87
IN.	.45	.47	.36	.29	.39	.66	.87	1.03	.89	.64	.95	.97

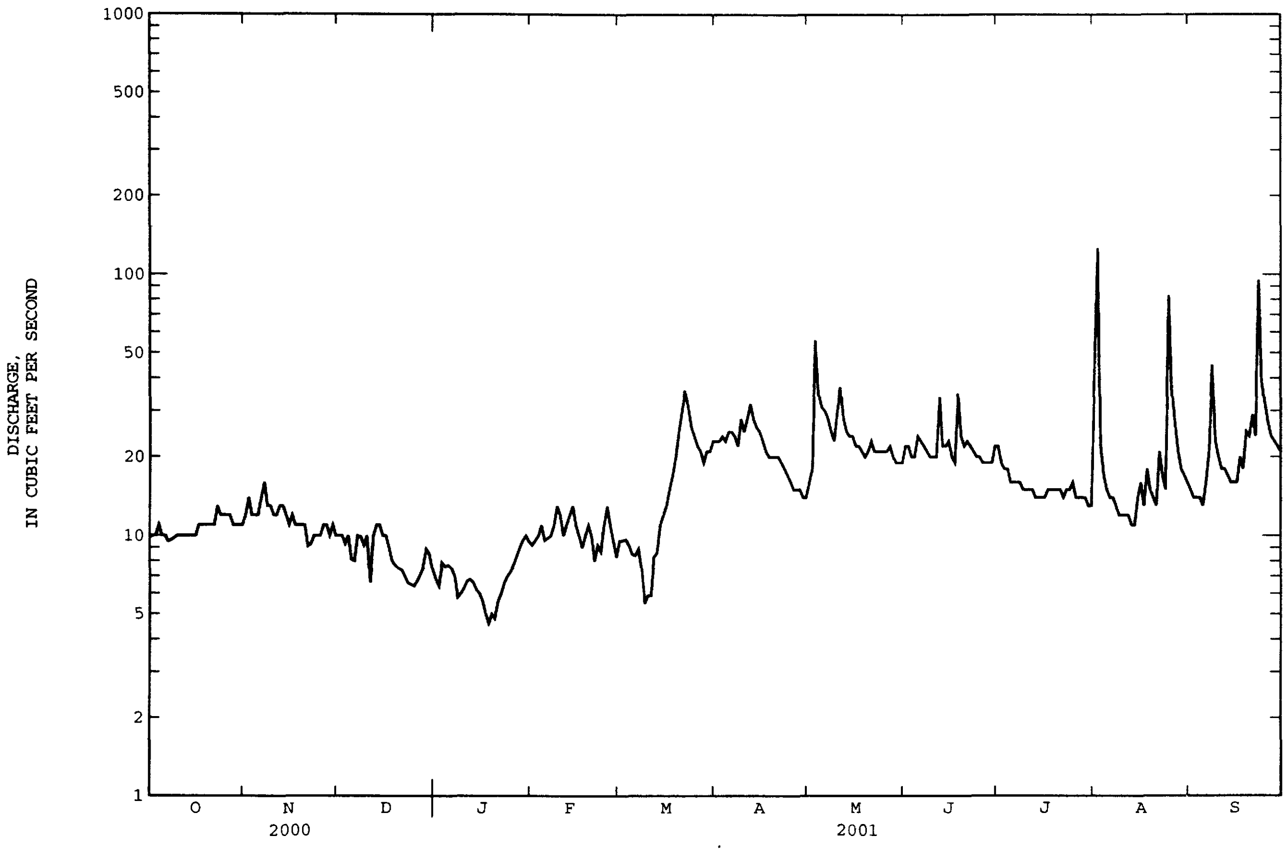
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	15.4	17.3	13.8	11.9	16.8	23.4	27.6	29.3	30.3	25.7	22.0	18.0
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	8.56	6.87	10.4	14.5	13.4	14.9	13.8	15.3	12.0	9.36
(WY)	1997	1998	2001	2001	2001	2000	1997	1997	1992	2001	1992	1996

05411400 SNY MAGILL CREEK NEAR CLAYTON, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1992 - 2001	
ANNUAL TOTAL	6009.5		5909.8			
ANNUAL MEAN	16.4		16.2		21.0	
HIGHEST ANNUAL MEAN					36.6	1993
LOWEST ANNUAL MEAN					14.7	1997
HIGHEST DAILY MEAN	100	Feb 23	126	Aug 2	313	Mar 31 1993
LOWEST DAILY MEAN	6.4	Dec 25	4.6	Jan 18	4.6	Jan 18 2001
ANNUAL SEVEN-DAY MINIMUM	6.8	Dec 21	5.2	Jan 15	5.2	Jan 15 2001
MAXIMUM PEAK FLOW			726	Aug 2	1300	Aug 23 1993
MAXIMUM PEAK STAGE			7.31	Aug 2	8.60	Aug 23 1993
INSTANTANEOUS LOW FLOW					3.0	Jan 10 1998
ANNUAL RUNOFF (AC-FT)	11920		11720		15190	
ANNUAL RUNOFF (CFSM)	.59		.59		.76	
ANNUAL RUNOFF (INCHES)	8.10		7.97		10.32	
10 PERCENT EXCEEDS	24		25		34	
50 PERCENT EXCEEDS	14		14		17	
90 PERCENT EXCEEDS	10		7.6		10	

e Estimated



05411400 SNY MAGILL CREEK NEAR CLAYTON, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1991 to September 30, 2001 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1991 to September 30, 2001 (discontinued).
WATER TEMPERATURES: April 1991 to September 30, 2001 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: October 1991 to September 30, 2001 (discontinued).

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 660 microsiemens Oct. 23, 1996; minimum daily, 247 microsiemens Aug. 2, 2001.
WATER TEMPERATURES: Maximum daily, 33.0°C June 21, 1997; minimum daily, 0.0°C Dec. 22, 1998, Dec. 24, 2000, and Jan. 24, 2001.
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, 609 microsiemens June 22; minimum daily, 247 microsiemens Aug. 2.
WATER TEMPERATURES: Maximum daily, 24.0°C July 8, 9, 28, Aug. 6-8, and Aug. 12 ; minimum daily, 0.0°C Dec. 24 and Jan. 24.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,290 mg/L Aug. 2; minimum daily mean, 7 mg/L Nov. 26 and Jan. 10.
SEDIMENT LOADS: Maximum daily, 1,250 tons Aug. 2; minimum daily, 0.12 tons Jan. 10.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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						
16...	1750	11.0	10	14	.38	83
NOV						
28...	1145	3.0	11	41	1.2	78
FEB						
20...	1640	1.5	9.8	40	1.1	54
MAR						
27...	1445	5.8	21	24	1.3	69
APR						
30...	1450	16.8	15	14	.56	65
JUN						
13...	1345	18.2	20	100	5.5	81
JUL						
10...	1415	21.7	15	40	1.6	64
AUG						
21...	0900	16.0	13	94	3.4	56

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	489	---	505	447	463	431	446	386	480	504	484	409
2	---	440	447	456	---	459	422	398	408	441	247	598
3	472	---	475	484	456	452	475	401	412	473	524	444
4	---	---	---	458	420	446	455	530	---	470	---	420
5	479	---	423	440	473	426	503	406	411	456	411	411
6	416	---	420	432	516	426	495	398	532	507	404	410
7	---	531	411	417	452	429	433	487	---	495	423	486
8	---	447	451	507	---	430	453	418	536	545	416	418
9	---	426	422	418	420	429	474	399	506	483	---	481
10	440	435	431	438	436	417	425	514	---	460	---	409
11	428	428	---	442	456	415	451	483	---	427	---	465
12	426	437	465	509	468	487	524	456	350	---	405	462
13	484	472	405	---	493	420	476	411	578	418	---	457
14	---	448	442	485	474	533	420	413	521	---	431	403
15	---	473	451	445	466	---	---	401	458	406	405	---
16	500	434	460	432	502	466	503	424	431	436	426	---
17	467	479	577	492	495	473	489	387	---	444	457	455
18	468	444	442	417	470	---	495	440	438	409	523	453
19	487	473	465	548	500	516	---	---	513	419	463	432
20	449	521	454	510	434	470	436	427	440	422	464	457
21	---	433	456	---	445	513	581	434	542	414	418	493
22	---	490	477	540	431	466	489	412	609	---	398	572
23	---	495	475	---	436	533	446	417	428	417	426	329
24	513	491	538	446	412	577	477	420	---	444	440	500
25	445	434	---	559	448	471	---	419	475	---	325	527
26	497	447	461	482	434	485	---	---	470	412	502	449
27	436	436	432	---	440	420	419	411	---	---	454	517
28	---	442	449	---	453	449	447	448	466	419	480	450
29	---	433	400	480	---	477	470	419	---	499	421	533
30	459	437	480	422	---	509	413	445	505	435	415	433
31	411	---	---	449	---	476	---	523	---	548	593	---

05411400 SNY MAGILL CREEK NEAR CLAYTON, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	---	7.5	2.0	1.0	4.0	8.0	17.0	15.0	19.0	---	18.0
2	---	13.0	9.0	2.5	---	5.0	8.0	16.0	14.0	20.0	23.0	19.0
3	11.8	---	3.0	2.5	2.0	6.0	9.0	13.5	13.0	21.0	20.0	19.0
4	---	---	---	3.5	1.0	5.0	9.0	12.0	---	21.0	---	19.0
5	9.0	---	3.0	4.0	3.0	5.0	9.0	15.0	12.0	20.0	23.0	19.0
6	8.0	---	4.0	2.0	4.0	4.0	11.0	15.0	13.0	20.0	24.0	20.0
7	---	8.5	3.5	1.5	4.0	4.0	12.0	14.0	---	21.0	24.0	18.0
8	---	---	1.5	1.0	---	4.0	14.0	15.0	16.0	24.0	24.0	18.0
9	---	---	3.5	1.5	3.0	5.0	11.0	16.0	18.0	24.0	---	15.0
10	15.0	---	1.0	3.0	3.0	6.0	13.0	16.0	---	21.7	---	16.0
11	15.0	---	---	3.0	2.0	7.0	14.0	14.0	---	21.0	---	17.0
12	15.0	---	.5	4.0	2.0	7.0	11.0	15.0	18.0	---	24.0	16.0
13	13.0	---	1.0	---	3.0	7.0	14.0	15.0	16.7	22.0	---	16.0
14	---	4.5	2.0	5.0	2.0	8.0	12.0	18.0	18.0	---	20.0	15.0
15	---	---	1.5	4.0	3.0	---	---	21.0	16.0	21.0	17.0	---
16	12.0	---	1.0	4.0	1.0	8.0	8.0	19.0	19.0	20.0	18.0	---
17	13.0	---	1.5	3.0	1.0	8.0	11.0	16.0	---	20.0	19.0	15.0
18	13.0	---	1.5	2.0	2.0	---	11.0	16.0	18.0	21.0	16.0	13.9
19	15.0	3.5	1.0	1.0	2.0	7.0	---	---	17.0	21.0	20.0	15.0
20	14.0	---	1.0	1.0	2.0	7.0	16.0	16.0	18.5	21.0	20.0	14.0
21	---	.4	1.0	---	2.0	8.0	15.0	14.7	15.0	22.0	16.0	15.0
22	---	2.0	1.5	1.0	1.0	9.0	15.0	14.0	19.0	---	19.0	16.0
23	14.0	---	1.5	---	1.0	7.0	15.0	13.0	18.0	21.0	19.0	15.0
24	14.0	3.5	.0	.0	3.0	15.0	7.4	11.0	---	20.0	21.0	12.0
25	14.0	---	---	2.0	3.0	5.0	---	13.6	21.0	---	18.0	11.5
26	13.0	3.5	2.0	3.0	2.0	4.0	---	---	21.0	21.0	18.5	14.0
27	12.0	3.5	1.5	---	1.0	5.8	16.0	11.0	---	---	17.0	13.0
28	---	4.5	1.5	---	2.0	7.0	16.0	15.5	21.0	24.0	20.0	14.0
29	---	7.5	1.5	4.0	---	7.0	16.0	13.8	---	---	20.0	14.6
30	13.0	7.5	1.0	3.0	---	7.0	16.8	12.0	21.0	---	19.0	15.0
31	10.2	---	---	4.0	---	7.0	---	12.0	---	22.2	19.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

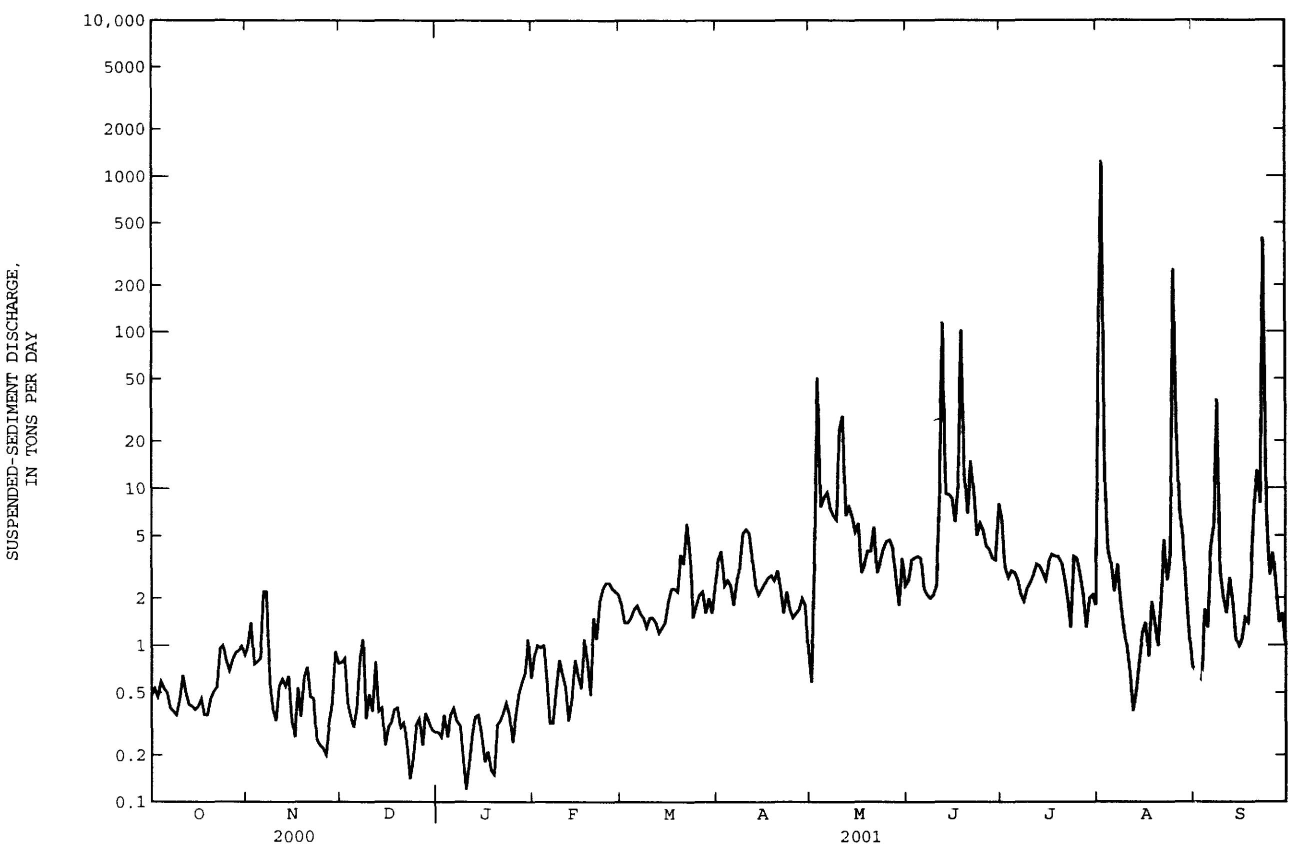
DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	18	.48	29	1.0	26	.78	15	.28	35	.87	72	1.8
2	20	.53	33	1.4	30	.83	15	.26	40	1.0	55	1.4
3	17	.47	23	.76	17	.43	16	.36	36	.97	53	1.4
4	20	.59	24	.79	12	.35	12	.26	34	1.0	61	1.5
5	19	.53	25	.83	12	.30	17	.36	23	.60	75	1.7
6	18	.50	54	2.2	17	.40	20	.40	12	.32	76	1.8
7	15	.40	51	2.2	29	.85	17	.33	12	.32	66	1.6
8	15	.38	16	.58	38	1.1	17	.31	18	.53	75	1.5
9	14	.36	11	.39	15	.34	12	.19	23	.81	82	1.3
10	17	.45	10	.33	17	.49	7	.12	20	.65	89	1.5
11	23	.65	17	.55	21	.38	10	.18	20	.54	89	1.5
12	18	.50	18	.61	28	.79	15	.28	11	.33	64	1.4
13	15	.42	16	.55	13	.38	18	.35	14	.45	52	1.2
14	15	.41	20	.64	14	.40	18	.36	23	.81	45	1.3
15	14	.39	11	.34	8	.23	14	.26	17	.64	43	1.4
16	15	.41	8	.26	11	.30	11	.18	15	.53	54	1.9
17	16	.46	17	.54	13	.32	12	.21	34	1.1	57	2.3
18	12	.36	12	.35	18	.39	9	.16	24	.78	50	2.3
19	13	.36	20	.63	19	.40	11	.15	16	.48	41	2.2
20	16	.46	24	.73	15	.30	23	.31	53	1.5	57	3.8
21	18	.51	17	.47	16	.32	22	.33	46	1.1	41	3.3
22	19	.54	18	.46	12	.23	23	.37	76	1.9	62	6.0
23	27	.95	9	.25	8	.14	24	.43	90	2.3	46	3.9
24	31	1.0	8	.23	11	.19	19	.36	88	2.5	22	1.5
25	25	.80	8	.22	18	.31	12	.24	75	2.5	28	1.8
26	21	.69	7	.20	19	.34	17	.35	80	2.3	35	2.1
27	25	.81	11	.32	12	.23	22	.49	86	2.2	38	2.2
28	28	.90	15	.43	18	.37	24	.58	81	2.1	30	1.6
29	30	.93	30	.92	14	.33	26	.67	---	---	34	2.0
30	31	.99	26	.77	13	.29	42	1.1	---	---	28	1.6
31	27	.87	---	---	14	.28	24	.62	---	---	39	2.4
TOTAL	---	18.10	---	19.95	---	12.79	---	10.85	---	31.13	---	63.2

05411400 SNY MAGILL CREEK NEAR CLAYTON, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	56	3.5	13	.58	44	2.6	104	6.3	409	95	16	.69
2	65	4.0	55	3.7	59	3.5	62	3.1	2290	1250	10	.40
3	36	2.4	308	51	66	3.6	54	2.7	166	11	15	.64
4	42	2.6	78	7.6	70	3.7	61	3.0	89	4.1	42	1.7
5	36	2.4	99	8.7	56	3.6	62	2.9	77	3.3	34	1.3
6	27	1.8	112	9.4	37	2.3	56	2.6	54	2.2	88	4.2
7	40	2.6	93	7.4	36	2.1	44	2.1	87	3.3	99	5.9
8	54	3.2	92	6.7	36	2.0	39	1.9	52	1.9	273	37
9	70	5.2	90	6.3	39	2.1	49	2.3	37	1.3	43	2.9
10	81	5.5	240	24	45	2.4	54	2.5	28	.97	35	2.0
11	68	5.2	260	29	183	9.6	65	2.8	19	.66	32	1.6
12	40	3.6	90	6.7	1090	115	77	3.3	11	.38	54	2.7
13	32	2.4	111	7.6	150	9.2	78	3.2	15	.51	39	1.9
14	29	2.1	101	6.6	145	9.1	71	2.9	24	.80	24	1.1
15	33	2.3	84	5.3	140	8.6	64	2.6	30	1.2	22	.99
16	38	2.5	100	6.0	113	6.1	84	3.4	29	1.4	24	1.1
17	45	2.7	50	2.9	210	11	89	3.8	22	.85	26	1.5
18	48	2.8	60	3.3	967	103	83	3.7	35	1.9	27	1.4
19	46	2.6	73	4.0	178	12	84	3.7	32	1.4	38	2.7
20	50	3.0	72	4.0	116	6.9	76	3.4	25	.99	99	7.7
21	38	2.3	90	5.7	237	15	63	2.7	49	1.9	148	13
22	29	1.6	52	2.9	155	9.5	46	2.0	75	4.7	112	8.0
23	39	2.2	60	3.4	90	5.0	29	1.3	53	2.6	1070	402
24	32	1.7	72	4.1	108	6.0	82	3.7	85	3.7	66	7.3
25	30	1.5	81	4.6	99	5.4	78	3.6	1050	256	32	2.8
26	33	1.6	82	4.7	83	4.3	67	2.8	200	23	53	3.9
27	35	1.7	71	4.2	79	4.1	51	2.1	94	7.2	36	2.4
28	43	2.0	49	2.6	70	3.6	32	1.3	83	5.0	22	1.4
29	38	1.8	36	1.8	68	3.5	49	2.0	44	2.3	26	1.6
30	20	.92	71	3.6	122	8.0	53	2.1	24	1.2	17	1.0
31	---	---	46	2.4	---	---	46	1.8	16	.73	---	---
TOTAL	---	79.72	---	240.78	---	382.8	---	87.6	---	1691.49	---	522.82

YEAR 3161.23



05411400 SNY MAGILL CREEK NEAR CLAYTON, IA--Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.--April 1992 to September 30, 2001 (discontinued).

INSTRUMENTATION.--Tipping bucket rain gage.

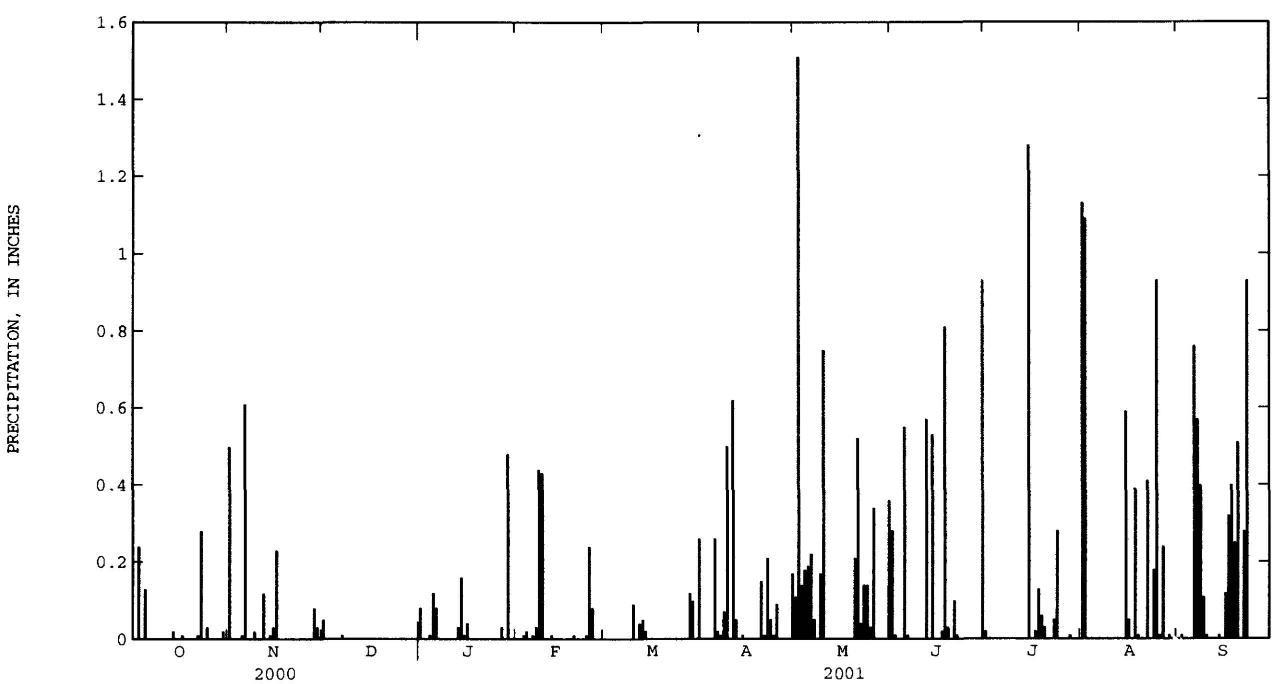
REMARKS.--Water years 1992-1995 in files at the District office. Records good except for winter period, which is poor due to intermittent snow accumulation and subsequent melting.

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

EXTREME FOR CURRENT YEAR.--Maximum daily accumulation, 1.51 in., May 2.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.50	.05	.08	.00	.00	.00	.11	.28	.02	1.13	.00
2	.00	.00	.00	.00	.00	.00	.00	1.51	.01	.00	1.09	.01
3	.24	.00	.00	.00	.01	.00	.00	.14	.00	.00	.00	.00
4	.00	.00	.00	.01	.02	.00	.00	.18	.00	.00	.00	.00
5	.13	.01	.00	.12	.00	.00	.26	.19	.55	.00	.00	.00
6	.00	.61	.00	.08	.01	.00	.02	.22	.01	.00	.00	.76
7	.00	.00	.01	.00	.03	.00	.01	.05	.00	.00	.00	.57
8	.00	.00	.00	.00	.44	.00	.07	.00	.00	.00	.00	.40
9	.00	.02	.00	.00	.43	.00	.50	.17	.00	.00	.00	.11
10	.00	.00	.00	.00	.00	.09	.00	.75	.00	.00	.00	.01
11	.00	.00	.00	.00	.00	.00	.62	.00	.00	.00	.00	.00
12	.00	.12	.00	.00	.01	.04	.05	.00	.57	.00	.00	.00
13	.00	.00	.00	.03	.00	.05	.00	.00	.00	.00	.00	.00
14	.02	.01	.00	.16	.00	.02	.01	.00	.53	.00	.00	.01
15	.00	.03	.00	.01	.00	.00	.00	.00	.00	1.28	.59	.00
16	.00	.23	.00	.04	.00	.00	.00	.00	.00	.00	.05	.12
17	.01	.00	.00	.00	.00	.00	.00	.00	.02	.02	.00	.32
18	.00	.00	.00	.00	.00	.00	.00	.00	.81	.13	.39	.40
19	.00	.00	.00	.00	.01	.00	.00	.00	.03	.06	.01	.25
20	.00	.00	.00	.00	.00	.00	.15	.21	.00	.03	.00	.51
21	.00	.00	.00	.00	.00	.00	.01	.52	.10	.00	.00	.00
22	.01	.00	.00	.00	.00	.00	.21	.04	.01	.00	.41	.28
23	.28	.00	.00	.00	.01	.00	.05	.14	.00	.05	.00	.93
24	.00	.00	.00	.00	.24	.00	.01	.14	.00	.28	.18	.00
25	.03	.00	.00	.00	.08	.00	.09	.03	.00	.00	.93	.00
26	.00	.00	.00	.00	.00	.00	.00	.34	.00	.00	.01	.00
27	.00	.00	.00	.03	.00	.00	.00	.00	.00	.00	.24	.00
28	.00	.08	.00	.00	.00	.12	.00	.00	.00	.01	.00	.00
29	.00	.03	.00	.48	---	.10	.00	.00	.00	.00	.01	.00
30	.02	.00	.00	.00	---	.00	.17	.00	.93	.00	.00	.00
31	.00	---	.00	.00	---	.26	---	.36	---	.00	.00	---
TOTAL	0.74	1.64	0.06	1.04	1.29	0.68	2.23	5.10	3.85	1.88	5.04	4.68
MEAN	.02	.05	.00	.03	.05	.02	.07	.16	.13	.06	.16	.16
MAX	.28	.61	.05	.48	.44	.26	.62	1.51	.93	1.28	1.13	.93
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 ¼ NW ¼ 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.

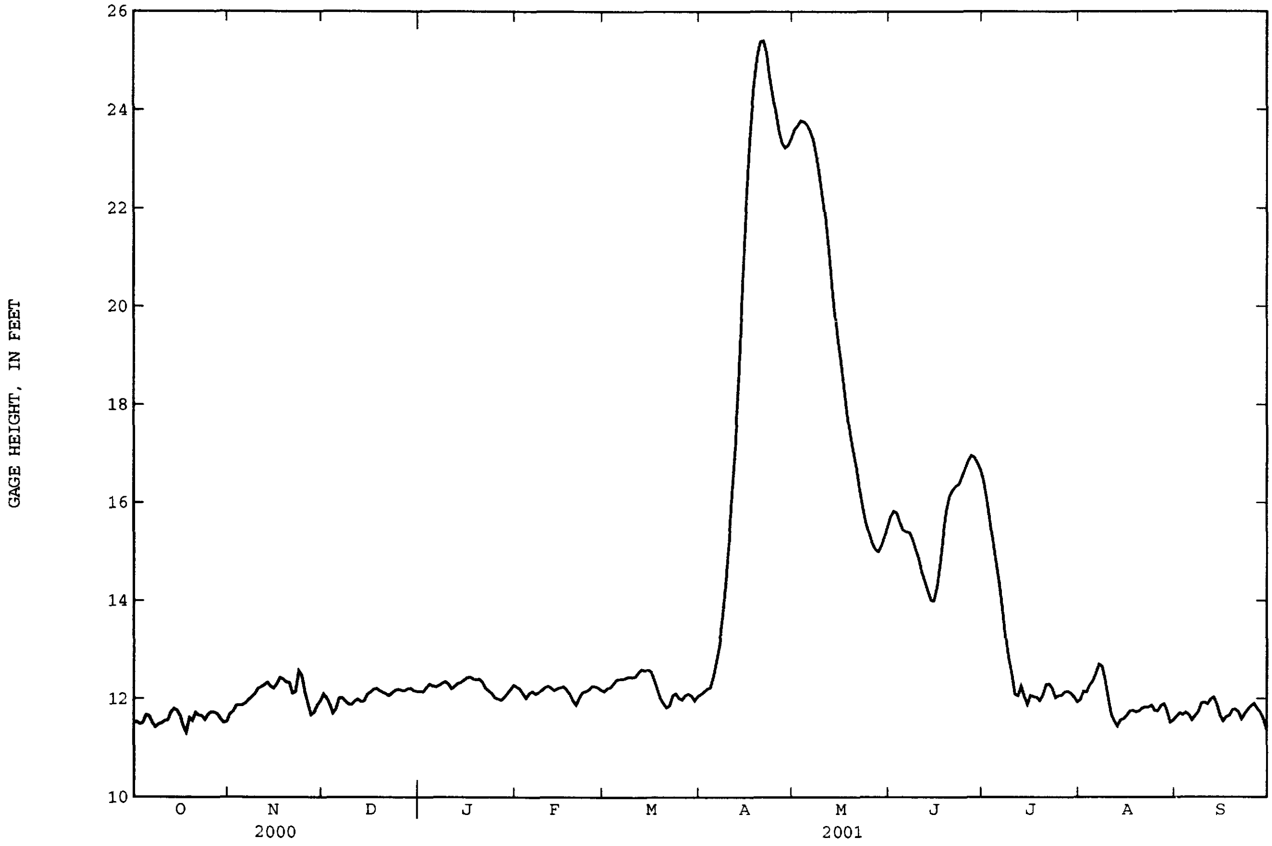
EXTREMES FOR CURRENT WATER YEAR.--Maximum gage height 25.48 ft Apr. 20; minimum gage height 11.21 ft Oct. 18.

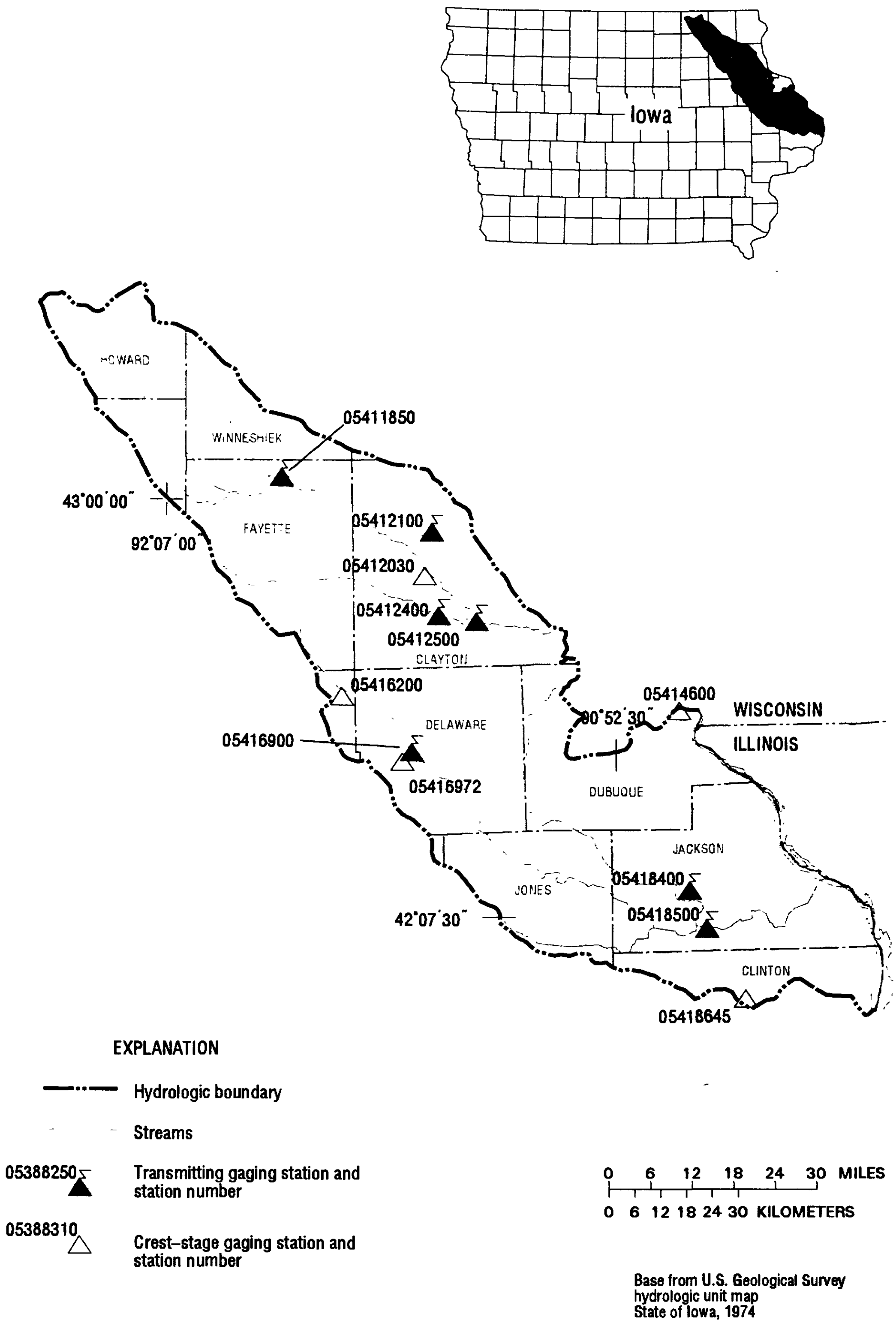
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height 25.48 ft Apr. 20, 2001; minimum gage height 11.16 ft Aug. 21, 1992.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.51	11.69	12.10	12.15	12.24	12.15	12.09	23.60	15.71	16.43	11.98	11.64
2	11.53	11.74	12.01	12.14	12.20	12.21	12.14	23.68	15.83	16.07	12.15	11.71
3	11.48	11.86	11.88	12.23	12.10	12.23	12.20	23.78	15.80	15.64	12.13	11.67
4	11.51	11.87	11.70	12.30	12.01	12.31	12.22	23.76	15.61	15.18	12.27	11.72
5	11.67	11.87	11.79	12.26	12.11	12.39	12.45	23.70	15.45	14.76	12.36	11.67
6	11.65	11.91	12.01	12.24	12.15	12.40	12.76	23.57	15.41	14.35	12.51	11.56
7	11.51	11.98	12.02	12.27	12.10	12.40	13.10	23.40	15.40	13.85	12.70	11.65
8	11.42	12.04	11.95	12.31	12.13	12.43	13.68	23.08	15.26	13.26	12.66	11.73
9	11.48	12.10	11.89	12.35	12.17	12.45	14.35	22.70	15.05	12.81	12.39	11.91
10	11.50	12.21	11.88	12.30	12.23	12.44	15.20	22.25	14.87	12.50	12.02	11.92
11	11.55	12.24	11.95	12.20	12.26	12.45	16.18	21.79	14.59	12.09	11.68	11.89
12	11.56	12.28	11.99	12.25	12.22	12.54	17.13	21.19	14.40	12.06	11.54	11.99
13	11.73	12.33	11.94	12.31	12.17	12.60	18.35	20.50	14.20	12.26	11.44	12.03
14	11.80	12.25	11.95	12.33	12.21	12.58	19.85	19.87	14.01	12.05	11.57	11.88
15	11.76	12.21	12.09	12.38	12.23	12.59	21.37	19.33	14.00	11.88	11.59	11.66
16	11.65	12.30	12.13	12.43	12.25	12.56	22.67	18.88	14.28	12.07	11.66	11.54
17	11.44	12.43	12.19	12.44	12.18	12.39	23.76	18.37	14.77	12.04	11.75	11.63
18	11.31	12.40	12.21	12.40	12.09	12.21	24.54	17.83	15.37	12.03	11.76	11.65
19	11.61	12.34	12.16	12.39	11.96	12.01	25.08	17.39	15.84	11.96	11.73	11.77
20	11.55	12.33	12.13	12.40	11.87	11.91	25.39	17.04	16.14	12.08	11.75	11.78
21	11.72	12.11	12.10	12.33	12.02	11.82	25.41	16.71	16.26	12.29	11.81	11.73
22	11.66	12.14	12.06	12.21	12.13	11.86	25.17	16.28	16.34	12.30	11.83	11.58
23	11.65	12.57	12.12	12.16	12.15	12.07	24.68	15.93	16.38	12.21	11.83	11.69
24	11.57	12.47	12.17	12.11	12.18	12.11	24.30	15.61	16.54	12.02	11.87	11.78
25	11.68	12.13	12.19	12.02	12.25	12.01	23.94	15.39	16.70	12.06	11.76	11.85
26	11.73	11.90	12.17	12.00	12.25	11.98	23.57	15.17	16.86	12.07	11.75	11.90
27	11.72	11.67	12.16	11.97	12.23	12.07	23.33	15.05	16.97	12.14	11.86	11.79
28	11.69	11.72	12.20	12.03	12.18	12.10	23.23	15.00	16.93	12.15	11.90	11.72
29	11.59	11.87	12.21	12.11	---	12.06	23.28	15.13	16.81	12.11	11.75	11.58
30	11.51	11.96	12.16	12.19	---	11.96	23.42	15.32	16.67	12.03	11.52	11.37
31	11.53	---	12.15	12.28	---	12.05	---	15.49	---	11.93	11.56	---
MEAN	11.59	12.10	12.05	12.24	12.15	12.24	19.49	19.25	15.62	12.86	11.91	11.73
MAX	11.80	12.57	12.21	12.44	12.26	12.60	25.41	23.78	16.97	16.43	12.70	12.03
MIN	11.31	11.67	11.70	11.97	11.87	11.82	12.09	15.00	14.00	11.88	11.44	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″
90°52′30″
42°07′30″
05411850
05412100
05412030
05412400
05412500
05416200
05414600
05416900
05416972
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

Crest Stage Gaging Stations

05411850 TURKEY RIVER NEAR ELDORADO, IA

LOCATION.--Lat 43°03'15", long 91°48'32", in NW ¼ SE ¼ SE ¼ sec.8, T.95 N., R.8 W., Fayette County, Hydrologic Unit 07060004, on left bank 5 ft. downstream of bridge on County Highway B40, 3.6 miles downstream of confluence with the Little Turkey River, 3.4 upstream of Dry Branch Creek, and 1.4 miles east of Eldorado.

DRAINAGE AREA.--641 mi^2.

PERIOD OF RECORD.--September 27, 2000 to September 30, 2001.

GAGE.--Water-stage recorder. Datum of gage is 890.00 ft. above sea level.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 15, 1991, gage height 18.78 ft, discharge not determined; flood discharge at downstream site at Garber was 49,900 ft^3/s; flood of May 19, 1999 at downstream site at Garber was 53,900 ft^3/s, gage height 30.91 ft. This is the highest known flood in the basin.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	175	169	e180	e76	e160	e170	3030	946	769	365	162	140
2	176	186	e160	e70	e140	e200	3430	1720	765	336	165	140
3	177	175	e140	e80	e160	e230	4300	4400	730	330	163	139
4	184	169	e120	e90	e200	e200	4500	5560	676	313	160	136
5	180	168	e100	e100	e180	e180	4810	4550	695	300	157	135
6	177	217	e120	e120	e170	e160	5720	3570	778	287	155	144
7	169	490	e160	e110	e160	e170	5400	3680	862	280	153	174
8	167	541	e170	e90	e210	e190	5010	2750	797	279	151	774
9	167	487	e150	e84	e200	e220	3800	2140	720	267	150	354
10	166	415	e160	e100	e180	e240	2340	1870	661	252	146	244
11	165	366	e140	e120	e170	e280	2920	2250	613	235	145	186
12	163	355	e130	e140	e300	e340	6970	2110	575	222	144	165
13	162	345	e140	e160	e260	e400	6340	1760	541	212	142	157
14	164	329	e150	e180	e230	e480	3860	1540	553	204	140	153
15	162	304	e160	e160	e200	e580	2650	1390	692	197	147	151
16	160	315	e170	e150	e170	e700	2140	1240	959	189	162	150
17	162	297	e150	e130	e150	e760	1760	1120	857	195	153	152
18	161	e260	e120	e110	e160	e860	1520	1010	894	233	158	152
19	160	e230	e100	e100	e180	e940	1380	932	838	228	160	149
20	159	e200	e110	e90	e150	1060	1290	875	706	197	152	163
21	159	e190	e100	e100	e130	1510	1260	903	647	189	150	235
22	159	e180	e80	e120	e150	2220	1170	1010	649	186	152	181
23	168	e200	e90	e140	e170	2640	1140	1160	574	190	150	236
24	169	e220	e84	e130	e190	2210	1060	1050	530	192	147	200
25	168	e260	e66	e120	e210	1730	978	1040	497	205	149	218
26	170	232	e94	e130	e190	1300	930	1060	468	186	148	200
27	167	221	e86	e120	e170	1080	873	1050	440	175	149	175
28	166	e200	e74	e140	e150	1050	815	1000	416	172	147	164
29	164	e180	e78	e160	---	1250	771	921	397	169	146	159
30	163	e200	e90	e200	---	1710	746	840	384	165	144	156
31	164	---	e82	e180	---	2310	---	776	---	163	142	---
MEAN	167	270	121	123	182	883	2764	1814	656	229	151	196
MAX	184	541	180	200	300	2640	6970	5560	959	365	165	774
MIN	159	168	66	70	130	160	746	776	384	163	140	135
AC-FT	10260	16070	7450	7540	10100	54290	164500	111500	39040	14110	9300	11670
CFSM	.26	.42	.19	.19	.28	1.38	4.32	2.83	1.03	.36	.24	.31
IN.	.30	.47	.22	.22	.30	1.59	4.82	3.27	1.14	.41	.27	.34

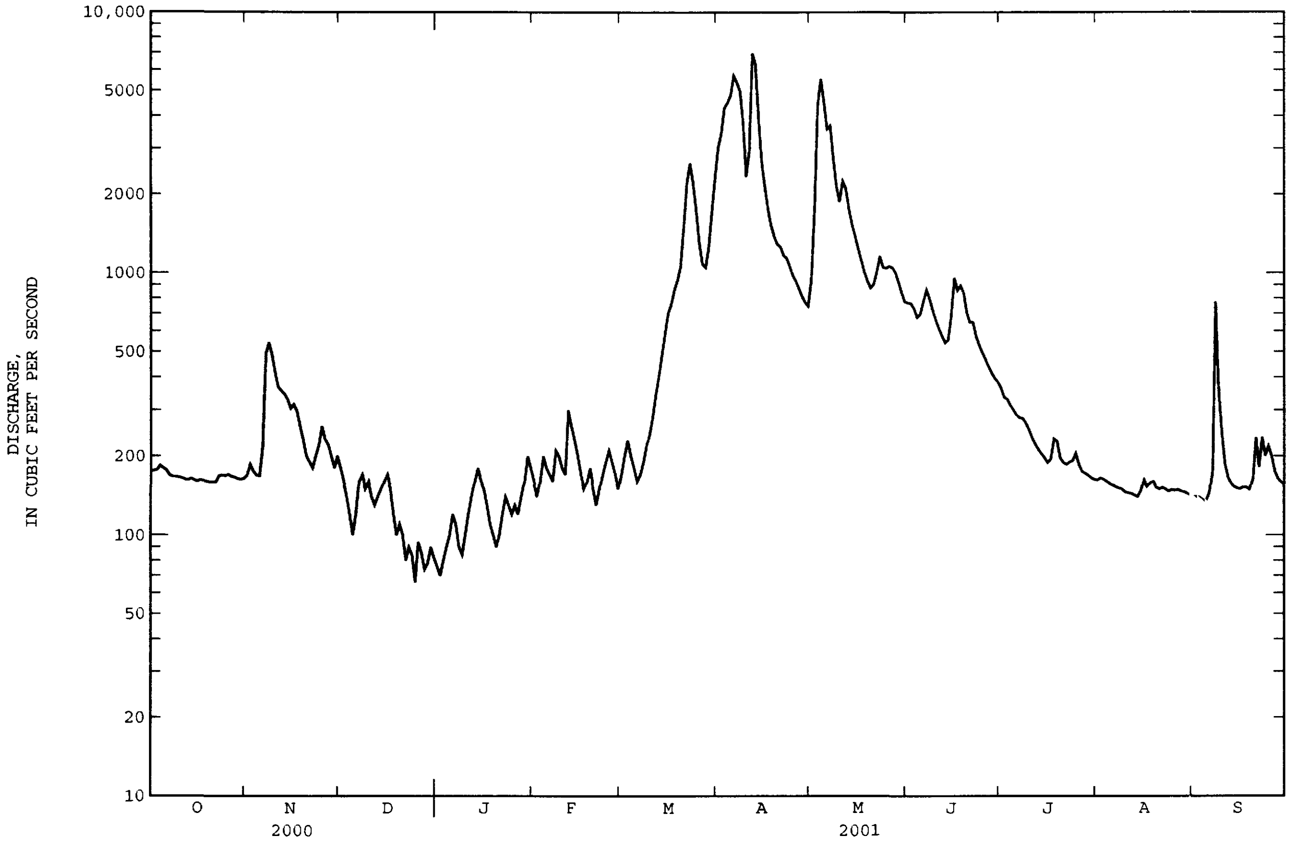
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	167	270	121	123	182	883	2764	1814	656	229	151	196
MAX	167	270	121	123	182	883	2764	1814	656	229	151	196
(WY)	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001
MIN	167	270	121	123	182	883	2764	1814	656	229	151	196
(WY)	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001

05411850 TURKEY RIVER NEAR ELDORADO, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 2000 - 2001	
ANNUAL MEAN			630		630	
HIGHEST ANNUAL MEAN					630	2001
LOWEST ANNUAL MEAN					630	2001
HIGHEST DAILY MEAN	541	Nov 8	6970	Apr 12	6970	Apr 12 2001
LOWEST DAILY MEAN	66	Dec 25	66	Dec 25	66	Dec 25 2000
ANNUAL SEVEN-DAY MINIMUM	81	Dec 25	79	Dec 28	79	Dec 28 2000
MAXIMUM PEAK FLOW			7520	Apr 12a	7520	Apr 12 2001a
MAXIMUM PEAK STAGE			13.93	Apr 12a	13.93	Apr 12 2001a
ANNUAL RUNOFF (AC-FT)			455800		456100	
ANNUAL RUNOFF (CFSM)			.98		.98	
ANNUAL RUNOFF (INCHES)			13.36		13.37	
10 PERCENT EXCEEDS	308		1530		1520	
50 PERCENT EXCEEDS	167		189		189	
90 PERCENT EXCEEDS	92		130		130	

a Also Apr. 13.
e Estimated.



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 September 30, 2001 (discontinued).

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. U.S. Geological Survey data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	5.5	6.0	e1.0	e2.5	e2.8	172	33	26	7.1	.55	.22
2	1.0	29	e4.4	e.92	e2.3	e3.8	192	36	27	5.8	23	.20
3	.78	21	e3.2	e1.3	e2.0	e5.0	218	183	21	5.9	9.1	.23
4	1.2	10	e2.4	e1.6	e2.4	e4.2	149	197	19	5.7	1.7	.30
5	2.1	7.7	e1.6	e1.8	e2.1	e3.6	151	138	27	4.4	.83	.37
6	1.7	9.0	e1.0	e1.9	e2.0	e3.2	189	114	33	3.5	.38	.49
7	1.7	36	e1.4	e1.7	e1.9	e4.0	152	159	28	3.9	.30	7.7
8	1.5	30	e2.0	e1.3	e2.2	e5.0	112	111	26	3.8	.26	36
9	1.5	21	e1.7	e1.1	e2.1	e6.0	109	87	22	3.2	.26	28
10	1.9	17	e1.8	e1.6	e2.0	e6.8	94	88	19	2.6	.28	5.8
11	2.0	14	e1.4	e2.0	e1.7	e8.0	136	146	16	2.3	.28	2.6
12	2.0	13	e1.1	e2.4	e3.8	e9.0	201	94	37	2.1	.27	1.2
13	2.0	14	e1.0	e2.6	e3.6	e10	131	76	24	2.1	.29	.62
14	1.8	13	e1.2	e2.8	e2.6	e12	106	68	20	1.9	.34	.39
15	1.6	10	e1.4	e2.6	e2.2	e18	91	61	33	1.6	.46	.36
16	1.1	13	e2.0	e2.2	e1.8	e20	77	52	27	.94	.47	.33
17	.76	12	e1.8	e1.8	e1.5	e22	69	45	21	.82	.39	.38
18	1.4	e6.5	e1.6	e1.4	e2.0	e21	62	39	48	1.2	.43	.37
19	2.0	e5.5	e1.4	e1.3	e2.6	e20	59	36	43	2.4	.29	.71
20	1.7	e5.0	e1.5	e1.2	e1.8	e34	55	34	34	1.1	.25	.84
21	2.0	e4.2	e1.3	e1.3	e1.6	e81	50	35	30	1.1	.24	5.0
22	2.0	e4.4	e1.1	e1.2	e1.8	e159	43	32	28	.96	.28	5.1
23	2.7	e5.0	e1.2	e1.1	e2.0	e253	44	31	24	.77	.27	41
24	3.4	5.6	e1.0	e.95	e2.2	e181	38	31	20	.59	.26	34
25	3.2	5.4	e.80	e.90	e2.4	e93	36	33	18	.94	.37	11
26	2.7	5.9	e1.4	e.85	e2.3	e83	34	30	17	1.2	4.1	6.1
27	2.6	6.1	e1.2	e.95	e2.2	e67	31	27	14	.75	.87	4.2
28	2.6	5.9	e1.0	e1.1	e2.4	e84	29	24	12	.50	.20	2.8
29	1.9	6.3	e1.1	e1.5	---	127	27	22	9.5	.45	.15	2.4
30	1.7	5.8	e1.2	e2.0	---	148	25	21	8.2	.50	.16	1.9
31	1.8	---	e1.1	e2.8	---	172	---	20	---	.50	.16	---
TOTAL	57.64	346.8	52.30	49.17	62.0	1666.4	2882	2103	731.7	70.62	47.19	200.61
MEAN	1.86	11.6	1.69	1.59	2.21	53.8	96.1	67.8	24.4	2.28	1.52	6.69
MAX	3.4	36	6.0	2.8	3.8	253	218	197	48	7.1	23	41
MIN	.76	4.2	.80	.85	1.5	2.8	25	20	8.2	.45	.15	.20
AC-FT	114	688	104	98	123	3310	5720	4170	1450	140	94	398
CFSM	.03	.16	.02	.02	.03	.76	1.36	.96	.34	.03	.02	.09
IN.	.03	.18	.03	.03	.03	.88	1.52	1.11	.38	.04	.02	.11

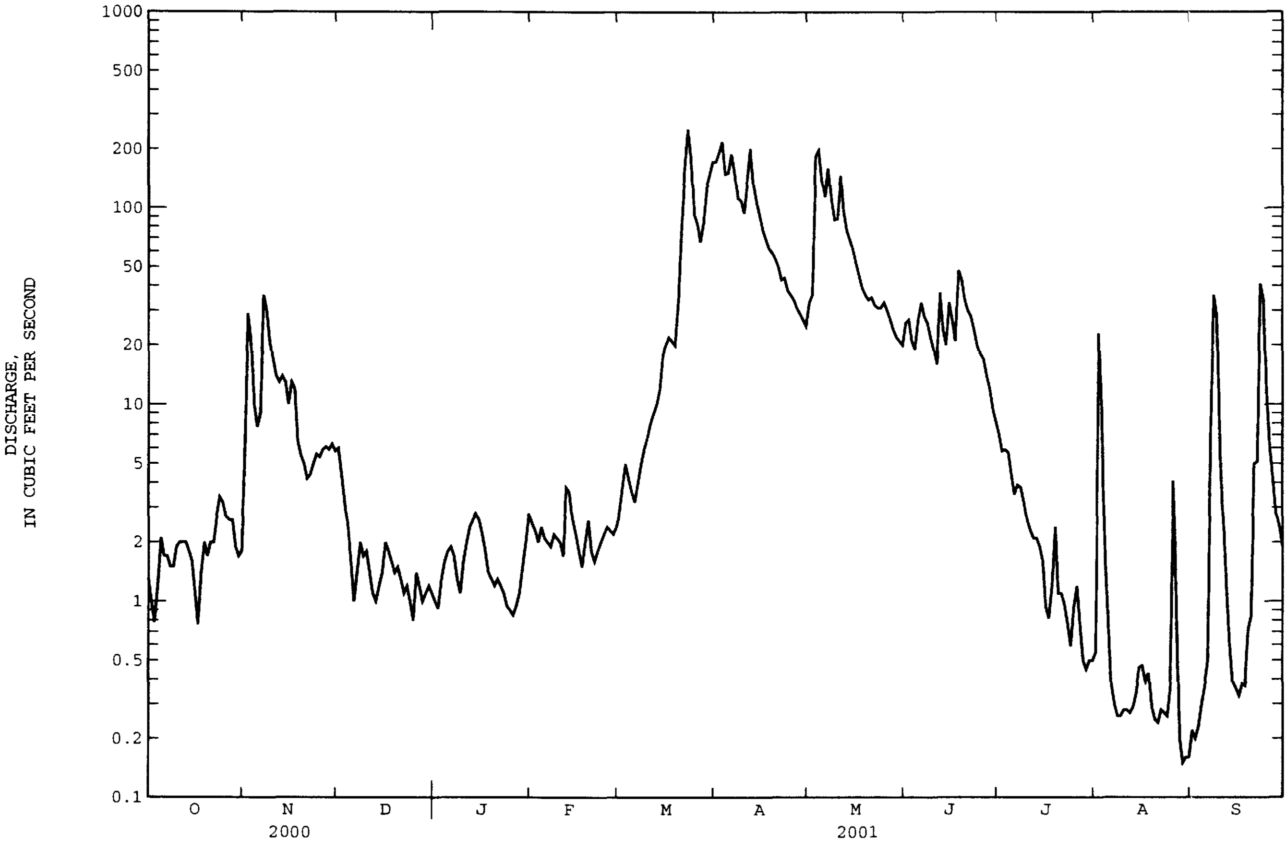
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	11.3	17.4	12.5	7.40	18.2	54.1	55.3	39.5	53.6	26.6	16.2	13.7
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1986 - 2001	
ANNUAL TOTAL	6701.53		8269.43			
ANNUAL MEAN	18.3		22.7		27.6	
HIGHEST ANNUAL MEAN					85.6	1993
LOWEST ANNUAL MEAN					4.36	1989
HIGHEST DAILY MEAN	350	Feb 24	253	Mar 23	7090	Jun 15 1991
LOWEST DAILY MEAN	.44	May 16	.15	Aug 29	.00	Jul 25 1989
ANNUAL SEVEN-DAY MINIMUM	.70	Jan 22	.19	Aug 28	.00	Jul 25 1989
MAXIMUM PEAK FLOW			383	Mar 23	19600	Jun 15 1991
MAXIMUM PEAK STAGE			12.77	Mar 23	27.88	Jun 15 1991
INSTANTANEOUS LOW FLOW			.13	Aug 29		
ANNUAL RUNOFF (AC-FT)	13290		16400		20030	
ANNUAL RUNOFF (CFSM)	.26		.32		.39	
ANNUAL RUNOFF (INCHES)	3.53		4.35		5.31	
10 PERCENT EXCEEDS	49		76		60	
50 PERCENT EXCEEDS	5.5		2.8		10	
90 PERCENT EXCEEDS	.95		.50		.82	

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 mi².

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	72	e70	e40	e80	e90	877	281	270	1150	125	95
2	67	144	e64	e38	e70	e100	855	297	289	678	219	93
3	67	132	e54	e42	e80	e120	851	1140	285	430	266	92
4	76	122	e46	e46	e90	e110	757	2140	274	338	220	88
5	74	109	e34	e50	e80	e100	691	1310	344	286	184	92
6	72	117	e40	e54	e76	e96	735	1110	384	251	165	95
7	71	182	e60	e50	e74	e100	770	1600	386	232	152	207
8	69	247	e70	e46	e100	e110	744	1520	360	218	141	521
9	69	239	e66	e40	e96	e120	805	985	330	202	132	797
10	69	207	e70	e50	e90	e160	804	954	305	187	121	462
11	69	183	e66	e70	e86	e200	771	1070	286	172	115	327
12	69	171	e62	e80	e130	e240	933	937	291	162	110	268
13	69	164	e70	e84	e110	e280	973	770	276	152	104	233
14	69	156	e74	e84	e100	297	777	680	277	145	99	208
15	66	148	e80	e80	e90	518	671	611	289	134	104	191
16	64	146	e84	e72	e80	706	585	548	294	126	136	180
17	66	140	e64	e62	e70	758	514	493	276	123	119	188
18	64	132	e58	e58	e80	800	463	444	367	226	122	179
19	64	125	e46	e54	e90	979	434	406	324	185	112	188
20	65	e90	e48	e50	e76	1240	429	381	280	164	102	185
21	63	e64	e44	e54	e66	1740	401	394	269	152	97	480
22	63	e70	e36	e60	e70	2130	385	366	348	143	100	470
23	68	e76	e40	e66	e76	2440	378	340	408	139	109	364
24	74	e84	e38	e60	e90	1500	352	328	315	142	103	277
25	73	e96	e32	e54	e98	987	334	319	277	172	127	223
26	73	e90	e44	e60	e90	744	313	305	255	180	171	200
27	72	e86	e42	e56	e80	634	296	295	237	166	135	189
28	69	e80	e38	e66	e76	576	281	283	223	147	117	178
29	68	e76	e42	e76	---	617	267	270	210	138	109	164
30	67	e74	e46	e100	---	762	259	256	217	132	103	154
31	67	---	e44	e94	---	850	---	249	---	130	99	---
TOTAL	2124	3822	1672	1896	2394	20104	17705	21082	8946	7202	4118	7388
MEAN	68.5	127	53.9	61.2	85.5	649	590	680	298	232	133	246
MAX	76	247	84	100	130	2440	973	2140	408	1150	266	797
MIN	63	64	32	38	66	90	259	249	210	123	97	88
AC-FT	4210	7580	3320	3760	4750	39880	35120	41820	17740	14290	8170	14650
CFSM	.20	.37	.15	.18	.25	1.86	1.70	1.95	.86	.67	.38	.71
IN.	.23	.41	.18	.20	.26	2.15	1.89	2.25	.96	.77	.44	.79

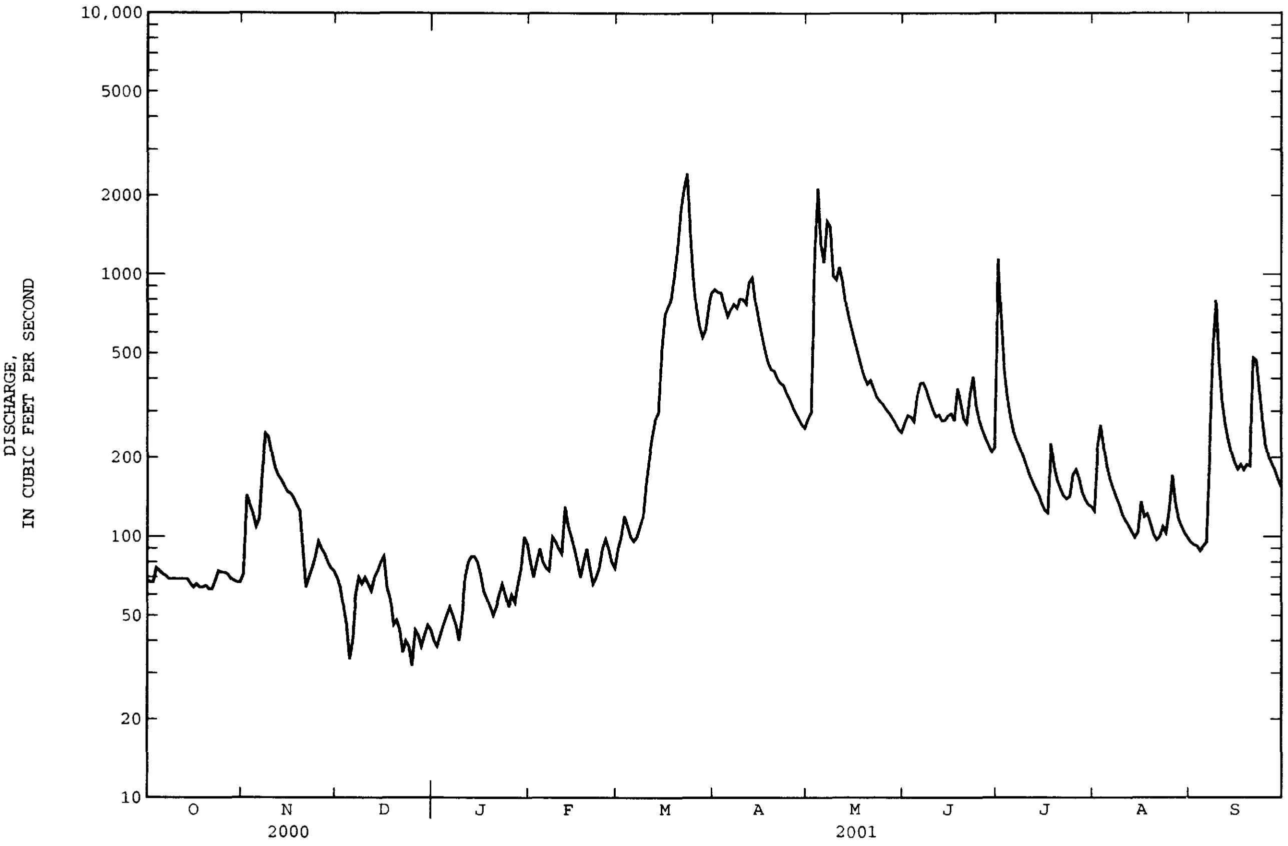
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	89.4	114	63.4	52.5	131	403	452	475	463	276	135	167
MAX	110	127	72.8	61.2	175	649	590	680	628	321	138	246
(WY)	2000	2001	2000	2001	2000	2001	2001	2001	2000	2000	2000	2001
MIN	68.5	101	53.9	43.9	85.5	157	313	270	298	232	133	87.2
(WY)	2001	2000	2001	2000	2001	2000	2000	2000	2001	2001	2001	2000

05412400 VOLGA RIVER AT LITTLEPORT, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 2000 - 2001	
ANNUAL TOTAL	72343		98453			
ANNUAL MEAN	198		270		235	
HIGHEST ANNUAL MEAN					270	2001
LOWEST ANNUAL MEAN					201	2000
HIGHEST DAILY MEAN	1570	Apr 20	2440	Mar 23	2440	Mar 23 2001
LOWEST DAILY MEAN	27	Jan 28	32	Dec 25	27	Jan 28 2000
ANNUAL SEVEN-DAY MINIMUM	31	Jan 26	39	Dec 22	31	Jan 26 2000
MAXIMUM PEAK FLOW			2730	Jul 1	2730	Jul 1 2001
MAXIMUM PEAK STAGE			9.81	Jul 1	9.81	Jul 1 2001
ANNUAL RUNOFF (AC-FT)	143500		195300		170300	
ANNUAL RUNOFF (CFSM)	.57		.78		.68	
ANNUAL RUNOFF (INCHES)	7.73		10.52		9.18	
10 PERCENT EXCEEDS	486		744		558	
50 PERCENT EXCEEDS	124		138		126	
90 PERCENT EXCEEDS	46		60		54	

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	424	367	e240	e150	e240	e300	4680	1510	e1800	1870	492	378
2	418	539	e220	e140	e220	e360	5100	1710	e1800	1500	798	376
3	412	549	e200	e160	e260	e400	5680	5190	e1700	1220	844	378
4	425	480	e180	e180	e320	e360	6090	8110	e1600	1100	653	371
5	428	447	e140	e200	e300	e320	6040	7920	e1700	1010	581	364
6	423	461	e160	e210	e290	e300	6880	6540	e1900	936	549	357
7	406	644	e240	e190	e280	e320	7130	6610	e2000	899	533	553
8	394	858	e280	e160	e380	e340	6850	6440	e1900	876	503	1320
9	390	923	e260	e140	e360	e400	6480	4960	e1700	819	487	2040
10	390	843	e280	e180	e340	e460	5340	4460	e1600	750	465	1240
11	395	756	e260	e220	e320	e500	4380	5160	e1500	689	443	922
12	395	709	e240	e280	e460	691	6790	4730	e1600	656	431	770
13	389	689	e280	e300	e400	873	9290	4200	e1500	627	424	671
14	385	666	e300	e320	e340	1040	7320	3730	1450	608	414	597
15	398	638	e320	e300	e300	1410	4950	3420	1570	588	430	550
16	392	631	e340	e260	e280	1740	3920	3120	1550	573	521	525
17	382	623	e280	e220	e260	1820	3340	2870	1660	566	509	563
18	377	595	e240	e200	e280	2000	2930	2660	2330	759	526	540
19	373	568	e200	e180	e320	2530	2670	2490	2010	703	504	645
20	368	e400	e220	e160	e280	3290	2520	2380	1750	653	461	589
21	361	e360	e200	e180	e240	4360	2360	2640	1580	601	408	1330
22	357	e300	e160	e200	e260	5650	2260	2360	1570	579	396	980
23	371	e320	e180	e220	e300	6910	2150	2410	1600	567	408	977
24	392	e340	e160	e200	e340	5970	2030	2470	1420	600	393	1030
25	398	e380	e130	e180	e380	4590	1910	2370	1310	754	483	835
26	390	e340	e180	e200	e340	3700	1800	2330	1230	661	696	770
27	385	e320	e160	e180	e300	3160	1700	2240	1170	625	512	745
28	371	e300	e140	e200	e280	2880	1610	2140	1110	565	444	690
29	364	e280	e160	e240	---	2950	1530	2090	1060	537	415	645
30	361	e260	e180	e300	---	3400	1470	2030	1020	523	405	609
31	359	---	e160	e260	---	4020	---	1920	---	514	392	---
TOTAL	12073	15586	6690	6510	8670	67044	127200	113210	47690	23928	15520	22360
MEAN	389	520	216	210	310	2163	4240	3652	1590	772	501	745
MAX	428	923	340	320	460	6910	9290	8110	2330	1870	844	2040
MIN	357	260	130	140	220	300	1470	1510	1020	514	392	357
MED	390	510	200	200	300	1740	4150	2660	1600	656	483	645
AC-FT	23950	30910	13270	12910	17200	133000	252300	224600	94590	47460	30780	44350
CFSM	.25	.34	.14	.14	.20	1.40	2.74	2.36	1.03	.50	.32	.48
IN.	.29	.38	.16	.16	.21	1.61	3.06	2.73	1.15	.58	.37	.54

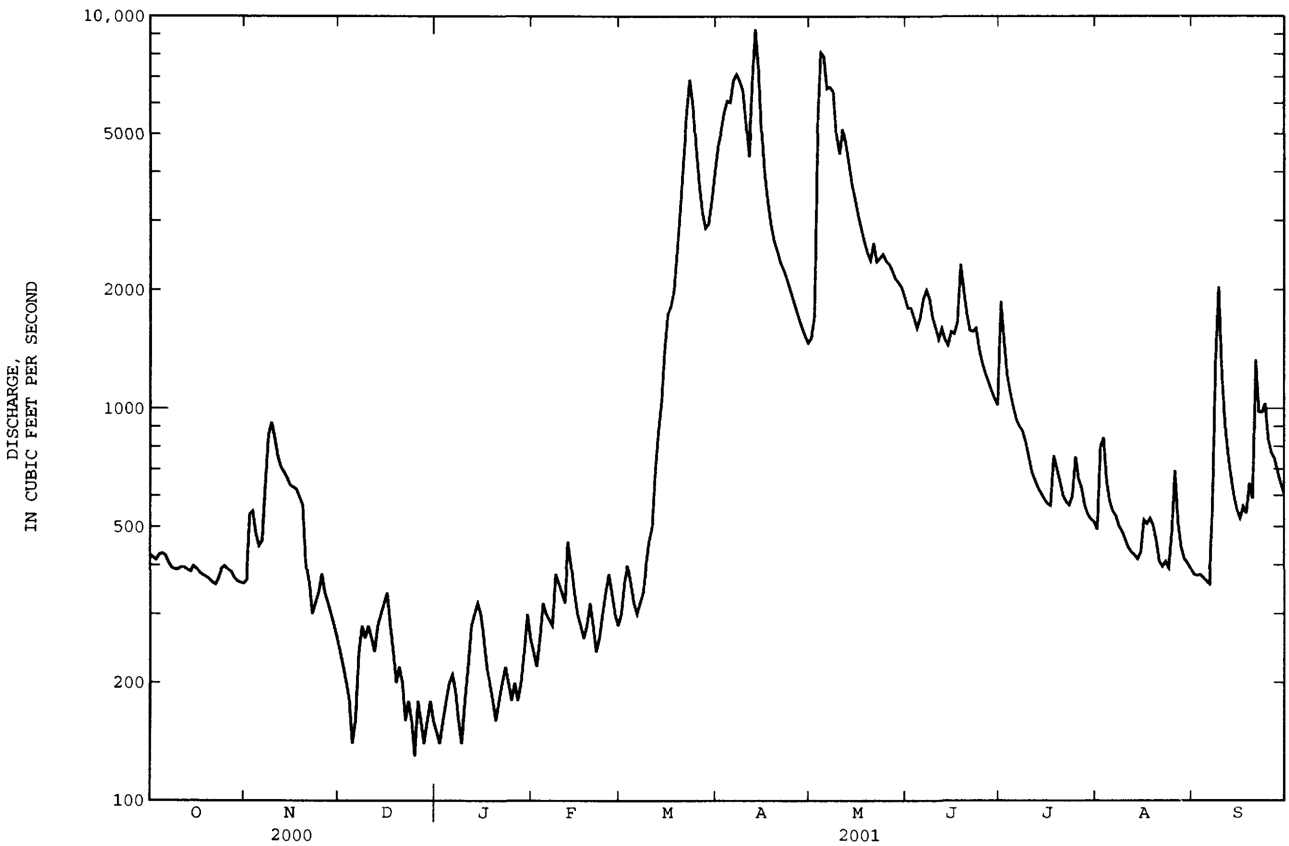
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	575	617	480	508	826	2027	1748	1364	1418	992	855	642
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1913 - 2001	
ANNUAL TOTAL	364703		466481			
ANNUAL MEAN	996		1278		1008	
HIGHEST ANNUAL MEAN					2905	1993
LOWEST ANNUAL MEAN					249	1934
HIGHEST DAILY MEAN	8560	Jun 15	9290	Apr 13	43400	May 17 1999
LOWEST DAILY MEAN	130	Dec 25	130	Dec 25	49	Jan 28 1940
ANNUAL SEVEN-DAY MINIMUM	159	Dec 22	156	Dec 27	51	Jan 25 1940
MAXIMUM PEAK FLOW			9800	Apr 13	53900	May 17 1999
MAXIMUM PEAK STAGE			16.67	Apr 13	30.91	May 17 1999
ANNUAL RUNOFF (AC-FT)	723400		925300		730100	
ANNUAL RUNOFF (CFSM)	.64		.83		.65	
ANNUAL RUNOFF (INCHES)	8.78		11.23		8.86	
10 PERCENT EXCEEDS	2250		3410		2140	
50 PERCENT EXCEEDS	614		539		528	
90 PERCENT EXCEEDS	240		216		170	

e Estimated



05416900 MAQUOKETA RIVER AT MANCHESTER, IA

LOCATION.--Lat 42°28'12", long 91°26'54", in SW 1/4 SW 1/4 SW 1/4 sec.33, T.89 N., R.5 E., Delaware, Hydrologic Unit 07060006, on left bank, 10 feet downstream of east bound bridge of Highway 20, 1.5 miles upstream of Sand Creek, and 1.5 miles downstream of dam in Manchester.

DRAINAGE AREA.--275 mi^2.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--April 26, 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 895.00 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey 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	---	---	---	---	---	---	---	215	4440	478	173	e105
2	---	---	---	---	---	---	---	196	1880	461	169	e100
3	---	---	---	---	---	---	---	179	966	949	158	e98
4	---	---	---	---	---	---	---	172	720	618	150	e96
5	---	---	---	---	---	---	---	164	705	482	164	e94
6	---	---	---	---	---	---	---	157	708	421	185	92
7	---	---	---	---	---	---	---	153	607	368	161	93
8	---	---	---	---	---	---	---	151	527	338	152	93
9	---	---	---	---	---	---	---	145	459	418	146	92
10	---	---	---	---	---	---	---	136	410	924	139	102
11	---	---	---	---	---	---	---	137	373	936	134	97
12	---	---	---	---	---	---	---	1370	388	630	133	95
13	---	---	---	---	---	---	---	1430	858	493	137	87
14	---	---	---	---	---	---	---	654	2270	414	132	92
15	---	---	---	---	---	---	---	437	1690	352	128	87
16	---	---	---	---	---	---	---	368	1070	309	128	84
17	---	---	---	---	---	---	---	387	736	279	146	83
18	---	---	---	---	---	---	---	450	584	252	165	81
19	---	---	---	---	---	---	---	817	508	240	147	84
20	---	---	---	---	---	---	---	797	639	227	134	94
21	---	---	---	---	---	---	---	575	640	216	128	88
22	---	---	---	---	---	---	---	471	494	207	130	100
23	---	---	---	---	---	---	---	403	725	200	130	109
24	---	---	---	---	---	---	---	352	1630	197	124	99
25	---	---	---	---	---	---	---	307	1040	197	121	92
26	---	---	---	---	---	---	372	290	1700	213	120	87
27	---	---	---	---	---	---	335	354	1340	224	118	85
28	---	---	---	---	---	---	297	416	843	211	e115	82
29	---	---	---	---	---	---	259	424	652	205	e115	81
30	---	---	---	---	---	---	230	415	534	202	e110	80
31	---	---	---	---	---	---	---	1100	---	e190	e110	---
TOTAL	---	---	---	---	---	---	1493	13622	30136	11851	4302	2752
MEAN	---	---	---	---	---	---	299	439	1005	382	139	91.7
MAX	---	---	---	---	---	---	372	1430	4440	949	185	109
MIN	---	---	---	---	---	---	230	136	373	190	110	80
AC-FT	---	---	---	---	---	---	2960	27020	59770	23510	8530	5460
CFSM	---	---	---	---	---	---	1.09	1.60	3.65	1.39	.50	.33
IN.	---	---	---	---	---	---	.20	1.84	4.08	1.60	.58	.37

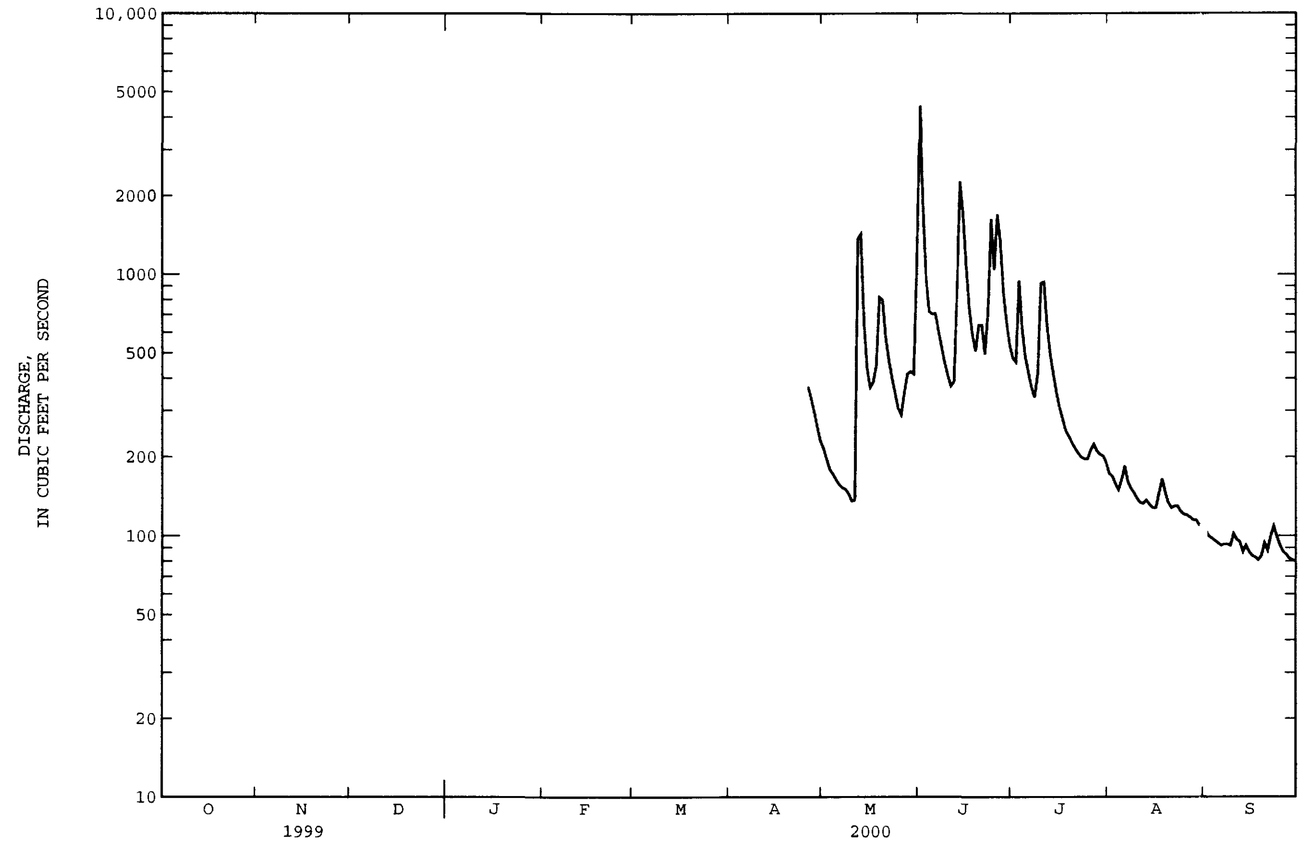
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	---	---	---	299	439	1005	382	139	91.7
MAX	---	---	---	---	---	---	299	439	1005	382	139	91.7
(WY)	---	---	---	---	---	---	2000	2000	2000	2000	2000	2000
MIN	---	---	---	---	---	---	299	439	1005	382	139	91.7
(WY)	---	---	---	---	---	---	2000	2000	2000	2000	2000	2000

05416900 MAQUOKETA RIVER AT MANCHESTER, IA--Continued

SUMMARY STATISTICS	FOR 2000 WATER YEAR	
ANNUAL TOTAL	64156	
ANNUAL MEAN	406	
HIGHEST DAILY MEAN	4440	Jun 1
LOWEST DAILY MEAN	80	Sep 30
ANNUAL SEVEN-DAY MINIMUM	85	Sep 13
MAXIMUM PEAK FLOW	5330	Jun 1
MAXIMUM PEAK STAGE	14.07	Jun 1
INSTANTANEOUS LOW FLOW	78	Sep 18
ANNUAL RUNOFF (AC-FT)	127300	
ANNUAL RUNOFF (CFSM)	1.48	
ANNUAL RUNOFF (INCHES)	8.68	
10 PERCENT EXCEEDS	925	
50 PERCENT EXCEEDS	212	
90 PERCENT EXCEEDS	92	

e Estimated



05416900 MAQUOKETA RIVER AT MANCHESTER, IA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	80	e58	e44	e60	195	571	223	237	226	130	e140
2	78	104	e54	e42	e66	172	553	221	508	325	543	e130
3	78	132	e48	e44	e70	161	534	493	450	e290	969	e120
4	81	111	e42	e46	e76	161	481	994	361	e250	430	e115
5	81	101	e32	e50	e68	154	466	911	547	e220	283	112
6	82	107	e42	e56	e62	147	481	858	1060	e200	225	104
7	80	148	e50	e46	e54	144	529	1170	755	e190	197	123
8	80	195	e44	e42	e76	140	500	947	577	e180	182	361
9	80	164	e46	e38	e100	134	1230	699	477	e178	174	577
10	79	143	e48	e40	138	138	1150	620	415	e170	162	392
11	78	129	e44	e42	160	151	e880	800	368	e162	154	255
12	78	125	e42	e46	151	265	e800	883	338	156	151	209
13	77	123	e36	e50	147	569	704	572	313	147	150	184
14	77	119	e40	e56	144	851	582	474	380	e142	149	169
15	76	114	e44	e74	132	1080	502	422	581	e142	157	162
16	75	114	e52	e70	121	1180	423	375	446	e140	176	157
17	76	110	e44	e66	133	915	360	337	364	e136	157	181
18	76	105	e44	e60	128	822	324	306	435	204	e134	196
19	75	104	e40	e54	119	994	309	283	603	222	e142	317
20	74	98	e42	e48	112	1320	329	271	455	166	124	357
21	73	91	e40	e50	105	1710	313	338	387	161	120	765
22	73	e88	e36	e54	108	1630	288	303	444	150	123	890
23	79	e84	e40	e58	107	1840	294	281	439	147	132	651
24	81	e78	e38	e50	113	1250	267	268	355	166	143	528
25	83	e76	e38	e44	135	794	254	254	315	446	179	420
26	80	e76	e40	e48	167	568	244	247	e270	392	e200	355
27	77	e70	e38	e44	186	509	231	243	e250	243	e190	312
28	75	e68	e42	e54	183	472	217	233	236	199	177	279
29	74	e64	e46	e60	---	485	209	223	223	e165	e162	257
30	75	e62	e50	e70	---	506	205	214	220	e145	e158	244
31	74	---	e46	e66	---	537	---	214	---	140	e152	---
TOTAL	2403	3183	1346	1612	3221	19994	14230	14677	12809	6200	6525	9062
MEAN	77.5	106	43.4	52.0	115	645	474	473	427	200	210	302
MAX	83	195	58	74	186	1840	1230	1170	1060	446	969	890
MIN	73	62	32	38	54	134	205	214	220	136	120	104
AC-FT	4770	6310	2670	3200	6390	39660	28230	29110	25410	12300	12940	17970
CFSM	.28	.39	.16	.19	.42	2.35	1.72	1.72	1.55	.73	.77	1.10
IN.	.33	.43	.18	.22	.44	2.70	1.92	1.99	1.73	.84	.88	1.23

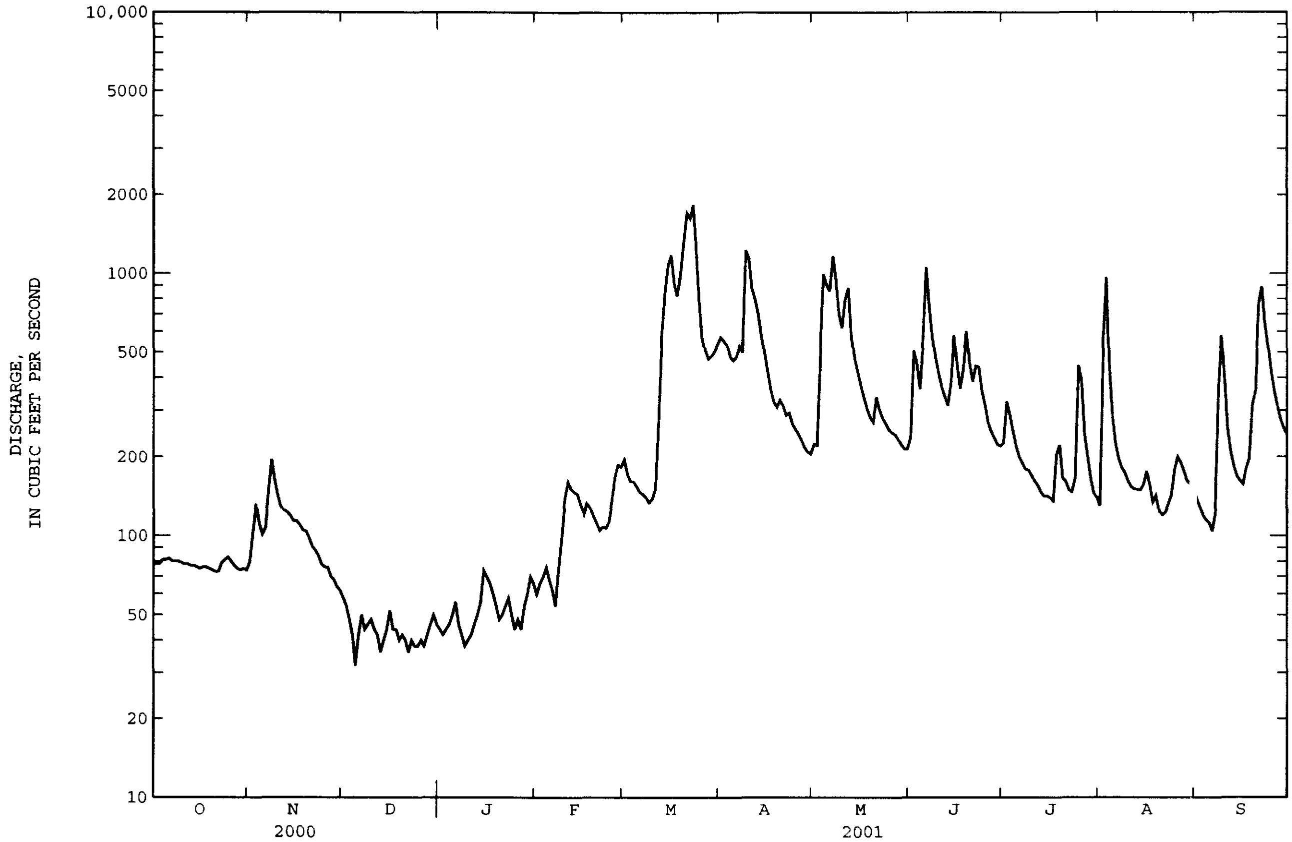
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	77.5	106	43.4	52.0	115	645	474	456	716	291	175	197
MAX	77.5	106	43.4	52.0	115	645	474	473	1005	382	210	302
(WY)	2001	2001	2001	2001	2001	2001	2001	2001	2000	2000	2001	2001
MIN	77.5	106	43.4	52.0	115	645	474	439	427	200	139	91.7
(WY)	2001	2001	2001	2001	2001	2001	2001	2000	2001	2001	2000	2000

05416900 MAQUOKETA RIVER AT MANCHESTER, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 2000 - 2001	
ANNUAL TOTAL			95262			
ANNUAL MEAN			261		261	
HIGHEST ANNUAL MEAN					261	2001
LOWEST ANNUAL MEAN					261	2001
HIGHEST DAILY MEAN	4440	Jun 1	1840	Mar 23	4440	Jun 1 2000
LOWEST DAILY MEAN	32	Dec 5	32	Dec 5	32	Dec 5 2000
ANNUAL SEVEN-DAY MINIMUM	39	Dec 21	39	Dec 21	39	Dec 21 2000
MAXIMUM PEAK FLOW			1960	Mar 23	5330	Jun 1 2000
MAXIMUM PEAK STAGE			9.54	Mar 23	14.07	Jun 1 2000
ANNUAL RUNOFF (AC-FT)			189000		189100	
ANNUAL RUNOFF (CFSM)			.95		.95	
ANNUAL RUNOFF (INCHES)			12.89		12.89	
10 PERCENT EXCEEDS	700		577		707	
50 PERCENT EXCEEDS	128		157		166	
90 PERCENT EXCEEDS	48		47		55	

e Estimated



05416900 MAQUOKETA RIVER AT MANCHESTER, IA--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--April 26, 2000 to September 30, 2000.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 26, 2000 to September 30, 2000.
WATER TEMPERATURES: April 26, 2000 to September 30, 2000.
SUSPENDED-SEDIMENT DISCHARGE: April 26, 2000 to September 30, 2000.

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, 554 microsiemens Sep. 20, 2000; minimum daily, 180 microsiemens June 1, 2000.
WATER TEMPERATURES: Maximum daily, 30.0 C Aug. 15, 2000; minimum daily, 14.0 C Sep. 15, 2000.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,340 mg/L May 13, 2000; minimum daily mean, 8 mg/L Sep. 7-9 and Sep. 27, 28, 2000.
SEDIMENT LOADS: Maximum daily, 5,170 tons May 13, 2000; minimum daily, 1.8 tons Sep. 27, 28, 2000.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 554 microsiemens Sep. 20; minimum daily, 180 microsiemens June 1.
WATER TEMPERATURES: Maximum daily, 30.0 C Aug. 15; minimum daily, 14.0 C Sep. 15.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,340 mg/L May 13; minimum daily mean, 8 mg/L Sep. 7-9 and Sep. 27, 28.
SEDIMENT LOADS: Maximum daily, 5,170 tons May 13; minimum daily, 1.8 tons Sep. 27, 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	---	---	---	---	---	---	---	---	180	---	501	445
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	529	---	357	517	---
4	---	---	---	---	---	---	---	---	---	460	509	---
5	---	---	---	---	---	---	---	---	---	517	480	536
6	---	---	---	---	---	---	---	---	---	537	---	---
7	---	---	---	---	---	---	---	---	---	524	526	551
8	---	---	---	---	---	---	---	---	---	---	526	512
9	---	---	---	---	---	---	---	---	---	---	556	---
10	---	---	---	---	---	---	---	---	---	356	534	---
11	---	---	---	---	---	---	---	---	---	476	467	---
12	---	---	---	---	---	---	---	228	---	521	---	537
13	---	---	---	---	---	---	---	---	---	540	---	521
14	---	---	---	---	---	---	---	---	---	545	511	540
15	---	---	---	---	---	---	---	---	444	---	506	504
16	---	---	---	---	---	---	---	---	---	---	519	---
17	---	---	---	---	---	---	---	---	---	543	506	---
18	---	---	---	---	---	---	---	---	---	528	---	552
19	---	---	---	---	---	---	---	---	---	536	---	---
20	---	---	---	---	---	---	---	---	---	536	---	554
21	---	---	---	---	---	---	---	---	---	532	536	546
22	---	---	---	---	---	---	---	---	531	---	---	515
23	---	---	---	---	---	---	---	---	---	---	549	---
24	---	---	---	---	---	---	---	---	---	432	546	---
25	---	---	---	---	---	---	---	---	---	503	517	---
26	---	---	---	---	---	---	517	---	359	497	---	494
27	---	---	---	---	---	---	---	---	442	518	---	545
28	---	---	---	---	---	---	---	---	517	505	541	547
29	---	---	---	---	---	---	---	---	538	---	537	523
30	---	---	---	---	---	---	---	---	539	---	553	---
31	---	---	---	---	---	---	---	---	---	512	546	---

05416900 MAQUOKETA RIVER AT MANCHESTER, 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	---	---	---	---	---	---	---	---	---	---	27.0	25.0
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	17.4	---	22.0	23.0	---
4	---	---	---	---	---	---	---	---	---	21.0	21.0	---
5	---	---	---	---	---	---	---	---	---	24.0	28.0	24.0
6	---	---	---	---	---	---	---	---	---	25.0	---	---
7	---	---	---	---	---	---	---	---	---	25.0	25.0	22.0
8	---	---	---	---	---	---	---	---	---	---	28.0	20.0
9	---	---	---	---	---	---	---	---	---	---	28.0	---
10	---	---	---	---	---	---	---	---	---	25.0	26.0	---
11	---	---	---	---	---	---	---	---	---	21.0	22.0	---
12	---	---	---	---	---	---	---	17.0	---	23.0	---	22.0
13	---	---	---	---	---	---	---	---	---	26.0	---	20.0
14	---	---	---	---	---	---	---	---	---	25.0	29.0	---
15	---	---	---	---	---	---	---	---	18.0	---	30.0	14.0
16	---	---	---	---	---	---	---	---	---	---	24.0	---
17	---	---	---	---	---	---	---	---	---	25.0	21.0	---
18	---	---	---	---	---	---	---	---	---	24.0	---	20.0
19	---	---	---	---	---	---	---	---	---	18.8	---	---
20	---	---	---	---	---	---	---	---	---	23.0	---	16.0
21	---	---	---	---	---	---	---	---	---	20.0	21.0	18.0
22	---	---	---	---	---	---	---	---	23.0	---	---	15.0
23	---	---	---	---	---	---	---	---	---	---	24.0	---
24	---	---	---	---	---	---	---	---	---	23.0	25.0	---
25	---	---	---	---	---	---	---	---	---	25.0	19.0	---
26	---	---	---	---	---	---	---	---	20.0	26.0	---	20.0
27	---	---	---	---	---	---	---	---	21.0	25.0	---	17.0
28	---	---	---	---	---	---	---	---	20.1	24.0	24.0	17.0
29	---	---	---	---	---	---	---	---	23.0	---	25.0	15.0
30	---	---	---	---	---	---	---	---	23.0	---	23.0	---
31	---	---	---	---	---	---	---	---	---	24.0	27.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

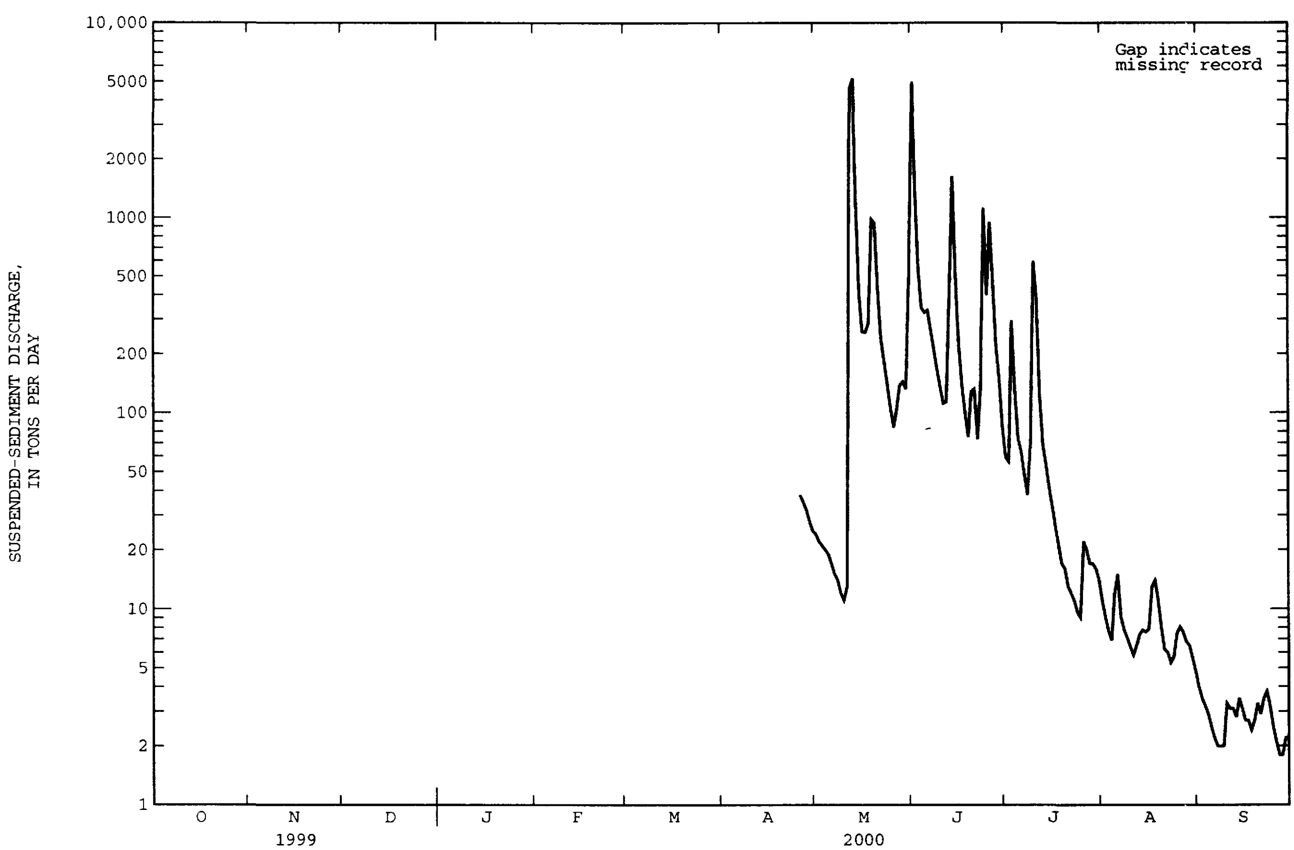
DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	0	---	0	---	0	---	0	---	0	---	0

05416900 MAQUOKETA RIVER AT MANCHESTER, 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	---	---	41	24	415	4980	46	59	23	11	14	4.0
2	---	---	42	22	282	1430	45	56	20	9.1	13	3.5
3	---	---	44	21	210	548	115	295	18	7.7	12	3.2
4	---	---	44	20	177	344	79	132	17	6.9	11	2.9
5	---	---	42	19	170	324	56	73	26	12	10	2.5
6	---	---	39	17	174	333	55	63	30	15	9	2.2
7	---	---	37	15	161	264	48	48	21	9.1	8	2.0
8	---	---	34	14	148	211	42	38	19	7.8	8	2.0
9	---	---	31	12	135	167	63	71	18	7.1	8	2.0
10	---	---	29	11	122	135	239	596	17	6.4	12	3.3
11	---	---	36	13	110	111	155	392	16	5.8	12	3.1
12	---	---	1260	4660	108	113	71	121	18	6.5	12	3.1
13	---	---	1340	5170	167	387	51	68	20	7.4	12	2.8
14	---	---	670	1180	266	1630	48	54	22	7.8	14	3.5
15	---	---	352	415	110	502	43	41	22	7.6	13	3.1
16	---	---	260	258	78	225	39	33	23	7.9	12	2.7
17	---	---	245	256	70	140	35	26	32	13	12	2.7
18	---	---	234	284	62	99	31	21	31	14	11	2.4
19	---	---	445	982	54	75	27	17	27	11	12	2.7
20	---	---	436	938	73	128	26	16	22	8.0	13	3.3
21	---	---	279	433	75	132	22	13	18	6.2	12	2.9
22	---	---	190	242	53	73	21	12	17	6.0	13	3.5
23	---	---	169	184	66	132	20	11	15	5.3	13	3.8
24	---	---	148	141	249	1120	18	9.6	17	5.7	12	3.2
25	---	---	128	106	139	398	17	9.0	23	7.5	10	2.5
26	38	38	107	84	202	949	38	22	25	8.1	9	2.1
27	39	35	109	104	128	467	33	20	24	7.6	8	1.8
28	40	32	123	138	98	223	30	17	22	6.8	8	1.8
29	40	28	126	144	85	150	30	17	21	6.5	10	2.2
30	41	25	118	132	58	84	29	16	19	5.6	10	2.2
31	---	---	174	517	---	---	28	14	16	4.8	---	---
TOTAL	---	158	---	16556	---	15874	---	2380.6	---	251.2	---	83.0

YEAR 35302.8



05416900 MAQUOKETA RIVER AT MANCHESTER, IA--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--April 26, 2000 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 26, 2000 to current year.
WATER TEMPERATURES: April 26, 2000 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 26, 2000 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, 586 microsiemens Nov. 2, 2000; minimum daily, 180 microsiemens June 1, 2000.
WATER TEMPERATURES: Maximum daily, 31.0 C Aug. 7, 8, 2001; minimum daily, 0.0 C Dec. 12, 2000 and Feb. 26, 2001.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,340 mg/L May 13, 2000; minimum daily mean, 2 mg/L Jan. 16, 2001.
SEDIMENT LOADS: Maximum daily, 5,170 tons May 13, 2000; minimum daily, 0.38 tons Jan. 16, 2001.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 586 microsiemens Nov. 2; minimum daily, 309 microsiemens Mar. 23.
WATER TEMPERATURES: Maximum daily, 31.0 C Aug. 7, 8; minimum daily, 0.0 C Dec. 12 and Feb. 26.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 607 mg/L Mar. 23; minimum daily mean, 2 mg/L Jan. 16.
SEDIMENT LOADS: Maximum daily, 3,030 tons Mar. 23; minimum daily, 0.38 tons Jan. 16.

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	516	---	452	511
2	574	586	---	---	---	506	464	---	---	469	348	---
3	575	496	---	---	---	---	---	---	---	485	---	---
4	561	---	538	---	---	---	---	---	---	434	---	456
5	550	---	---	---	533	---	---	---	523	---	432	484
6	516	---	---	---	---	---	---	---	376	457	482	---
7	---	531	---	---	---	---	454	426	---	---	477	475
8	---	---	---	---	---	539	---	---	502	---	480	494
9	557	---	569	576	---	---	342	496	---	398	488	---
10	551	533	---	---	---	---	---	---	---	485	384	394
11	557	---	---	---	---	---	---	---	529	---	---	460
12	566	---	516	581	525	466	---	523	---	480	---	---
13	526	561	---	---	522	---	481	---	530	466	472	483
14	---	---	---	---	---	350	---	495	470	---	---	---
15	---	---	---	---	---	---	---	---	---	---	457	445
16	554	544	---	556	---	---	---	---	502	444	466	---
17	431	---	---	---	---	---	506	517	---	484	---	448
18	---	---	---	---	---	---	---	517	502	438	469	460
19	565	---	---	556	530	366	511	---	460	426	---	456
20	506	---	---	---	---	---	---	---	494	466	499	510
21	---	---	---	---	---	---	447	491	516	---	461	351
22	---	---	---	504	---	---	---	---	---	---	443	---
23	521	---	---	---	---	309	---	---	---	486	466	---
24	538	528	---	---	---	---	---	517	---	475	---	482
25	---	---	---	544	---	---	509	513	462	359	497	---
26	553	---	---	---	485	466	---	---	487	352	---	477
27	510	504	---	---	---	---	451	---	530	420	489	445
28	---	---	---	---	---	---	---	---	495	---	453	488
29	---	---	---	---	---	---	---	499	478	---	479	---
30	478	564	---	---	---	---	---	533	---	478	479	---
31	529	---	---	535	---	---	---	477	---	491	---	---

05416900 MAQUOKETA RIVER AT MANCHESTER, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	28.5	18.5
2	18.0	15.0	---	---	---	2.0	6.0	---	---	20.5	26.5	---
3	18.0	10.0	---	---	---	---	---	---	---	21.5	---	---
4	15.0	---	2.0	---	---	---	---	---	---	23.0	---	21.0
5	13.0	---	---	---	.5	---	---	---	---	---	24.0	---
6	10.0	---	---	---	---	---	---	---	13.5	20.5	28.5	---
7	---	9.0	---	---	---	---	---	17.6	---	---	31.0	---
8	---	---	---	---	---	2.5	---	---	15.5	---	31.0	---
9	9.0	---	3.0	.5	---	---	11.5	15.5	---	26.0	29.0	---
10	17.0	5.0	---	---	---	---	---	---	---	26.5	23.0	16.5
11	11.0	---	---	---	---	---	---	---	21.0	---	---	18.9
12	15.0	---	.0	1.5	1.0	3.0	---	15.5	---	26.5	---	---
13	18.0	14.0	---	---	.3	---	8.0	---	24.0	22.5	---	19.0
14	---	---	---	---	---	.5	---	---	21.0	---	---	---
15	---	---	---	---	---	---	---	---	---	---	19.0	14.0
16	14.0	3.0	---	.5	---	---	---	---	19.5	24.0	21.0	---
17	18.0	---	---	---	---	---	4.4	---	---	26.5	---	16.0
18	---	---	---	---	---	---	---	---	20.0	25.5	19.5	16.5
19	17.0	---	---	.5	2.0	3.0	11.5	---	18.5	25.5	---	16.5
20	14.0	---	---	---	---	---	---	---	---	25.5	22.5	18.5
21	---	---	---	---	---	---	13.5	---	19.4	---	29.0	---
22	---	---	---	1.0	---	---	---	---	---	---	21.0	---
23	15.0	---	---	---	---	4.0	---	---	---	24.5	---	---
24	19.0	4.0	---	---	---	---	---	---	---	26.0	---	15.5
25	---	---	---	.5	---	---	---	---	20.0	23.0	21.0	---
26	18.0	---	---	---	.0	2.0	---	---	21.5	22.5	---	15.0
27	16.0	3.0	---	---	---	---	---	---	---	21.0	22.0	16.0
28	---	---	---	---	---	---	---	---	25.0	---	24.0	15.5
29	---	---	---	---	---	---	---	15.5	26.5	---	24.5	---
30	12.0	4.0	---	---	---	---	---	---	---	23.0	26.5	---
31	11.1	---	---	.5	---	---	---	---	---	26.0	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

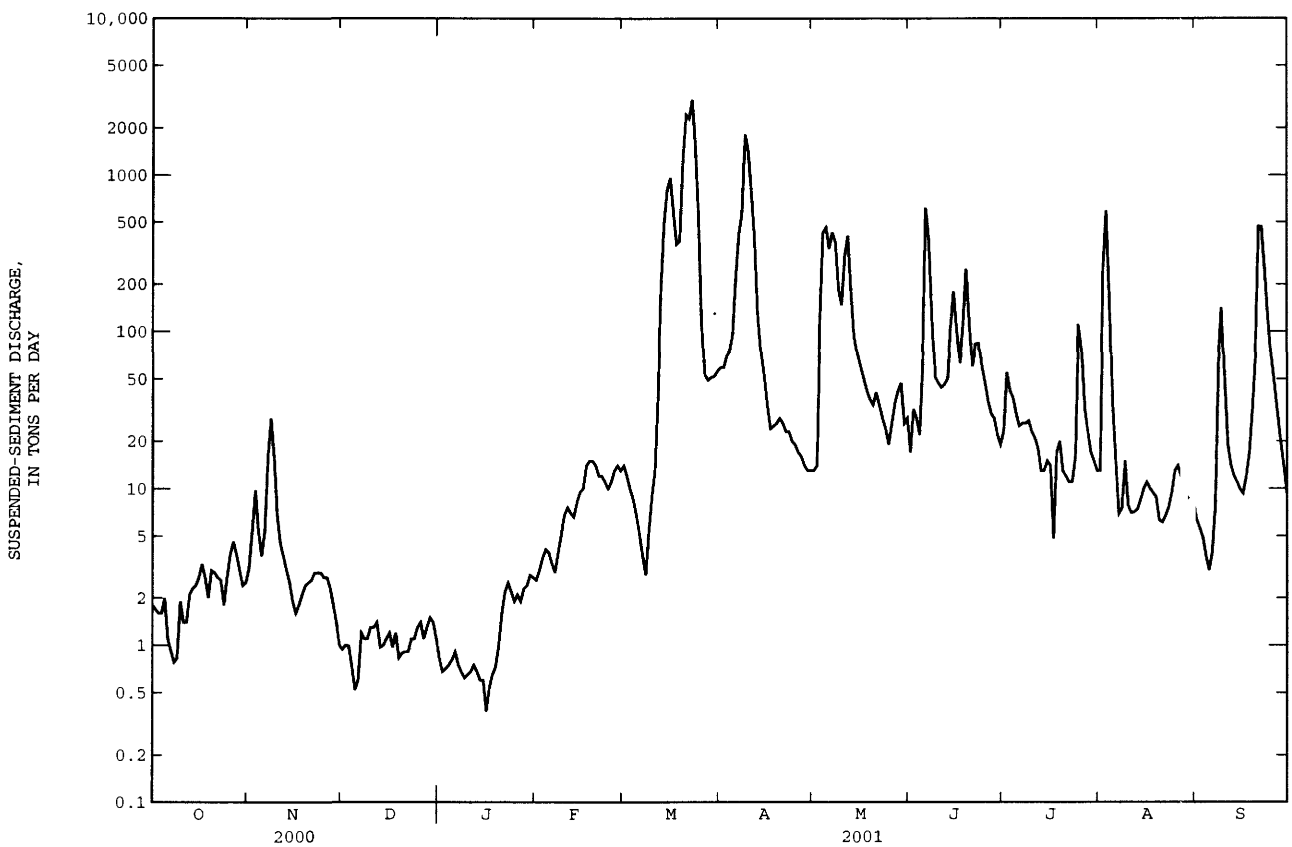
DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	8	1.8	14	3.1	6	.94	7	.83	16	2.6	27	14
2	8	1.7	19	5.4	7	1.0	6	.68	17	3.0	26	12
3	8	1.6	27	9.8	8	.99	6	.71	19	3.6	23	9.9
4	7	1.6	17	5.3	8	.73	6	.75	20	4.1	20	8.5
5	9	2.0	14	3.7	8	.52	6	.81	21	3.9	16	6.7
6	5	1.1	18	5.3	8	.60	6	.91	20	3.3	13	5.1
7	4	.92	39	16	9	1.2	6	.75	20	2.9	10	3.7
8	4	.78	54	28	9	1.1	6	.68	19	3.9	7	2.8
9	4	.83	36	16	9	1.1	6	.62	19	5.1	15	5.3
10	9	1.9	17	6.8	10	1.3	6	.65	18	6.8	24	8.8
11	6	1.4	13	4.5	11	1.3	6	.68	18	7.6	33	13
12	7	1.4	11	3.7	12	1.4	6	.75	17	7.0	49	38
13	10	2.1	9	3.0	12	.97	5	.68	17	6.6	117	184
14	11	2.3	8	2.5	11	1.0	4	.60	21	8.2	213	491
15	12	2.4	6	1.9	10	1.1	3	.60	27	9.5	276	805
16	13	2.7	5	1.6	9	1.2	2	.38	32	10	301	961
17	16	3.3	6	1.8	9	.97	3	.53	38	14	236	587
18	13	2.7	7	2.1	10	1.2	4	.65	43	15	163	361
19	10	2.0	8	2.4	11	.83	5	.73	48	15	140	378
20	15	3.0	10	2.5	11	.89	8	1.0	46	14	353	1270
21	15	2.9	11	2.6	12	.91	12	1.6	43	12	526	2430
22	14	2.7	12	2.9	13	.91	15	2.2	40	12	519	2290
23	12	2.6	13	2.9	13	1.1	16	2.5	37	11	607	3030
24	8	1.8	14	2.9	14	1.1	16	2.2	34	10	464	1590
25	12	2.7	13	2.7	15	1.3	16	1.9	31	11	258	567
26	18	3.8	13	2.7	14	1.4	16	2.1	29	13	72	113
27	22	4.6	12	2.3	13	1.1	16	1.9	28	14	39	53
28	19	3.8	10	1.8	13	1.3	16	2.3	27	13	39	49
29	15	3.0	8	1.4	12	1.5	15	2.4	---	---	39	51
30	12	2.4	6	1.0	10	1.4	15	2.8	---	---	38	52
31	13	2.5	---	---	9	1.1	15	2.7	---	---	38	56
TOTAL	---	70.33	---	148.6	---	33.46	---	38.59	---	242.1	---	15445.8

05416900 MAQUOKETA RIVER AT MANCHESTER, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DAY	MEA CON TRA (MG	LOAD (TONS/ DAY)	MEAN CONCE TRATI (MG/L	LOAD (TON DAY)	MEAN CONCE TRATI (MG/L	LOAD (TON DAY)	MEAN CONCE TRATI (MG/L	LOAD (TONS DAY)	MEAN CONCE TRATI (MG/L	LOAD (TONS/ DAY)	MEAN CONCE TRATI (MG/L	LOAD (TONS/ DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	38	59	22	13	27	17	38	23	38	13	17	6.4
2	40	59	23	14	23	32	62	55	151	254	16	5.6
3	48	70	78	117	23	28	54	42	225	591	15	4.9
4	58	75	159	428	23	22	57	38	140	169	12	3.7
5	75	95	187	461	36	65	51	30	44	35	10	3.0
6	172	223	146	337	218	618	46	25	25	15	14	3.9
7	292	418	136	429	189	391	50	26	13	6.9	23	7.8
8	430	578	144	372	79	126	54	26	15	7.5	60	63
9	543	1820	98	186	40	51	57	27	31	15	90	141
10	451	1410	88	147	42	47	50	23	18	7.8	45	49
11	317	753	132	304	45	44	48	21	17	7.0	28	19
12	182	393	170	410	51	46	42	18	17	7.1	25	14
13	67	131	117	182	59	50	33	13	18	7.4	24	12
14	47	74	72	93	98	104	35	13	21	8.5	24	11
15	38	52	63	72	114	180	39	15	24	10	23	9.9
16	29	34	59	60	87	105	36	14	24	11	22	9.3
17	25	24	55	50	63	63	13	4.8	24	10	24	12
18	28	25	50	42	88	107	30	17	26	9.4	31	17
19	31	26	48	37	153	251	33	20	23	8.8	38	33
20	31	28	47	34	94	117	29	13	19	6.3	77	74
21	30	26	45	41	57	60	29	12	19	6.1	222	469
22	30	23	41	34	68	83	28	11	20	6.7	193	467
23	29	23	37	28	70	84	28	11	21	7.6	138	246
24	28	20	33	24	63	60	34	16	24	9.4	85	122
25	27	19	28	19	55	47	90	111	27	13	60	69
26	26	17	38	26	50	36	72	77	26	14	48	46
27	25	16	53	35	44	30	48	32	24	12	35	30
28	25	14	68	42	44	28	42	23	22	11	26	20
29	24	13	79	47	37	22	39	17	20	8.7	21	14
30	23	13	45	26	32	19	38	15	20	8.5	14	9.3
31	---	---	49	28	---	---	35	13	20	8.2	---	---
TOTAL	---	6531	---	4138	---	2933	---	801.8	---	1304.9	---	1991.8

YEAR 33679.38



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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	216	189	e100	e72	e180	519	482	317	429	321	232	e180
2	214	192	e94	e80	e200	511	468	323	644	295	297	e160
3	210	184	e84	e84	e220	524	441	307	746	284	416	e160
4	238	180	e64	e90	e240	629	417	321	526	291	358	e160
5	217	181	e44	e96	e220	599	396	325	566	274	304	e156
6	207	201	e50	e100	e210	490	446	450	1260	263	285	e140
7	198	236	e64	e96	e200	418	533	798	859	261	268	e160
8	194	216	e60	e90	e280	378	476	773	696	263	262	e180
9	195	217	e56	e86	e1100	348	482	654	600	262	256	e200
10	199	211	e64	e90	e1050	388	1310	627	540	255	254	e220
11	197	204	e60	e100	e1000	573	867	629	504	247	247	e240
12	196	204	e58	e120	e800	1010	803	556	502	239	242	e220
13	196	213	e50	e140	e700	1920	883	510	478	236	237	209
14	198	226	e54	e160	e600	1580	670	530	454	233	231	198
15	190	221	e64	e210	e500	1530	603	500	609	233	229	195
16	183	215	e80	e200	e420	1640	547	476	585	232	e240	196
17	181	201	e70	e180	e360	1070	483	455	536	232	e220	210
18	181	200	e64	e160	e380	852	436	431	474	262	e240	239
19	184	206	e58	e140	e420	902	414	407	470	289	e240	327
20	185	202	e64	e100	e380	983	416	401	490	255	e260	426
21	189	181	e58	e120	e360	1040	432	587	446	242	e240	438
22	184	174	e52	e140	e340	1030	455	828	443	241	e220	488
23	196	e160	e60	e160	e360	1040	467	711	445	240	e200	416
24	217	e140	e58	e140	e340	976	430	628	418	254	e200	683
25	211	e130	e54	e100	1490	745	391	564	395	448	e220	492
26	216	e120	e58	e110	1400	609	378	511	372	384	e260	381
27	219	e120	e54	e100	1010	543	360	496	357	297	e240	357
28	198	e120	e60	e130	623	500	333	470	340	254	e220	315
29	190	e115	e74	e180	---	491	319	432	330	245	e200	282
30	186	e105	e90	e240	---	479	301	405	324	239	e200	267
31	189	---	e80	e200	---	470	---	397	---	232	e180	---
TOTAL	6174	5464	2000	4014	15383	24787	15439	15819	15838	8303	7698	8295
MEAN	199	182	64.5	129	549	800	515	510	528	268	248	276
MAX	238	236	100	240	1490	1920	1310	828	1260	448	416	683
MIN	181	105	44	72	180	348	301	307	324	232	180	140
AC-FT	12250	10840	3970	7960	30510	49170	30620	31380	31410	16470	15270	16450
CFSM	.39	.36	.13	.26	1.09	1.58	1.02	1.01	1.05	.53	.49	.55
IN.	.45	.40	.15	.30	1.13	1.83	1.14	1.17	1.17	.61	.57	.61

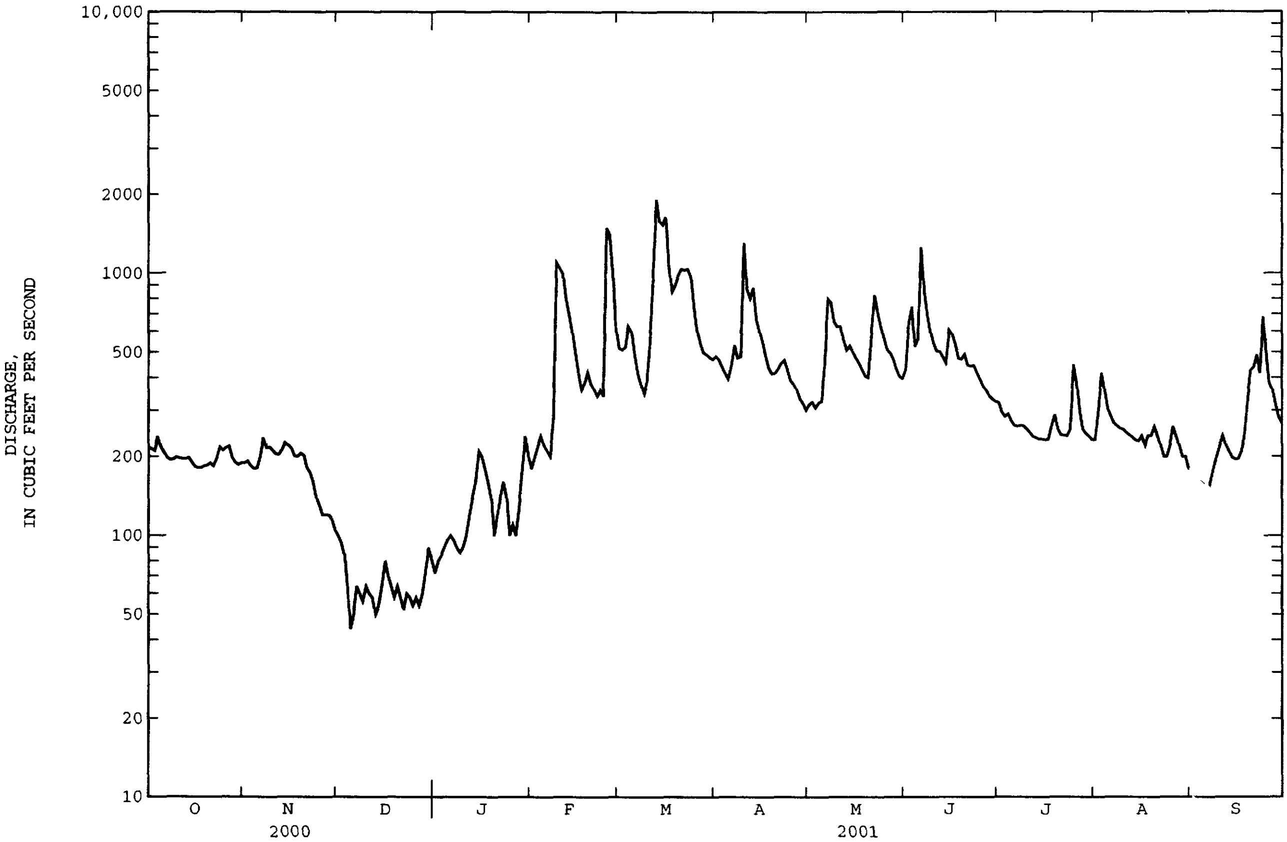
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	314	269	154	114	445	446	573	631	849	426	301	281
MAX	490	388	239	129	549	800	857	1179	1040	556	385	310
(WY)	1999	1999	1999	2001	2001	2001	1999	1999	2000	1999	1999	1998
MIN	199	182	64.5	85.3	281	223	347	314	528	268	241	241
(WY)	2001	2001	2001	2000	2000	2000	2000	2000	2001	2001	2000	2000

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

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1998 - 2001	
ANNUAL TOTAL	110901		129214			
ANNUAL MEAN	303		354		399	
HIGHEST ANNUAL MEAN					524	1999
LOWEST ANNUAL MEAN					320	2000
HIGHEST DAILY MEAN	5530	Jun 14	1920	Mar 13	7400	May 18 1999
LOWEST DAILY MEAN	44	Dec 5	44	Dec 5	44	Dec 5 2000
ANNUAL SEVEN-DAY MINIMUM	56	Dec 21	56	Dec 21	56	Dec 21 2000
MAXIMUM PEAK FLOW			2140	Feb 25	10700	May 18 1999
MAXIMUM PEAK STAGE			8.89	Feb 9	16.46	May 18 1999
ANNUAL RUNOFF (AC-FT)	220000		256300		289300	
ANNUAL RUNOFF (CFSM)	.60		.70		.79	
ANNUAL RUNOFF (INCHES)	8.17		9.52		10.74	
10 PERCENT EXCEEDS	596		660		731	
50 PERCENT EXCEEDS	210		254		304	
90 PERCENT EXCEEDS	80		92		122	

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.

WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder. Datum of gage is 625.96 ft. 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	623	494	e280	e200	e500	1750	2020	1350	1780	1050	718	568
2	611	490	e260	e220	e540	1760	2000	1360	1890	993	792	560
3	528	504	e200	e240	e580	1870	1960	1340	2330	997	916	560
4	604	513	e140	e260	e620	2220	1940	1360	2140	1030	1420	550
5	595	503	e110	e280	e560	2060	1840	1730	2030	1050	1300	539
6	575	578	e140	e300	e520	1790	1860	2280	3310	945	930	535
7	564	656	e180	e280	e500	1580	2010	2760	3660	878	904	574
8	559	581	e160	e260	e900	1450	1950	3020	2880	864	835	643
9	515	608	e140	e240	e2200	1360	2020	2740	2410	853	801	718
10	527	631	e160	e260	e2000	1410	3220	2450	2070	837	758	865
11	568	641	e140	e280	1930	1900	3520	2510	1860	807	695	977
12	506	674	e132	e300	1820	2670	3110	2300	1780	779	616	834
13	570	586	e120	e360	1720	4740	3070	2300	2060	762	621	738
14	558	578	e140	e400	1580	4610	2830	2540	1880	728	622	690
15	483	577	e180	e580	1410	4750	2340	2050	2280	704	627	657
16	554	576	e200	e540	1270	5390	2210	1860	2630	697	685	634
17	495	636	e160	e440	1050	4310	1960	1690	2000	697	676	638
18	513	550	e160	e400	956	3540	1770	1650	1860	930	674	653
19	525	521	e140	e340	1030	3160	1730	1520	1670	856	710	851
20	522	536	e160	e320	1060	3620	1710	1500	1730	792	724	1010
21	503	507	e140	e340	976	4120	1680	1740	e1650	773	667	1140
22	524	407	e120	e360	890	4530	1750	2830	e1580	743	e640	1210
23	543	e400	e160	e380	900	4520	1780	2550	e1480	694	618	1650
24	533	e380	e150	e360	1120	4330	1760	2150	e1420	703	604	1750
25	564	e360	e140	e300	3950	3700	1660	1960	e1360	1130	643	1610
26	522	e360	e180	e320	4020	2790	1580	1820	e1320	1310	727	1330
27	559	e360	e160	e300	3240	2380	1520	1780	e1190	1030	691	1200
28	515	e340	e180	e400	2240	2200	1340	1740	e1130	978	665	1090
29	541	e320	e200	e560	---	2100	1290	1620	e1120	876	639	984
30	498	e300	e260	e660	---	2050	1360	1540	e1100	747	622	955
31	491	---	e220	e560	---	2000	---	1530	---	728	597	---
TOTAL	16788	15167	5212	11040	40082	90660	60790	61570	57600	26961	23137	26713
MEAN	542	506	168	356	1432	2925	2026	1986	1920	870	746	890
MAX	623	674	280	660	4020	5390	3520	3020	3660	1310	1420	1750
MIN	483	300	110	200	500	1360	1290	1340	1100	694	597	535
AC-FT	33300	30080	10340	21900	79500	179800	120600	122100	114200	53480	45890	52990
CFSM	.35	.33	.11	.23	.92	1.88	1.30	1.28	1.24	.56	.48	.57
IN.	.40	.36	.12	.26	.96	2.17	1.46	1.47	1.38	.65	.55	.64

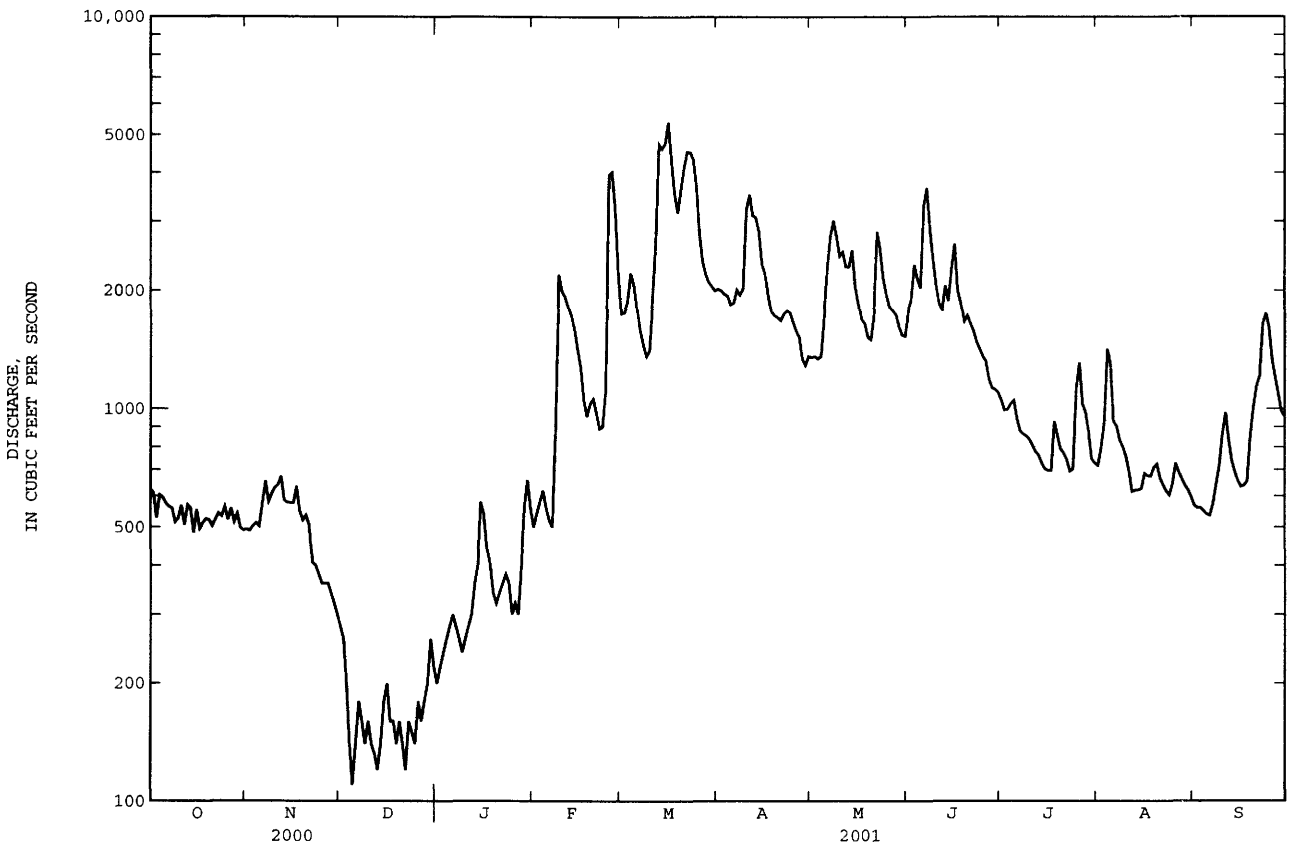
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	733	788	652	680	1108	1857	1392	1264	1497	1072	832	882
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	168	150	196	241	305	198	170	177	227	182
(WY)	1957	1959	2001	1940	1936	1934	1934	1934	1934	1936	1958	1958

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1914 - 2001	
ANNUAL TOTAL	349153		435720			
ANNUAL MEAN	954		1194		1062	
HIGHEST ANNUAL MEAN					2874	1993
LOWEST ANNUAL MEAN					306	1958
HIGHEST DAILY MEAN	12500	Jun 14	5390	Mar 16	34800	Jun 27 1944
LOWEST DAILY MEAN	110	Dec 5	110	Dec 5	105	Feb 11 1936
ANNUAL SEVEN-DAY MINIMUM	142	Dec 8	142	Dec 8	105	Feb 11 1936
MAXIMUM PEAK FLOW			5670	Mar 15	48000	Jun 27 1944
MAXIMUM PEAK STAGE			18.24	Mar 15	24.70	Jun 27 1944
ANNUAL RUNOFF (AC-FT)	692500		864300		769300	
ANNUAL RUNOFF (CFSM)	.61		.77		.68	
ANNUAL RUNOFF (INCHES)	8.36		10.44		9.29	
10 PERCENT EXCEEDS	2080		2390		2000	
50 PERCENT EXCEEDS	608		801		658	
90 PERCENT EXCEEDS	247		260		300	

e Estimated.



05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--April 1978 to December 1981; October 1994 to September 30, 1997; April 13, 2000 to September 30, 2000.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1978 to December 1981; October 1994 to September 30, 1997; April 13, 2000 to September 30, 2000.
WATER TEMPERATURES: April 1978 to December 1981; October 1994 to September 30, 1997; April 13, 2000 to September 30, 2000.
SUSPENDED-SEDIMENT DISCHARGE: April 1978 to December 1981; October 1994 to September 30, 1997; April 13, 2000 to September 30, 2000.

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, 625 microsiemens Mar. 2, 1995; minimum daily, 160 microsiemens June 16, 1981.
WATER TEMPERATURES: Maximum daily, 30.5 C July 12, 1995; minimum daily, 0.0 C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 14,700 mg/L June 13, 1981; minimum daily mean, 12 mg/L Feb. 7, 8, 1981.
SEDIMENT LOADS: Maximum daily, 361,000 tons Aug. 31, 1981; minimum daily, 9.4 tons Feb. 8, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 589 microsiemens Aug. 21; minimum daily, 338 microsiemens June 15.
WATER TEMPERATURES: Maximum daily, 28.0 C July 17 and Aug. 14; minimum daily, 10.4 C Apr. 13.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,080 mg/L June 14; minimum daily mean, 56 mg/L Apr. 18.
SEDIMENT LOADS: Maximum daily, 74,100 tons June 14; minimum daily, 87 tons Apr. 13, 18.

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	---	---	---	---	---	---	---	---	---	---	430	447
2	---	---	---	---	---	---	---	---	---	---	506	---
3	---	---	---	---	---	---	---	---	---	---	449	---
4	---	---	---	---	---	---	---	576	---	---	440	---
5	---	---	---	---	---	---	---	---	---	519	---	525
6	---	---	---	---	---	---	---	---	---	559	---	472
7	---	---	---	---	---	---	---	---	---	485	523	---
8	---	---	---	---	---	---	---	---	---	---	493	---
9	---	---	---	---	---	---	---	---	565	---	578	---
10	---	---	---	---	---	---	---	---	---	553	565	---
11	---	---	---	---	---	---	---	---	---	507	488	555
12	---	---	---	---	---	---	---	---	---	518	---	532
13	---	---	---	---	---	---	494	---	---	---	---	529
14	---	---	---	---	---	---	---	---	---	531	542	534
15	---	---	---	---	---	---	---	---	338	---	---	---
16	---	---	---	---	---	---	---	---	463	---	494	---
17	---	---	---	---	---	---	---	---	---	585	511	---
18	---	---	---	---	---	---	---	---	---	583	546	---
19	---	---	---	---	---	---	---	---	563	446	---	455
20	---	---	---	---	---	---	---	---	571	443	---	516
21	---	---	---	---	---	---	---	---	569	443	589	464
22	---	---	---	---	---	---	---	---	568	---	513	505
23	---	---	---	---	---	---	---	---	572	---	---	---
24	---	---	---	---	---	---	---	---	---	490	451	---
25	---	---	---	---	---	---	---	---	---	427	440	531
26	---	---	---	---	---	---	---	---	443	---	---	577
27	---	---	---	---	---	---	---	---	479	506	---	---
28	---	---	---	---	---	---	---	---	---	---	451	---
29	---	---	---	---	---	---	---	---	519	---	---	---
30	---	---	---	---	---	---	---	---	542	---	453	---
31	---	---	---	---	---	---	---	---	---	---	519	---

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, 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	---	---	---	---	---	---	---	---	---	---	23.0	24.0
2	---	---	---	---	---	---	---	---	---	---	25.0	---
3	---	---	---	---	---	---	---	---	---	---	24.0	---
4	---	---	---	---	---	---	---	17.9	---	---	25.0	---
5	---	---	---	---	---	---	---	---	---	21.0	---	21.0
6	---	---	---	---	---	---	---	---	---	23.0	---	23.0
7	---	---	---	---	---	---	---	---	---	24.0	23.0	---
8	---	---	---	---	---	---	---	---	---	---	24.0	---
9	---	---	---	---	---	---	---	---	23.0	---	26.0	---
10	---	---	---	---	---	---	---	---	---	26.0	25.0	---
11	---	---	---	---	---	---	---	---	---	26.0	25.0	24.0
12	---	---	---	---	---	---	---	---	---	25.0	---	23.0
13	---	---	---	---	---	---	10.4	---	---	---	---	20.0
14	---	---	---	---	---	---	---	---	---	27.0	28.0	23.0
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	21.0	---	27.0	---
17	---	---	---	---	---	---	---	---	---	28.0	24.0	---
18	---	---	---	---	---	---	---	---	---	25.0	22.0	---
19	---	---	---	---	---	---	---	---	20.0	23.0	---	---
20	---	---	---	---	---	---	---	---	22.0	24.0	---	---
21	---	---	---	---	---	---	---	---	23.0	23.0	21.0	---
22	---	---	---	---	---	---	---	---	23.0	---	22.0	---
23	---	---	---	---	---	---	---	---	22.5	---	---	---
24	---	---	---	---	---	---	---	---	---	23.0	23.0	---
25	---	---	---	---	---	---	---	---	---	23.0	24.0	---
26	---	---	---	---	---	---	---	---	21.0	---	---	---
27	---	---	---	---	---	---	---	---	22.0	25.0	---	---
28	---	---	---	---	---	---	---	---	---	---	24.0	---
29	---	---	---	---	---	---	---	---	21.0	---	---	---
30	---	---	---	---	---	---	---	---	21.0	---	22.0	---
31	---	---	---	---	---	---	---	---	---	---	25.0	---

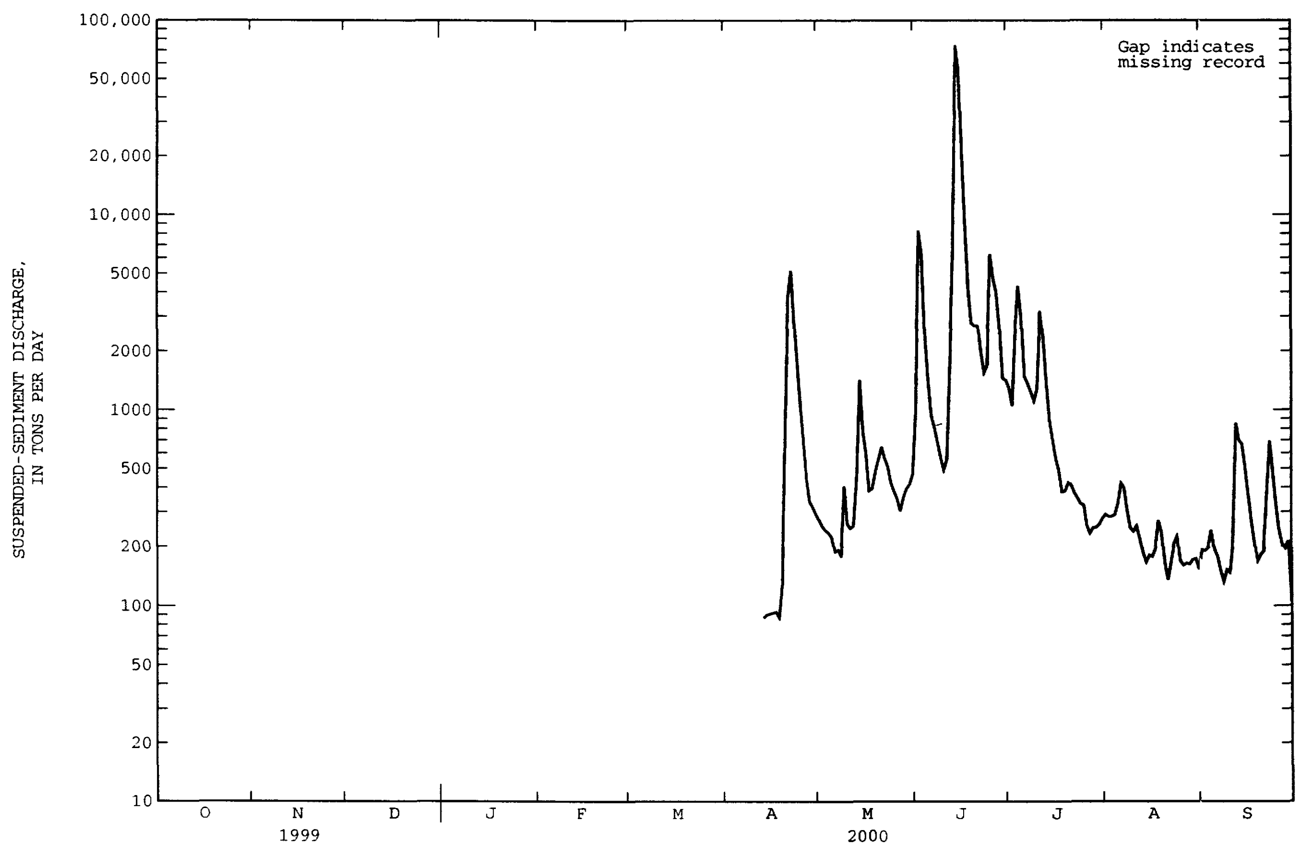
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

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	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	0	---	0	---	0	---	0	---	0	---	0

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, 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	---	---	97	273	210	1020	231	1290	140	291	132	192
2	---	---	96	254	651	8280	209	1050	135	284	126	190
3	---	---	96	242	545	6280	306	2450	141	284	127	197
4	---	---	95	235	355	2380	461	4300	150	289	142	242
5	---	---	92	223	243	1400	355	2990	157	330	123	193
6	---	---	87	188	189	934	211	1480	165	420	117	177
7	---	---	83	192	169	812	225	1360	167	396	106	150
8	---	---	85	177	152	680	223	1240	141	303	97	132
9	---	---	126	406	137	568	211	1110	119	249	110	152
10	---	---	99	262	133	492	220	1280	120	238	110	147
11	---	---	102	248	138	556	394	3200	135	254	149	211
12	---	---	113	254	282	1720	287	2330	124	221	461	852
13	61	87	161	441	520	6540	201	1380	110	185	396	697
14	60	90	246	1420	2080	74100	153	887	99	166	339	666
15	59	91	187	782	1690	55500	140	701	105	180	271	502
16	58	92	164	596	1120	20400	133	564	106	177	210	366
17	57	93	134	384	763	8860	125	488	116	196	164	273
18	56	87	140	394	514	4130	115	379	150	271	127	209
19	69	130	146	478	381	2780	122	383	124	235	106	168
20	162	780	152	554	412	2690	143	424	96	164	114	181
21	398	3770	158	646	424	2690	147	412	81	135	120	189
22	518	5170	156	563	294	1960	145	374	102	167	187	362
23	384	2800	150	512	278	1550	142	353	126	206	220	692
24	285	1660	144	422	271	1700	140	330	141	224	186	484
25	211	1020	139	382	564	6270	133	325	107	168	150	332
26	157	665	134	350	501	4750	115	255	103	160	122	245
27	116	430	127	303	430	4030	100	233	105	164	112	207
28	100	337	133	354	298	2700	103	249	107	162	106	195
29	99	316	138	394	202	1450	112	250	115	171	109	213
30	98	291	144	415	236	1420	122	259	117	173	70	104
31	---	---	154	469	---	---	133	278	107	153	---	---
TOTAL	---	17909	---	12813	---	228642	---	32604	---	7016	---	8920
YEAR		307904										



05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--April 1978 to December 1981; October 1994 to September 30, 1997; April 13, 2000 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1978 to December 1981; October 1994 to September 30, 1997; April 13, 2000 to current year.
WATER TEMPERATURES: April 1978 to December 1981; October 1994 to September 30, 1997; April 13, 2000 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1978 to December 1981; October 1994 to September 30, 1997; April 13, 2000 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, 625 microsiemens Mar. 2, 1995; minimum daily, 160 microsiemens June 16, 1981.
WATER TEMPERATURES: Maximum daily, 30.5 C July 12, 1995; minimum daily, 0.0 C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 14,700 mg/L June 13, 1981; minimum daily mean, 12 mg L Feb. 7, 8, 1981.
SEDIMENT LOADS: Maximum daily, 361,000 tons Aug. 31, 1981; minimum daily, 9.4 tons Feb. 8, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 589 microsiemens Sep. 14; minimum daily, 301 microsiemens Feb. 26.
WATER TEMPERATURES: Maximum daily, 29.0 C Aug. 2; minimum daily, 0.0 C Dec. 12.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,450 mg/L Mar. 13; minimum daily mean, 57 mg L Dec. 24-27.
SEDIMENT LOADS: Maximum daily, 18,700 tons Mar. 13; minimum daily, 18 tons Dec. 5.

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	455	490	---	---	483	---	546	---	---	570	---
2	484	439	---	---	---	537	---	531	---	466	535	---
3	469	486	---	---	---	---	547	534	---	486	514	---
4	497	---	---	---	---	---	546	542	---	---	---	477
5	---	---	---	---	---	491	---	---	547	448	---	491
6	---	---	---	---	---	513	---	---	487	---	---	487
7	---	426	---	---	---	532	---	516	443	---	517	433
8	---	485	---	---	---	---	---	498	517	---	515	---
9	521	---	---	---	---	564	544	---	---	573	502	---
10	495	---	---	---	---	---	---	534	---	539	---	---
11	---	---	---	---	---	---	473	534	551	580	---	535
12	525	---	512	---	---	472	---	---	558	497	---	551
13	---	436	---	---	---	386	---	---	541	509	---	566
14	---	---	---	---	---	383	---	517	530	---	---	589
15	---	438	---	---	---	406	---	---	535	---	531	---
16	---	469	---	---	557	---	---	552	---	438	546	---
17	467	---	---	---	---	---	---	530	---	552	531	---
18	---	---	---	---	---	---	562	---	570	---	---	576
19	---	---	---	---	536	489	548	---	---	514	---	---
20	465	---	---	---	542	467	---	---	---	544	---	523
21	---	---	---	---	---	---	---	557	551	---	---	---
22	507	448	---	---	---	435	---	---	---	---	524	---
23	---	---	---	---	---	427	554	---	---	566	---	---
24	---	---	---	---	---	---	---	---	---	---	---	530
25	467	---	---	---	---	---	563	569	491	502	---	---
26	---	---	---	---	301	473	542	---	510	423	---	486
27	511	476	---	---	334	503	543	---	506	487	560	---
28	---	495	---	---	411	517	---	---	502	---	549	505
29	---	---	---	---	---	---	---	513	437	---	520	---
30	470	514	---	---	---	534	---	---	---	554	516	---
31	---	---	---	---	---	---	---	---	---	540	449	---

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	13.6	3.0	---	---	---	---	---	---	---	26.0	---
2	---	15.0	---	---	---	---	---	---	---	23.0	29.0	---
3	---	13.0	---	---	---	---	---	---	---	21.0	27.0	---
4	---	---	---	---	---	---	---	---	---	---	---	22.5
5	---	---	---	---	---	2.0	---	---	14.5	25.5	---	25.0
6	---	---	---	---	---	2.0	---	---	14.5	---	---	24.5
7	---	9.0	---	---	---	2.5	---	17.0	15.0	---	27.0	23.0
8	---	8.0	---	---	---	---	---	16.2	18.0	---	27.5	---
9	---	---	---	---	---	---	---	---	---	23.5	28.5	---
10	10.0	---	---	---	---	---	---	19.5	---	28.5	---	---
11	---	---	---	---	---	---	---	21.5	24.0	23.5	---	21.5
12	13.0	---	.0	---	---	---	---	---	23.0	26.5	---	23.0
13	---	3.0	---	---	---	2.7	---	---	23.5	26.5	---	20.5
14	---	---	---	---	---	---	---	19.5	23.0	---	---	19.0
15	---	4.0	---	---	---	---	---	---	22.5	---	21.5	---
16	---	2.0	---	---	---	---	---	24.0	---	26.5	20.0	---
17	13.0	---	---	---	---	---	---	24.0	---	24.0	18.0	---
18	---	---	---	---	---	---	9.4	---	23.0	---	---	17.0
19	---	---	---	---	---	---	---	---	---	24.5	---	---
20	16.0	---	---	---	2.0	---	---	---	---	28.0	---	19.0
21	---	---	---	---	---	---	---	20.0	20.8	---	---	---
22	15.0	1.0	---	---	---	---	---	---	---	---	24.5	---
23	---	---	---	---	---	---	---	---	---	27.5	---	---
24	---	---	---	---	---	---	---	---	---	---	---	15.4
25	15.0	---	---	---	---	---	---	15.5	21.5	25.0	---	---
26	---	---	---	---	---	---	---	---	26.5	24.5	---	15.0
27	16.0	1.0	---	---	---	---	---	---	24.0	25.0	25.5	---
28	---	2.0	---	---	---	---	---	---	25.0	---	25.5	14.5
29	---	---	---	---	---	---	---	20.0	24.0	---	24.5	---
30	13.0	2.0	---	---	---	---	---	---	---	26.0	26.0	---
31	---	---	---	---	---	---	---	---	---	24.6	22.5	---

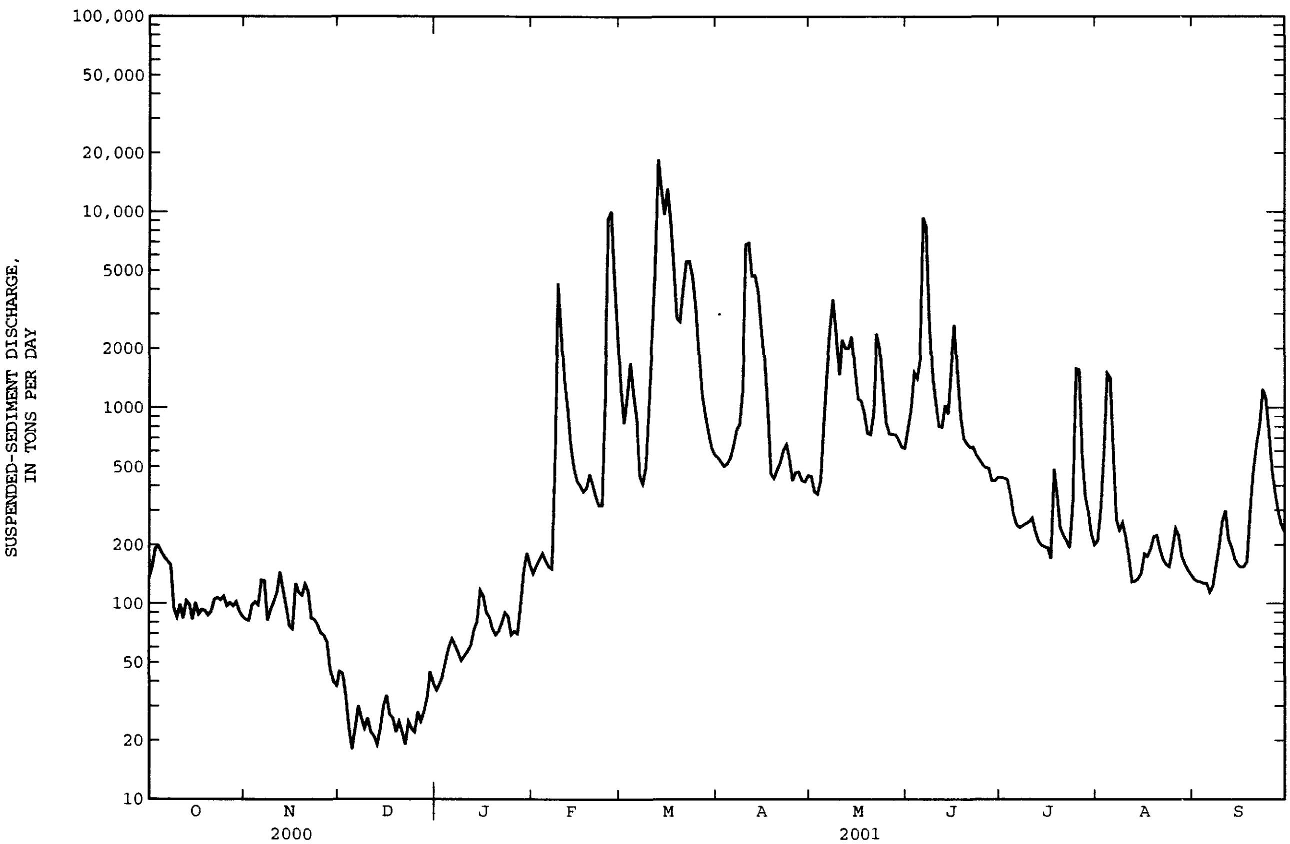
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

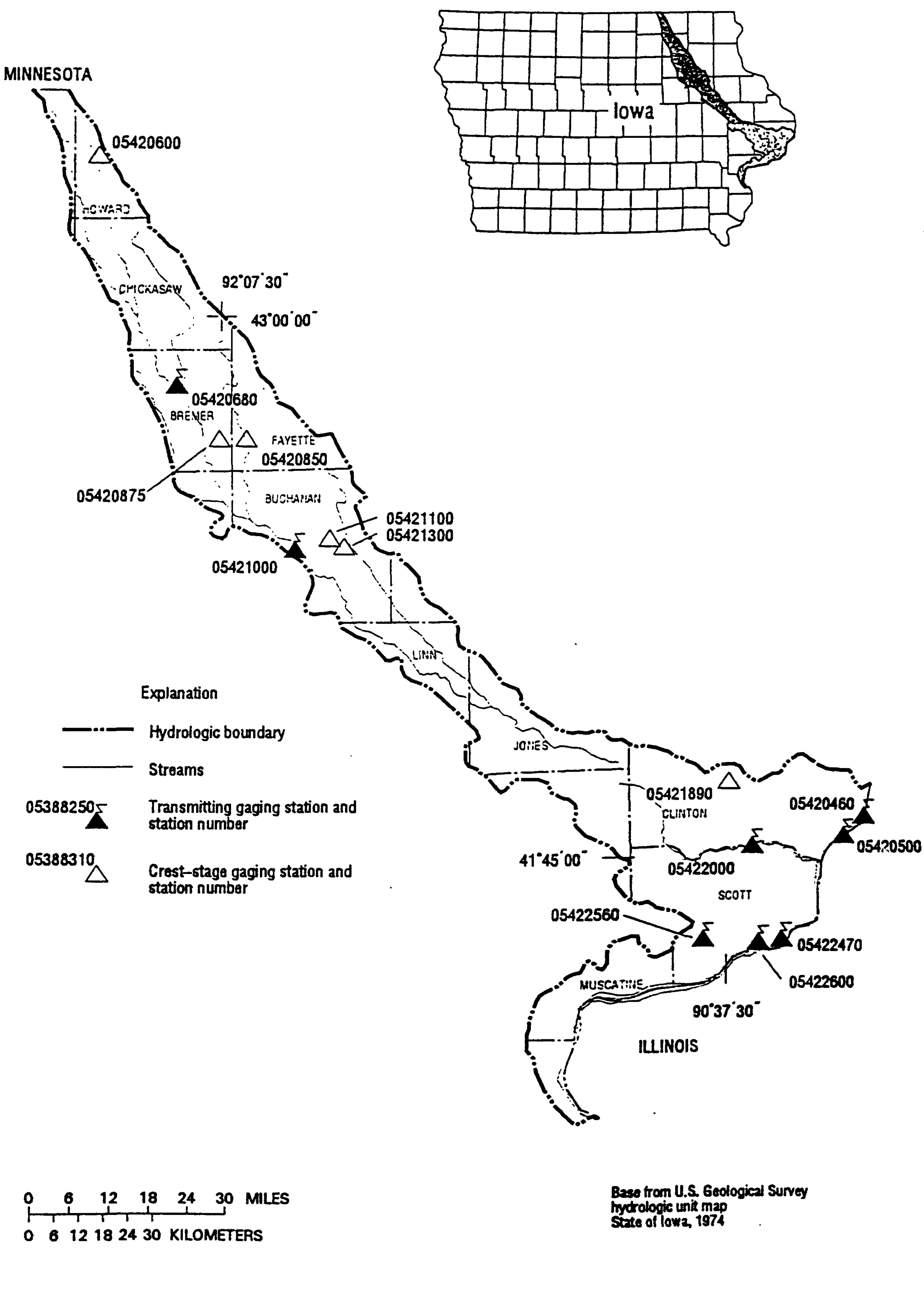
DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	80	135	62	83	60	45	66	36	105	142	263	1250
2	92	153	62	82	63	44	65	39	106	155	175	831
3	134	192	72	98	62	33	67	43	107	168	226	1140
4	121	197	74	102	62	23	73	51	108	181	282	1690
5	114	183	72	98	62	18	79	60	109	165	209	1170
6	111	172	83	132	61	23	82	66	110	154	181	876
7	108	164	74	131	61	30	81	61	111	150	105	448
8	104	157	52	82	60	26	80	56	239	581	105	410
9	69	95	57	93	60	23	78	51	725	4310	136	500
10	60	85	60	102	60	26	77	54	445	2400	270	1030
11	64	99	66	114	59	22	76	57	262	1370	428	2210
12	62	84	79	145	59	21	75	61	199	981	662	4940
13	67	103	74	117	60	19	75	73	137	637	1450	18700
14	66	99	61	96	61	23	75	81	115	493	1050	13100
15	64	83	50	77	62	30	75	117	111	423	758	9720
16	68	101	47	74	63	34	75	109	116	399	907	13200
17	66	88	73	127	62	27	76	90	133	373	758	8890
18	67	93	77	114	60	26	79	85	151	389	541	5220
19	65	92	78	110	59	22	81	74	165	459	337	2870
20	61	87	87	126	58	25	80	69	141	404	281	2750
21	67	91	84	115	58	22	78	72	133	351	360	4030
22	74	105	77	84	58	19	82	80	132	317	455	5580
23	73	107	77	83	58	25	88	90	131	318	460	5610
24	72	104	76	78	57	23	88	86	337	1140	398	4660
25	72	109	73	71	57	22	85	69	842	9280	324	3260
26	69	97	71	69	57	28	83	72	930	10100	250	1900
27	67	101	66	64	57	25	87	70	520	4630	181	1160
28	70	97	51	47	58	28	92	99	407	2460	153	912
29	70	102	46	40	61	33	97	147	---	---	132	748
30	68	91	47	38	64	45	102	182	---	---	113	623
31	65	86	---	---	66	39	104	157	---	---	106	575
TOTAL	---	3552	---	2792	---	849	---	2457	---	42930	---	120003

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	102	558	123	448	163	784	156	440	108	210	86	133
2	98	529	102	373	190	973	163	437	140	303	86	130
3	95	502	100	362	240	1510	159	429	238	593	85	129
4	99	517	115	423	244	1410	130	359	387	1500	85	127
5	112	554	174	830	319	1790	101	286	396	1420	87	127
6	127	637	245	1520	1010	9380	99	253	236	599	79	114
7	142	769	329	2460	831	8330	103	245	110	269	79	123
8	157	824	436	3570	344	2730	108	251	106	238	90	156
9	228	1250	329	2450	218	1420	112	257	120	260	101	197
10	743	6820	222	1470	188	1050	116	262	108	220	113	264
11	725	6940	327	2220	160	804	126	274	92	173	113	299
12	557	4690	323	2010	166	796	111	234	78	129	94	213
13	570	4730	322	2000	186	1030	102	209	77	130	98	195
14	509	3910	335	2300	183	929	101	199	80	134	91	169
15	400	2530	280	1560	260	1660	102	195	85	143	89	158
16	292	1750	220	1110	370	2640	102	193	97	180	89	153
17	183	972	236	1080	267	1460	90	169	96	174	90	154
18	96	461	210	937	177	893	180	488	105	191	93	164
19	93	436	180	741	154	694	152	356	115	221	128	296
20	104	481	179	728	140	655	114	245	115	224	173	473
21	116	526	197	929	141	628	107	224	106	190	210	644
22	128	606	311	2380	147	627	105	210	97	168	245	806
23	135	649	291	2010	144	575	103	193	94	158	278	1240
24	115	545	221	1280	142	544	166	323	95	154	238	1110
25	94	424	158	837	140	514	515	1580	109	190	171	753
26	109	467	150	735	139	495	439	1560	124	243	133	479
27	115	471	152	731	153	492	198	555	120	224	113	369
28	118	425	155	728	139	424	132	350	98	175	100	295
29	120	419	157	686	140	423	124	293	92	159	95	253
30	123	451	151	629	148	440	112	227	88	148	91	234
31	---	---	150	621	---	---	101	200	87	140	---	---
TOTAL	---	44843	---	40158	---	46100	---	11496	---	9260	---	9957
YEAR		334397										





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

Crest Stage Gaging Stations

05420460 BEAVER SLOUGH AT THIRD STREET CLINTON, IA

LOCATION.--Lat 41°49'38", long 90°11'25", in SW ¼ SE ¼ NW ¼ 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. U.S. Geological Survey satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6120	5730	8790	e6440	e9200	9320	11600	54000	25300	30400	8790	6030
2	6050	6050	9080	e6670	e8970	8030	11900	54300	26200	29900	8370	5800
3	5680	7450	8580	e7130	e8280	7640	12300	54700	27100	27400	9110	5980
4	5450	8330	8210	e7360	e8050	7180	12900	55400	27600	27100	10800	6880
5	5500	8560	7040	e7360	e7820	7430	13200	55700	27400	25300	10900	7020
6	5700	8230	5520	e6900	e7590	7570	15200	56100	27400	23500	11900	6620
7	5730	8810	4580	e7130	e7360	7730	16800	56600	27100	23000	12100	6260
8	5470	8860	4390	e6900	e7360	7640	18300	56400	26900	21400	12500	6690
9	4880	10400	4480	e6900	e8280	7540	20600	55700	26200	20000	12800	7980
10	4210	11900	4230	e6900	12600	7540	22000	54700	25500	17500	12800	9290
11	4070	11200	e4140	e7130	11700	7360	23200	53400	24600	15600	11800	10400
12	4550	10700	e3910	e7130	10600	7890	25800	51100	23200	13500	8950	10600
13	5430	10700	e4600	e7130	10000	8950	29400	49900	23700	11400	6620	10400
14	6460	10700	e5290	e7360	9840	9750	31500	48100	22300	10700	5470	10300
15	6950	10300	e5750	e7130	9540	9820	34500	46000	22700	9430	5500	9200
16	7410	10900	e5290	e6900	9520	10400	38900	43900	22600	8260	5980	7980
17	7060	11200	e5520	e7130	9540	10500	42800	42100	22200	8460	7200	6950
18	5450	11600	e5980	e7590	9080	10200	46500	40200	22000	8510	6740	6530
19	3860	11700	e5980	e7360	8740	10200	49700	38600	23900	8900	6830	6600
20	3560	11100	e6210	e7360	8190	10200	53100	36800	25100	9200	7180	8560
21	5220	9940	e6210	e7590	7800	10200	57300	35900	26700	10100	6950	9040
22	6370	9750	e6440	e7590	7660	10600	60500	34500	27800	10200	6580	9450
23	6670	9500	e6440	e7360	7590	11100	61600	32700	28300	10500	7540	8580
24	5890	8900	e6440	e6900	7820	12000	60000	30600	28300	10900	7940	8740
25	5610	8650	e6210	e6440	9430	12200	59300	29000	28500	10800	8260	8600
26	6160	8900	e6210	e6210	11300	11800	58200	27800	29200	10300	7590	8950
27	7040	8560	e6440	e6210	10900	11000	57300	26400	29400	10300	7570	8990
28	7240	7890	e6440	e5980	10200	10500	56100	25500	29700	10000	7840	8740
29	6720	7820	e6670	e6440	---	10400	55000	24800	29900	9780	8510	8000
30	6390	8120	e6670	e7130	---	10200	54300	24600	30400	9730	7020	7200
31	5660	---	e6440	e8280	---	10800	---	24600	---	9680	5980	---
TOTAL	178560	282450	188180	218040	254960	293690	1109800	1320100	787200	461750	264120	242360
MEAN	5760	9415	6070	7034	9106	9474	36990	42580	26240	14900	8520	8079
MAX	7410	11900	9080	8280	12600	12200	61600	56600	30400	30400	12800	10600
MIN	3560	5730	3910	5980	7360	7180	11600	24600	22000	8260	5470	5800
AC-FT	354200	560200	373300	432500	505700	582500	2201000	2618000	1561000	915900	523900	480700
CFSM	.07	.11	.07	.08	.11	.11	.43	.50	.31	.17	.10	.09
IN.	.08	.12	.08	.09	.11	.13	.48	.57	.34	.20	.11	.11

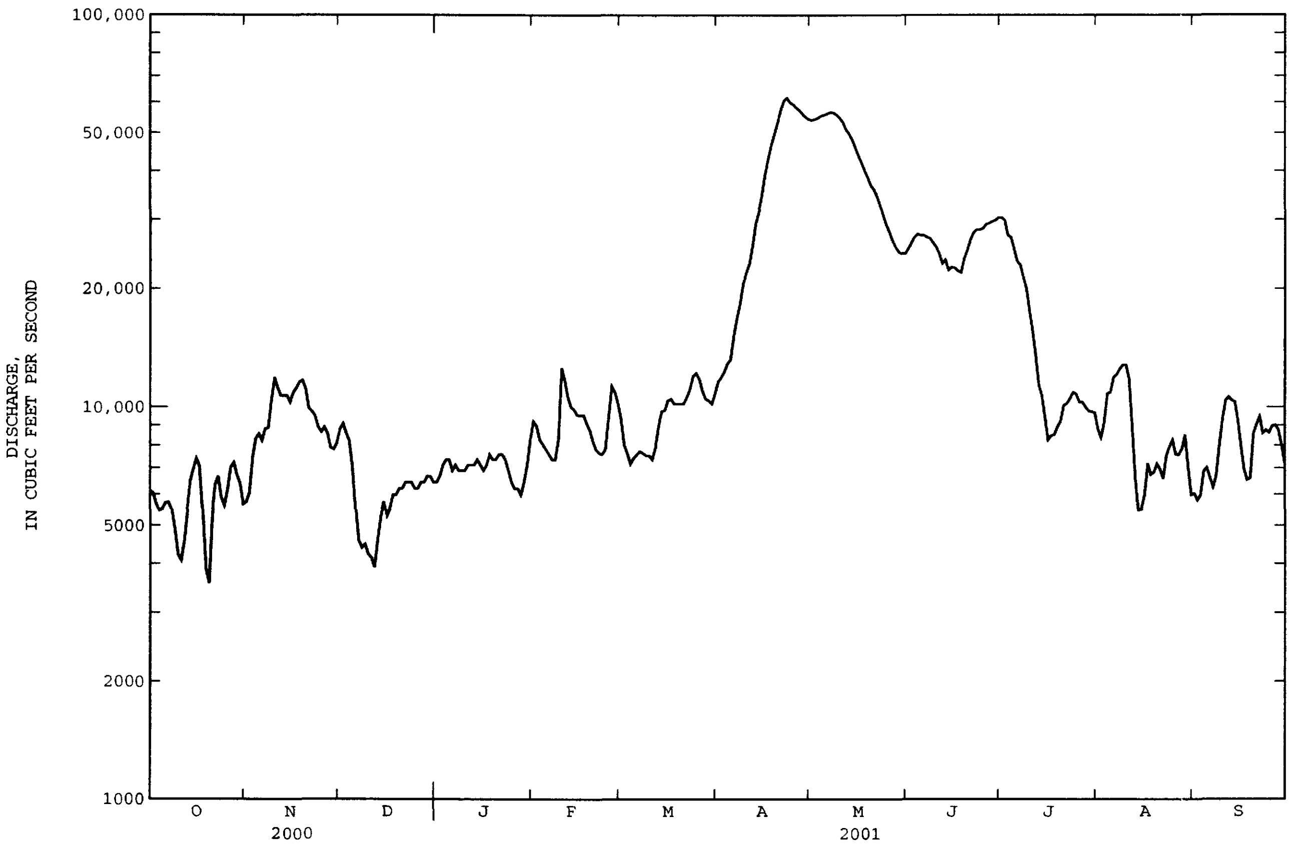
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	10790	12500	9617	9306	10460	15270	29320	26480	21130	20070	13800	11310
MAX	15960	18320	11680	12780	14510	19900	43980	42580	35240	49690	28330	21640
(WY)	1996	1996	1997	1995	1994	1995	1997	2001	1993	1993	1993	1993
MIN	5760	7849	6070	6831	8101	9474	10350	11590	13010	11950	8520	6083
(WY)	2001	2000	2001	2000	2000	2001	2000	2000	1997	1995	2001	1996

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

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1993 - 2001	
ANNUAL TOTAL	3886920		5601210			
ANNUAL MEAN	10620		15350		15850	
HIGHEST ANNUAL MEAN					23060	1993
LOWEST ANNUAL MEAN					10720	2000
HIGHEST DAILY MEAN	28800	Jun 15	61600	Apr 23	61600	Apr 23 2001
LOWEST DAILY MEAN	3560	Oct 20	3560	Oct 20	3560	Oct 20 2000
ANNUAL SEVEN-DAY MINIMUM	4330	Dec 7	4330	Dec 7	4330	Dec 21 1999
MAXIMUM PEAK FLOW			62100	Apr 23		
MAXIMUM PEAK STAGE			26.73	Apr 24		
ANNUAL RUNOFF (AC-FT)	7710000		11110000		11480000	
ANNUAL RUNOFF (CFSM)	.12		.18		.19	
ANNUAL RUNOFF (INCHES)	1.69		2.43		2.52	
10 PERCENT EXCEEDS	19400		35100		28300	
50 PERCENT EXCEEDS	8780		9080		12500	
90 PERCENT EXCEEDS	5980		5980		7360	

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$\frac{1}{4}$ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26600	24900	38200	e28000	e40000	40500	50300	235000	110000	132000	38200	26200
2	26300	26300	39500	e29000	e39000	34900	51900	236000	114000	130000	36400	25200
3	24700	32400	37300	e31000	e36000	33200	53600	238000	118000	119000	39600	26000
4	23700	36200	35700	e32000	e35000	31200	56000	241000	120000	118000	47000	29900
5	23900	37200	30600	e32000	e34000	32300	57600	242000	119000	110000	47600	30500
6	24800	35800	24000	e30000	e33000	32900	66000	244000	119000	102000	51600	28800
7	24900	38300	19900	e31000	e32000	33600	73200	246000	118000	99900	52500	27200
8	23800	38500	19100	e30000	e32000	33200	79500	245000	117000	92900	54500	29100
9	21200	45000	19500	e30000	e36000	32800	89600	242000	114000	87100	55700	34700
10	18300	51700	18400	e30000	54800	32800	95700	238000	111000	76200	55600	40400
11	17700	48900	e18000	e31000	50800	32000	101000	232000	107000	67900	51200	45200
12	19800	46400	e17000	e31000	46000	34300	112000	222000	101000	58800	38900	46100
13	23600	46700	e20000	e31000	43500	38900	128000	217000	103000	49700	28800	45400
14	28100	46400	e23000	e32000	42800	42400	137000	209000	97100	46500	23800	44600
15	30200	44800	e25000	e31000	41500	42700	150000	200000	98800	41000	23900	40000
16	32200	47600	e23000	e30000	41400	45000	169000	191000	98300	35900	26000	34700
17	30700	48600	e24000	e31000	41500	45500	186000	183000	96400	36800	31300	30200
18	23700	50600	e26000	e33000	39500	44300	202000	175000	95600	37000	29300	28400
19	16800	51000	e26000	e32000	38000	44300	216000	168000	104000	38700	29700	28700
20	e15500	48400	e27000	e32000	35600	44300	231000	160000	109000	40000	31200	37200
21	22700	43200	e27000	e33000	33900	44300	249000	156000	116000	43800	30200	39300
22	27700	42400	e28000	e33000	33300	46000	263000	150000	121000	44400	28600	41100
23	29000	41300	e28000	e32000	33000	48300	268000	142000	123000	45800	32800	37300
24	25600	38700	e28000	e30000	34000	52200	261000	133000	123000	47400	34500	38000
25	24400	37600	e27000	e28000	41000	53100	258000	126000	124000	46800	35900	37400
26	26800	38700	e27000	e27000	49100	51100	253000	121000	127000	44800	33000	38900
27	30600	37200	e28000	e27000	47400	47700	249000	115000	128000	44800	32900	39100
28	31500	34300	e28000	e26000	44400	45800	244000	111000	129000	43600	34100	38000
29	29200	34000	e29000	e28000	---	45000	239000	108000	130000	42500	37000	34800
30	27800	35300	e29000	e31000	---	44200	236000	107000	132000	42300	30500	31300
31	24600	---	e28000	e36000	---	47100	---	107000	---	42100	26000	---
TOTAL	776400	1228400	818200	948000	1108500	1275900	4825400	5740000	3423200	2007700	1148300	1053700
MEAN	25050	40950	26390	30580	39590	41160	160800	185200	114100	64760	37040	35120
MAX	32200	51700	39500	36000	54800	53100	268000	246000	132000	132000	55700	46100
MIN	15500	24900	17000	26000	32000	31200	50300	107000	95600	35900	23800	25200
AC-FT	1540000	2437000	1623000	1880000	2199000	2531000	9571000	11390000	6790000	3982000	2278000	2090000
CFSM	.29	.48	.31	.36	.46	.48	1.88	2.16	1.33	.76	.43	.41
IN.	.34	.53	.36	.41	.48	.55	2.10	2.49	1.49	.87	.50	.46

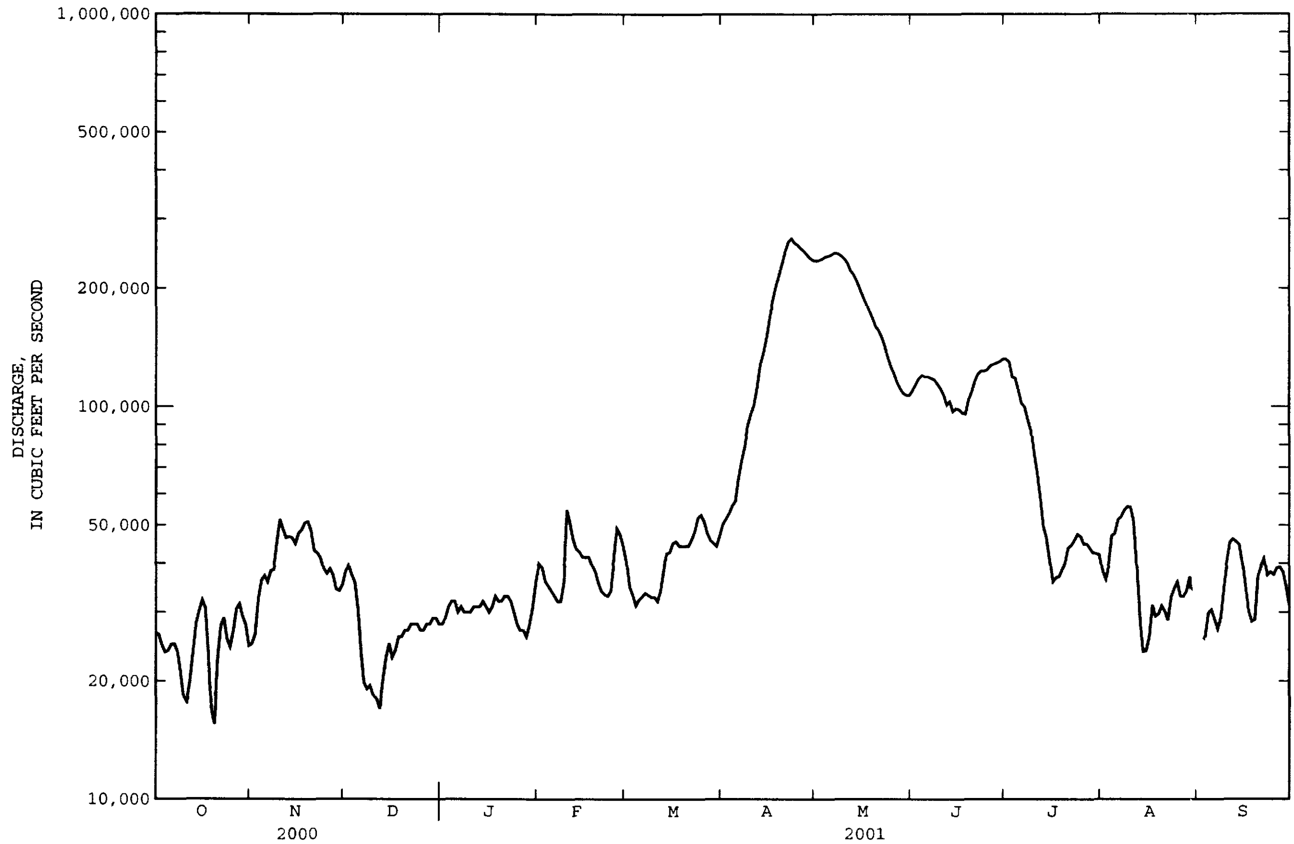
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1874 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	40700	39280	27870	25810	28200	50590	90010	82340	69280	56060	37790	38000
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1874 - 2001	
ANNUAL TOTAL	16899500		24353700			
ANNUAL MEAN	46170		66720		48870	
HIGHEST ANNUAL MEAN					94690	1882
LOWEST ANNUAL MEAN					18870	1934
HIGHEST DAILY MEAN	125000	Jun 15	268000	Apr 23	307000	Apr 28 1965
LOWEST DAILY MEAN	15500	Oct 20	15500	Oct 20	6500	Dec 25 1933
ANNUAL SEVEN-DAY MINIMUM	18800	Dec 7	18800	Dec 7	7430	Dec 24 1933
MAXIMUM PEAK FLOW			270000	Apr 23		
MAXIMUM PEAK STAGE			23.62	Apr 24	24.65	Apr 28 1965
ANNUAL RUNOFF (AC-FT)	33520000		48310000		35400000	
ANNUAL RUNOFF (CFSM)	.54		.78		.57	
ANNUAL RUNOFF (INCHES)	7.34		10.58		7.76	
10 PERCENT EXCEEDS	84500		152000		95000	
50 PERCENT EXCEEDS	38200		39500		37500	
90 PERCENT EXCEEDS	26000		26000		19000	

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 2000 TO SEPTEMBER 2001

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)	TURBID- ITY LAB HACH 2100AN (NTU) (99872)	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													
19...	1600	17500	367	7.9	14.1	15.0	5.4	8.8	9.0	87	748	160	36.2
NOV													
28...	1100	34300	382	8.0	.4	3.0	4.0	17	17.0	120	749	170	39.4
FEB													
01...	1010	40000	420	7.5	.00	2.7	--	--	14.1	98	754	180	42.4
MAR													
21...	0930	44800	404	7.7	1.8	7.0	7.7	11	14.8	108	755	170	41.4
APR													
19...	1130	216000	280	7.5	8.1	14.0	33	--	9.9	85	749	120	30.4
24...	1200	260000	250	7.3	10.3	13.7	28	34	9.7	87	757	110	29.1
MAY													
09...	1040	241000	311	7.5	15.4	22.5	25	25	8.0	81	751	140	34.7
JUN													
01...	0945	110000	404	7.6	16.9	19.5	--	45	10.1	108	739	190	44.7
14...	1020	100000	414	7.5	23.4	26.0	--	32	8.4	102	741	190	45.4
25...	1055	120000	365	7.4	23.0	27.0	--	36	6.5	77	750	150	37.5
JUL													
16...	1000	39000	420	8.0	27.2	27.0	--	5.8	7.8	100	752	190	45.5
31...	1050	43000	427	7.8	27.6	29.0	--	11	--	--	753	--	--
AUG													
15...	1215	25900	382	8.2	26.1	18.0	--	18	8.3	105	746	170	38.6
SEP													
11...	1150	43800	396	7.6	21.6	24.0	--	26	8.6	98	756	180	40.3

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	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)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT													
19...	17.4	9.6	.3	2.41	294	.0	354	18.9	13.7	E.1	7.6	220	.30
NOV													
28...	16.9	12.8	.4	2.30	148	.0	181	19.2	17.0	E.2	9.3	232	.32
FEB													
01...	17.6	13.2	.4	2.46	163	.0	199	21.5	17.6	E.1	10.6	251	.34
MAR													
21...	16.3	12.4	.4	2.47	139	.0	169	19.5	19.0	E.1	8.5	253	.34
APR													
19...	10.3	8.0	.3	2.83	84	.0	103	17.6	12.0	E.1	10.0	180	.24
24...	9.33	5.9	.2	3.41	76	.0	93	14.9	10.3	E.1	10.7	173	.24
MAY													
09...	12.0	6.0	.2	3.36	94	.0	115	28.6	9.8	E.2	10.4	210	.29
JUN													
01...	17.9	8.5	.3	2.74	132	.0	161	43.0	12.5	.2	7.3	256	.35
14...	17.5	7.9	.3	2.48	151	.0	182	34.0	13.4	.2	8.0	256	.35
25...	14.4	7.1	.3	2.43	116	.0	141	27.2	12.3	.2	8.7	226	.31
JUL													
16...	19.1	8.5	.3	2.54	152	8	168	35.5	13.3	.2	10.7	271	.37
31...	--	--	--	--	149	.0	179	--	--	--	--	--	--
AUG													
15...	17.7	9.5	.3	2.35	142	4	165	30.5	14.9	E.2	6.8	232	.32
SEP													
11...	18.2	9.5	.3	2.19	142	2	169	26.6	16.0	.3	9.9	233	.32

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	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)	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)
OCT													
19...	1.07	.009	.059	.54	.076	.090	.126	49	2320	98	<2.0	--	--
NOV													
28...	1.46	.008	.058	.51	.074	.076	.102	25	2320	96	<2.0	3	32.7
FEB													
01...	1.89	.011	.174	.70	.076	.083	.108	4	432	100	.7	--	--
MAR													
21...	2.50	.019	.121	.64	.060	.078	.123	14	1690	96	.4	2	36.3
APR													
19...	2.56	.050	<.041	.85	.016	.059	.193	98	57200	95	.7	--	--
24...	2.95	.040	.167	1.1	.057	.072	.183	169	119000	34	.9	5	39.9
MAY													
09...	2.35	.095	<.041	.81	E.004	.077	.164	54	35100	94	1.0	--	--
JUN													
01...	2.14	.023	<.040	.87	.063	.078	.190	98	29100	98	1.0	--	--
14...	2.71	.040	<.040	.85	.074	.085	.175	67	18100	91	1.3	--	--
25...	1.93	.065	<.040	.82	.086	.097	.172	68	22000	97	1.1	2	41.0
JUL													
16...	1.82	.030	<.040	.78	.076	.097	.119	14	1470	94	1.6	--	--
31...	.961	.040	<.040	.75	.109	.128	.168	17	1970	96	--	--	--
AUG													
15...	.209	.008	<.040	.87	.094	.119	.192	29	2030	99	2.5	--	--
SEP													
11...	.617	.020	<.040	.98	.094	.121	.188	68	8040	98	1.6	--	--

DATE	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)	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)
OCT													
19...	--	--	--	--	--	<10	--	E2.6	--	--	--	<2.4	--
NOV													
28...	<.06	E.03	<.8	.22	1.3	20	E.08	E3.8	14.0	1.2	1.34	<2.4	<1.0
FEB													
01...	--	--	--	--	--	90	--	3.5	--	--	--	.4	--
MAR													
21...	<.06	<.04	<.8	.16	.8	40	E.07	2.7	37.6	.6	.53	.4	<1.0
APR													
19...	--	--	--	--	--	80	--	2.7	--	--	--	.4	--
24...	<.06	<.04	<.8	.14	1.2	100	.14	3.1	6.7	.8	.97	.5	<1.0
MAY													
09...	--	--	--	--	--	60	--	4.9	--	--	--	.5	--
JUN													
01...	--	--	--	--	--	20	--	7.2	--	--	--	.6	--
14...	--	--	--	--	--	10	--	6.9	--	--	--	.8	--
25...	<.06	<.04	<.8	.14	1.1	10	.10	5.3	5.0	1.0	1.33	.6	<1.0
JUL													
16...	--	--	--	--	--	<10	--	6.4	--	--	--	.4	--
31...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
15...	--	--	--	--	--	M	--	5.1	--	--	--	.4	--
SEP													
11...	--	--	--	--	--	<10	--	4.3	--	--	--	E.3	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DISSOLVED (UG/L AS U) (22703)	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L) (04040)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTICULATE TOTAL (MG/L AS C) (00689)	ANTIMONY, DISSOLVED (UG/L AS SB) (01095)	PROPACHLOR, WATER, DISS, REC (UG/L) (04024)	BUTYLATE, WATER, DISS, REC (UG/L) (04028)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
OCT													
19...	68.4	<8.0	--	--	E.028	7.9	.43	5.9	.8	--	<.010	<.002	<.011
NOV													
28...	76.8	<8.0	4	.60	E.027	8.1	.52	5.8	1.0	E.03	<.010	<.002	<.011
FEB													
01...	68.2	1.5	--	--	E.022	8.0	.56	6.4	.5	--	<.010	<.002	<.011
MAR													
21...	73.2	.7	6	.47	E.031	8.1	.46	4.5	.9	.16	<.010	<.002	E.003
APR													
19...	61.4	1.4	--	--	E.019	7.9	.64	6.9	3.9	--	<.010	<.002	E.005
24...	69.2	1.5	3	.75	E.025	7.8	.76	7.6	1.2	.12	<.010	<.002	E.009
MAY													
09...	82.5	1.4	--	--	E.024	7.8	.68	--	--	--	<.010	<.002	E.007
JUN													
01...	106	1.3	--	--	E.031	8.0	.55	7.5	--	--	<.010	<.002	E.005
14...	111	2.6	--	--	E.040	8.1	.60	7.0	1.9	--	<.010	<.002	E.006
25...	92.4	1.6	19	1.31	E.022	8.1	.60	7.4	1.8	.13	<.010	<.002	E.009
JUL													
16...	113	2.6	--	--	E.018	8.3	.61	9.1	1.0	--	<.010	<.002	E.006
31...	--	--	--	--	E.038	--	.55	7.0	1.5	--	<.010	<.002	E.002
AUG													
15...	92.6	3.7	--	--	E.032	8.5	.54	7.3	2.7	--	<.010	<.002	E.007
SEP													
11...	97.8	2.6	--	--	E.023	7.8	.50	7.3	2.4	--	<.010	<.002	<.011

DATE	PROMETON, WATER, DISS, REC (UG/L) (04037)	CYANAZINE, WATER, DISS, REC (UG/L) (04041)	FONOFOS WATER DISS REC (UG/L) (04095)	ALKALINITY WAT.DIS FET LAB CACO3 (MG/L) (29801)	ALPHA BHC DISSOLVED (UG/L) (34253)	P,P' DDE DISSOLV (UG/L) (34653)	CHLORPYRIFOS DISSOLVED (UG/L) (38933)	LINDANE DISSOLVED (UG/L) (39341)	DIELDRIN DISSOLVED (UG/L) (39381)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	MALATHION, DISSOLVED (UG/L) (39532)	PARATHION, DISSOLVED (UG/L) (39542)	DIAZINON, DISSOLVED (UG/L) (39572)
OCT													
19...	E.005	<.018	<.003	150	<.005	<.003	<.005	<.004	<.005	E.008	<.027	<.007	<.005
NOV													
28...	E.003	<.018	<.003	155	<.005	<.003	<.005	<.004	<.005	E.008	<.027	<.007	<.005
FEB													
01...	<.015	<.018	<.003	163	<.005	<.003	<.005	<.004	<.005	E.006	E.012	<.007	<.005
MAR													
21...	E.002	<.018	<.003	162	<.005	<.003	<.005	<.004	<.005	E.011	<.027	<.007	<.005
APR													
19...	<.015	E.007	<.003	97	<.005	<.003	<.005	<.004	<.005	.316	<.027	<.007	<.005
24...	<.015	<.018	<.003	90	<.005	<.003	<.005	<.004	<.005	.365	<.027	<.007	<.005
MAY													
09...	<.015	<.018	<.003	105	<.005	<.003	<.005	<.004	<.005	.312	<.027	<.007	<.005
JUN													
01...	<.015	<.018	<.003	142	<.005	<.003	<.005	<.004	<.005	.083	<.027	<.007	<.005
14...	<.015	<.018	<.003	145	<.005	<.003	<.005	<.004	<.005	.154	<.027	<.007	<.005
25...	E.005	<.018	<.003	127	<.005	<.003	<.005	<.004	<.005	.322	<.027	<.007	<.005
JUL													
16...	E.004	<.018	<.003	159	<.005	<.003	<.005	<.004	<.005	.082	<.027	<.007	<.005
31...	E.005	<.018	<.003	--	<.005	<.003	<.005	<.004	<.005	.037	<.027	<.007	<.005
AUG													
15...	E.005	<.018	<.003	153	<.005	<.003	<.005	<.004	<.005	.024	<.027	<.007	<.005
SEP													
11...	E.005	<.018	<.003	159	<.005	<.003	<.005	<.004	<.005	E.012	<.027	<.007	<.005

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	ATRAZINE, WATER, DISS, REC (UG/L) (39632)	ALACHLOR, WATER, DISS, REC, (UG/L) (46342)	ACETOCHLOR, WATER FLTRD REC (UG/L) (49260)	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													
19...	.081	<.002	<.004	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002	<.002
NOV													
28...	.040	<.002	<.004	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002	<.002
FEB													
01...	.038	<.002	<.004	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002	<.002
MAR													
21...	.033	<.002	E.003	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002	<.002
APR													
19...	.033	<.002	.038	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002	<.002
24...	.039	<.002	.038	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002	<.002
MAY													
09...	.102	<.002	.097	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	E.003	<.002
JUN													
01...	.099	.007	.065	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	.003	<.002
14...	.235	.009	.302	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.003	<.002
25...	.815	.027	.276	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002	<.002
JUL													
16...	.436	.007	.080	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002	<.002
31...	.300	<.002	.018	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002	<.002
AUG													
15...	.161	<.002	.008	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002	<.002
SEP													
11...	.109	<.002	<.004	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002	<.002

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)	THIOBENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)
OCT													
19...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
NOV													
28...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
FEB													
01...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
MAR													
21...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
APR													
19...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
24...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
MAY													
09...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
JUN													
01...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
14...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
25...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
JUL													
16...	E.004	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
31...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
AUG													
15...	E.003	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003
SEP													
11...	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005	<.003

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	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)	BORON, DIS-SOLVED (UG/L AS B) (01020)	TOTAL COLI-FORM, M ENDO MF, WTR (COL/100 ML) (31501)
OCT										
19...	<.010	<.007	<.023	<.050	<.006	414	89	80	21	--
NOV										
28...	<.010	<.007	<.023	<.050	<.006	402	125	90	32	--
FEB										
01...	<.010	<.007	<.023	<.050	<.006	430	106	86	22	--
MAR										
21...	<.010	<.007	<.023	<.050	<.006	416	94	88	19	--
APR										
19...	<.010	<.007	<.023	<.050	<.006	293	102	80	19	--
24...	<.010	<.007	<.023	<.050	<.006	268	112	102	19	--
MAY										
09...	<.010	<.007	<.023	<.050	<.006	314	111	96	24	120
JUN										
01...	<.010	<.007	<.023	<.050	<.006	414	104	88	27	--
14...	<.010	<.007	<.023	<.050	<.006	403	104	92	28	--
25...	<.010	<.007	<.023	<.050	<.006	355	112	104	24	--
JUL										
16...	<.010	<.007	<.023	<.050	<.006	419	106	98	33	--
31...	<.010	<.007	<.023	<.050	<.006	--	120	105	--	--
AUG										
15...	<.010	<.007	<.023	<.050	<.006	388	109	104	30	--
SEP										
11...	<.010	<.007	<.023	<.050	<.006	392	104	84	26	--

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05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA

LOCATION.--Lat 42°50'10", long 92°15'26", in NW ¼ SW ¼ SW ¼ sec. 27, T.93 N., R.12 W., Bremer County, Hydrologic Unit 07080102, on left downstream bank 40 ft from bridge on State Highway 93, 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 1998 and October 1, 2000 to September 30, 2001. Stage-only records 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 except for October to March and those for estimated daily discharges, which are poor. U.S. Geological Survey rain gage and data collection platform with telephone modem at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1, 1969, discharge about 18,900 ft^3/s, gage height 17.26 ft: Flood of May 17, 1999, discharge 3,900 ft^3/s, gage height 14.39 ft; Flood of July 21, 1999, discharge 19,400 ft^3/s, gage height 18.50 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	60	e60	e48	e66	e64	1180	378	386	e119	42	25
2	39	62	e58	e48	e62	e62	1450	530	374	e110	45	24
3	38	63	e56	e50	e60	e66	1670	895	351	104	43	23
4	40	62	e54	e54	e60	e68	1860	1260	332	98	57	22
5	42	62	e50	e58	e58	e66	2120	e2000	310	93	54	22
6	42	78	e48	e64	e58	e64	2250	e1900	327	86	44	23
7	41	196	e50	e66	e57	e64	2510	1710	396	82	40	30
8	40	308	e52	e64	e58	e62	2750	1510	446	78	36	98
9	40	295	e52	e62	e60	e62	2880	1300	397	75	34	191
10	39	234	e50	e60	e62	e62	3000	1200	347	71	31	115
11	39	183	e50	e58	e64	e62	2490	1080	303	65	30	82
12	39	163	e46	e60	e66	e64	2650	974	271	61	29	63
13	40	153	e44	e64	e66	e66	3330	942	243	56	27	52
14	43	144	e44	e66	e68	e68	3830	898	228	52	26	47
15	43	136	e46	e68	e66	e72	3000	771	330	50	28	44
16	45	133	e48	e70	e66	e80	2190	630	406	48	34	41
17	45	127	e46	e68	e64	e90	1650	525	526	48	43	43
18	44	119	e44	e66	e62	e140	1290	445	563	54	41	42
19	48	107	e42	e62	e60	e200	1080	383	476	76	40	41
20	51	e94	e40	e60	e58	e300	914	338	356	83	38	40
21	48	e81	e40	e60	e58	e520	809	329	285	67	36	66
22	48	e68	e40	e62	e56	706	711	408	242	58	35	143
23	53	e57	e38	e64	e58	907	658	561	213	55	33	95
24	55	e52	e38	e62	e62	1030	605	608	196	59	31	75
25	58	e56	e36	e62	e68	956	548	567	180	75	39	63
26	58	e60	e36	e64	e72	806	498	562	167	69	37	76
27	62	e62	e42	e68	e72	597	440	564	e155	61	30	64
28	64	e64	e46	e70	e70	502	391	566	e147	54	29	53
29	63	e66	e50	e72	---	524	353	546	e135	49	29	47
30	63	e62	e54	e70	---	678	318	494	e128	46	29	44
31	60	---	e52	e68	---	923	---	423	---	44	27	---
TOTAL	1469	3407	1452	1938	1757	9931	49425	25297	9216	2146	1117	1794
MEAN	47.4	114	46.8	62.5	62.8	320	1648	816	307	69.2	36.0	59.8
MAX	64	308	60	72	72	1030	3830	2000	563	119	57	191
MIN	38	52	36	48	56	62	318	329	128	44	26	22
AC-FT	2910	6760	2880	3840	3490	19700	98030	50180	18280	4260	2220	3560
CFSM	.14	.33	.14	.18	.18	.93	4.76	2.36	.89	.20	.10	.17
IN.	.16	.37	.16	.21	.19	1.07	5.31	2.72	.99	.23	.12	.19

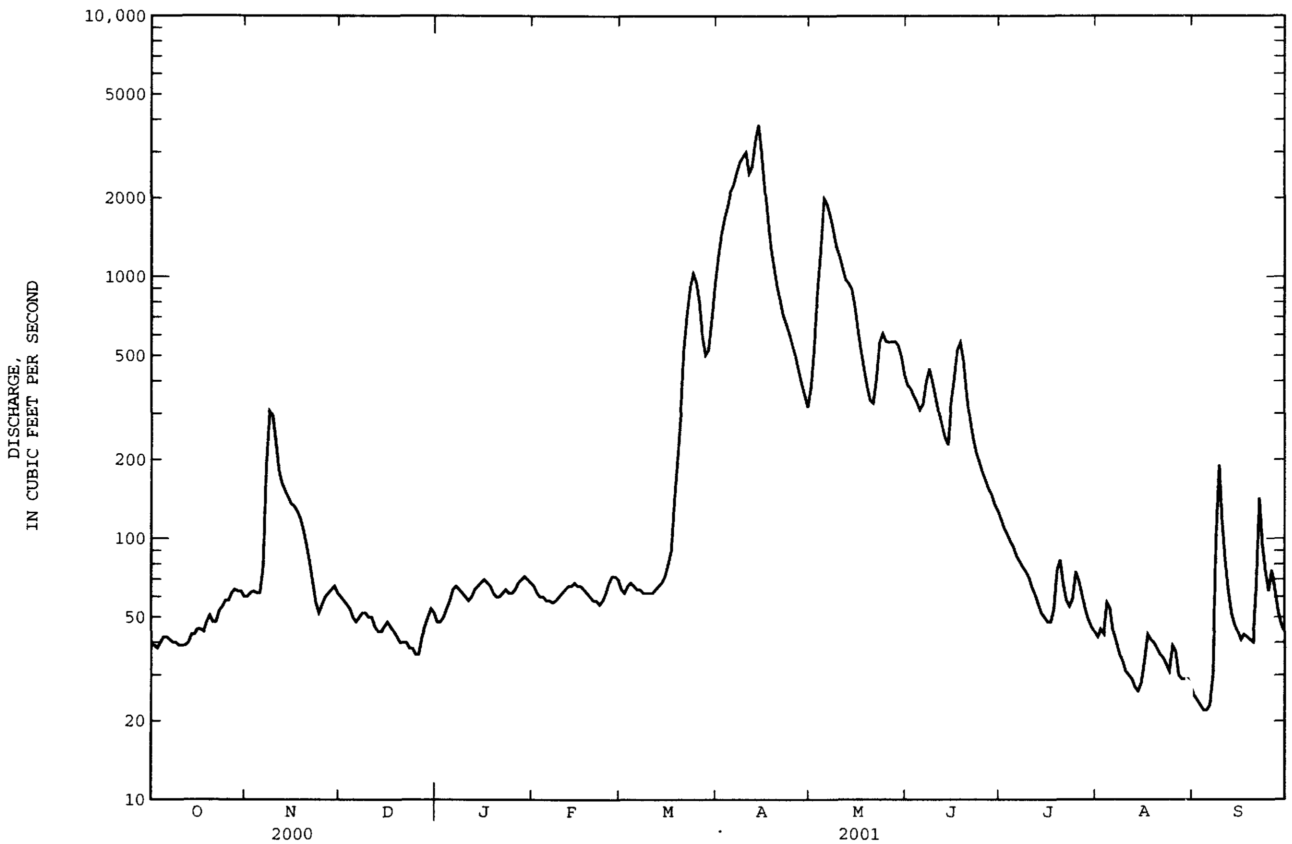
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	199	102	61.7	65.9	195	729	964	448	617	215	65.7	73.6
MAX	407	114	84.5	77.0	275	1354	1648	816	1172	517	92.6	128
(WY)	1998	2001	1997	1997	1998	1997	2001	2001	1998	1998	1998	1997
MIN	27.1	92.7	46.8	58.3	62.8	320	425	174	188	69.2	36.0	25.3
(WY)	1997	1997	2001	1998	2001	2001	1997	1996	1997	2001	2001	1996

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1996 - 2001	
ANNUAL TOTAL			108949			
ANNUAL MEAN			298		315	
HIGHEST ANNUAL MEAN					367	1998
LOWEST ANNUAL MEAN					280	1997
HIGHEST DAILY MEAN	1840	May 6	3830	Apr 14	3830	Apr 14 2001
LOWEST DAILY MEAN	36	Dec 25	22	Sep 4	16	Oct 7 1996
ANNUAL SEVEN-DAY MINIMUM	38	Dec 20	24	Aug 31	18	Oct 5 1996
MAXIMUM PEAK FLOW			4230	Apr 14	4730	Jun 29 1998
MAXIMUM PEAK STAGE			14.21	Apr 14	14.91	Jun 29 1998
INSTANTANEOUS LOW FLOW			21	Sep 4	14	Oct 7 1996
ANNUAL RUNOFF (AC-FT)			216100		228300	
ANNUAL RUNOFF (CFSM)			.86		.91	
ANNUAL RUNOFF (INCHES)			11.71		12.38	
10 PERCENT EXCEEDS	1760		843		850	
50 PERCENT EXCEEDS	56		64		106	
90 PERCENT EXCEEDS	40		39		42	

a Also Sept. 5, 6.
e Estimated.



05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 2001 to September 30, 2001.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	GAGE HEIGHT (FEET) (00065)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	SAMPLE TREAT-MENT (CODES) (00115)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)
JAN													
11...	0914	.00	-1.0	737	1028	80020	58	8.00	458	1	11.1	79	7.4
11...	0915	--	--	--	1028	82013	--	--	--	1	--	--	--
FEB													
07...	1045	.00	-3.0	742	1028	80020	57	8.37	480	1	8.7	61	7.5
07...	1046	--	--	--	1028	82013	--	--	--	1	--	--	--
MAR													
08...	0929	.00	-4.0	735	1028	80020	61	8.51	476	1	10.5	75	7.3
08...	0930	--	--	--	1028	82013	--	--	--	1	--	--	--
APR													
11...	0840	10.6	10.0	720	1028	80020	2500	13.13	242	1	9.3	89	7.2
11...	0841	--	--	--	1028	82013	--	--	--	1	--	--	--
MAY													
03...	0715	14.6	--	738	1028	80020	834	11.50	359	1	9.5	94	7.3
03...	0716	--	--	--	1028	82013	--	--	--	1	--	--	--
JUN													
06...	1010	13.4	20.0	735	1028	80020	322	9.55	422	1	9.2	87	7.6
06...	1011	--	--	--	1028	82013	322	9.55	--	1	--	--	--
JUL													
03...	1034	22.0	22.4	736	1028	80020	105	7.93	468	1	7.9	90	7.8
03...	1035	--	--	--	1028	82013	105	7.93	--	1	--	--	--
AUG													
08...	0836	26.8	28.4	745	1028	80020	31	7.19	378	1	6.3	78	7.5
08...	0837	--	--	--	1028	82013	--	--	--	1	--	--	--
SEP													
07...	0831	21.2	20.9	724	1028	80020	31	7.05	343	1	--	--	8.0
07...	0832	--	--	--	1028	82013	--	--	--	1	--	--	--

DATE	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, INOR-GANIC, PARTIC. TOTAL (MG/L AS C) (00688)
JAN													
11...	7.6	.0	203	.147	.048	.33	.47	4.97	.044	.011	<.018	1.6	<.1
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
07...	7.4	.0	228	.210	.042	.54	.47	5.50	.052	.013	<.018	2.0	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
08...	7.5	.0	176	.167	.028	.43	.47	5.05	.075	.019	E.012	2.1	<.1
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
11...	7.5	.0	82	.084	.064	.60	.89	7.09	.214	.103	.086	5.2	<.1
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
03...	7.2	.0	140	<.041	.062	.75	1.2	8.03	.231	.100	.044	4.4	<.1
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
06...	7.7	.0	155	<.040	.034	.30	.43	10.0	.100	.042	<.020	2.2	<.1
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
03...	7.9	.0	139	E.032	.043	.35	.72	6.48	.150	.040	.024	2.5	<.1
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08...	7.4	.0	137	E.034	.014	.45	.77	.338	.161	.047	.019	4.9	<.1
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
07...	7.6	.0	137	<.040	.009	.29	.62	.410	.112	.054	.030	3.2	<.1
07...	--	--	--	--	--	--	--	--	--	--	--	--	--

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	CARBON, ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)
JAN													
11...	1.0	1.0	55.3	12.9	13.1	1.63	26.2	26.5	.2	12.1	20	109	<.010
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
07...	--	1.6	61.8	13.3	14.0	1.81	27.9	27.9	.2	12.2	30	116	<.010
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
08...	.5	.5	58.8	12.8	15.2	2.20	31.3	26.9	.2	11.5	40	109	<.010
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
11...	2.7	2.7	29.3	6.44	3.0	3.04	9.5	10.8	.2	8.4	10	3.7	<.010
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
03...	3.1	3.1	47.4	9.94	6.8	2.42	17.9	15.9	.2	8.3	10	9.3	<.010
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
06...	1.1	1.1	54.9	12.4	6.9	1.19	19.7	19.4	.2	7.5	M	17.5	<.010
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
03...	2.4	2.4	56.8	12.8	8.2	1.72	20.0	22.1	.2	8.5	<10	4.3	<.010
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08...	4.3	4.4	45.8	12.2	9.4	2.17	18.7	21.4	.2	3.3	M	23.3	<.010
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
07...	2.0	2.0	48.7	12.7	11.1	2.08	21.6	22.4	.2	4.6	M	31.3	<.010
07...	--	--	--	--	--	--	--	--	--	--	--	--	--

DATE	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	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)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	LINDANE DIS- SOLVED (UG/L) (39341)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)
JAN													
11...	<.002	<.011	<.015	E.095	<.018	<.003	<.005	<.003	<.005	168	<.004	<.005	.065
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
07...	<.002	<.011	<.015	E.050	<.018	<.003	<.005	<.003	<.005	189	<.004	<.005	.054
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
08...	<.002	<.011	E.005	E.040	<.018	<.003	<.005	<.003	<.005	146	<.004	<.005	.105
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
11...	<.002	<.011	<.015	E.066	E.009	<.003	<.005	<.003	<.005	67	<.004	<.005	.388
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
03...	<.002	.013	<.015	E.163	E.011	<.003	<.005	<.003	<.005	116	<.004	<.005	2.41
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
06...	<.002	.014	E.012	E.110	E.007	<.003	<.005	<.003	<.005	129	<.004	<.005	.130
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
03...	<.002	<.011	E.008	E.135	<.018	<.003	<.005	<.003	<.005	140	<.004	<.005	.059
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08...	<.002	E.009	E.006	E.060	E.005	<.003	<.005	<.003	<.005	139	<.004	<.005	.038
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
07...	<.002	.012	E.010	E.062	<.018	<.003	<.005	<.003	<.005	138	<.004	<.005	.036
07...	--	--	--	--	--	--	--	--	--	--	--	--	--

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	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, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	PURPOSE SITE VISIT, (CODE) (50280)	TUR- BID- ITY FIELD WATER UNFLTRD (NTU) (61028)	PHEO- PHYTIN A, PHYTO- PHYTON (UG/L) (62360)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70953)	SAMPLE PURPOSE CODE (71999)
JAN													
11...	<.027	<.007	<.005	.090	.032	.018	.090	1001	--	.7	274	.2	15.00
11...	--	--	--	--	--	--	--	1001	--	--	--	--	15.00
FEB													
07...	<.027	<.007	<.005	.079	.026	.019	.157	1001	--	E.6	287	E.2	15.00
07...	--	--	--	--	--	--	--	1001	--	--	--	--	15.00
MAR													
08...	<.027	<.007	<.005	.075	.028	.018	.048	1001	--	.7	284	.3	15.00
08...	--	--	--	--	--	--	--	1001	--	--	--	--	15.00
APR													
11...	<.027	<.007	<.005	.095	E.007	.029	.365	1001	--	E2.1	160	E1.1	15.00
11...	--	--	--	--	--	--	--	1001	--	--	--	--	15.00
MAY													
03...	<.027	<.007	<.005	1.69	.034	2.14	.340	1001	79	6.8	243	9.4	15.00
03...	--	--	--	--	--	--	--	1001	--	--	--	--	15.00
JUN													
06...	<.027	<.007	<.005	2.41	.037	.175	.152	1001	24	5.7	255	5.5	15.00
06...	--	--	--	--	--	--	--	1001	--	--	--	--	15.00
JUL													
03...	<.027	<.007	<.005	.385	.009	.018	.358	1001	42	28	296	16.6	15.00
03...	--	--	--	--	--	--	--	1001	--	--	--	--	15.00
AUG													
08...	<.027	<.007	<.005	.138	<.002	<.004	.675	1001	35	33	214	43.2	15.00
08...	--	--	--	--	--	--	--	1001	--	--	--	--	15.00
SEP													
07...	<.027	<.007	<.005	.081	<.002	<.004	.310	1001	--	21	226	24.9	15.00
07...	--	--	--	--	--	--	--	1001	--	--	--	--	15.00

DATE	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	DRAIN- AGE AREA (SQ. MI.) (81024)	SAM- PLING METHOD, CODES (82398)	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)
JAN													
11...	1000	15	346	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002
11...	1000	--	346	10	--	--	--	--	--	--	--	--	--
FEB													
07...	1000	22	346	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002
07...	1000	--	346	10	--	--	--	--	--	--	--	--	--
MAR													
08...	1000	5	346	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002
08...	1000	--	346	10	--	--	--	--	--	--	--	--	--
APR													
11...	1000	79	346	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002
11...	1000	--	346	10	--	--	--	--	--	--	--	--	--
MAY													
03...	1000	59	346	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002
03...	1000	--	346	10	--	--	--	--	--	--	--	--	--
JUN													
06...	1000	21	346	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002
06...	1000	--	346	10	--	--	--	--	--	--	--	--	--
JUL													
03...	1000	35	346	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002
03...	1000	--	346	10	--	--	--	--	--	--	--	--	--
AUG													
08...	1000	22	346	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002
08...	1000	--	346	10	--	--	--	--	--	--	--	--	--
SEP													
07...	1000	29	346	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006	<.002
07...	1000	--	346	10	--	--	--	--	--	--	--	--	--

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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)	CAR-BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	THIO-BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)
JAN													
11...	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
07...	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
08...	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
11...	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
03...	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
06...	<.020	<.016	<.002	<.005	<.010	E.097	<.017	<.004	<.021	<.002	<.011	<.041	<.005
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
03...	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08...	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
07...	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041	<.005
07...	--	--	--	--	--	--	--	--	--	--	--	--	--

DATE	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)	SAMPLER TYPE (CODE) (84164)	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)	QUALITY ASSUR-ANCE DATA INDICA-TOR CODE (99111)	SET NUMBER SCHED-ULE 2010 (NO.) (99919)	SAMPLE VOLUME SCHED-ULE 2010 (ML) (99857)
JAN													
11...	<.003	<.010	<.007	<.023	<.050	<.006	3045	482	99	91	30	1.10	943
11...	--	--	--	--	--	--	3045	--	--	--	30	--	--
FEB													
07...	<.003	<.010	<.007	<.023	<.050	<.006	3045	501	78	85	--	2.10	917
07...	--	--	--	--	--	--	3045	--	--	--	--	--	--
MAR													
08...	<.003	<.010	<.007	<.023	<.050	<.006	3045	490	71	72	--	5.11	934
08...	--	--	--	--	--	--	3045	--	--	--	--	--	--
APR													
11...	<.003	<.010	<.007	<.023	<.050	<.006	3039	252	93	75	--	1.11	909
11...	--	--	--	--	--	--	3039	--	--	--	--	--	--
MAY													
03...	<.003	<.010	<.007	<.023	<.050	<.006	3039	365	97	90	--	1.11	934
03...	--	--	--	--	--	--	3039	--	--	--	--	--	--
JUN													
06...	<.003	<.010	<.007	<.023	<.050	<.006	3045	434	93	74	--	2.00E+08	922
06...	--	--	--	--	--	--	3045	--	--	--	--	--	--
JUL													
03...	<.003	<.010	<.007	<.023	<.050	<.006	3045	454	92	87	40	2.00E+08	944
03...	--	--	--	--	--	--	3045	--	--	--	--	--	--
AUG													
08...	<.003	<.010	<.007	<.023	<.050	<.006	3045	377	82	74	--	2.00E+08	939
08...	--	--	--	--	--	--	3045	--	--	--	--	--	--
SEP													
07...	<.003	<.010	<.007	<.023	<.050	<.006	3045	399	86	76	--	2.00E+08	957
07...	--	--	--	--	--	--	3045	--	--	--	--	--	--

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TURBIDITY LAB HACH 2100AN (NTU) (99872)
JAN	
11...	2.2
11...	--
FEB	
07...	4.9
07...	--
MAR	
08...	--
08...	--
APR	
11...	36
11...	--
MAY	
03...	78
03...	--
JUN	
06...	4.2
06...	--
JUL	
03...	21
03...	--
AUG	
08...	25
08...	--
SEP	
07...	14
07...	--

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Tipping bucket rain gage.

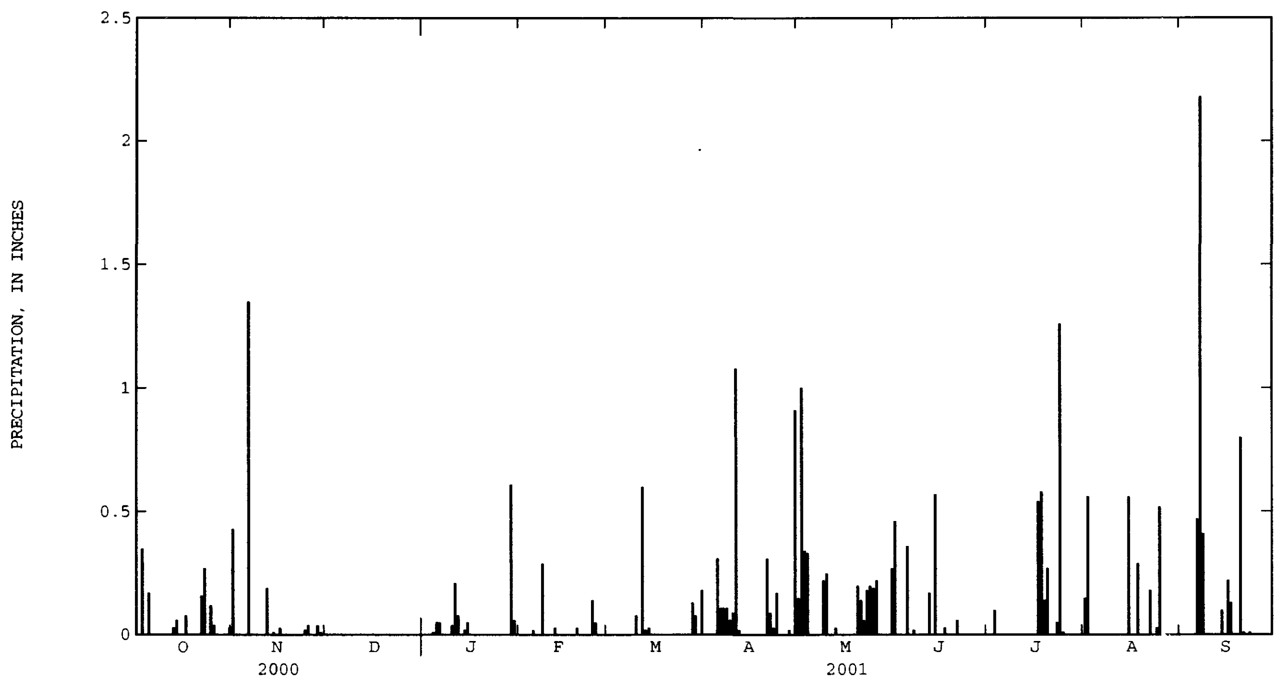
REMARKS.--Records good except for winter period, which is poor due to intermittent snow accumulation and subsequent melting.

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

EXTREME FOR CURRENT YEAR.--Maximum daily accumulation, 2.18 in., Sep. 7.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.43	.00	.00	.00	.00	.00	.15	.46	.00	.15	.00
2	.00	.00	.00	.00	.00	.00	.00	1.00	.00	.00	.56	.00
3	.35	.00	.00	.00	.00	.00	.00	.34	.00	.10	.00	.00
4	.00	.00	.00	.01	.00	.00	.00	.33	.00	.00	.00	.00
5	.17	.00	.00	.05	.02	.00	.31	---	.36	.00	.00	.00
6	.00	1.35	---	.05	.00	.00	.11	---	.00	.00	.00	.47
7	.00	.00	---	.00	.00	.00	.11	.00	.02	.00	.00	2.18
8	.00	.00	---	.00	.29	.00	.11	.00	.00	.00	.00	.41
9	.00	.00	---	.00	.00	.00	.06	.22	.00	.00	.00	.00
10	.00	.00	---	.04	.00	.08	.09	.25	.00	.00	.00	.00
11	.00	.00	---	.21	.00	.00	1.08	.00	.00	.00	.00	.00
12	.00	.19	---	.08	.03	.60	.02	.00	.17	.00	.00	.00
13	.03	.00	---	.00	.00	.02	.00	.03	.00	.00	.00	.00
14	.06	.01	.00	.02	.00	.03	.00	.00	.57	.00	.00	.10
15	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.56	.00
16	.00	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.22
17	.08	.00	.00	.00	.00	.00	.00	.00	.03	.54	.00	.13
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.58	.29	.00
19	.00	.00	.00	.00	.03	.00	.00	.00	.00	.14	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.20	.00	.27	.00	.80
21	.00	.00	.00	.00	.00	.00	.31	.14	.06	.00	.00	.01
22	.16	.00	.00	.00	.00	.00	.09	.06	.00	.00	.18	.00
23	.27	.00	.00	.00	.00	.00	.03	.18	.00	.05	.00	.01
24	.00	.02	.00	.00	.14	.00	.17	.20	.00	1.26	.03	.00
25	.12	.04	.00	.00	.05	.00	.00	.19	.00	.01	.52	.00
26	.04	.00	.00	.00	.00	.00	.00	.22	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.04	.00	.00	.00	.13	.02	.00	.00	.00	.00	.00
29	.00	.01	.00	.61	---	.08	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.06	---	.00	.91	.00	.00	.00	.00	.00
31	.03	---	.00	.00	---	.18	---	.27	---	.00	.00	---
TOTAL	1.31	2.12	0.00	1.18	0.56	1.12	3.42	3.78	1.67	2.95	2.29	4.33
MEAN	.04	.07	.00	.04	.02	.04	.11	.13	.06	.10	.07	.14
MAX	.35	1.35	.00	.61	.29	.60	1.08	1.00	.57	1.26	.56	2.18
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.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 ronrecording 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. U.S. Army Corps of Engineers rair 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	151	e180	e105	e120	287	2530	920	1120	505	255	87
2	109	202	e160	e100	e125	278	2760	959	1590	e420	309	86
3	105	203	e140	e105	e135	273	3000	1850	1610	e360	710	87
4	111	183	e120	e110	e120	279	3280	3220	1400	e340	424	82
5	114	173	e100	e115	e140	283	3590	4080	1550	e300	312	79
6	113	210	e120	e120	e115	278	3890	5010	1880	e280	260	84
7	104	319	e170	e110	e140	273	4180	6090	1590	e260	226	223
8	102	441	e160	e100	e180	272	4380	6540	1430	e250	188	836
9	100	647	e150	e92	e200	264	4990	5980	1340	e250	166	1380
10	101	705	e160	e98	e220	263	5020	5100	1270	e240	141	864
11	100	655	e140	e105	244	276	4970	5000	1150	236	130	665
12	99	589	e120	e115	248	388	5150	4740	1120	221	124	485
13	99	526	e110	e125	248	703	5070	3800	1120	157	117	365
14	103	487	e160	e135	246	1140	4730	3140	1080	164	110	295
15	100	447	e180	e160	235	1740	5490	2700	1370	183	115	257
16	99	437	e160	e145	235	2210	6170	2340	1430	173	143	233
17	103	404	e140	e140	228	2230	5660	1980	1380	168	130	240
18	103	375	e130	e130	236	2550	4360	1640	1420	171	130	232
19	102	338	e90	e135	227	3280	3390	1410	1370	206	131	229
20	103	290	e96	e120	214	4350	2790	1230	1260	214	127	222
21	100	259	e86	e130	200	5000	2220	1150	1130	e200	118	294
22	103	e250	e80	e140	200	4900	1840	1070	1050	e190	119	395
23	118	e250	e88	e120	189	5170	1640	1010	976	e180	117	395
24	121	e240	e84	e115	201	5130	1450	1020	847	347	110	417
25	123	e240	e70	e110	220	4660	1320	1060	762	1460	152	362
26	131	e230	e88	e120	248	4100	1240	1170	689	1300	136	313
27	131	e230	e82	e110	278	3810	1170	1210	621	711	123	281
28	125	e220	e90	e130	290	3280	1080	1230	557	511	112	263
29	127	e190	e100	e140	---	2740	999	1200	513	403	104	241
30	135	e200	e120	e135	---	2320	939	1120	478	334	101	227
31	135	---	e110	e130	---	2310	---	1110	---	288	92	---
TOTAL	3430	10091	3784	3745	5682	65037	99298	80079	35103	11022	5532	10219
MEAN	111	336	122	121	203	2098	3310	2583	1170	356	178	341
MAX	135	705	180	160	290	5170	6170	6540	1880	1460	710	1380
MIN	99	151	70	92	115	263	939	920	478	157	92	79
AC-FT	6800	20020	7510	7430	11270	129000	197000	158800	69630	21860	10970	20270
CFSM	.11	.32	.12	.12	.19	2.00	3.16	2.46	1.12	.34	.17	.33
IN.	.12	.36	.13	.13	.20	2.31	3.52	2.84	1.25	.39	.20	.36

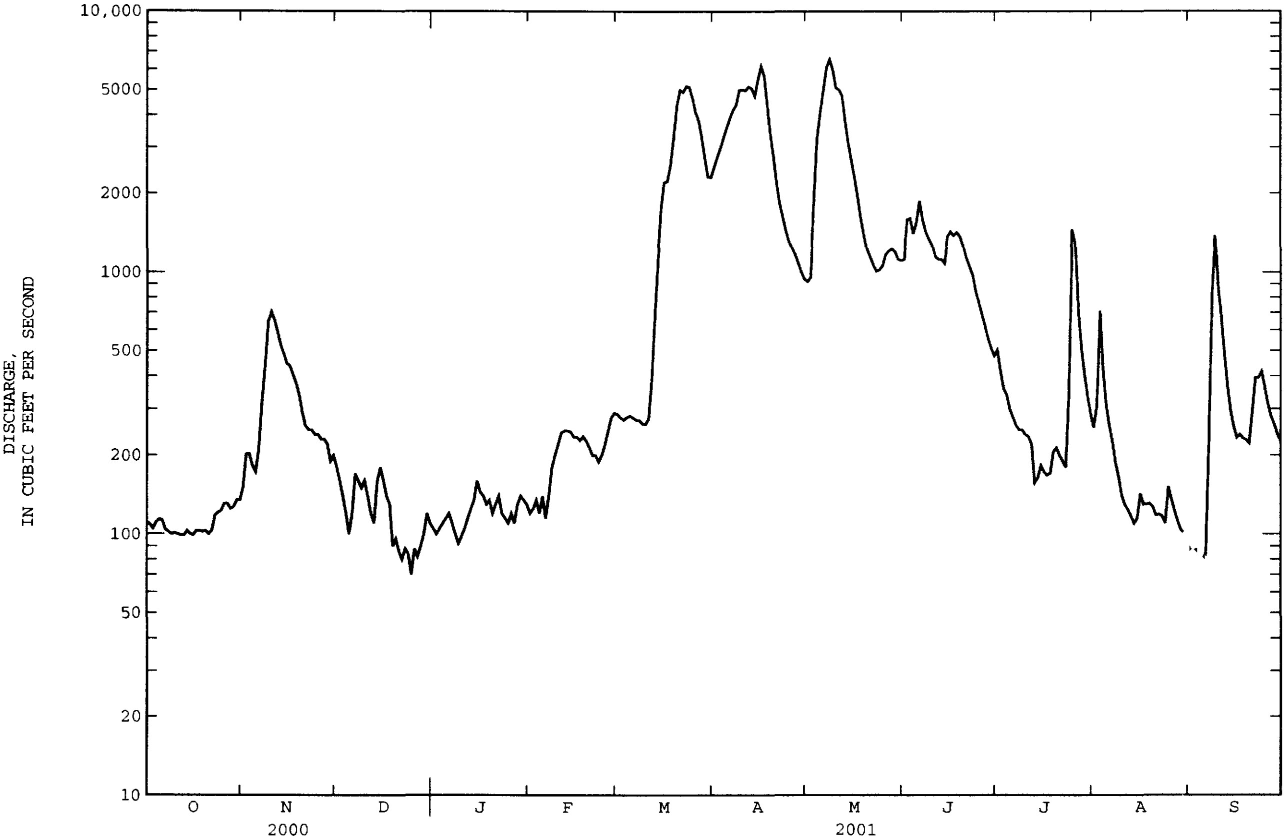
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	391	446	301	223	358	1425	1391	993	1011	740	549	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1934 - 2001	
ANNUAL TOTAL	272185		333022			
ANNUAL MEAN	744		912		684	
HIGHEST ANNUAL MEAN					2304	1993
LOWEST ANNUAL MEAN					74.5	1934
HIGHEST DAILY MEAN	7160	Jun 1	6540	May 8	28000	May 18 1999
LOWEST DAILY MEAN	70	Dec 25	70	Dec 25	7.0	Oct 1 1933a
ANNUAL SEVEN-DAY MINIMUM	83	Dec 21	83	Dec 21	7.1	Jan 24 1977
MAXIMUM PEAK FLOW			6610	May 8	31100	May 18 1999
MAXIMUM PEAK STAGE			9.56	May 8	22.35	May 18 1999
ANNUAL RUNOFF (AC-FT)	539900		660500		495700	
ANNUAL RUNOFF (CFSM)	.71		.87		.65	
ANNUAL RUNOFF (INCHES)	9.66		11.82		8.87	
10 PERCENT EXCEEDS	2250		3170		1690	
50 PERCENT EXCEEDS	292		248		274	
90 PERCENT EXCEEDS	103		103		53	

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. U. S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	487	387	e240	e440	e520	3660	5430	2650	4250	1740	1280	530
2	469	383	e220	e400	e560	2720	4810	2550	4660	1630	1180	516
3	457	385	e200	e430	e600	2890	4540	2430	4040	1580	1180	497
4	469	400	e190	e450	e660	3550	4460	2460	3670	1540	1060	483
5	464	419	e180	e460	e640	3260	4470	2580	3810	1540	959	475
6	469	457	e200	e440	e600	2640	4620	3670	4190	1430	1210	474
7	452	516	e300	e420	e580	2350	5090	5060	4680	1360	1230	488
8	440	556	e290	e360	e700	2210	5200	5760	4750	1690	1060	523
9	428	584	e280	e300	e900	2060	5390	5960	4530	2790	968	532
10	426	619	e320	e320	e1800	2070	5840	6280	4120	1750	909	566
11	421	667	e260	e340	e3400	2570	6170	6950	3740	1370	822	705
12	410	729	e240	e360	e3200	2990	6570	7750	3580	1230	769	1380
13	400	828	e220	e400	e3000	3760	6950	8380	3680	1140	726	1450
14	397	888	e260	e440	e2800	4200	7370	9610	3700	1080	691	1270
15	391	887	e480	e500	e2400	4560	7820	10200	4340	1020	666	1120
16	386	848	e420	e620	e2000	6300	7860	10000	4710	969	749	997
17	382	825	e400	e540	e1800	6630	7520	8170	4230	917	710	900
18	377	e700	e360	e500	e1300	5960	7220	5900	3960	918	690	846
19	374	e600	e300	e460	e1400	5760	6860	4690	3720	948	738	1960
20	365	e500	e320	e400	e1500	5970	6850	4210	3460	872	693	1670
21	366	e420	e250	e420	e1300	6400	7110	4940	3400	962	661	1200
22	365	e340	e240	e440	e1200	6660	7300	5300	3350	1460	627	1060
23	370	e330	e280	e480	e1300	6930	6230	4970	3080	1230	605	1040
24	383	e320	e260	e440	e1800	7260	4940	4060	2840	1220	598	1220
25	399	e320	e220	e400	7850	7610	4260	3580	2650	1280	598	1200
26	407	e310	e260	e440	9890	7980	3860	3280	2480	1600	585	1140
27	401	e300	e240	e400	6840	8290	3520	e3300	2280	1810	634	1070
28	397	e290	e280	e500	4860	8170	3210	e3400	2110	2110	597	996
29	394	e280	e380	e480	---	7720	2980	3200	1970	2190	593	911
30	390	e260	e500	e640	---	6940	2800	3110	1860	1750	575	838
31	390	---	e460	e620	---	6120	---	3040	---	1470	560	---
TOTAL	12726	15348	9050	13840	65400	156190	167250	157440	107840	44596	24923	28057
MEAN	411	512	292	446	2336	5038	5575	5079	3595	1439	804	935
MAX	487	888	500	640	9890	8290	7860	10200	4750	2790	1280	1960
MIN	365	260	180	300	520	2060	2800	2430	1860	872	560	474
AC-FT	25240	30440	17950	27450	129700	309800	331700	312300	213900	88460	49430	55650
CFSM	.18	.22	.12	.19	1.00	2.16	2.39	2.17	1.54	.62	.34	.40
IN.	.20	.24	.14	.22	1.04	2.49	2.66	2.51	1.72	.71	.40	.45

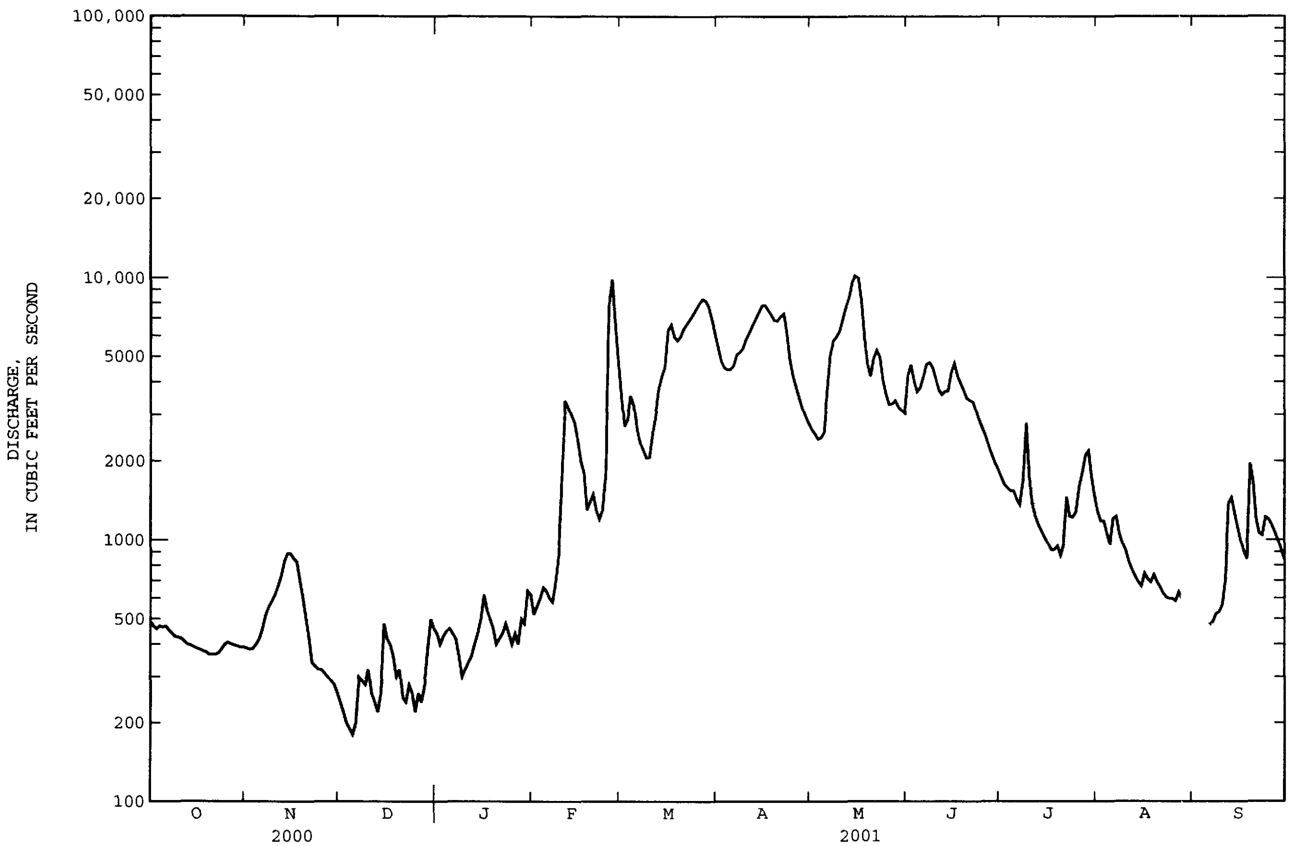
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	924	1117	909	822	1272	2993	3057	2419	2463	1787	1149	1031
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1935 - 2001	
ANNUAL TOTAL	556442		802660			
ANNUAL MEAN	1520		2199		1662	
HIGHEST ANNUAL MEAN					5461	1993
LOWEST ANNUAL MEAN					374	1989
HIGHEST DAILY MEAN	10100	Jun 16	10200	May 15	25400	Apr 22 1973
LOWEST DAILY MEAN	180	Dec 5	180	Dec 5	46	Jan 22 1977
ANNUAL SEVEN-DAY MINIMUM	213	Nov 30	213	Nov 30	47	Jan 18 1977
MAXIMUM PEAK FLOW			11000	Feb 26	31100	Jun 17 1990
MAXIMUM PEAK STAGE			12.94	Feb 10a	14.19	Jun 17 1990
ANNUAL RUNOFF (AC-FT)	1104000		1592000		1204000	
ANNUAL RUNOFF (CFSM)	.65		.94		.71	
ANNUAL RUNOFF (INCHES)	8.86		12.78		9.67	
10 PERCENT EXCEEDS	4240		6140		3980	
50 PERCENT EXCEEDS	700		1060		915	
90 PERCENT EXCEEDS	300		352		232	

a Backwater from ice.
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. U.S. Geological Survey satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	3.8	e3.0	e3.4	e12	24	14	13	94	9.8	3.7	.69
2	2.9	3.4	e3.0	e3.4	e7.6	22	14	13	e50	9.4	11	.77
3	3.4	2.9	e2.9	3.5	e8.0	26	13	13	e36	10	7.6	.78
4	15	2.6	e2.8	3.4	e8.0	25	13	39	31	9.4	4.2	.69
5	5.1	2.6	e2.7	3.3	e9.0	21	16	28	37	8.7	3.2	.62
6	4.1	9.8	e2.4	3.1	e8.4	18	18	42	33	8.2	2.6	1.1
7	3.3	9.0	e3.4	3.1	e7.4	17	17	61	30	8.1	2.4	6.2
8	2.9	4.5	e3.0	2.9	e22	16	14	38	28	57	2.6	2.6
9	2.8	12	3.1	e2.8	e100	14	57	30	26	27	2.1	7.7
10	3.1	8.4	3.3	e3.0	e60	16	36	31	25	15	3.8	4.7
11	3.1	5.6	e2.4	e3.4	e40	28	32	63	24	12	2.0	2.0
12	2.8	5.0	e2.0	4.0	35	24	27	37	76	11	1.6	1.1
13	2.6	4.7	e2.2	4.7	31	23	23	30	41	9.5	1.9	.95
14	2.5	4.5	e2.1	8.9	37	20	21	54	181	8.1	1.3	.90
15	2.6	4.2	e2.4	11	30	52	29	35	80	7.6	2.4	.75
16	2.4	4.0	e2.5	8.8	24	48	22	28	42	7.6	14	.81
17	2.6	3.6	e2.6	6.9	e22	38	19	28	33	7.2	4.1	1.4
18	2.7	3.5	e2.5	5.9	23	36	18	24	28	12	9.2	5.8
19	2.6	3.6	e2.4	5.1	23	38	18	21	24	9.5	7.4	45
20	2.4	3.3	e2.3	e3.4	27	40	18	44	21	7.8	3.2	6.8
21	2.6	3.3	e2.7	e3.6	23	36	16	148	21	18	2.3	4.9
22	2.6	3.1	e2.5	e4.0	23	32	23	52	19	8.6	2.1	3.2
23	2.8	3.2	e2.4	e4.2	21	29	18	41	17	7.2	1.7	13
24	3.5	3.3	e2.8	4.7	220	25	15	35	15	6.3	1.8	7.1
25	3.0	3.6	e2.7	e3.8	135	22	15	31	14	6.9	1.9	3.9
26	3.1	3.8	e2.6	e4.6	49	20	14	41	14	6.3	1.9	3.2
27	2.9	3.5	e2.8	e4.3	38	18	14	38	13	5.6	1.7	2.6
28	2.6	e3.4	e2.8	e4.6	29	17	13	36	12	5.2	1.2	2.3
29	2.5	e3.2	e3.0	e10	---	16	13	38	12	5.0	1.1	2.1
30	2.6	e3.2	e3.0	e28	---	16	13	40	11	4.2	.80	2.0
31	3.2	---	e3.2	e20	---	15	---	67	---	3.9	.73	---
TOTAL	103.4	134.6	83.5	185.8	1072.4	792	593	1239	1088	332.1	107.53	135.66
MEAN	3.34	4.49	2.69	5.99	38.3	25.5	19.8	40.0	36.3	10.7	3.47	4.52
MAX	15	12	3.4	28	220	52	57	148	181	57	14	45
MIN	2.4	2.6	2.0	2.8	7.4	14	13	13	11	3.9	.73	.62
AC-FT	205	267	166	369	2130	1570	1180	2460	2160	659	213	269
CFSM	.19	.25	.15	.34	2.15	1.44	1.11	2.25	2.04	.60	.19	.25
IN.	.22	.28	.17	.39	2.24	1.66	1.24	2.59	2.27	.69	.22	.28

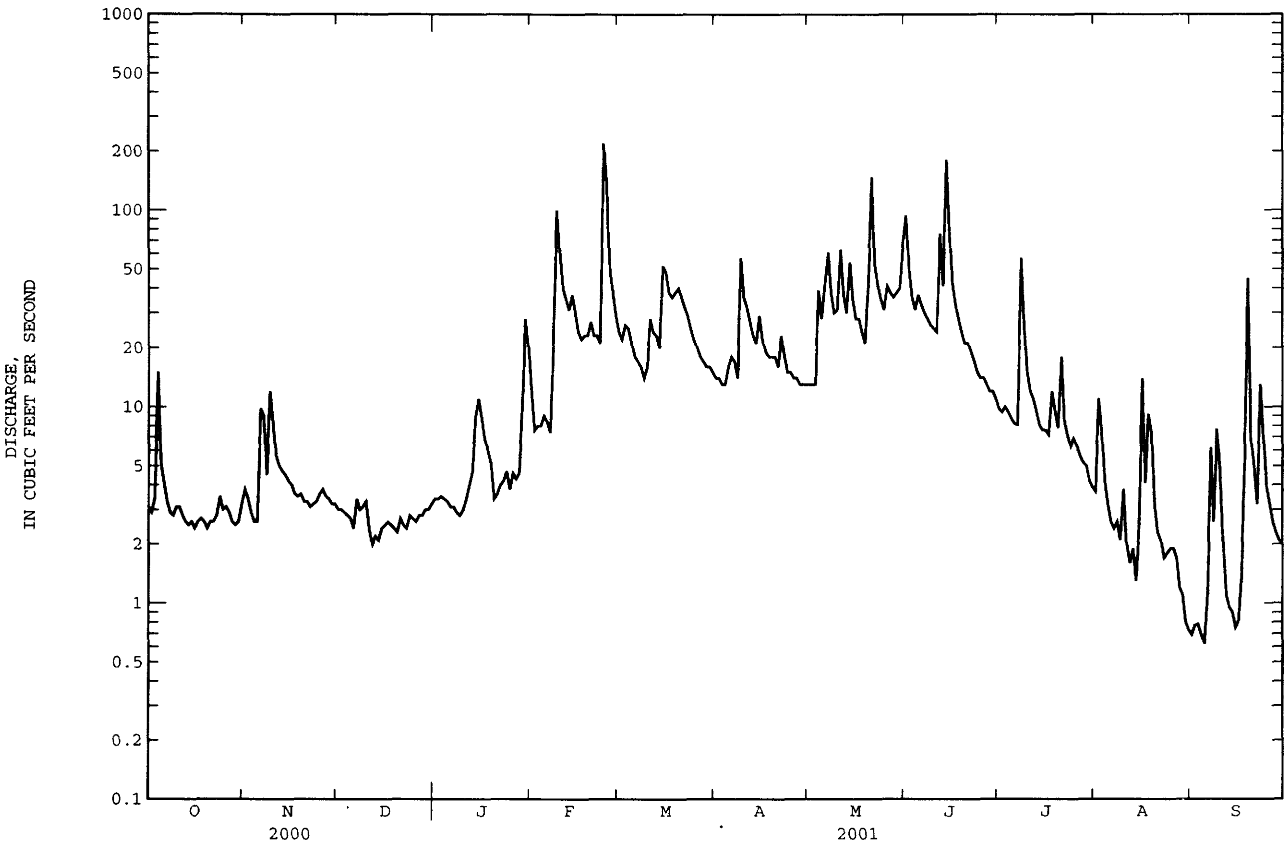
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	10.5	11.7	11.8	7.72	14.3	21.7	21.4	24.8	27.7	14.4	14.9	7.23
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1978 - 2001	
ANNUAL TOTAL	4738.39		5866.99			
ANNUAL MEAN	12.9		16.1		15.7	
HIGHEST ANNUAL MEAN					31.7	1990
LOWEST ANNUAL MEAN					3.35	1989
HIGHEST DAILY MEAN	318	Jun 13	220	Feb 24	1660	Jun 16 1990
LOWEST DAILY MEAN	.52	Sep 9	.62	Sep 5	.13	Aug 16 1988
ANNUAL SEVEN-DAY MINIMUM	.85	Jan 2	.73	Aug 30	.21	Aug 13 1988
MAXIMUM PEAK FLOW			1330	Jun 14	7700	Jun 16 1990
MAXIMUM PEAK STAGE			7.22	Jun 14	11.03	Jun 16 1990
INSTANTANEOUS LOW FLOW			.56	Aug 30a		
ANNUAL RUNOFF (AC-FT)	9400		11640		11360	
ANNUAL RUNOFF (CFSM)	.73		.90		.88	
ANNUAL RUNOFF (INCHES)	9.90		12.26		11.97	
10 PERCENT EXCEEDS	28		38		33	
50 PERCENT EXCEEDS	5.6		7.8		7.4	
90 PERCENT EXCEEDS	1.3		2.4		1.3	

a Also Aug. 31, Sept. 1, 2, 4, 5.
e Estimated.



05422560 DUCK CREEK AT 110th AVENUE, DAVENPORT, IA

LOCATION.--Lat 41 33'24", long 90 41'15", in NW $\frac{1}{4}$ SW $\frac{1}{4}$, 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. U.S. Geological Survey rain gage and data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	1.8	e1.8	e1.9	e10	20	13	7.9	e46	e7.4	e3.0	e.84
2	1.6	1.8	e1.8	e2.0	e3.4	20	12	7.7	e36	e6.4	e12	e.76
3	1.9	1.6	e1.7	e2.3	e4.4	24	12	7.6	e26	e7.4	e4.2	e.74
4	5.8	1.5	e1.6	e2.0	e6.0	22	11	15	e24	e7.2	e2.8	e.64
5	3.4	1.5	e1.4	e1.8	e5.4	17	12	15	e40	e6.2	e2.2	e.60
6	2.8	3.0	e1.8	e2.0	e5.0	15	13	32	e30	e6.0	e2.0	e.90
7	2.5	3.6	e2.0	e1.9	e4.6	15	13	87	e26	e5.8	e2.2	e2.8
8	2.4	2.4	e1.7	e1.8	e18	14	12	54	e22	e25	e2.1	e1.0
9	2.3	3.8	e1.7	e2.0	e60	13	14	38	e20	e12	e2.1	e4.8
10	2.2	3.7	e1.7	e2.2	e50	16	15	32	e18	e8.0	e2.0	e.88
11	2.1	3.0	e1.4	e2.2	e38	20	14	78	e16	e7.0	e1.8	e.78
12	2.1	3.1	e1.2	e2.0	35	21	13	66	e20	e6.0	e1.6	e.76
13	2.1	2.9	e1.5	e2.1	30	19	12	57	e16	e6.0	e1.4	e.72
14	2.4	2.8	e1.4	e2.6	36	17	12	339	e26	e5.4	e1.2	e.70
15	2.4	2.7	e1.5	e3.4	30	61	13	92	e22	e5.0	e1.4	e.66
16	2.4	2.7	e1.7	e3.0	22	47	12	63	e20	e4.6	e5.0	e.60
17	2.5	2.5	e1.8	e3.2	e20	30	11	e50	e16	e4.6	e1.6	e.58
18	2.5	2.4	e1.7	e2.8	18	28	11	e34	e14	e8.0	e3.2	e2.0
19	2.6	2.6	e1.6	e2.4	25	40	11	e20	e12	e4.8	e1.8	e15
20	2.5	2.7	e1.4	e2.6	e24	49	11	e32	e13	e4.2	e1.6	e3.0
21	2.4	2.4	e1.6	e2.8	e20	37	10	e70	e14	e24	e1.5	e1.6
22	2.5	2.4	e1.5	e2.9	16	31	10	e46	e13	e6.0	e1.4	e1.4
23	2.5	2.5	e1.4	e3.1	14	26	10	e36	e12	e5.2	e1.5	e3.2
24	2.4	e2.3	e1.6	e2.8	422	22	9.1	e24	e11	e4.8	e1.6	e2.4
25	2.3	e2.2	e1.5	e2.4	232	19	9.2	e22	e10	e5.4	e1.7	e1.8
26	2.3	e2.1	e1.5	e2.6	53	17	9.0	e36	e9.6	e4.8	e1.5	e1.6
27	2.2	e2.1	e1.8	e2.4	35	17	8.6	e26	e9.0	e4.2	e1.2	e1.5
28	2.1	e2.1	e1.7	e2.8	25	16	8.3	e22	e9.0	e3.8	e1.2	e1.5
29	1.9	e2.0	e1.6	e7.0	---	15	8.1	e20	e8.8	e3.6	e1.1	e1.4
30	1.9	e1.9	e1.7	e20	---	14	7.9	e18	e8.0	e3.6	e1.0	e1.4
31	1.9	---	e1.8	e12	---	14	---	e28	---	e3.4	e.90	---
TOTAL	74.7	74.1	50.1	107.0	1261.8	736	337.2	1475.2	567.4	215.8	69.80	56.56
MEAN	2.41	2.47	1.62	3.45	45.1	23.7	11.2	47.6	18.9	6.96	2.25	1.89
MAX	5.8	3.8	2.0	20	422	61	15	339	46	25	12	15
MIN	1.6	1.5	1.2	1.8	3.4	13	7.9	7.6	8.0	3.4	.90	.58
AC-FT	148	147	99	212	2500	1460	669	2930	1130	428	138	112
CFSM	.15	.15	.10	.21	2.80	1.47	.70	2.96	1.17	.43	.14	.12
IN.	.17	.17	.12	.25	2.92	1.70	.78	3.41	1.31	.50	.16	.13

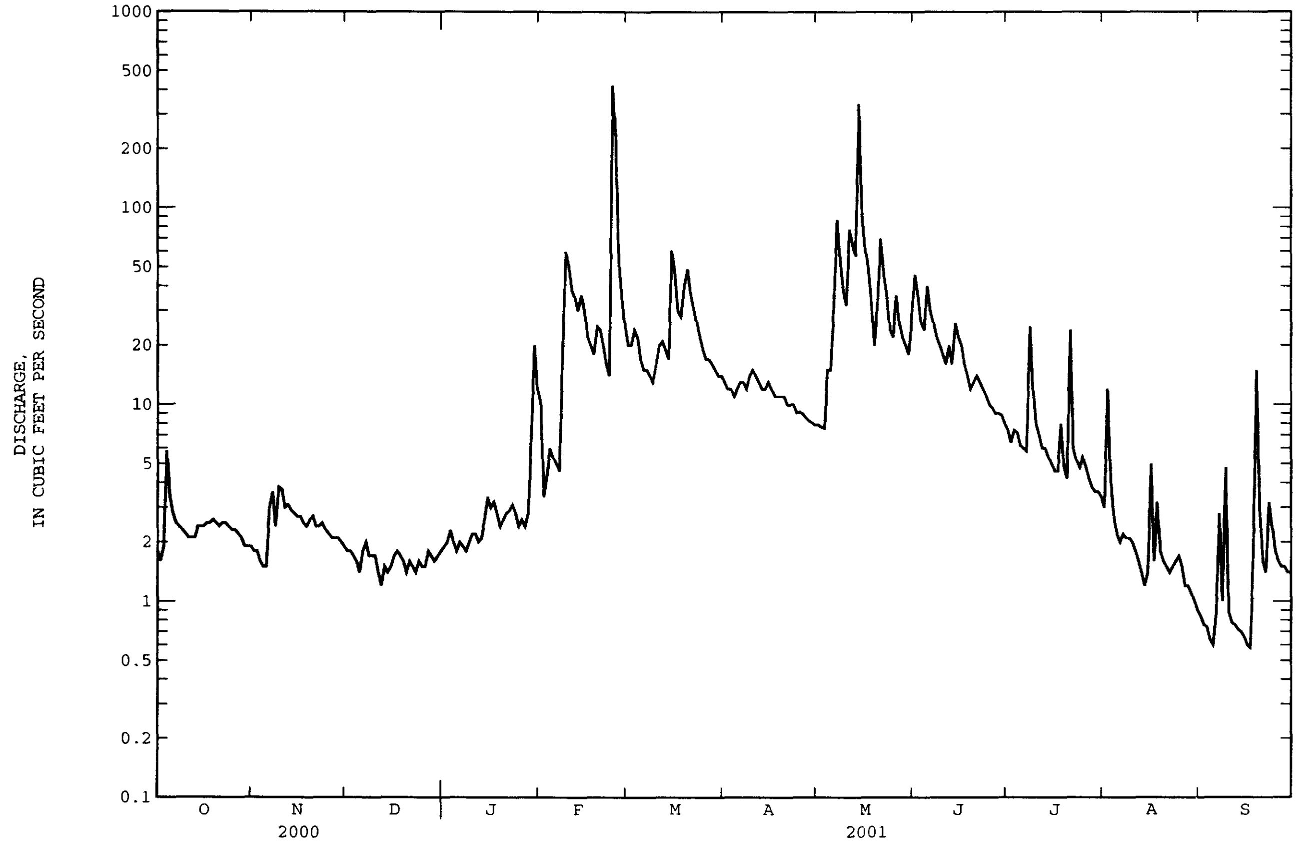
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.59	4.69	2.61	3.98	19.1	16.7	21.9	36.4	27.3	8.59	2.69	2.50
MAX	38.0	23.2	10.1	10.8	45.1	50.1	39.4	68.8	44.2	13.4	3.94	8.53
(WY)	1999	1999	1999	1999	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1995 - 2001	
ANNUAL TOTAL	4742.33		5025.66			
ANNUAL MEAN	13.0		13.8		12.7	
HIGHEST ANNUAL MEAN					17.5	1998
LOWEST ANNUAL MEAN					5.60	1997
HIGHEST DAILY MEAN	389	Apr 20	422	Feb 24	648	May 28 1996
LOWEST DAILY MEAN	.47	Sep 7	.58	Sep 17	.22	Oct 16 1994
ANNUAL SEVEN-DAY MINIMUM	.62	Sep 3	.69	Sep 11	.24	Oct 11 1994
MAXIMUM PEAK FLOW			1530	May 14	1870	May 28 1996
MAXIMUM PEAK STAGE			18.26	May 14	18.44	May 28 1996
ANNUAL RUNOFF (AC-FT)	9410		9970		9200	
ANNUAL RUNOFF (CFSM)	.80		.86		.79	
ANNUAL RUNOFF (INCHES)	10.96		11.61		10.72	
10 PERCENT EXCEEDS	27		30		30	
50 PERCENT EXCEEDS	3.2		4.2		4.0	
90 PERCENT EXCEEDS	1.3		1.5		.84	

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	7.8	e7.2	e7.0	e40	79	42	27	207	26	8.7	3.0
2	7.0	7.7	e7.2	e7.2	e20	74	39	26	138	24	75	2.6
3	20	7.7	e6.8	e7.5	e24	86	37	46	99	29	19	2.6
4	70	7.2	e6.4	e7.0	e34	85	35	188	85	27	10	2.2
5	16	7.4	e4.6	e6.8	e30	66	59	97	171	22	7.8	2.4
6	12	82	e6.0	e7.0	e28	55	70	173	110	21	6.8	5.3
7	9.5	25	e6.6	e6.8	e26	53	45	303	86	21	7.1	23
8	8.8	15	e6.1	e6.4	e90	50	37	139	75	243	6.9	8.1
9	8.5	65	e6.2	e7.6	e400	45	191	99	67	55	6.7	42
10	8.3	19	e6.4	e8.6	e200	60	79	120	61	31	6.6	9.7
11	8.2	13	e4.8	e9.0	e120	92	79	302	56	25	5.4	5.1
12	8.2	12	e4.2	e9.6	111	86	59	147	125	22	4.9	4.0
13	8.1	11	e5.4	e12	94	76	48	103	65	21	4.6	3.6
14	7.7	10	e5.0	e14	129	64	45	1020	428	19	4.3	3.5
15	7.9	11	e5.8	e22	92	227	102	222	184	17	5.4	3.1
16	8.0	10	e6.2	e20	66	214	51	137	83	16	77	2.8
17	7.6	9.4	e6.6	e18	e64	150	42	129	66	16	7.3	8.6
18	7.8	8.5	e6.2	e16	e68	126	40	92	58	42	48	104
19	7.6	e8.4	e6.0	e14	e70	139	39	77	53	17	13	232
20	7.4	e8.0	e5.6	e12	81	154	38	454	50	15	6.3	16
21	8.1	e7.6	e6.2	e13	57	128	36	825	54	259	5.5	12
22	7.6	e6.9	e6.0	e14	e52	107	81	185	50	28	5.1	6.7
23	10	e7.2	e5.8	e15	e120	93	40	140	43	19	5.2	57
24	9.8	e7.6	e6.4	e12	1360	80	32	116	39	16	5.5	13
25	8.5	e7.8	e6.2	e10	1040	69	40	94	37	17	6.0	7.6
26	8.1	8.3	e6.0	e12	196	62	32	189	35	14	5.8	6.3
27	9.0	8.0	e7.4	e11	140	55	30	115	e32	12	4.6	5.8
28	8.5	e7.6	e7.0	e14	96	51	28	89	32	11	4.4	5.5
29	7.7	e7.6	e6.4	e120	---	49	27	78	30	11	4.0	5.3
30	7.5	e7.6	e6.6	e200	---	46	e27	68	29	9.8	3.9	5.1
31	7.7	---	e6.8	e100	---	46	---	202	---	9.6	3.7	---
TOTAL	338.5	421.3	190.1	739.5	4848	2767	1550	6002	2648	1115.4	384.5	607.9
MEAN	10.9	14.0	6.13	23.9	173	89.3	51.7	194	88.3	36.0	12.4	20.3
MAX	70	82	7.4	200	1360	227	191	1020	428	259	77	232
MIN	7.0	6.9	4.2	6.4	20	45	27	26	29	9.6	3.7	2.2
AC-FT	671	836	377	1470	9620	5490	3070	11900	5250	2210	763	1210
CFSM	.21	.26	.12	.45	3.27	1.68	.97	3.65	1.67	.68	.23	.38
IN.	.24	.30	.13	.52	3.40	1.94	1.09	4.21	1.86	.78	.27	.43

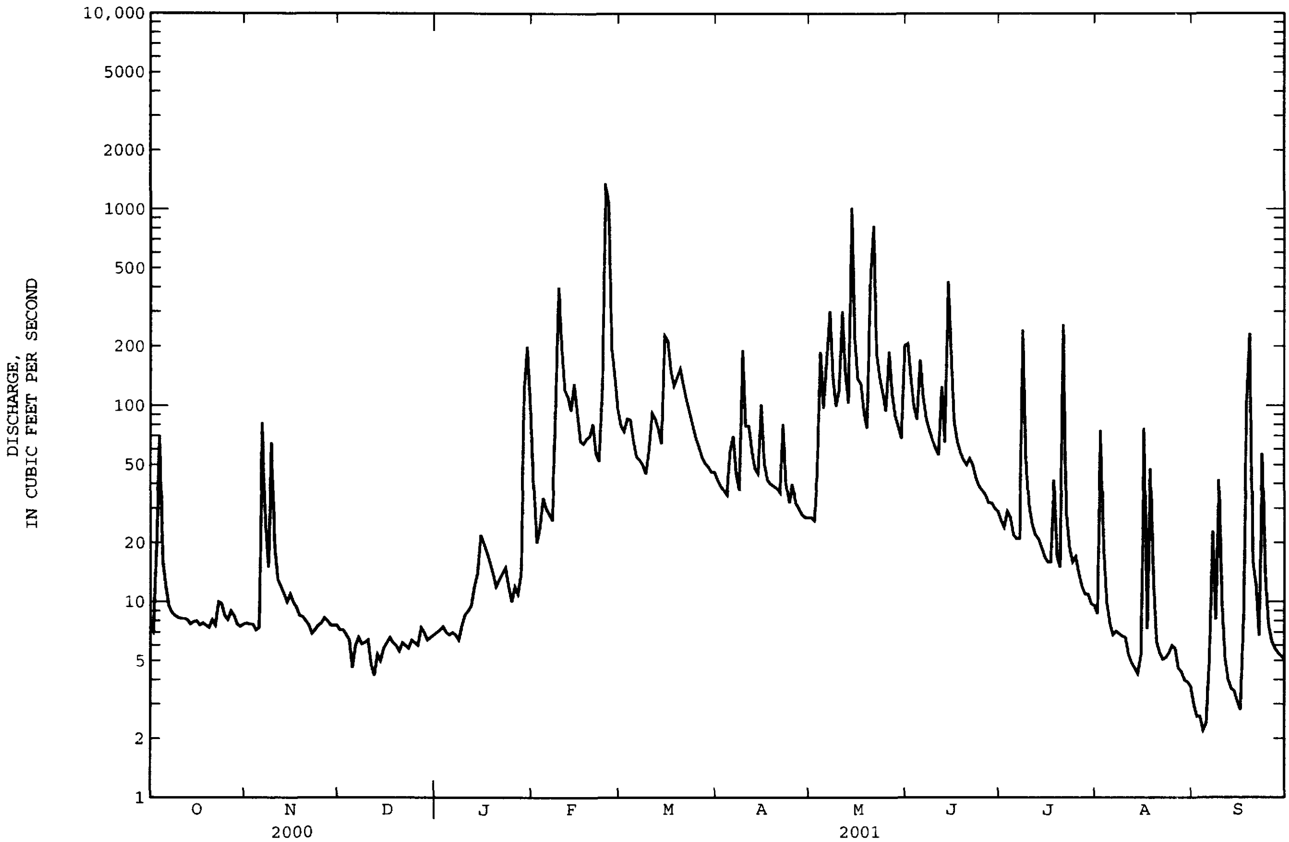
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2001, BY WATER YEAR (WY)

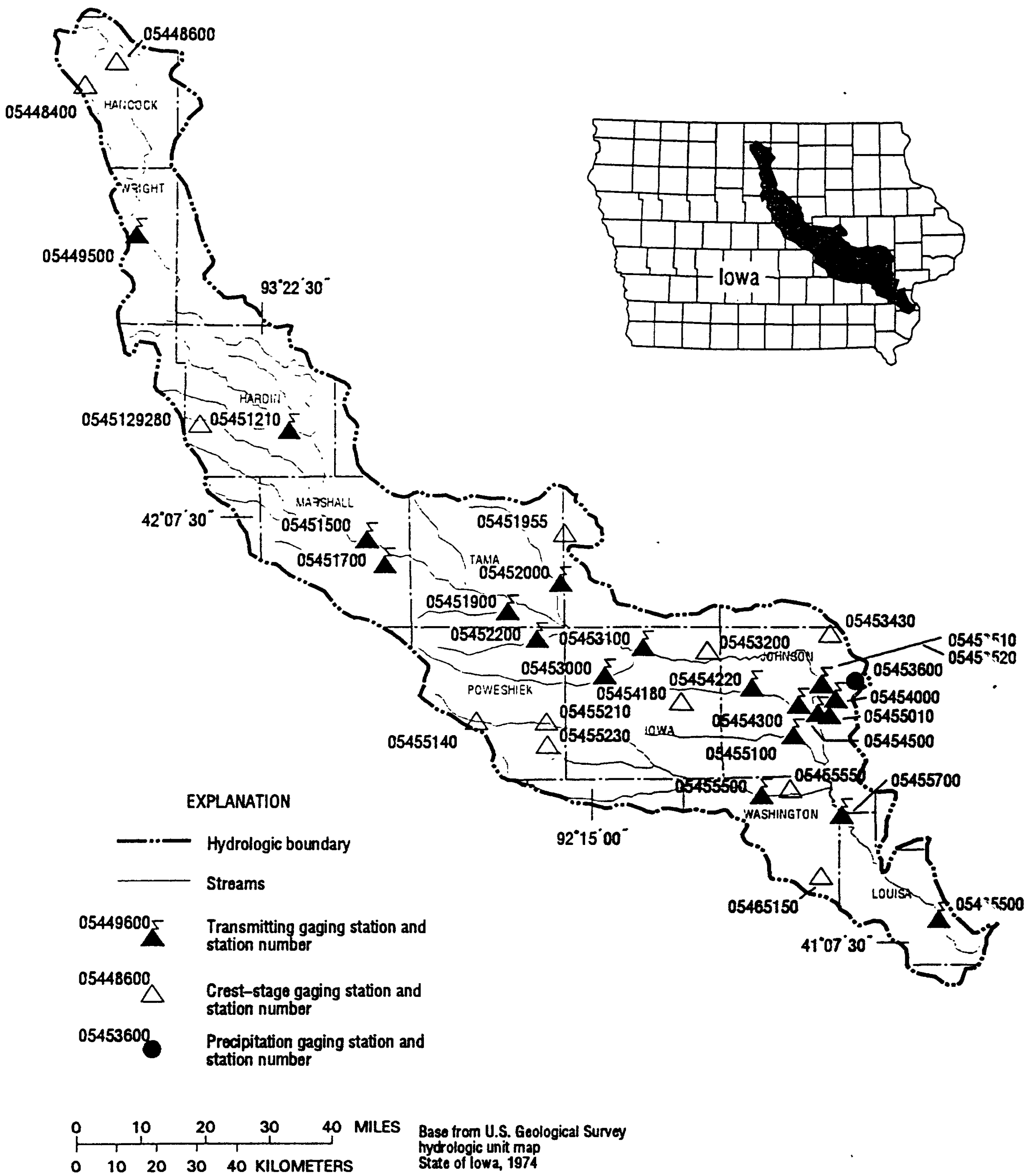
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	25.0	19.9	10.5	16.9	67.9	55.0	84.4	132	98.9	33.4	22.6	18.7
MAX	125	68.3	33.1	38.6	173	143	141	250	177	42.7	34.6	35.1
(WY)	1999	1999	1999	1999	2001	1998	1998	1996	2000	2000	1995	1998
MIN	3.26	4.84	3.74	4.59	13.8	16.0	16.5	56.3	41.0	10.4	11.8	4.96
(WY)	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1995 - 2001	
ANNUAL TOTAL	17762.6		21612.2			
ANNUAL MEAN	48.5		59.2		48.6	
HIGHEST ANNUAL MEAN					61.8	1998
LOWEST ANNUAL MEAN					25.3	1997
HIGHEST DAILY MEAN	1260	Apr 20	1360	Feb 24	2250	May 28 1996
LOWEST DAILY MEAN	2.1	Sep 8	2.2	Sep 4	.86	Oct 4 1994
ANNUAL SEVEN-DAY MINIMUM	3.5	Jan 22	2.9	Aug 30	1.0	Oct 11 1994
MAXIMUM PEAK FLOW			3390	Feb 24	5320	May 28 1996
MAXIMUM PEAK STAGE			11.85	Feb 24	14.94	May 28 1996
INSTANTANEOUS LOW FLOW			2.1	Sep 4a		
ANNUAL RUNOFF (AC-FT)	35230		42870		35180	
ANNUAL RUNOFF (CFSM)	.92		1.12		.92	
ANNUAL RUNOFF (INCHES)	12.47		15.17		12.45	
10 PERCENT EXCEEDS	92		132		104	
50 PERCENT EXCEEDS	15		20		18	
90 PERCENT EXCEEDS	4.8		5.8		3.7	

a Also Sept. 5.
e Estimated

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WASHINGTON
92°15'00"
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LOUISA
41°07'30"
Iowa
EXPLANATION
Hydrologic boundary
Streams
05449600
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

Crest Stage Gaging Stations

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.

WATER DISCHARGE RECORDS

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. U.S. Army Corp of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	44	71	e32	e25	e44	2500	516	1130	824	380	74
2	26	73	63	e37	e27	e42	2920	1010	998	742	325	72
3	26	86	89	e38	e27	e40	3040	2090	890	564	292	70
4	28	66	82	e41	e28	e43	3030	3010	786	648	260	67
5	30	57	76	e43	e29	e54	2860	3180	743	564	227	64
6	30	67	82	e40	e26	e60	2550	2900	812	459	199	63
7	29	126	72	e39	e25	e58	2310	2690	832	396	176	68
8	28	164	e68	e35	e24	e54	2120	2480	750	354	161	111
9	28	158	e58	e40	e28	e56	1970	2180	665	317	148	114
10	28	129	e46	e43	e30	e62	1790	1830	609	283	136	94
11	28	106	e39	e46	e34	e70	1590	1520	566	256	125	81
12	28	99	e43	e43	e29	e80	1970	1300	827	233	121	73
13	28	97	e45	e35	e26	e90	2700	1100	1020	212	112	69
14	33	93	e47	e33	e24	e110	2890	949	1110	195	105	68
15	31	78	e49	e30	e25	e140	2490	841	1750	180	116	71
16	31	87	e40	e32	e27	e170	2040	761	1990	167	161	72
17	32	70	e34	e28	e27	e200	1620	673	1840	158	157	71
18	32	70	e20	e27	e25	e260	1310	605	1620	149	134	70
19	37	e60	e22	e27	e25	e300	1100	556	1390	434	124	67
20	30	e56	e23	e28	e28	e400	947	585	1150	963	114	65
21	29	e78	e21	e29	e33	e480	846	1100	937	775	106	73
22	28	91	e22	e26	e43	e600	818	1450	779	585	102	117
23	34	95	e24	e25	e38	e680	851	1550	667	645	99	105
24	38	97	e25	e24	e37	e740	841	1540	588	789	94	89
25	38	99	e26	e25	e35	e770	783	1410	526	1520	104	80
26	41	98	e29	e27	e36	e760	722	1430	477	1770	124	76
27	42	96	e30	e30	e40	e700	676	1660	440	1440	111	73
28	41	90	e32	e32	e44	e600	600	1910	399	1080	96	69
29	37	92	e28	e30	---	e900	538	1920	370	766	89	67
30	35	78	e29	e28	---	1300	498	1620	369	590	82	64
31	37	---	e30	e27	---	1810	---	1370	---	470	78	---
TOTAL	988	2700	1365	1020	845	11673	50920	47736	27030	18528	4658	2317
MEAN	31.9	90.0	44.0	32.9	30.2	377	1697	1540	901	598	150	77.2
MAX	42	164	89	46	44	1810	3040	3180	1990	1770	380	117
MIN	25	44	20	24	24	40	498	516	369	149	78	63
AC-FT	1960	5360	2710	2020	1680	23150	101000	94680	53610	36750	9240	4600
CFSM	.08	.22	.11	.08	.07	.90	4.06	3.68	2.16	1.43	.36	.18
IN.	.09	.24	.12	.09	.08	1.04	4.53	4.25	2.41	1.65	.41	.21

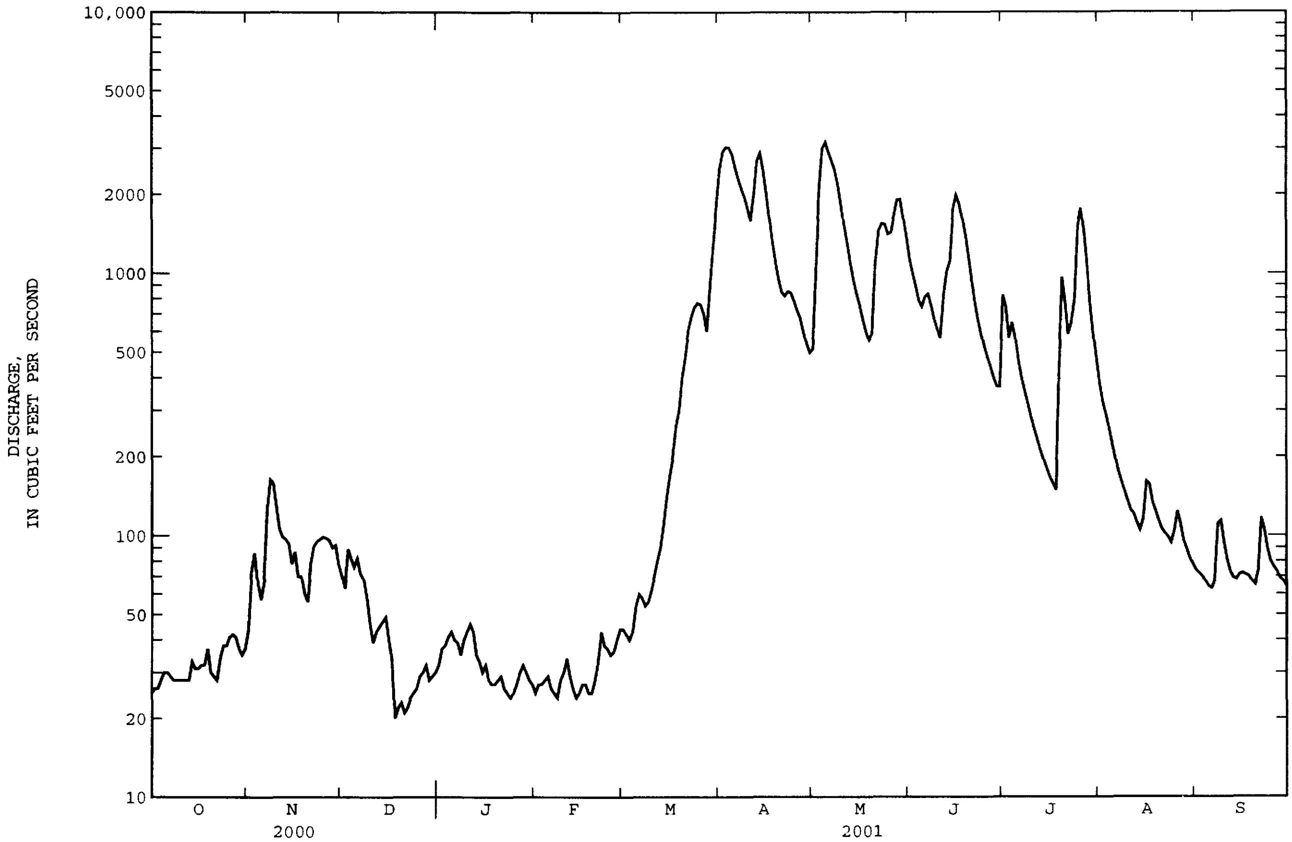
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	134	133	85.5	55.0	114	397	504	381	498	308	158	140
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	2.98
(WY)	1990	1990	1990	1959	1959	1968	1957	1989	1989	1977	1977	1977

05449500 IOWA RIVER NEAR ROWAN, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1941 - 2001	
ANNUAL TOTAL	51190		169780			
ANNUAL MEAN	140		465		243	
HIGHEST ANNUAL MEAN					869	1993
LOWEST ANNUAL MEAN					30.4	1956
HIGHEST DAILY MEAN	1490	Jun 15	3180	May 5	7640	Jun 21 1954
LOWEST DAILY MEAN	19	Jan 28	20	Dec 18	2.2	Sep 11 1977
ANNUAL SEVEN-DAY MINIMUM	19	Jan 27	22	Dec 18	2.9	Sep 8 1977
MAXIMUM PEAK FLOW			3230	May 5	8460	Jun 21 1954
MAXIMUM PEAK STAGE			12.03	May 5	14.88	Jun 21 1954
INSTANTANEOUS LOW FLOW			25	Oct 1	2.2	Sep 11 1977
ANNUAL RUNOFF (AC-FT)	101500		336800		176200	
ANNUAL RUNOFF (CFSM)	.33		1.11		.58	
ANNUAL RUNOFF (INCHES)	4.56		15.11		7.90	
10 PERCENT EXCEEDS	323		1540		621	
50 PERCENT EXCEEDS	72		95		85	
90 PERCENT EXCEEDS	28		28		17	

e Estimated



05449500 IOWA RIVER NEAR ROWAN, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 2001 to September 30, 2001.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	TEMPER- ATURE WATER (DEG C) (00010)	TEMPER- ATURE AIR (DEG C) (00020)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	GAGE HEIGHT (FEET) (00065)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	SAMPLE TREAT- MENT (CODES) (00115)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)
OCT													
09...	1150	12.5	13.3	--	--	--	55	3.78	643	--	--	--	--
NOV													
06...	1110	9.0	8.0	--	1028	1028	56	3.65	685	--	--	--	--
DEC													
19...	1310	.00	-2.0	--	1028	1028	22	3.96	710	--	--	--	--
JAN													
10...	0943	.00	1.0	731	1028	80020	112	4.04	729	1	7.6	54	7.7
10...	0944	--	--	--	1028	82013	--	--	--	1	--	--	--
FEB													
06...	1020	.00	-3.0	735	1028	80020	144	4.24	712	1	6.4	46	8.0
06...	1021	--	--	--	1028	82013	--	--	--	1	--	--	--
13...	1130	.00	.00	--	1028	1028	26	4.32	1240	--	--	--	--
MAR													
07...	0954	.00	-4.0	736	1028	80020	168	4.40	702	1	8.4	60	7.5
07...	0955	--	--	--	1028	82013	--	--	--	1	--	--	--
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	1030	8.0	13.0	725	1028	80020	1840	10 38	479	1	9.6	85	7.6
10...	1031	--	--	--	1028	82013	--	--	--	1	--	--	--
MAY													
02...	0934	14.7	--	726	1028	80020	906	7.81	519	1	10.2	101	7.5
02...	0935	--	--	--	1028	82013	--	--	--	1	--	--	--
07...	1720	16.1	22.2	--	1028	1028	2680	11.46	484	--	--	--	--
JUN													
07...	1552	16.2	25.0	--	1028	1028	826	7.52	625	--	--	--	--
08...	0830	15.8	23.0	733	1028	80020	765	7.27	647	1	8.1	82	7.8
08...	0831	--	--	--	1028	82013	--	--	--	1	--	--	--
JUL													
12...	1042	21.6	26.7	737	1028	80020	235	4.95	660	1	6.7	76	7.8
12...	1043	--	--	--	1028	82013	--	--	--	1	--	--	--
16...	1035	21.9	21.8	--	1028	1028	167	4.57	643	--	--	--	--
AUG													
07...	0851	25.6	--	737	1028	80020	178	4.63	657	1	6.1	75	7.7
07...	0852	--	--	--	1028	82013	--	--	--	1	--	--	--
30...	0930	22.0	23.5	--	--	--	81	3.97	545	--	--	--	--
SEP													
06...	0901	20.5	20.2	727	1028	80020	62	3.82	630	1	8.9	99	7.9
06...	0902	--	--	--	1028	82013	--	--	--	--	--	--	--

05449500 IOWA RIVER NEAR ROWAN, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, INOR-GANIC, PARTIC. TOTAL (MG/L AS C) (00688)
OCT													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
10...	7.6	.0	369	.495	.048	.88	.93	4.79	.209	.192	.166	3.4	<.1
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
06...	7.5	.0	342	.365	.025	.65	.70	4.20	.181	.156	.152	3.2	--
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
07...	7.7	.0	353	.465	.021	.81	.85	3.79	.226	.198	.181	3.3	<.1
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	7.8	.0	194	.179	.078	1.0	1.2	9.48	.341	.345	.286	7.4	<.1
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
02...	--	.0	217	--	--	--	--	--	--	--	--	5.0	<.1
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
08...	8.0	.0	249	<.040	.037	.54	.85	13.7	.145	.089	.062	5.4	<.1
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
12...	8.0	3	289	<.040	.022	.44	.87	10.3	.171	.111	.095	4.7	<.1
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
07...	8.0	.0	246	E.030	.019	.47	.76	7.53	.192	.140	.113	3.9	<.1
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
06...	8.0	2	282	<.040	.083	.34	.84	2.66	.133	.067	<.020	3.5	<.1
06...	--	--	--	--	--	--	--	--	--	--	--	--	--

05449500 IOWA RIVER NEAR ROWAN, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	CARBON, ORGANIC PARTIC-ULATE TOTAL (MG/L AS C) (00689)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	PROPA-CHLOR, WATER, DISS, REC (UG/L) (04024)
OCT													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
10...	.4	.5	88.0	31.3	14.7	2.63	27.1	55.0	.3	21.6	<10	118	<.010
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
06...	--	.6	93.4	29.1	15.3	2.99	28.0	56.4	.3	20.8	M	107	<.010
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
07...	.5	.5	88.1	28.6	14.6	3.03	24.2	50.6	.3	20.1	20	123	<.010
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	2.5	2.5	62.4	15.8	3.7	4.42	11.6	23.8	.3	18.2	10	8.6	<.010
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
02...	11	11	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
08...	1.8	1.8	80.8	23.8	5.1	1.46	18.0	29.9	.4	18.0	<10	17.9	<.010
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
12...	2.4	2.4	88.0	27.1	6.1	1.70	14.8	34.1	.3	23.6	<10	22.1	<.010
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
07...	2.1	2.2	87.8	27.1	7.4	2.06	16.5	36.1	.3	25.8	<10	25.5	<.010
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
06...	2.8	2.9	79.9	28.8	8.7	2.45	18.6	52.7	.2	18.9	<10	92.3	<.010
06...	--	--	--	--	--	--	--	--	--	--	--	--	--

05449500 IOWA RIVER NEAR ROWAN, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	SI-MAZINE, WATER, DISS, REC (UG/L) (04035)	PRO-METON, WATER, DISS, REC (UG/L) (04037)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	FONOFOS WATER DISS REC (UG/L) (04095)	TOTAL COLI-FORM, M ENDO MF, WTR (COL 100 ML) (31501)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)	ALPHA BHC DIS-SOLVED (UG/L) (34253)	P,P' DDE DISSOLV (UG/L) (34653)	CHLOR-PYRIFOS DIS-SOLVED (UG/L) (38933)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	LINDANE DIS-SOLVED (UG/L) (39341)
OCT													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
10...	<.002	<.011	E.004	E.018	<.018	<.003	4800	270	<.005	<.003	<.005	306	<.004
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
06...	<.002	<.011	E.008	E.016	<.018	<.003	5000	E37	<.005	<.003	<.005	234	<.004
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
07...	<.002	<.011	E.007	E.020	<.018	<.003	2500	110	<.005	<.003	<.005	233	<.004
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	<.002	<.011	E.003	E.032	E.004	<.003	9300	92	<.005	<.003	<.005	161	<.004
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
02...	--	--	--	--	--	--	16000	2400	--	--	--	180	--
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
08...	<.002	<.011	E.007	E.019	E.008	<.003	9800	280	<.005	<.003	<.005	207	<.004
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
12...	<.002	<.011	E.005	E.045	<.018	<.003	5000	220	<.005	<.003	<.005	242	<.004
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
07...	<.002	<.011	<.015	E.017	<.018	<.003	3800	270	<.005	<.003	<.005	250	<.004
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
06...	<.002	<.011	E.007	E.015	<.018	<.003	2200	E140	<.005	<.003	<.005	236	<.004
06...	--	--	--	--	--	--	--	--	--	--	--	--	--

05449500 IOWA RIVER NEAR ROWAN, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	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, PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	PURPOSE SITE VISIT, (CODE) (50280)	TUR-BID-ITY FIELD WATER UNFLTRD (NTU) (61028)	PHEO-PHYTIN A, PHYTO-PHYTON (UG/L) (62360)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
10...	<.005	.036	<.027	<.007	<.005	.020	<.002	<.004	.032	1001	--	.5	472
10...	--	--	--	--	--	--	--	--	--	1001	--	--	--
FEB													
06...	<.005	.024	<.027	<.007	<.005	.032	<.002	<.004	.068	1001	--	1.1	465
06...	--	--	--	--	--	--	--	--	--	1001	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
07...	<.005	.034	<.027	<.007	<.005	.033	<.002	<.004	.066	1001	--	1.1	443
07...	--	--	--	--	--	--	--	--	--	1001	--	--	--
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	<.005	.363	<.027	<.007	<.005	.083	E.004	.031	.293	1001	--	3.8	308
10...	--	--	--	--	--	--	--	--	--	1001	--	--	--
MAY													
02...	--	--	--	--	--	--	--	--	1.1	1001	150	4.0	--
02...	--	--	--	--	--	--	--	--	--	1001	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
08...	<.005	.137	<.027	<.007	<.005	.183	<.002	.176	.222	1001	33	4.0	422
08...	--	--	--	--	--	--	--	--	--	1001	--	--	--
JUL													
12...	<.005	.088	<.027	<.007	<.005	.252	<.002	<.020	.287	1001	51	11	417
12...	--	--	--	--	--	--	--	--	--	1001	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
07...	<.005	.071	<.027	<.007	<.005	.109	<.002	.006	.240	1001	43	3.4	415
07...	--	--	--	--	--	--	--	--	--	1001	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
06...	<.005	.040	<.027	<.007	<.005	.036	<.002	<.004	.380	1001	35	24	352
06...	--	--	--	--	--	--	--	--	--	--	--	--	--

05449500 IOWA RIVER NEAR ROWAN, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	SAMPLE PURPOSE CODE (71999)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	DRAIN-AGE AREA (SQ. MI.) (81024)	SAM-PLING METHOD, CODES (82398)	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)
OCT													
09...	--	--	1143.35	--	418	--	--	--	--	--	--	--	--
NOV													
06...	--	--	1143.35	--	418	--	--	--	--	--	--	--	--
DEC													
19...	--	--	1143.35	--	418	--	--	--	--	--	--	--	--
JAN													
10...	.3	15.00	1143.35	24	418	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
10...	--	15.00	1143.35	--	418	10	--	--	--	--	--	--	--
FEB													
06...	.5	15.00	1143.35	55	418	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
06...	--	15.00	1143.35	--	418	10	--	--	--	--	--	--	--
13...	--	--	1143.35	--	418	--	--	--	--	--	--	--	--
MAR													
07...	.5	15.00	1143.35	91	418	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
07...	--	15.00	1143.35	--	418	10	--	--	--	--	--	--	--
APR													
10...	--	--	1143.35	--	418	--	--	--	--	--	--	--	--
10...	3.5	15.00	1143.35	23	418	10	<.006	<.002	E.004	<.009	<.011	<.034	<.035
10...	--	15.00	1143.35	--	418	10	--	--	--	--	--	--	--
MAY													
02...	14.2	15.00	1143.35	123	418	10	--	--	--	--	--	--	--
02...	--	15.00	1143.35	--	418	10	--	--	--	--	--	--	--
07...	--	--	1143.35	--	418	--	--	--	--	--	--	--	--
JUN													
07...	--	--	1143.35	--	418	--	--	--	--	--	--	--	--
08...	4.6	15.00	1143.35	65	418	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
08...	--	15.00	1143.35	--	418	10	--	--	--	--	--	--	--
JUL													
12...	13.6	15.00	1143.35	120	418	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
12...	--	15.00	1143.35	--	418	10	--	--	--	--	--	--	--
16...	--	--	1143.35	--	418	--	--	--	--	--	--	--	--
AUG													
07...	8.3	15.00	1143.35	73	418	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
07...	--	15.00	1143.35	--	418	10	--	--	--	--	--	--	--
30...	--	--	1143.35	--	418	--	--	--	--	--	--	--	--
SEP													
06...	31.8	15.00	1143.35	54	418	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
06...	--	--	1143.35	--	418	--	--	--	--	--	--	--	--

05449500 IOWA RIVER NEAR ROWAN, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	METHYL PARA-THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	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													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
10...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
06...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
07...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
08...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
12...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
07...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
06...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
06...	--	--	--	--	--	--	--	--	--	--	--	--	--

05449500 IOWA RIVER NEAR ROWAN, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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)	SAMPLER TYPE (CODE) (84164)	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)	QUALITY ASSUR-ANCE DATA INDICA-TOR CODE (99111)
OCT													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
10...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	769	91	80	30
10...	--	--	--	--	--	--	--	--	3045	--	--	--	--
FEB													
06...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	751	85	80	--
06...	--	--	--	--	--	--	--	--	3045	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
07...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	713	93	90	--
07...	--	--	--	--	--	--	--	--	3045	--	--	--	--
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3039	485	96	80	--
10...	--	--	--	--	--	--	--	--	3039	--	--	--	--
MAY													
02...	--	--	--	--	--	--	--	--	3039	--	--	--	--
02...	--	--	--	--	--	--	--	--	3039	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
08...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3039	649	89	76	--
08...	--	--	--	--	--	--	--	--	3039	--	--	--	--
JUL													
12...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	664	77	74	10
12...	--	--	--	--	--	--	--	--	3045	--	--	--	10
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
07...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	651	83	74	--
07...	--	--	--	--	--	--	--	--	3045	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
06...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	628	83	72	--
06...	--	--	--	--	--	--	--	--	--	--	--	--	--

05449500 IOWA RIVER NEAR ROWAN, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	SET NUMBER SCHED-ULE 2010 (NO.) (99819)	SAMPLE VOLUME SCHED-ULE 2010 (ML) (99857)	TURBID-ITY LAB HACH 2100AN (NTU) (99872)
OCT			
09...	--	--	--
NOV			
06...	--	--	--
DEC			
19...	--	--	--
JAN			
10...	1.10	934	2.5
10...	--	--	--
FEB			
06...	1.10	934	2.9
06...	--	--	--
13...	--	--	--
MAR			
07...	5.11	943	--
07...	--	--	--
APR			
10...	--	--	--
10...	1.11	952	21
10...	--	--	--
MAY			
02...	--	--	--
02...	--	--	--
07...	--	--	--
JUN			
07...	--	--	--
08...	2.00E+08	921	14
08...	--	--	--
JUL			
12...	2.00E+08	942	150
12...	--	--	--
16...	--	--	--
AUG			
07...	2.00E+08	931	30
07...	--	--	--
30...	--	--	--
SEP			
06...	2.00E+08	951	19
06...	--	--	--

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05451210 SOUTH FORK IOWA RIVER NORTHEAST OF NEW PROVIDENCE, IA

LOCATION.--Lat 42°18'55", long 93°09'07", in SE¼ NW¼ SW¼ 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	4.9	e8.4	e3.6	e7.4	e9.0	900	128	445	97	41	6.4
2	3.8	8.2	e6.8	e3.4	e6.0	e11	744	143	426	93	37	5.9
3	2.0	7.9	e6.0	e3.6	e5.4	e12	577	191	376	85	50	5.4
4	2.3	6.3	e8.4	e4.0	e6.8	e13	474	421	326	78	38	5.0
5	2.5	5.8	e7.6	e4.2	e7.2	e12	422	455	406	69	34	4.7
6	2.6	11	e7.0	e4.4	e7.4	e11	462	436	807	63	30	7.9
7	2.4	17	e8.4	e4.8	e7.2	e10	492	481	600	59	27	22
8	2.5	16	e10	e4.4	e8.0	e13	412	401	444	56	23	257
9	2.6	16	e8.2	e3.6	e7.0	e14	304	326	357	52	21	194
10	2.4	15	e7.8	e4.0	e6.2	e15	248	373	309	46	18	115
11	2.6	13	e6.2	e4.6	e5.6	e14	290	577	274	40	16	77
12	2.7	13	e5.6	e5.6	e6.6	e15	742	387	254	36	14	48
13	2.6	12	e5.2	e6.0	e8.0	e18	864	293	237	33	13	41
14	3.1	e9.0	e6.0	e5.2	e8.6	e36	571	258	250	29	12	35
15	2.9	e9.6	e6.2	e4.6	e7.8	e54	414	230	345	27	e11	32
16	2.8	e8.4	e7.0	e4.2	e7.2	e80	311	205	465	25	19	e40
17	2.7	e7.8	e6.0	e4.0	e6.6	e140	250	185	363	23	17	43
18	2.9	e8.8	e5.4	e4.8	e6.0	e240	217	170	294	22	18	44
19	2.9	e9.4	e4.8	e4.4	e6.8	e400	200	158	251	25	16	41
20	3.4	e9.0	e4.6	e4.2	e7.4	e600	189	154	212	29	14	38
21	3.3	e7.0	e5.0	e4.4	e6.8	e900	176	431	193	34	12	43
22	3.5	e7.6	e4.4	e4.2	e6.4	1650	170	966	181	30	13	71
23	4.9	e8.4	e4.2	e4.6	e7.2	1530	176	896	166	29	13	66
24	5.1	e10	e3.8	e4.2	e8.4	1190	167	614	153	49	13	57
25	6.0	14	e3.4	e3.8	e12	968	153	537	141	180	12	49
26	11	13	e3.2	e3.6	e11	743	146	1060	129	230	11	44
27	9.4	12	e3.8	e4.0	e10	623	139	1490	119	140	10	41
28	11	e10	e4.0	e4.6	e9.4	565	129	1300	111	99	9.5	38
29	7.5	e8.6	e4.4	e6.0	---	593	122	870	105	77	8.7	34
30	6.6	e8.0	e4.0	e8.0	---	695	119	630	99	62	7.9	e33
31	5.1	---	e3.8	e8.6	---	797	---	505	---	50	7.3	---
TOTAL	129.4	306.7	179.6	143.6	210.4	11971.0	10580	15271	8838	1967	586.4	1538.3
MEAN	4.17	10.2	5.79	4.63	7.51	386	353	493	295	63.5	18.9	51.3
MAX	11	17	10	8.6	12	1650	900	1490	807	230	50	257
MIN	2.0	4.9	3.2	3.4	5.4	9.0	119	128	99	22	7.3	4.7
AC-FT	257	608	356	285	417	23740	20990	30290	17530	3900	1160	3050
CFSM	.02	.05	.03	.02	.03	1.72	1.57	2.20	1.32	.28	.08	.23
IN.	.02	.05	.03	.02	.03	1.99	1.76	2.54	1.47	.33	.10	.26

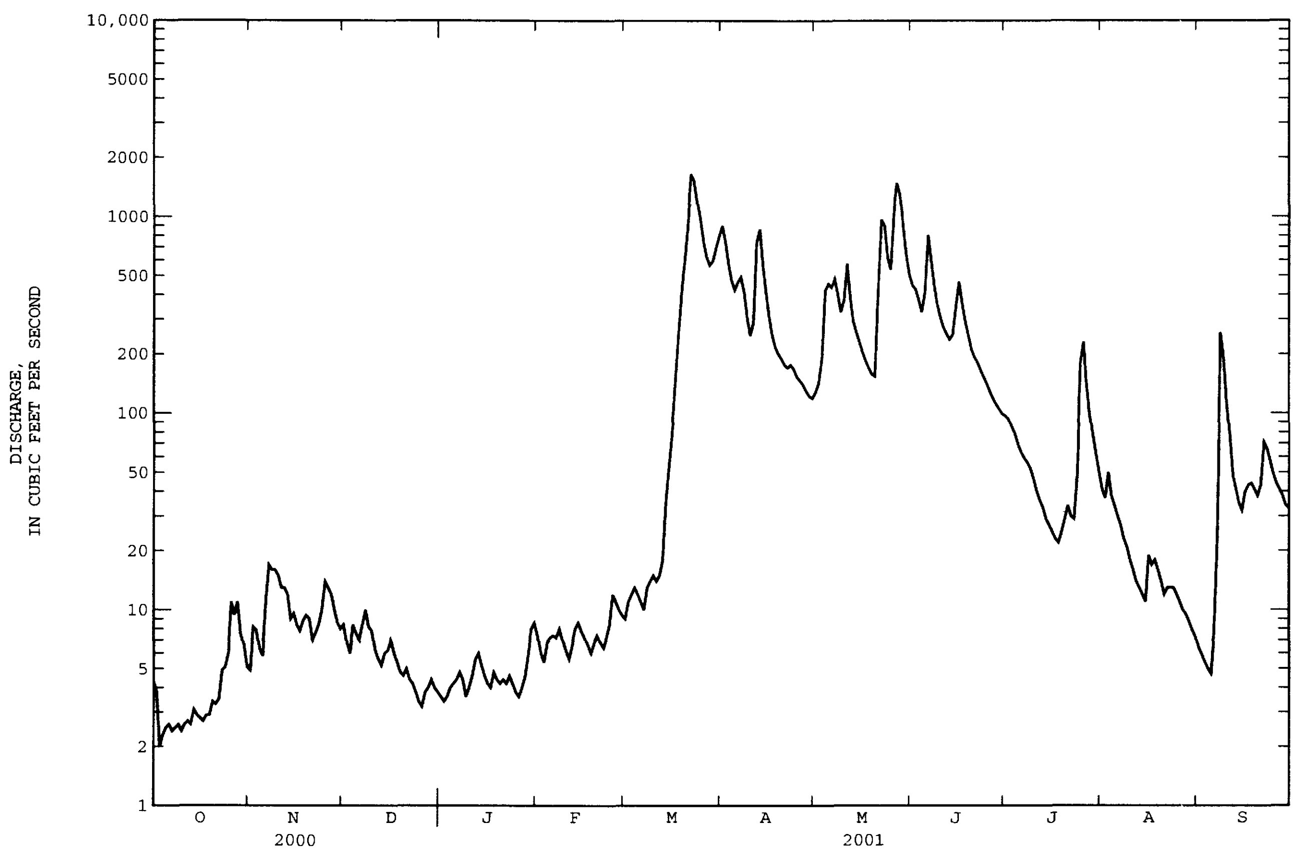
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	24.0	57.9	34.8	22.8	115	185	241	307	524	172	28.7	15.5
MAX	76.6	199	119	65.7	250	386	513	643	1173	414	73.7	51.3
(WY)	1999	1997	1997	1997	1997	2001	1999	1999	1998	1998	1998	2001
MIN	2.59	4.90	5.03	4.63	7.51	8.73	7.17	13.1	253	59.9	12.5	3.51
(WY)	2000	2000	2000	2001	2001	2000	2000	2000	2000	1996	2000	2000

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

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1996 - 2001	
ANNUAL TOTAL	13641.4		51721.4			
ANNUAL MEAN	37.3		142		157	
HIGHEST ANNUAL MEAN					218	1998
LOWEST ANNUAL MEAN					36.6	2000
HIGHEST DAILY MEAN	902	Jun 15	1650	Mar 22	2920	Jun 30 1998
LOWEST DAILY MEAN	1.7	Sep 13	2.0	Oct 3	1.7	Sep 13 2000
ANNUAL SEVEN-DAY MINIMUM	1.9	Sep 11	2.4	Oct 3	1.9	Sep 11 2000
MAXIMUM PEAK FLOW			1700	Mar 22	3550	Jun 21 1998
MAXIMUM PEAK STAGE			8.26	Mar 22	11.59	Jun 21 1998
INSTANTANEOUS LOW FLOW			1.7	Oct 3	1.7	Sep 26 1999a
ANNUAL RUNOFF (AC-FT)	27060		102600		113900	
ANNUAL RUNOFF (CFSM)	.17		.63		.70	
ANNUAL RUNOFF (INCHES)	2.27		8.59		9.53	
10 PERCENT EXCEEDS	88		458		389	
50 PERCENT EXCEEDS	7.4		16		40	
90 PERCENT EXCEEDS	3.4		4.0		4.8	

a Also Oct. 3, 2000.
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 2000 TO SEPTEMBER 2001

DATE	TIME	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	GAGE HEIGHT (FEET) (00065)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	SAMPLE TREAT-MENT (CODES) (00115)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)
OCT													
04...	1025	12.8	15.5	741	1028	80020	2.3	2.14	547	1	9.9	96	8.2
NOV													
02...	1116	13.4	12.0	737	1028	80020	8.2	2.41	539	1	11.5	114	8.2
DEC													
05...	1012	.00	-10.0	749	1028	80020	7.6	2.55	735	1	12.7	89	8.0
JAN													
09...	1143	.00	-7.0	746	1028	80020	3.7	2.50	647	1	11.4	80	7.9
FEB													
05...	1400	.00	8.0	735	1028	80020	7.2	2.74	707	1	9.4	67	7.8
MAR													
06...	1154	.1	-1.0	746	1028	80020	11	2.68	664	1	9.5	67	7.6
APR													
09...	1320	10.1	13.0	730	1028	80020	288	4.47	616	1	10.5	98	7.6
MAY													
01...	1036	16.1	23.5	730	1028	80020	129	3.51	628	1	12.0	123	8.1
JUN													
07...	1155	15.2	--	736	1028	80020	585	5.46	663	1	6.2	61	8.0
JUL													
11...	1050	24.0	26.0	738	1028	80020	40	2.70	673	1	8.2	97	8.0
AUG													
06...	1108	29.1	30.2	747	1028	80020	31	2.54	564	1	8.4	109	8.2
SEP													
05...	1118	23.0	23.0	740	1028	80020	4.7	2.07	493	1	13.6	158	8.1

DATE	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, INOR-GANIC, PARTIC. TOTAL (MG/L AS C) (00688)
OCT													
04...	7.9	.0	297	<.020	<.010	.34	.77	.168	.094	.025	.012	4.4	<.1
NOV													
02...	8.0	8	289	<.041	E.004	.35	.53	.069	.096	.052	.036	4.2	<.1
DEC													
05...	8.0	.0	376	<.041	.026	.33	.48	3.74	.021	.015	E.010	3.7	<.1
JAN													
09...	7.9	.0	355	.488	.048	.79	.81	4.83	.038	.022	.168	2.9	<.1
FEB													
05...	7.6	.0	414	.479	.022	.81	.86	2.38	.050	.033	.029	3.3	--
MAR													
06...	7.7	.0	355	.634	.021	1.3	1.2	3.16	.168	.123	.094	4.3	<.1
APR													
09...	8.0	.0	243	.119	.037	.63	.79	15.4	.207	.159	.150	4.9	<.1
MAY													
01...	7.9	.0	260	<.041	.067	.47	.78	15.8	.035	.010	<.018	3.3	<.1
JUN													
07...	8.1	.0	223	<.040	.021	.70	1.2	23.9	.268	.157	.115	4.9	.2
JUL													
11...	8.1	4	276	<.040	.112	.51	.73	14.8	.079	.055	.029	4.1	<.1
AUG													
06...	8.1	3	185	E.031	.085	.46	.60	7.85	.058	.032	<.020	4.4	<.1
SEP													
05...	8.1	3	243	<.040	.007	.49	.95	.114	.075	.024	<.020	4.9	<.1

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	CARBON, ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)
OCT 04...	2.4	2.4	53.5	26.2	10.3	3.14	12.5	<.3	.3	10.1	M	85.9	<.010
NOV 02...	.7	.7	65.0	27.7	11.0	3.34	13.0	19.7	.4	9.6	20	54.2	<.010
DEC 05...	.6	.6	88.0	35.8	16.4	3.39	32.2	47.2	.4	8.1	M	45.7	<.010
JAN 09...	3.5	3.7	75.8	29.2	11.2	2.30	17.1	28.4	.4	14.7	M	69.5	<.010
FEB 05...	--	.4	89.1	31.9	13.9	3.45	21.0	33.9	.4	14.9	<10	54.9	<.010
MAR 06...	.7	.7	83.8	28.6	15.9	4.55	30.8	33.9	.3	14.4	40	57.5	<.010
APR 09...	1.6	1.6	79.4	22.0	6.3	1.93	19.2	27.6	.4	16.3	<10	17.1	<.010
MAY 01...	1.2	1.2	77.6	26.7	6.8	1.49	22.5	29.5	.3	4.7	10	14.7	<.010
JUN 07...	2.2	2.4	88.2	24.0	5.1	1.77	19.9	22.8	.4	20.4	<10	E3.2	--
JUL 11...	1.3	1.4	85.2	30.1	7.1	1.70	20.1	28.9	.4	21.0	<10	16.9	<.010
AUG 06...	1.3	1.3	61.6	26.3	7.3	2.65	20.2	29.5	.4	17.5	<10	10.9	<.010
SEP 05...	2.8	2.9	51.3	27.7	10.1	2.66	21.0	25.8	.3	12.0	10	56.9	<.010

DATE	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	FONOFOS WATER DISS REC (UG/L) (04095)	TOTAL COLI- FORM, M ENDO MF, WTR (COL/ 100 ML) (31501)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	P,P' DDE DISSOLV (UG/L) (34653)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	LINDANE DIS- SOLVED (UG/L) (39341)
OCT 04...	<.002	<.011	E.006	E.027	<.018	<.003	--	--	<.005	<.003	<.005	246	<.004
NOV 02...	<.002	<.011	E.006	E.026	<.018	<.003	--	--	<.005	<.003	<.005	254	<.004
DEC 05...	<.002	<.011	E.011	E.048	<.018	<.003	--	--	<.005	<.003	<.005	312	<.004
JAN 09...	<.002	<.011	<.015	E.024	<.018	<.003	150	E11	<.005	<.003	<.005	295	<.004
FEB 05...	<.002	<.011	<.015	E.018	<.018	<.003	330	E13	<.005	<.003	<.005	343	<.004
MAR 06...	<.002	<.011	E.005	E.027	<.018	<.003	5000	E18	<.005	<.003	<.005	295	<.004
APR 09...	<.002	<.011	<.015	E.033	E.003	<.003	1700	92	<.005	<.003	<.005	199	<.004
MAY 01...	<.002	<.011	E.004	E.039	<.018	<.003	420	E86	<.005	<.003	<.005	216	<.004
JUN 07...	--	--	--	--	--	--	11000	5200	--	--	--	185	--
JUL 11...	<.002	E.006	E.004	E.054	<.018	<.003	910	320	<.005	<.003	<.005	233	<.004
AUG 06...	<.002	E.009	E.004	E.059	<.018	<.003	1200	320	<.005	<.003	<.005	188	<.004
SEP 05...	<.002	<.011	<.015	E.036	<.018	<.003	390	E170	<.005	<.003	<.005	204	<.004

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	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,PAR TICULTE WAT FLT SUSP (MG/L AS N) (49570)	PURPOSE SITE VISIT, (CODE) (50280)	TUR-BID-ITY FIELD WATER UNFLTRD (NTU) (61028)	PHEO-PHYTIN A, PHYTO-PHYTON (UG/L) (62360)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT													
04...	<.005	.024	<.027	<.007	<.005	.066	<.002	<.004	.278	1001	--	--	312
NOV													
02...	<.005	.014	<.027	<.007	<.005	.045	<.002	<.004	.147	1001	--	7.1	309
DEC													
05...	<.005	.312	<.027	<.007	<.005	.073	<.002	.010	.065	1001	--	1.2	445
JAN													
09...	<.005	.052	<.027	<.007	<.005	.035	<.002	<.004	.290	1001	--	1.0	390
FEB													
05...	<.005	.096	<.027	<.007	<.005	.043	<.002	<.004	.054	1001	--	.8	434
MAR													
06...	<.005	.638	E.005	<.007	<.005	.051	<.002	<.004	.105	1001	--	.9	412
APR													
09...	<.005	1.12	<.027	<.007	<.005	.053	<.005	.013	.186	1001	--	2.3	382
MAY													
01...	<.005	.473	<.027	<.007	<.005	.091	<.002	.073	.155	1001	10	3.8	441
JUN													
07...	--	--	--	--	--	--	--	--	.330	1001	94	1.6	453
JUL													
11...	<.005	.112	<.027	<.007	<.005	.142	<.002	.006	.180	1001	16	6.1	423
AUG													
06...	<.005	.132	<.027	<.007	<.005	.147	<.002	.015	.190	1001	15	5.2	345
SEP													
05...	<.005	.047	<.027	<.007	<.005	.079	<.002	<.004	.479	1001	24	19	282

DATE	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	SAMPLE PURPOSE CODE (71999)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	DRAIN-AGE AREA (SQ. MI.) (81024)	SAM-PLING METHOD, CODES (82398)	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)
OCT													
04...	--	15.00	945	59	224	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
NOV													
02...	11.0	15.00	945	65	224	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
DEC													
05...	.8	15.00	945	52	224	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
JAN													
09...	.3	15.00	945	62	224	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
FEB													
05...	.4	15.00	945	101	224	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
MAR													
06...	1.2	15.00	945	91	224	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
APR													
09...	2.2	15.00	945	119	224	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
MAY													
01...	10.9	15.00	945	85	224	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
JUN													
07...	2.5	15.00	945	117	224	10	--	--	--	--	--	--	--
JUL													
11...	5.6	15.00	945	81	224	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
AUG													
06...	14.8	15.00	945	8	224	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035
SEP													
05...	37.9	15.00	945	13	224	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	METHYL PARA-THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	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...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
NOV													
02...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
DEC													
05...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
JAN													
09...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
FEB													
05...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
MAR													
06...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
APR													
09...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
MAY													
01...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
JUN													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
11...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
AUG													
06...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011
SEP													
05...	<.006	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011

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)	SAMPLER TYPE (CODE) (84164)	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)	QUALITY ASSUR-ANCE DATA INDICA-TOR CODE (99111)
OCT													
04...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	555	103	94	--
NOV													
02...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	552	97	91	--
DEC													
05...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	758	104	93	--
JAN													
09...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	672	91	85	30
FEB													
05...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	733	85	91	--
MAR													
06...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	703	85	84	--
APR													
09...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	--	631	101	86	--
MAY													
01...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	623	95	86	--
JUN													
07...	--	--	--	--	--	--	--	--	3039	659	E11	E8.9	--
JUL													
11...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	674	88	86	--
AUG													
06...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	--	557	92	84	--
SEP													
05...	<.041	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3045	500	90	79	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	SET NUMBER SCHED-ULE 2010 (NO.) (99819)	SAMPLE VOLUME SCHED-ULE 2010 (ML) (99857)	TURBID-ITY LAB HACH 2100AN (NTU) (99872)
OCT			
04...	7.03	925	--
NOV			
02...	2.03	943	6.5
DEC			
05...	1.03	934	2.0
JAN			
09...	1.10	943	15
FEB			
05...	2.10	917	2.8
MAR			
06...	5.11	934	--
APR			
09...	1.11	925	18
MAY			
01...	1.11	943	43
JUN			
07...	--	--	50
JUL			
11...	2.00E+08	942	100
AUG			
06...	2.00E+08	938	6.6
SEP			
05...	2.00E+08	945	9.1

DATE	TIME	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	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)	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...	1025	E.027	--	--	--	--	--	--
04...	1026	--	--	--	--	--	--	--
NOV								
02...	1116	E.026	--	--	--	--	--	--
02...	1117	--	.12	<.05	.070	<.05	1.24	.18
DEC								
05...	1012	E.048	--	--	--	--	--	--
05...	1013	--	--	--	--	--	--	--
JAN								
09...	1143	E.024	--	--	--	--	--	--
09...	1144	--	--	--	--	--	--	--
FEB								
05...	1400	E.018	--	--	--	--	--	--
05...	1401	--	--	--	--	--	--	--
MAR								
06...	1154	E.027	--	--	--	--	--	--
06...	1155	--	--	--	--	--	--	--
APR								
09...	1320	E.033	--	--	--	--	--	--
09...	1321	--	--	--	--	--	--	--
MAY								
01...	1036	E.039	--	--	--	--	--	--
01...	1037	--	--	--	--	--	--	--
JUN								
07...	1155	--	--	--	--	--	--	--
07...	1156	--	--	--	--	--	--	--
JUL								
11...	1050	E.054	--	--	--	--	--	--
11...	1051	--	--	--	--	--	--	--
AUG								
06...	1108	E.059	--	--	--	--	--	--
06...	1109	--	--	--	--	--	--	--
SEP								
05...	1118	E.036	--	--	--	--	--	--
05...	1119	--	--	--	--	--	--	--

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.

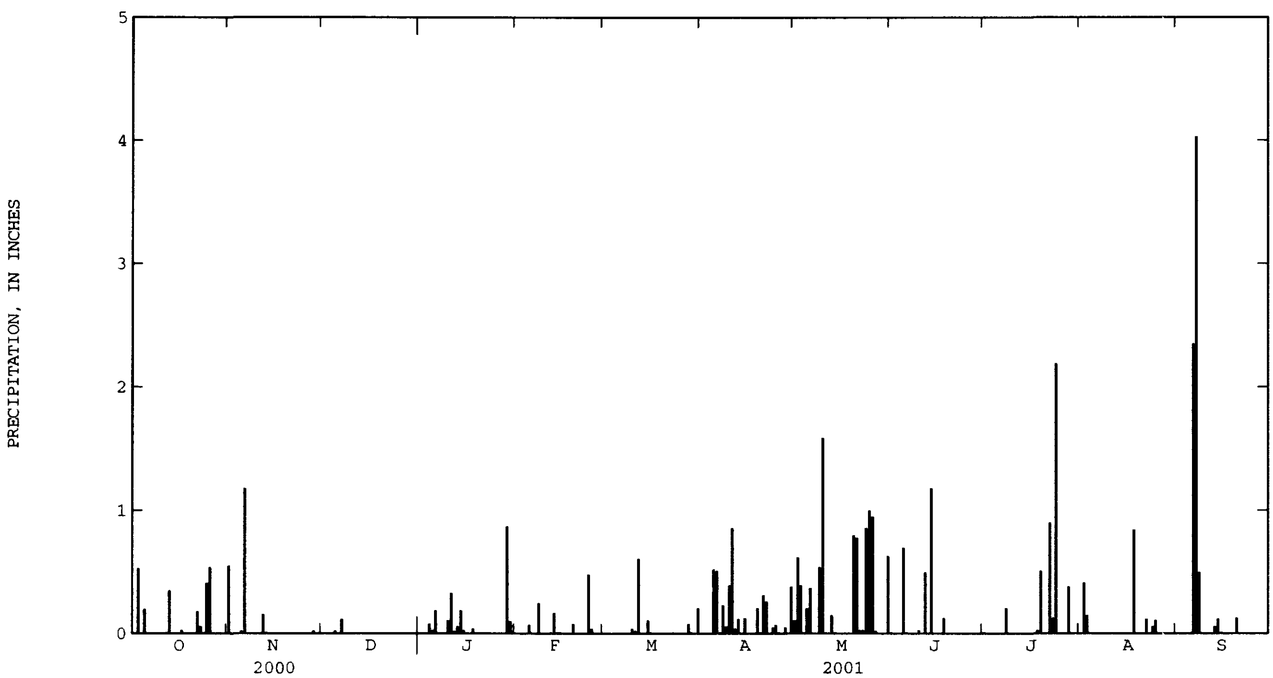
REMARKS.-- Records good except for winter period, which is poor due to intermittent snow accumulation and subsequent melting.

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

EXTREME FOR CURRENT YEAR.-- Maximum daily accumulation 4.03 in., Sep. 7.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.55	.00	.00	.00	.00	.00	.11	.01	.01	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.62	.00	.00	.41	.00
3	.53	.00	.00	.00	.00	.00	.00	.39	.00	.00	.15	.00
4	.00	.00	.00	.08	.00	.00	.00	.01	.00	.00	.00	.00
5	.20	.02	.02	.03	.07	.00	.52	.21	.70	.00	.00	.00
6	.00	1.18	.00	.19	.00	.00	.51	.37	.01	.00	.00	2.35
7	.00	.00	.12	.00	.00	.00	.01	.00	.00	.00	.00	4.03
8	.00	.00	.00	.00	.25	.00	.23	.00	.00	.21	.00	.50
9	.00	.00	.00	.01	.00	.00	.06	.54	.00	.00	.00	.00
10	.00	.00	.00	.11	.00	.04	.39	1.59	.03	.00	.00	.00
11	.00	.00	.00	.33	.00	.02	.86	.01	.00	.00	.00	.00
12	.01	.16	.00	.02	.01	.61	.04	.00	.50	.00	.00	.00
13	.35	.01	.00	.06	.17	.00	.12	.15	.00	.00	.00	.06
14	.00	.00	.00	.19	.01	.00	.00	.01	1.18	.00	.00	.12
15	.00	.00	.00	.03	.01	.11	.13	.00	.00	.00	.00	.01
16	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
17	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.04	.00	.00	.00	.00	.13	.03	.84	.00
19	.00	.00	.00	.00	.08	.00	.21	.00	.00	.51	.00	.00
20	.00	.00	.00	.00	.00	.00	.01	.80	.00	.00	.00	.13
21	.00	.00	.00	.00	.00	.00	.31	.78	.00	.00	.00	.00
22	.18	.00	.00	.00	.00	.00	.26	.03	.00	.90	.12	.00
23	.06	.00	.00	.00	.00	.01	.00	.03	.00	.13	.00	.00
24	.01	.00	.00	.00	.48	.00	.05	.86	.00	2.19	.06	.00
25	.41	.00	.00	.00	.04	.00	.07	1.00	.00	.00	.11	.00
26	.54	.00	.00	.00	.00	.00	.01	.95	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00
28	.00	.02	.00	.00	.00	.08	.05	.00	.00	.38	.00	.00
29	.01	.00	.00	.87	---	.01	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.10	---	.00	.38	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.21	---	.63	---	.00	.00	---
TOTAL	2.33	1.94	0.14	2.06	1.12	1.10	4.22	9.11	2.56	4.36	1.69	7.20
MEAN	.08	.06	.00	.07	.04	.04	.14	.29	.09	.14	.05	.24
MAX	.54	1.18	.12	.87	.48	.61	.86	1.59	1.18	2.19	.84	4.03
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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	147	e300	e95	e120	e110	4100	1420	4430	1100	1250	213
2	97	175	e240	e90	e110	e120	4370	1510	4050	1100	1000	204
3	90	173	e150	e90	e115	e140	4510	1870	3460	1330	863	203
4	98	173	e140	e95	e130	e150	4540	2660	2940	1410	768	198
5	103	158	e150	e110	e125	e140	4610	3610	2750	1270	672	192
6	111	217	e160	e120	e120	e130	4770	4420	3170	1150	619	211
7	109	291	e190	e140	e120	e140	5010	4990	3000	1130	569	359
8	111	326	e200	e150	e130	e160	4890	5180	2660	1050	508	1580
9	109	305	e150	e140	e120	e150	4930	4910	2450	965	465	1570
10	109	317	e130	e120	e110	e180	4580	4500	2270	891	423	878
11	108	334	e100	e130	e110	e150	4240	4860	2090	811	392	652
12	102	342	e90	e140	e120	e300	4900	4170	2040	737	368	519
13	100	326	e100	e160	e125	e600	5110	3480	2390	697	347	427
14	106	305	e110	e150	e120	e1500	5010	3030	2320	647	326	380
15	106	e280	e120	e150	e115	e3000	4670	2640	3820	602	330	357
16	106	e260	e130	e130	e110	e2800	4540	2290	3530	568	351	353
17	103	e230	e120	e120	e105	e2600	4380	2020	3810	546	337	379
18	105	e170	e110	e110	e100	e2400	3820	1840	3940	523	347	429
19	106	e140	e100	e100	e95	e2900	3300	1680	3780	508	371	422
20	105	e120	e100	e110	e110	e3600	2930	1560	3420	529	343	401
21	105	e160	e110	e120	e100	6500	2570	1620	3060	720	317	388
22	105	e250	e95	e110	e95	6200	2370	2650	2710	1090	299	391
23	114	e320	e90	e120	e110	6270	2180	3160	2310	1270	294	404
24	118	e340	e80	e115	e120	5200	1990	3190	1980	1220	290	385
25	134	e360	e70	e100	e140	4470	1880	3300	1750	1410	286	392
26	139	e340	e75	e110	e130	4050	1820	4170	1560	1720	271	384
27	158	e340	e85	e120	e120	3580	1740	5830	1420	2170	261	363
28	168	e330	e95	e130	e100	3350	1650	6120	1320	2450	250	343
29	153	e320	e100	e140	---	3360	1540	5440	1240	2430	256	329
30	146	e310	e95	e145	---	3430	1460	4760	1160	2100	245	318
31	140	---	e90	e130	---	3670	---	4410	---	1630	227	---
TOTAL	3563	7859	3875	3790	3225	71350	108410	107290	80830	35774	13645	13624
MEAN	115	262	125	122	115	2302	3614	3461	2694	1154	440	454
MAX	168	360	300	160	140	6500	5110	6120	4430	2450	1250	1580
MIN	90	120	70	90	95	110	1460	1420	1160	508	227	192
AC-FT	7070	15590	7690	7520	6400	141500	215000	212800	160300	70960	27060	27020
CFSM	.08	.17	.08	.08	.08	1.50	2.36	2.26	1.76	.75	.29	.30
IN.	.09	.19	.09	.09	.08	1.73	2.63	2.61	1.96	.87	.33	.33

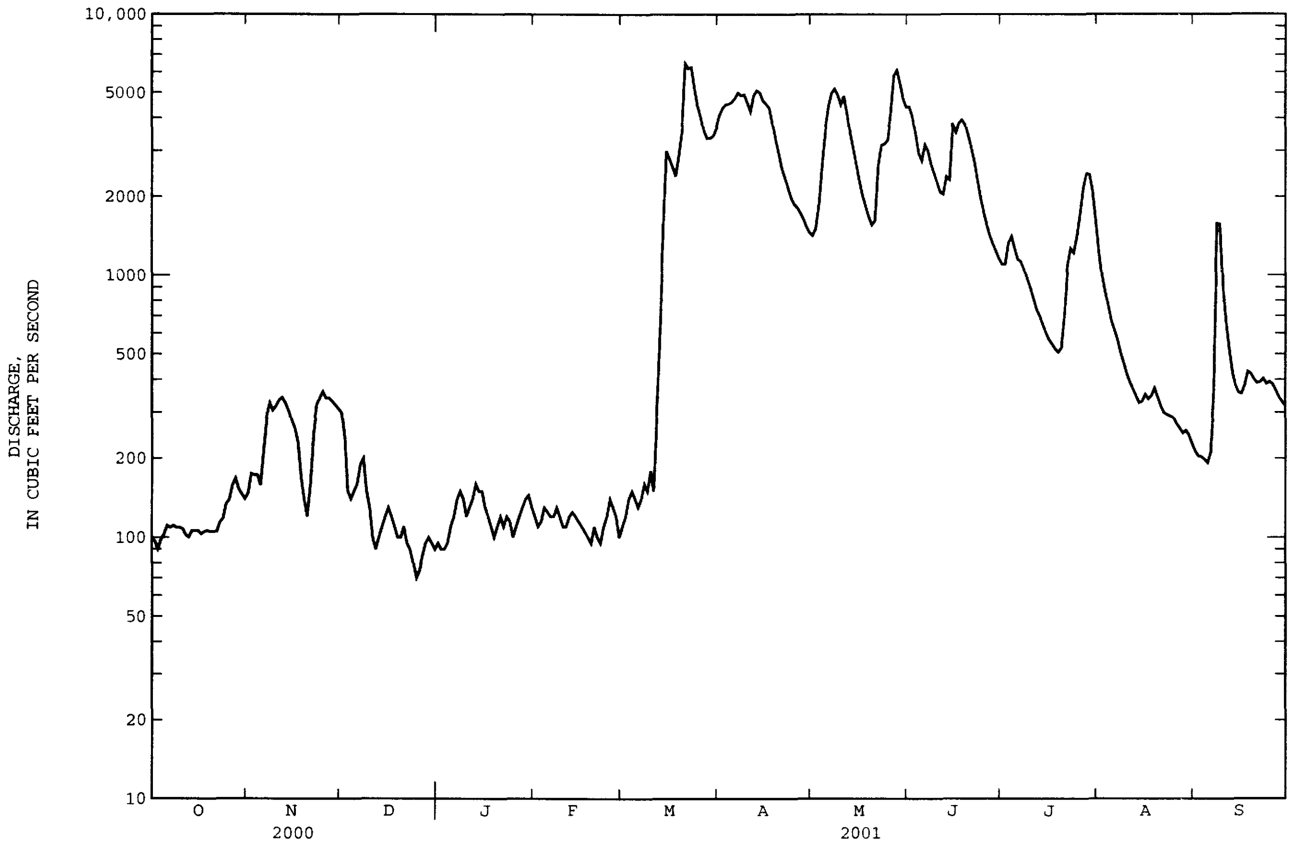
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	493	494	357	301	628	1576	1521	1356	1812	1037	559	492
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1903 - 2001	
ANNUAL TOTAL	156588		453235			
ANNUAL MEAN	428		1242		885	
HIGHEST ANNUAL MEAN					3456	1993
LOWEST ANNUAL MEAN					77.3	1934
HIGHEST DAILY MEAN	4910	Jul 11	6500	Mar 21	39400	Jun 4 1918
LOWEST DAILY MEAN	60	Jan 31	70	Dec 25	4.7	Jan 25 1977
ANNUAL SEVEN-DAY MINIMUM	66	Jan 27	84	Dec 22	5.2	Jan 20 1977
MAXIMUM PEAK FLOW			7910	Mar 21	42000	Jun 4 1918
MAXIMUM PEAK STAGE			17.43	Mar 21	20.77	Aug 17 1993
ANNUAL RUNOFF (AC-FT)	310600		899000		641400	
ANNUAL RUNOFF (CFSM)	.28		.81		.58	
ANNUAL RUNOFF (INCHES)	3.80		11.01		7.85	
10 PERCENT EXCEEDS	1010		4070		2190	
50 PERCENT EXCEEDS	175		340		394	
90 PERCENT EXCEEDS	95		105		75	

e Estimated



05451700 TIMBER CREEK NEAR MARSHALLTOWN, IA

LOCATION.--Lat 42°00'32", long 92°51'08", in SE ¼ SW ¼ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	13	e11	e8.0	e6.0	e16	367	86	352	104	27	9.1
2	5.8	15	e11	e7.5	e5.5	e20	272	83	287	100	27	8.6
3	5.7	14	e10	e8.0	e6.0	e20	245	119	232	99	28	8.2
4	7.5	11	e11	e10	e7.0	e19	194	170	204	90	33	7.8
5	7.2	9.8	e9.0	e10	e7.5	e18	182	167	211	84	26	9.2
6	6.8	18	e9.5	e11	e8.0	e16	202	172	214	81	25	8.4
7	6.4	26	e10	e9.5	e9.5	e17	230	228	186	80	24	15
8	6.6	18	e9.0	e9.0	e11	e18	179	183	171	90	20	73
9	6.9	14	e9.5	e8.0	e9.5	e19	500	162	157	85	19	41
10	7.4	12	e8.5	e8.5	e9.0	e21	356	156	146	72	18	23
11	7.5	11	e7.0	e10	e9.5	e20	419	348	138	67	17	16
12	7.2	12	e5.5	e11	e11	e42	428	225	509	63	17	14
13	7.5	12	e6.0	e12	e13	e85	303	192	1240	58	16	12
14	8.9	11	e6.0	e12	e13	e400	258	175	522	54	17	11
15	8.3	13	e6.0	e12	e12	e1050	220	157	805	52	17	11
16	7.8	11	e6.5	e11	e11	e700	185	142	409	50	21	11
17	7.5	e10	e6.0	e9.5	e11	e500	166	135	327	48	17	20
18	7.5	e9.0	e6.0	e9.5	e13	e350	153	122	278	49	17	18
19	8.0	e12	e5.5	e8.0	e15	200	144	112	238	50	18	15
20	8.8	e11	e6.5	e7.0	e14	230	135	108	227	54	15	14
21	9.3	e9.5	e6.0	e6.5	e14	549	123	109	211	47	15	15
22	9.6	e11	e5.5	e6.5	e14	951	123	98	195	42	15	12
23	10	13	e6.5	e7.0	e15	956	121	96	181	45	12	11
24	12	14	e5.0	e7.5	e16	391	108	98	169	44	11	10
25	17	14	e6.0	e6.0	e21	236	105	102	153	56	28	12
26	14	14	e6.5	e6.5	e20	178	99	221	138	44	18	10
27	11	14	e6.0	e6.0	e18	176	91	308	130	38	14	11
28	9.7	13	e6.5	e6.5	e15	216	91	248	125	34	15	11
29	9.2	12	e7.0	e7.0	---	297	85	213	121	31	12	10
30	8.9	12	e6.0	e8.0	---	338	82	184	114	29	11	8.9
31	9.0	---	e6.5	e7.0	---	378	---	196	---	28	11	---
TOTAL	265.3	389.3	227.0	266.0	334.5	8427	6166	5115	8390	1868	581	456.2
MEAN	8.56	13.0	7.32	8.58	11.9	272	206	165	280	60.3	18.7	15.2
MAX	17	26	11	12	21	1050	500	348	1240	104	33	73
MIN	5.7	9.0	5.0	6.0	5.5	16	82	83	114	28	11	7.8
AC-FT	526	772	450	528	663	16710	12230	10150	16640	3710	1150	905
CFSM	.07	.11	.06	.07	.10	2.30	1.74	1.40	2.37	.51	.16	.13
IN.	.08	.12	.07	.08	.11	2.66	1.94	1.61	2.64	.59	.18	.14

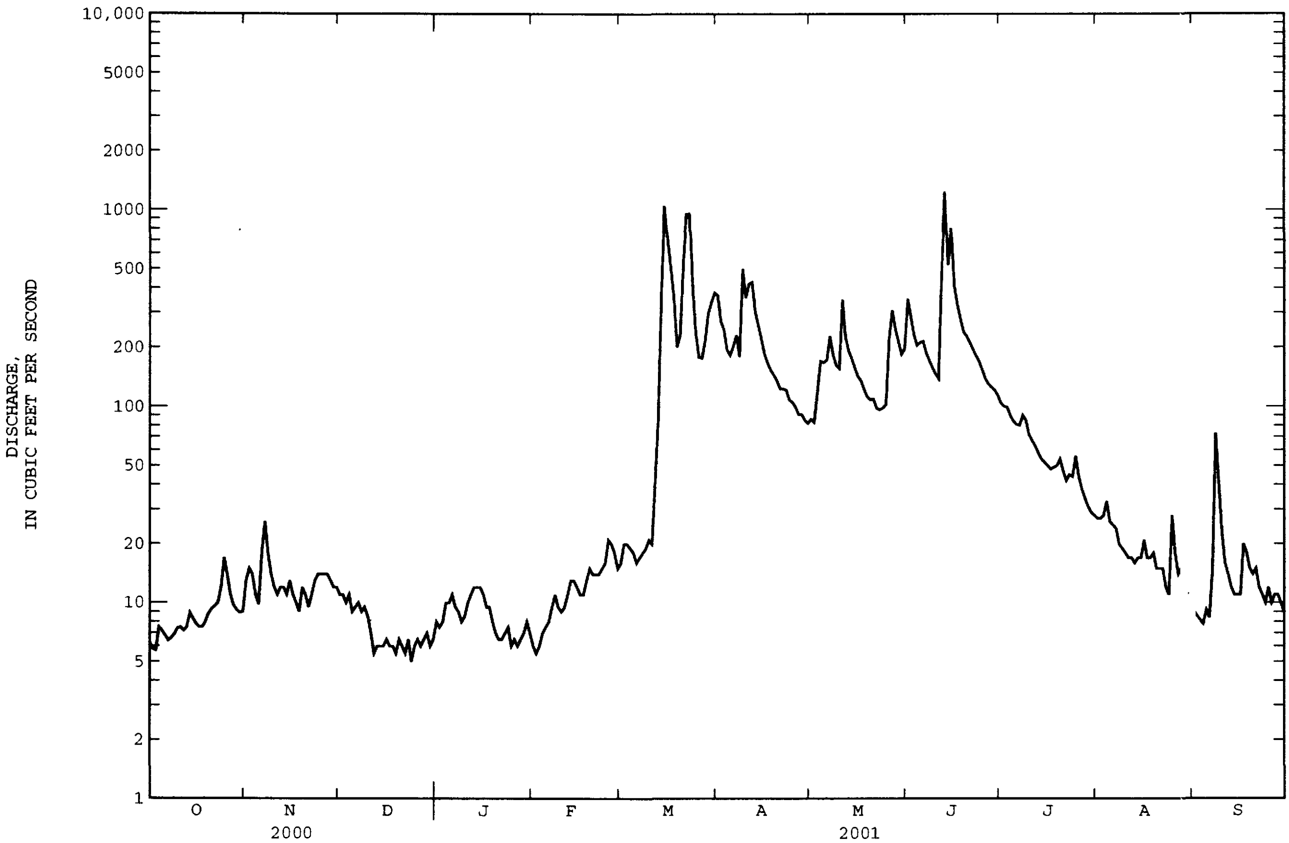
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	36.4	39.0	35.1	35.4	84.7	143	111	129	157	94.4	57.4	37.7
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1950 - 2001	
ANNUAL TOTAL	9356.1		32485.3			
ANNUAL MEAN	25.6		89.0		79.9	
HIGHEST ANNUAL MEAN					299	1993
LOWEST ANNUAL MEAN					2.84	1956
HIGHEST DAILY MEAN	581	Jun 14	1240	Jun 13	6570	Aug 16 1977
LOWEST DAILY MEAN	3.4	Jan 28	5.0	Dec 24	.00	Jul 24 1956a
ANNUAL SEVEN-DAY MINIMUM	3.9	Jan 25	5.9	Dec 18	.00	Oct 4 1956
MAXIMUM PEAK FLOW			2290	Jun 13	12000	Aug 16 1977
MAXIMUM PEAK STAGE			14.20	Jun 13	17.69	Aug 16 1977
INSTANTANEOUS LOW FLOW					.00	Jul 24 1956
ANNUAL RUNOFF (AC-FT)	18560		64430		57880	
ANNUAL RUNOFF (CFSM)	.22		.75		.68	
ANNUAL RUNOFF (INCHES)	2.95		10.24		9.20	
10 PERCENT EXCEEDS	58		231		176	
50 PERCENT EXCEEDS	10		17		32	
90 PERCENT EXCEEDS	5.8		7.0		3.3	

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	7.0	e3.4	e3.7	e10	e93	243	39	216	24	13	7.2
2	2.6	10	e3.3	e3.5	e7.6	e76	196	36	152	23	12	6.9
3	2.5	5.7	e3.0	e3.4	e6.4	e65	175	49	121	24	12	6.9
4	3.6	4.3	e2.8	e3.6	e5.6	e53	134	71	101	22	12	6.1
5	3.3	4.2	e2.4	e3.8	e6.7	e44	122	69	197	19	11	5.5
6	3.2	9.8	e2.8	e4.0	e6.0	e38	151	91	167	18	9.8	5.3
7	3.0	15	e3.0	e4.2	e5.0	e34	157	84	132	18	9.2	7.5
8	2.8	9.4	e3.6	e4.0	e7.0	e30	104	71	112	20	8.5	18
9	3.0	7.7	e3.8	e3.6	e18	e28	218	64	97	19	7.8	12
10	3.3	6.5	e3.5	e3.2	e26	e30	170	67	86	16	6.4	7.8
11	3.4	5.8	e3.4	e3.5	e40	61	202	147	77	15	5.8	6.5
12	3.3	e5.6	e3.0	e3.8	e22	264	180	87	843	14	5.5	5.4
13	3.8	e5.2	e2.9	e4.0	e18	446	133	78	648	13	5.0	5.1
14	3.6	e5.0	e3.2	e4.2	e15	456	115	71	407	12	4.5	5.2
15	3.2	e4.8	e3.6	e4.4	e13	474	97	63	299	12	6.4	5.1
16	3.5	e4.8	e3.8	e4.9	e12	308	80	56	185	12	11	5.6
17	2.5	e4.6	e4.0	e4.4	e11	168	70	51	139	12	7.1	7.3
18	2.9	e4.0	e3.8	e4.0	e12	111	66	46	107	14	9.7	10
19	3.2	e3.6	e3.4	e3.6	e13	91	63	42	89	19	9.0	11
20	3.5	e3.3	e3.0	e3.4	e12	141	59	41	77	15	6.4	9.6
21	3.8	e3.2	e2.9	e3.2	e11	268	57	45	67	14	5.4	8.9
22	3.7	e2.9	e2.8	e3.3	e12	517	53	38	57	15	5.3	8.0
23	5.4	e3.1	e3.0	e3.6	e22	477	52	37	50	22	5.4	8.3
24	5.3	e3.3	e3.2	e3.4	47	226	44	37	45	17	5.2	7.5
25	6.6	e3.6	e3.0	e3.2	233	143	44	35	40	37	41	6.3
26	6.1	e3.7	e3.6	e3.0	334	105	43	81	36	18	22	5.0
27	4.6	e3.8	e3.8	e3.4	199	113	39	100	33	16	11	4.3
28	4.1	e3.8	e3.4	e4.0	155	154	42	73	31	15	8.7	3.8
29	4.1	e3.7	e3.8	e5.0	---	244	40	62	29	14	7.9	3.4
30	3.8	e3.5	e4.2	e7.0	---	259	38	55	26	14	7.4	4.1
31	3.9	---	e4.0	e9.0	---	290	---	103	---	14	7.2	---
TOTAL	114.5	160.9	103.4	125.3	1279.3	5807	3187	1989	4666	537	298.6	213.6
MEAN	3.69	5.36	3.34	4.04	45.7	187	106	64.2	156	17.3	9.63	7.12
MAX	6.6	15	4.2	9.0	334	517	243	147	843	37	41	18
MIN	2.5	2.9	2.4	3.0	5.0	28	38	35	26	12	4.5	3.4
AC-FT	227	319	205	249	2540	11520	6320	3950	9260	1070	592	424
CFSM	.07	.10	.06	.07	.81	3.34	1.89	1.14	2.77	.31	.17	.13
IN.	.08	.11	.07	.08	.85	3.85	2.11	1.32	3.09	.36	.20	.14

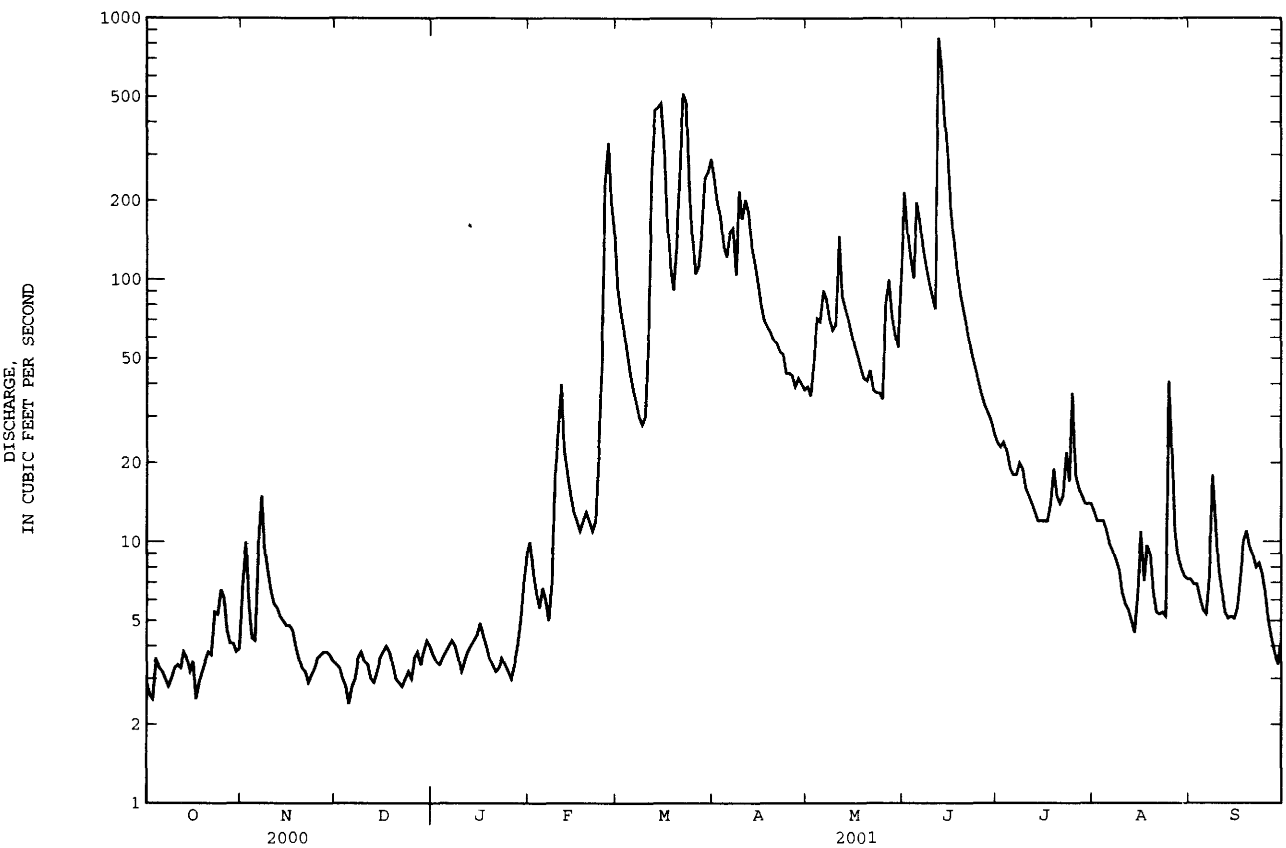
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	18.2	22.5	17.0	19.2	43.1	68.2	58.5	61.4	68.6	45.2	31.1	19.3
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1950 - 2001	
ANNUAL TOTAL	4451.4		18481.6			
ANNUAL MEAN	12.2		50.6		39.3	
HIGHEST ANNUAL MEAN					162	1993
LOWEST ANNUAL MEAN					2.49	1956
HIGHEST DAILY MEAN	251	Jul 10	843	Jun 12	2880	Aug 16 1977
LOWEST DAILY MEAN	2.1	Jan 27	2.4	Dec 5	.00	Jan 22 1977a
ANNUAL SEVEN-DAY MINIMUM	2.2	Jan 25	3.0	Dec 1	.00	Jan 22 1977
MAXIMUM PEAK FLOW			4260	Jun 12	12200	Apr 12 1991
MAXIMUM PEAK STAGE			22.47	Jun 12	26.71	Apr 12 1991
INSTANTANEOUS LOW FLOW			1.6	Oct 17		
ANNUAL RUNOFF (AC-FT)	8830		36660		28470	
ANNUAL RUNOFF (CFSM)	.22		.90		.70	
ANNUAL RUNOFF (INCHES)	2.95		12.26		9.52	
10 PERCENT EXCEEDS	22		149		81	
50 PERCENT EXCEEDS	4.2		11		14	
90 PERCENT EXCEEDS	2.9		3.3		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 ¼ NW ¼ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	27	28	e29	e70	239	423	156	633	142	43	19
2	24	53	25	e28	e60	172	362	148	434	134	42	19
3	24	40	e22	e26	e48	159	340	167	344	131	53	20
4	29	32	e19	e27	e39	e160	291	205	304	125	42	18
5	27	30	e14	e30	e46	e140	282	213	910	115	39	18
6	26	49	e16	e32	e48	e120	324	306	642	109	36	18
7	24	127	e20	e33	e42	e100	341	301	448	106	34	22
8	24	78	e23	e31	e36	e86	278	256	393	109	33	52
9	24	61	e25	e30	e50	e80	519	230	347	110	31	41
10	24	52	e23	e26	e100	e96	437	232	317	96	29	27
11	24	46	e20	e26	e190	e120	507	1230	307	90	27	23
12	24	47	e19	e28	e165	840	541	459	278	84	26	21
13	24	44	e18	e30	e140	1630	391	369	265	80	25	20
14	25	41	e19	e32	e120	1310	345	312	504	76	24	20
15	24	37	e21	e38	e98	1580	309	287	1450	72	26	20
16	24	e35	e24	e40	e86	977	272	249	487	68	35	21
17	24	e32	e26	e36	e78	499	247	226	385	66	28	30
18	24	e30	e23	e32	e60	362	231	209	346	65	30	29
19	24	e30	e20	e30	e70	333	223	197	292	63	29	31
20	24	e35	e19	e28	e72	657	212	190	270	62	25	29
21	24	e40	e18	e26	e64	1110	200	194	267	60	25	26
22	24	e36	e17	e26	e60	1420	204	176	278	58	25	24
23	28	e32	e16	e27	e58	1430	213	172	219	57	25	24
24	29	e31	e20	e28	e64	574	187	167	205	59	24	23
25	29	e30	e18	e27	378	405	184	160	194	122	50	21
26	31	e30	e20	e25	699	332	176	214	182	72	38	21
27	27	e29	e24	e24	489	314	167	287	173	61	27	20
28	25	e31	e22	e27	346	342	163	229	167	56	23	19
29	25	e29	e24	e34	---	384	156	206	160	52	22	19
30	25	28	e27	e40	---	425	152	188	152	49	21	19
31	25	---	e32	e60	---	442	---	251	---	46	21	---
TOTAL	784	1242	662	956	3776	16838	8677	8186	11353	2595	958	714
MEAN	25.3	41.4	21.4	30.8	135	543	289	264	378	83.7	30.9	23.8
MAX	31	127	32	60	699	1630	541	1230	1450	142	53	52
MIN	24	27	14	24	36	80	152	148	152	46	21	18
AC-FT	1560	2460	1310	1900	7490	33400	17210	16240	22520	5150	1900	1420
CFSM	.13	.21	.11	.15	.67	2.70	1.44	1.31	1.88	.42	.15	.12
IN.	.15	.23	.12	.18	.70	3.12	1.61	1.52	2.10	.48	.18	.13

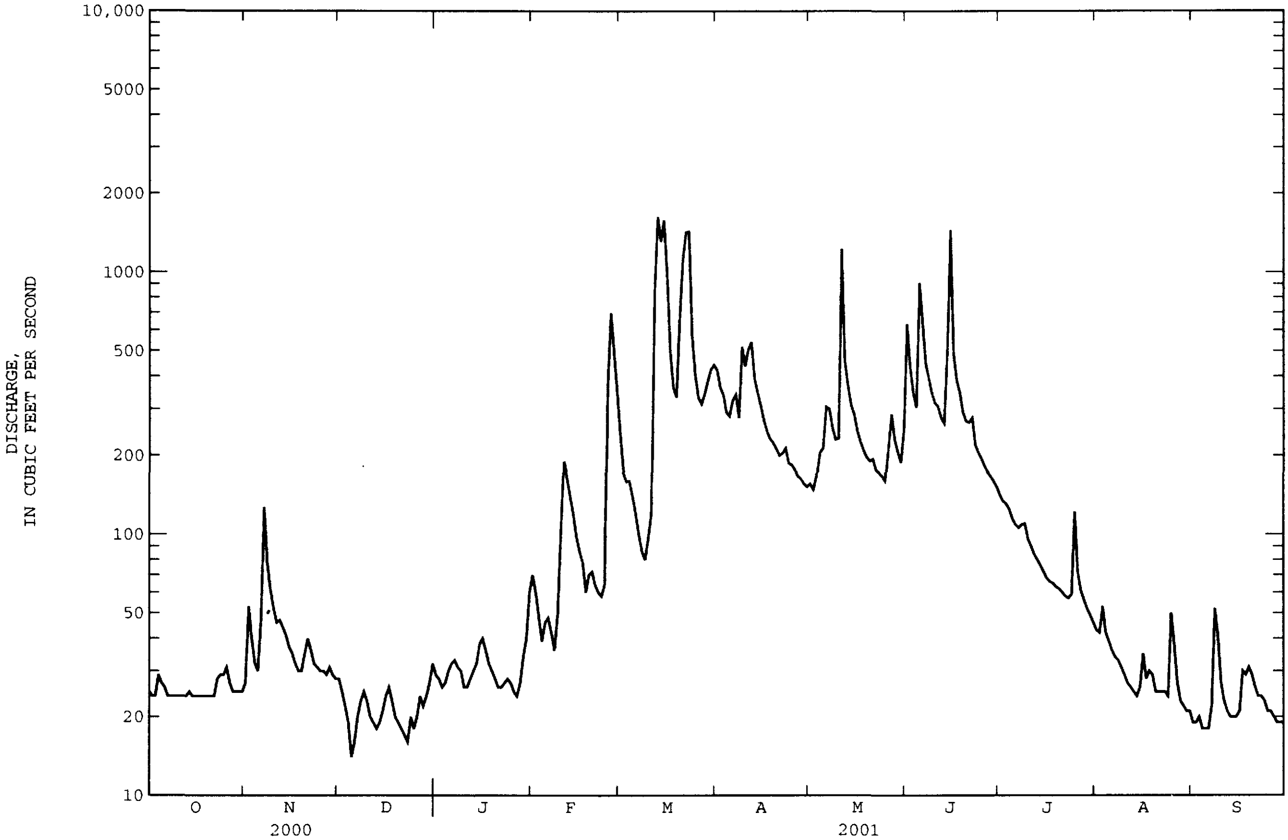
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	65.9	80.4	63.9	71.4	140	266	195	195	269	196	101	66.3
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1946 - 2001	
ANNUAL TOTAL	30095.5		56741			
ANNUAL MEAN	82.2		155		142	
HIGHEST ANNUAL MEAN					569	1993
LOWEST ANNUAL MEAN					23.2	1989
HIGHEST DAILY MEAN	2810	Jul 11	1630	Mar 13	14000	Jul 9 1993
LOWEST DAILY MEAN	6.5	Jan 26a	14	Dec 5	.85	Jan 31 1977
ANNUAL SEVEN-DAY MINIMUM	7.1	Jan 22	18	Dec 19	.95	Jan 25 1977
MAXIMUM PEAK FLOW			1950	Jun 15	41800	Jul 9 1993
MAXIMUM PEAK STAGE			15.25	Jun 15	20.85	Jul 9 1993
ANNUAL RUNOFF (AC-FT)	59690		112500		103200	
ANNUAL RUNOFF (CFSM)	.41		.77		.71	
ANNUAL RUNOFF (INCHES)	5.57		10.50		9.63	
10 PERCENT EXCEEDS	177		373		284	
50 PERCENT EXCEEDS	27		49		56	
90 PERCENT EXCEEDS	10		22		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 ¼ SW ¼ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	12	e6.8	e7.2	e18	196	229	52	285	44	13	3.7
2	3.4	25	e6.2	e6.9	e14	172	192	48	187	41	12	3.7
3	3.2	11	e5.6	e6.8	e13	e140	162	70	149	41	12	3.8
4	4.8	8.5	e5.0	e7.0	e12	e130	132	146	130	38	12	3.6
5	4.4	7.8	e4.6	e7.6	e13	e110	121	128	502	35	11	3.3
6	4.6	29	e5.4	e8.2	e14	e96	136	154	264	34	9.4	3.3
7	4.0	38	e6.2	e8.6	e11	e84	141	132	192	33	8.7	5.9
8	3.8	23	e7.0	e8.0	e10	e76	107	116	158	34	8.1	38
9	4.0	19	e7.6	e7.2	e120	e70	171	104	136	33	7.6	10
10	4.3	15	e7.2	e6.6	e200	e74	152	138	122	30	6.5	7.1
11	4.4	14	e6.6	e7.0	e120	130	200	263	111	27	6.1	5.6
12	4.4	14	e6.2	e7.4	e45	449	206	142	882	26	5.8	4.6
13	4.5	13	e6.0	e8.0	e35	465	145	e120	308	26	5.4	4.3
14	4.7	12	e6.2	e9.0	e28	497	131	e110	506	26	4.9	4.2
15	4.2	e11	e6.8	e10	e26	671	120	e100	374	26	6.1	3.6
16	4.0	e10	e7.6	e9.6	e24	387	103	e90	200	26	9.8	3.6
17	4.3	e8.2	e8.0	e8.8	e23	213	92	83	159	26	6.2	4.4
18	4.1	e6.8	e7.4	e8.0	e25	155	87	75	135	26	12	4.3
19	5.3	e6.2	e6.8	e7.4	e26	141	82	70	120	32	8.3	6.2
20	3.8	e5.8	e6.0	e7.0	e24	222	81	68	111	23	6.4	4.3
21	3.9	e5.5	e5.8	e6.6	e23	398	93	84	102	21	5.9	3.6
22	4.4	e5.2	e5.4	e6.6	e24	686	79	70	92	20	5.8	3.2
23	8.5	e5.0	e6.6	e6.8	e24	502	75	67	82	20	5.8	4.1
24	7.2	e5.4	e5.8	e7.0	e120	263	66	65	74	24	6.0	3.6
25	6.9	e6.4	e7.0	e6.8	806	176	64	63	68	32	14	3.0
26	8.2	e7.6	e7.8	e6.4	551	142	60	152	62	22	12	2.5
27	5.6	e8.0	e7.0	e6.0	315	146	55	160	56	19	7.1	2.3
28	5.2	e8.2	e7.2	e7.4	239	163	56	124	52	18	5.8	2.3
29	5.1	e7.8	e8.6	e9.0	---	239	51	106	49	17	5.0	2.2
30	4.7	e7.2	e7.6	e12	---	251	49	96	46	15	4.6	2.2
31	4.8	---	e7.4	e14	---	276	---	180	---	14	4.1	---
TOTAL	148.0	355.6	205.4	244.9	2903	7720	3438	3376	5714	849	247.4	156.5
MEAN	4.77	11.9	6.63	7.90	104	249	115	109	190	27.4	7.98	5.22
MAX	8.5	38	8.6	14	806	686	229	263	882	44	14	38
MIN	3.2	5.0	4.6	6.0	10	70	49	48	46	14	4.1	2.2
AC-FT	294	705	407	486	5760	15310	6820	6700	11330	1680	491	310
CFSM	.07	.17	.09	.11	1.46	3.51	1.62	1.54	2.69	.39	.11	.07
IN.	.08	.19	.11	.13	1.52	4.05	1.80	1.77	3.00	.45	.13	.08

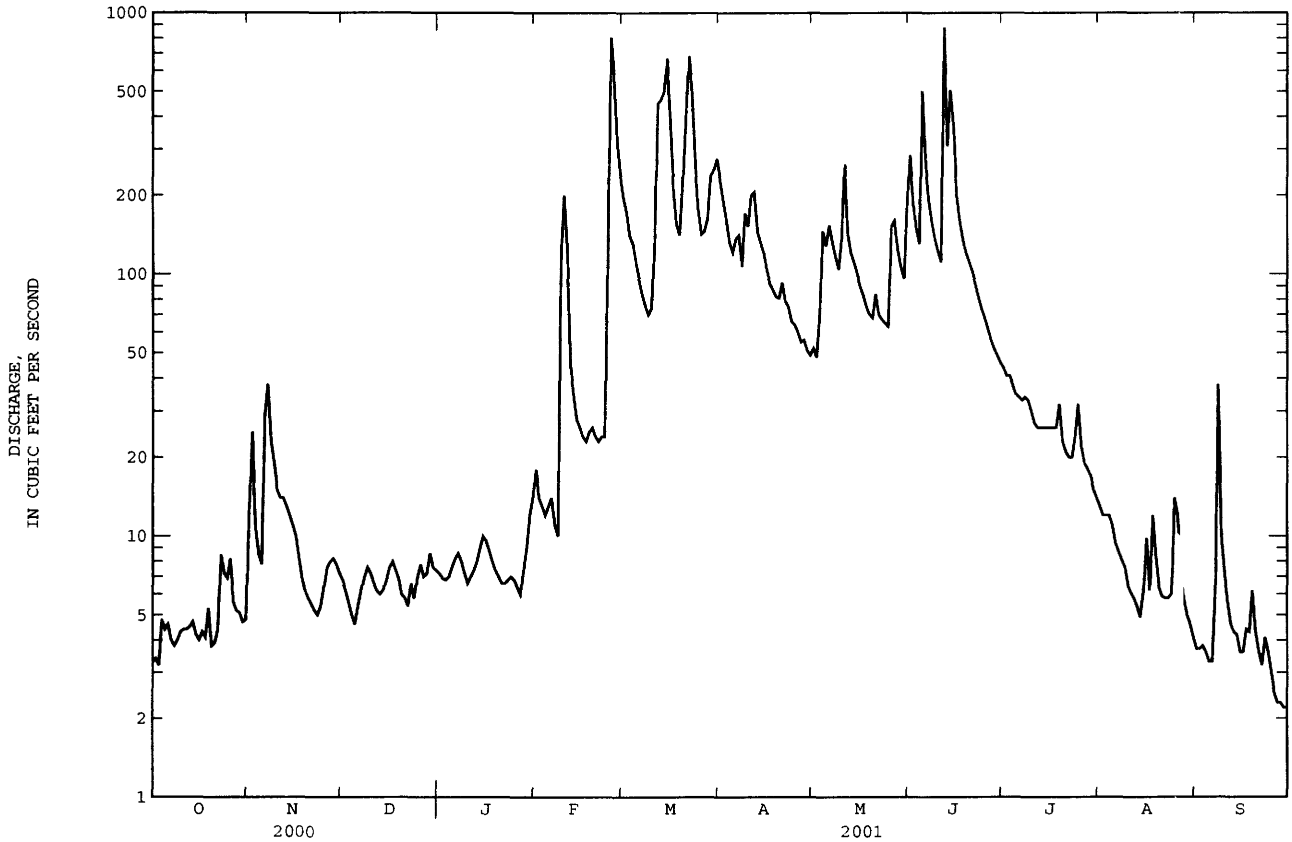
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	19.4	27.3	22.6	25.6	51.4	84.6	76.6	79.9	84.0	55.3	34.9	24.0
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1950 - 2001	
ANNUAL TOTAL	7022.5		25357.8			
ANNUAL MEAN	19.2		69.5		48.7	
HIGHEST ANNUAL MEAN					200	1993
LOWEST ANNUAL MEAN					4.76	1956
HIGHEST DAILY MEAN	431	Jul 10	882	Jun 12	4840	Jul 2 1983
LOWEST DAILY MEAN	1.5	Apr 6	2.2	Sep 29a	.00	Jul 31 1954
ANNUAL SEVEN-DAY MINIMUM	1.7	Jan 25	2.6	Sep 24	.00	Many days b
MAXIMUM PEAK FLOW			4170	Jun 12	7900	Apr 29 1991
MAXIMUM PEAK STAGE			15.02	Jun 12	16.93	Apr 29 1991
INSTANTANEOUS LOW FLOW			2.0	Sep 29a		
ANNUAL RUNOFF (AC-FT)	13930		50300		35300	
ANNUAL RUNOFF (CFSM)	.27		.98		.69	
ANNUAL RUNOFF (INCHES)	3.68		13.30		9.34	
10 PERCENT EXCEEDS	37		178		104	
50 PERCENT EXCEEDS	6.1		14		17	
90 PERCENT EXCEEDS	2.5		4.4		1.3	

a Also Sept. 30.
b Many days in 1954-57 and 1977.
e Estimated.



05453000 BIG BEAR CREEK AT LADORA, IA

LOCATION.--Lat 41 44'58", long 92°10'55", in SW¼ SW¼ sec.7, T.80 N., R.11 W., Iowa County, Hydrologic Unit 07080208, on left bank 10 ft downstream from bridge on county highway V52, 0.4 mi south of Ladora, 1.2 mi downstream from Coats Creek, 2.8 mi upstream from Little Bear Creek, and 8.1 mi upstream from mouth.

DRAINAGE AREA.--189 mi².

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

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

GAGE.--Water-stage recorder. Datum of gage is 744.94 ft above 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. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	14	e15	e15	e34	e520	661	193	890	106	33	14
2	10	32	e13	e14	e28	e440	494	180	672	98	31	14
3	10	27	e11	e15	e26	e420	449	183	457	95	28	13
4	11	19	e10	e15	e27	e400	351	354	374	92	30	12
5	11	17	e9.6	e16	e28	e360	320	355	1180	85	27	12
6	12	25	e10	e17	e29	e320	350	468	784	79	24	11
7	12	68	e12	e18	e27	e300	494	428	485	76	22	12
8	12	41	e14	e16	e48	e280	339	348	381	73	21	78
9	11	33	e15	e15	e90	e260	499	302	324	72	25	44
10	11	29	e16	e14	e180	e320	554	366	281	68	e22	22
11	11	27	e15	e13	e160	702	555	1200	248	63	e20	17
12	11	e25	e14	e14	e140	1530	668	555	331	59	e18	15
13	10	e23	e13	e16	e120	1540	448	447	1200	57	16	13
14	11	e22	e12	e20	e93	1530	385	381	690	54	15	12
15	11	e21	e13	e24	e84	2070	338	325	1180	52	18	12
16	11	e20	e14	e31	e78	1390	290	280	474	50	27	12
17	11	e19	e16	e29	e74	650	259	276	356	49	23	13
18	11	e15	e17	e23	e76	442	245	248	320	53	29	13
19	11	e14	e16	e20	e86	347	235	222	322	48	33	18
20	11	e12	e14	e18	e80	489	222	207	297	55	20	16
21	11	e12	e13	e17	e76	932	761	222	290	49	17	14
22	12	e11	e12	e19	e74	1590	370	197	229	46	16	12
23	15	e12	e12	e20	e72	1840	320	179	202	44	16	31
24	18	e13	e13	e21	e260	832	259	172	186	48	16	30
25	15	e14	e13	e20	2080	487	258	165	169	55	52	17
26	15	e15	e14	e20	1780	357	241	312	156	50	68	15
27	15	e16	e16	e19	1020	336	222	479	144	43	30	14
28	13	e17	e15	e20	685	404	213	318	131	41	22	13
29	13	e17	e16	e22	---	497	201	263	122	40	18	13
30	13	e16	e18	e28	---	586	189	228	114	38	17	12
31	13	---	e17	e40	---	671	---	329	---	36	15	---
TOTAL	373	646	428.6	609	7555	22842	11190	10182	12989	1874	769	544
MEAN	12.0	21.5	13.8	19.6	270	737	373	328	433	60.5	24.8	18.1
MAX	18	68	18	40	2080	2070	761	1200	1200	106	68	78
MIN	10	11	9.6	13	26	260	189	165	114	36	15	11
AC-FT	740	1280	850	1210	14990	45310	22200	20200	25760	3720	1530	1080
CFSM	.06	.11	.07	.10	1.43	3.90	1.97	1.74	2.29	.32	.13	.10
IN.	.07	.13	.08	.12	1.49	4.50	2.20	2.00	2.56	.37	.15	.11

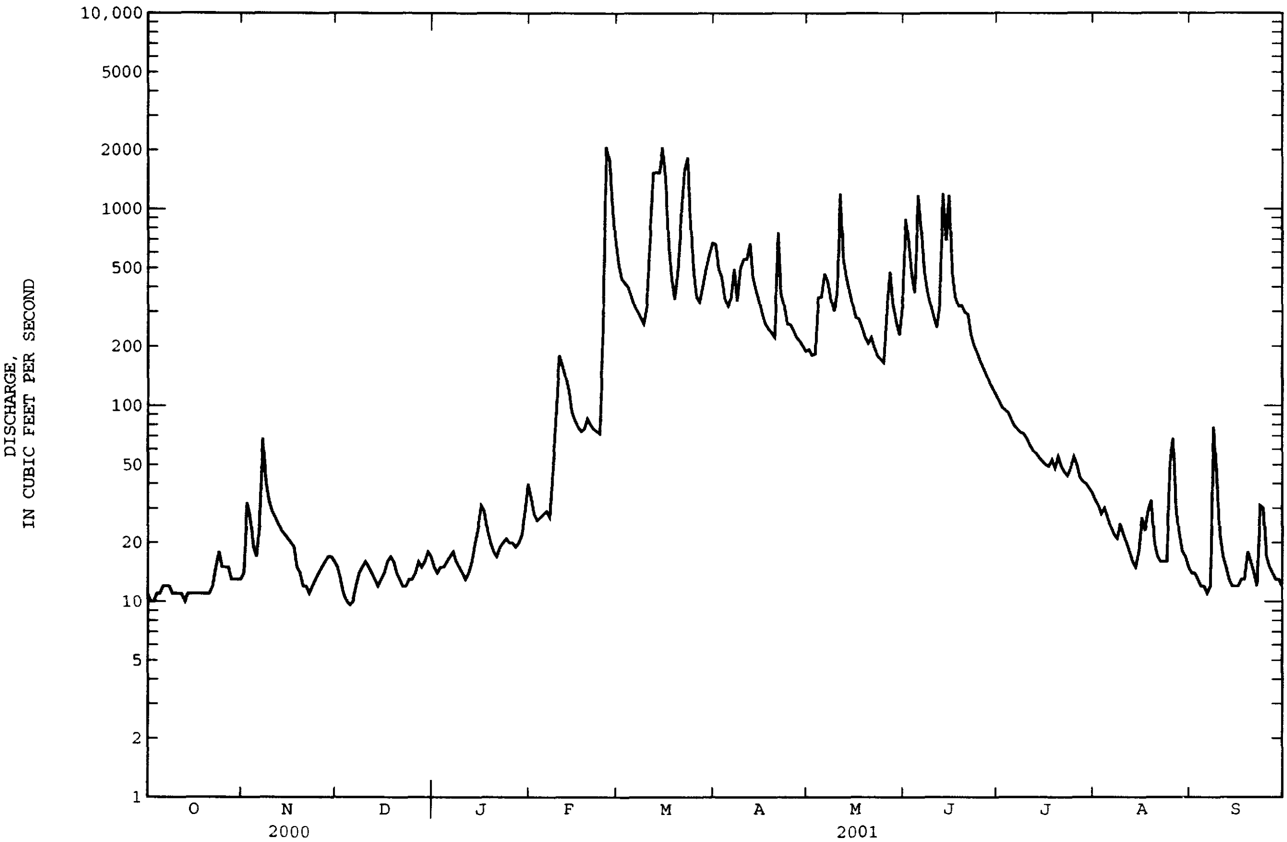
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	57.1	73.0	61.6	72.7	124	241	201	215	231	141	89.8	72.5
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1946 - 2001	
ANNUAL TOTAL	18626.6		70001.6			
ANNUAL MEAN	50.9		192		132	
HIGHEST ANNUAL MEAN					516	1993
LOWEST ANNUAL MEAN					8.26	1956
HIGHEST DAILY MEAN	1040	Jul 4	2080	Feb 25	9480	Mar 30 1960
LOWEST DAILY MEAN	6.0	Jan 27a	9.6	Dec 5	.00	Jan 22 1956b
ANNUAL SEVEN-DAY MINIMUM	6.5	Jan 25	11	Oct 9	.00	Jan 22 1956
MAXIMUM PEAK FLOW			3330	Mar 12	10500	Mar 30 1960
MAXIMUM PEAK STAGE			20.62	Mar 12	15.32	Sep 8 1977c
INSTANTANEOUS LOW FLOW			9.4	Oct 2d		
ANNUAL RUNOFF (AC-FT)	36950		138800		95280	
ANNUAL RUNOFF (CFSM)	.27		1.01		.70	
ANNUAL RUNOFF (INCHES)	3.67		13.78		9.46	
10 PERCENT EXCEEDS	120		491		284	
50 PERCENT EXCEEDS	16		33		46	
90 PERCENT EXCEEDS	10		12		5.6	

a Also Jan. 28.
b Also Jan. 22 to Feb. 8, 1956, Jan. 19 to Feb. 3, 1977.
c Datum in use prior to Oct. 1, 1980.
d Also Oct. 3.
e Estimated.



05453100 IOWA RIVER AT MARENGO, IA

LOCATION.-- Lat 41 48'48", long 92 03'51", in SE ¼ NE ¼ 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 fair, 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	265	269	e250	e220	e480	e2400	6710	2650	6950	2340	2320	440
2	259	298	e230	e200	e440	e2100	6510	2550	7340	2240	1960	419
3	252	350	e200	e220	e480	e2000	6420	2510	7460	2170	1610	400
4	254	329	e160	e250	e500	e1900	6340	3050	7410	2180	1410	373
5	256	315	e140	e280	e470	e1800	6260	3730	7920	2260	1270	354
6	252	332	e170	e270	e440	e1700	6260	4620	7970	2220	1190	352
7	251	435	e200	e240	e420	e1700	6540	5120	7050	2070	1090	372
8	254	497	e230	e220	e460	e1600	6530	5300	6120	2050	1040	618
9	250	485	e260	e210	e700	e1600	6680	5450	5430	2020	962	696
10	245	463	e240	e220	e1100	e1600	7060	5650	4870	1980	895	1480
11	237	454	e220	e250	e1000	2300	7310	6850	4450	1810	832	1420
12	233	439	e200	e300	e760	3920	7740	6890	4100	1690	761	1060
13	224	e430	e190	e360	e680	4950	7790	6940	5800	1570	721	865
14	220	e420	e200	e400	e640	5340	7730	6740	6020	1480	667	745
15	222	e400	e220	e420	e620	6890	7440	6190	7540	1440	659	652
16	219	e380	e240	e430	e600	8330	7160	5230	6900	1350	678	591
17	224	e360	e200	e380	e560	7360	6940	4430	6730	1290	663	566
18	223	e330	e180	e340	e620	6530	6710	3900	6490	1250	670	563
19	223	e300	e170	e300	e690	6120	6360	3480	6020	1220	668	603
20	214	e290	e160	e260	e640	5570	5860	3240	5740	1170	638	612
21	215	e280	e150	e290	e620	6170	5620	3070	5580	1150	621	594
22	215	e300	e160	e320	e700	7280	4880	2900	5350	1150	604	559
23	239	e330	e170	e340	e860	9080	4410	3040	4890	1220	571	580
24	247	e360	e160	e300	1030	8880	4000	3670	4300	1450	556	568
25	241	e360	e170	e280	3360	9200	3660	3960	3780	1660	669	530
26	232	e340	e180	e300	4300	9050	3410	4220	3370	1750	743	512
27	252	e310	e200	e320	3600	9270	3200	5040	3040	1840	663	504
28	270	e300	e220	e380	2980	9210	3040	5240	2820	2040	557	501
29	265	e280	e240	e440	---	8520	2910	5440	2600	2380	509	486
30	266	e260	e260	e600	---	7590	2770	5590	2460	2610	482	463
31	267	---	e240	e620	---	6960	---	5920	---	2570	459	---
TOTAL	7486	10696	6210	9960	29750	166920	174250	142610	166500	55620	27138	18478
MEAN	241	357	200	321	1062	5385	5808	4600	5550	1794	875	616
MAX	270	497	260	620	4300	9270	7790	6940	7970	2610	2320	1480
MIN	214	260	140	200	420	1600	2770	2510	2460	1150	459	352
AC-FT	14850	21220	12320	19760	59010	331100	345600	282900	330300	110300	53830	36650
CFSM	.09	.13	.07	.11	.38	1.93	2.08	1.65	1.99	.64	.31	.22
IN.	.10	.14	.08	.13	.40	2.22	2.32	1.90	2.22	.74	.36	.25

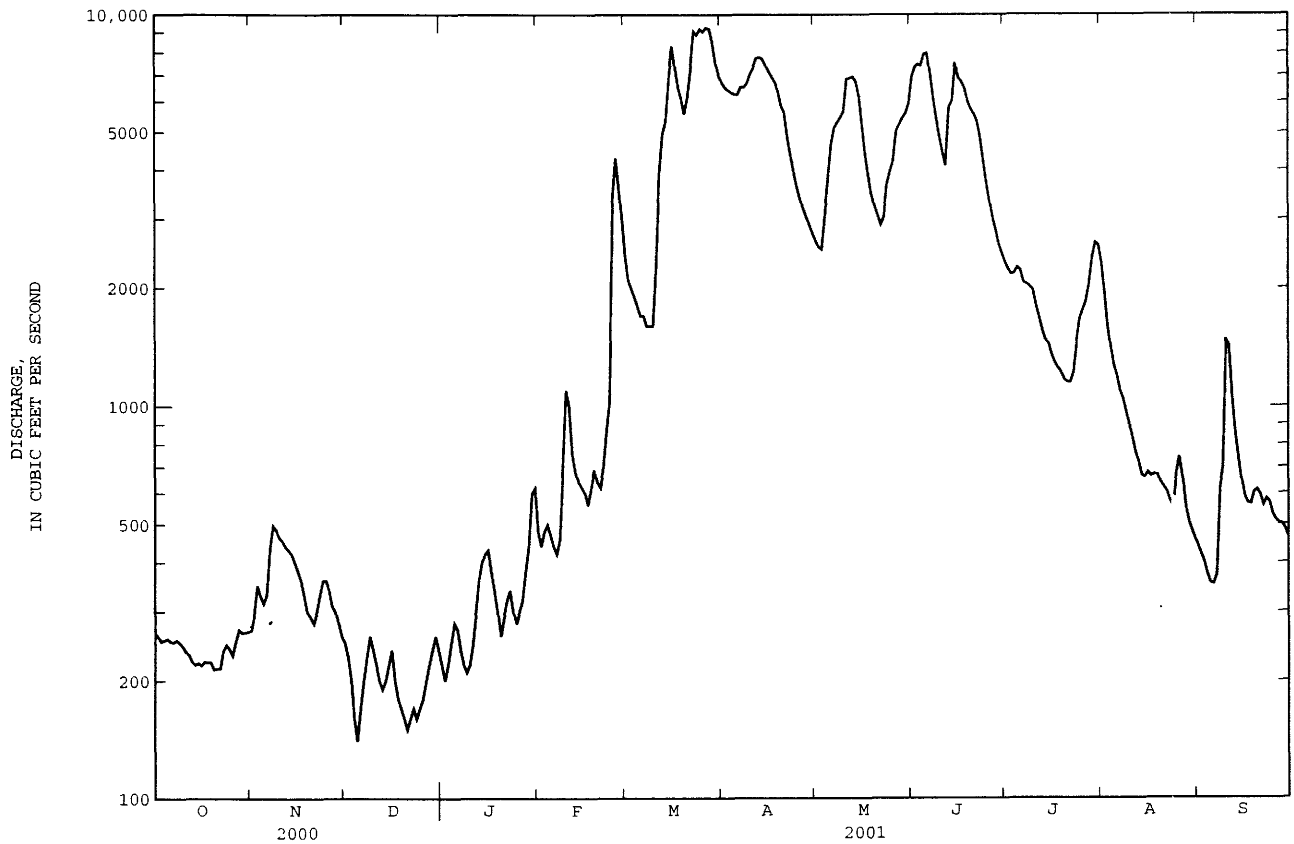
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1008	1144	948	823	1394	3191	3393	3039	3436	2718	1490	1007
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1957 - 2001	
ANNUAL TOTAL	293960		815618			
ANNUAL MEAN	803		2235		1967	
HIGHEST ANNUAL MEAN					7192	1993
LOWEST ANNUAL MEAN					283	1989
HIGHEST DAILY MEAN	6160	Jul 14	9270	Mar 27	35600	Jul 12 1993
LOWEST DAILY MEAN	140	Jan 29a	140	Dec 5	24	Jan 29 1977
ANNUAL SEVEN-DAY MINIMUM	150	Jan 27	163	Dec 19	25	Jan 28 1977
MAXIMUM PEAK FLOW			9540	Mar 23	38000	Jul 19 1993
MAXIMUM PEAK STAGE			16.46	Mar 23	20.31	Jul 19 1993
ANNUAL RUNOFF (AC-FT)	583100		1618000		1425000	
ANNUAL RUNOFF (CFSM)	.29		.80		.70	
ANNUAL RUNOFF (INCHES)	3.91		10.86		9.57	
10 PERCENT EXCEEDS	2310		6710		4950	
50 PERCENT EXCEEDS	336		700		1000	
90 PERCENT EXCEEDS	190		224		205	

a Also Jan. 31.
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. Prior to October 1, 2000 published as contents in acre feet, and as elevation in feet NGVD thereafter.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

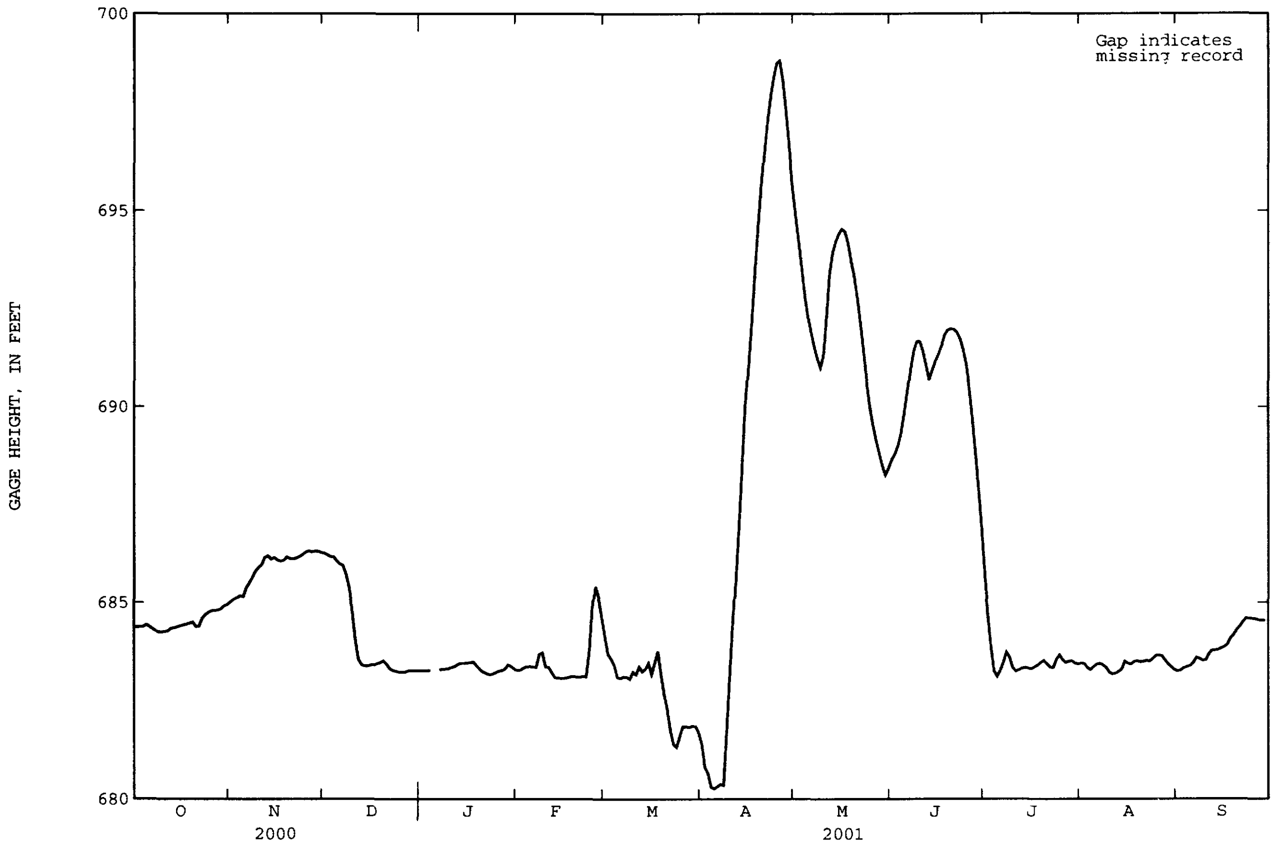
EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 716.75 ft July 24, 1993; minimum elevation, 658.77 ft Mar. 10, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 698.83 ft Apr.26; minimum elevation, 680.18 ft Apr. 5.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY OBSERVATION AT 0600 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	684.38	684.95	686.27	683.27	683.29	684.52	681.65	695.44	688.51	686.63	683.43	683.26
2	684.39	685.04	686.26	683.27	683.26	684.03	681.33	694.81	688.70	685.38	683.46	683.24
3	684.36	685.09	686.21	683.26	683.29	683.58	680.63	694.11	688.82	684.45	683.43	683.28
4	684.38	685.13	686.16	683.27	683.35	683.56	680.66	693.42	689.06	683.68	683.30	683.35
5	684.38	685.18	686.17	683.27	683.37	683.35	680.18	692.66	689.40	683.10	683.28	683.36
6	684.45	685.13	686.04	---	683.37	683.02	680.29	692.19	689.94	683.11	683.39	683.39
7	684.36	685.46	685.97	683.29	683.35	683.09	680.32	691.82	690.50	683.31	683.43	683.48
8	684.32	685.53	685.94	683.29	683.35	683.12	680.39	691.45	691.09	683.52	683.45	683.63
9	684.27	685.67	685.63	683.30	683.79	683.10	680.33	691.17	691.53	683.80	683.39	683.54
10	684.24	685.84	685.31	683.31	683.70	683.04	682.14	690.94	691.71	683.53	683.32	683.51
11	684.25	685.92	684.65	683.32	683.25	683.30	683.47	691.44	691.66	683.26	683.19	683.53
12	684.26	685.99	683.85	683.36	683.38	683.12	684.92	692.56	691.36	683.24	683.17	683.73
13	684.28	686.20	683.44	683.38	683.16	683.45	685.86	693.68	690.97	683.29	683.20	683.79
14	684.36	686.20	683.40	683.45	683.06	683.17	687.44	694.03	690.59	683.33	683.25	683.77
15	684.35	686.08	683.37	683.45	683.09	683.35	689.00	694.28	691.05	683.34	683.31	683.80
16	684.38	686.17	683.39	683.45	683.06	683.50	690.46	694.46	691.21	683.31	683.56	683.84
17	684.41	686.05	683.41	683.46	683.08	683.06	691.28	694.56	691.39	683.31	683.41	683.87
18	684.43	686.06	683.41	683.47	683.09	683.60	692.52	694.44	691.61	683.37	683.43	683.94
19	684.45	686.08	683.46	683.49	683.12	683.81	693.73	694.08	691.91	683.41	683.51	684.14
20	684.48	686.19	683.47	683.34	683.12	682.94	694.83	693.58	691.98	683.49	683.51	684.18
21	684.50	686.10	683.53	683.28	683.10	682.56	695.86	693.20	691.99	683.53	683.47	684.34
22	684.35	686.12	683.41	683.21	683.10	682.18	696.68	692.57	691.97	683.40	683.50	684.40
23	684.41	686.14	683.28	683.19	683.13	681.59	697.42	691.90	691.87	683.33	683.52	684.53
24	684.66	686.18	683.27	683.15	683.10	681.32	698.02	691.14	691.67	683.34	683.49	684.61
25	684.70	686.24	683.25	683.18	683.97	681.31	698.48	690.44	691.37	683.62	683.59	684.59
26	684.75	686.30	683.22	683.22	685.22	681.68	698.83	689.84	690.94	683.68	683.66	684.58
27	684.80	686.32	683.23	683.26	685.48	681.89	698.80	689.44	690.31	683.49	683.65	684.57
28	684.80	686.29	683.23	683.27	685.00	681.82	698.13	689.05	689.53	683.46	683.63	684.54
29	684.81	686.32	683.27	683.32	---	681.82	697.27	688.74	688.61	683.51	683.48	684.54
30	684.85	686.31	683.27	683.44	---	681.86	696.38	688.42	687.66	683.51	683.40	684.54
31	684.93	---	683.27	683.35	---	681.84	---	688.21	---	683.43	683.33	---
MEAN	684.48	685.88	684.26	683.32	683.49	682.83	689.24	692.20	690.63	683.62	683.42	683.93
MAX	684.93	686.32	686.27	683.49	685.48	684.52	698.83	695.44	691.99	686.63	683.66	684.61
MIN	684.24	684.95	683.22	683.15	683.06	681.31	680.18	688.21	687.66	683.10	683.17	683.24

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 SW¼ NE¼ 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. U.S. Army Corps of Engineers satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	420	189	533	211	495	3590	9010	7240	6540	6110	2430	476
2	390	190	534	212	422	3150	8720	6390	6460	5490	2390	347
3	341	188	473	213	300	2400	7820	6470	6450	4840	2240	277
4	351	187	423	214	353	2230	7540	6410	6470	3860	1790	270
5	349	188	e415	215	393	2290	7280	6360	6540	2570	1190	268
6	347	204	408	216	388	1760	7120	6430	6440	1840	1110	277
7	317	215	395	211	383	1240	7280	6470	6360	1750	1110	278
8	278	200	887	213	423	1370	7140	6440	6400	1990	1110	517
9	268	192	1280	213	2140	1380	5530	6420	6430	2660	1110	743
10	243	192	1970	214	2670	1200	4590	5470	6420	2750	1100	735
11	235	190	2380	214	1790	1930	4650	2380	6410	2100	899	924
12	243	194	1570	214	1580	2800	4760	1140	6400	1690	683	1080
13	254	482	482	215	1280	4070	3860	3660	6360	1420	526	1000
14	254	713	248	283	1130	5060	2780	6360	6470	1430	417	812
15	245	619	222	343	1020	6330	2820	6310	6620	1430	423	616
16	246	550	206	328	901	7630	4030	6420	6560	1290	756	582
17	250	395	205	327	794	7700	3310	6440	6460	1100	731	519
18	254	e260	202	365	758	8260	1490	6410	6430	1040	558	458
19	256	e240	203	572	744	9450	1500	6370	6440	1040	588	427
20	257	229	204	564	736	9300	1510	6330	6440	1160	619	377
21	252	194	395	446	671	8960	1520	6530	6440	1250	577	340
22	252	189	501	397	624	8740	1510	6310	6430	1240	553	340
23	221	189	324	355	615	8060	1530	6400	6430	1110	551	518
24	198	188	247	274	932	8050	1480	6530	6400	1040	556	608
25	195	187	247	211	1450	8050	1480	6550	6370	1430	660	606
26	199	280	223	209	2100	8590	2590	6560	6430	2030	724	695
27	189	468	208	207	4360	9200	6490	6530	6470	2070	794	817
28	185	409	208	206	4210	9330	8670	6460	6380	1910	880	773
29	183	454	208	214	---	9340	8590	6420	6300	2180	775	746
30	183	544	209	522	---	9340	8490	6380	6220	2560	691	757
31	185	---	211	667	---	9340	---	6470	---	2590	594	---
TOTAL	8040	8919	16221	9265	33662	180140	145090	187060	192970	66970	29135	17183
MEAN	259	297	523	299	1202	5811	4836	6034	6432	2160	940	573
MAX	420	713	2380	667	4360	9450	9010	7240	6620	6110	2430	1080
MIN	183	187	202	206	300	1200	1480	1140	6220	1040	417	268
AC-FT	15950	17690	32170	18380	66770	357300	287800	371000	382800	132800	57790	34080
CFSM	.08	.10	.17	.10	.39	1.87	1.55	1.94	2.06	.69	.30	.18
IN.	.10	.11	.19	.11	.40	2.15	1.73	2.23	2.30	.80	.35	.21

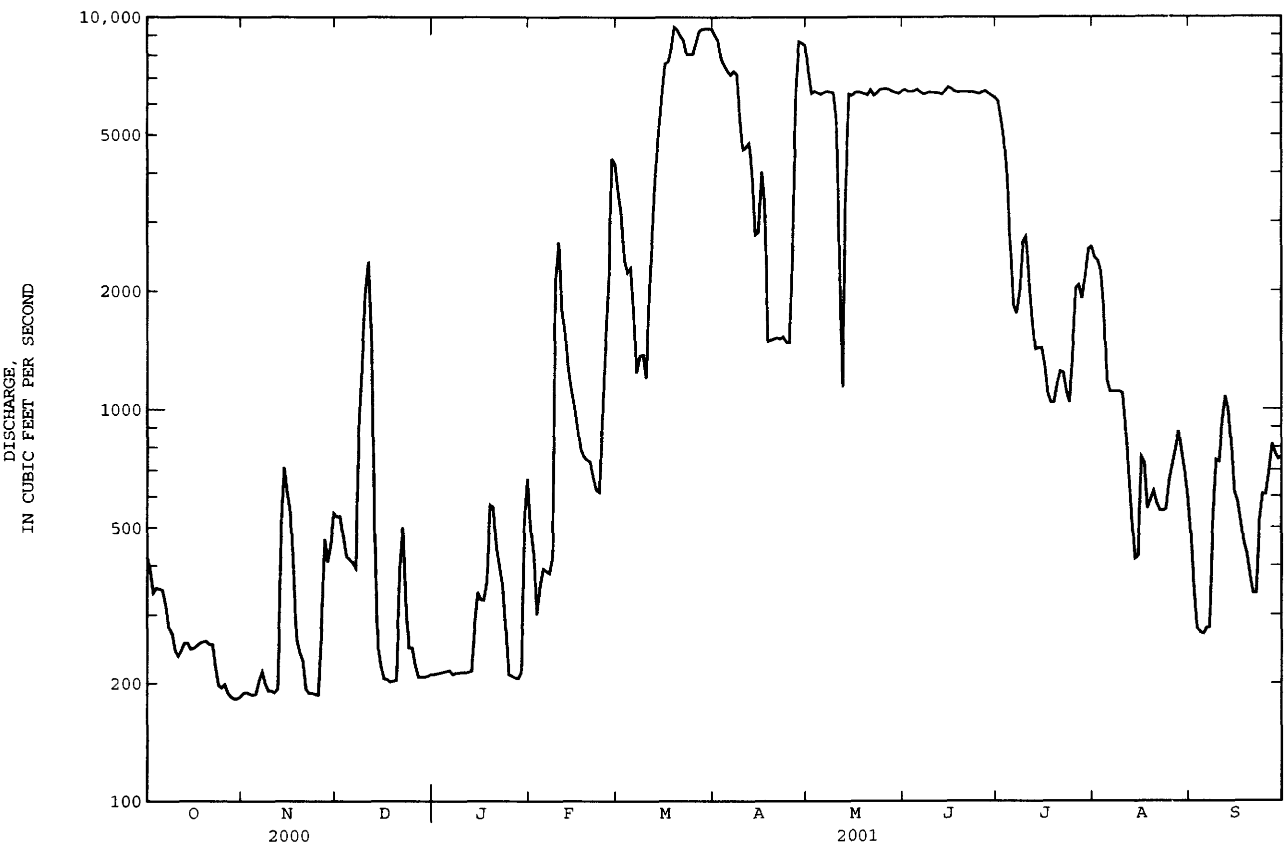
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	259	297	523	299	1202	5811	4836	6034	6432	2160	940	573
MAX	259	297	523	299	1202	5811	4836	6034	6432	2160	940	573
(WY)	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001
MIN	259	297	523	299	1202	5811	4836	6034	6432	2160	940	573
(WY)	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001

05453520 IOWA RIVER BELOW CORALVILLE DAM NEAR CORALVILLE, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 2000 - 2001	
ANNUAL TOTAL			894655			
ANNUAL MEAN			2451		2451	
HIGHEST ANNUAL MEAN					2451	2001
LOWEST ANNUAL MEAN					2451	2001
HIGHEST DAILY MEAN	2380	Dec 11	9450	Mar 19	9450	Mar 19 2001
LOWEST DAILY MEAN	183	Oct 29	183	Oct 29a	183	Oct 29 2000
ANNUAL SEVEN-DAY MINIMUM	186	Oct 28	186	Oct 28	186	Oct 28 2000
MAXIMUM PEAK FLOW			10100	Mar 19	25800	Jul 19 1993
MAXIMUM PEAK STAGE			56.57	Mar 19	63.95	Jul 19 1993
INSTANTANEOUS LOW FLOW					129	Oct 26 1999
ANNUAL RUNOFF (AC-FT)			1775000		1776000	
ANNUAL RUNOFF (CFSM)			.79		.79	
ANNUAL RUNOFF (INCHES)			10.68		10.69	
10 PERCENT EXCEEDS	694		6530		6470	
50 PERCENT EXCEEDS	275		901		745	
90 PERCENT EXCEEDS	189		210		211	

a Also Oct. 30.
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.--Operated May 1951 to September 1992 as a crest-stage partial record station. March 1994 to current year.

GAGE.--Tipping bucket rain gage.

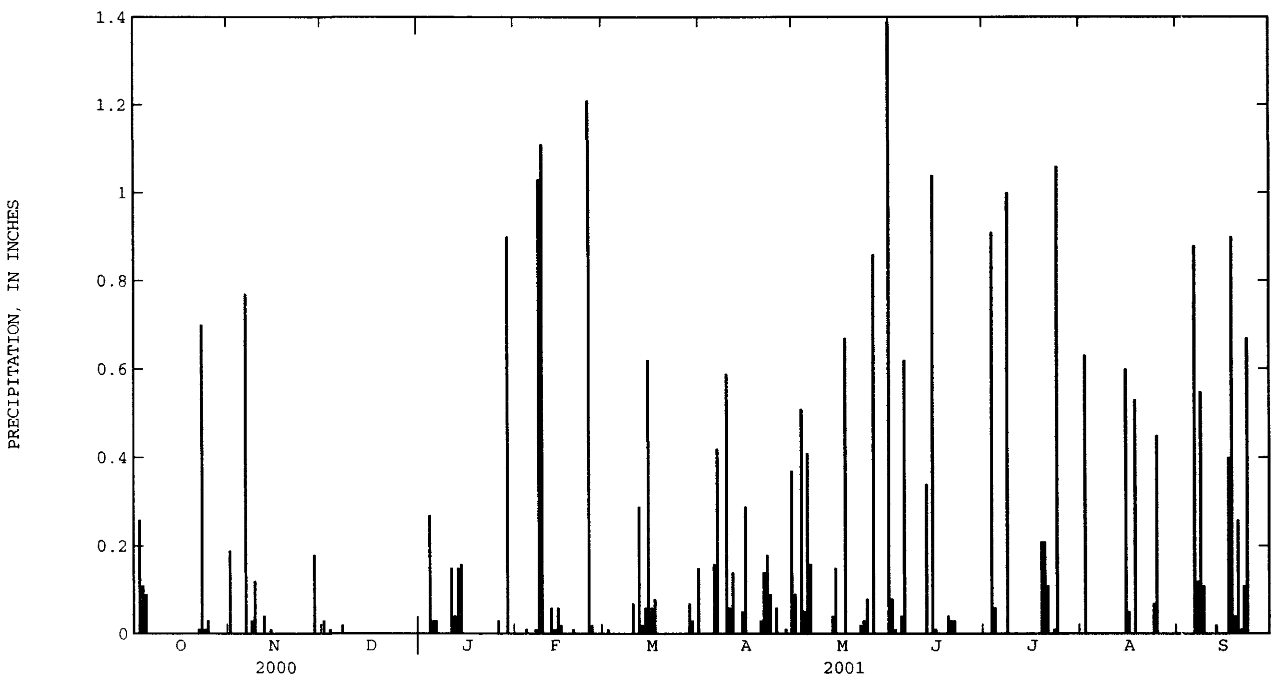
REMARKS.--Estimated totals May 19-21. Estimated values taken from U.S. Geological Survey gaging station 05454000, Rapid Creek nr Iowa City. Records good except for estimated days and winter period, which is poor due to intermittent snow accumulation and subsequent melting.

EXTREME FOR PERIOD OF RECORD.--Maximum daily accumulation, 2.65 in., May 9, 1996, June 13, 2000.

EXTREME FOR CURRENT YEAR.--Maximum daily accumulation, 1.39 in., May 31.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.19	.03	.00	.00	.00	.00	.09	.08	.00	.00	---
2	.00	.00	.00	.00	.00	.01	.00	.00	.01	.00	.63	---
3	.26	.00	.01	.00	.00	.00	.00	.51	.00	.91	.00	---
4	.11	.00	.00	.27	.01	.00	.00	.05	.04	.06	.00	---
5	.09	.00	.00	.03	.00	.00	.16	.41	.62	.00	.00	.00
6	.00	.77	.00	.03	.00	.00	.42	.16	.00	.00	.00	.88
7	.00	.00	.02	.00	.01	.00	.00	.00	.00	.00	.00	.12
8	.00	.03	.00	.00	1.03	.00	.00	.00	.00	1.00	.00	.55
9	.00	.12	.00	.00	1.11	.00	.59	---	.00	.00	.00	.11
10	.00	.00	.00	.00	.00	.07	.06	---	.00	.00	.00	.00
11	.00	.00	.00	.15	.00	.00	.14	.00	.00	.00	.00	.00
12	.00	.04	.00	.04	.06	.29	.00	.00	.34	.00	.00	.00
13	.00	.00	.00	.15	.01	.02	.00	.04	.00	.00	.00	.02
14	.00	.01	.00	.16	.06	.06	.05	.15	1.04	.00	.00	.00
15	.00	.00	.00	.00	.02	.62	.29	.00	.01	.00	.60	.00
16	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.05	.00
17	.00	.00	.00	.00	.00	.08	.00	.67	.00	.00	.00	.40
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.53	.90
19	.00	.00	.00	.00	.01	.00	.00	---	.04	.21	.00	.04
20	.00	.00	.00	.00	.00	---	.03	---	.03	.21	.00	.26
21	.00	.00	.00	.00	.00	---	.14	---	.03	.11	.00	.01
22	.01	.00	.00	.00	.00	.00	.18	.02	.00	.00	.00	.11
23	.70	.00	.00	.00	.00	.00	.09	.03	.00	.01	.00	.67
24	.01	.00	.00	.00	1.21	.00	.00	.08	.00	1.06	.07	.00
25	.03	.00	.00	.00	.02	.00	.06	.00	.00	.00	.45	.00
26	.00	.00	.00	.03	.00	.00	.00	.86	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.18	.00	.00	.00	.07	.01	.00	.00	.00	.00	.00
29	.00	.00	.00	.90	---	.03	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.37	.00	.00	.00	---	.00
31	.00	---	.00	.00	---	.15	---	1.39	---	.00	---	---
TOTAL	1.21	1.34	0.06	1.76	3.55	1.46	2.59	4.46	2.24	3.57	2.33	4.07



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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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.6	e3.0	e3.7	e2.9	e17	36	23	16	144	11	2.1	1.0
2	e2.3	e3.2	e3.2	e2.5	e12	40	22	13	78	10	4.6	.87
3	e2.1	e3.0	e2.6	e2.8	e15	81	e20	13	58	15	3.6	.82
4	e4.6	e2.9	e2.2	e3.4	e18	79	19	16	50	13	2.3	.77
5	e4.2	e3.1	e1.8	e3.3	e13	53	21	17	70	10	1.9	.46
6	e3.6	e4.0	e2.0	e4.0	e8.5	40	32	29	59	9.5	1.5	.90
7	e3.4	e11	e2.8	e3.7	e6.8	38	39	30	50	9.2	1.2	1.1
8	e3.4	e8.8	e3.2	e3.4	e14	31	31	26	43	21	1.1	2.2
9	e3.5	e8.2	e2.9	e3.0	e180	33	63	23	38	15	.97	1.1
10	e3.6	e7.6	e3.0	e3.4	e60	54	54	26	34	11	.83	.76
11	e3.5	e7.0	e2.7	e3.8	e25	62	55	96	31	e9.4	.79	.61
12	e3.4	e6.6	e2.4	e5.0	e18	130	46	49	33	e8.5	.75	.44
13	e3.4	e6.3	e2.1	e5.8	e13	80	38	40	30	7.7	.60	.55
14	e3.5	e6.0	e2.3	e7.4	e10	62	34	37	53	7.0	.54	.36
15	e3.4	e5.4	e2.6	e13	e8.7	163	e32	31	81	6.5	.62	.56
16	e3.3	e5.2	e3.4	e10	e7.9	103	e30	27	43	6.0	1.8	.81
17	e3.1	e5.0	e2.8	e8.3	e7.4	64	29	36	35	5.6	1.4	1.3
18	e2.8	e4.6	e2.2	e6.6	e8.3	55	27	27	31	5.4	6.5	2.9
19	e3.0	e4.5	e2.0	e5.5	e9.4	67	25	23	27	5.7	3.6	7.9
20	e3.1	e4.4	e1.9	e4.8	e8.9	93	24	27	25	5.5	2.4	2.5
21	e3.1	e4.4	e1.8	e5.6	e8.3	83	23	307	24	5.1	2.1	1.6
22	e3.0	e5.0	e1.6	e6.6	e9.0	74	21	79	22	4.7	1.8	.94
23	e4.0	e5.4	e2.0	e6.8	e11	62	21	58	20	4.1	1.8	6.3
24	e4.2	e5.3	e1.9	e6.3	e32	46	18	49	18	5.9	2.6	5.3
25	e3.8	e5.8	e1.7	e5.4	e450	37	17	42	17	10	6.7	3.0
26	e3.6	e5.4	e2.2	e5.6	e160	32	17	90	15	5.0	7.5	1.2
27	e3.5	e4.4	e2.0	e5.3	79	28	15	80	14	4.1	5.5	1.0
28	e3.3	e4.2	e2.3	e7.3	51	e27	14	56	14	3.8	3.7	.93
29	e3.0	e4.2	e3.0	e9.6	---	26	14	46	13	3.8	2.7	.79
30	e2.9	e4.1	e3.8	e28	---	24	13	40	12	3.0	2.1	.77
31	e2.9	---	e3.4	e23	---	24	---	123	---	2.5	1.5	---
TOTAL	103.1	158.0	77.5	212.1	1261.2	1827	837	1572	1182	244.0	77.10	49.74
MEAN	3.33	5.27	2.50	6.84	45.0	58.9	27.9	50.7	39.4	7.87	2.49	1.66
MAX	4.6	11	3.8	28	450	163	63	307	144	21	7.5	7.9
MIN	2.1	2.9	1.6	2.5	6.8	24	13	13	12	2.5	.54	.36
AC-FT	204	313	154	421	2500	3620	1660	3120	2340	484	153	99
CFSM	.13	.21	.10	.27	1.78	2.33	1.10	2.00	1.56	.31	.10	.07
IN.	.15	.23	.11	.31	1.85	2.69	1.23	2.31	1.74	.36	.11	.07

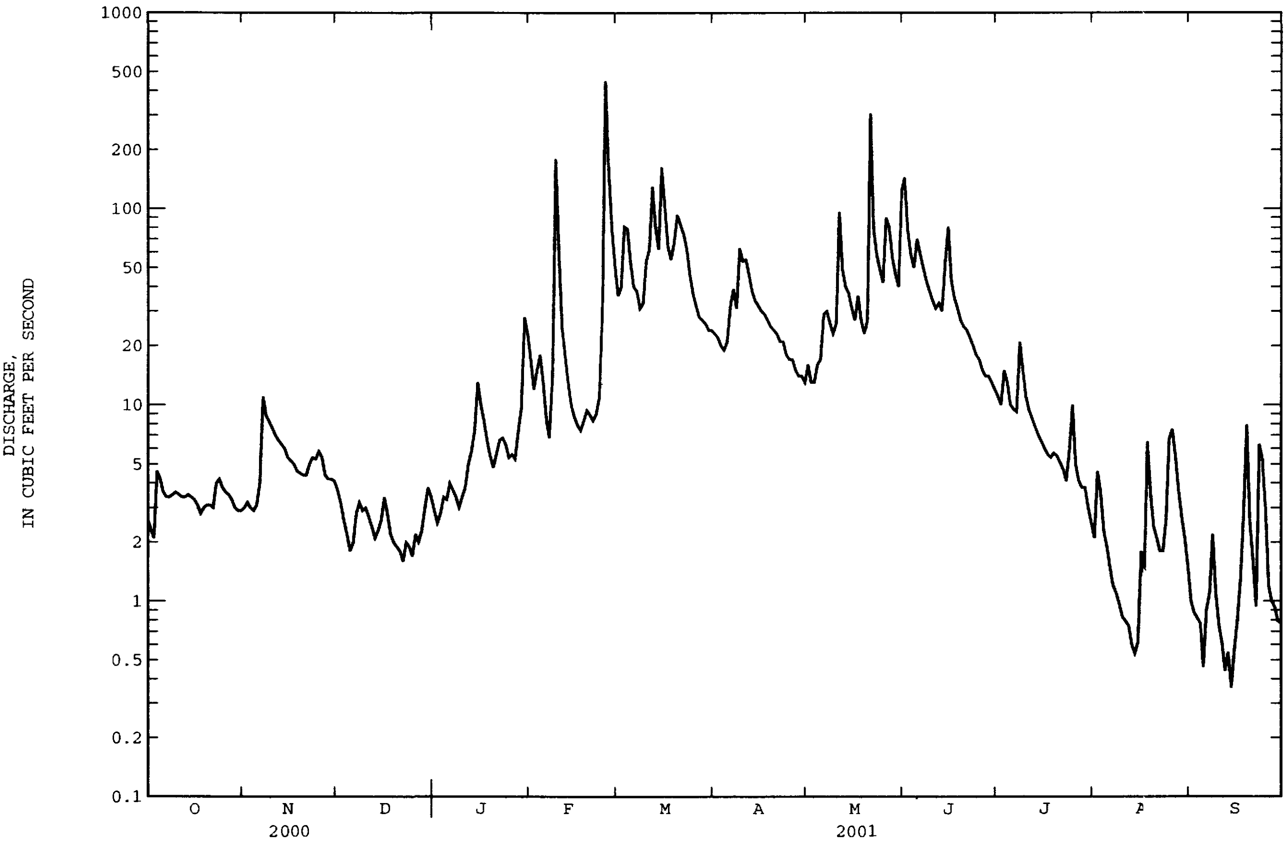
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	7.57	10.2	8.92	9.59	22.7	29.3	24.5	27.4	25.7	15.8	11.6	7.89
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1938 - 2001	
ANNUAL TOTAL	3260.61		7600.74			
ANNUAL MEAN	8.91		20.8		16.7	
HIGHEST ANNUAL MEAN					63.8	1993
LOWEST ANNUAL MEAN					1.09	1957
HIGHEST DAILY MEAN	474	Jun 14	450	Feb 25	1720	May 17 1986
LOWEST DAILY MEAN	.28	Jan 28	.36	Sep 14	.00	Jan 1 1940
ANNUAL SEVEN-DAY MINIMUM	.33	Jan 27	.58	Sep 10	.00	Jan 1 1940
MAXIMUM PEAK FLOW			e600	Feb 25	6700	Aug 10 1993
MAXIMUM PEAK STAGE			11.22	Feb 25	15.61	Aug 10 1993
INSTANTANEOUS LOW FLOW			.23	Sep 14a		
ANNUAL RUNOFF (AC-FT)	6470		15080		12100	
ANNUAL RUNOFF (CFSM)	.35		.82		.66	
ANNUAL RUNOFF (INCHES)	4.79		11.18		8.97	
10 PERCENT EXCEEDS	21		54		35	
50 PERCENT EXCEEDS	3.0		6.6		5.0	
90 PERCENT EXCEEDS	.69		1.7		.10	

a Also Sept. 15.
e Estimated.



05454220 CLEAR CREEK NEAR OXFORD, IA

LOCATION.--Lat 41°43'06", long 91°44'24", in SW¼ SE¼ SE¼ 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. U.S. Geological Survey rain gage and data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	e8.2	e10	e10	e34	88	67	43	322	39	14	2.9
2	9.6	e8.4	e8.2	e9.3	e24	80	63	40	182	37	14	3.0
3	9.2	e8.0	e7.4	e12	e28	126	60	38	139	39	13	2.8
4	13	e7.7	e6.8	e14	e32	163	57	39	118	36	13	2.5
5	11	e8.4	e6.0	e14	e28	121	62	43	302	32	12	2.3
6	10	e16	e7.4	e16	e25	89	94	76	289	30	10	2.4
7	9.3	e32	e9.0	e14	e22	89	112	70	163	30	9.5	3.0
8	9.3	24	e9.9	e12	e40	74	83	60	134	36	9.1	9.7
9	9.3	24	e9.1	e10	e350	80	159	55	115	35	8.6	5.1
10	9.6	22	e9.3	e12	e220	130	158	56	103	28	7.7	3.6
11	9.4	20	e8.8	e14	e140	179	140	112	92	26	7.2	2.7
12	9.2	20	e8.3	e16	e90	353	146	79	86	24	6.9	2.5
13	9.3	19	e7.5	e20	e74	230	111	70	81	22	6.3	2.4
14	9.5	18	e8.1	e24	e64	174	97	65	143	21	5.9	2.3
15	9.1	17	e8.9	e32	e50	408	87	59	306	20	6.3	2.1
16	8.8	17	e12	e28	e40	405	76	55	127	19	11	2.1
17	8.6	e16	e10	e24	e36	161	69	65	102	18	7.2	2.8
18	8.1	e15	e9.5	e20	e44	e105	65	55	90	18	12	3.3
19	8.4	e14	e8.8	e16	e38	131	62	51	81	29	11	7.5
20	8.7	e14	e9.0	e13	e35	212	59	49	75	23	7.1	4.9
21	8.7	e13	e8.5	e16	e33	251	66	72	72	32	6.0	6.1
22	8.6	e13	e7.8	e18	e38	222	61	59	68	71	5.9	3.9
23	12	e14	e9.1	e18	e40	184	60	55	63	39	5.5	8.6
24	12	e14	e8.6	e16	e100	124	53	53	58	27	5.4	7.5
25	e10	e15	e7.8	e13	1370	99	52	51	55	56	14	4.3
26	e9.3	e14	e9.5	e14	316	84	49	131	52	28	14	3.6
27	e9.2	e12	e9.0	e12	181	76	47	158	49	23	6.7	3.2
28	e8.6	e11	e10	e20	117	73	45	109	46	21	4.8	3.0
29	e8.3	e11	e12	e26	---	72	43	90	44	19	4.0	2.9
30	e8.0	e11	e14	e60	---	69	42	78	41	17	3.6	2.7
31	e8.0	---	e12	e50	---	69	---	179	---	16	3.3	---
TOTAL	292.1	456.7	282.3	593.3	3609	4721	2345	2215	3598	911	265.0	115.7
MEAN	9.42	15.2	9.11	19.1	129	152	78.2	71.5	120	29.4	8.55	3.86
MAX	13	32	14	60	1370	408	159	179	322	71	14	9.7
MIN	8.0	7.7	6.0	9.3	22	69	42	38	41	16	3.3	2.1
AC-FT	579	906	560	1180	7160	9360	4650	4390	7140	1810	526	229
CFSM	.16	.26	.16	.33	2.21	2.61	1.34	1.22	2.05	.50	.15	.07
IN.	.19	.29	.18	.38	2.30	3.01	1.49	1.41	2.29	.58	.17	.07

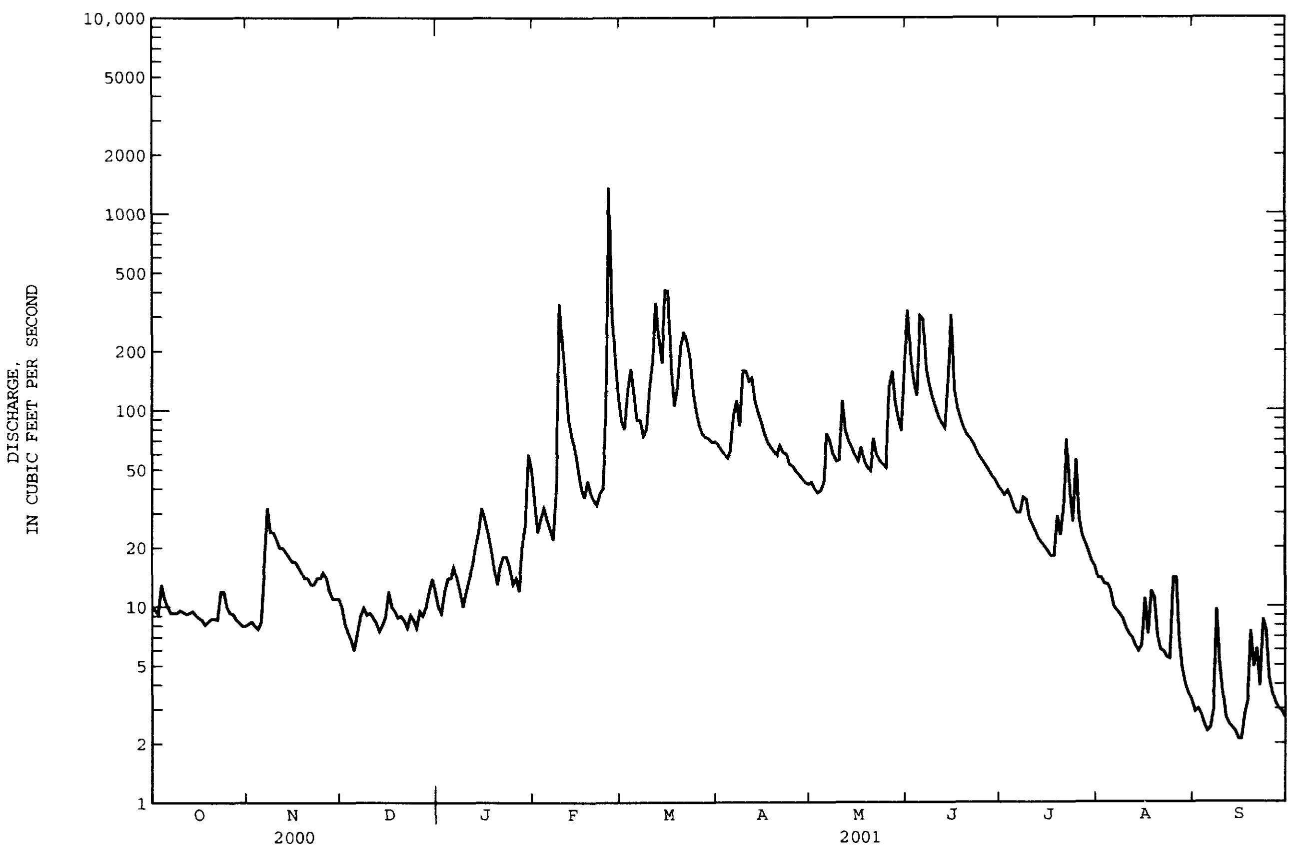
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	27.0	18.7	10.3	15.8	55.9	54.7	62.9	108	81.4	33.4	13.6	8.21
MAX	153	74.4	28.1	35.2	129	152	113	269	120	77.0	44.5	29.4
(WY)	1999	1999	1999	1998	2001	2001	1998	1996	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1995 - 2001	
ANNUAL TOTAL	8806.3		19404.1			
ANNUAL MEAN	24.1		53.2		40.7	
HIGHEST ANNUAL MEAN					56.4	1999
LOWEST ANNUAL MEAN					21.8	2000
HIGHEST DAILY MEAN	1000	Jun 14	1370	Feb 25	2400	May 10 1996
LOWEST DAILY MEAN	1.7	Jan 27	2.1	Sep 15	.74	Dec 11 1995
ANNUAL SEVEN-DAY MINIMUM	1.9	Jan 25	2.4	Sep 11	.90	Sep 20 1999
MAXIMUM PEAK FLOW			1930	Feb 25	4230	May 10 1996
MAXIMUM PEAK STAGE			13.79	Feb 25	14.89	May 10 1996
INSTANTANEOUS LOW FLOW			1.8	Sep 15a		
ANNUAL RUNOFF (AC-FT)	17470		38490		29460	
ANNUAL RUNOFF (CFSM)	.41		.91		.70	
ANNUAL RUNOFF (INCHES)	5.61		12.36		9.46	
10 PERCENT EXCEEDS	49		128		95	
50 PERCENT EXCEEDS	10		22		15	
90 PERCENT EXCEEDS	3.4		6.2		2.3	

a Also Sept. 16.
e Estimated.



05454300 CLEAR CREEK NEAR CORALVILLE, IA

LOCATION.--Lat 41°40'36", long 91°35'55", in NE 1/4 SE 1/4 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	18	23	e20	e70	137	104	68	550	58	22	7.8
2	20	19	22	e19	e42	125	96	60	296	55	29	7.2
3	19	18	e20	e22	e48	192	91	66	210	60	24	7.0
4	31	17	e17	e24	e55	274	85	70	173	55	20	8.0
5	25	18	e11	e26	e50	202	93	72	343	48	18	6.6
6	22	35	e14	e28	e42	128	146	104	504	46	16	6.7
7	20	60	e19	e27	e40	128	191	103	255	45	15	7.0
8	20	45	e22	e25	e90	105	133	87	203	64	14	16
9	20	43	e20	e19	e800	109	287	76	170	63	13	14
10	19	41	e21	e21	e500	172	289	85	148	46	12	9.0
11	19	36	e18	e22	367	264	256	182	134	41	11	6.9
12	18	36	e16	e26	226	476	248	125	128	38	10	5.9
13	17	35	e15	e32	162	417	187	104	118	36	9.8	5.8
14	17	33	e17	e46	149	276	159	99	536	34	10	6.1
15	17	30	e18	e70	116	576	140	87	784	33	12	5.7
16	16	30	e22	e62	100	681	121	78	256	31	17	5.5
17	16	28	e19	e42	e70	280	112	95	186	30	14	9.6
18	16	e26	e15	e37	e85	221	105	82	155	29	28	12
19	16	e24	e14	e30	e90	225	100	70	133	33	22	25
20	16	e23	e15	e25	e75	319	94	70	121	42	16	15
21	16	e22	e14	e27	e60	416	101	135	113	33	13	16
22	16	e24	e12	e28	e67	349	91	93	106	93	11	10
23	26	e27	e15	e30	74	313	99	79	96	52	10	26
24	25	e30	e14	e28	506	200	83	75	88	56	11	22
25	21	e32	e13	e21	1760	153	80	71	83	90	43	13
26	20	e30	e17	e24	619	128	75	148	76	47	33	9.8
27	20	e26	e16	e22	334	117	72	262	71	36	17	8.3
28	19	25	e19	e40	195	111	68	158	67	32	13	7.3
29	18	24	e21	e65	---	110	65	125	65	30	11	6.8
30	18	23	e23	e110	---	106	61	105	61	26	11	6.8
31	18	---	e22	e90	---	106	---	222	---	24	8.7	---
TOTAL	603	878	544	1108	6792	7416	3832	3256	6229	1406	514.5	312.8
MEAN	19.5	29.3	17.5	35.7	243	239	128	105	208	45.4	16.6	10.4
MAX	31	60	23	110	1760	681	289	262	784	93	43	26
MIN	16	17	11	19	40	105	61	60	61	24	8.7	5.5
AC-FT	1200	1740	1080	2200	13470	14710	7600	6460	12360	2790	1020	620
CFSM	.20	.30	.18	.36	2.47	2.44	1.30	1.07	2.12	.46	.17	.11
IN.	.23	.33	.21	.42	2.58	2.81	1.45	1.23	2.36	.53	.20	.12

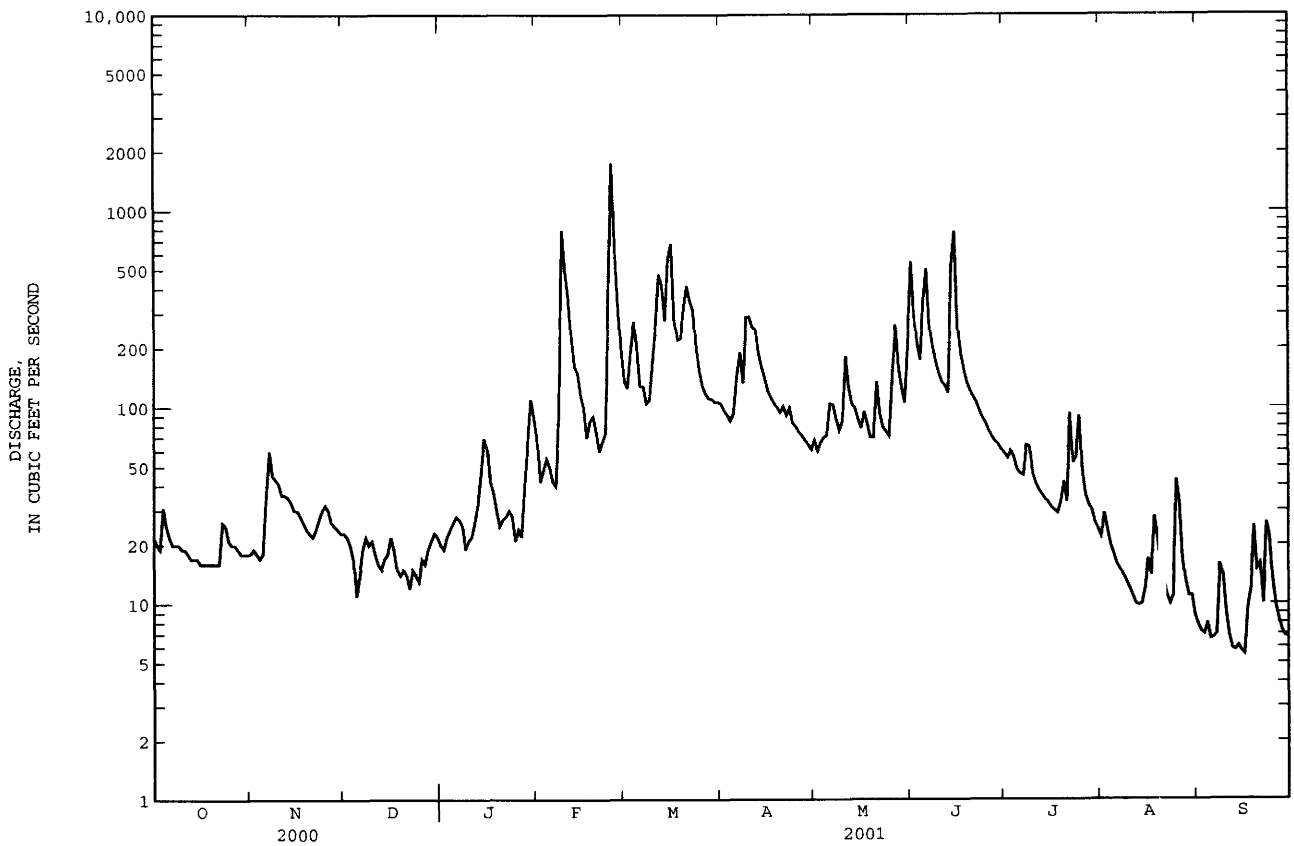
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	33.2	44.5	38.2	39.4	74.1	113	103	112	108	90.6	59.4	43.0
MAX	261	246	162	206	243	402	452	589	566	991	759	337
(WY)	1999	1962	1993	1960	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1953 - 2001	
ANNUAL TOTAL	15220.7		32891.3			
ANNUAL MEAN	41.6		90.1		71.5	
HIGHEST ANNUAL MEAN					327	1993
LOWEST ANNUAL MEAN					6.57	1957
HIGHEST DAILY MEAN	1380	Jun 14	1760	Feb 25	7310	Jun 17 1990
LOWEST DAILY MEAN	4.2	Jan 27a	5.5	Sep 16	.00	Jan 18 1977
ANNUAL SEVEN-DAY MINIMUM	4.4	Jan 26	6.4	Sep 10	.00	Jan 18 1977
MAXIMUM PEAK FLOW			1860	Feb 25	10200	Jun 17 1990
MAXIMUM PEAK STAGE			10.55	Feb 25	16.36	Jun 17 1990
INSTANTANEOUS LOW FLOW			5.0	Sep 15		
ANNUAL RUNOFF (AC-FT)	30190		65240		51780	
ANNUAL RUNOFF (CFSM)	.42		.92		.73	
ANNUAL RUNOFF (INCHES)	5.77		12.47		9.90	
10 PERCENT EXCEEDS	87		214		150	
50 PERCENT EXCEEDS	19		36		27	
90 PERCENT EXCEEDS	9.2		13		3.0	

a Also Jan. 28, 31.
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.--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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	444	209	574	e240	638	3750	9660	7980	7530	6290	2540	544
2	426	211	568	e240	555	3280	9250	6600	7070	5820	2500	441
3	392	207	513	e240	e380	2770	8560	6740	6900	5060	2410	333
4	421	207	464	e240	e410	2590	7790	6690	6830	4120	2040	322
5	410	208	452	e240	e440	2590	7770	6620	7090	2900	1310	317
6	404	260	459	e240	e430	2190	7500	6740	7300	2020	1170	348
7	389	286	460	e240	e440	1440	7750	6790	6850	1890	1170	347
8	353	258	737	e240	568	1580	7580	6720	6790	2150	1170	465
9	337	254	1300	e240	2610	1580	6700	6660	6770	2650	1170	753
10	291	246	1700	e240	3500	1520	5070	6150	6750	2920	1160	751
11	212	240	2370	e240	2470	1980	5090	3150	6720	2310	1010	832
12	211	241	1850	e240	1790	3120	5110	1350	6720	1870	753	1080
13	209	380	647	299	1850	3950	4500	2880	6660	1520	622	1060
14	211	736	330	e340	1370	5220	3000	6560	6840	1510	478	895
15	211	672	e260	e400	1190	6400	3000	6540	7870	1500	490	651
16	210	578	e240	e380	1070	8500	3680	6670	7080	1380	689	619
17	214	481	e240	e380	878	8470	4030	6710	6880	1180	850	553
18	218	e280	e240	448	868	8580	1720	6660	6740	1090	648	519
19	216	e280	e240	607	865	9630	1700	6600	6710	1100	637	519
20	217	e240	276	664	861	10200	1690	6580	6700	1210	667	437
21	216	e220	403	519	769	9900	1720	7040	6710	1320	642	398
22	216	e220	568	479	732	9700	1700	6660	6670	1370	608	381
23	264	e220	427	434	709	8940	1700	6610	6640	1240	599	513
24	241	e220	e280	374	1180	8630	1630	6750	6610	1140	604	634
25	228	246	e280	e260	3350	8530	1630	6800	6570	1560	714	617
26	219	315	e260	e240	2410	8790	1970	6990	6570	2050	791	659
27	213	486	e240	e240	4360	9590	5460	7140	6660	2260	822	799
28	206	490	e240	e240	4530	9840	8700	6860	6580	2060	899	769
29	206	468	e240	318	---	9840	9020	6740	6490	2230	833	723
30	205	575	e240	586	---	9840	8950	6670	6390	2560	712	723
31	207	---	e240	922	---	9850	---	6870	---	2690	671	---
TOTAL	8417	9934	17338	11010	41223	192790	153630	196520	204690	70970	31379	18002
MEAN	272	331	559	355	1472	6219	5121	6339	6823	2289	1012	600
MAX	444	736	2370	922	4530	10200	9660	7980	7870	6290	2540	1080
MIN	205	207	240	240	380	1440	1630	1350	6390	1090	478	317
AC-FT	16700	19700	34390	21840	81770	382400	304700	389800	406000	140800	62240	35710
CFSM	.08	.10	.17	.11	.45	1.90	1.57	1.94	2.09	.70	.31	.18
IN.	.10	.11	.20	.13	.47	2.19	1.75	2.23	2.33	.81	.36	.20

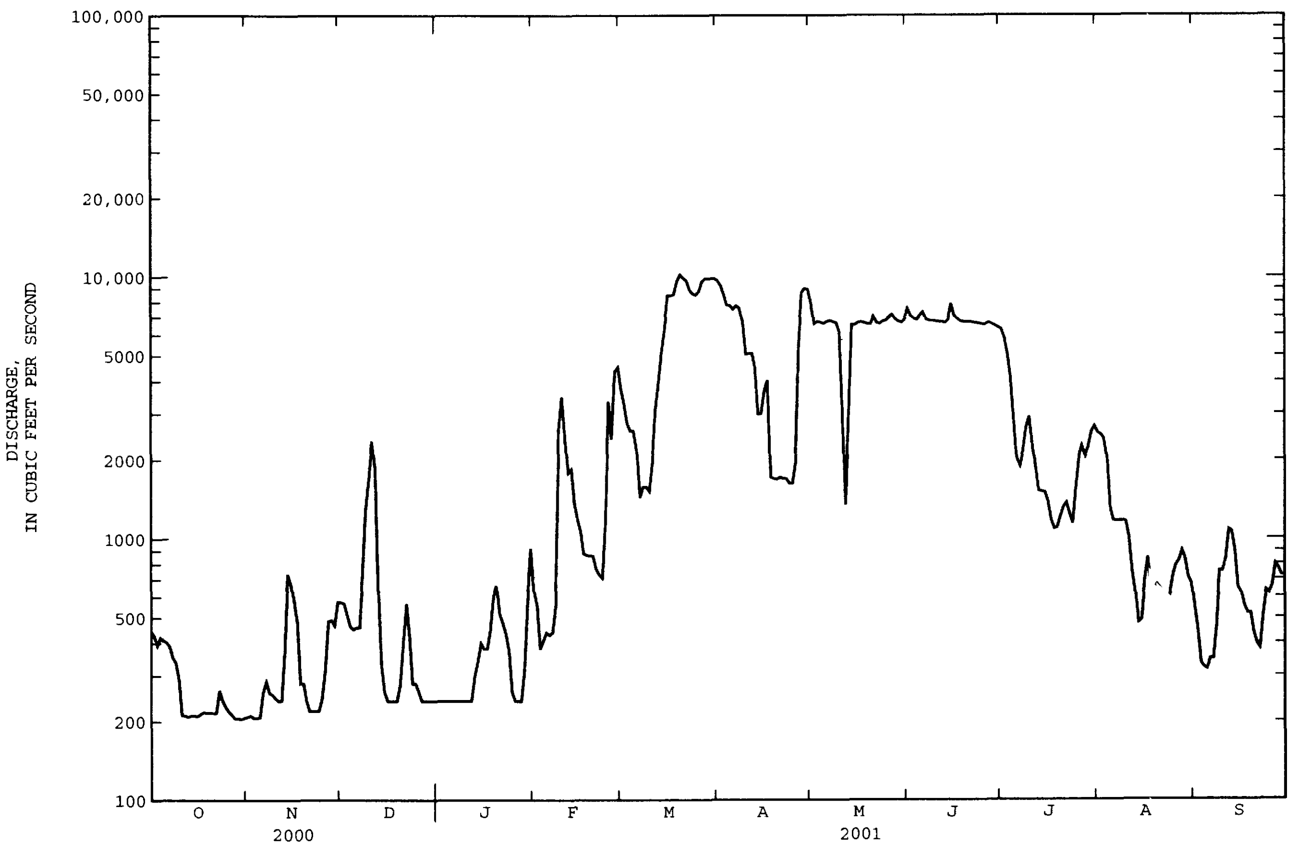
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1146	1449	1419	1061	1777	3432	3826	3299	3682	3521	2194	1450
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1959 - 2001a	
ANNUAL TOTAL	349190		955903			
ANNUAL MEAN	954		2619		2356	
HIGHEST ANNUAL MEAN					8502	1993
LOWEST ANNUAL MEAN					304	1989
HIGHEST DAILY MEAN	6480	Jul 12	10200	Mar 20	26200	Jul 21 1993
LOWEST DAILY MEAN	177	Feb 11	205	Oct 30	49	Aug 1 1977b
ANNUAL SEVEN-DAY MINIMUM	180	Feb 11	207	Oct 28	50	Jul 31 1977
MAXIMUM PEAK FLOW			11100	Mar 20	28200	Aug 10 1993
MAXIMUM PEAK STAGE			20.53	Mar 20	28.52	Aug 10 1993
ANNUAL RUNOFF (AC-FT)	692600		1896000		1707000	
ANNUAL RUNOFF (CFSM)	.29		.80		.72	
ANNUAL RUNOFF (INCHES)	3.97		10.87		9.79	
10 PERCENT EXCEEDS	2980		7010		6030	
50 PERCENT EXCEEDS	444		1010		1300	
90 PERCENT EXCEEDS	206		240		211	

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 ¼ NE ¼ 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 current 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.

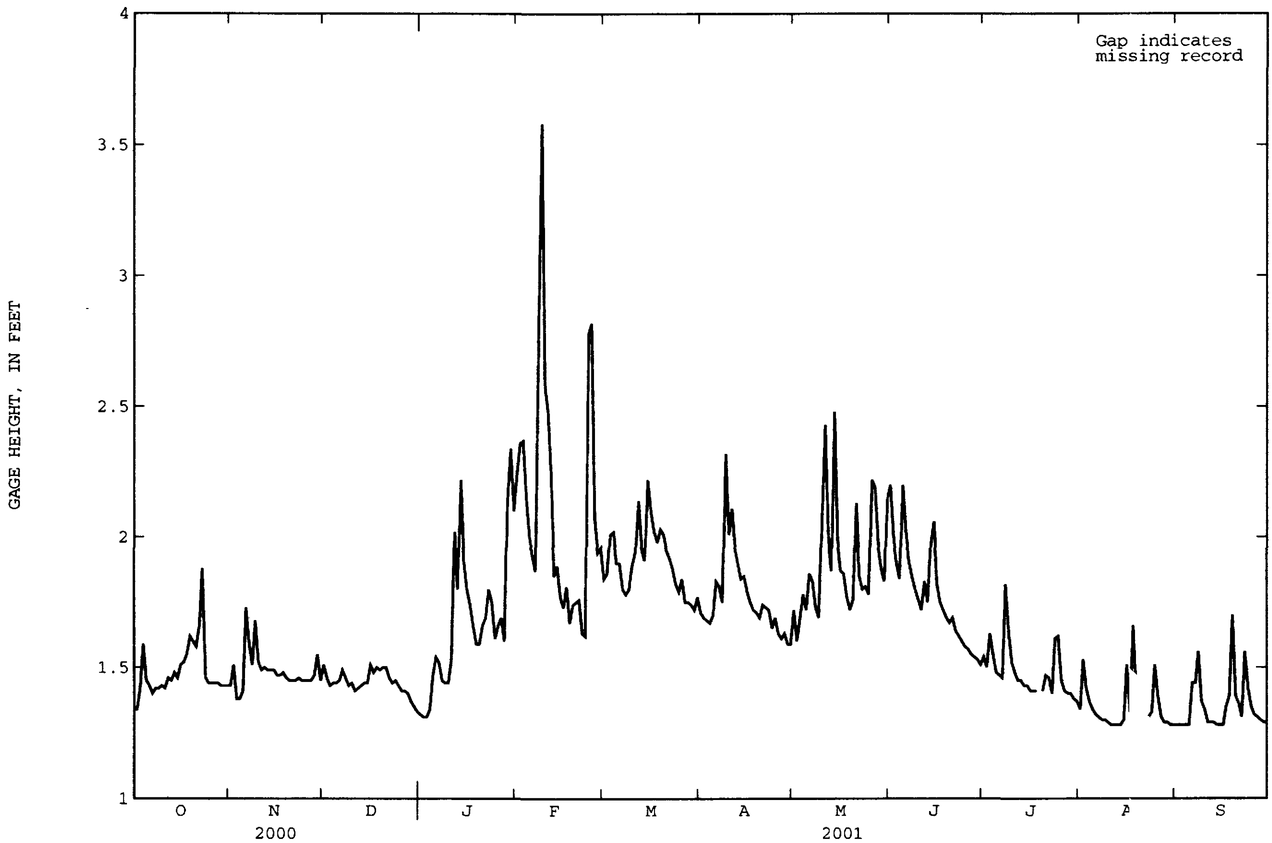
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 14, 1962, reached a stage of 10.5 ft, from flood profile, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum instantaneous gage height 6.31 ft on May 14. Minimum gage height of 1.28 ft. on Aug. 11-15, Aug. 30 to Sep. 6, and Sep. 13-17.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.34	1.43	1.51	1.32	2.24	1.84	1.71	1.72	2.20	1.54	1.34	1.28
2	1.34	1.51	1.46	1.31	2.36	1.86	1.69	1.60	2.00	1.50	1.53	1.28
3	1.42	1.38	1.43	1.31	2.37	2.01	1.68	1.69	1.90	1.63	1.42	1.28
4	1.59	1.38	1.44	1.34	2.15	2.02	1.67	1.78	1.84	1.55	1.37	1.28
5	1.45	1.41	1.44	1.47	2.00	1.90	1.70	1.72	2.20	1.48	1.34	1.28
6	1.43	1.73	1.45	1.54	1.93	1.90	1.83	1.86	2.02	1.47	1.32	1.44
7	1.40	1.59	1.49	1.52	1.87	1.80	1.81	1.83	1.91	1.46	1.31	1.44
8	1.42	1.51	1.46	1.45	2.83	1.78	1.75	1.73	1.85	1.82	1.30	1.56
9	1.42	1.68	1.43	1.44	3.58	1.80	2.32	1.69	1.80	1.64	1.30	1.37
10	1.43	1.52	1.44	1.44	2.58	1.89	2.01	2.08	1.76	1.52	1.29	1.34
11	1.42	1.49	1.41	1.53	2.48	1.94	2.11	2.43	1.72	1.48	1.28	1.29
12	1.46	1.50	1.42	2.02	2.24	2.14	1.96	2.00	1.83	1.45	1.28	1.29
13	1.45	1.49	1.43	1.80	1.85	1.96	1.90	1.87	1.75	1.45	1.28	1.29
14	1.48	1.49	1.44	2.22	1.89	1.91	1.84	2.48	1.98	1.43	1.28	1.28
15	1.46	1.49	1.44	1.91	1.77	2.22	1.85	1.99	2.06	1.43	1.30	1.28
16	1.51	1.47	1.51	1.80	1.73	2.10	1.79	1.87	1.82	1.41	1.51	1.28
17	1.52	1.47	1.48	1.74	1.81	2.02	1.75	1.86	1.75	1.41	1.33	1.35
18	1.55	1.48	1.50	1.66	1.67	1.98	1.72	1.77	1.72	1.41	1.66	1.39
19	1.62	1.46	1.49	1.59	1.74	2.03	1.71	1.72	1.69	---	1.40	1.70
20	1.60	1.45	1.50	1.59	1.75	2.01	1.69	1.76	1.67	1.41	1.33	1.39
21	1.58	1.45	1.50	1.66	1.76	1.95	1.74	2.13	1.69	1.47	1.31	1.36
22	1.66	1.45	1.46	1.69	1.63	1.92	1.73	1.85	1.64	1.46	1.31	1.31
23	1.88	1.46	1.44	1.80	1.62	1.88	1.72	1.80	1.62	1.40	1.31	1.56
24	1.46	1.45	1.45	1.75	2.78	1.82	1.65	1.81	1.60	1.61	1.33	1.42
25	1.44	1.45	1.43	1.61	2.82	1.79	1.69	1.78	1.58	1.62	1.51	1.35
26	1.44	1.45	1.41	1.66	2.07	1.84	1.63	2.22	1.57	1.45	1.39	1.32
27	1.44	1.45	1.41	1.69	1.94	1.75	1.61	2.19	1.55	1.41	1.31	1.31
28	1.44	1.47	1.40	1.60	1.96	1.75	1.63	1.97	1.54	1.40	1.29	1.30
29	1.43	1.55	1.37	2.15	---	1.74	1.59	1.88	1.53	1.40	1.29	1.29
30	1.43	1.45	1.35	2.34	---	1.72	1.59	1.83	1.51	1.38	1.28	1.29
31	1.43	---	1.33	2.10	---	1.77	---	2.15	---	1.37	1.28	---
MEAN	1.48	1.49	1.44	1.68	2.12	1.90	1.77	1.91	1.78	1.48	1.35	1.35
MAX	1.88	1.73	1.51	2.34	3.58	2.22	2.32	2.48	2.20	1.82	1.66	1.70
MIN	1.34	1.38	1.33	1.31	1.62	1.72	1.59	1.60	1.51	1.37	1.28	1.28

05455010 SOUTH BRANCH RALSTON CREEK AT IOWA CITY, IA--Continued



05455100 OLD MANS CREEK NEAR IOWA CITY, IA

LOCATION.--Lat. 41°36'25", long. 91°36'56", in SE ¼ SW ¼ NW ¼ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	27	e34	e38	e100	418	e219	117	1390	106	33	13
2	34	27	e32	e36	e80	329	[illegible]	116	791	99	32	12
3	32	29	e28	e40	e90	499	e195	107	532	97	33	12
4	40	27	e24	e44	e100	755	e190	113	432	101	31	12
5	48	27	e20	e48	e86	505	e200	114	891	90	28	9.4
6	40	36	e24	e54	e80	345	290	302	1330	e84	26	8.7
7	35	142	e28	e50	e70	338	426	317	707	e74	24	8.9
8	33	101	e32	e44	e63	247	291	243	500	e88	21	13
9	32	83	e36	e36	e1200	241	649	197	407	82	19	22
10	32	85	e34	e40	e900	410	754	213	358	73	17	14
11	32	74	e32	e42	e700	678	600	1010	309	66	17	9.8
12	31	71	e30	e46	e600	1070	583	547	283	62	16	7.9
13	30	69	e28	e54	e320	1210	407	e400	263	61	15	6.8
14	29	64	e30	e70	e260	811	343	665	702	e60	14	6.3
15	28	60	e34	e120	e220	1410	299	350	1550	e62	15	6.1
16	26	60	e38	e86	e160	1890	253	285	612	45	21	6.0
17	25	56	e34	e74	e125	836	226	552	405	45	21	6.9
18	24	50	e30	e60	e160	554	217	364	326	45	29	7.9
19	24	e40	e28	e54	e180	542	210	263	269	96	47	15
20	24	e34	e30	e48	e140	893	200	226	245	118	24	14
21	24	e38	e27	e52	e120	1060	202	407	227	79	18	9.7
22	24	e42	e28	e56	e126	840	184	273	209	154	16	10
23	31	e46	e30	e58	149	737	190	220	187	72	14	13
24	44	e50	e28	e54	925	458	165	201	170	64	14	20
25	36	e48	e26	e40	3480	345	164	184	158	118	24	14
26	34	e44	e32	e44	2820	274	161	523	146	74	55	11
27	33	e40	e30	e42	1150	252	e154	857	135	58	32	8.8
28	31	e38	e34	e48	617	238	e140	466	129	51	19	7.4
29	29	e38	e38	e90	---	231	e125	e280	120	46	16	6.8
30	28	e36	e42	e180	---	e222	113	288	112	40	14	6.4
31	27	---	e40	e140	---	e220	---	547	---	37	13	---
TOTAL	977	1582	961	1888	15021	18858	8350	10747	13895	2347	718	318.8
MEAN	31.5	52.7	31.0	60.9	536	608	278	347	463	75.7	23.2	10.6
MAX	48	142	42	180	3480	1890	754	1010	1550	154	55	22
MIN	24	27	20	36	63	220	113	107	112	37	13	6.0
AC-FT	1940	3140	1910	3740	29790	37400	16560	21320	27560	4660	1420	632
CFSM	.16	.26	.15	.30	2.67	3.03	1.38	1.72	2.30	.38	.12	.05
IN.	.18	.29	.18	.35	2.78	3.49	1.55	1.99	2.57	.43	.13	.06

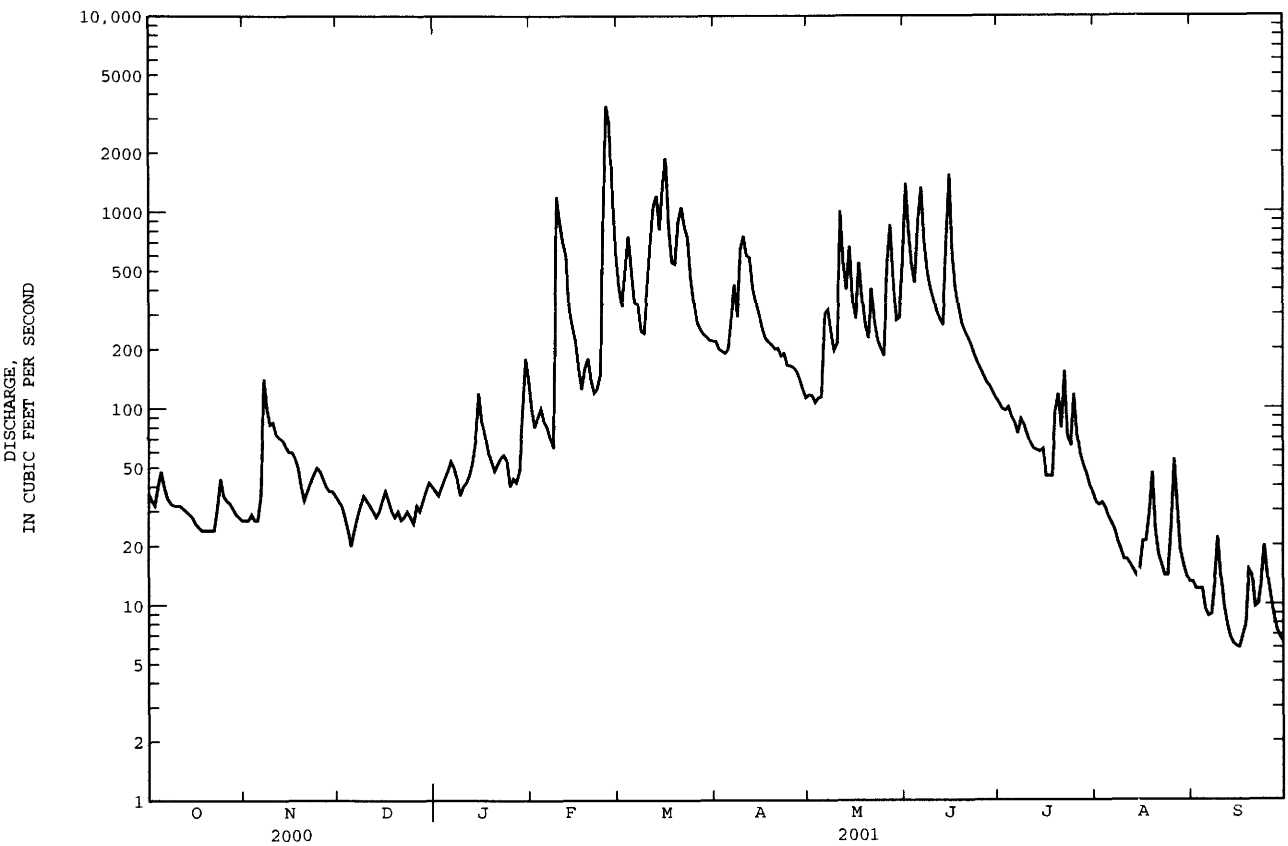
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	61.6	92.8	55.0	62.7	131	249	173	235	197	155	105	61.5
MAX	541	636	337	436	536	793	625	1071	907	1515	1190	598
(WY)	1999	1962	1993	1960	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1951 - 2001	
ANNUAL TOTAL	30095.4		75662.8			
ANNUAL MEAN	82.2		207		132	
HIGHEST ANNUAL MEAN					607	1993
LOWEST ANNUAL MEAN					10.3	1954
HIGHEST DAILY MEAN	2640	Jun 14	3480	Feb 25	8780	Jul 6 1993
LOWEST DAILY MEAN	4.2	Jan 26a	6.0	Sep 16	.10	Sep 6 1957
ANNUAL SEVEN-DAY MINIMUM	4.3	Jan 23	6.8	Sep 12	.10	Sep 6 1957
MAXIMUM PEAK FLOW			3910	Feb 25	13000	Jul 6 1993
MAXIMUM PEAK STAGE			14.86	Feb 9	17.61	Jul 6 1993
INSTANTANEOUS LOW FLOW			5.8	Sep 16b		
ANNUAL RUNOFF (AC-FT)	59690		150100		95300	
ANNUAL RUNOFF (CFSM)	.41		1.03		.65	
ANNUAL RUNOFF (INCHES)	5.57		14.00		8.89	
10 PERCENT EXCEEDS	178		566		290	
50 PERCENT EXCEEDS	32		64		40	
90 PERCENT EXCEEDS	8.9		16		2.0	

a Also Jan. 27,28,31.
b Also Sept. 17.
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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	74	e74	e76	e160	e1000	850	320	3670	200	58	18
2	94	74	e68	e70	e140	e1200	798	339	2490	183	54	17
3	88	72	e60	e78	e160	1420	716	311	1490	187	53	16
4	158	79	e52	e90	e200	2000	658	321	1090	191	51	15
5	146	78	e42	e98	e180	1690	626	436	1960	170	48	14
6	121	94	e48	e104	e160	1120	773	990	2870	151	45	14
7	101	384	e64	e100	e156	1010	801	1160	1550	139	42	15
8	89	372	e80	e88	e151	798	723	921	1160	131	38	18
9	84	267	e72	e74	e800	679	828	711	928	128	36	28
10	82	260	e76	e84	e1800	989	1360	630	781	121	34	47
11	79	218	e66	e88	e1000	1890	1190	3120	670	112	31	32
12	76	196	e60	e94	e540	2690	1460	2950	588	102	30	22
13	73	183	e54	e104	e440	4150	1150	2030	572	95	28	18
14	70	166	e60	e120	e360	3290	886	2850	897	89	27	15
15	68	152	e68	e200	e320	3910	821	1950	3740	84	28	14
16	64	143	e78	e160	e280	6030	718	1090	2880	80	35	14
17	62	134	e60	e132	e260	4540	607	1740	1500	78	34	15
18	60	e100	e56	e100	e280	2080	541	1250	925	76	39	18
19	58	e92	e54	e94	e300	1410	512	890	735	150	41	29
20	57	e84	e60	e84	e260	1980	487	736	633	146	37	33
21	57	e76	e56	e92	e220	3080	464	911	577	90	32	95
22	55	e92	e48	e104	e240	3090	589	803	540	84	28	55
23	72	e110	e58	e114	e260	3120	550	654	464	78	26	69
24	130	e100	e54	e100	e500	2040	481	600	397	77	24	55
25	119	e94	e50	e82	e5000	1270	418	572	351	212	30	45
26	109	e90	e60	e90	e4000	951	401	1320	313	117	48	38
27	100	e84	e66	e84	e3200	836	370	2520	280	91	63	28
28	87	e80	e70	e96	e2000	782	342	1370	254	79	41	23
29	80	e82	e80	e132	---	792	361	959	233	75	29	20
30	76	e78	e86	e300	---	819	330	771	217	69	24	18
31	75	---	e82	e200	---	826	---	1420	---	64	21	---
TOTAL	2696	4108	1962	3432	23367	61482	20811	36645	34755	3649	1155	858
MEAN	87.0	137	63.3	111	835	1983	694	1182	1158	118	37.3	28.6
MAX	158	384	86	300	5000	6030	1460	3120	3740	212	63	95
MIN	55	72	42	70	140	679	330	311	217	64	21	14
MED	80	94	60	96	280	1420	642	921	758	102	35	19
AC-FT	5350	8150	3890	6810	46350	121900	41280	72690	68940	7240	2290	1700
CFSM	.15	.24	.11	.19	1.45	3.46	1.21	2.06	2.02	.21	.06	.05
IN.	.17	.27	.13	.22	1.51	3.98	1.35	2.37	2.25	.24	.07	.06

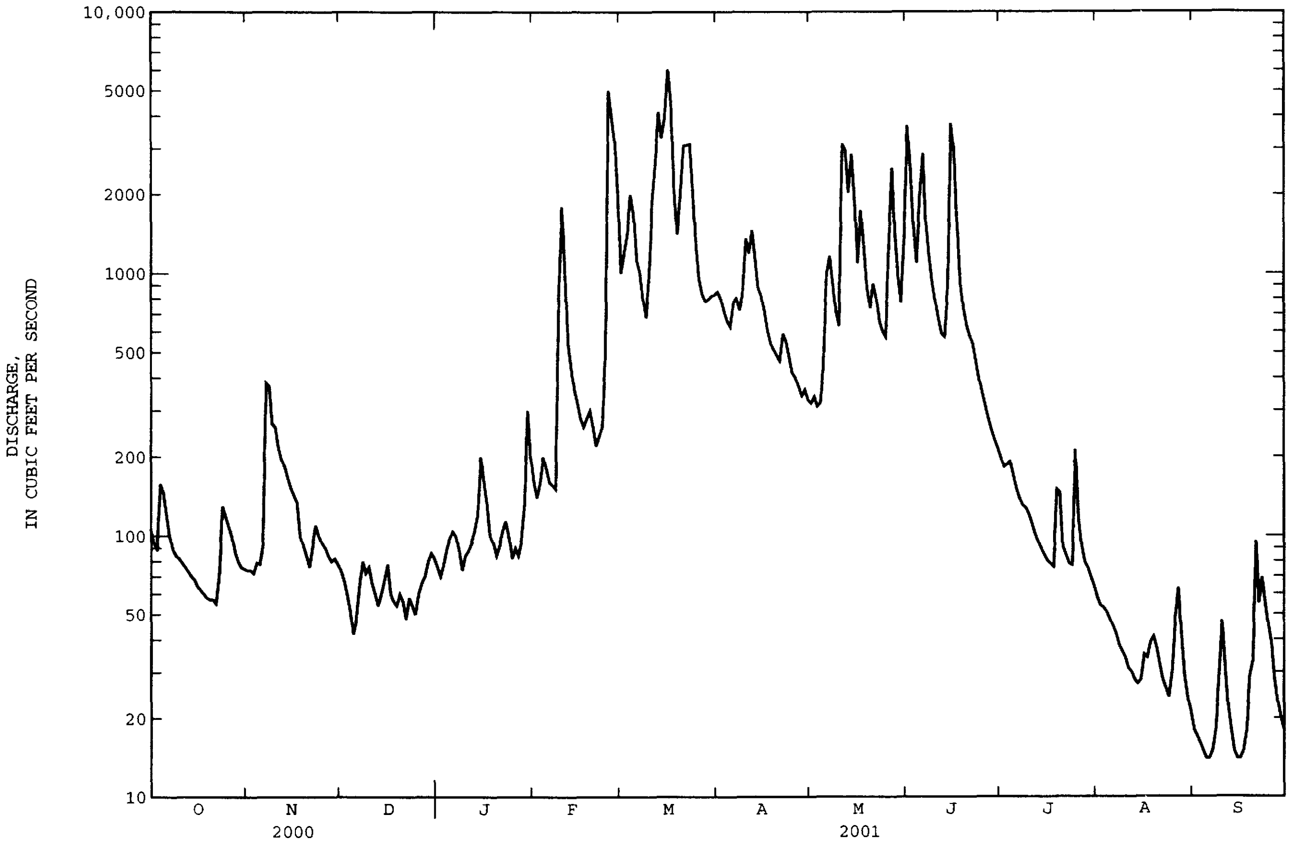
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	162	249	185	209	371	704	646	685	603	411	269	231
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1940 - 2001	
ANNUAL TOTAL	63688.5		194920			
ANNUAL MEAN	174		534		393	
HIGHEST ANNUAL MEAN					1721	1993
LOWEST ANNUAL MEAN					41.7	1954
HIGHEST DAILY MEAN	3810	Jun 14	6030	Mar 16	22300	Jul 6 1993
LOWEST DAILY MEAN	9.5	Jan 27a	14	Sep 5b	.66	Feb 5 1977
ANNUAL SEVEN-DAY MINIMUM	9.9	Jan 25	16	Sep 1	.68	Feb 1 1977
MAXIMUM PEAK FLOW			6280	Mar 16	36100	Jul 6 1993
MAXIMUM PEAK STAGE			17.48	Feb 25	22.55	Jul 6 1993
INSTANTANEOUS LOW FLOW			14	Sep 15c		
ANNUAL RUNOFF (AC-FT)	126300		386600		285000	
ANNUAL RUNOFF (CFSM)	.30		.93		.69	
ANNUAL RUNOFF (INCHES)	4.13		12.63		9.31	
10 PERCENT EXCEEDS	420		1470		879	
50 PERCENT EXCEEDS	75		121		120	
90 PERCENT EXCEEDS	20		34		12	

a Also Jan. 28, 31.
b Also Sept. 6, 15, 16.
c Also Sept. 16, 17.
e Estimated.



05455700 IOWA RIVER NEAR LONE TREE, IA

LOCATION.--Lat 41°25'15", long 91°28'25", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	665	337	682	e280	e1300	6880	11000	9020	12800	6820	2730	612
2	641	336	667	e290	e1100	5160	10600	7220	12200	6580	2600	528
3	600	333	636	e310	e800	4960	10100	7150	9950	5790	2630	429
4	732	332	558	e320	e700	5570	8800	7350	8930	5270	2310	386
5	730	332	e530	e340	e680	5370	8920	7190	9920	4130	1770	381
6	667	360	506	e360	e720	4260	8520	7720	e11000	2820	1430	375
7	618	572	e500	e370	e760	3120	8920	8310	9950	2440	1380	447
8	561	850	e480	e370	e750	2900	8780	8070	8970	2420	1360	440
9	518	712	462	e350	e970	2660	8690	7690	8490	2840	1350	648
10	501	636	468	e340	e3000	2900	7830	7520	8190	3460	1330	746
11	430	600	e1000	e330	e6000	4200	7300	7910	7970	2980	1300	745
12	380	553	e2800	e330	e5200	6270	7430	6840	7820	2440	1050	948
13	366	533	e2300	e320	e3200	9280	7100	5010	7710	2070	899	1000
14	359	811	e900	e400	e2800	10100	5020	10100	7740	1940	761	906
15	351	906	e550	e500	e2200	10800	4600	10300	11600	1910	696	719
16	336	799	e340	e620	e1800	14300	4580	8410	12000	1880	769	623
17	331	764	e280	e590	e1500	15800	5870	8520	9660	1730	1050	595
18	328	587	e280	e560	e1400	14200	3350	9070	8370	1580	867	575
19	324	492	e270	e620	e1300	12400	2790	8020	8000	1570	852	656
20	318	e430	e260	e720	e1300	13500	2730	7700	7840	1730	822	606
21	319	e360	e360	e800	e1400	14600	2690	8270	7740	1780	785	644
22	322	e330	e520	e670	e1200	14800	2710	8290	7640	1840	736	525
23	359	e310	e680	e540	e1000	14300	2760	7700	7540	1790	708	557
24	477	e290	e540	e480	e940	13000	2630	7720	7420	1570	702	748
25	463	e300	e390	e420	e2600	11200	2540	7790	7320	1980	714	692
26	421	e360	e360	e340	e3600	10500	2470	8570	7220	2210	869	663
27	407	494	e300	e320	e6000	10900	4880	11500	7290	2570	900	752
28	391	631	e320	e300	9610	11100	8350	9770	7190	2280	937	797
29	366	558	e320	e320	---	11100	9160	8630	7080	2250	937	738
30	349	646	e310	e500	---	11100	9150	8170	6960	2580	803	721
31	344	---	e300	e1000	---	11100	---	8710	---	2890	754	---
TOTAL	13974	15554	18869	14010	63830	288330	190270	254240	262510	86140	36801	19202
MEAN	451	518	609	452	2280	9301	6342	8201	8750	2779	1187	640
MAX	732	906	2800	1000	9610	15800	11000	11500	12800	6820	2730	1000
MIN	318	290	260	280	680	2660	2470	5010	6960	1570	696	375
AC-FT	27720	30850	37430	27790	126600	571900	377400	504300	520700	170900	72990	38090
CFSM	.11	.12	.14	.11	.53	2.17	1.48	1.91	2.04	.65	.28	.15
IN.	.12	.13	.16	.12	.55	2.50	1.65	2.20	2.27	.75	.32	.17

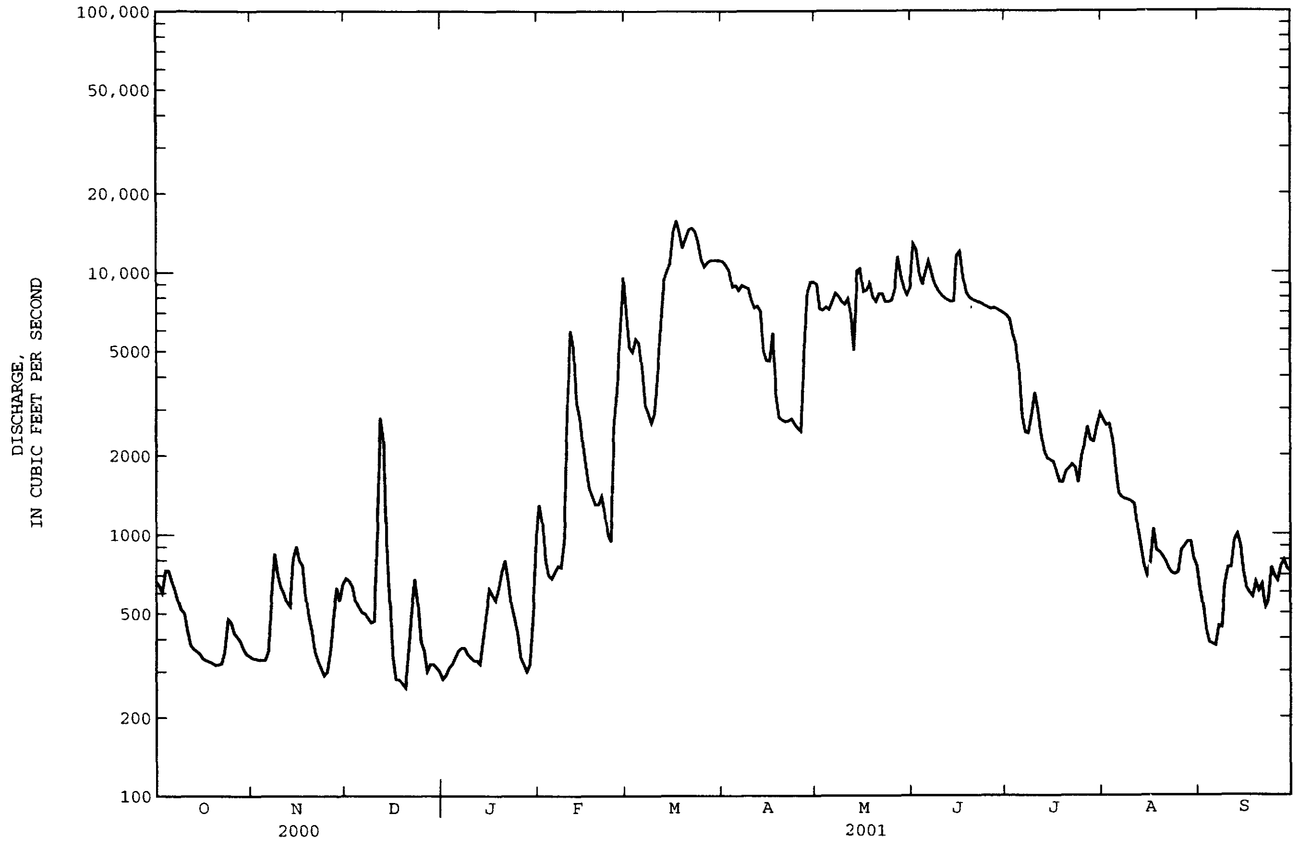
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2001, BY WATER YEAR (WY)

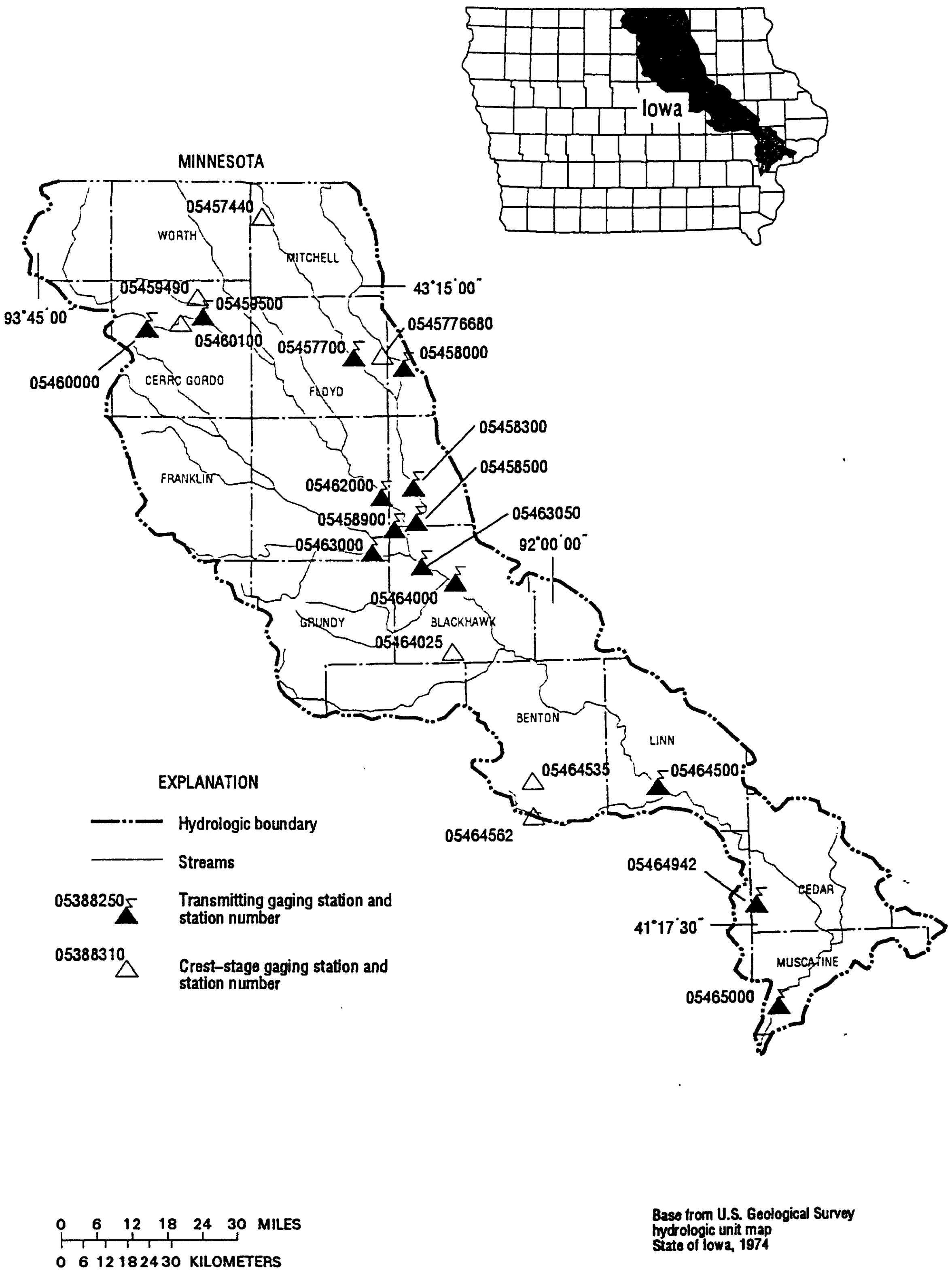
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1544	1987	1870	1493	2470	4767	5165	4687	4822	4458	2825	2042
MAX	6115	6347	6678	7814	7205	10410	12230	14030	13150	30320	26150	18150
(WY)	1994	1962	1983	1973	1973	1993	1979	1993	1974	1993	1993	1993
MIN	192	190	168	154	158	539	533	282	147	180	186	210
(WY)	1989	1967	1989	1977	1977	1977	1989	1977	1977	1977	1989	1988

05455700 IOWA RIVER NEAR LONE TREE, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1959 - 2001a	
ANNUAL TOTAL	495341		1263730			
ANNUAL MEAN	1353		3462		3179	
HIGHEST ANNUAL MEAN					11900	1993
LOWEST ANNUAL MEAN					483	1989
HIGHEST DAILY MEAN	9190	Jun 14	15800	Mar 17	55100	Jul 7 1993
LOWEST DAILY MEAN	190	Jan 5	260	Dec 20	69	Aug 4 1977
ANNUAL SEVEN-DAY MINIMUM	207	Jan 1	303	Dec 27	75	Jul 30 1977
MAXIMUM PEAK FLOW			16100	Mar 17	57100	Jul 7 1993
MAXIMUM PEAK STAGE			15.27	Feb 10	22.94	Jul 7 1993
ANNUAL RUNOFF (AC-FT)	982500		2507000		2303000	
ANNUAL RUNOFF (CFSM)	.32		.81		.74	
ANNUAL RUNOFF (INCHES)	4.29		10.95		10.06	
10 PERCENT EXCEEDS	4510		9210		7670	
50 PERCENT EXCEEDS	606		1300		1800	
90 PERCENT EXCEEDS	280		340		315	

a Post regulation.
e Estimated.




Iowa
MINNESOTA
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WORTH
MITCHELL
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05458000
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CERRO GORDO
FLOYD
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FRANKLIN
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05463000
92°00'00"
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GRUNDY
BLACKHAWK
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BENTON
LINN
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05464942
CEDAR
41°17'30"
MUSCATINE
05465000
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

Crest Stage Gaging Stations

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; October 1, 2000 to September 30, 2001. Stage-only records from October 1995 to September 2000.

GAGE.--Water-stage recorder. Datum of gage is 973.02 ft above sea level.

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

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	218	335	e250	e260	e260	3120	1310	1630	878	501	286
2	190	240	297	e240	e240	e280	4040	1780	1600	823	475	267
3	188	351	194	e250	e280	e270	5700	5910	1610	780	452	255
4	191	439	e240	e260	e290	e260	6950	8080	1380	747	424	241
5	194	343	e220	e250	e300	e250	8760	6940	1330	707	407	229
6	194	383	e200	e270	e300	e230	11700	5140	1370	676	393	234
7	194	523	e220	e250	e310	e250	13000	4630	1350	653	377	280
8	194	811	e250	e240	e320	e260	17600	4620	1320	641	355	336
9	192	896	e290	e260	e300	e240	12500	3690	1250	612	336	297
10	189	732	e270	e280	e260	e260	6420	3010	1150	584	321	286
11	190	625	e250	e290	e280	e240	5600	2780	1120	544	309	270
12	190	560	e230	e280	e290	e260	15500	2700	1100	520	304	249
13	193	528	e240	e270	e310	e230	15800	2370	1050	491	301	233
14	224	524	e270	e300	e290	264	9880	2090	2010	485	292	227
15	214	519	e320	e270	e300	298	6660	1890	5840	479	319	228
16	216	506	e300	e250	e290	319	5330	1710	7700	451	353	230
17	214	478	e270	e230	e270	335	4110	1540	5580	435	322	238
18	214	454	e250	e210	e300	355	3290	1400	3960	475	322	226
19	213	414	e270	e230	e320	387	2580	1300	3170	486	336	219
20	209	317	e260	e220	e290	461	2360	1240	2770	434	340	259
21	206	247	e240	e200	e270	595	2260	1330	2280	476	329	294
22	200	274	e240	e210	e300	763	2290	1470	1990	512	307	267
23	219	388	e210	e230	e290	914	2460	1450	1710	638	279	248
24	221	386	e180	e240	e320	e860	2360	1420	1510	1650	286	539
25	244	371	e210	e230	e310	e820	2480	1420	1370	1380	312	602
26	259	366	e300	e220	e270	e780	1530	1660	1260	1080	372	433
27	246	359	e270	e230	e250	744	1760	2420	1150	861	332	355
28	243	348	e280	e240	e240	748	1540	2840	1070	722	286	314
29	228	346	e280	e250	---	801	1410	2450	1010	647	270	283
30	212	346	e270	e260	---	1060	1310	2080	960	587	264	262
31	221	---	e250	e270	---	1990	---	1800	---	535	275	---
TOTAL	6495	13292	7906	7680	8050	15784	180300	84470	62600	20989	10551	8687
MEAN	210	443	255	248	288	509	6010	2725	2087	677	340	290
MAX	259	896	335	300	320	1990	17600	8080	7700	1650	501	602
MIN	188	218	180	200	240	230	1310	1240	960	434	264	219
AC-FT	12880	26360	15680	15230	15970	31310	357600	167500	124200	41630	20930	17230
CFSM	.20	.42	.24	.24	.27	.48	5.70	2.59	1.98	.64	.32	.27
IN.	.23	.47	.28	.27	.28	.56	6.36	2.98	2.21	.74	.37	.31

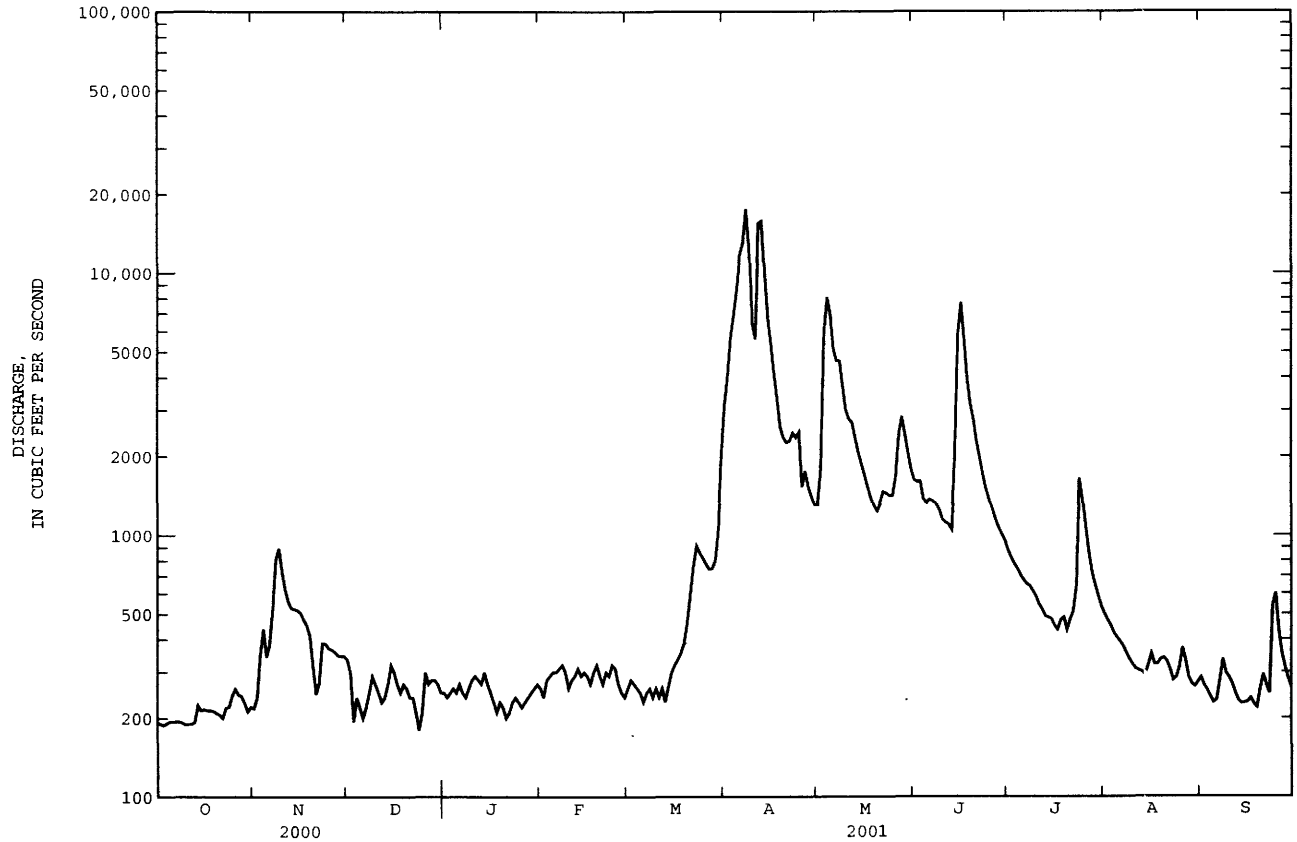
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	600	524	379	276	366	1267	1536	1039	1003	830	711	540
MAX	2339	1639	1396	888	1707	3172	5264	3434	4071	3009	4704	1670
(WY)	1987	1983	1983	1973	1984	1983	1965	1991	1993	1993	1993	1965
MIN	126	97.7	85.4	86.3	127	176	251	197	130	159	114	116
(WY)	1977	1977	1990	1990	1990	1968	1968	1977	1977	1988	1988	1976

05457700 CEDAR RIVER AT CHARLES CITY, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1965 - 1995	
ANNUAL TOTAL			426804			
ANNUAL MEAN			1169		757	
HIGHEST ANNUAL MEAN					2048	1993
LOWEST ANNUAL MEAN					159	1977
HIGHEST DAILY MEAN	896	Nov 9	17600	Apr 8	22100	Aug 17 1993
LOWEST DAILY MEAN	165	Jan 9	180	Dec 24	60	Nov 23 1976a
ANNUAL SEVEN-DAY MINIMUM	192	Oct 7	192	Oct 7	65	Dec 17 1989
MAXIMUM PEAK FLOW			18200	Apr 8	31200	Jul 21 1999
MAXIMUM PEAK STAGE			17.79	Apr 8	22.81	Jul 21 1999
INSTANTANEOUS LOW FLOW			144	Dec 3	45	Nov 17 1989
ANNUAL RUNOFF (AC-FT)			846600		548600	
ANNUAL RUNOFF (CFSM)			1.11		.72	
ANNUAL RUNOFF (INCHES)			15.06		9.76	
10 PERCENT EXCEEDS	500		2520		1630	
50 PERCENT EXCEEDS	243		329		380	
90 PERCENT EXCEEDS	190		220		155	

a Also Jan. 7, 1978.
e Estimated.



05458000 LITTLE CEDAR RIVER NEAR IONIA, IA

LOCATION.--Lat 43°02'05", long 92°30'05", in SW ¼ NE ¼ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	43	57	e25	e32	45	1360	306	366	154	63	41
2	38	48	42	e27	e35	e43	1510	e495	365	141	70	40
3	39	49	35	e30	e40	e42	1790	1470	374	133	71	38
4	41	49	e28	e34	43	e40	2090	2330	364	126	63	36
5	41	49	e29	e32	43	e39	2190	2060	354	117	60	35
6	40	61	e32	e34	43	e37	2910	1280	471	110	57	38
7	39	106	e40	e36	43	e40	3250	e1280	417	105	55	45
8	39	123	e36	e34	43	e42	4420	1120	381	100	52	80
9	39	108	e40	e33	42	e41	3810	828	349	96	50	70
10	39	92	e38	e32	41	e40	1340	686	324	90	48	57
11	39	81	e34	e33	42	e38	1470	717	301	84	47	50
12	39	77	e32	e34	41	e40	3340	755	283	79	46	46
13	39	76	e32	e32	40	e41	7530	633	267	75	45	43
14	43	75	e34	e31	40	e46	2970	548	277	72	44	42
15	41	72	e33	e34	41	e58	1550	490	688	68	48	42
16	41	72	e35	e35	41	e70	1130	434	1050	65	55	41
17	41	70	e31	e32	42	e66	832	389	831	62	53	41
18	41	61	e33	e30	42	e80	687	352	533	104	52	42
19	41	59	e31	e32	41	e100	588	326	431	90	52	41
20	40	45	e32	e34	41	177	525	307	379	74	49	45
21	39	47	e30	e37	41	294	491	364	342	70	e47	70
22	40	55	e29	e35	41	412	463	417	314	69	e46	62
23	43	59	e31	e34	40	494	443	390	318	70	45	53
24	43	58	e29	e32	40	421	418	371	271	77	44	63
25	45	58	e26	e33	41	383	389	381	245	105	50	79
26	48	58	e28	e34	43	308	362	445	224	102	51	69
27	48	59	e30	e35	44	272	338	544	206	87	54	58
28	46	57	e29	e36	45	275	314	536	190	78	54	52
29	43	60	e27	e35	---	333	297	487	176	72	47	49
30	42	58	e25	e34	---	522	287	427	165	69	44	46
31	42	---	e24	e33	---	1030	---	386	---	66	42	---
TOTAL	1278	1985	1012	1022	1151	5869	49094	21554	11256	2810	1604	1514
MEAN	41.2	66.2	32.6	33.0	41.1	189	1636	695	375	90.6	51.7	50.5
MAX	48	123	57	37	45	1030	7530	2330	1050	154	71	80
MIN	38	43	24	25	32	37	287	306	165	62	42	35
AC-FT	2530	3940	2010	2030	2280	11640	97380	42750	22330	5570	3180	3000
CFSM	.13	.22	.11	.11	.13	.62	5.35	2.27	1.23	.30	.17	.16
IN.	.16	.24	.12	.12	.14	.71	5.97	2.62	1.37	.34	.19	.18

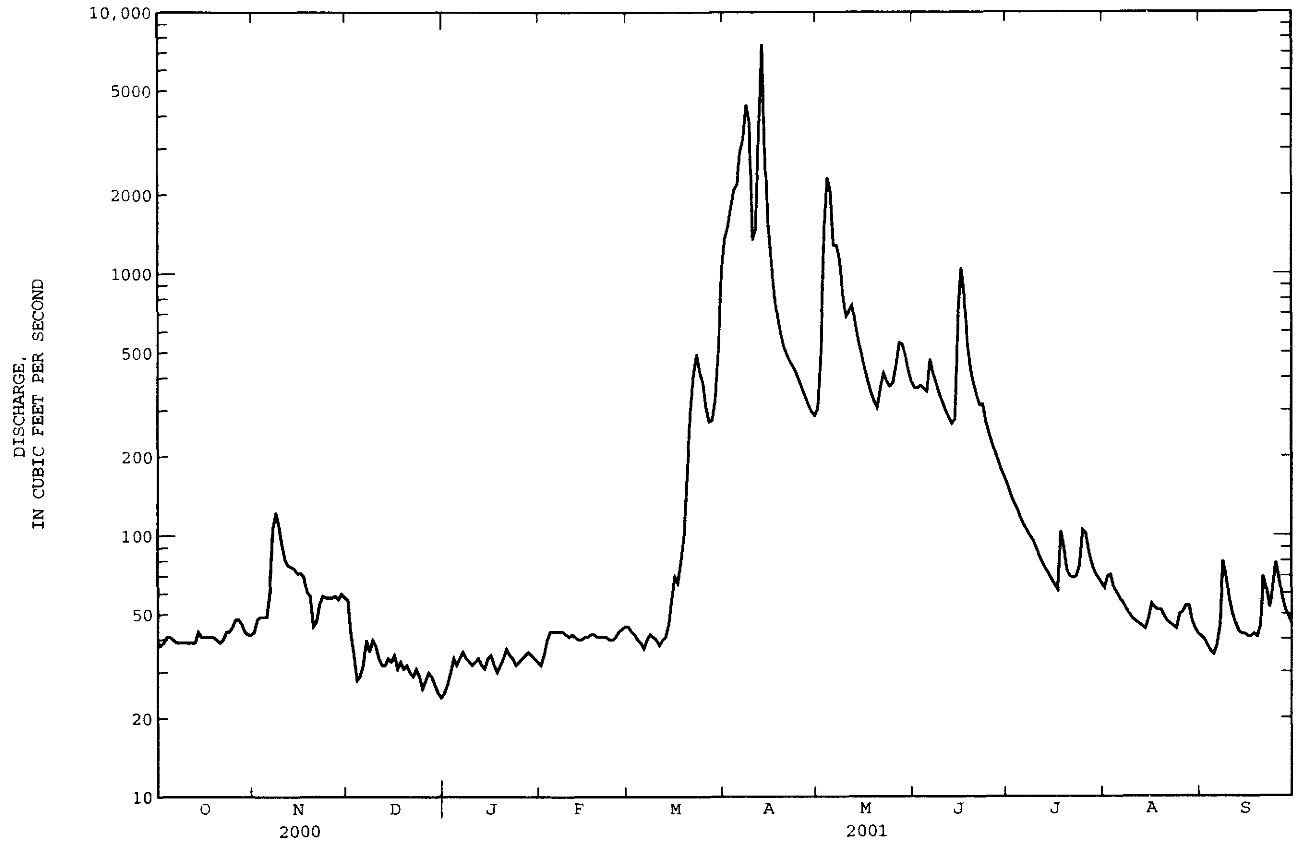
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	142	121	77.3	48.6	85.9	365	383	248	294	203	170	133
MAX	902	632	503	265	644	1056	1636	906	1199	1317	1744	807
(WY)	1987	1983	1983	1973	1984	1961	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1955 - 2001	
ANNUAL TOTAL	73906		100149			
ANNUAL MEAN	202		274		190	
HIGHEST ANNUAL MEAN					584	1993
LOWEST ANNUAL MEAN					32.0	1977
HIGHEST DAILY MEAN	4600	Jun 15	7530	Apr 13	9930	Mar 27 1961
LOWEST DAILY MEAN	24	Dec 31	24	Dec 31	3.0	Feb 4 1959a
ANNUAL SEVEN-DAY MINIMUM	27	Dec 25	27	Dec 27	3.0	Feb 3 1959
MAXIMUM PEAK FLOW			8650	Apr 13	14000	Aug 16 1993
MAXIMUM PEAK STAGE			16.00	Apr 13	18.99	Aug 16 1993
INSTANTANEOUS LOW FLOW			19	Dec 3	3.0	Feb 4 1959
ANNUAL RUNOFF (AC-FT)	146600		198600		137400	
ANNUAL RUNOFF (CFSM)	.66		.90		.62	
ANNUAL RUNOFF (INCHES)	8.98		12.17		8.42	
10 PERCENT EXCEEDS	367		539		396	
50 PERCENT EXCEEDS	60		53		73	
90 PERCENT EXCEEDS	35		33		19	

a Also Feb. 5-9, 1959.
e Estimated.



05458300 CEDAR RIVER AT WAVERLY, IA

LOCATION.--Lat 42°44'14", long 92°28'12", in NE 1/4 NW 1/4 SW 1/4 sec.35, T.92 N., R.14 W., Bremer County, Hydrologic Unit 07080201, on left bank 300 ft downstream from bridge on county highway at Waverly, 3.6 mi upstream from West Fork Cedar River, and at mile 207.7 upstream from mouth of Iowa River.

DRAINAGE AREA.--1,547 mi^2.

PERIOD OF RECORD.--August 30, 2000 to September 30, 2001.

GAGE.--Water-stage recorder. Datum of gage is 892.64 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	386	397	e298	e430	e320	e290	2810	e2400	e2700	1550	597	e420
2	364	392	e290	e450	e400	e298	3490	e3000	e2600	1410	572	e420
3	e500	343	e280	e460	e406	e290	4490	3350	e2400	1450	481	e420
4	e320	418	e260	e470	e409	e280	6640	e9000	e2390	1310	501	e450
5	e360	455	e280	e480	e362	e270	8570	e13400	e2390	1210	512	e500
6	e350	446	e300	e460	e346	e280	10700	11600	e2400	1150	481	e660
7	e330	536	e280	e420	e334	e290	14400	e8300	e2390	1100	462	e780
8	e320	539	e360	e410	e369	e298	16500	7310	e2350	1090	430	e660
9	e360	621	e340	e440	e330	e290	21800	6730	e2200	1040	404	e560
10	e400	587	e360	e450	e340	e298	16700	5130	e2190	961	352	e520
11	e360	454	e380	e460	e350	e320	7840	4030	2200	867	362	e500
12	e350	478	e370	e460	e370	e340	8690	3780	1980	801	347	e490
13	e360	337	e370	e450	e390	e360	18600	4210	1780	760	338	e470
14	e380	303	e390	e450	e360	e480	23400	e3500	2090	712	376	e440
15	e390	279	e390	e400	e340	e540	12900	e3060	2650	676	441	e450
16	e370	319	e370	e410	e320	600	7400	e3350	5270	685	563	e460
17	e365	e400	e360	e430	e290	596	5480	e3170	8540	696	549	e440
18	e360	e400	e250	e380	e340	672	3990	e2900	6350	607	527	e420
19	e360	e390	e330	e340	e330	799	2930	e2640	3770	667	523	e460
20	e340	e360	e333	e380	e300	1040	2330	2450	2870	642	520	e500
21	e350	e310	e360	e420	e290	1380	2090	2040	2510	653	506	e520
22	e340	e380	e360	e417	e310	1740	2020	e2280	1750	594	506	e500
23	e350	e440	e320	e437	e320	2130	2220	e2400	1610	620	512	e520
24	e360	e400	e300	e412	e330	2190	2320	e2380	1610	827	446	e620
25	347	e360	e290	e404	e320	1670	2590	e2400	1690	1210	459	e740
26	367	e350	e390	e434	e300	2040	3060	e2600	1690	727	479	e660
27	365	e330	e400	e390	e270	1420	2530	e3000	1490	774	496	e580
28	352	e310	e390	e394	e280	1220	2590	e3600	1660	827	455	e540
29	345	e300	e380	e421	---	1240	e2280	3940	1810	738	446	e530
30	346	e300	e400	e359	---	1440	e2250	3580	1690	681	e440	e510
31	391	---	e420	e360	---	1820	---	e3000	---	639	e430	---
TOTAL	11238	11934	10601	13078	9426	26921	223610	134530	79020	27674	14513	15740
MEAN	363	398	342	422	337	868	7454	4340	2634	893	468	525
MAX	500	621	420	480	409	2190	23400	13400	8540	1550	597	780
MIN	320	279	250	340	270	270	2020	2040	1490	594	338	420
AC-FT	22290	23670	21030	25940	18700	53400	443500	266800	156700	54890	28790	31220
CFSM	.23	.26	.22	.27	.22	.56	4.82	2.81	1.70	.58	.30	.34
IN.	.27	.29	.25	.31	.23	.65	5.38	3.23	1.90	.67	.35	.38

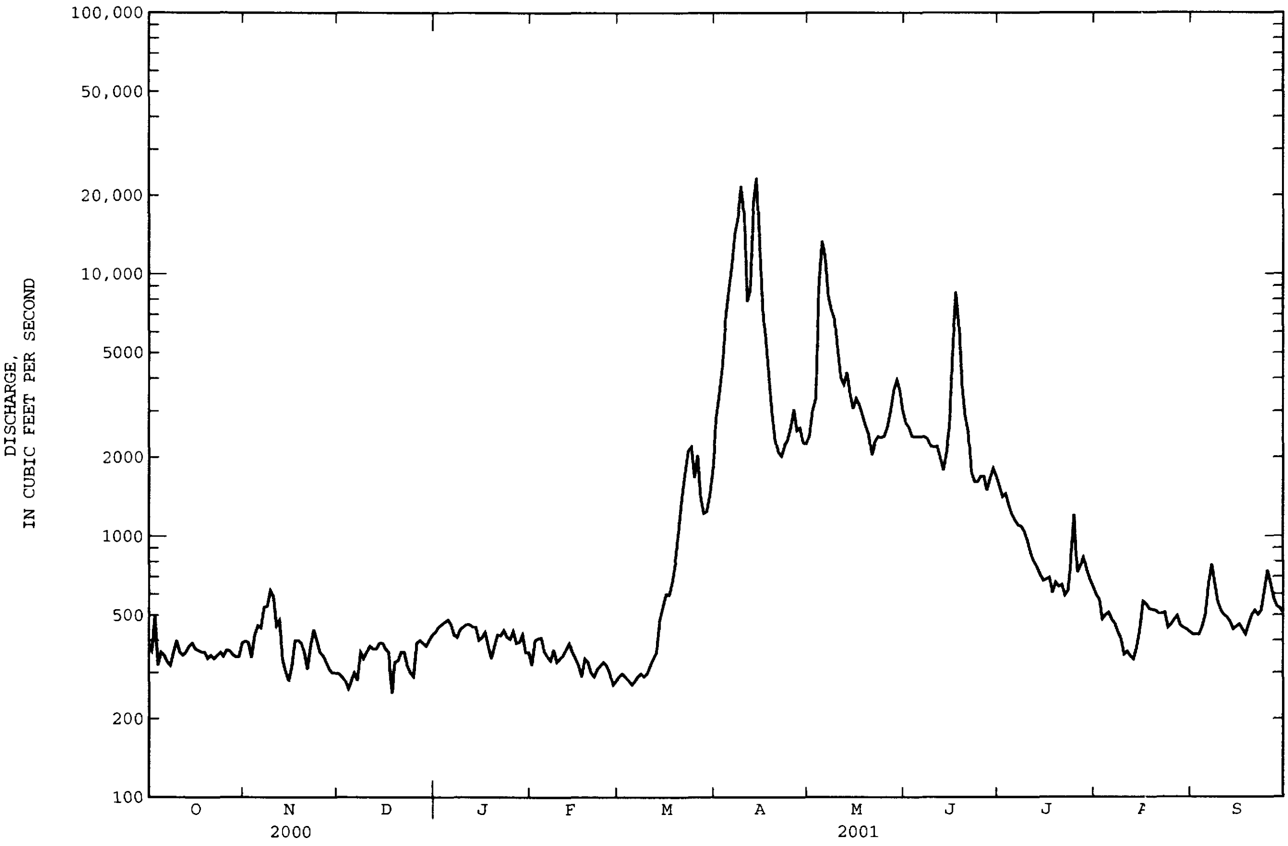
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	363	398	342	422	337	868	7454	4340	2634	893	468	474
MAX	363	398	342	422	337	868	7454	4340	2634	893	468	525
(WY)	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001
MIN	363	398	342	422	337	868	7454	4340	2634	893	468	424
(WY)	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2000

05458300 CEDAR RIVER AT WAVERLY, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 2000 - 2001	
ANNUAL TOTAL			578285			
ANNUAL MEAN			1584		1584	
HIGHEST ANNUAL MEAN					1584	2001
LOWEST ANNUAL MEAN					1584	2001
HIGHEST DAILY MEAN	737	Sep 12	23400	Apr 14	23400	Apr 14 2001
LOWEST DAILY MEAN	250	Dec 18	250	Dec 18	250	Dec 18 2000
ANNUAL SEVEN-DAY MINIMUM	284	Dec 1	283	Feb 27	283	Feb 27 2001
MAXIMUM PEAK FLOW			25600	Apr 14	25600	Apr 14 2001
MAXIMUM PEAK STAGE			12.95	Apr 14	12.95	Apr 14 2001
ANNUAL RUNOFF (AC-FT)			1147000		1148000	
ANNUAL RUNOFF (CFSM)			1.02		1.02	
ANNUAL RUNOFF (INCHES)			13.91		13.91	
10 PERCENT EXCEEDS	486		3350		3060	
50 PERCENT EXCEEDS	365		470		460	
90 PERCENT EXCEEDS	300		320		320	

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	376	358	488	e415	e320	e285	3450	2410	2780	1430	804	432
2	361	392	465	e440	e305	e300	4980	2450	2730	1290	784	437
3	509	356	462	e460	e340	e290	6120	3560	2580	1380	771	441
4	317	408	418	e470	e350	e285	7480	7450	2570	1230	692	428
5	370	484	e440	e460	e360	e280	9200	10700	2400	1120	680	408
6	352	526	e460	e480	e362	e260	10600	10500	2390	1060	638	449
7	319	636	e440	e435	e380	e290	12900	8380	2520	1000	623	484
8	327	759	e420	e405	e385	e300	14400	7390	2420	986	599	1060
9	341	943	e445	e420	e345	e290	e17700	7060	2350	964	581	856
10	412	1060	e460	e460	e330	e310	e19200	6060	2250	907	542	598
11	346	926	e420	e460	e355	e300	10800	5190	2100	862	502	541
12	346	945	e360	e460	e370	e360	9590	4540	2050	801	499	507
13	353	771	e400	e450	e390	e340	14200	4440	1870	780	518	487
14	369	705	e420	e460	e360	e420	20600	3950	1750	742	465	463
15	392	676	e420	e425	e360	e550	15000	3500	2560	717	465	432
16	362	714	e380	e400	e320	e710	9910	3110	5090	665	541	432
17	362	677	e380	e440	e280	930	8150	2860	8170	711	547	478
18	363	707	e380	e380	e340	989	6490	2630	7670	712	518	452
19	361	632	e400	e340	e360	1160	5200	2430	5470	749	532	436
20	339	494	e420	e320	e300	1600	4350	2290	4230	788	514	435
21	357	572	e360	e360	e275	2090	3730	2290	3720	907	509	486
22	337	740	e345	e370	e315	2420	3650	2230	3180	770	509	548
23	360	737	e375	e380	e310	2810	e3420	2470	2790	764	554	512
24	340	597	e300	e355	e340	2550	3590	2440	2540	913	432	477
25	374	555	e385	e340	e335	2180	3430	2400	2270	2090	507	581
26	392	541	e390	e400	e300	1900	3390	2440	2110	1780	519	774
27	411	529	e390	e360	e270	1710	2650	2720	1920	1400	538	671
28	385	502	e400	e380	e260	1610	2680	3510	1680	1200	530	591
29	355	507	e380	e400	---	1640	2470	3870	1600	1040	442	540
30	331	492	e395	e400	---	1910	2350	3460	1510	948	447	504
31	345	---	e405	e360	---	2400	---	3050	---	845	442	---
TOTAL	11264	18941	12603	12685	9317	33469	241680	131780	89270	31551	17244	15940
MEAN	363	631	407	409	333	1080	8056	4251	2976	1018	556	531
MAX	509	1060	488	480	390	2810	20600	10700	8170	2090	804	1060
MIN	317	356	300	320	260	260	2350	2230	1510	665	432	408
AC-FT	22340	37570	25000	25160	18480	66390	479400	261400	177100	62580	34200	31620
CFSM	.22	.38	.24	.25	.20	.65	4.85	2.56	1.79	.61	.33	.32
IN.	.25	.42	.28	.28	.21	.75	5.41	2.95	2.00	.71	.39	.36

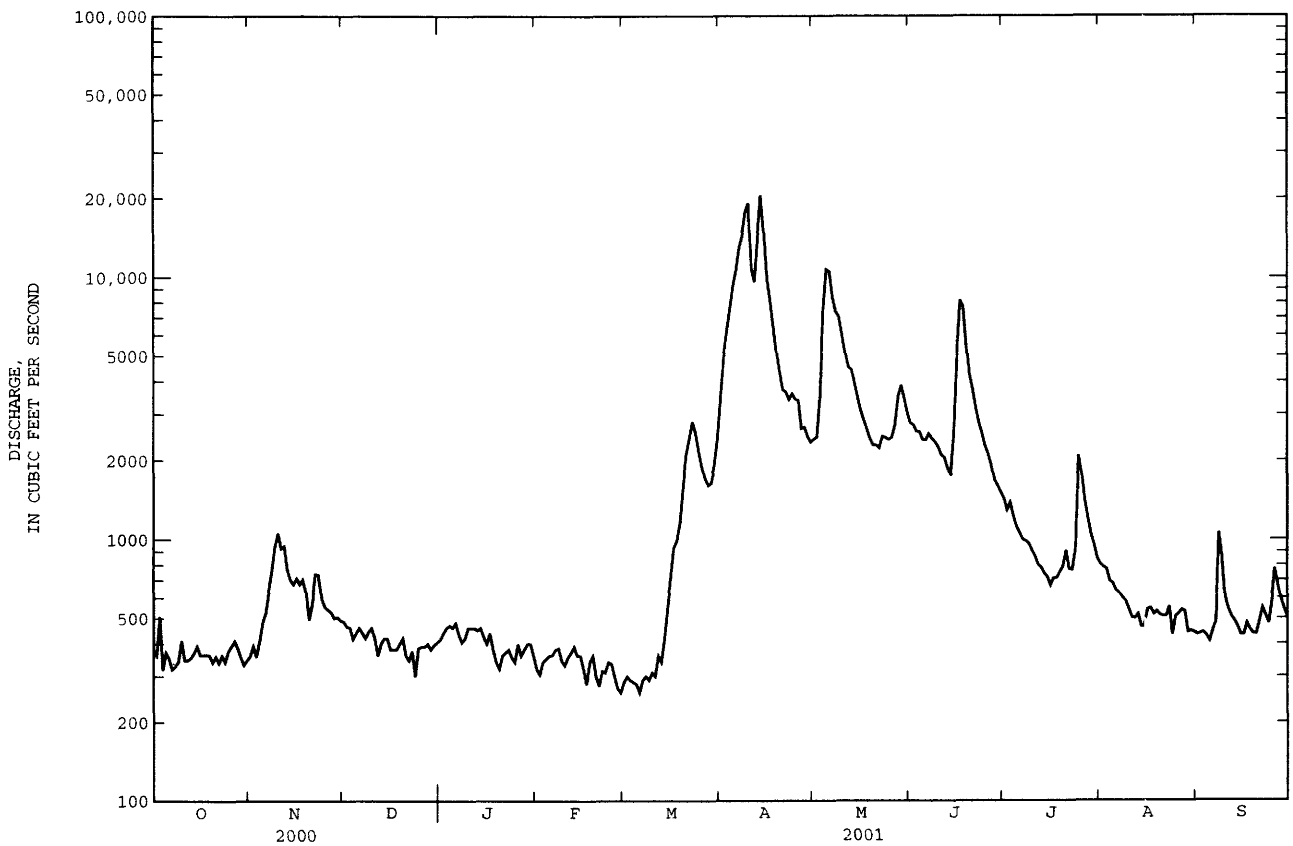
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	620	589	436	347	550	1829	1911	1303	1382	1073	792	627
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1905 - 2001	
ANNUAL TOTAL	440064		625744			
ANNUAL MEAN	1202		1714		956	
HIGHEST ANNUAL MEAN					3454	1993
LOWEST ANNUAL MEAN					187	1934
HIGHEST DAILY MEAN	15700	Jul 13	20600	Apr 14	38800	Jul 22 1999
LOWEST DAILY MEAN	220	Jan 28	260	Feb 28a	28	Oct 21 1922
ANNUAL SEVEN-DAY MINIMUM	240	Jan 27	280	Feb 28	50	Feb 1 1918
MAXIMUM PEAK FLOW			21700	Apr 14	42200	Jul 22 1999
MAXIMUM PEAK STAGE			13.30	Apr 14	17.15	Jul 22 1999
ANNUAL RUNOFF (AC-FT)	872900		1241000		692600	
ANNUAL RUNOFF (CFSM)	.72		1.03		.58	
ANNUAL RUNOFF (INCHES)	9.86		14.01		7.82	
10 PERCENT EXCEEDS	2820		3790		2110	
50 PERCENT EXCEEDS	474		532		479	
90 PERCENT EXCEEDS	320		340		162	

a Also Mar.6.
e Estimated.



05458900 WEST FORK CEDAR RIVER AT FINCHFORD, IA

LOCATION.--Lat 42°37'50", long 92°32'24", in SW ¼ SE ¼ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	118	e145	e85.0	e85.0	e110	3740	1160	2570	728	812	173
2	71	124	e140	e85.0	e75.0	e120	4580	1340	2540	748	704	e162
3	70	129	e120	e110	e90.0	e130	5400	1740	2410	952	e658	e150
4	74	127	e140	e105	e100	e130	5530	2600	2200	922	e635	e137
5	74	119	e150	e110	e95.0	e140	5010	3580	2030	996	e611	e122
6	73	131	e140	e105	e91.6	e130	4560	5140	1990	948	539	e114
7	73	170	e160	e100	e90.0	e135	e4310	5560	2070	803	442	e146
8	75	208	e170	e95.0	e110	e135	e3940	5110	1990	719	401	439
9	76	230	e160	e90.0	e85.0	e130	3630	4810	1790	654	366	648
10	74	224	e160	e115	e80.0	e145	3230	4400	1620	594	337	440
11	71	215	e130	e140	e85.0	e140	2830	e3850	1480	539	314	324
12	69	210	e120	e145	e100	e160	2960	3330	e1440	494	299	263
13	66	209	e130	e140	e105	e160	3160	2920	2030	455	285	219
14	64	209	e140	e140	e105	e180	4130	2460	2610	422	269	196
15	64	207	e150	e130	e95.0	e210	4480	2100	2830	396	256	187
16	66	200	e160	e120	e90.0	e340	4020	1840	2800	371	254	177
17	69	206	e150	e125	e80.0	e600	3240	1650	3200	e357	256	183
18	67	203	e130	e130	e90.0	e930	2510	1500	3360	354	258	191
19	67	193	e110	e110	e100	1420	2030	1380	2850	342	258	186
20	68	168	e115	e100	e85.0	1830	1810	1300	2220	342	255	183
21	68	e155	e120	e110	e80.0	2130	1690	1280	1800	519	249	186
22	71	e150	e120	e115	e95.0	2720	1580	e1490	1570	634	242	195
23	77	e160	e95.0	e120	e90.0	3360	1530	1900	1400	572	235	230
24	79	e170	e80.0	e110	e110	4280	1460	2010	1260	583	229	232
25	81	e160	e75.0	e100	e115	4480	1390	1950	1150	1040	222	206
26	87	e160	e90.0	e110	e110	4540	1320	2120	1050	1440	217	187
27	95	e150	e85.0	e100	e95.0	4180	1260	2570	960	e1760	212	173
28	107	e140	e100	e110	e105	3430	1210	3080	884	e1760	209	160
29	112	e150	e105	e115	---	2580	1140	3680	822	e1620	206	153
30	110	e150	e100	e110	---	2500	1080	3620	772	1280	198	148
31	116	---	e100	e95.0	---	2940	---	3100	---	993	189	---
TOTAL	2406	5145	3890.0	3475.0	2636.6	44415	88760	84570	57698	24337	10617	6510
MEAN	77.6	172	125	112	94.2	1433	2959	2728	1923	785	342	217
MAX	116	230	170	145	115	4540	5530	5560	3360	1760	812	648
MIN	64	118	75	85	75	110	1080	1160	772	342	189	114
AC-FT	4770	10210	7720	6890	5230	88100	176100	167700	114400	48270	21060	12910
CFSM	.09	.20	.15	.13	.11	1.69	3.50	3.22	2.27	.93	.40	.26
IN.	.11	.23	.17	.15	.12	1.95	3.90	3.72	2.54	1.07	.47	.29

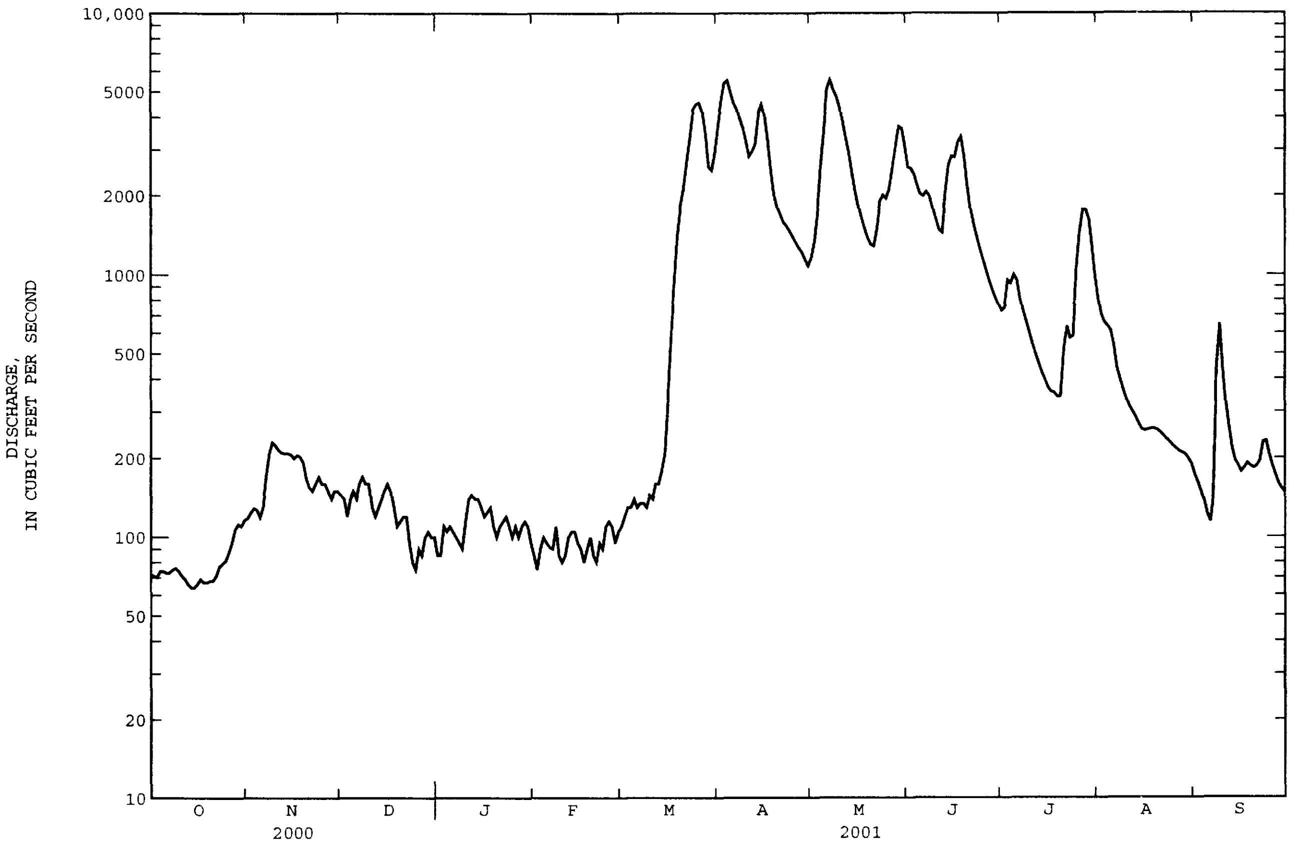
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	316	317	248	170	309	1010	1074	867	1035	746	385	308
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1946 - 2001	
ANNUAL TOTAL	149031.0		334459.6			
ANNUAL MEAN	407		916		566	
HIGHEST ANNUAL MEAN					1800	1993
LOWEST ANNUAL MEAN					65.5	1956
HIGHEST DAILY MEAN	4310	Jun 18	5560	May 7	25100	Jun 27 1951
LOWEST DAILY MEAN	60	Jan 28	64	Oct 14a	5.9	Feb 26 1959b
ANNUAL SEVEN-DAY MINIMUM	66	Jan 27	66	Oct 13	6.1	Feb 23 1959
MAXIMUM PEAK FLOW			5800	May 7	31900	Jun 27 1951
MAXIMUM PEAK STAGE			12.40	May 7	18.45	Jul 29 1990
INSTANTANEOUS LOW FLOW			64	Oct 14		
ANNUAL RUNOFF (AC-FT)	295600		663400		410100	
ANNUAL RUNOFF (CFSM)	.48		1.08		.67	
ANNUAL RUNOFF (INCHES)	6.55		14.71		9.09	
10 PERCENT EXCEEDS	1090		2950		1390	
50 PERCENT EXCEEDS	182		207		242	
90 PERCENT EXCEEDS	78		85		47	

a Also Oct. 15.
b 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 mi².

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

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,069.59 ft above 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. U.S. Geological Survey data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	77	129	e44	e63	e85	3150	925	1110	532	152	59
2	41	178	e90	e48	e67	e82	3290	e1440	1040	484	139	56
3	43	164	e75	e52	e70	e75	3410	e2480	958	445	134	54
4	50	137	e65	e55	e73	e70	2970	2760	880	e400	133	53
5	48	117	e65	e53	e70	e65	3210	2560	907	370	125	50
6	47	153	e70	e55	e67	e62	3210	2400	e880	343	117	51
7	43	398	e80	e58	e68	e65	3550	2360	e835	330	109	73
8	44	393	e75	e55	e65	e68	3350	2060	e775	e310	102	74
9	45	327	e80	e53	e63	e67	3590	1810	e715	290	97	80
10	48	276	e75	e53	e65	e65	3160	1630	670	274	91	78
11	52	235	e65	e55	e68	e62	4320	1470	624	253	87	68
12	53	230	e63	e55	e70	e65	5810	1320	596	240	84	57
13	49	232	e64	e52	e73	e65	4150	1220	573	225	79	48
14	51	224	e68	e50	e70	e70	3490	1130	e600	210	73	36
15	60	203	e65	e55	e75	e75	2930	1040	e860	197	85	33
16	58	199	e70	e58	e70	e85	2460	955	e1150	184	104	41
17	64	187	e60	e55	e68	e80	2060	880	e1440	173	94	51
18	68	e140	e65	e53	e68	e90	1800	816	1740	166	99	61
19	62	e120	e60	e55	e65	e110	1600	764	2100	195	99	72
20	58	e130	e63	e58	e65	e190	1460	743	2120	228	88	73
21	56	e150	e55	e62	e68	e340	1380	1090	1890	206	82	76
22	56	162	e55	e60	e70	e800	1320	1270	1620	186	78	72
23	61	158	e57	e60	e67	e900	1400	1240	1410	219	77	70
24	65	153	e50	e57	e65	e950	1420	1230	1220	241	72	64
25	74	140	e44	e60	e63	e850	1370	1240	1040	320	75	63
26	86	136	e48	e65	e68	e750	1290	1600	902	279	83	59
27	84	138	e50	e68	e72	e650	1170	1740	805	240	77	57
28	77	139	e48	e70	e80	e600	1070	1540	726	220	70	55
29	70	138	e44	e67	---	e550	e980	1420	655	198	66	52
30	67	133	e42	e65	---	e1200	930	1310	592	182	59	48
31	71	---	e40	e65	---	2570	---	1190	---	166	60	---
TOTAL	1792	5567	1980	1771	1916	11756	75300	45633	31433	8306	2890	1790
MEAN	57.8	186	63.9	57.1	68.4	379	2510	1472	1048	268	93.2	59.7
MAX	86	398	129	70	80	2570	5810	2760	2120	532	152	80
MIN	41	77	40	44	63	62	930	743	573	166	59	33
AC-FT	3550	11040	3930	3510	3800	23320	149400	90510	62350	16470	5730	3550
CFSM	.11	.35	.12	.11	.13	.72	4.77	2.80	1.99	.51	.18	.11
IN.	.13	.39	.14	.13	.14	.83	5.33	3.23	2.22	.59	.20	.13

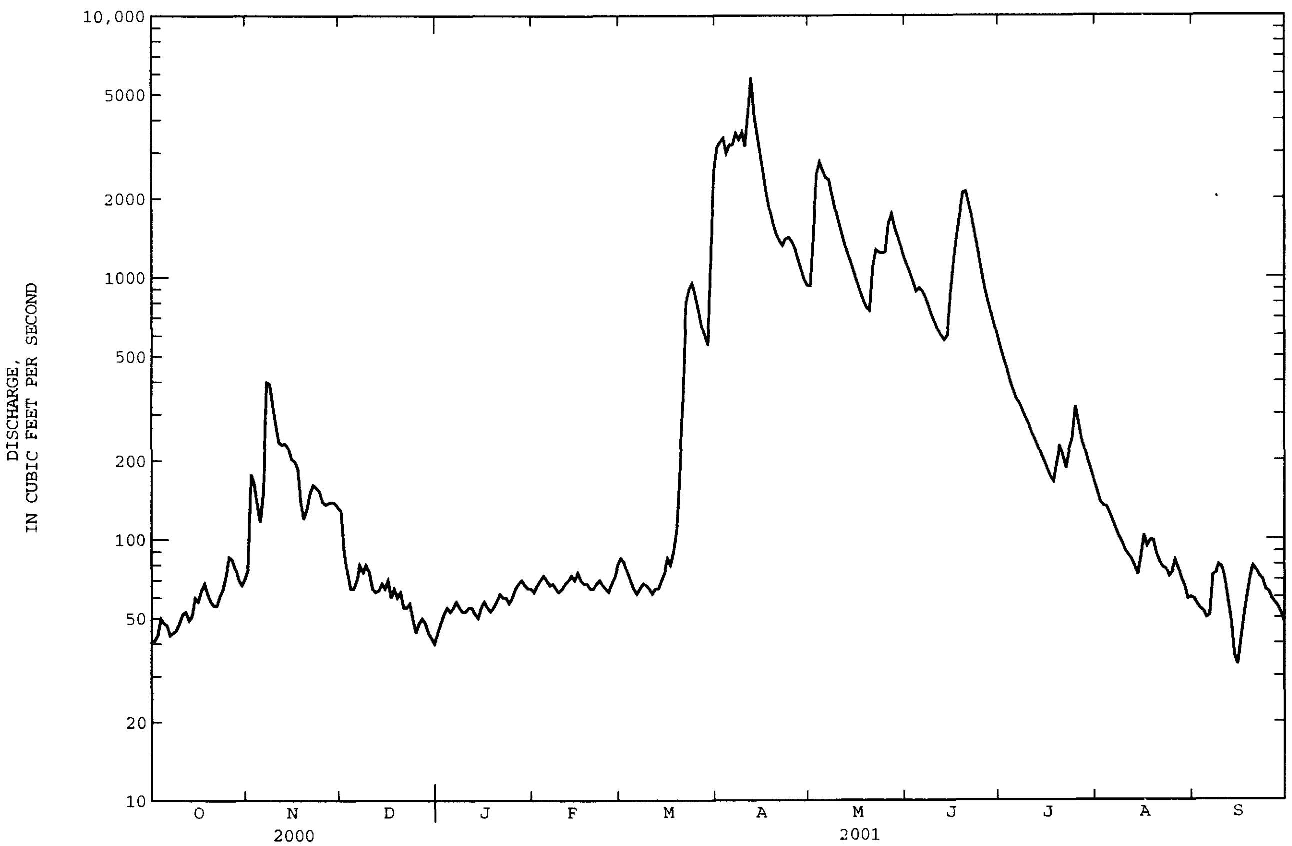
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	172	169	111	75.2	122	519	628	435	500	319	214	178
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1933 - 2001	
ANNUAL TOTAL	91304		190134			
ANNUAL MEAN	249		521		287	
HIGHEST ANNUAL MEAN					947	1993
LOWEST ANNUAL MEAN					28.1	1934
HIGHEST DAILY MEAN	1930	Jun 16	5810	Apr 12	9370	Mar 27 1961
LOWEST DAILY MEAN	32	Jan 28	33	Sep 15	1.2	Aug 19 1989
ANNUAL SEVEN-DAY MINIMUM	35	Jan 27	45	Oct 1	3.1	Dec 29 1933
MAXIMUM PEAK FLOW			6430	Apr 12	10800	Mar 30 1933
MAXIMUM PEAK STAGE			11.83	Apr 12	15.70	Mar 30 1933
INSTANTANEOUS LOW FLOW			30	Sep 15	.86	Aug 18 1988a
ANNUAL RUNOFF (AC-FT)	181100		377100		208000	
ANNUAL RUNOFF (CFSM)	.47		.99		.55	
ANNUAL RUNOFF (INCHES)	6.46		13.45		7.42	
10 PERCENT EXCEEDS	715		1500		731	
50 PERCENT EXCEEDS	130		87		114	
90 PERCENT EXCEEDS	43		53		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$\frac{1}{4}$ NE$\frac{1}{4}$ 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.

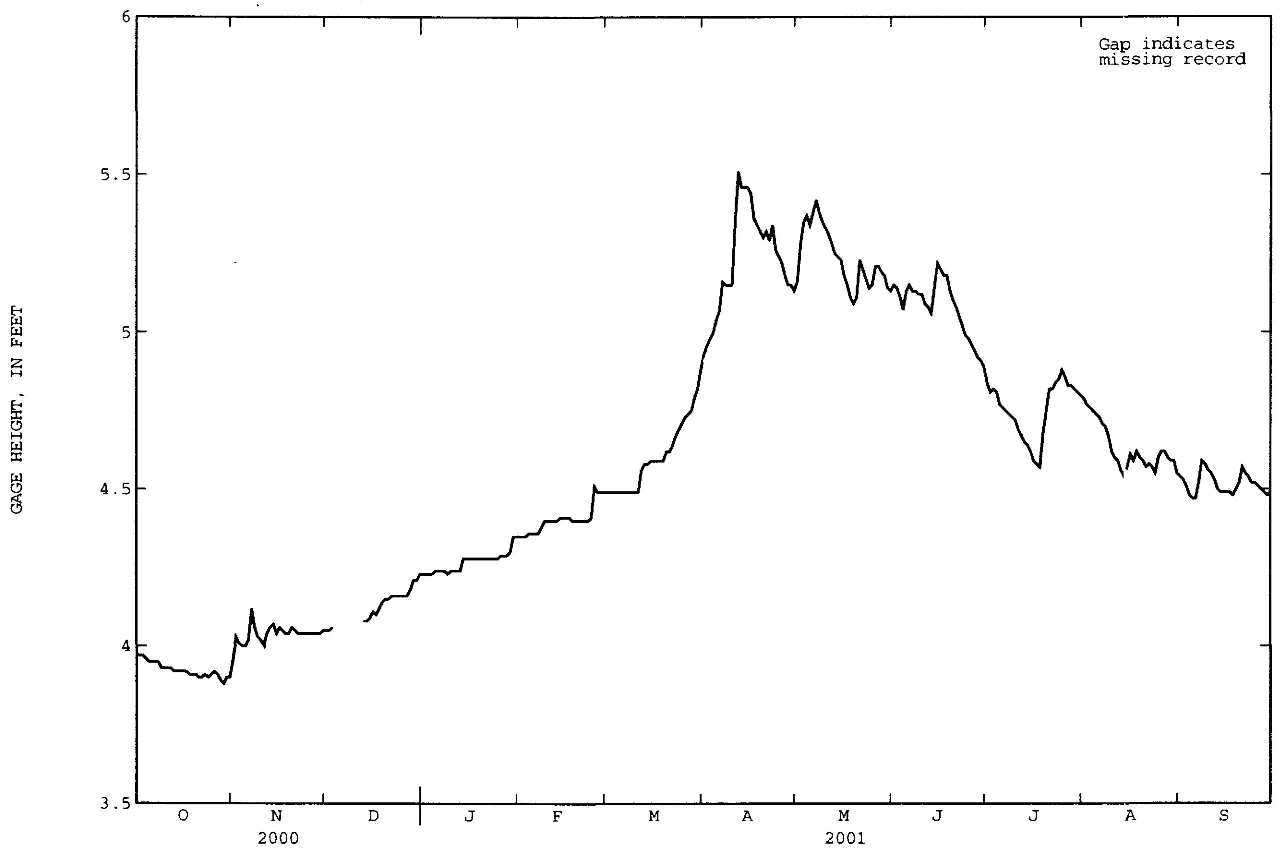
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 5.94 ft July 3, 1951; minimum observed, 0.76 ft Oct. 26, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.55 ft Apr. 12; minimum, 3.88 ft Oct. 29, 30.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.97	3.96	4.05	4.23	4.35	4.49	4.93	5.16	5.15	4.84	4.79	4.54
2	3.97	4.03	4.05	4.23	4.35	4.49	4.96	5.28	5.14	4.81	4.77	4.53
3	3.97	4.01	4.06	4.23	4.35	4.49	4.98	5.35	5.11	4.82	4.76	4.51
4	3.96	4.00	---	4.23	4.36	4.49	5.00	5.37	5.07	4.81	4.75	4.48
5	3.95	4.00	---	4.24	4.36	4.49	5.04	5.34	5.13	4.77	4.74	4.47
6	3.95	4.02	---	4.24	4.36	4.49	5.07	5.38	5.15	4.76	4.73	4.47
7	3.95	4.12	---	4.24	4.36	4.49	5.16	5.42	5.13	4.75	4.71	4.52
8	3.95	4.06	---	4.24	4.38	4.49	5.15	5.38	5.13	4.74	4.70	4.59
9	3.93	4.03	---	4.23	4.40	4.49	5.15	5.35	5.12	4.73	4.67	4.58
10	3.93	4.02	---	4.24	4.40	4.49	5.15	5.33	5.12	4.72	4.62	4.56
11	3.93	4.00	---	4.24	4.40	4.49	5.35	5.31	5.09	4.69	4.60	4.55
12	3.93	4.04	---	4.24	4.40	4.56	5.51	5.28	5.08	4.67	4.59	4.53
13	3.92	4.06	4.08	4.24	4.40	4.58	5.46	5.25	5.06	4.65	4.56	4.50
14	3.92	4.07	4.08	4.28	4.41	4.58	5.46	5.24	5.14	4.64	4.54	4.49
15	3.92	4.04	4.09	4.28	4.41	4.59	5.46	5.23	5.22	4.62	4.57	4.49
16	3.92	4.06	4.11	4.28	4.41	4.59	5.44	5.18	5.20	4.59	4.61	4.49
17	3.92	4.05	4.10	4.28	4.41	4.59	5.36	5.15	5.18	4.58	4.59	4.49
18	3.91	4.04	4.12	4.28	4.40	4.59	5.34	5.11	5.18	4.57	4.62	4.48
19	3.91	4.04	4.14	4.28	4.40	4.59	5.32	5.09	5.13	4.68	4.60	4.50
20	3.91	4.06	4.15	4.28	4.40	4.62	5.30	5.11	5.10	4.75	4.59	4.52
21	3.90	4.05	4.15	4.28	4.40	4.62	5.32	5.23	5.08	4.82	4.57	4.57
22	3.90	4.04	4.16	4.28	4.40	4.64	5.29	5.20	5.05	4.82	4.58	4.55
23	3.91	4.04	4.16	4.28	4.40	4.67	5.34	5.17	5.02	4.84	4.57	4.54
24	3.90	4.04	4.16	4.28	4.41	4.69	5.26	5.14	4.99	4.85	4.55	4.52
25	3.91	4.04	4.16	4.28	4.51	4.71	5.24	5.15	4.98	4.88	4.60	4.52
26	3.92	4.04	4.16	4.29	4.49	4.73	5.22	5.21	4.96	4.86	4.62	4.51
27	3.91	4.04	4.16	4.29	4.49	4.74	5.18	5.21	4.94	4.83	4.62	4.50
28	3.89	4.04	4.18	4.29	4.49	4.75	5.15	5.19	4.92	4.83	4.60	4.49
29	3.88	4.04	4.21	4.30	---	4.79	5.15	5.18	4.91	4.82	4.59	4.48
30	3.90	4.05	4.21	4.35	---	4.82	5.13	5.14	4.89	4.81	4.59	4.49
31	3.90	---	4.23	4.35	---	4.88	---	5.13	---	4.80	4.55	---
MEAN	3.92	4.04	4.14	4.27	4.40	4.60	5.23	5.23	5.08	4.75	4.63	4.52
MAX	3.97	4.12	4.23	4.35	4.51	4.88	5.51	5.42	5.22	4.88	4.79	4.59
MIN	3.88	3.96	4.05	4.23	4.35	4.49	4.93	5.09	4.89	4.57	4.54	4.47

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	262	306	455	e240	e250	e230	e8200	2750	3520	1890	753	329
2	260	333	431	e220	e240	e270	e10000	2870	3340	1690	740	323
3	260	393	360	e230	e220	e280	10600	6400	3050	1690	691	317
4	274	476	354	e240	e250	e300	10800	e9500	2780	1500	652	322
5	270	447	239	e250	e270	e280	9600	e11500	2690	1350	623	293
6	278	466	332	e260	e290	e260	9700	9630	2970	1240	588	e310
7	269	572	341	e280	e260	e280	10200	8630	2850	1170	566	e330
8	267	887	369	e280	e270	e300	10900	8380	2690	1100	538	e370
9	260	961	383	e260	e250	e290	11700	7250	2510	1060	512	e400
10	260	844	373	e240	e230	e280	10500	6220	2340	1010	491	e440
11	263	765	e240	e260	e220	e300	9750	5540	2200	951	473	392
12	272	713	e210	e280	e240	e320	11600	4970	2120	899	456	353
13	279	684	e200	e290	e260	e360	18600	4450	2010	846	443	364
14	281	676	e300	e280	e260	e400	16000	4070	2030	805	431	314
15	284	657	e320	e270	e250	e420	12400	3720	3470	775	436	326
16	276	654	e330	e260	e250	e460	10300	3390	5560	682	474	326
17	287	626	e300	e240	e240	e480	8510	3080	5560	739	488	351
18	291	569	e260	e260	e220	e520	7140	2810	5420	699	474	378
19	293	527	e240	e240	e240	e620	6180	2580	5460	738	469	284
20	292	418	e220	e230	e250	e800	5480	2400	5730	759	442	322
21	284	363	e260	e250	e230	1300	4970	2500	5590	e1000	425	372
22	286	353	e240	e240	e220	2260	4580	3250	5080	e950	417	366
23	299	485	e220	e260	e230	3530	4340	3520	4510	e900	405	372
24	296	531	e200	e240	e250	4090	4250	3330	4010	1250	383	340
25	308	510	e180	e220	e270	3520	4140	3280	3570	1660	401	337
26	327	499	e190	e210	e260	2790	3890	3760	3170	1710	406	326
27	342	485	e200	e220	e250	2310	3610	5160	2830	1360	411	342
28	348	471	e230	e230	e240	2140	3310	5570	2560	1140	397	354
29	334	473	e250	e260	---	2400	3020	4890	2310	996	358	343
30	318	470	e230	e270	---	3120	2810	4280	2130	896	353	342
31	307	---	e220	e270	---	5570	---	3820	---	826	347	---
TOTAL	8927	16614	8677	7780	6910	40480	247080	153500	104060	34281	15043	10338
MEAN	288	554	280	251	247	1306	8236	4952	3469	1106	485	345
MAX	348	961	455	290	290	5570	18600	11500	5730	1890	753	440
MIN	260	306	180	210	220	230	2810	2400	2010	682	347	284
AC-FT	17710	32950	17210	15430	13710	80290	490100	304500	206400	68000	29840	20510
CFSM	.16	.32	.16	.14	.14	.75	4.72	2.84	1.99	.63	.28	.20
IN.	.19	.35	.18	.17	.15	.86	5.26	3.27	2.22	.73	.32	.22

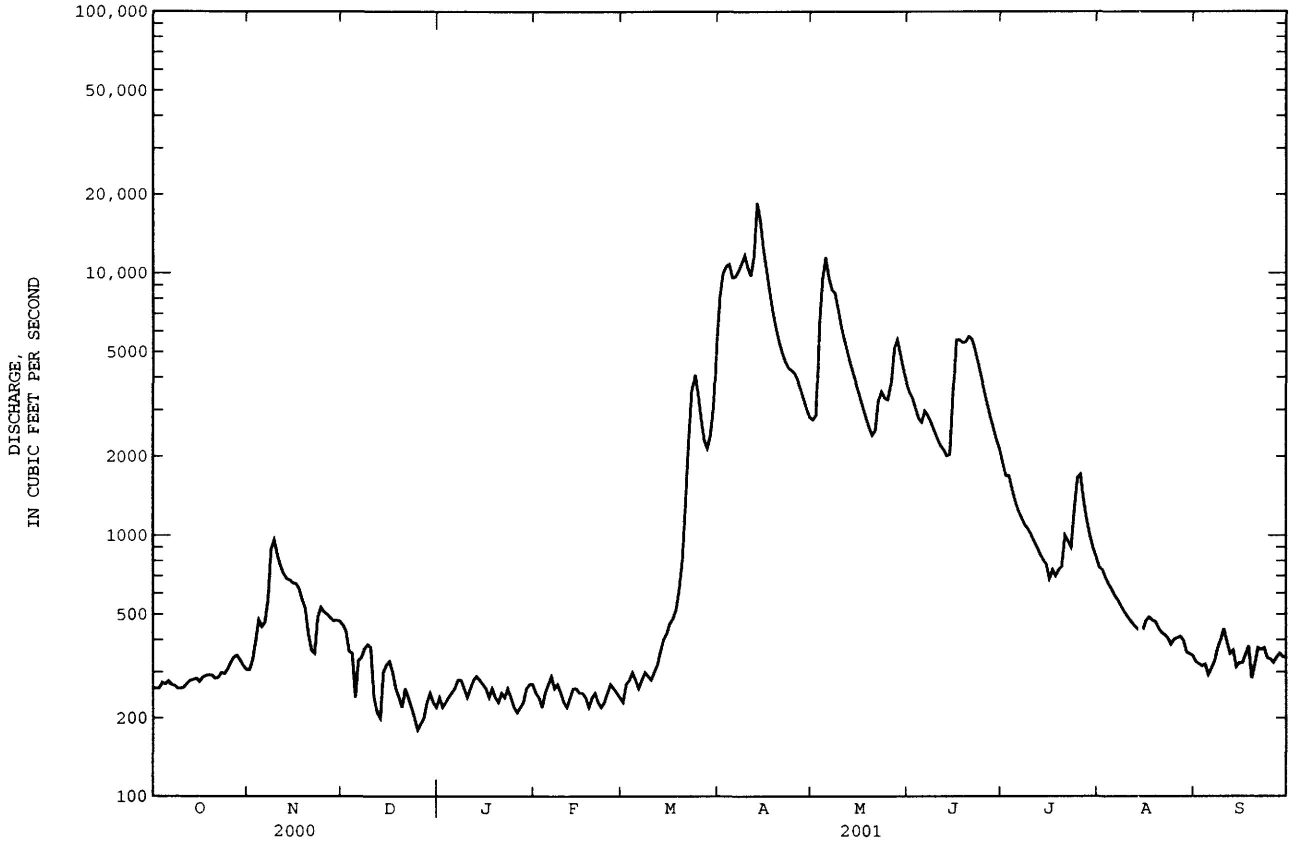
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	737	694	520	350	503	1656	2160	1691	1824	1348	891	702
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1954 - 2001	
ANNUAL TOTAL	329947		653690			
ANNUAL MEAN	901		1791		1091	
HIGHEST ANNUAL MEAN					3231	1993
LOWEST ANNUAL MEAN					171	1977
HIGHEST DAILY MEAN	11300	Jun 15	18600	Apr 13	32100	Mar 28 1961
LOWEST DAILY MEAN	180	Dec 25	180	Dec 25	27	Dec 22 1989
ANNUAL SEVEN-DAY MINIMUM	209	Dec 22	209	Dec 22	29	Dec 16 1989
MAXIMUM PEAK FLOW			19500	Apr 13	33500	Mar 28 1961
MAXIMUM PEAK STAGE			14.12	Apr 13	16.73	Jul 22 1999
ANNUAL RUNOFF (AC-FT)	654400		1297000		790600	
ANNUAL RUNOFF (CFSM)	.52		1.03		.62	
ANNUAL RUNOFF (INCHES)	7.03		13.93		8.49	
10 PERCENT EXCEEDS	2180		5440		2580	
50 PERCENT EXCEEDS	432		436		541	
90 PERCENT EXCEEDS	264		240		157	

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. U.S. Geological Survey data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	37	e34	e17	e29	e32	1080	275	705	221	93	37
2	27	44	e32	e16	e27	e32	906	427	679	206	89	36
3	27	45	e34	e20	e30	e33	784	637	605	202	86	35
4	31	42	e33	e19	e34	e32	664	1060	519	191	83	34
5	31	41	e25	e18	e34	e33	604	992	597	175	79	33
6	32	49	e27	e18	e34	e34	626	863	739	166	75	35
7	30	86	e28	e19	e36	e35	699	972	640	161	72	51
8	30	113	e28	e18	e38	e36	648	893	556	157	69	732
9	30	91	e26	e18	e36	e34	539	697	478	e153	66	1080
10	31	76	e25	e21	e34	e38	475	674	429	e142	63	460
11	31	68	e22	e24	e36	e48	565	1040	401	133	60	257
12	30	66	e19	e26	e37	e59	1110	719	723	127	58	183
13	30	64	e21	e26	e36	e70	1080	592	1350	121	55	142
14	31	61	e22	e26	e36	e89	779	528	1090	115	54	121
15	31	e52	e22	e25	e34	e115	634	467	1090	110	56	112
16	30	e51	e21	e24	e32	e150	522	415	1200	106	64	107
17	31	e48	e20	e25	e30	e270	443	369	823	125	60	122
18	31	e46	e22	e26	e34	e600	393	331	644	114	60	151
19	31	e50	e21	e24	e36	1350	367	309	540	104	59	142
20	31	e45	e20	e23	e32	1540	346	297	463	109	54	131
21	30	e40	e19	e25	e31	2030	336	e314	443	102	51	125
22	31	e42	e20	e26	e31	2670	325	542	412	98	51	114
23	34	e40	e21	e30	e30	2520	321	479	374	95	55	105
24	36	e41	e17	e26	e31	1640	296	414	347	113	55	96
25	39	e42	e16	e25	e32	1030	277	527	323	285	56	92
26	40	e42	e18	e28	e34	704	271	1070	297	230	53	90
27	41	e42	e18	e26	e34	583	256	1630	277	160	47	86
28	41	e40	e19	e29	e33	543	238	1810	259	136	42	83
29	38	e38	e20	e32	---	621	226	1270	244	121	41	78
30	37	e36	e19	e33	---	859	219	959	233	109	40	76
31	36	---	e19	e32	---	982	---	768	---	100	38	---
TOTAL	1006	1578	708	745	931	18812	16029	22340	17480	4487	1884	4946
MEAN	32.5	52.6	22.8	24.0	33.2	607	534	721	583	145	60.8	165
MAX	41	113	34	33	38	2670	1110	1810	1350	285	93	1080
MIN	27	36	16	16	27	32	219	275	233	95	38	33
AC-FT	2000	3130	1400	1480	1850	37310	31790	44310	34670	8900	3740	9810
CFSM	.09	.15	.07	.07	.10	1.75	1.54	2.08	1.68	.42	.18	.48
IN.	.11	.17	.08	.08	.10	2.02	1.72	2.39	1.87	.48	.20	.53

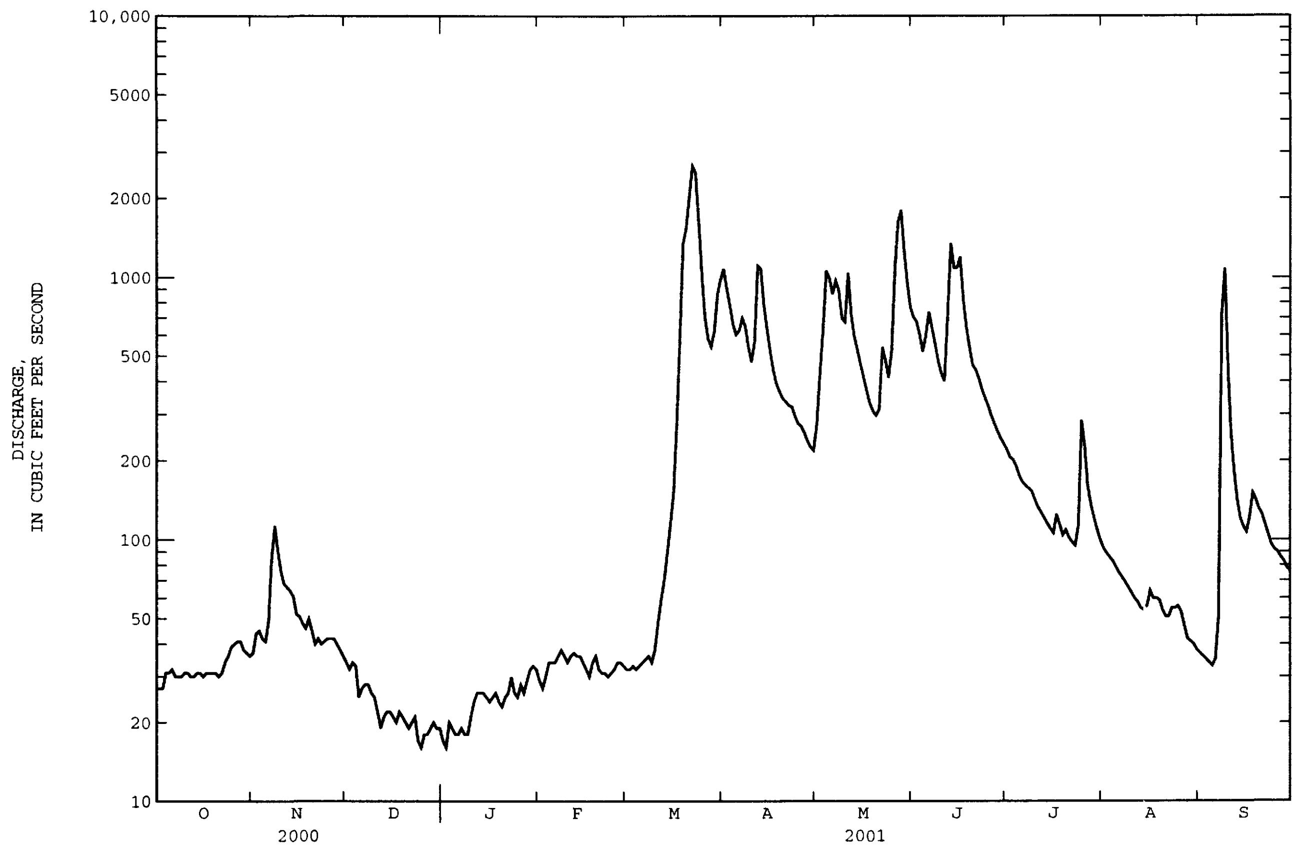
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	119	125	86.0	73.0	154	458	389	343	434	282	144	108
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1946 - 2001	
ANNUAL TOTAL	49102		90946			
ANNUAL MEAN	134		249		226	
HIGHEST ANNUAL MEAN					874	1993
LOWEST ANNUAL MEAN					21.8	1956
HIGHEST DAILY MEAN	2590	Jul 12	2670	Mar 22	16300	Jun 13 1947
LOWEST DAILY MEAN	16	Dec 25	16	Dec 25a	2.0	Sep 30 1989
ANNUAL SEVEN-DAY MINIMUM	18	Dec 24	18	Dec 24	2.3	Jan 19 1956
MAXIMUM PEAK FLOW			2730	Mar 22	18000	Jun 13 1947
MAXIMUM PEAK STAGE			9.57	Mar 22	13.50	Jun 13 1947
ANNUAL RUNOFF (AC-FT)	97390		180400		163900	
ANNUAL RUNOFF (CFSM)	.39		.72		.65	
ANNUAL RUNOFF (INCHES)	5.26		9.75		8.86	
10 PERCENT EXCEEDS	324		721		495	
50 PERCENT EXCEEDS	49		61		89	
90 PERCENT EXCEEDS	26		25		17	

a Also Jan. 2.
e Estimated.



05463050 CEDAR RIVER AT CEDAR FALLS, IA

LOCATION.--Lat 42°32'20", long 92°26'58", in NW ¼ NE ¼ sec.12, T.89 N., R.14 W., Black Hawk County, Hydrologic Unit 07080205, at bridge on U.S. Highway 20 at Cedar Falls, 1.1 mi upstream from Dry Run, and at mile 196.0 upstream from mouth of Iowa River.

DRAINAGE AREA.--4,734 mi².

PERIOD OF RECORD.--October 1975 to September 1979, May 1984 to September 1985, October 1986 to September 1995; water quality data. October 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 855.00 ft above sea level.

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

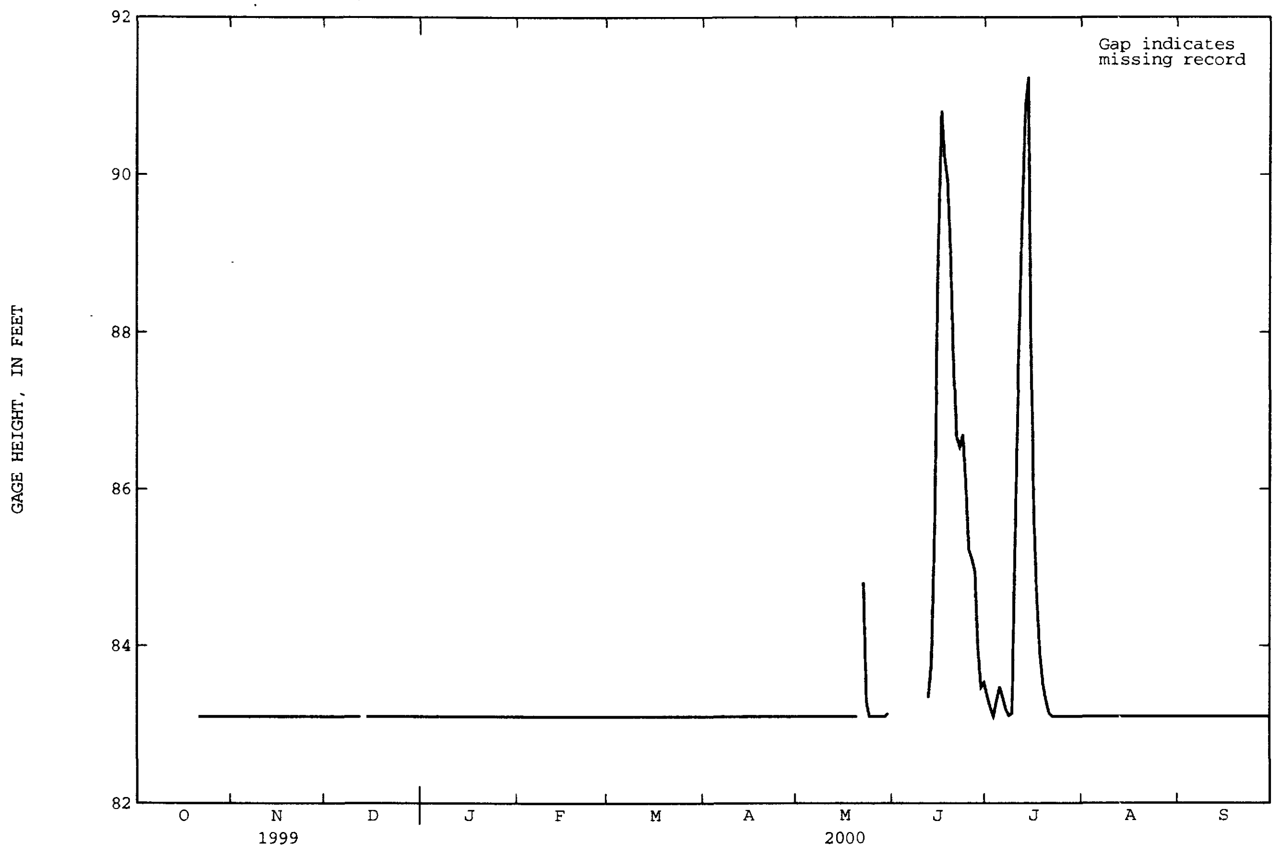
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height 93.99 ft Apr. 14, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum gage height 93.99 ft Apr. 14.

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	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	83.36	83.10	83.10
2	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	85.12	83.21	83.10	83.10
3	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	83.10	83.10	83.10
4	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	83.30	83.10	83.10
5	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	83.48	83.10	83.10
6	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	86.24	83.34	83.10	83.10
7	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	83.19	83.10	83.10
8	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	83.11	83.10	83.10
9	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	83.14	83.10	83.10
10	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	85.53	83.10	83.10
11	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	87.64	83.10	83.10
12	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.34	89.36	83.10	83.10
13	---	83.10	---	83.10	83.10	83.10	83.10	83.10	83.78	90.86	83.10	83.10
14	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	85.51	91.24	83.10	83.10
15	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	88.91	87.99	83.10	83.10
16	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	90.81	85.65	83.10	83.10
17	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	90.22	84.63	83.10	83.10
18	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	89.93	83.91	83.10	83.10
19	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	89.03	83.51	83.10	83.10
20	---	83.10	83.10	83.10	83.10	83.10	83.10	83.10	87.70	83.30	83.10	83.10
21	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	86.67	83.14	83.10	83.10
22	83.10	83.10	83.10	83.10	83.10	83.10	83.10	84.81	86.54	83.10	83.10	83.10
23	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.28	86.70	83.10	83.10	83.10
24	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	86.07	83.10	83.10	83.10
25	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	85.23	83.10	83.10	83.10
26	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	85.11	83.10	83.10	83.10
27	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	84.95	83.10	83.10	83.10
28	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.98	83.10	83.10	83.10
29	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.47	83.10	83.10	83.10
30	83.10	83.10	83.10	83.10	---	83.10	83.10	83.14	83.53	83.10	83.10	83.10
31	83.10	---	83.10	83.10	---	83.10	---	---	---	83.10	83.10	---
MEAN	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.17	86.33	84.42	83.10	83.10
MAX	83.10	83.10	83.10	83.10	83.10	83.10	83.10	84.81	90.81	91.24	83.10	83.10
MIN	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.34	83.10	83.10	83.10

05463050 CEDAR RIVER AT CEDAR FALLS, IA--Continued

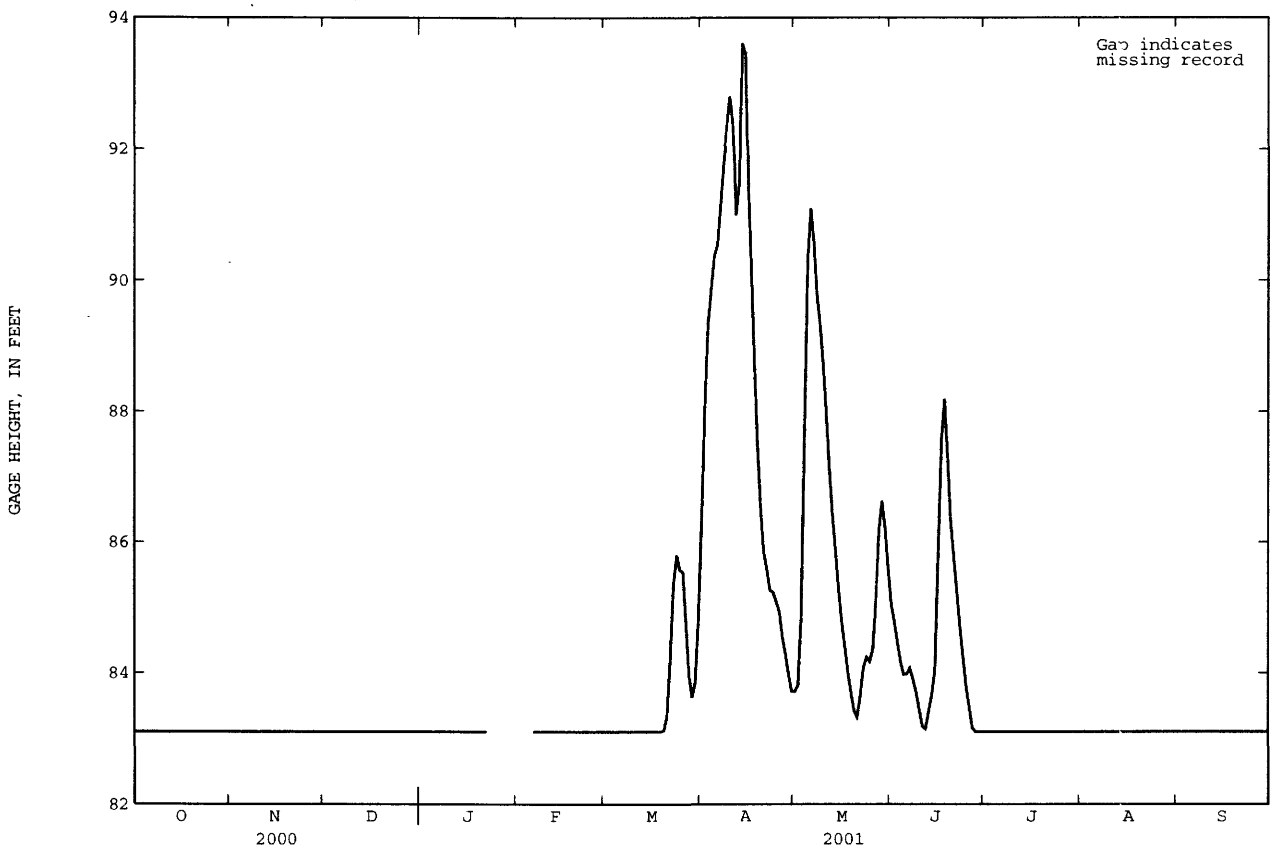


05463050 CEDAR RIVER AT CEDAR FALLS, IA--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83.10	83.10	83.10	83.10	---	83.10	86.36	83.71	85.04	83.10	83.10	83.10
2	83.10	83.10	83.10	83.10	---	83.10	88.10	83.81	84.77	83.10	83.10	83.10
3	83.10	83.10	83.10	83.10	---	83.10	89.34	84.85	84.46	83.10	83.10	83.10
4	83.10	83.10	83.10	83.10	---	83.10	89.87	87.51	84.17	83.10	83.10	83.10
5	83.10	83.10	83.10	83.10	---	83.10	90.37	90.29	83.97	83.10	83.10	83.10
6	83.10	83.10	83.10	83.10	83.10	83.10	90.54	91.09	83.98	83.10	83.10	83.10
7	83.10	83.10	83.10	83.10	83.10	83.10	91.15	90.58	84.07	83.10	83.10	83.10
8	83.10	83.10	83.10	83.10	83.10	83.10	91.79	89.78	83.90	83.10	83.10	83.10
9	83.10	83.10	83.10	83.10	83.10	83.10	92.34	89.33	83.70	83.10	83.10	83.10
10	83.10	83.10	83.10	83.10	83.10	83.10	92.80	88.72	83.43	83.10	83.10	83.10
11	83.10	83.10	83.10	83.10	83.10	83.10	92.38	88.00	83.18	83.10	83.10	83.10
12	83.10	83.10	83.10	83.10	83.10	83.10	90.99	87.15	83.14	83.10	83.10	83.10
13	83.10	83.10	83.10	83.10	83.10	83.10	91.45	86.46	83.41	83.10	83.10	83.10
14	83.10	83.10	83.10	83.10	83.10	83.10	93.61	85.89	83.66	83.10	83.10	83.10
15	83.10	83.10	83.10	83.10	83.10	83.10	93.43	85.31	84.04	83.10	83.10	83.10
16	83.10	83.10	83.10	83.10	83.10	83.10	91.37	84.80	85.76	83.10	83.10	83.10
17	83.10	83.10	83.10	83.10	83.10	83.10	90.00	84.41	87.55	83.10	83.10	83.10
18	83.10	83.10	83.10	83.10	83.10	83.10	88.67	84.01	88.19	83.10	83.10	83.10
19	83.10	83.10	83.10	83.10	83.10	83.10	87.44	83.70	87.31	83.10	83.10	83.10
20	83.10	83.10	83.10	83.10	83.10	83.12	86.52	83.42	86.33	83.10	83.10	83.10
21	83.10	83.10	83.10	83.10	83.10	83.34	85.85	83.32	85.78	83.10	83.10	83.10
22	83.10	83.10	83.10	83.10	83.10	84.23	85.58	83.64	85.26	83.10	83.10	83.10
23	83.10	83.10	83.10	---	83.10	85.36	85.26	84.08	84.71	83.10	83.10	83.10
24	83.10	83.10	83.10	---	83.10	85.80	85.23	84.24	84.24	83.10	83.10	83.10
25	83.10	83.10	83.10	---	83.10	85.57	85.08	84.17	83.78	83.10	83.10	83.10
26	83.10	83.10	83.10	---	83.10	85.54	84.93	84.36	83.47	83.10	83.10	83.10
27	83.10	83.10	83.10	---	83.10	84.76	84.54	85.11	83.16	83.10	83.10	83.10
28	83.10	83.10	83.10	---	83.10	83.96	84.28	86.17	83.10	83.10	83.10	83.10
29	83.10	83.10	83.10	---	---	83.62	83.98	86.63	83.10	83.10	83.10	83.10
30	83.10	83.10	83.10	---	---	83.86	83.71	86.22	83.10	83.10	83.10	83.10
31	83.10	---	83.10	---	---	84.81	---	85.59	---	83.10	83.10	---
MEAN	83.10	83.10	83.10	83.10	83.10	83.64	88.57	86.01	84.46	83.10	83.10	83.10
MAX	83.10	83.10	83.10	83.10	83.10	85.80	93.61	91.09	88.19	83.10	83.10	83.10
MIN	83.10	83.10	83.10	83.10	83.10	83.10	83.71	83.32	83.10	83.10	83.10	83.10

05463050 CEDAR RIVER AT CEDAR FALLS, IA--Continued



05464000 CEDAR RIVER AT WATERLOO, IA

LOCATION.--Lat 42°29'44", long 92°20'03", in NW ¼ NW ¼ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	989	1060	1390	e530	e740	e700	12200	7140	10900	4880	2910	1230
2	972	1060	1340	e520	e700	e725	15900	7320	10300	4410	2730	1220
3	1020	1050	1120	e650	e840	e700	19100	9200	9610	4940	2620	1220
4	1030	1100	1160	e600	e980	e675	20600	14400	9010	4390	2480	1190
5	958	1190	865	e650	e950	e650	22300	20300	8680	4100	2370	1180
6	964	1500	e600	e675	e900	e700	23000	23400	8670	3950	2230	1210
7	936	1530	e650	e650	e850	e730	24800	22700	8780	3720	2130	1330
8	894	1790	e700	e550	e825	e750	27600	20400	8510	3540	2020	2290
9	904	2120	e750	e600	e830	e770	30600	19200	8050	3380	1910	3140
10	917	2170	e700	e650	e900	e750	35900	18000	7520	3200	1830	2660
11	967	2110	e640	e630	e840	e810	30200	16800	7060	3040	1700	2100
12	906	2030	e550	e700	e750	e900	23000	15400	7080	2860	1640	1810
13	919	1900	e650	e650	e750	e960	25500	13900	7320	2720	1600	1650
14	955	1800	e690	e675	e750	e1300	40000	12700	7950	2620	1550	1540
15	955	1740	e750	e700	e700	e1800	41900	11200	8430	2510	1560	1450
16	939	1710	e650	e650	e700	e2600	28300	9980	11700	2390	1600	1430
17	921	1720	e600	e620	e640	e3200	22200	9070	15100	2280	1660	1520
18	925	1630	e580	e580	e680	e3800	18600	8240	17000	2400	1710	1520
19	929	1570	e550	e620	e700	5070	15200	7630	15500	2300	1620	1520
20	930	1360	e590	e560	e675	6250	12900	7110	13600	2390	1560	1460
21	898	1270	e550	e520	e650	8130	11300	6900	12300	2770	1500	1520
22	903	1100	e600	e560	e655	10600	10700	7290	11100	2870	1500	1580
23	932	1170	e600	e580	e660	13500	9990	8100	9780	2750	1490	1580
24	967	1370	e400	e660	e700	14300	9860	8540	8750	3140	1420	1570
25	964	1480	e340	e640	e840	12100	9630	8520	7800	4720	1470	1480
26	1000	1480	e490	e600	e700	10100	9320	8810	7180	5320	1400	1660
27	1030	1460	e460	e620	e680	9130	8720	10400	6580	5110	1400	1660
28	1050	1420	e480	e660	e750	8370	8140	13000	5950	4930	1420	1580
29	1030	1400	e550	e700	---	7720	7680	14000	5540	4600	1340	1500
30	988	1400	e550	e760	---	7940	7220	13500	5210	3650	1290	1470
31	963	---	e550	e800	---	9430	---	12100	---	3220	1260	---
TOTAL	29655	45690	21095	19560	21335	145160	582360	385250	280960	109100	54920	48270
MEAN	957	1523	680	631	762	4683	19410	12430	9365	3519	1772	1609
MAX	1050	2170	1390	800	980	14300	41900	23400	17000	5320	2910	3140
MIN	894	1050	340	520	640	650	7220	6900	5210	2280	1260	1180
AC-FT	58820	90630	41840	38800	42320	287900	1155000	764100	557300	216400	108900	95740
CFSM	.19	.30	.13	.12	.15	.91	3.77	2.41	1.82	.68	.34	.31
IN.	.21	.33	.15	.14	.15	1.05	4.21	2.78	2.03	.79	.40	.35

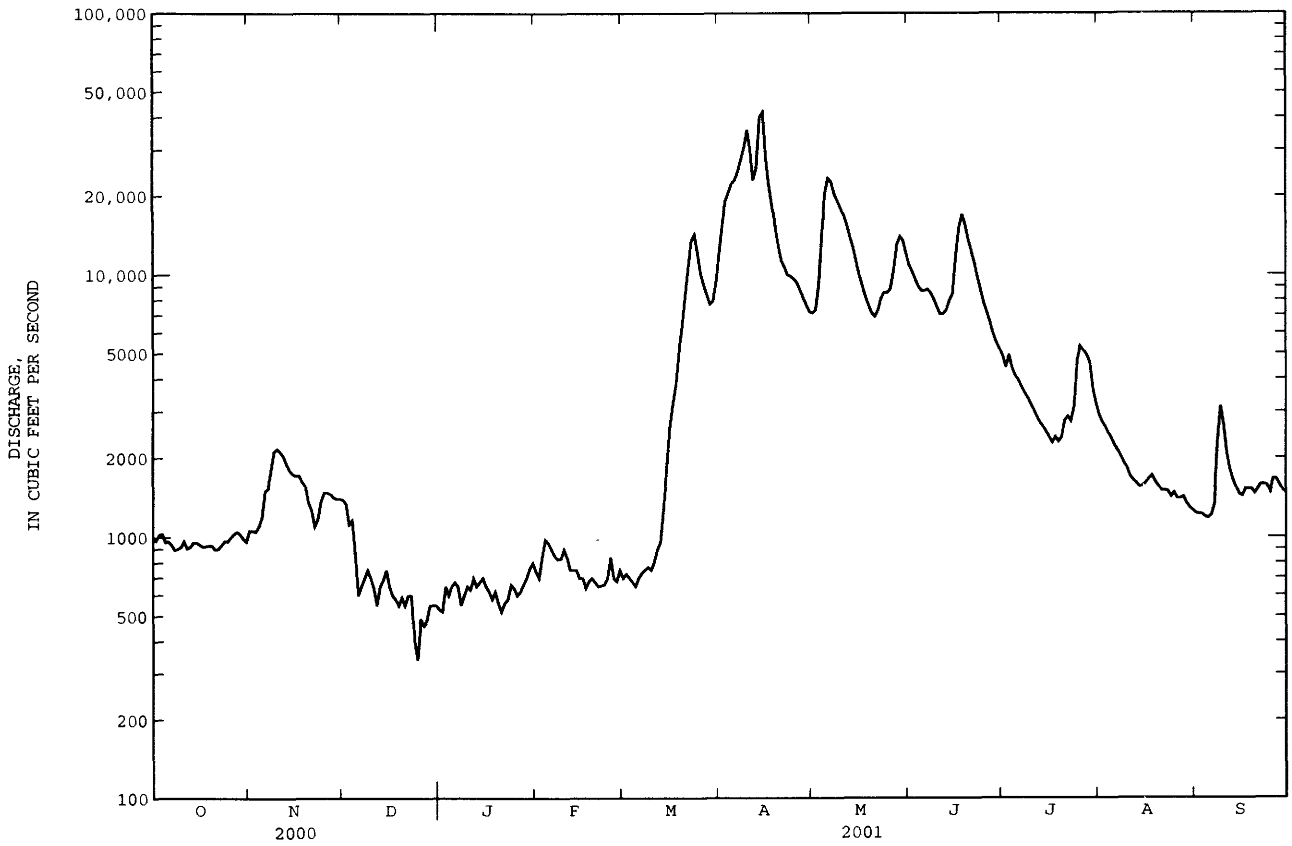
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2116	2070	1546	1231	1788	5598	6445	4826	5436	4132	2703	2051
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1941 - 2001	
ANNUAL TOTAL	1070257		1743355			
ANNUAL MEAN	2924		4776		3333	
HIGHEST ANNUAL MEAN					10580	1993
LOWEST ANNUAL MEAN					636	1977
HIGHEST DAILY MEAN	24400	Jul 14	41900	Apr 15	74000	Mar 29 1961
LOWEST DAILY MEAN	340	Dec 25	340	Dec 25	152	Jan 28 1959
ANNUAL SEVEN-DAY MINIMUM	467	Dec 24	467	Dec 24	173	Feb 13 1959
MAXIMUM PEAK FLOW			45800	Apr 15	76700	Mar 29 1961
MAXIMUM PEAK STAGE			16.59	Apr 15	21.86	Mar 29 1961
ANNUAL RUNOFF (AC-FT)	2123000		3458000		2414000	
ANNUAL RUNOFF (CFSM)	.57		.93		.65	
ANNUAL RUNOFF (INCHES)	7.74		12.60		8.80	
10 PERCENT EXCEEDS	6910		13200		7700	
50 PERCENT EXCEEDS	1450		1550		1800	
90 PERCENT EXCEEDS	750		650		564	

e Estimated



05464500 CEDAR RIVER AT CEDAR RAPIDS, IA

LOCATION.--Lat 41°58'14", long 91°40'01", in SE$\frac{1}{4}$ NW$\frac{1}{4}$ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1270	1320	e1300	e780	e1000	2920	10500	8670	15400	6780	4830	1920
2	1230	1410	e1200	e800	e940	2430	11800	8300	14400	6340	4440	1900
3	1250	1460	e1100	e840	e1000	2200	13600	8500	13100	6150	4200	1850
4	1300	1430	e1200	e960	e1100	2180	15900	10300	12300	6390	4040	1820
5	1360	1390	e1000	e900	e1150	2180	18400	12800	13000	6240	3900	1760
6	1250	1650	718	e1000	e1200	2210	20500	16500	14700	5660	3550	1700
7	1250	1890	580	e1200	e1200	1990	22200	22600	12800	5510	3430	1810
8	1200	2150	e700	e1100	e1250	1970	23700	28000	12100	5400	3280	2350
9	1190	2210	e800	e1000	e1600	1960	26000	28000	11600	5050	3180	2730
10	1140	2470	e900	e960	e1400	2120	29600	25700	10900	4790	2750	3570
11	1160	2690	e840	e1100	e1800	2530	34200	25000	10000	4660	2720	3940
12	1180	2730	e800	e1000	e2000	3710	37100	23500	9370	4480	2630	3320
13	1210	2580	e780	e1200	e1900	6020	34600	21300	9500	4280	2530	2770
14	1150	2510	747	e1100	e1700	6900	28100	19300	9650	4110	2480	2560
15	1180	2360	e900	e1000	e1500	8350	27200	16600	11300	3950	2500	2400
16	1230	2250	e1000	e1000	e1400	9440	36400	14800	12300	3560	2540	2270
17	1220	2210	e1200	e940	e1300	10000	40800	13200	12400	3430	2530	2310
18	1160	2160	e1100	e960	e1350	9730	32900	11900	13800	3310	2560	2370
19	1180	2080	e960	e840	e1400	8200	25400	10800	16100	3500	2650	2490
20	1160	1720	e800	e740	e1300	8530	20700	9860	17800	3470	2560	2430
21	1190	1170	e840	e800	e1200	10300	17700	9610	17400	3380	2480	2320
22	1170	1110	e900	e900	e1300	12100	15500	8830	15400	4370	2420	2250
23	1320	1270	e880	e1100	e1400	13900	13800	8660	14100	4800	2400	2410
24	1250	e1200	e940	e1000	e1600	15100	12800	9150	12800	4440	2390	2330
25	1250	e1300	e800	e840	e2200	16700	12100	9740	11500	5550	2540	2270
26	1250	e1400	e560	e1000	e3400	16500	11800	10200	10200	8430	2400	1860
27	1290	e1450	e540	e900	4310	14100	11300	10400	9170	7690	2400	2050
28	1310	e1500	e740	e980	3950	12100	10800	11100	8370	7160	2320	2240
29	1320	e1450	e860	e1100	---	11000	9810	12300	7680	6780	2290	2200
30	1320	e1400	e960	e1200	---	10100	9220	13700	7130	6330	2230	2090
31	1310	---	e860	e1100	---	9800	---	15000	---	5640	1990	---
TOTAL	38250	53920	27505	30340	46850	237270	634430	454320	366270	161630	89160	70290
MEAN	1234	1797	887	979	1673	7654	21150	14660	12210	5214	2876	2343
MAX	1360	2730	1300	1200	4310	16700	40800	28000	17800	8430	4830	3940
MIN	1140	1110	540	740	940	1960	9220	8300	7130	3310	1990	1700
MED	1230	1580	860	1000	1400	8350	19400	12300	12300	5050	2540	2290
AC-FT	75870	107000	54560	60180	92930	470600	1258000	901100	726500	320600	176800	139400
CFSM	.19	.28	.14	.15	.26	1.18	3.25	2.25	1.88	.80	.44	.36
IN.	.22	.31	.16	.17	.27	1.36	3.63	2.60	2.09	.92	.51	.40

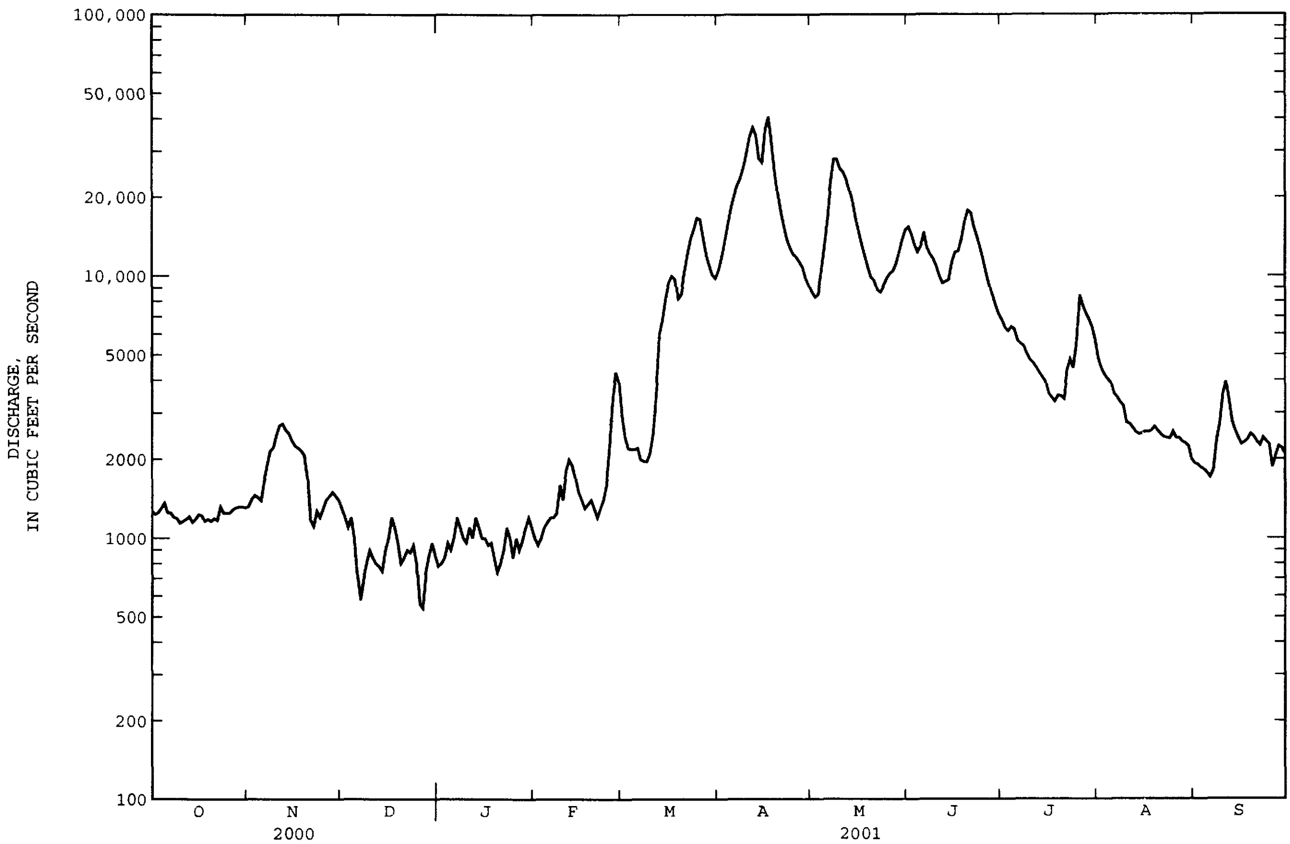
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2353	2430	1865	1583	2494	6696	6956	5349	5918	4312	3002	2404
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1903 - 2001	
ANNUAL TOTAL	1331928		2210235			
ANNUAL MEAN	3639		6055		3783	
HIGHEST ANNUAL MEAN					15130	1993
LOWEST ANNUAL MEAN					689	1934
HIGHEST DAILY MEAN	27300	Jul 15	40800	Apr 17	71500	Mar 31 1961
LOWEST DAILY MEAN	540	Dec 27	540	Dec 27	140	Nov 18 1989
ANNUAL SEVEN-DAY MINIMUM	760	Dec 23	757	Dec 26	224	Dec 20 1989
MAXIMUM PEAK FLOW			42000	Apr 17	73000	Mar 31 1961
MAXIMUM PEAK STAGE			14.04	Apr 17	20.00	Mar 18 1929
ANNUAL RUNOFF (AC-FT)	2642000		4384000		2740000	
ANNUAL RUNOFF (CFSM)	.56		.93		.58	
ANNUAL RUNOFF (INCHES)	7.61		12.63		7.90	
10 PERCENT EXCEEDS	9250		15200		8450	
50 PERCENT EXCEEDS	1820		2430		2160	
90 PERCENT EXCEEDS	1000		960		680	

e Estimated



05464942 HOOVER CREEK AT HOOVER NATIONAL HISTORIC SITE AT WEST BRANCH, IA

LOCATION.--Lat 41 40'10", long 91 21'02", in NW 1/4 NE 1/4 NE 1/4 sec.7, T.79 N., R.4 W., Cedar County, Hydrologic Unit 07080206, on right bank, at footbridge about 0.25 mi upstream of Hoover Presidental Library, at Hoover National Historic Site, at West Branch..

DRAINAGE AREA.--2.58 mi^2.

PERIOD OF RECORD.--April 27, 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 700.0 ft above sea level.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1967 reached a stage of 711.41 ft NGVD, discharge 1,500 ft^3/s from indirect discharge measurement, based on floodmarks at Downey Street bridge 1,100 ft downstream; flood of August 16, 1993 reached a stage of 715,3 ft, discharge 1,650 ft^3/s from indirect discharge measurement, based on floodmarks at Hoover National Historic Site.

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.30	e7.0	e2.1	.55	.07
2	---	---	---	---	---	---	---	e.24	e3.0	e1.8	.50	.06
3	---	---	---	---	---	---	---	e.16	e1.7	e1.4	.44	.06
4	---	---	---	---	---	---	---	.24	e1.0	e9.0	.42	.06
5	---	---	---	---	---	---	---	e.22	e.76	e5.0	.60	.05
6	---	---	---	---	---	---	---	e.15	e2.0	2.1	1.2	.04
7	---	---	---	---	---	---	---	e.16	e2.4	2.0	.60	.04
8	---	---	---	---	---	---	---	e.42	e2.1	1.8	.81	.04
9	---	---	---	---	---	---	---	3.7	e1.8	1.7	.71	.04
10	---	---	---	---	---	---	---	.57	e1.4	7.3	.45	.38
11	---	---	---	---	---	---	---	.45	e1.1	3.5	.38	.37
12	---	---	---	---	---	---	---	.42	1.6	2.7	.35	.14
13	---	---	---	---	---	---	---	.46	7.9	2.3	.38	.05
14	---	---	---	---	---	---	---	e.43	20	2.0	.33	.29
15	---	---	---	---	---	---	---	.39	5.6	1.7	.29	.07
16	---	---	---	---	---	---	---	e.37	4.3	1.4	.25	.05
17	---	---	---	---	---	---	---	e.35	3.5	1.3	.25	.05
18	---	---	---	---	---	---	---	6.9	3.1	1.2	.23	.05
19	---	---	---	---	---	---	---	.66	2.7	1.2	.20	.07
20	---	---	---	---	---	---	---	e21	2.6	1.1	.17	.30
21	---	---	---	---	---	---	---	e1.4	2.2	.97	.14	.08
22	---	---	---	---	---	---	---	e22	1.9	.89	.15	1.9
23	---	---	---	---	---	---	---	e1.8	2.0	.82	.15	1.6
24	---	---	---	---	---	---	---	.48	6.1	.78	.12	.54
25	---	---	---	---	---	---	---	.44	4.3	.75	.10	.47
26	---	---	---	---	---	---	---	.45	3.4	.92	.10	.35
27	---	---	---	---	---	---	e.40	e2.0	2.8	.80	.10	.30
28	---	---	---	---	---	---	.34	e.50	2.7	.72	.24	.26
29	---	---	---	---	---	---	e.30	e.45	e2.5	.64	.11	.25
30	---	---	---	---	---	---	e.26	e.38	e2.4	.64	.11	.24
31	---	---	---	---	---	---	---	e78	---	.59	.08	---
TOTAL	---	---	---	---	---	---	1.30	145.49	105.86	61.12	10.51	8.27
MEAN	---	---	---	---	---	---	.32	4.69	3.53	1.97	.34	.28
MAX	---	---	---	---	---	---	.40	78	20	9.0	1.2	1.9
MIN	---	---	---	---	---	---	.26	.15	.76	.59	.08	.04
AC-FT	---	---	---	---	---	---	2.6	289	210	121	21	16

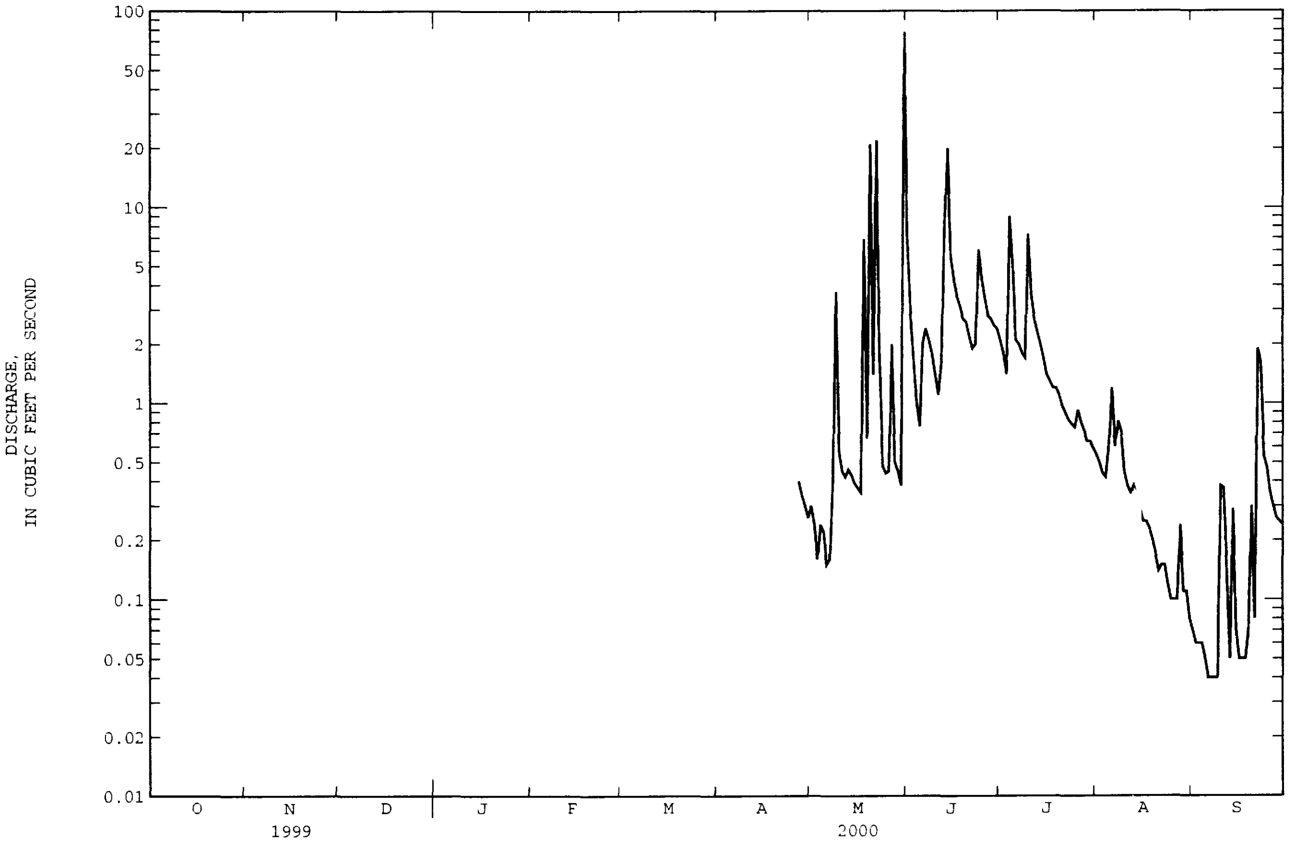
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	---	---	---	---	4.69	3.53	1.97	.34	.28
MAX	---	---	---	---	---	---	---	4.69	3.53	1.97	.34	.28
(WY)	---	---	---	---	---	---	---	2000	2000	2000	2000	2000
MIN	---	---	---	---	---	---	---	4.69	3.53	1.97	.34	.28
(WY)	---	---	---	---	---	---	---	2000	2000	2000	2000	2000

05464942 HOOVER CREEK AT HOOVER NATIONAL HISTORIC SITE AT WEST BRANCH, IA--Continued

SUMMARY STATISTICS	FOR 2000 WATER YEAR	
HIGHEST DAILY MEAN	78	May 31
LOWEST DAILY MEAN	.04	Sep 6
ANNUAL SEVEN-DAY MINIMUM	.05	Sep 3
MAXIMUM PEAK FLOW	207	May 31
MAXIMUM PEAK STAGE	6.92	May 31
10 PERCENT EXCEEDS	3.5	
50 PERCENT EXCEEDS	.55	
90 PERCENT EXCEEDS	.08	

e Estimated



05464942 HOOVER CREEK AT HOOVER NATIONAL HISTORIC SITE AT WEST BRANCH, IA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.23	.27	.30	e.06	1.3	3.1	2.2	1.9	15	1.6	.37	.01
2	.19	.26	.26	e.05	e.50	4.3	2.1	1.6	9.2	1.5	.49	.01
3	.22	.22	e.18	e.06	e.60	8.3	1.9	1.9	7.3	2.4	.39	.01
4	.35	.22	e.13	e.06	.68	6.4	1.9	2.1	6.4	1.7	.32	.01
5	.25	.23	e.07	.07	.64	3.9	1.9	2.4	11	1.4	.28	.00
6	.24	.70	e.10	.11	e.50	3.5	3.1	3.9	8.5	1.4	.25	.20
7	.25	.50	e.15	.11	e.40	3.2	3.0	4.1	7.1	1.3	.21	.04
8	.26	.44	e.20	.08	6.2	2.7	2.6	3.6	6.3	3.1	.19	.21
9	.26	.62	e.16	.07	54	3.1	17	3.2	5.7	1.9	.21	.05
10	.26	.49	e.18	.08	7.4	4.9	8.4	18	5.3	1.5	.16	.04
11	.25	.48	e.12	.10	3.3	5.6	9.8	16	4.9	1.2	.13	.03
12	.25	.49	e.10	.11	2.3	13	6.6	7.3	5.2	1.1	.11	.02
13	.25	.47	e.09	.17	1.9	5.9	5.4	5.8	4.6	1.1	.09	.02
14	.25	.44	e.16	1.1	1.9	4.6	4.9	5.9	11	1.0	.08	.02
15	.26	.43	e.23	2.1	1.5	15	5.1	4.9	8.9	.96	.15	.02
16	.27	.43	e.28	.62	1.3	8.1	4.7	4.2	5.9	.91	.22	.02
17	.28	.39	e.24	.35	1.3	5.3	4.3	4.1	5.1	.86	.09	.14
18	.28	.37	e.60	e.28	.99	5.1	4.0	3.6	4.6	.84	.46	.44
19	.29	.39	e.40	e.23	1.3	7.9	3.6	3.3	4.2	.87	.12	.36
20	.31	.32	e.46	e.17	1.3	9.1	3.0	14	3.8	.84	.08	.09
21	.31	.34	e.35	e.20	1.2	7.0	2.7	26	3.6	.76	.07	.07
22	.28	.36	e.27	e.28	.86	6.1	2.6	9.3	3.3	.69	.06	.05
23	.54	.40	e.23	e.32	.86	5.0	2.6	7.3	3.0	.63	.05	.61
24	.36	.38	e.19	e.25	55	3.9	2.2	6.4	2.7	.74	.07	.16
25	.35	.36	e.16	e.18	41	3.3	2.3	5.7	2.5	.71	.07	.11
26	.33	.32	e.18	e.21	10	2.9	2.1	20	2.3	.61	.06	.09
27	.30	.30	e.16	e.19	6.7	2.7	2.0	11	2.1	.55	.04	.08
28	.28	.31	e.20	e.40	4.0	2.6	1.9	7.8	2.1	.52	.03	.08
29	.26	.31	e.23	e1.3	---	2.5	1.8	6.5	2.0	.49	.03	.08
30	.26	.28	e.27	e5.0	---	2.3	1.8	5.7	1.8	.43	.02	.08
31	.25	---	e.16	e2.5	---	2.3	---	18	---	.40	.02	---
TOTAL	8.72	11.52	6.81	16.81	208.93	163.6	117.5	235.5	165.4	34.01	4.92	3.15
MEAN	.28	.38	.22	.54	7.46	5.28	3.92	7.60	5.51	1.10	.16	.11
MAX	.54	.70	.60	5.0	55	15	17	26	15	3.1	.49	.61
MIN	.19	.22	.07	.05	.40	2.3	1.8	1.6	1.8	.40	.02	.00
AC-FT	17	23	14	33	414	325	233	467	328	67	9.8	6.2

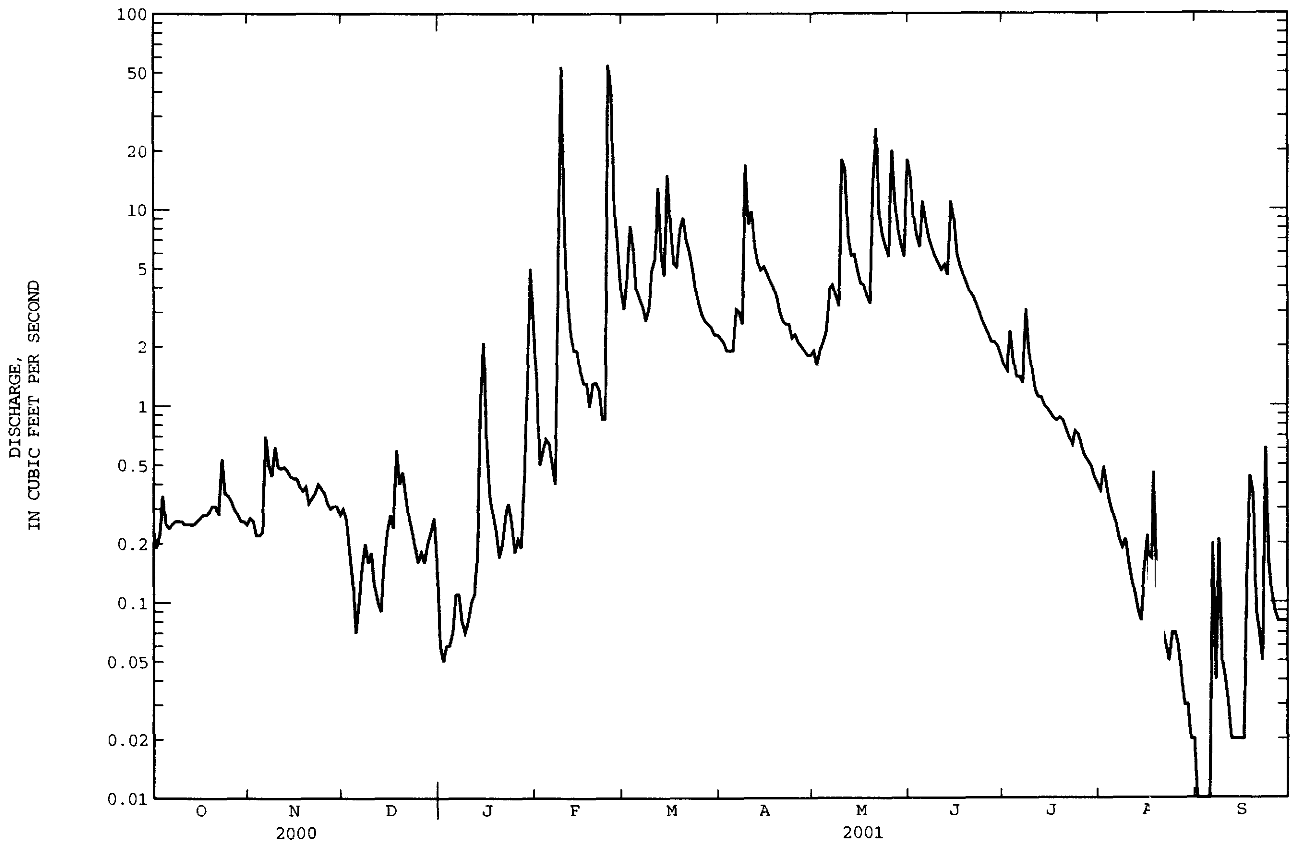
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	.28	.38	.22	.54	7.46	5.28	3.92	6.14	4.52	1.53	.25	.19
MAX	.28	.38	.22	.54	7.46	5.28	3.92	7.60	5.51	1.97	.34	.28
(WY)	2001	2001	2001	2001	2001	2001	2001	2001	2001	2000	2000	2000
MIN	.28	.38	.22	.54	7.46	5.28	3.92	4.69	3.53	1.10	.16	.11
(WY)	2001	2001	2001	2001	2001	2001	2001	2000	2000	2001	2001	2001

05464942 HOOVER CREEK AT HOOVER NATIONAL HISTORIC SITE AT WEST BRANCH, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 2000 - 2001	
ANNUAL TOTAL			976.87			
ANNUAL MEAN			2.68		2.68	
HIGHEST ANNUAL MEAN					2.68	2001
LOWEST ANNUAL MEAN					2.68	2001
HIGHEST DAILY MEAN	78	May 31	55	Feb 24	78	May 31 2000
LOWEST DAILY MEAN	.04	Sep 6	.00	Sep 5	.00	Sep 5 2001
ANNUAL SEVEN-DAY MINIMUM	.05	Sep 3	.01	Aug 30	.01	Aug 30 2001
MAXIMUM PEAK FLOW			204	May 10	207	May 31 2000
MAXIMUM PEAK STAGE			6.47	Feb 24	6.92	May 31 2000
INSTANTANEOUS LOW FLOW			.00	Sep 4a	.00	Sep 4 2001b
ANNUAL RUNOFF (AC-FT)			1940		1940	
10 PERCENT EXCEEDS	2.6		6.5		6.1	
50 PERCENT EXCEEDS	.36		.60		.56	
90 PERCENT EXCEEDS	.11		.08		.08	

a Also Sept. 5, 6.
b Also Sept. 5, 6, 2001.
e Estimated.



05465000 CEDAR RIVER NEAR CONESVILLE, IA

LOCATION.--Lat 41°24'36", long 91°17'06", in SW¼ SW¼ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1660	1560	e1600	e920	e1200	5020	11200	10400	18300	8080	5850	2180
2	1640	1540	e1400	e1000	e1100	4450	11500	9950	20300	7590	5140	2100
3	1610	1590	e1200	e1100	e1200	4720	12500	9510	18800	7410	4760	2070
4	1700	1630	e1300	e1400	e1400	5080	14100	9800	16300	7200	4440	2020
5	1750	1640	e1000	e1300	e1600	4660	16200	10800	15300	6990	4130	1960
6	1700	1650	e880	e1400	e1700	4170	18500	13400	15800	6970	3940	1940
7	1700	1760	e700	e1400	e1600	3850	20900	17000	18500	6290	3730	1950
8	1580	2120	e800	e1400	e1900	3630	22900	20500	16500	6150	3540	2080
9	1560	2330	e900	e1300	e2200	3460	24300	23900	14400	7110	3390	2260
10	1520	2450	e1000	e1200	e1800	3470	25800	27100	13400	6090	3240	2440
11	1500	2530	e940	e1500	e2400	4120	27400	30400	12300	5550	3100	2870
12	1480	2730	e880	e1400	e2900	4910	30000	30500	11600	5200	2980	3400
13	1480	2880	e840	e1500	e3400	7050	33200	28200	11500	4930	2870	3250
14	1500	2830	e820	e1400	e3000	9790	35400	26200	11200	4700	2760	2840
15	1490	2740	e1100	e1400	e2600	10900	33800	24600	14300	4510	2680	2560
16	1470	2650	e1200	e1100	e2300	15100	30300	21800	15500	4330	2730	2380
17	1470	2540	e1400	e1000	e1900	15300	29500	18400	14600	4170	2800	2280
18	1470	2460	e1200	e1100	e2100	13000	34600	15900	14000	4030	2720	2320
19	1460	2410	e950	e970	e2300	12400	37600	13800	14600	3920	2720	2750
20	1440	2370	e1000	e850	e2000	11900	32900	12400	16300	3870	2690	2910
21	1440	e1800	e1100	e910	e1700	11500	27600	12900	18000	3990	2630	2630
22	1430	e1500	e1100	e1000	e1900	13200	23400	13900	19000	3970	2530	2410
23	1470	e1300	e1200	e1300	e2200	15000	19500	11600	17600	4150	2490	2410
24	1570	e1400	e960	e1200	e2600	16900	16600	10700	15600	5070	2440	2510
25	1670	e1500	e780	e1000	e3400	17700	14900	10800	14000	4760	2430	2470
26	1580	e1600	e680	e1200	e4800	18200	13700	11500	12400	5890	2540	2320
27	1560	e1700	e660	e1100	e6200	18700	13000	13300	11200	7720	2630	2400
28	1530	e1800	e900	e1200	e5600	17200	12300	12700	10200	7790	2480	2000
29	1540	e1800	e1100	e1300	---	14200	11700	12600	9420	7150	2350	2160
30	1550	e1700	e1200	e1400	---	12600	10900	13300	8700	6680	2280	2200
31	1570	---	e1100	e1300	---	11600	---	14800	---	6370	2240	---
TOTAL	48090	60510	31890	37550	69000	313780	666200	512660	439620	178630	97250	72070
MEAN	1551	2017	1029	1211	2464	10120	22210	16540	14650	5762	3137	2402
MAX	1750	2880	1600	1500	6200	18700	37600	30500	20300	8080	5850	3400
MIN	1430	1300	660	850	1100	3460	10900	9510	8700	3870	2240	1940
AC-FT	95390	120000	63250	74480	136900	622400	1321000	1017000	872000	354300	192900	143000
CFSM	.20	.26	.13	.16	.32	1.30	2.85	2.12	1.88	.74	.40	.31
IN.	.23	.29	.15	.18	.33	1.50	3.18	2.45	2.10	.85	.46	.34

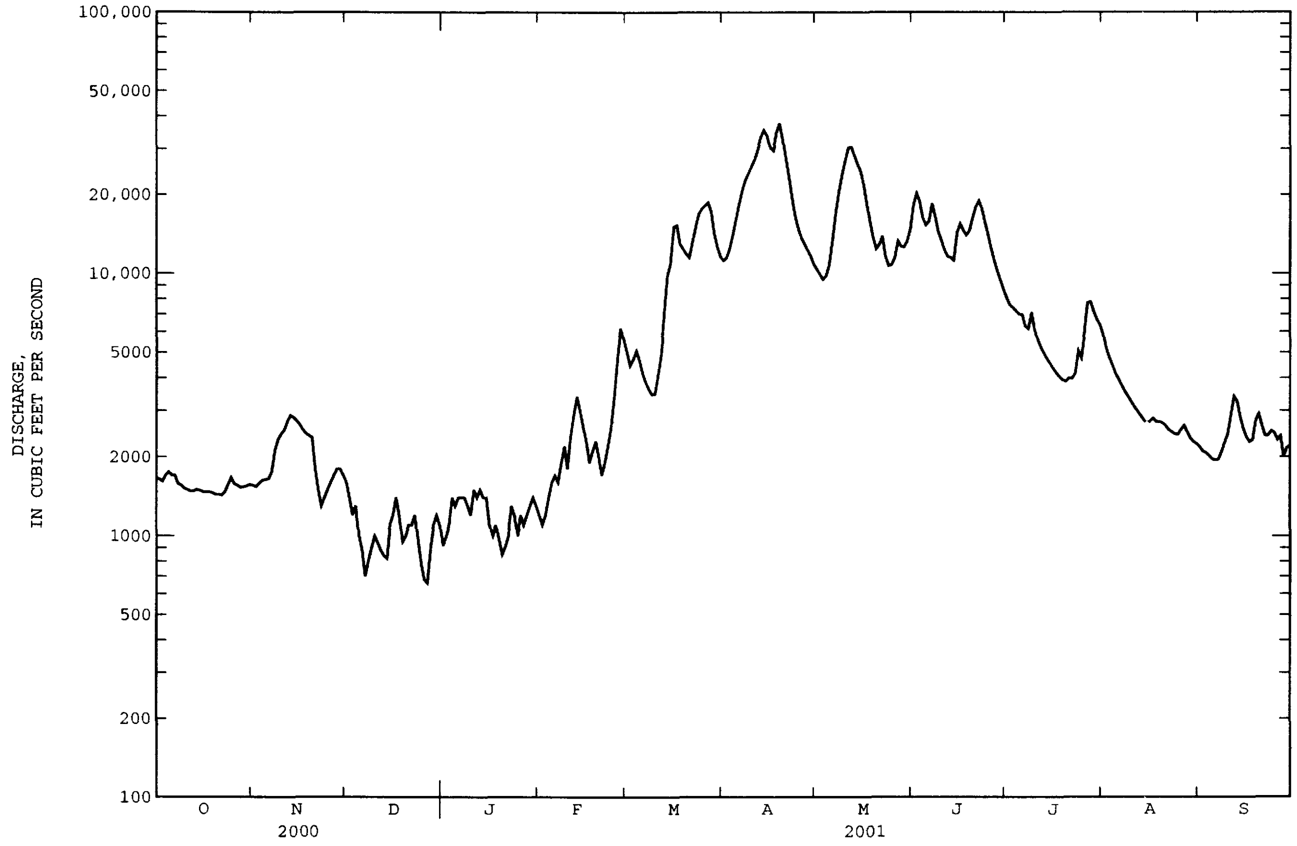
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3118	3317	2591	2382	3257	8075	9701	7681	8317	6539	4219	3289
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1940 - 2001	
ANNUAL TOTAL	1555300		2527250			
ANNUAL MEAN	4249		6924		5211	
HIGHEST ANNUAL MEAN					18710	1993
LOWEST ANNUAL MEAN					1176	1956
HIGHEST DAILY MEAN	28800	Jul 18	37600	Apr 19	69800	Apr 6 1993
LOWEST DAILY MEAN	660	Dec 27	660	Dec 27	250	Nov 28 1955
ANNUAL SEVEN-DAY MINIMUM	866	Dec 7	866	Dec 7	329	Jan 30 1940
MAXIMUM PEAK FLOW			38500	Apr 19	74000	Apr 6 1993
MAXIMUM PEAK STAGE			15.20	Apr 19	17.11	Apr 6 1993
ANNUAL RUNOFF (AC-FT)	3085000		5013000		3775000	
ANNUAL RUNOFF (CFSM)	.55		.89		.67	
ANNUAL RUNOFF (INCHES)	7.43		12.07		9.09	
10 PERCENT EXCEEDS	11800		17800		12000	
50 PERCENT EXCEEDS	2220		2750		3160	
90 PERCENT EXCEEDS	1100		1200		932	

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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2910	2370	e2400	e1400	e3000	15400	23500	19700	29700	15500	9190	3090
2	2810	2360	e2200	e1500	e2700	11900	23100	18500	33100	14700	8460	2930
3	2750	2340	e1900	e1600	e2400	10700	23100	16800	33100	13900	7840	2810
4	2960	2420	e1700	e1800	e2300	11500	23500	18100	29300	13100	7400	2660
5	3110	2490	e1600	e1800	e2300	11700	24400	18200	26600	11900	6690	2550
6	3050	2570	e1400	e1900	e2400	10200	26200	20000	29000	10700	5850	2510
7	2860	2600	e1300	e2000	e2600	8520	28000	23400	30300	9300	5360	2500
8	2740	3060	e1200	e2000	e2400	7370	29600	26000	29400	8580	5080	2610
9	2580	3700	e1600	e1800	e2700	6900	31400	28300	25900	9250	4880	2720
10	2500	3780	e1900	e1700	e6000	6640	33000	31400	23500	9740	4730	3110
11	2440	3830	e2000	e1800	e8200	7680	34100	37900	21900	9130	4520	3360
12	2320	3920	e2300	e2000	e9000	10200	35200	41400	20500	8080	4320	3910
13	2260	4060	e3000	e2000	e8000	14200	37900	38500	20000	7380	3960	4570
14	2210	4160	e3600	e1900	e6500	18600	41200	36600	19500	6730	3710	4380
15	2220	4420	e2800	e1900	e5800	21300	42600	39500	22300	6430	3480	3890
16	2190	4380	e2300	e2000	e4800	26900	40300	36200	27900	6170	3500	3440
17	2180	4120	e2000	e1800	e4000	30800	36500	33800	27700	5970	3570	3190
18	2180	4010	e1900	e1800	e3600	31700	36100	30400	24700	5720	3870	3100
19	2150	3760	e1600	e1700	e3800	29400	39800	25200	23100	5500	3740	3980
20	2110	3650	e1400	e1700	e3800	27000	42200	21900	23700	5410	3650	3930
21	2080	e2400	e1500	e1800	e3500	26600	37400	21000	25200	5530	3610	4140
22	2080	e2100	e1700	e1900	e3300	27500	32800	23000	26400	5570	3540	3590
23	2100	e1900	e1800	e1800	e3600	29100	27000	21200	26800	5620	3420	e3200
24	2230	e1700	e2000	e1800	e5000	30000	21900	19100	25200	6050	3340	e3100
25	2510	e2000	e1500	e1600	e8000	30000	18800	18800	23000	6760	3290	e3400
26	2540	e2200	e1300	e1700	e13000	28800	17100	19600	21100	7080	3320	e3300
27	2410	e2300	e1200	e1600	e16000	28800	16500	24200	19500	8530	3560	3270
28	2390	e2400	e1400	e1700	21400	29400	18900	25300	18300	10500	3620	3310
29	2350	e2600	e1600	e2100	---	28300	20800	22700	17300	9950	3540	3090
30	2340	e2600	e1700	e2400	---	25900	20500	21800	16300	9440	3400	3160
31	2340	---	e1600	e2600	---	24400	---	23200	---	9330	3220	---
TOTAL	75900	90200	57400	57100	160100	627410	883400	801700	740300	267550	141660	98800
MEAN	2448	3007	1852	1842	5718	20240	29450	25860	24680	8631	4570	3293
MAX	3110	4420	3600	2600	21400	31700	42600	41400	33100	15500	9190	4570
MIN	2080	1700	1200	1400	2300	6640	16500	16800	16300	5410	3220	2500
AC-FT	150500	178900	113900	113300	317600	1244000	1752000	1590000	1468000	530700	281000	196000
CFSM	.20	.24	.15	.15	.46	1.62	2.36	2.07	1.97	.69	.37	.26
IN.	.23	.27	.17	.17	.48	1.87	2.63	2.39	2.20	.80	.42	.29

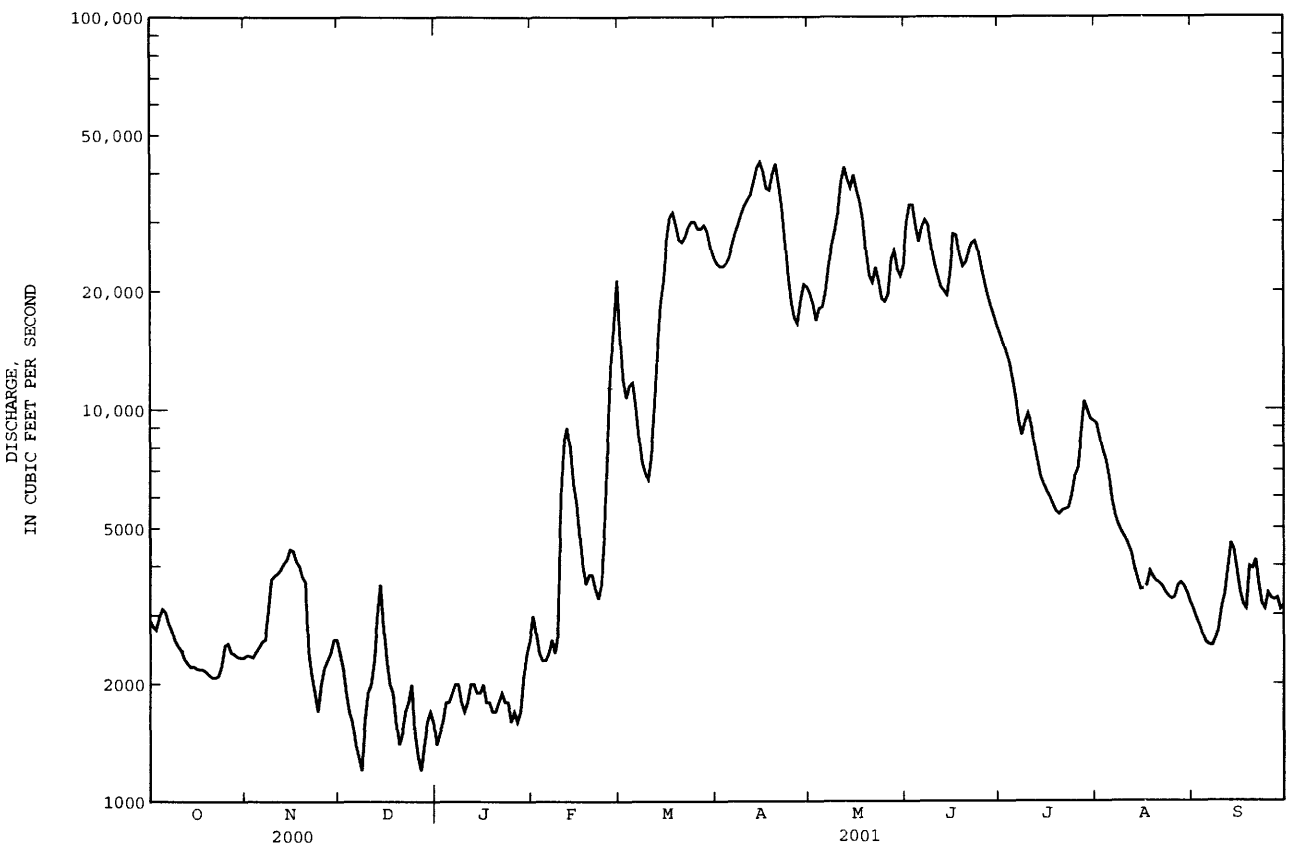
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5454	6087	5259	4443	6277	13670	16630	14020	14190	12510	7920	6032
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1959 - 2001a	
ANNUAL TOTAL	2222650		4001520			
ANNUAL MEAN	6073		10960		9381	
HIGHEST ANNUAL MEAN					30550	1993
LOWEST ANNUAL MEAN					1908	1989
HIGHEST DAILY MEAN	33900	Jul 19	42600	Apr 15	106000	Jul 8 1993
LOWEST DAILY MEAN	950	Jan 21	1200	Dec 8b	460	Jan 21 1977
ANNUAL SEVEN-DAY MINIMUM	1060	Jan 20	1460	Dec 26	470	Jan 20 1977
MAXIMUM PEAK FLOW			42900	Apr 20	111000	Jul 8 1993
MAXIMUM PEAK STAGE			22.75	Apr 20	29.53	Jul 7 1993
ANNUAL RUNOFF (AC-FT)	4409000		7937000		6796000	
ANNUAL RUNOFF (CFSM)	.49		.88		.75	
ANNUAL RUNOFF (INCHES)	6.61		11.91		10.20	
10 PERCENT EXCEEDS	17900		29200		21500	
50 PERCENT EXCEEDS	3200		4140		6000	
90 PERCENT EXCEEDS	1370		1800		1720	

a Post regulation.
b Also Dec. 27.
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, 724 microsiemens Nov. 14; minimum daily, 333 microsiemens Apr. 17.
WATER TEMPERATURES: Maximum daily, 30.0°C, July 14, 16, 17, 25; minimum daily, 0.0°C Jan. 4 and Feb. 1.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 765 mg/L Mar. 16; minimum daily mean, 6 mg/L Jan. 3, 4.
SEDIMENT LOADS: Maximum daily, 55,600 tons Mar. 16; minimum daily, 26 tons Dec. 27.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE WATER (DEG F) (00011)	TEMPER-ATURE AIR (DEG C) (00020)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	GAGE HEIGHT (FEET) (00065)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	SAMPLE TREAT-MENT (CODES) (00115)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT 03...	0910	17.3	--	15.0	748	1028	80020	2740	10.94	478	1	9.1	97
NOV 01...	0906	15.2	--	14.0	748	1028	80020	2360	10.67	528	1	9.7	99
DEC 06...	0945	.00	--	-5.0	754	1028	80020	2320	10.64	665	1	13.1	91
JAN 04...	1015	.00	--	-3.0	751	1028	80020	3890	11.62	665	--	9.5	66
FEB 01...	0830	.00	--	-5.0	753	1028	80020	8490	13.71	522	1	10.5	73
MAR 02...	1000	.2	--	5.0	743	1028	80020	12000	15.29	405	1	11.8	83
APR 02...	0940	5.9	--	12.0	747	1028	80020	22100	18.48	444	1	10.9	89
MAY 01...	1015	17.9	1.0	21.0	754	1028	80020	19600	17.94	510	--	9.6	102
JUN 05...	1100	15.6	--	20.0	742	1028	80020	26300	19.44	526	1	9.2	94
JUL 06...	0920	25.2	--	28.0	751	1028	80020	10800	15.24	502	1	8.8	107
AUG 01...	0915	29.0	--	32.8	754	1028	80020	9410	14.65	509	1	6.9	90
SEP 06...	1130	24.5	--	--	746	1028	80020	2420	11.44	461	1	10.2	125

DATE	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)
OCT 03...	8.6	8.1	5	145	<.020	.011	.36	2.0	1.17	.284	.011	<.010	3.4
NOV 01...	8.5	8.3	13	153	<.041	.012	.40	2.5	.518	.317	.020	<.018	3.3
DEC 06...	8.1	8.1	.0	273	.469	.008	.90	1.3	4.87	.258	.187	.187	3.3
JAN 04...	7.4	7.7	.0	288	.736	.017	1.2	1.3	4.54	.284	.246	.228	2.8
FEB 01...	7.4	7.4	.0	194	.671	.035	1.3	1.7	4.49	.493	.369	.346	6.0
MAR 02...	7.8	7.5	.0	156	.453	.030	.95	1.5	4.80	.437	.189	.170	4.2
APR 02...	8.0	7.8	.0	198	.202	.033	.74	1.2	7.50	.743	.197	.181	4.2
MAY 01...	8.3	8.2	.0	100	<.041	.035	.46	1.1	5.10	.265	.121	.087	4.1
JUN 05...	8.0	8.0	.0	217	<.040	.026	.41	.91	11.6	.257	.114	.093	3.2
JUL 06...	8.1	8.0	.0	154	E.029	.031	.32	1.9	8.15	.257	.059	.034	3.1
AUG 01...	8.2	7.9	3	208	<.040	.020	.34	1.1	5.75	.312	.181	.158	3.2
SEP 06...	8.8	8.7	8	117	<.040	.015	.35	2.2	.177	.110	.017	<.020	3.4

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	CARBON, INOR-GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	CARBON, ORGANIC PARTIC-ULATE TOTAL (MG/L AS C) (00689)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
OCT 03...	.8	9.2	9.9	35.0	21.1	27.7	3.10	39.4	45.0	.2	.7	<10	<2.2
NOV 01...	.6	8.4	9.0	37.4	22.1	35.7	3.12	46.9	49.5	.3	<.1	<10	<3.2
DEC 06...	<.1	1.1	1.1	76.6	25.0	31.0	3.00	44.4	49.8	.2	10.4	M	40.0
JAN 04...	<.1	.6	.6	70.3	22.8	30.0	2.99	41.4	49.5	.2	10.4	M	36.4
FEB 01...	<.1	1.9	1.9	46.9	16.7	28.4	4.95	47.7	30.9	.2	8.1	20	30.1
MAR 02...	<.1	2.2	2.2	44.6	14.1	12.4	3.36	20.1	25.5	.2	8.3	20	25.5
APR 02...	<.1	3.6	3.6	52.7	15.2	7.4	3.33	15.6	25.1	.2	10.9	<10	4.6
MAY 01...	<.1	1.9	1.9	65.4	18.2	8.6	2.37	17.8	27.8	.3	9.9	<10	<3.2
JUN 05...	<.1	2.6	2.6	58.1	17.0	7.6	1.80	18.0	24.0	.3	10.3	<10	<3.0
JUL 06...	.7	7.5	8.2	55.8	19.8	10.8	1.91	20.5	29.4	.3	8.6	<10	<3.0
AUG 01...	.3	4.7	5.1	64.3	19.3	11.9	2.71	20.3	29.0	.2	12.9	<10	<3.0
SEP 06...	<.1	8.6	8.6	30.4	20.4	27.4	2.73	40.5	47.0	.2	.6	M	E2.3

DATE	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)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	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)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	LINDANE DIS-SOLVED (UG/L) (39341)	DI-ELDRIN DIS-SOLVED (UG/L) (39381)
OCT 03...	<.010	<.002	<.011	E.011	E.067	<.018	<.003	<.005	<.003	<.005	129	<.004	<.005
NOV 01...	<.010	<.002	<.011	E.010	E.065	<.018	<.003	<.005	<.003	<.005	149	<.004	<.005
DEC 06...	<.010	<.002	E.003	E.008	E.058	<.018	<.003	<.005	<.003	<.005	227	<.004	<.005
JAN 04...	<.010	<.002	<.011	E.005	E.059	<.018	<.003	<.005	<.003	<.005	236	<.004	<.005
FEB 01...	<.010	<.002	<.011	<.015	E.051	.043	<.003	<.005	<.003	<.005	161	<.004	<.005
MAR 02...	<.010	<.002	<.011	E.004	E.022	<.018	<.003	<.005	<.003	<.005	130	<.004	<.005
APR 02...	<.010	<.002	<.011	E.005	E.049	E.011	<.003	<.005	<.003	<.005	164	<.004	<.005
MAY 01...	<.010	<.002	E.003	E.005	E.036	<.018	<.003	<.005	<.003	<.005	82	<.004	<.005
JUN 05...	<.010	<.002	E.007	E.004	E.116	E.009	<.003	<.005	<.003	<.005	178	<.004	<.005
JUL 06...	<.010	<.002	E.005	E.008	E.050	<.018	<.003	<.005	<.003	<.005	156	<.004	<.005
AUG 01...	--	--	--	--	--	--	--	--	--	--	176	--	--
SEP 06...	<.010	<.002	E.005	E.011	<.006	<.018	<.003	<.005	E.001	<.005	110	<.004	<.005

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	METOLACHLOR WATER DISSOLV (UG/L) (39415)	MALATHION, DISSOLVED (UG/L) (39532)	PARATHION, DISSOLVED (UG/L) (39542)	DIAZINON, DISSOLVED (UG/L) (39572)	ATRAZINE, WATER, DISS, REC (UG/L) (39632)	ALACHLOR, WATER, DISS, REC, (UG/L) (46342)	ACETOCHLOR, WATER FLTRD REC (UG/L) (49260)	NITROGEN, PARTICULTE WAT FLT SUSP (MG/L AS N) (49570)	PURPOSE SITE VISIT, (CODE) (50280)	TURBIDITY FIELD WATER UNFLTRD (NTU) (61028)	PHEOPHYTIN A, PHYTOPHYTON (UG/L) (62360)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)
OCT 03...	.030	<.027	<.007	<.005	.133	<.002	<.004	1.6	1001	--	--	274	--
NOV 01...	.022	<.027	<.007	<.005	.102	<.002	<.004	1.7	1001	--	58	301	246
DEC 06...	.586	<.027	<.007	<.005	.831	<.002	<.004	.184	1001	--	3.7	404	8.3
JAN 04...	.024	<.027	<.007	<.005	.080	<.002	<.004	.076	1001	--	2.5	402	1.7
FEB 01...	.026	<.027	<.007	<.005	.088	<.002	.012	.243	1001	--	5.4	310	4.5
MAR 02...	.052	<.027	<.007	<.005	.058	<.002	<.004	.272	1001	--	3.4	230	2.9
APR 02...	.910	<.027	<.007	<.005	.068	.138	.015	.470	1001	--	8.8	257	5.0
MAY 01...	.255	<.027	<.007	<.005	.182	E.004	.075	.330	1001	--	11	319	37.1
JUN 05...	.538	<.027	<.007	<.005	.981	.024	.390	.418	1001	86	7.9	322	20.4
JUL 06...	.154	<.027	<.007	E.004	.787	<.002	.052	1.0	1001	110	69	343	57.5
AUG 01...	--	--	--	--	--	--	--	.635	1001	86	29	309	39.8
SEP 06...	.030	<.027	<.007	E.003	.198	<.005	<.007	1.5	1001	--	79	254	161

DATE	SAMPLE PURPOSE CODE (71999)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)	SEDIMENT, SUSPENDED (MG/L) (80154)	DRAINAGE AREA (SQ. MI.) (81024)	SAMPLING METHOD, CODES (82398)	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)
OCT 03...	15.00	538.17	55	12500	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006
NOV 01...	15.00	538.17	61	12500	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006
DEC 06...	15.00	538.17	18	12500	70	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006
JAN 04...	15.00	538.17	6	12500	70	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006
FEB 01...	15.00	538.17	29	12500	70	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006
MAR 02...	15.00	538.17	153	12500	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006
APR 02...	15.00	538.17	103	12500	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006
MAY 01...	15.00	538.17	91	12500	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006
JUN 05...	15.00	538.17	106	12500	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006
JUL 06...	15.00	538.17	141	12500	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006
AUG 01...	15.00	538.17	2650	12500	10	--	--	--	--	--	--	--	--
SEP 06...	15.00	538.17	55	12500	10	<.006	<.002	<.009	<.009	<.011	<.034	<.035	<.006

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	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)	CAR-BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)
OCT 03...	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041
NOV 01...	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041
DEC 06...	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041
JAN 04...	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041
FEB 01...	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041
MAR 02...	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041
APR 02...	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041
MAY 01...	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041
JUN 05...	<.002	<.002	<.016	<.002	<.005	<.010	E.004	<.017	<.004	<.021	<.002	<.011	<.041
JUL 06...	<.002	<.002	<.016	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041
AUG 01...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	<.002	<.002	E.010	<.002	<.005	<.010	<.020	<.017	<.004	<.021	<.002	<.011	<.041

DATE	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)	SAMPLER TYPE (CODE) (84164)	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)	QUALITY ASSUR-ANCE DATA INDICA-TOR CODE (99111)	SET NUMBER SCHED-ULE 2001 (NO.) (99818)
OCT 03...	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3039	485	89	82	30	--
NOV 01...	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3039	527	89	87	--	--
DEC 06...	<.005	<.003	<.010	<.007	<.023	<.050	<.006	8010	688	91	89	--	--
JAN 04...	<.005	<.003	<.010	<.007	<.023	<.050	<.006	--	695	95	79	--	--
FEB 01...	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3060	544	89	86	--	--
MAR 02...	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3039	427	83	83	--	--
APR 02...	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3039	457	96	86	--	--
MAY 01...	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3039	513	92	86	--	--
JUN 05...	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3039	535	82	66	--	--
JUL 06...	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3039	502	100	89	--	--
AUG 01...	--	--	--	--	--	--	--	3039	525	--	--	--	--
SEP 06...	<.005	<.003	<.010	<.007	<.023	<.050	<.006	3039	447	106	107	--	2.00E+08

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	SET NUMBER SCHED- ULE 2010 (NO.) (99819)	SAMPLE VOLUME SCHED- ULE 2001 (ML) (99856)	SAMPLE VOLUME SCHED- ULE 2010 (ML) (99857)	TURBID- ITY LAB HACH 2100AN (NTU) (99872)
OCT				
03...	7.03	--	952	--
NOV				
01...	2.03	--	943	33
DEC				
06...	1.03	--	892	10
JAN				
04...	1.10	--	925	3.5
FEB				
01...	1.10	--	943	--
MAR				
02...	3.11	--	934	52
APR				
02...	1.11	--	943	57
MAY				
01...	1.11	--	952	69
JUN				
05...	2.00E+08	--	907	50
JUL				
06...	2.00E+08	--	901	52
AUG				
01...	--	--	--	53
SEP				
06...	--	924	--	26

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						
03...	0900	17.3	2740	65	481	98
NOV						
01...	1240	15.2	2360	98	624	99
MAR						
07...	1040	1.3	8500	136	3120	95
APR						
02...	0940	5.9	22100	103	6130	--
16...	1125	12.0	42200	282	32100	21
MAY						
01...	1015	17.9	19600	91	4840	--
JUN						
05...	0855	--	26200	756	53500	15
JUL						
06...	0940	--	10800	171	4990	97
AUG						
01...	0915	29.0	9410	2650	67300	--
SEP						
06...	1000	24.5	2420	110	719	97

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)
OCT											
03...	0900	5	1	4	8	35	70	87	95	99	100
NOV											
01...	1240	5	4	7	11	31	69	88	96	99	100
APR											
02...	0940	5	--	.0	3	36	73	89	96	99	100
16...	1125	5	--	.0	2	38	72	88	96	99	100
MAY											
01...	1015	5	--	.0	11	58	87	94	98	100	--
JUL											
06...	0940	5	--	.0	7	40	75	92	98	100	--
AUG											
01...	0915	5	.0	1	9	35	67	81	89	96	100
SEP											
06...	1000	4	2	4	10	33	77	88	95	100	--

05465500 IOWA RIVER AT WAPELLO, IA--Continued

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	542	---	---	538	---	---	507	---	---	522	---
2	---	---	---	---	---	419	453	484	---	---	---	---
3	504	---	---	---	---	---	456	---	498	---	---	---
4	---	---	---	677	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	415	---	526	---	---	---
6	---	525	676	---	---	---	403	---	421	498	---	431
7	---	---	---	---	---	440	401	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	497	---	---	---	---	---	---	469	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	415	465	---	---
12	---	---	---	---	---	---	---	---	418	---	---	---
13	---	---	---	---	---	---	---	445	---	---	---	---
14	477	724	---	---	---	---	373	---	---	415	---	---
15	520	---	---	---	---	---	---	447	---	---	---	---
16	---	---	---	---	---	390	410	---	---	406	---	---
17	529	714	---	---	---	364	333	464	---	433	---	---
18	---	689	---	---	---	339	---	---	---	---	---	---
19	---	---	---	---	---	354	381	---	---	---	---	---
20	---	685	---	---	---	363	411	496	---	---	---	---
21	566	---	---	---	---	---	433	---	---	---	---	---
22	563	---	---	---	---	385	461	---	---	---	---	---
23	552	648	---	---	---	---	501	---	431	430	---	---
24	485	643	---	---	---	---	487	---	---	---	---	---
25	551	---	---	---	---	---	---	522	453	426	---	---
26	---	636	---	---	---	375	---	---	437	---	---	---
27	459	---	---	---	---	441	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	534	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	.0	---	---	18.2	---	---	---	---
2	---	---	---	---	---	.1	12.0	---	---	---	---	---
3	17.3	---	---	---	---	---	12.0	---	21.0	---	---	---
4	---	---	---	.0	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	12.0	---	---	---	---	---
6	---	---	---	---	---	---	20.0	---	21.0	---	---	24.5
7	---	---	---	---	---	1.7	22.0	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	21.0	3.0	---	---	---	---	12.0	---	---	30.0	---	---
15	20.0	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	4.0	12.0	---	---	30.0	---	---
17	21.0	2.0	---	---	---	---	13.0	25.0	---	30.0	---	---
18	---	2.0	---	---	---	4.0	---	---	---	---	---	---
19	---	---	---	---	---	---	17.0	---	---	---	---	---
20	---	2.0	---	---	---	---	19.0	25.0	---	---	---	---
21	---	---	---	---	---	---	22.0	---	---	---	---	---
22	21.0	---	---	---	---	4.0	23.0	---	---	---	---	---
23	---	1.5	---	---	---	---	---	---	28.0	---	---	---
24	---	2.0	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	25.0	28.0	30.0	---	---
26	---	2.0	---	---	---	4.0	---	---	28.0	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	24.0	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

05465500 IOWA RIVER AT WAPELLO, IA--Continued

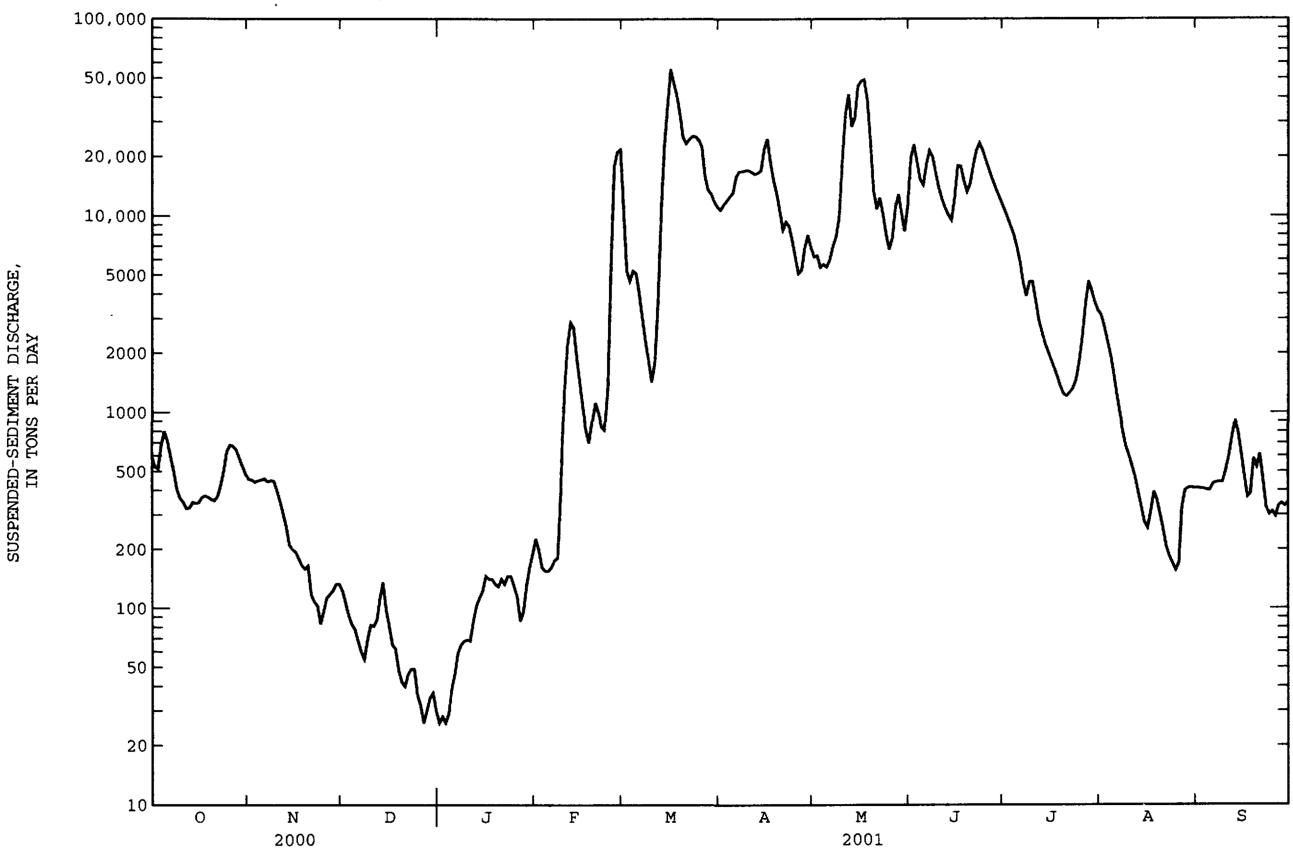
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

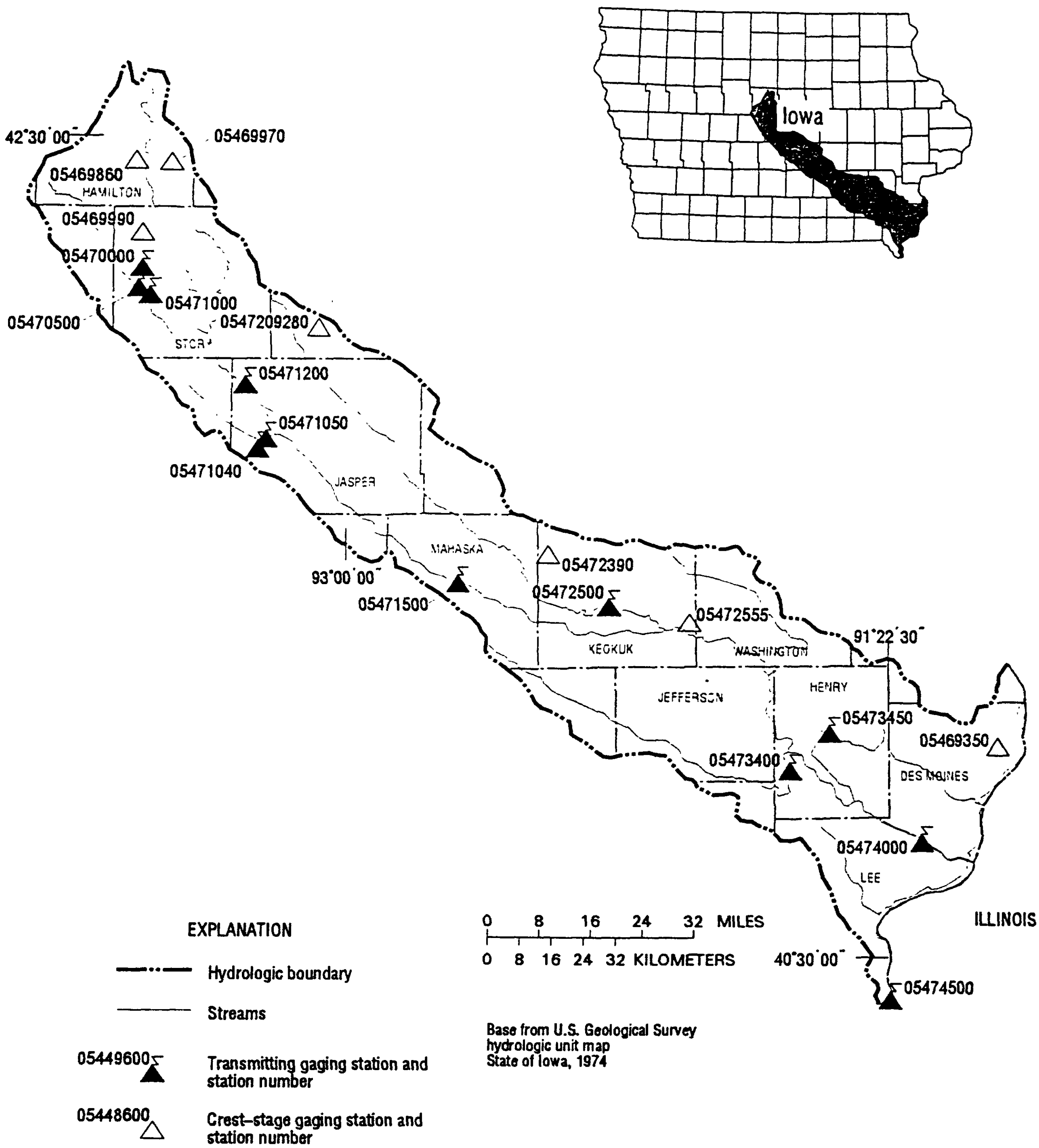
DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	76	597	71	457	19	123	7	26	28	227	258	10800
2	69	527	71	453	18	107	7	28	27	197	164	5290
3	69	516	70	441	18	92	6	26	25	162	162	4670
4	84	677	69	449	18	83	6	29	25	155	170	5260
5	96	802	68	453	18	78	8	39	25	155	162	5100
6	87	715	66	461	18	68	9	46	25	162	146	4010
7	77	597	63	444	17	60	11	59	25	176	131	3020
8	68	501	55	449	17	55	12	65	28	181	115	2300
9	58	406	45	448	16	69	14	68	53	386	98	1820
10	54	365	39	402	16	82	15	69	77	1250	80	1430
11	53	349	34	355	15	81	14	68	99	2190	86	1800
12	52	324	29	307	14	87	16	86	118	2870	130	3620
13	53	326	24	262	14	113	19	103	125	2700	266	10400
14	58	349	19	211	14	136	22	113	108	1900	440	22300
15	57	344	17	200	13	98	24	123	90	1410	613	35400
16	59	347	16	194	13	81	27	146	81	1050	765	55600
17	63	369	16	179	12	65	29	141	76	821	572	47500
18	64	376	15	166	12	62	29	141	72	700	480	41200
19	64	370	16	159	11	48	29	133	88	903	416	33100
20	63	361	17	165	11	42	28	129	109	1120	345	25100
21	63	355	18	117	10	40	29	141	105	992	324	23300
22	66	373	19	108	10	46	26	133	95	846	330	24500
23	75	424	20	103	10	49	30	146	84	816	323	25400
24	84	505	18	83	9	49	30	146	99	1340	312	25300
25	94	635	18	97	9	36	30	130	267	5770	301	24300
26	100	683	19	113	9	32	25	115	511	17900	287	22400
27	104	675	19	118	8	26	20	86	489	21100	206	16000
28	100	645	19	123	8	30	21	96	374	21800	170	13500
29	92	585	19	133	8	35	23	130	---	---	169	12900
30	84	533	19	133	8	37	25	162	---	---	169	11800
31	77	485	---	---	7	30	27	190	---	---	169	11100
TOTAL	---	15116	---	7783	---	2040	---	3113	---	89279	---	530220

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	168	10700	109	6190	240	19700	238	10700	115	3140	42	411
2	182	11400	118	6280	254	23000	228	9760	109	2750	43	408
3	191	11900	113	5480	205	18600	219	8820	99	2330	45	407
4	197	12500	109	5660	188	15200	209	8000	90	1990	47	402
5	198	13100	105	5500	192	14300	199	6930	80	1620	48	401
6	223	15800	104	5980	227	18200	184	5800	71	1260	53	432
7	223	16800	106	7000	256	21400	166	4560	62	1010	54	439
8	211	16800	108	7820	244	19900	153	3900	52	817	52	441
9	201	17000	125	9860	226	16400	168	4620	45	676	50	441
10	191	17000	218	18900	207	13800	161	4620	42	607	51	503
11	181	16700	321	33000	193	12100	138	3740	38	535	56	592
12	171	16300	372	41500	185	10900	123	2960	35	469	61	742
13	162	16500	272	28400	177	10100	117	2580	32	391	65	910
14	153	17000	315	31300	169	9470	111	2250	28	329	59	804
15	190	21900	428	45600	192	12200	105	2040	25	274	52	628
16	226	24600	492	48300	231	17900	99	1850	23	257	44	479
17	190	18700	533	49100	232	17800	93	1690	28	313	37	371
18	156	15200	463	38900	217	15000	87	1520	33	394	39	385
19	121	13000	337	23900	202	13200	81	1360	31	357	47	583
20	93	10600	214	13400	218	14500	75	1240	26	301	43	528
21	84	8500	180	10800	254	18000	72	1210	22	250	48	613
22	106	9310	189	12300	291	21400	74	1260	18	204	40	455
23	121	8860	169	10200	313	23400	77	1320	17	183	38	328
24	123	7480	146	8030	305	21500	80	1460	16	169	36	301
25	115	6150	124	6730	295	19200	88	1800	15	156	34	312
26	104	5090	137	7700	286	17200	113	2400	16	170	33	294
27	111	5300	163	11100	276	15500	138	3510	29	327	32	334
28	127	6910	180	12800	266	14000	151	4650	35	400	33	344
29	134	7990	159	10200	257	12800	141	4140	37	410	34	333
30	118	6910	135	8350	247	11700	130	3640	38	413	34	346
31	---	---	172	11300	---	---	119	3300	40	410	---	---
TOTAL	---	386000	---	541580	---	488370	---	117630	---	22912	---	13967

YEAR 2218010

05465500 IOWA RIVER AT WAPELLO, IA--Continued




Iowa
42°30'00"
05469970
05469860
HAMILTON
05469990
05470000
05471000
05470500
05472092800
STORY
05471200
05471050
05471040
JASPER
MAHASKA
05472390
93°00'00"
05472500
05471500
05472555
KEOKUK
WASHINGTON
91°22'30"
HENRY
JEFFERSON
05473450
05469350
05473400
DES MOINES
05474000
LEE
ILLINOIS
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
40°30'00"
05474500
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

Crest Stage Gaging Stations

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	5.1	7.9	e3.6	e2.7	e4.3	558	119	516	107	23	3.3
2	2.9	4.0	7.1	e3.8	e2.7	e4.2	414	119	491	100	20	3.0
3	3.4	4.9	6.1	e4.0	e2.8	e4.0	370	158	397	93	23	2.9
4	2.8	4.0	6.6	e4.3	e2.9	e5.2	297	e326	340	89	41	2.9
5	4.2	3.8	5.7	e4.4	e3.0	e6.2	269	e390	458	84	53	2.8
6	4.6	7.4	5.2	e4.0	e2.7	e6.4	331	e400	1070	78	36	5.0
7	3.4	21	5.5	e3.5	e2.4	e5.8	395	e410	658	72	27	56
8	4.5	15	5.6	e3.9	e2.7	e5.7	331	e405	454	68	21	367
9	5.1	16	5.0	e4.3	e3.1	e13	281	328	355	63	17	315
10	7.2	e14	4.9	e4.5	e3.5	26	222	302	306	59	14	139
11	4.9	e14	3.8	e4.6	e3.7	33	304	319	275	54	12	79
12	4.1	e14	3.4	e4.0	e3.7	91	1010	278	268	48	10	54
13	4.6	e12	4.5	e5.5	e3.7	278	744	254	315	43	9.0	40
14	3.9	e12	4.8	e3.0	e3.8	520	496	259	270	37	8.3	32
15	3.0	e10	e4.0	e3.2	e3.5	944	384	240	795	34	9.6	27
16	3.9	e8.8	e3.5	e2.9	e3.0	887	299	220	770	30	14	27
17	5.2	e8.4	e3.3	e2.6	e2.8	729	244	198	476	27	18	48
18	6.9	e7.0	e3.2	e2.7	e2.6	852	214	179	365	26	25	58
19	7.0	e6.0	e3.2	e2.7	e2.9	1140	203	165	300	28	21	62
20	7.0	5.4	e3.0	e2.9	e3.3	1570	191	162	246	30	15	54
21	6.5	6.7	e2.8	e2.8	e4.3	1820	179	1000	224	40	12	48
22	7.4	6.5	e2.6	e2.7	e4.6	1860	195	1770	207	35	10	45
23	8.7	6.1	e2.5	e2.4	e4.3	1540	197	1100	186	32	10	42
24	11	6.3	e2.8	e2.5	e4.0	908	183	795	169	30	9.3	38
25	13	6.5	e3.3	e2.7	e3.6	592	164	627	e159	85	12	32
26	15	6.5	e3.0	e2.8	e4.2	419	155	745	143	115	13	29
27	12	6.9	e3.3	e3.2	e4.3	347	147	1310	131	69	9.1	27
28	3.4	9.0	e2.9	e3.1	e4.6	315	137	908	124	50	7.5	25
29	4.3	9.4	e2.8	e2.7	---	308	130	651	118	42	5.1	24
30	2.8	8.0	e2.9	e2.3	---	374	123	511	112	33	3.9	26
31	2.9	---	e3.0	e2.4	---	471	---	453	---	28	3.8	---
TOTAL	178.0	264.7	128.2	104.0	95.4	16078.8	9167	15101	10698	1729	512.6	1713.9
MEAN	5.74	8.82	4.14	3.35	3.41	519	306	487	357	55.8	16.5	57.1
MAX	15	21	7.9	5.5	4.6	1860	1010	1770	1070	115	53	367
MIN	2.4	3.8	2.5	2.3	2.4	4.0	123	119	112	26	3.8	2.8
AC-FT	353	525	254	206	189	31890	18180	29950	21220	3430	1020	3400
CFSM	.02	.03	.01	.01	.01	1.65	.97	1.55	1.13	.18	.05	.18
IN.	.02	.03	.02	.01	.01	1.90	1.08	1.78	1.26	.20	.06	.20

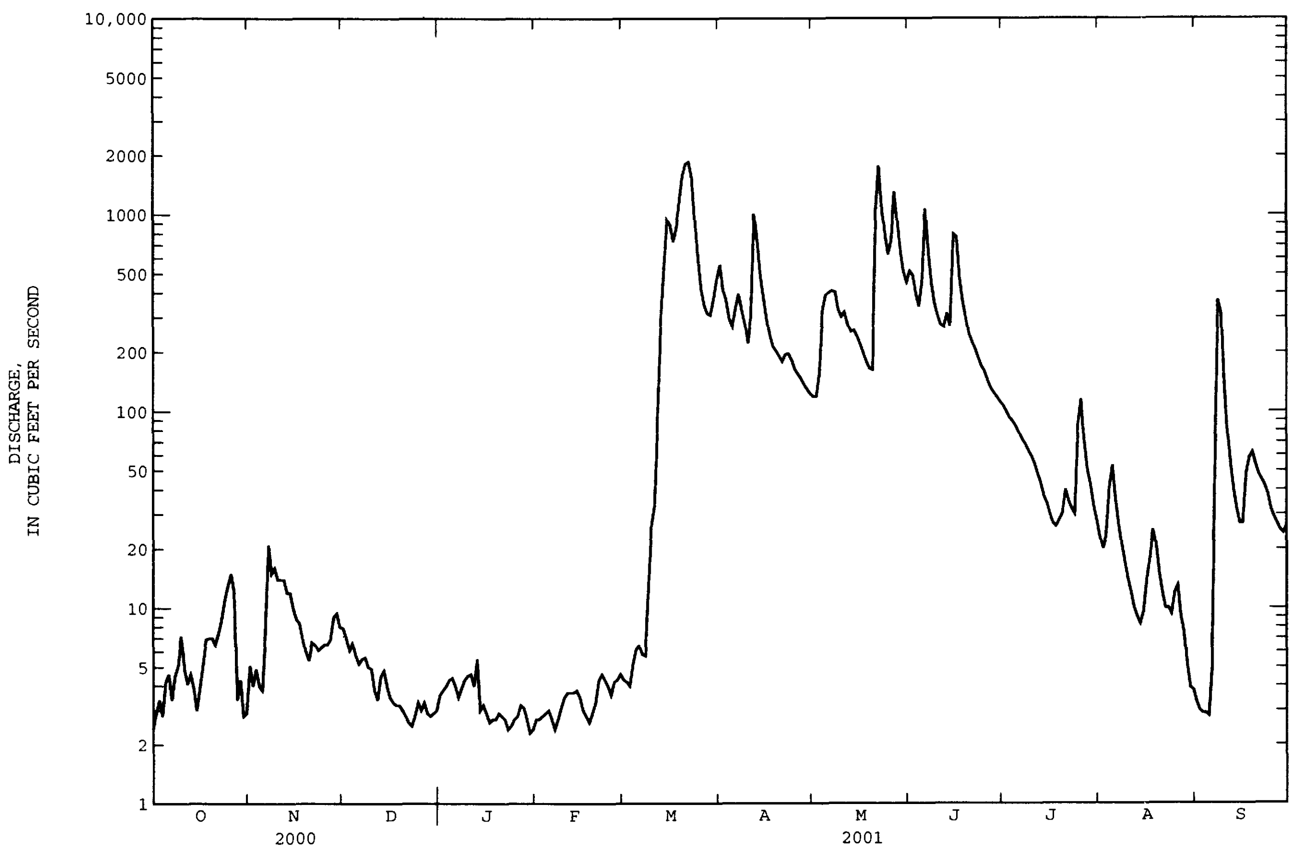
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	93.7	97.5	69.8	49.3	118	315	282	280	389	222	112	94.5
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1921 - 2001	
ANNUAL TOTAL	8000.61		55770.6			
ANNUAL MEAN	21.9		153		177	
HIGHEST ANNUAL MEAN					752	1993
LOWEST ANNUAL MEAN					5.58	1956
HIGHEST DAILY MEAN	653	Jun 15	1860	Mar 22	8980	Jul 9 1993
LOWEST DAILY MEAN	.61	Sep 15	2.3	Jan 30	.00	Jun 20 1934
ANNUAL SEVEN-DAY MINIMUM	.72	Sep 11	2.6	Jan 29	.00	Jun 20 1934
MAXIMUM PEAK FLOW			1990	May 22	11200	Aug 16 1993
MAXIMUM PEAK STAGE			5.83	Mar 22	14.23	Aug 16 1993
INSTANTANEOUS LOW FLOW			2.0	Oct 1	.00	Jun 20 1934a
ANNUAL RUNOFF (AC-FT)	15870		110600		128200	
ANNUAL RUNOFF (CFSM)	.069		.49		.56	
ANNUAL RUNOFF (INCHES)	.94		6.59		7.63	
10 PERCENT EXCEEDS	55		453		434	
50 PERCENT EXCEEDS	6.5		15		57	
90 PERCENT EXCEEDS	2.8		2.9		2.4	

a Many days in 1934, 1953-56, 1976-77.
e Estimated.



05470500 SQUAW CREEK AT AMES, IA

LOCATION.--Lat 42 01'21", long 93 37'45", in NE¼ NW¼ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.3	e1.0	e.00	e.00	e.78	183	93	330	69	8.2	.38
2	.00	1.3	e.98	e.00	e.00	e.80	146	100	313	58	7.4	e.30
3	.00	.00	e.92	e.14	e.00	e.72	135	175	261	58	39	e.27
4	.00	.00	e1.2	e.16	e.00	e.70	116	323	231	51	19	.23
5	.81	.00	e1.1	e.22	e.00	e.72	110	287	345	45	14	.00
6	.00	23	e1.2	e.18	e.00	e1.0	134	311	449	41	11	28
7	.00	6.6	e1.4	e.14	e.00	e1.1	174	375	313	38	e9.1	100
8	.00	5.1	e1.3	e.10	e.00	e1.1	151	281	237	51	7.1	279
9	.00	3.8	e1.1	e.00	e.00	e.98	173	226	199	40	5.8	145
10	.00	3.1	e.90	e.00	e.48	e1.5	142	257	182	33	4.5	71
11	.00	2.1	e.80	e.00	e.56	e10	345	351	161	29	3.5	47
12	.00	5.1	e.72	e.00	e.58	e60	549	219	177	25	2.9	32
13	.69	2.9	e.80	e.00	e.54	e150	326	235	208	22	2.9	25
14	2.6	2.8	e.84	e.00	e.50	e280	249	203	187	19	2.6	19
15	.00	1.6	e.82	e.00	e.48	e300	206	172	600	17	22	17
16	.00	2.3	e.72	e.00	e.45	993	167	152	371	15	9.4	33
17	.00	1.4	e.66	e.00	e.47	798	143	138	256	14	6.9	48
18	.00	1.8	e.56	e.00	e.49	921	129	126	207	14	28	50
19	.00	1.7	e.25	e.00	e.45	976	123	118	173	19	11	42
20	.00	.79	e.00	e.00	e.48	1070	117	141	150	16	8.2	35
21	.00	.66	e.00	e.00	e.52	984	117	838	140	18	5.9	29
22	.00	1.1	e.00	e.00	e.58	835	158	800	129	14	5.8	25
23	.00	1.7	e.00	e.00	e.66	624	145	547	118	13	4.8	21
24	.00	1.2	e.00	e.00	e.64	377	123	411	109	45	4.3	e19
25	.00	1.1	e.00	e.00	e.60	244	115	355	101	45	12	16
26	4.9	2.3	e.00	e.00	e.56	165	109	409	92	41	5.2	15
27	.19	1.6	e.00	e.00	e.54	139	101	441	85	24	4.4	14
28	.00	1.3	e.00	e.00	e.62	133	93	350	80	18	3.1	13
29	.00	e1.2	e.00	e.00	---	131	88	294	75	15	2.4	12
30	.00	e1.1	e.00	e.00	---	149	88	255	70	12	2.0	11
31	.00	---	e.00	e.00	---	177	---	274	---	9.6	1.2	---
TOTAL	9.19	79.95	17.27	0.94	10.20	9525.40	4955	9257	6349	928.6	273.6	1147.18
MEAN	.30	2.66	.56	.030	.36	307	165	299	212	30.0	8.83	38.2
MAX	4.9	23	1.4	.22	.66	1070	549	838	600	69	39	279
MIN	.00	.00	.00	.00	.00	.70	88	93	70	9.6	1.2	.00
AC-FT	18	159	34	1.9	20	18890	9830	18360	12590	1840	543	2280
CFSM	.00	.01	.00	.00	.00	1.51	.81	1.46	1.04	.15	.04	.19
IN.	.00	.01	.00	.00	.00	1.74	.90	1.69	1.16	.17	.05	.21

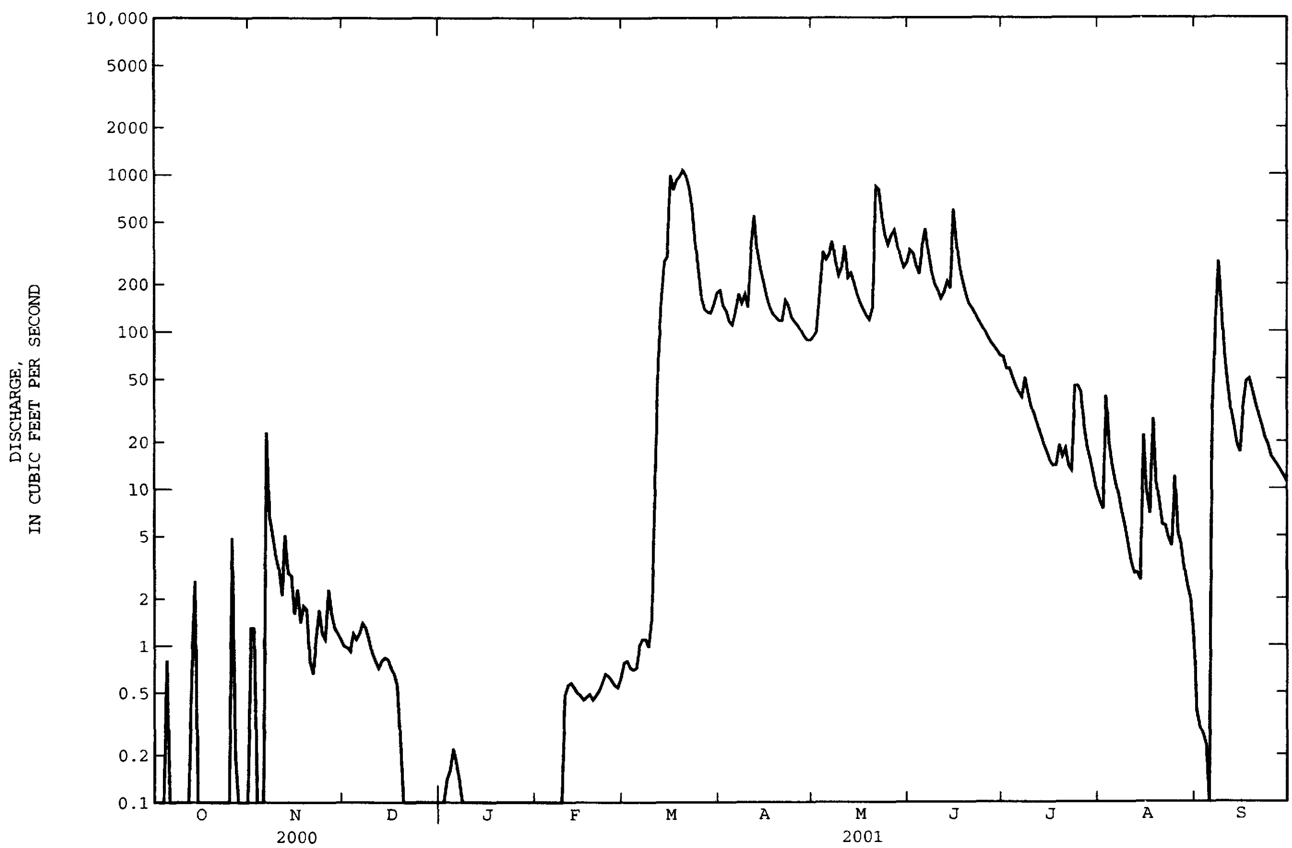
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	79.0	83.7	60.0	39.6	97.3	210	222	234	321	172	84.0	79.9
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	.30	.63	.001	.000	.093	2.51	4.32	1.42	2.97	3.61	.95	.071
(WY)	2001	1967	1977	1977	1977	1981	1977	1981	1977	1927	1989	1971

05470500 SQUAW CREEK AT AMES, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1920 - 2001	
ANNUAL TOTAL	5281.16		32553.33			
ANNUAL MEAN	14.4		89.2		141	
HIGHEST ANNUAL MEAN					528	1993
LOWEST ANNUAL MEAN					13.6	1981
HIGHEST DAILY MEAN	345	Jun 14	1070	Mar 20	12200	Jul 9 1993
LOWEST DAILY MEAN	.00	Aug 21	.00	Oct 1a	.00	Jul 31 1925b
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 25	.00	Oct 6	.00	Oct 7 1971
MAXIMUM PEAK FLOW			1160	Mar 16	24300	Jul 9 1993
MAXIMUM PEAK STAGE			4.97	Mar 14	18.54	Jul 9 1993
INSTANTANEOUS LOW FLOW			.00	Oct 1a	.00	Jul 31 1925
ANNUAL RUNOFF (AC-FT)	10480		64570		101800	
ANNUAL RUNOFF (CFSM)	.071		.44		.69	
ANNUAL RUNOFF (INCHES)	.96		5.94		9.36	
10 PERCENT EXCEEDS	38		279		347	
50 PERCENT EXCEEDS	4.4		7.1		45	
90 PERCENT EXCEEDS	.00		.00		1.6	

a Many days October to February, and Sept. 5.
b Many days in 1925, 1971, 1972, 1976, 1977, 1988, 2000, and 2001.
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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	e.10	e.00	e.70	e.50	895	259	831	204	29	2.6
2	.00	.00	e.00	e.00	e.00	e.70	708	279	818	182	24	2.0
3	.00	.00	e.00	e.00	e.00	e1.0	635	344	701	175	83	1.5
4	.00	.00	e.00	e.00	e.00	e1.5	540	712	626	169	52	2.4
5	.00	.00	e.00	e.00	e.00	e1.0	486	707	702	155	66	1.2
6	.00	21	e.00	e.00	e.00	e1.5	555	723	1420	139	47	60
7	.00	5.5	e.00	e.00	e.00	e2.0	675	818	996	126	33	116
8	.00	3.3	e.00	e.00	e.00	e3.0	598	697	764	147	25	715
9	.00	4.2	e.00	e.00	e.00	e6.0	611	573	640	130	20	519
10	.00	4.6	e.00	e.00	e.00	e30	472	564	573	111	15	258
11	.00	3.5	e.00	e.00	e.00	e90	726	704	517	96	12	168
12	.00	2.9	e.00	e.10	e.00	e200	1830	530	526	83	9.8	120
13	.00	2.1	e.00	e.50	e.00	e500	1380	537	593	73	7.9	94
14	.00	1.8	e.00	e2.0	e.00	e800	947	490	527	64	6.8	73
15	.00	1.5	e.00	e1.5	e.00	e1200	755	444	1180	56	35	63
16	.00	1.0	e.00	e1.0	e.00	e1940	614	400	1150	50	23	74
17	.00	2.2	e.00	e.00	e.00	e1590	520	362	774	44	18	122
18	.00	2.6	e.00	e.00	e.00	e1620	462	328	634	39	60	111
19	.00	4.2	e.00	e.00	e.00	2170	430	305	544	50	32	109
20	.00	.10	e.00	e.00	e.00	2920	403	318	467	43	21	92
21	.00	e1.0	e.00	e.00	e.00	3150	386	1540	426	53	15	79
22	.00	e.80	e.00	e.00	e.00	3170	449	2660	395	48	12	71
23	.00	e.60	e.00	e.00	e.00	2810	420	1700	359	45	10	64
24	.00	e.50	e.00	e.00	e.10	1730	380	1220	331	89	9.2	56
25	.00	e.40	e.00	e.00	e2.0	1100	343	1000	305	110	20	49
26	.00	e.30	e.00	e.00	e1.5	792	323	1050	281	168	13	44
27	.00	e.20	e.00	e.40	e1.0	685	301	1670	260	105	9.4	40
28	.00	e.50	e.00	e.30	e.70	615	275	1250	241	72	7.1	37
29	.00	e1.0	e.00	e.50	---	596	261	960	227	57	5.5	33
30	.00	e.50	e.00	e.70	---	652	254	800	213	46	4.6	34
31	.00	---	e.00	e1.0	---	766	---	770	---	37	3.4	---
TOTAL	0.00	66.30	0.10	8.00	6.00	29143.20	17634	24714	18021	2966	728.7	3210.7
MEAN	.000	2.21	.003	.26	.21	940	588	797	601	95.7	23.5	107
MAX	.00	21	.10	2.0	2.0	3170	1830	2660	1420	204	83	715
MIN	.00	.00	.00	.00	.00	.50	254	259	213	37	3.4	1.2
AC-FT	.00	132	.2	16	12	57810	34980	49020	35740	5880	1450	6370
CFSM	.00	.00	.00	.00	.00	1.69	1.06	1.43	1.08	.17	.04	.19
IN.	.00	.00	.00	.00	.00	1.95	1.18	1.65	1.21	.20	.05	.21

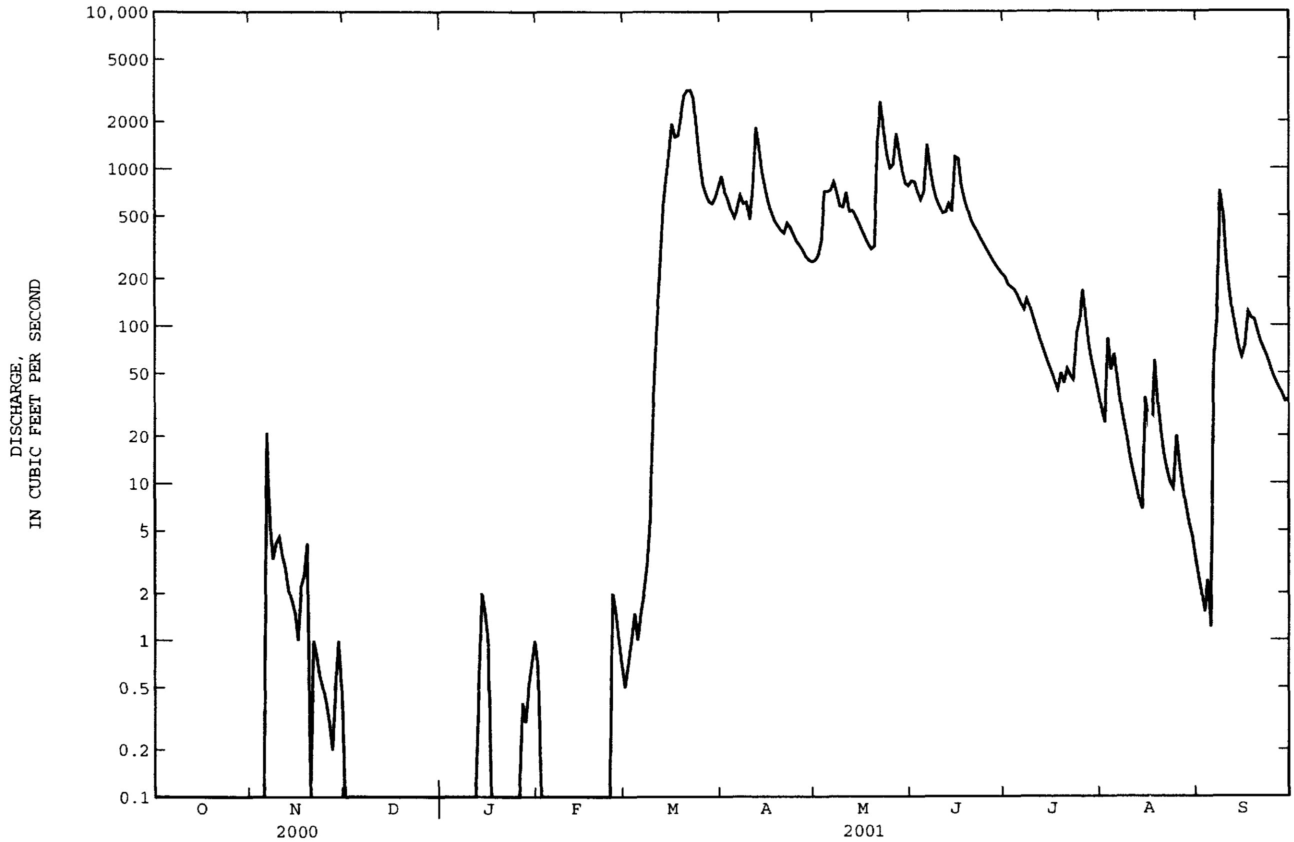
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	164	178	120	81.3	182	544	551	531	817	493	282	161
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1953 - 2001	
ANNUAL TOTAL	12329.18		96498.00			
ANNUAL MEAN	33.7		264		342	
HIGHEST ANNUAL MEAN					1475	1993
LOWEST ANNUAL MEAN					5.95	1956
HIGHEST DAILY MEAN	1060	Jun 15	3170	Mar 22	20500	Jul 9 1993
LOWEST DAILY MEAN	.00	Sep 6	.00	Oct 1a	.00	Dec 17 1953b
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 6	.00	Oct 1	.00	Jan 11 1954
MAXIMUM PEAK FLOW			3350	Mar 21	26500	Jul 9 1993
MAXIMUM PEAK STAGE			16.94	Mar 21	25.57	Jun 27 1975
INSTANTANEOUS LOW FLOW					.00	Dec 17 1953
ANNUAL RUNOFF (AC-FT)	24450		191400		247600	
ANNUAL RUNOFF (CFSM)	.061		.48		.61	
ANNUAL RUNOFF (INCHES)	.82		6.46		8.35	
10 PERCENT EXCEEDS	97		768		823	
50 PERCENT EXCEEDS	3.5		21		107	
90 PERCENT EXCEEDS	.00		.00		1.0	

a Many days in 1953-56, 1963-68, 1976-77, 2000, 2001.
b Many days October to February.
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., 2 mi southwest of Colfax.

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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.88	1.0	1.0	e.90	e.70	e2.6	29	9.5	45	11	3.1	e.70
2	.83	1.3	1.0	e.91	e.78	e3.2	26	9.2	31	11	2.9	e.63
3	.83	.96	.93	e1.0	e.84	e3.0	22	9.5	26	10	4.1	e.60
4	.86	.95	.99	e1.1	e.90	e2.8	19	12	22	9.6	3.4	.58
5	.89	.93	.92	e1.1	e1.0	e3.0	17	12	32	9.1	2.8	.55
6	.96	1.6	.91	e1.1	e1.1	e3.4	16	11	28	8.9	2.7	e.56
7	.90	1.6	1.2	e1.0	e1.2	e4.0	14	11	24	8.7	2.4	e.55
8	.97	1.1	1.1	e1.0	e1.2	e5.0	12	10	20	8.5	2.2	e.65
9	1.0	1.1	.94	e1.0	e1.1	e6.5	15	9.9	18	8.4	2.0	e.80
10	1.0	1.0	1.0	e1.2	e1.2	14	15	12	17	7.9	1.8	1.6
11	1.0	.99	e.69	e1.2	e1.2	20	37	18	15	7.4	1.7	1.9
12	1.0	1.1	e.70	e1.3	e1.3	165	34	13	103	7.1	1.5	1.6
13	1.0	1.0	e.73	e1.4	e1.3	141	24	15	48	7.0	1.4	1.4
14	1.0	.98	e.80	e1.4	e1.2	167	21	17	136	6.6	1.3	1.4
15	.89	.96	e.68	e1.2	e1.2	159	18	15	102	6.4	1.9	1.3
16	.88	.99	e.70	e1.2	e1.4	70	15	13	49	6.2	2.2	1.4
17	.85	.90	e.67	e1.1	e1.6	34	14	14	38	6.0	1.4	1.3
18	.85	.90	e.70	e1.0	e1.9	23	14	13	32	5.7	1.4	1.2
19	.84	e.85	e.78	e.98	e2.2	27	13	13	29	7.5	1.2	1.3
20	.81	.86	e.71	e.96	e2.6	78	12	12	26	5.8	1.1	1.1
21	.82	.74	e.69	e.97	3.0	87	12	12	24	5.5	1.0	1.0
22	.80	.78	e.72	e.97	3.8	138	11	11	22	5.2	.91	.90
23	.89	.86	e.63	e.88	2.9	94	11	11	20	5.6	.88	1.1
24	.84	.94	e.68	e.78	e2.8	45	9.8	11	18	5.3	.96	.97
25	1.1	.98	e.76	e.76	e2.4	30	10	12	17	5.4	6.6	.78
26	.99	1.0	e.74	e.72	e2.0	24	10	14	15	4.7	1.4	.77
27	.93	1.0	e.78	e.80	e2.0	24	9.7	15	14	4.4	e1.1	.74
28	.90	1.0	e.80	e.90	e2.3	26	9.3	17	14	4.2	.96	.71
29	.93	1.1	e.85	e.92	---	33	9.2	17	13	3.9	.91	.70
30	.93	.99	e.87	e.86	---	32	9.4	16	12	3.7	e.86	.69
31	.91	---	e.88	e.78	---	36	---	33	---	3.4	e.77	---
TOTAL	28.28	30.46	25.55	31.39	47.12	1500.5	488.4	418.1	1010	210.1	58.85	29.48
MEAN	.91	1.02	.82	1.01	1.68	48.4	16.3	13.5	33.7	6.78	1.90	.98
MAX	1.1	1.6	1.2	1.4	3.8	167	37	33	136	11	6.6	1.9
MIN	.80	.74	.63	.72	.70	2.6	9.2	9.2	12	3.4	.77	.55
AC-FT	56	60	51	62	93	2980	969	829	2000	417	117	58
CFSM	.05	.06	.04	.06	.09	2.63	.88	.73	1.83	.37	.10	.05
IN.	.06	.06	.05	.06	.10	3.03	.99	.85	2.04	.42	.12	.06

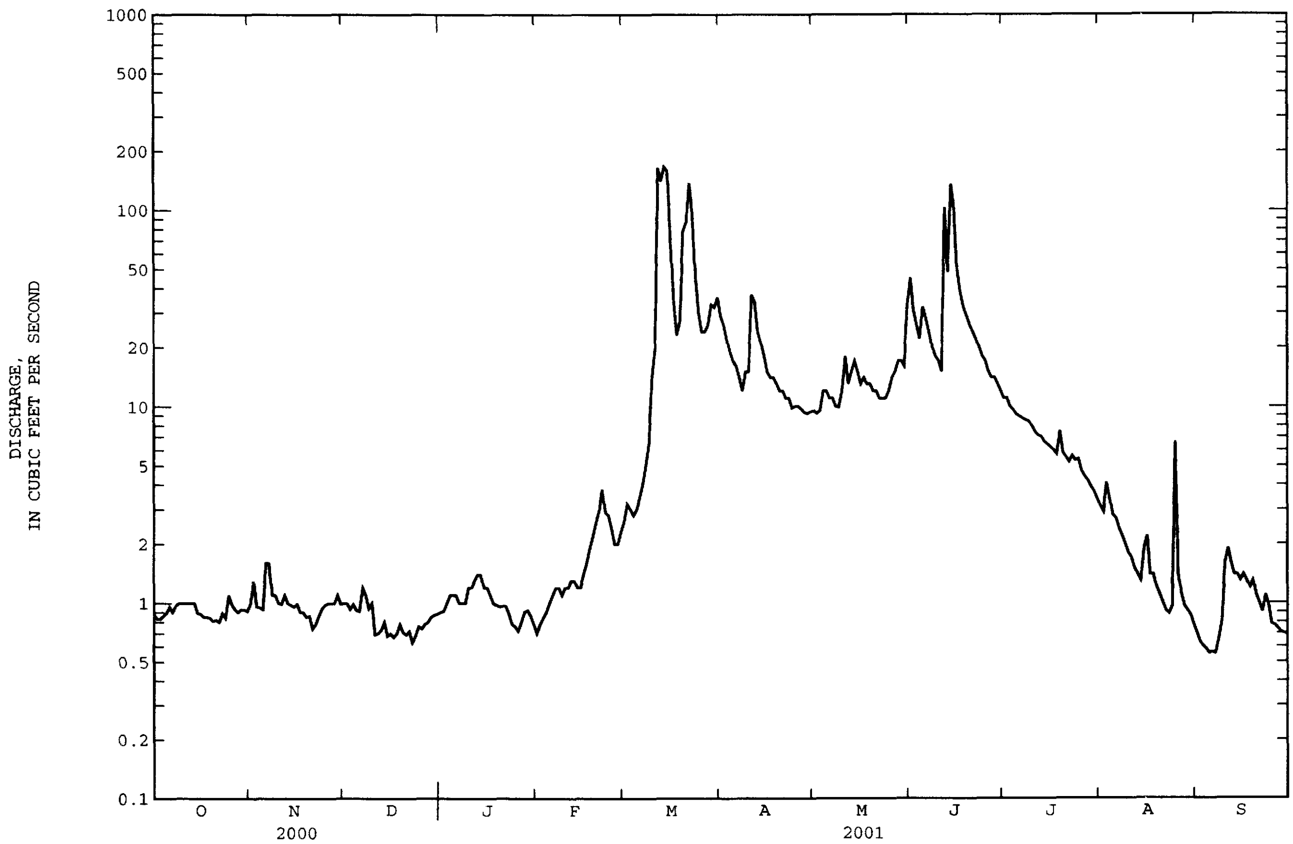
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.88	4.72	3.80	3.69	19.4	17.8	15.6	35.2	34.3	12.7	6.06	1.90
MAX	8.91	11.3	9.33	9.52	65.0	48.4	45.4	65.7	83.0	34.3	15.8	3.80
(WY)	1998	1999	1998	1998	1996	2001	1998	1996	1998	1998	1999	1998
MIN	.90	1.02	.82	1.01	1.68	2.67	3.03	13.5	12.5	6.78	1.90	.98
(WY)	1996	2001	2001	2001	2001	2000	2000	2001	1997	2001	2001	2001

05471040 SQUAW CREEK NEAR COLFAX, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1995 - 2001	
ANNUAL TOTAL	2400.99		3878.23			
ANNUAL MEAN	6.56		10.6		13.5	
HIGHEST ANNUAL MEAN					25.4	1998
LOWEST ANNUAL MEAN					6.88	2000
HIGHEST DAILY MEAN	610	May 31	167	Mar 14	847	Jun 18 1998
LOWEST DAILY MEAN	.63	Dec 23	.55	Sep 5a	.30	Jan 7 1996
ANNUAL SEVEN-DAY MINIMUM	.70	Dec 17	.59	Sep 2	.54	Jan 3 1996
MAXIMUM PEAK FLOW			540	Jun 14	7020	Jun 18 1998
MAXIMUM PEAK STAGE			9.29	Jun 14	13.94	Jun 18 1998
INSTANTANEOUS LOW FLOW			.55	Sep 5		
ANNUAL RUNOFF (AC-FT)	4760		7690		9780	
ANNUAL RUNOFF (CFSM)	.36		.58		.73	
ANNUAL RUNOFF (INCHES)	4.85		7.84		9.97	
10 PERCENT EXCEEDS	13		25		32	
50 PERCENT EXCEEDS	2.1		1.6		5.3	
90 PERCENT EXCEEDS	.88		.78		1.0	

a Also Sept. 7.
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, 611 microsiemens Nov. 8; minimum daily, 217 microsiemens Mar. 12.
WATER TEMPERATURES: Maximum daily, 29.0°C Jul. 31 to Aug. 2, and Aug. 5, 6; minimum daily, 0.0°C many days during winter.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,420 mg/L Mar. 12; minimum daily mean, 9.0 mg/L Jan. 8, 18, and Feb. 16, 17, 20.
SEDIMENT LOADS: Maximum daily, 775 tons Mar. 14; minimum daily, 0.02 tons Jan. 8, 18, and Sept. 3.

SPECIFIC CONDUCTANCE MICROSIEMENS CM AT 25 DEG C, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	498	483	504	538	480	---	500	541	520	528	---
2	495	526	---	468	573	472	482	482	---	494	524	516
3	467	534	---	539	558	---	485	463	488	445	434	517
4	480	---	428	447	---	433	484	477	487	---	470	496
5	442	507	409	500	523	458	335	---	503	431	528	447
6	465	540	439	508	529	466	361	359	536	415	531	---
7	589	554	444	537	536	458	494	369	456	414	532	---
8	452	611	448	524	530	488	490	412	521	393	528	---
9	531	578	500	544	332	475	490	485	499	391	523	528
10	469	583	422	511	---	449	500	513	535	---	517	547
11	469	521	---	530	---	---	479	507	470	376	479	560
12	504	---	---	518	495	217	485	510	312	471	522	561
13	462	465	---	519	505	245	---	---	527	417	508	540
14	484	499	427	---	516	220	490	522	510	---	523	545
15	480	465	426	508	524	271	453	519	537	---	455	539
16	453	---	---	554	527	390	380	531	---	---	---	514
17	500	---	409	566	---	---	344	512	536	---	535	529
18	430	---	---	573	530	473	433	---	496	---	---	518
19	518	---	---	535	513	450	490	---	527	---	---	511
20	475	494	450	569	517	299	487	522	528	---	---	526
21	555	476	431	494	530	348	---	474	468	---	---	534
22	474	449	499	556	529	235	481	527	553	---	457	530
23	441	---	493	514	521	365	488	454	---	485	---	521
24	489	521	---	556	---	454	474	428	---	518	---	500
25	503	442	---	548	221	464	404	508	---	454	---	541
26	549	476	488	---	335	467	366	527	---	515	535	---
27	554	500	436	---	413	462	477	---	---	526	540	---
28	434	454	446	---	463	461	494	514	---	448	535	---
29	477	---	534	504	---	440	479	531	---	522	522	---
30	461	474	522	406	---	456	461	456	---	450	516	---
31	550	---	542	461	---	440	---	496	---	505	508	---

05471040 SQUAW CREEK NEAR COLFAX, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	19.0	2.0	.0	1.0	1.0	---	21.0	15.0	19.0	29.0	---
2	21.0	14.0	---	.0	.0	1.0	11.0	17.0	---	17.0	29.0	23.0
3	18.0	11.0	---	.0	.0	---	8.0	14.0	13.0	22.0	25.0	24.0
4	16.0	---	1.0	.0	---	1.0	11.0	14.0	15.0	---	27.0	25.0
5	12.0	11.0	1.0	.0	1.0	1.0	10.0	---	14.0	23.0	29.0	21.0
6	9.0	10.0	.0	.0	1.0	1.0	9.0	18.0	18.0	22.0	29.0	---
7	9.0	7.0	2.0	.0	1.0	1.0	11.0	17.0	19.0	25.0	28.0	---
8	9.0	4.0	1.0	.0	1.0	1.0	15.0	17.0	19.0	21.0	28.0	---
9	10.0	4.0	1.0	.0	1.0	1.0	11.0	21.0	21.0	25.0	28.0	17.0
10	11.0	4.0	1.0	.0	---	1.0	10.0	21.0	22.0	---	24.0	19.0
11	12.0	2.0	---	.0	---	---	13.0	18.0	23.0	23.0	24.0	19.0
12	15.0	---	---	.0	1.0	1.0	9.0	16.0	19.0	25.0	23.0	23.0
13	18.0	2.0	---	.0	1.0	1.0	---	---	21.0	21.0	25.0	19.0
14	19.0	2.0	.0	---	1.0	1.0	14.0	22.0	17.0	---	21.0	19.0
15	18.0	4.0	.0	.0	1.0	1.0	13.0	22.0	19.0	---	18.0	17.0
16	16.0	---	---	.0	1.0	1.0	8.0	22.0	---	---	---	18.0
17	15.0	---	.0	.0	---	---	11.0	19.0	18.0	---	21.0	18.0
18	18.0	---	---	.0	1.0	1.0	13.0	---	20.0	---	---	16.0
19	20.0	---	---	.0	1.0	6.0	14.0	---	15.0	---	---	18.0
20	19.0	.0	.0	.0	1.0	6.0	19.0	20.0	19.0	---	---	19.0
21	19.0	1.0	.0	.0	1.0	5.0	---	14.0	18.0	---	---	20.0
22	16.0	1.0	.0	.0	.0	7.0	18.0	12.0	20.0	---	25.1	19.0
23	19.0	---	.0	.0	1.0	3.0	10.0	11.0	---	25.0	---	15.0
24	20.0	1.0	---	.0	---	3.0	14.0	11.0	---	24.0	---	16.0
25	20.0	1.0	---	.0	1.0	4.0	16.0	12.0	---	22.0	---	14.0
26	20.0	1.0	.0	---	1.0	6.0	18.0	15.0	---	24.0	25.0	---
27	18.0	2.0	.0	---	1.0	8.0	19.0	---	---	22.0	27.0	---
28	16.0	---	.0	---	1.0	5.0	19.0	17.0	---	25.0	26.0	---
29	14.0	2.0	.0	.0	---	6.0	20.0	18.0	---	25.0	27.0	---
30	16.0	2.0	.0	.0	---	7.0	15.0	12.0	---	27.0	26.0	---
31	18.0	---	.0	1.0	---	7.0	---	11.0	---	29.0	24.0	---

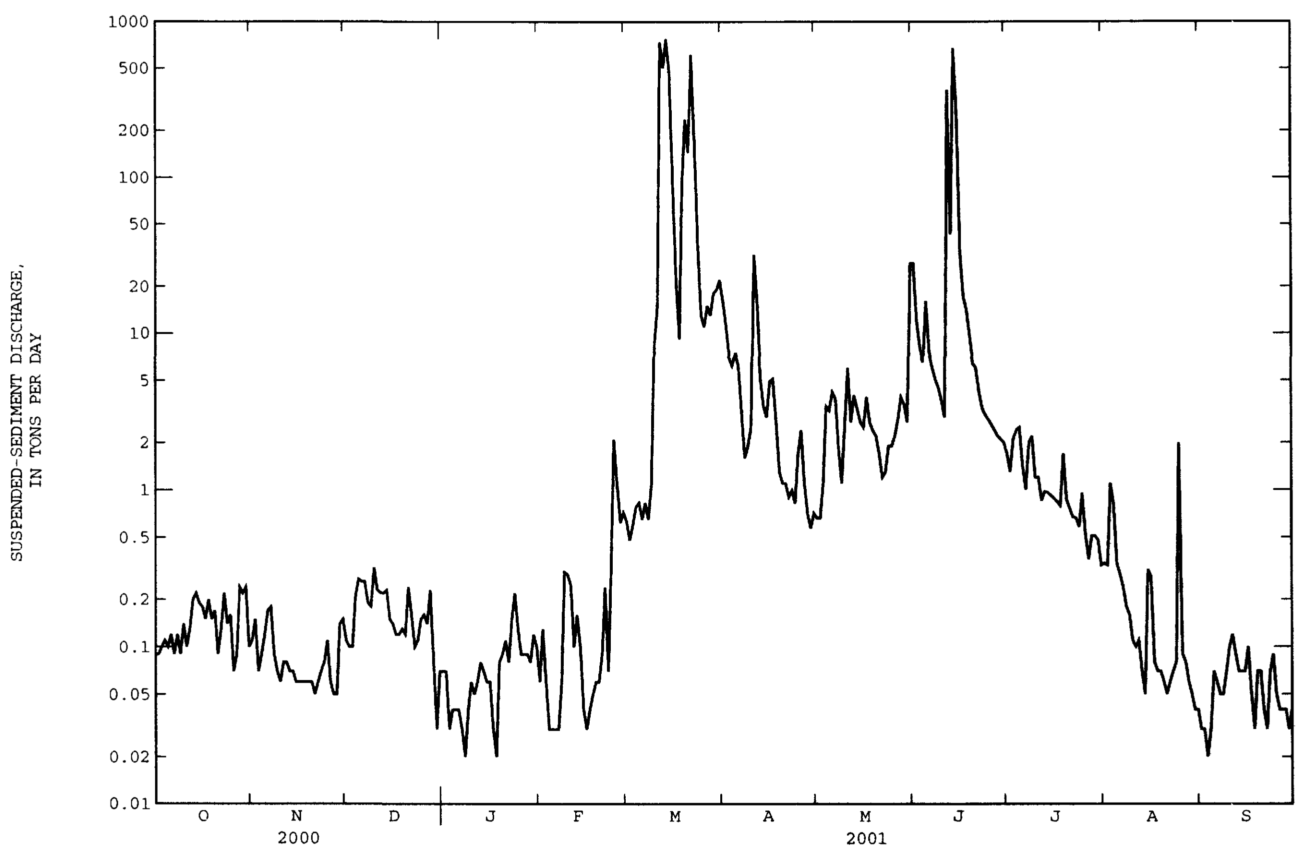
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	37	.09	37	.11	39	.11	27	.07	34	.06	90	.63
2	41	.09	40	.15	36	.10	28	.07	64	.13	56	.48
3	43	.10	26	.07	41	.10	12	.03	25	.06	74	.60
4	46	.11	34	.09	79	.21	15	.04	11	.03	103	.78
5	41	.10	47	.12	111	.27	14	.04	10	.03	102	.83
6	46	.12	41	.17	104	.26	12	.04	10	.03	71	.65
7	37	.09	41	.18	82	.26	10	.03	10	.03	77	.83
8	46	.12	30	.09	67	.19	9	.02	17	.06	48	.65
9	31	.09	24	.07	69	.18	15	.04	101	.30	65	1.1
10	48	.14	23	.06	117	.32	17	.06	90	.29	170	8.6
11	38	.10	29	.08	125	.23	16	.05	78	.25	281	15
12	48	.13	28	.08	118	.22	18	.06	29	.10	1420	740
13	73	.20	25	.07	112	.22	20	.08	46	.16	1190	506
14	80	.22	27	.07	105	.23	18	.07	30	.10	1390	775
15	78	.19	23	.06	82	.15	17	.06	12	.04	1060	470
16	74	.18	23	.06	72	.14	19	.06	9	.03	454	94
17	65	.15	24	.06	68	.12	11	.03	9	.04	230	22
18	88	.20	25	.06	65	.12	9	.02	10	.05	147	9.2
19	64	.15	28	.06	62	.13	32	.08	10	.06	914	93
20	77	.17	28	.06	64	.12	35	.09	9	.06	907	236
21	40	.09	27	.05	130	.24	42	.11	11	.09	590	145
22	60	.13	30	.06	84	.16	30	.08	22	.24	1180	613
23	90	.22	29	.07	56	.10	65	.15	10	.07	606	178
24	61	.14	32	.08	61	.11	106	.22	43	.33	308	38
25	54	.16	40	.11	72	.15	64	.13	329	2.1	160	13
26	25	.07	23	.06	82	.16	47	.09	200	1.1	166	11
27	38	.09	18	.05	68	.14	41	.09	115	.62	230	15
28	98	.24	18	.05	107	.23	35	.09	116	.72	180	13
29	86	.22	48	.14	37	.08	32	.08	---	---	200	18
30	94	.24	55	.15	13	.03	51	.12	---	---	220	19
31	41	.10	---	---	28	.07	48	.10	---	---	229	22
TOTAL	---	4.44	---	2.59	---	5.15	---	2.30	---	7.18	---	4060.35

05471040 SQUAW CREEK NEAR COLFAX, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	199	16	26	.66	216	28	56	1.7	40	.34	18	.03
2	162	11	26	.66	138	12	45	1.3	42	.33	18	.03
3	118	7.0	41	1.1	116	8.1	73	2.1	82	1.1	15	.02
4	123	6.2	101	3.4	107	6.5	93	2.4	87	.82	20	.03
5	164	7.5	103	3.2	171	16	103	2.5	45	.34	44	.07
6	146	6.2	138	4.2	99	7.6	56	1.4	40	.29	38	.06
7	78	3.1	133	3.8	97	6.1	43	1.0	36	.24	31	.05
8	49	1.6	66	1.8	93	5.1	85	2.0	31	.18	31	.05
9	48	1.9	41	1.1	92	4.5	98	2.2	29	.16	31	.07
10	60	2.5	69	2.6	81	3.7	58	1.2	24	.11	24	.10
11	272	32	118	6.0	70	2.9	60	1.2	21	.10	23	.12
12	158	16	76	2.7	710	365	44	.85	27	.11	22	.09
13	80	5.2	96	4.0	309	43	51	.97	17	.07	19	.07
14	60	3.4	74	3.3	679	675	53	.96	15	.05	18	.07
15	60	2.9	68	2.7	700	268	53	.92	47	.31	21	.07
16	118	4.9	70	2.5	249	33	52	.88	42	.28	26	.10
17	133	5.1	98	3.9	171	17	52	.84	21	.08	16	.05
18	71	2.7	75	2.7	158	14	51	.79	20	.07	10	.03
19	38	1.3	71	2.4	120	9.4	73	1.7	20	.07	21	.07
20	34	1.1	66	2.2	91	6.4	55	.87	20	.06	21	.07
21	32	1.1	51	1.7	93	6.0	51	.76	20	.05	15	.04
22	31	.90	39	1.2	71	4.2	47	.67	24	.06	11	.03
23	34	.99	44	1.3	63	3.3	44	.66	29	.07	21	.07
24	31	.82	65	1.9	62	3.0	41	.58	30	.08	36	.09
25	65	1.7	62	1.9	62	2.8	66	.95	67	2.0	22	.05
26	90	2.4	59	2.2	61	2.6	41	.52	24	.09	18	.04
27	41	1.1	69	2.8	61	2.4	30	.36	27	.08	19	.04
28	28	.70	85	3.9	60	2.2	45	.51	23	.06	19	.04
29	23	.57	75	3.5	60	2.1	48	.51	20	.05	19	.03
30	28	.71	64	2.7	59	2.0	49	.48	16	.04	19	.04
31	---	---	225	28	---	---	36	.33	17	.04	---	---
TOTAL	---	148.59	---	106.02	---	1561.9	---	34.11	---	7.73	---	1.72
YEAR		5942.08										



05471040 SQUAW CREEK NEAR COLFAX, IA--Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Tipping bucket rain gage.

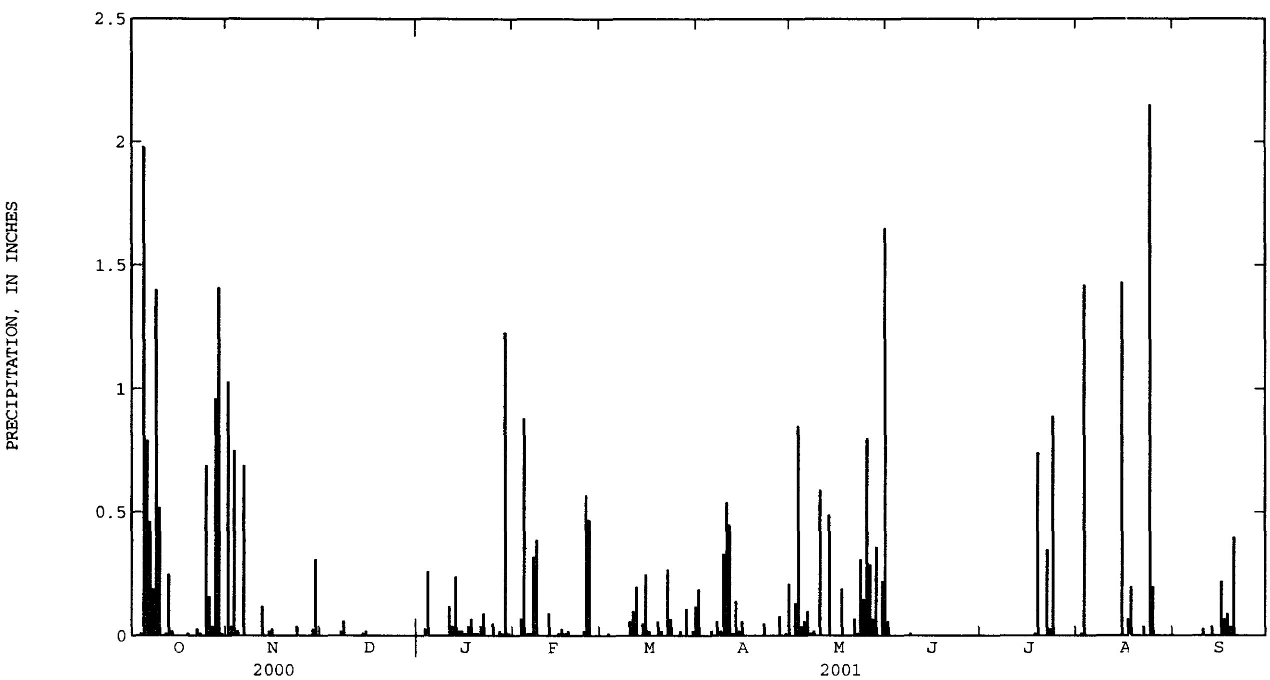
REMARKS.--Records good except for winter period, which is poor due to intermittent snow accumulation and subsequent melting.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily accumulation, 2.69 in., July 17, 1996.

EXTREMES FOR CURRENT YEAR.--Maximum daily accumulation, 1.98 in., Oct. 5.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.03	.00	.00	.00	.00	.19	.00	.06	.00	.00	---
2	.00	.04	.00	.00	.00	.00	.00	.13	.00	.00	.01	---
3	.00	.75	.00	.03	.07	.01	.00	.85	.00	.00	1.42	---
4	.01	.02	.00	.26	.88	.00	.00	.04	.00	.00	.00	---
5	1.98	---	.00	.00	.01	.00	.02	.06	.00	.00	.00	---
6	.79	.69	.00	.00	.01	.00	---	.10	.00	.00	.00	---
7	.46	.00	.02	.00	.32	.00	.06	.01	.00	.00	.00	---
8	.19	.00	.06	.00	.39	.00	.02	.02	.01	.00	.00	---
9	1.40	.00	.00	.00	---	.00	.33	.00	.00	.00	.00	---
10	.52	.00	.00	.00	---	.06	.54	.59	.00	.00	.00	.03
11	.00	.00	.00	.12	---	.10	.45	.00	.00	.00	.00	.00
12	.01	.12	.00	.04	.09	.20	.01	.00	.00	.00	.00	---
13	.25	.00	.00	.24	.00	.00	.14	.49	.00	.00	.00	.04
14	.02	.02	.01	.02	.00	.05	.02	.00	.00	.00	.00	.00
15	.00	.03	.02	.02	.01	.25	.06	.00	.00	.00	1.43	.00
16	.00	---	.00	.01	.03	.02	.00	.00	.00	.00	.00	.22
17	.00	---	.00	.04	.01	.00	.00	.19	.00	.00	.07	.07
18	.00	---	.00	.07	.02	.00	.00	.00	.00	.01	.20	.09
19	.01	---	.00	.01	.00	.06	.00	.00	.00	.74	.00	.04
20	.00	.00	.00	.01	.00	.02	.00	.00	.00	.00	.00	.40
21	.00	.00	.00	.04	.00	.00	.00	.07	.00	.00	.00	.00
22	.03	.00	.00	.09	.00	.27	.05	.01	.00	.35	.04	.00
23	.01	.04	.00	.00	.02	.07	.00	.31	.00	.03	.00	.00
24	.00	---	.00	.00	.57	.00	.00	.15	.00	.89	2.15	.00
25	.69	.00	.00	.05	.47	.00	.00	.80	.00	.00	.20	.00
26	.16	.00	.00	.00	.00	.02	.00	.29	.00	.00	---	.00
27	.04	.00	.00	.02	.00	.00	.08	.07	.00	.00	---	.00
28	.96	.03	.00	.01	.00	.11	.00	.36	.00	.00	---	.00
29	1.41	.31	.00	1.23	---	.00	.01	.00	.00	.00	---	.00
30	.01	.00	.00	.01	---	.02	.21	.22	.00	.00	---	.00
31	.00	---	.00	.00	---	.12	---	1.65	---	.00	---	---
TOTAL	8.95	3.08	0.11	2.32	2.90	1.38	2.19	6.41	0.07	2.02	5.52	0.89
MEAN	.29	.13	.00	.07	.12	.04	.08	.21	.00	.07	.22	.04
MAX	1.98	1.03	.06	1.23	.88	.27	.54	1.65	.06	.89	2.15	.40
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.

REVISED RECORDS.--Daily discharge for Aug. 26, 27, and Sept. 6-30, 2000.

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. U.S. Geological Survey data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	51	34	e24	e42	e52	1150	406	1330	e360	124	46
2	17	64	32	e21	e36	e58	1130	410	1330	340	114	44
3	18	59	30	e23	e32	e66	866	485	1180	329	140	42
4	20	57	37	e26	e34	e74	762	715	980	313	169	39
5	23	59	40	e26	e38	e68	680	1080	910	291	137	38
6	24	121	40	e34	e42	e62	691	1030	1420	272	130	e70
7	21	e218	40	e40	e44	e90	830	1250	1630	257	117	e140
8	21	e137	44	e38	e48	e120	e1000	1230	1260	243	103	403
9	22	e103	48	e34	e44	e160	e940	962	e1050	253	e96	668
10	23	e95	38	e32	e40	e200	e1200	806	e880	234	e86	459
11	23	e100	e28	e36	e38	e260	1150	974	733	211	e78	285
12	23	e106	e20	e42	e46	e340	1910	830	1320	194	e72	203
13	22	e105	e16	e46	e56	e540	2250	704	2990	181	67	160
14	25	e94	e18	e42	e50	e1000	1600	784	1910	170	63	137
15	25	e73	e22	e40	e42	e2000	1290	685	2050	159	72	124
16	23	e61	e24	e36	e34	2670	1010	e640	e2400	151	86	117
17	23	e51	e22	e32	e28	1930	772	e580	e1700	144	76	130
18	24	e50	e20	e34	e24	1790	684	e540	1330	139	79	160
19	25	e46	e18	e32	e26	2130	639	499	1140	e130	79	153
20	25	e34	e19	e30	e28	2930	607	474	925	160	70	151
21	27	e22	e20	e32	e21	3410	578	578	779	147	65	138
22	29	e32	e19	e30	e18	3490	565	2640	e720	e190	62	127
23	33	37	e17	e32	e22	3490	613	2490	e640	e320	61	119
24	38	38	e16	e34	e28	2650	561	1720	580	230	59	111
25	37	34	e14	e30	e80	1790	527	1430	548	223	60	105
26	34	33	e16	e26	e70	1320	496	1380	509	224	62	100
27	37	33	e18	e30	e64	1080	e460	1760	469	243	59	94
28	35	37	e22	e34	e58	896	e440	e2000	437	200	55	87
29	36	35	e25	e40	---	856	e420	1490	413	170	52	83
30	37	33	e24	e44	---	837	e400	1250	e380	151	48	80
31	41	---	e22	e46	---	975	---	1150	---	136	47	---
TOTAL	828	2018	803	1046	1133	37334	26221	32972	33943	6765	2588	4613
MEAN	26.7	67.3	25.9	33.7	40.5	1204	874	1064	1131	218	83.5	154
MAX	41	218	48	46	80	3490	2250	2640	2990	360	169	668
MIN	17	22	14	21	18	52	400	406	380	130	47	38
AC-FT	1640	4000	1590	2070	2250	74050	52010	65400	67330	13420	5130	9150
CFSM	.03	.08	.03	.04	.05	1.50	1.09	1.32	1.41	.27	.10	.19
IN.	.04	.09	.04	.05	.05	1.73	1.21	1.53	1.57	.31	.12	.21

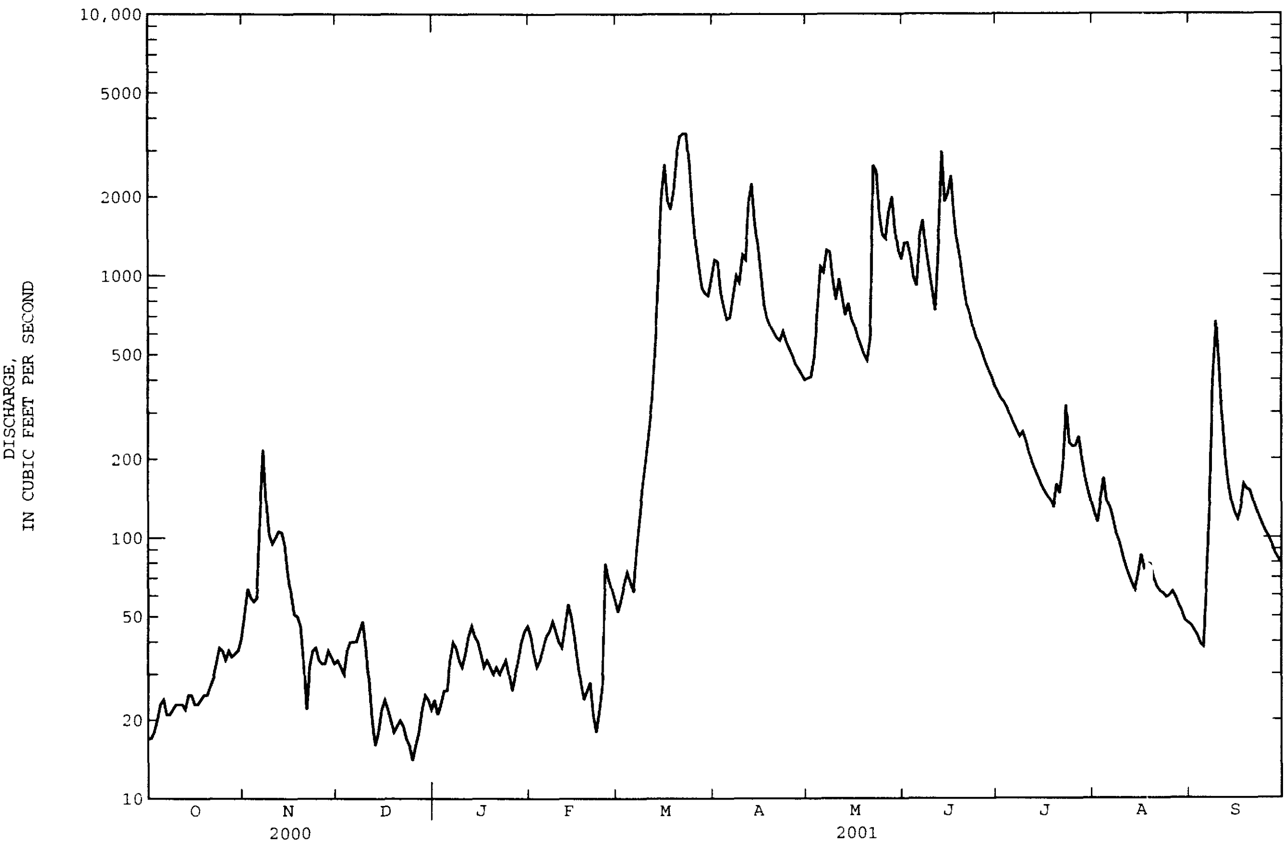
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	305	284	254	164	328	797	895	1082	1397	977	512	297
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1986 - 2001	
ANNUAL TOTAL	34794		150264			
ANNUAL MEAN	95.1		412		609	
HIGHEST ANNUAL MEAN					1831	1993
LOWEST ANNUAL MEAN					69.6	1989
HIGHEST DAILY MEAN	1700	May 31	3490	Mar 22a	13100	Jul 12 1993
LOWEST DAILY MEAN	13	Sep 18	14	Dec 25	1.4	Aug 18 1988
ANNUAL SEVEN-DAY MINIMUM	15	Sep 13	17	Dec 21	3.2	Sep 8 1988
MAXIMUM PEAK FLOW			4090	Jun 13	14200	Jul 12 1993
MAXIMUM PEAK STAGE			14.51	Mar 15	21.53	Jul 12 1993
INSTANTANEOUS LOW FLOW					1.2	Aug 18 1988b
ANNUAL RUNOFF (AC-FT)	69010		298000		440900	
ANNUAL RUNOFF (CFSM)	.12		.51		.76	
ANNUAL RUNOFF (INCHES)	1.61		6.96		10.30	
10 PERCENT EXCEEDS	239		1250		1500	
50 PERCENT EXCEEDS	49		95		262	
90 PERCENT EXCEEDS	21		23		34	

a Also Mar. 23.
b Also Aug. 19, 1988.
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 fair except those for estimated daily discharge, which are poor. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	11	e11	e5.7	e4.8	e11	400	160	680	142	42	e10
2	1.6	16	e10	e5.5	e4.4	e14	342	167	567	130	36	e9.0
3	1.8	22	e9.5	e6.0	e4.8	e17	302	e300	457	123	49	e8.6
4	2.3	14	e9.0	e7.2	e5.5	e15	247	490	394	116	99	e8.4
5	2.6	12	e6.5	e7.0	e6.0	e14	219	442	372	104	63	e10
6	2.4	17	e6.5	e7.5	e6.5	e14	236	424	e380	95	41	e9.4
7	3.0	24	e7.0	e6.8	e7.0	e16	268	533	e343	89	32	e86
8	4.1	26	e6.5	e6.3	e7.5	e17	253	459	e312	84	26	e1300
9	3.6	21	e7.0	e6.0	e6.7	e18	970	386	e287	91	22	e1040
10	3.4	19	e6.0	e6.5	e6.5	e20	703	358	273	82	17	e535
11	3.2	19	e5.0	e7.0	e6.7	e18	765	722	254	70	14	e268
12	3.1	20	e4.4	e7.5	e7.0	e50	1050	450	1580	61	13	e141
13	3.0	19	e4.6	e8.0	e8.7	e200	685	591	2420	54	e14	e80
14	3.7	19	e4.8	e8.5	e8.5	e1200	495	567	1050	48	e19	e71
15	3.4	18	e5.0	e8.0	e8.0	1350	395	408	1180	43	e21	e65
16	4.9	18	e4.0	e7.5	e7.5	1060	312	332	778	38	e24	e61
17	3.9	e13	e4.6	e6.7	e7.7	764	266	309	595	35	e21	e116
18	3.5	e12	e4.4	e6.7	e9.0	621	241	260	492	32	e20	e158
19	3.5	e9.5	e4.6	e6.0	e11	696	228	230	419	239	e30	e101
20	3.5	e7.5	e5.0	e5.2	e10	1090	e220	214	368	e290	e21	e90
21	4.4	e6.0	e4.6	e5.0	e9.8	1270	201	213	334	e215	e18	e85
22	3.4	e7.5	e4.4	e5.0	e9.0	1100	204	205	302	e159	e13	e80
23	3.8	e11	e4.8	e5.3	e10	986	260	194	272	113	e11	e76
24	4.3	e13	e4.0	e5.6	e11	664	233	190	249	90	e11	e72
25	5.7	e15	e4.4	e4.8	e13	490	210	277	228	245	e14	e68
26	8.7	e13	e5.0	e5.0	e12	375	198	709	208	169	e23	e66
27	16	e15	e4.8	e4.6	e11	334	185	867	191	112	e9.0	e64
28	10	e16	e5.0	e5.0	e10	308	170	638	179	87	e16	e60
29	7.9	e13	e5.3	e5.5	---	312	162	514	166	74	e14	e56
30	7.7	e11	e5.3	e6.0	---	333	159	427	154	63	e12	e53
31	7.5	---	e5.5	e5.3	---	383	---	440	---	51	e12	---
TOTAL	142.3	457.5	178.5	192.7	229.6	13760	10579	12476	15484	3344	777.0	4847.4
MEAN	4.59	15.2	5.76	6.22	8.20	444	353	402	516	108	25.1	162
MAX	16	26	11	8.5	13	1350	1050	867	2420	290	99	1300
MIN	1.6	6.0	4.0	4.6	4.4	11	159	160	154	32	9.0	8.4
AC-FT	282	907	354	382	455	27290	20980	24750	30710	6630	1540	9610
CFSM	.02	.06	.02	.02	.03	1.61	1.28	1.46	1.87	.39	.09	.59
IN.	.02	.06	.02	.03	.03	1.85	1.43	1.68	2.09	.45	.10	.65

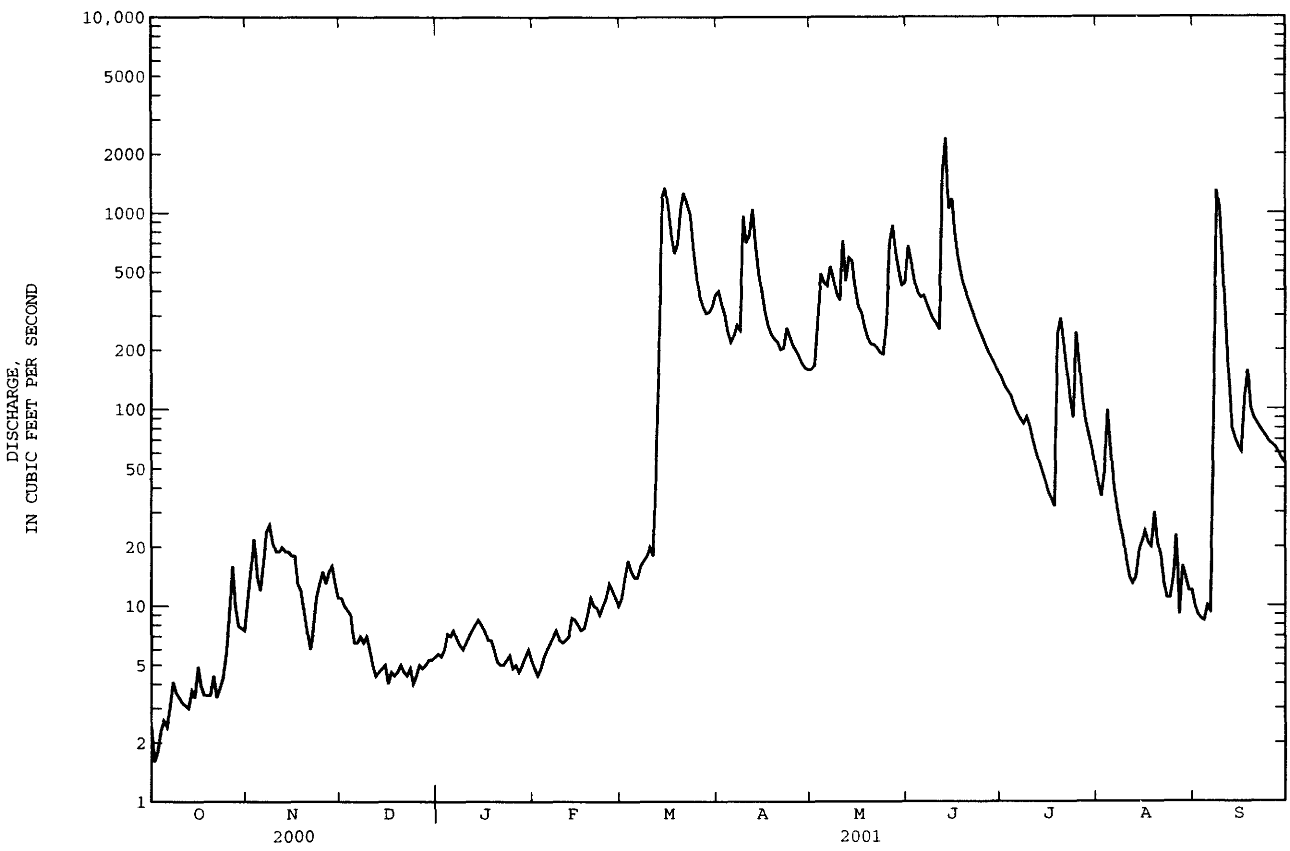
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	105	95.2	76.9	58.9	119	308	283	374	500	310	150	86.0
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1959 - 2001	
ANNUAL TOTAL	12478.2		62468.0			
ANNUAL MEAN	34.1		171		206	
HIGHEST ANNUAL MEAN					751	1993
LOWEST ANNUAL MEAN					11.9	1989
HIGHEST DAILY MEAN	1140	Jun 14	2420	Jun 13	12000	Jul 10 1993
LOWEST DAILY MEAN	1.5	Sep 18	1.6	Oct 2	.01	Aug 18 1989
ANNUAL SEVEN-DAY MINIMUM	1.8	Sep 13	2.3	Oct 1	.15	Aug 16 1989
MAXIMUM PEAK FLOW			4510	Jun 13	23500	Jun 4 1991
MAXIMUM PEAK STAGE			14.47	Jun 13	19.16	Jun 4 1991
INSTANTANEOUS LOW FLOW			1.4	Oct 2		
ANNUAL RUNOFF (AC-FT)	24750		123900		149000	
ANNUAL RUNOFF (CFSM)	.12		.62		.75	
ANNUAL RUNOFF (INCHES)	1.68		8.42		10.12	
10 PERCENT EXCEEDS	92		493		486	
50 PERCENT EXCEEDS	11		21		70	
90 PERCENT EXCEEDS	3.5		4.8		4.8	

e Estimated.



05471500 SOUTH SKUNK RIVER NEAR OSKALOOSA, IA

LOCATION.--Lat 41°21'21", long 92°39'24", in NW$\frac{1}{4}$ SW$\frac{1}{4}$ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	75	e68	e56	e140	1100	2390	953	3780	1100	320	136
2	64	125	e76	e52	e120	1030	2360	906	3550	1020	280	129
3	63	114	e74	e60	e130	1140	2190	942	3010	970	264	114
4	72	96	e61	e68	e140	1210	1910	1350	2600	933	417	100
5	60	86	e42	e76	e130	1070	1750	1770	2540	868	441	97
6	63	106	e56	e86	e120	942	1640	1960	2460	807	376	97
7	65	177	e68	e80	e110	997	1840	1890	2790	761	295	120
8	63	157	e72	e70	e220	926	1820	2140	2640	713	270	334
9	62	129	e68	e60	e400	859	1950	2010	2270	675	240	1640
10	63	120	e64	e70	e320	1010	3270	1880	2020	663	211	1660
11	64	111	e60	e80	e260	1220	2970	3810	1860	620	203	1090
12	66	108	e56	e90	e230	e2200	3450	2860	1980	564	192	719
13	66	104	e50	e110	e210	e4400	3810	2390	5790	521	189	521
14	63	102	e54	e130	e180	e5000	3420	2730	6550	482	180	406
15	67	102	e56	e160	e170	e6400	2720	2370	7100	452	174	345
16	65	98	e60	e150	e150	e8600	2280	1980	e5510	425	201	306
17	61	e90	e54	e110	e140	e7000	1960	3050	e4310	404	214	297
18	59	e84	e50	e96	e170	e4600	1730	2310	e3340	389	194	321
19	59	e70	e48	e80	e180	3080	1600	1780	e2760	382	178	415
20	60	e56	e52	e76	e150	4150	1510	1580	e2420	532	187	386
21	60	e44	e46	e80	e130	6120	1490	1530	e2140	733	188	365
22	63	e56	e42	e86	e160	6810	1370	1690	e1920	518	167	319
23	70	e60	e44	e90	e320	7190	1350	3290	e1740	447	157	314
24	68	e68	e40	e80	e1200	6100	1360	2940	e1600	657	149	296
25	71	e60	e38	e70	e4000	4460	1280	e2320	e1510	542	230	260
26	78	e68	e48	e76	e3400	3250	1220	e2380	e1470	639	409	241
27	81	e70	e46	e74	e2200	2570	1140	e3000	e1420	656	217	231
28	72	e74	e50	e90	1290	2290	1060	e3510	1330	563	179	222
29	72	e80	e58	e130	---	2190	995	e3360	1240	477	157	210
30	71	e72	e64	e180	---	2240	943	2710	1170	406	149	201
31	73	---	e60	e160	---	2270	---	2910	---	360	144	---
TOTAL	2050	2762	1725	2876	16370	102424	58778	70301	84820	19279	7172	11892
MEAN	66.1	92.1	55.6	92.8	585	3304	1959	2268	2827	622	231	396
MAX	81	177	76	180	4000	8600	3810	3810	7100	1100	441	1660
MIN	59	44	38	52	110	859	943	906	1170	360	144	97
AC-FT	4070	5480	3420	5700	32470	203200	116600	139400	168200	38240	14230	23590
CFSM	.04	.06	.03	.06	.36	2.02	1.20	1.39	1.73	.38	.14	.24
IN.	.05	.06	.04	.07	.37	2.33	1.34	1.60	1.93	.44	.16	.27

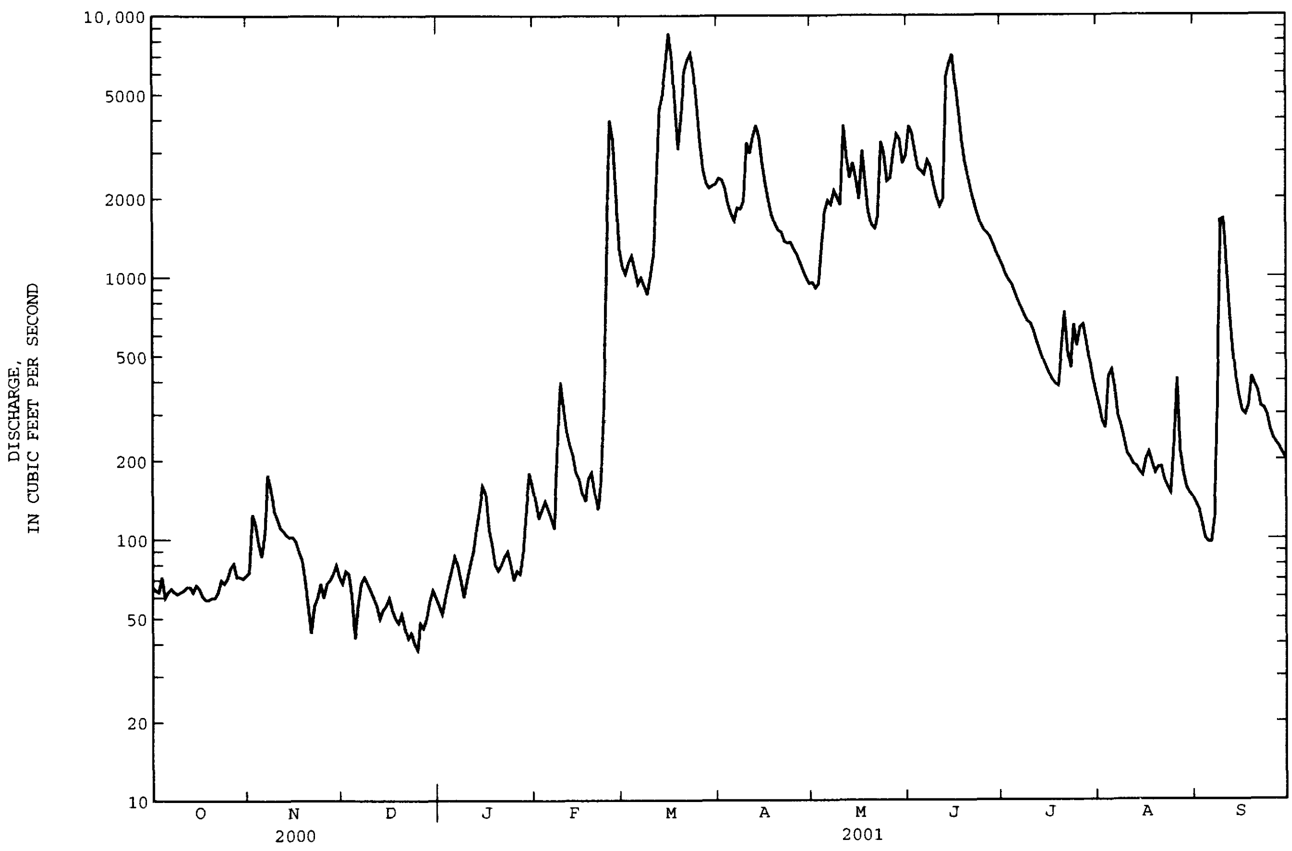
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	497	545	449	455	817	1629	1646	1717	2172	1418	656	471
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1946 - 2001	
ANNUAL TOTAL	103348		380449			
ANNUAL MEAN	282		1042		1039	
HIGHEST ANNUAL MEAN					3884	1993
LOWEST ANNUAL MEAN					40.1	1956
HIGHEST DAILY MEAN	4050	Jun 24	8600	Mar 16	20400	Jul 15 1993
LOWEST DAILY MEAN	38	Dec 25	38	Dec 25	1.8	Oct 11 1956
ANNUAL SEVEN-DAY MINIMUM	43	Dec 21	43	Dec 21	2.0	Oct 7 1956
MAXIMUM PEAK FLOW			10500	Mar 16	20700	Jul 15 1993
MAXIMUM PEAK STAGE			21.32	Mar 16	24.78	Jul 15 1993
ANNUAL RUNOFF (AC-FT)	205000		754600		752800	
ANNUAL RUNOFF (CFSM)	.17		.64		.64	
ANNUAL RUNOFF (INCHES)	2.35		8.66		8.63	
10 PERCENT EXCEEDS	784		2950		2600	
50 PERCENT EXCEEDS	120		296		450	
90 PERCENT EXCEEDS	60		61		56	

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	45	e42	e30	e140	1920	1440	451	3230	471	95	54
2	34	46	e44	e28	e110	1380	1490	448	2980	429	89	50
3	34	53	e38	e32	e120	1470	1230	454	2200	390	85	48
4	49	79	e34	e36	e140	1830	1090	506	1520	374	81	46
5	40	73	e24	e40	e130	1600	996	708	2520	352	85	44
6	41	78	e32	e44	e110	1160	962	998	2480	314	112	43
7	36	113	e38	e40	e100	934	929	1110	1700	283	93	43
8	33	133	e44	e36	e220	773	1070	915	1290	260	79	47
9	33	135	e40	e30	e700	641	1270	793	e1090	244	72	68
10	32	106	e38	e34	e600	628	1420	741	e965	232	68	224
11	32	90	e34	e36	e500	1010	2010	3420	875	219	64	161
12	32	80	e32	e42	e400	1880	2110	4130	805	201	61	102
13	33	75	e30	e48	e320	2910	2060	4100	1310	185	58	83
14	34	72	e31	e60	e300	3110	1490	3060	2850	172	55	72
15	35	69	e32	e90	e260	4410	1330	1570	3960	162	55	64
16	34	66	e34	e86	e220	5820	1110	1160	3660	152	56	59
17	35	63	e31	e70	e180	5080	931	1100	4290	145	55	56
18	33	e50	e29	e60	e220	5160	810	1600	3800	140	70	57
19	33	e46	e26	e46	e230	3680	741	1180	1620	136	72	60
20	34	e38	e28	e40	e200	2400	697	918	1250	132	62	66
21	33	e28	e26	e44	e170	3070	655	843	1140	138	71	73
22	33	e34	e22	e46	e190	3220	756	790	1010	183	66	70
23	57	e36	e24	e50	e240	3290	695	715	906	150	56	68
24	55	e44	e22	e40	e500	3370	623	648	814	136	54	63
25	48	e42	e20	e34	4870	3410	569	635	741	142	62	73
26	53	e40	e26	e38	4850	1930	528	1000	681	132	70	70
27	53	e42	e24	e36	4010	1270	512	1900	620	147	154	54
28	52	e44	e28	e60	3360	1120	523	1990	582	146	124	49
29	53	e46	e30	e80	---	1100	503	1550	539	122	82	46
30	49	e44	e34	e180	---	1180	448	1240	508	111	68	44
31	47	---	e32	e160	---	1370	---	1930	---	103	60	---
TOTAL	1236	1910	969	1696	23390	72126	30998	42603	51936	6503	2334	2057
MEAN	39.9	63.7	31.3	54.7	835	2327	1033	1374	1731	210	75.3	68.6
MAX	57	135	44	180	4870	5820	2110	4130	4290	471	154	224
MIN	32	28	20	28	100	628	448	448	508	103	54	43
AC-FT	2450	3790	1920	3360	46390	143100	61480	84500	103000	12900	4630	4080
CFSM	.05	.09	.04	.07	1.14	3.19	1.42	1.88	2.37	.29	.10	.09
IN.	.06	.10	.05	.09	1.19	3.68	1.58	2.17	2.65	.33	.12	.10

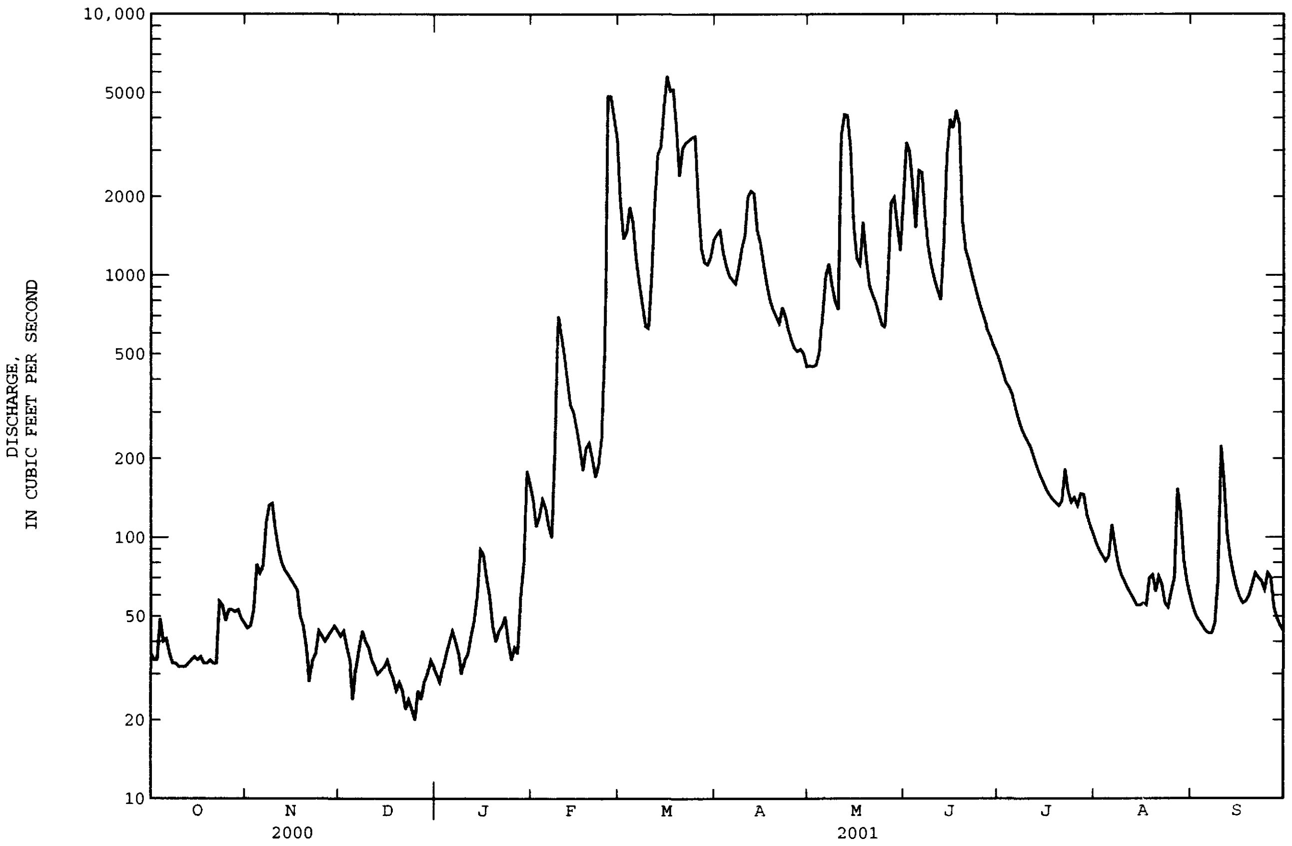
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	225	288	226	257	427	866	785	832	808	553	288	281
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1946 - 2001	
ANNUAL TOTAL	60657		237758			
ANNUAL MEAN	166		651		486	
HIGHEST ANNUAL MEAN					2041	1993
LOWEST ANNUAL MEAN					27.7	1956
HIGHEST DAILY MEAN	3530	Jun 27	5820	Mar 16	23200	Mar 31 1960
LOWEST DAILY MEAN	15	Jan 27	20	Dec 25	.10	Oct 7 1956
ANNUAL SEVEN-DAY MINIMUM	16	Jan 25	23	Dec 21	.10	Oct 7 1956
MAXIMUM PEAK FLOW			6200	Mar 16	27500	Mar 31 1960
MAXIMUM PEAK STAGE			18.43	Mar 16	25.33	Mar 31 1960
ANNUAL RUNOFF (AC-FT)	120300		471600		352200	
ANNUAL RUNOFF (CFSM)	.23		.89		.67	
ANNUAL RUNOFF (INCHES)	3.09		12.12		9.05	
10 PERCENT EXCEEDS	376		1930		1200	
50 PERCENT EXCEEDS	55		122		170	
90 PERCENT EXCEEDS	26		34		19	

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 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1957 to 1977. July 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 565.07 ft above 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	38	37	e31	e310	959	433	225	5570	193	e55	18
2	16	36	e28	e29	e210	723	443	210	5540	172	e42	17
3	13	31	e22	e32	e150	994	405	200	3040	160	e48	16
4	16	30	e18	e34	e180	1540	363	1010	1480	154	e50	15
5	27	29	e14	e36	e140	1200	329	909	2040	146	e43	14
6	163	30	e17	e40	e110	756	463	1850	3830	121	e36	14
7	128	30	e20	e38	e100	550	609	1250	2440	102	e30	16
8	87	129	e22	e34	e190	515	573	1080	1160	93	e29	16
9	66	169	e20	e30	e1800	392	426	598	800	87	39	15
10	48	120	e23	e31	e4000	322	421	442	601	78	144	14
11	38	127	e21	e34	e2300	531	452	2510	489	73	93	14
12	33	117	e20	e44	e900	905	606	4720	414	63	68	12
13	30	92	e18	e51	e670	1720	667	2520	351	56	43	15
14	27	86	e24	e69	e580	1060	438	5400	570	49	32	14
15	23	77	e29	e110	e560	2920	550	5340	3880	44	e36	13
16	22	65	e35	e210	e490	7220	867	2090	2640	39	e42	12
17	21	55	e32	e280	e340	e6600	519	1620	877	37	28	11
18	20	e44	e26	e230	e300	e4300	396	3120	592	36	28	32
19	18	e32	e27	e150	e330	e2700	340	1380	501	168	22	185
20	15	e29	e31	e100	e380	e2300	319	778	677	71	20	90
21	15	e40	e26	e86	e360	e2000	308	892	1370	111	20	38
22	14	e33	e23	e80	e330	e1800	335	1010	2750	64	19	27
23	16	e40	e27	e85	e310	e1500	695	555	1150	44	23	29
24	17	37	e25	e94	e440	1240	852	446	622	40	22	25
25	201	34	e24	e80	e1000	896	486	410	456	188	21	26
26	168	35	e29	e77	e3400	698	365	538	370	340	29	30
27	106	36	e27	e74	6610	616	311	1120	311	182	35	27
28	80	36	e29	e90	3240	520	498	711	271	109	50	20
29	61	42	e32	e130	---	447	370	507	241	e120	33	16
30	48	40	e37	e300	---	439	260	416	219	e100	24	14
31	41	---	e34	e480	---	430	---	2010	---	e74	21	---
TOTAL	1598	1739	797	3189	29730	48793	14099	45867	45252	3314	1225	805
MEAN	51.5	58.0	25.7	103	1062	1574	470	1480	1508	107	39.5	26.8
MAX	201	169	37	480	6610	7220	867	5400	5570	340	144	185
MIN	13	29	14	29	100	322	260	200	219	36	19	11
AC-FT	3170	3450	1580	6330	58970	96780	27970	90980	89760	6570	2430	1600
CFSM	.10	.11	.05	.19	1.99	2.95	.88	2.78	2.83	.20	.07	.05
IN.	.11	.12	.06	.22	2.07	3.41	.98	3.20	3.16	.23	.09	.06

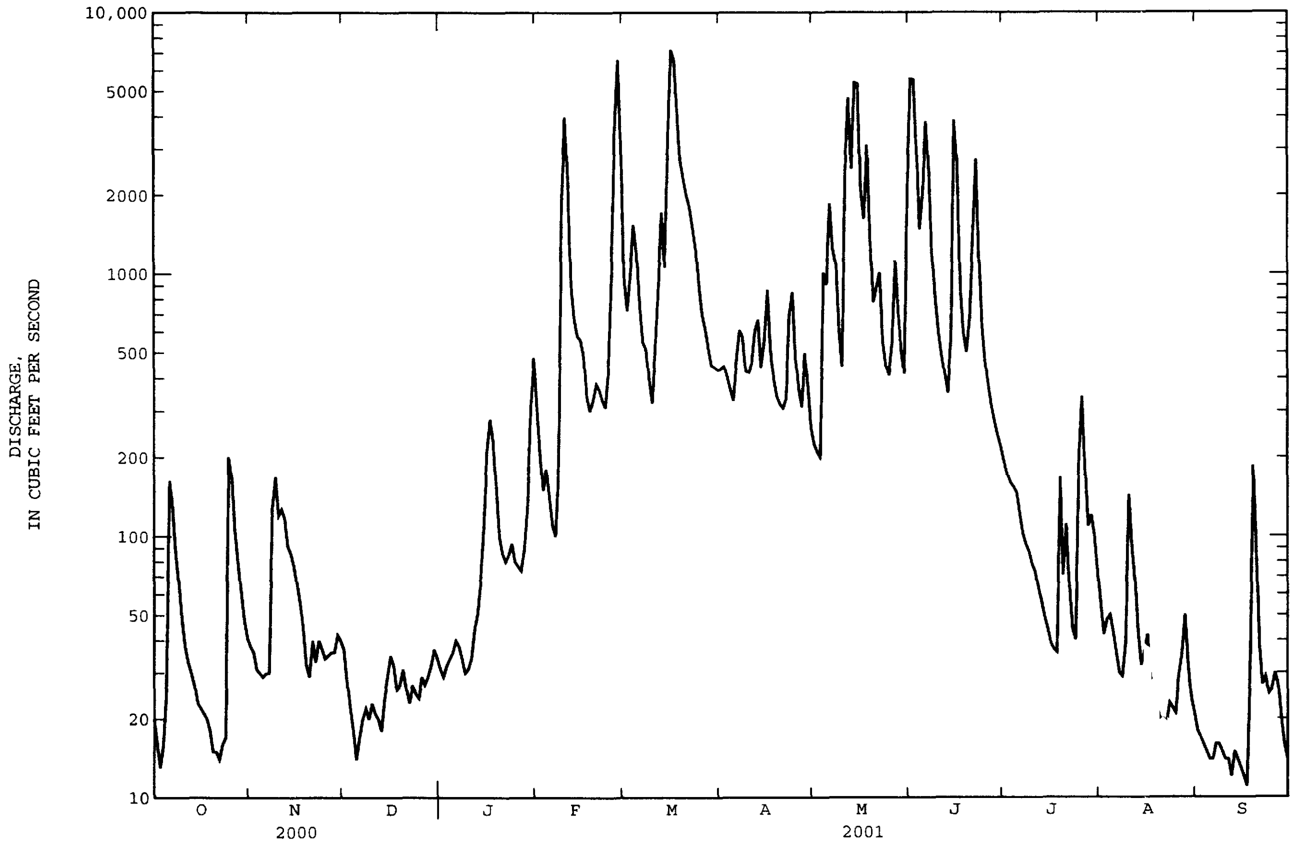
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	237	297	233	104	350	636	633	744	608	575	189	222
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1978 - 2001	
ANNUAL TOTAL	80929.1		196408			
ANNUAL MEAN	221		538		402	
HIGHEST ANNUAL MEAN					1424	1993
LOWEST ANNUAL MEAN					73.0	1989
HIGHEST DAILY MEAN	7730	Jun 27	7220	Mar 16	11500	May 28 1996
LOWEST DAILY MEAN	3.8	Jan 27	11	Sep 17	.42	Sep 17 1988
ANNUAL SEVEN-DAY MINIMUM	4.2	Jan 25	13	Sep 11	.55	Sep 14 1988
MAXIMUM PEAK FLOW			7630	Mar 16	12300	May 28 1996
MAXIMUM PEAK STAGE			18.97	Mar 18	21.27	Jul 9 1993
ANNUAL RUNOFF (AC-FT)	160500		389600		291500	
ANNUAL RUNOFF (CFSM)	.41		1.01		.75	
ANNUAL RUNOFF (INCHES)	5.65		13.71		10.26	
10 PERCENT EXCEEDS	168		1490		950	
50 PERCENT EXCEEDS	24		102		80	
90 PERCENT EXCEEDS	7.4		20		8.3	

e Estimated



05473450 BIG CREEK NEAR MT. PLEASANT, IA

LOCATION.--Lat. 45°00'26", long 91°33'05", in NW¼ SE¼ 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. U.S. Geological Survey data collection platform with telephone modem at station.

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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	9.9	e2.1	e2.3	e60	90	34	54	517	24	2.3	e.52
2	1.5	10	e1.9	e2.1	e50	84	32	53	e220	21	2.0	e.48
3	1.6	11	e1.6	e2.4	e40	113	30	59	e130	29	1.7	e.46
4	4.8	10	e1.4	e2.8	e34	123	26	460	e120	30	1.6	.43
5	2.6	9.2	e1.2	e3.2	e31	86	93	308	e260	23	1.7	.36
6	6.0	13	e1.1	e3.6	e28	69	279	363	e220	19	1.7	.54
7	4.6	10	e1.4	e3.8	e48	63	156	249	166	17	1.6	.67
8	3.2	9.1	e1.8	e3.6	e90	57	106	e180	121	e14	e3.0	.89
9	2.7	14	e1.9	e3.2	e900	e54	91	123	96	e16	5.3	.98
10	2.2	12	e1.8	e2.8	e600	e64	79	111	81	13	9.7	1.0
11	2.0	14	e1.6	e3.8	e360	e72	82	697	70	11	2.5	.77
12	2.0	11	e1.4	e5.2	e240	79	79	284	60	9.7	2.4	.68
13	2.0	9.2	e1.3	e8.0	e160	96	59	158	55	8.2	2.3	.70
14	2.2	8.2	e1.2	e12	e120	76	56	1270	57	7.2	2.0	.62
15	2.3	7.0	e1.5	e15	e90	516	154	526	121	6.4	2.2	.57
16	2.7	6.0	e1.8	e16	e84	803	136	173	84	5.7	4.6	.55
17	3.4	e5.4	e1.6	e14	e74	317	93	197	62	5.0	2.4	.95
18	2.9	e4.5	e1.4	e12	e68	277	75	194	54	5.1	1.2	12
19	3.0	e3.0	e1.3	e11	e64	245	71	133	47	5.8	.90	8.8
20	4.3	e2.4	e1.3	e9.6	e69	181	65	107	41	5.7	.82	1.9
21	5.8	e1.8	e1.2	e8.2	e64	136	59	106	e46	4.8	.73	2.2
22	7.4	e1.6	e1.2	e6.4	e60	111	116	86	89	4.0	.78	1.0
23	9.2	e1.8	e1.1	e6.6	62	92	160	75	55	2.8	1.0	1.7
24	9.6	e2.0	e1.1	e7.6	644	74	96	67	44	6.8	.83	e1.0
25	11	e2.4	e1.3	e7.2	1440	59	80	68	41	15	.76	.61
26	12	e2.7	e1.5	e7.6	266	50	71	83	37	9.2	.81	.49
27	11	e2.8	e1.8	e7.0	162	45	66	129	33	5.0	.72	.45
28	11	e2.6	e2.0	e9.0	109	42	59	99	31	4.8	.78	.42
29	11	e2.4	e2.2	e20	---	41	56	79	30	5.1	.66	.42
30	10	e2.2	e2.4	e80	---	37	55	67	26	3.4	.59	.41
31	10	---	e2.3	e70	---	36	---	293	---	2.9	.56	---
TOTAL	165.5	201.2	48.7	366.0	6017	4188	2614	6851	3014	339.6	60.14	42.57
MEAN	5.34	6.71	1.57	11.8	215	135	87.1	221	100	11.0	1.94	1.42
MAX	12	14	2.4	80	1440	803	279	1270	517	30	9.7	12
MIN	1.5	1.6	1.1	2.1	28	36	26	53	26	2.8	.56	.36
AC-FT	328	399	97	726	11930	8310	5180	13590	5980	674	119	84
CFSM	.09	.12	.03	.20	3.71	2.33	1.50	3.81	1.73	.19	.03	.02
IN.	.11	.13	.03	.23	3.86	2.69	1.68	4.39	1.93	.22	.04	.03

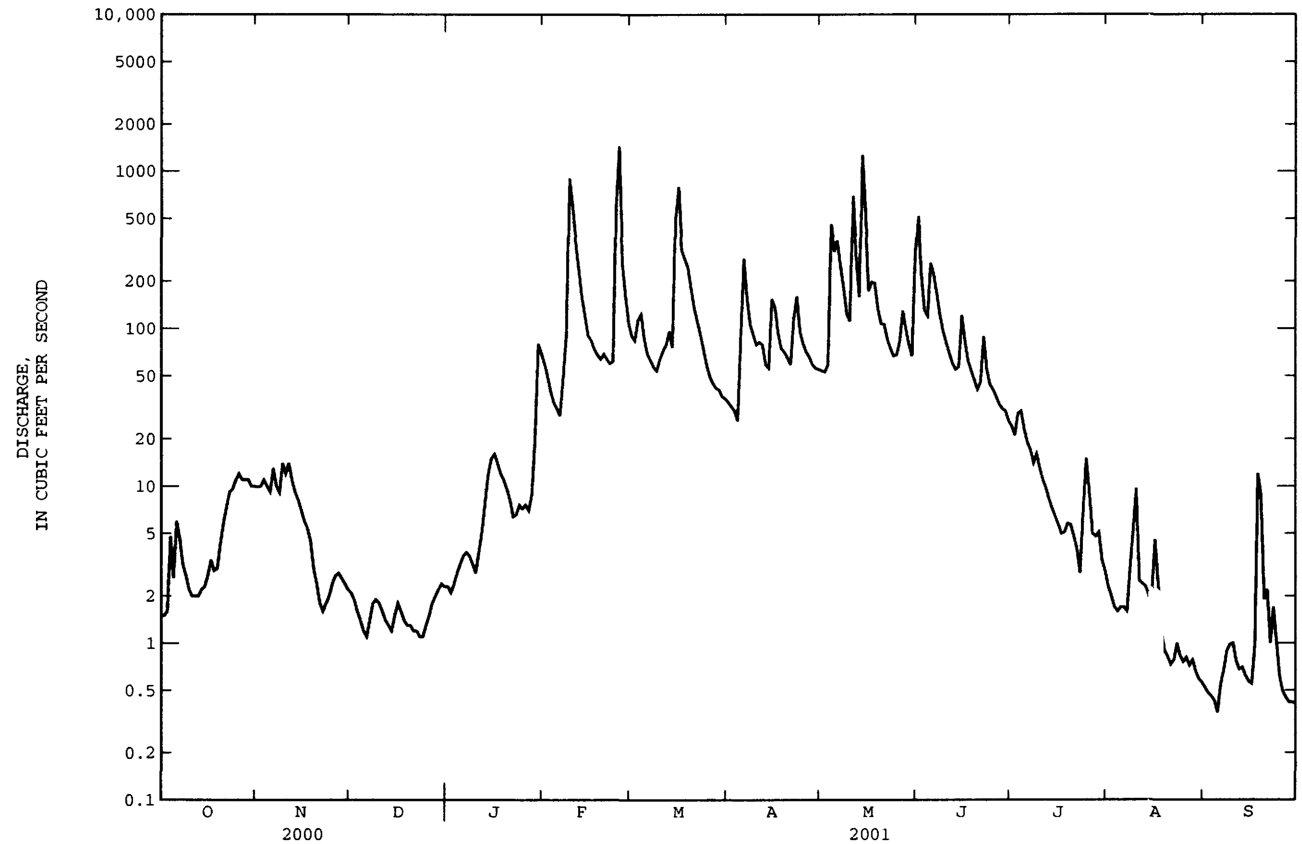
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	30.2	23.6	10.6	29.5	103	86.7	109	98.3	85.8	19.8	3.04	3.43
MAX	110	78.6	25.6	83.0	215	176	201	221	100	49.1	8.61	8.41
(WY)	1999	1999	1999	1998	2001	1998	1998	2001	2001	2000	1998	1998
MIN	.56	.71	.68	.84	14.8	8.30	26.0	26.2	47.2	2.67	.53	1.42
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	1999	1999	1999	2001

05473450 BIG CREEK NEAR MT. PLEASANT, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1937 - 2001	
ANNUAL TOTAL	7267.69		23907.71			
ANNUAL MEAN	19.9		65.5		49.8	
HIGHEST ANNUAL MEAN					68.1	1998
LOWEST ANNUAL MEAN					18.9	2000
HIGHEST DAILY MEAN	531	Jun 26	1440	Feb 25	1600	Mar 31 1998
LOWEST DAILY MEAN	.40	Jan 26a	.36	Sep 5	.11	Sep 26 1999
ANNUAL SEVEN-DAY MINIMUM	.42	Jan 25	.48	Aug 31	.17	Sep 20 1999
MAXIMUM PEAK FLOW			2170	Feb 25	2280	Mar 31 1998
MAXIMUM PEAK STAGE			14.29	Feb 9	14.29	Feb 9 2001
INSTANTANEOUS LOW FLOW			.30	Sep 30	.30	Sep 30 2001
ANNUAL RUNOFF (AC-FT)	14420		47420		36080	
ANNUAL RUNOFF (CFSM)	.34		1.13		.86	
ANNUAL RUNOFF (INCHES)	4.66		15.33		11.67	
10 PERCENT EXCEEDS	42		157		113	
50 PERCENT EXCEEDS	4.4		11		12	
90 PERCENT EXCEEDS	.58		1.0		.55	

a Also Jan. 27, 31.
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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	332	311	308	e140	e1200	11300	5380	e4800	18900	3000	833	383
2	289	304	311	e150	e1100	7710	5350	e4710	19100	2810	752	328
3	260	290	282	e150	e1000	6280	5360	e4650	17200	2670	681	306
4	266	272	280	e160	e980	6890	5210	e6300	13200	2580	1010	287
5	346	249	e160	e170	e900	7970	4910	e7230	12200	2430	902	269
6	424	273	e100	e160	e820	6420	5890	e8150	14400	2250	645	253
7	632	340	e110	e150	e780	5330	5780	e8850	15100	2060	587	261
8	521	368	e120	e150	e960	4950	5300	e8410	11500	1890	638	253
9	411	651	e130	e140	e2000	3930	4840	e7910	8340	1760	640	279
10	347	794	e140	e150	e4000	2890	5080	e7780	7010	1640	565	255
11	302	721	e150	e160	e7600	3010	5660	11900	6020	1520	556	260
12	281	709	e160	e160	e5800	4220	6620	15900	5320	1430	456	1320
13	270	639	e140	e170	e4400	6090	7380	15500	4820	1340	426	1650
14	264	548	e160	e180	e3600	8300	7110	26000	4540	1230	424	1230
15	254	494	e170	e260	e3000	11600	7570	30300	12000	1100	419	950
16	238	461	e180	e340	e2600	22400	7840	24300	13600	1020	417	779
17	227	416	e190	e480	e3000	24500	7160	18100	10700	956	410	675
18	226	380	e200	e700	e3200	24200	6170	13400	9900	908	388	621
19	217	342	e210	e540	e3000	23100	5820	11400	9860	1010	387	921
20	210	293	e220	e460	e3600	17500	6040	9020	10100	1070	382	989
21	213	160	e200	e440	e3200	16800	6040	7230	10200	975	406	693
22	210	204	e180	e400	e3800	16700	e5640	7050	9950	943	403	636
23	210	246	e200	e360	e3600	14600	e6140	5990	7750	881	390	657
24	218	279	e180	e340	e7000	12100	e5510	5290	5670	1070	373	670
25	256	309	e160	e320	e14000	11000	e4890	5590	4840	1400	387	674
26	631	299	e130	e300	e20000	10600	e4910	5860	4350	1630	365	599
27	627	290	e150	e280	e18000	10700	e4950	7370	3970	1710	353	553
28	468	285	e160	e260	e12000	10300	e4940	8420	3670	1190	387	519
29	385	283	e170	e300	---	8370	e5120	7640	3430	1080	524	481
30	350	304	e180	e460	---	6540	e4940	7140	3200	1130	594	437
31	330	---	e160	e900	---	5620	---	8990	---	956	480	---
TOTAL	10215	11514	5591	9330	135140	331920	173550	321180	280840	47639	16180	18188
MEAN	330	384	180	301	4826	10710	5785	10360	9361	1537	522	606
MAX	632	794	311	900	20000	24500	7840	30300	19100	3000	1010	1650
MIN	210	160	100	140	780	2890	4840	4650	3200	881	353	253
AC-FT	20260	22840	11090	18510	268100	658400	344200	637100	557000	94490	32090	36080
CFSM	.08	.09	.04	.07	1.12	2.48	1.34	2.40	2.17	.36	.12	.14
IN.	.09	.10	.05	.08	1.17	2.86	1.50	2.77	2.42	.41	.14	.16

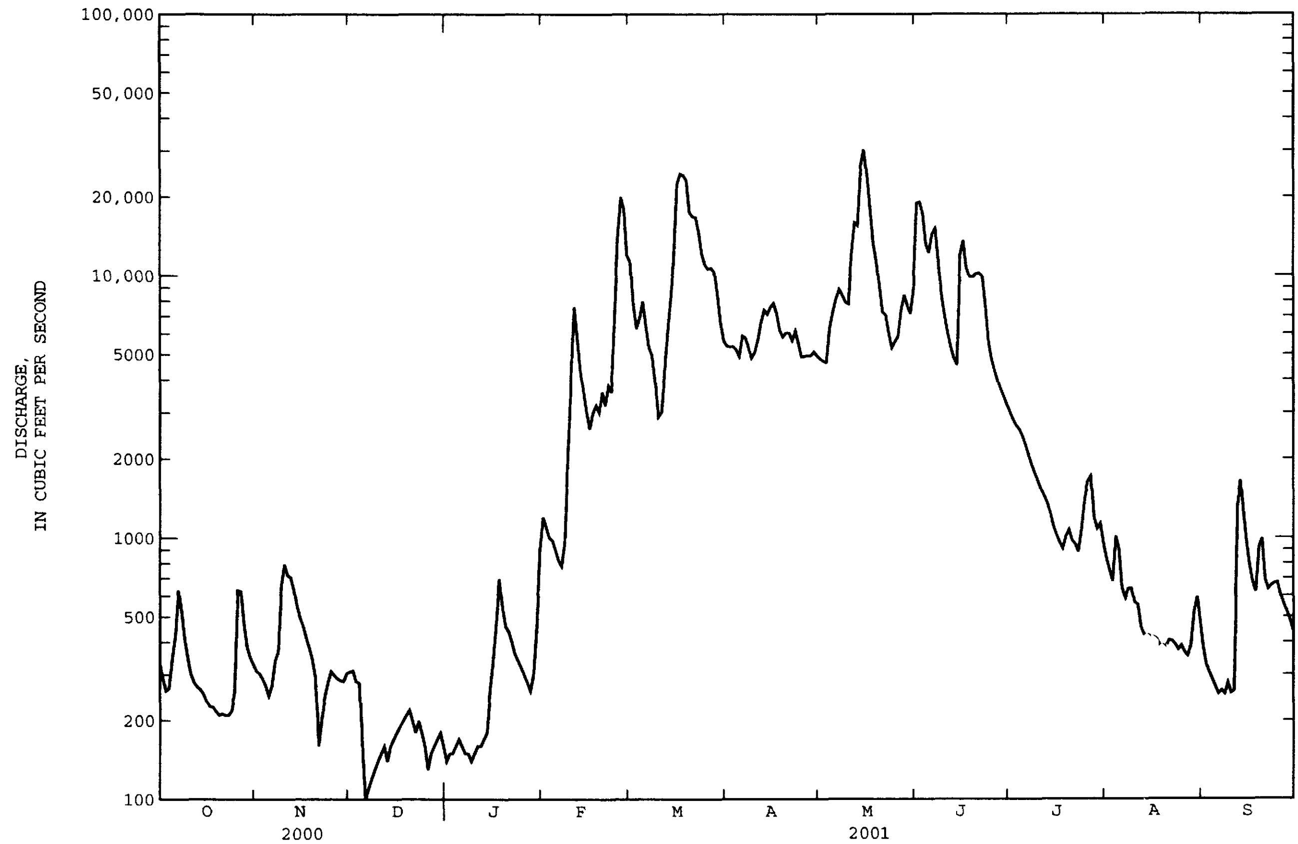
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1915 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1370	1549	1270	1301	2379	4379	4170	4140	4405	2857	1672	1606
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1915 - 2001	
ANNUAL TOTAL	413551		1361287			
ANNUAL MEAN	1130		3730		2589	
HIGHEST ANNUAL MEAN					10200	1993
LOWEST ANNUAL MEAN					152	1934
HIGHEST DAILY MEAN	19300	Jun 27	30300	May 15	62600	Apr 23 1973
LOWEST DAILY MEAN	65	Jan 27	100	Dec 6	7.0	Aug 27 1934
ANNUAL SEVEN-DAY MINIMUM	72	Jan 25	130	Dec 5	7.4	Aug 26 1934
MAXIMUM PEAK FLOW			32700	May 14	66800	Apr 23 1973
MAXIMUM PEAK STAGE			20.51	Feb 10	27.05	Apr 23 1973
ANNUAL RUNOFF (AC-FT)	820300		2700000		1876000	
ANNUAL RUNOFF (CFSM)	.26		.86		.60	
ANNUAL RUNOFF (INCHES)	3.57		11.74		8.16	
10 PERCENT EXCEEDS	2350		10700		6830	
50 PERCENT EXCEEDS	420		921		1070	
90 PERCENT EXCEEDS	150		186		150	

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, 677 microsiemens Jan. 28; minimum daily, 159 microsiemens Feb. 27.
WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 1; minimum daily, 0.0°C many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,870 mg/L June 15; minimum daily mean, 6 mg/L Jan. 28.
SEDIMENT LOADS: Maximum daily, 137,000 tons May 14; minimum daily, 4.2 tons Jan. 28.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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)
NOV						
07...	1420	10.4	346	51	48	98
DEC						
20...	1330	--	217	12	7.0	47
FEB						
07...	1250	.1	785	--	--	--
MAR						
12...	1100	5.8	4060	243	2660	80
APR						
25...	1020	16.6	4690	276	3490	100
JUN						
07...	1115	15.4	15600	1210	51000	92
JUL						
19...	1130	25.4	958	105	272	98
AUG						
30...	0850	25.2	613	90	149	96

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)
NOV											
07...	1420	5	--	--	--	--	--	96	98	99	100
APR											
25...	1020	5	--	.0	3	33	69	88	95	98	100
JUN											
07...	1115	5	--	.0	12	78	97	98	98	98	100
JUL											
19...	1130	5	--	.0	4	58	86	94	97	99	100
AUG											
30...	0850	5	1	1	5	28	47	58	67	82	94

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	484	483	607	---	---	256	482	524	305	571	493	454
2	406	466	597	---	---	292	483	531	303	575	489	431
3	423	464	626	---	415	337	484	510	357	570	495	419
4	398	458	575	---	434	363	485	415	419	569	437	414
5	447	472	574	---	468	---	480	358	412	568	390	406
6	419	480	---	633	507	327	380	360	399	574	331	386
7	420	531	565	---	510	361	471	402	317	562	332	395
8	442	582	583	---	515	384	445	448	399	552	345	423
9	489	---	650	---	280	409	486	480	469	561	362	425
10	477	593	588	---	197	435	498	518	523	485	376	440
11	459	575	---	545	---	451	482	392	497	487	382	479
12	464	524	---	548	217	458	481	298	527	468	376	523
13	455	558	---	550	274	369	431	314	544	457	363	366
14	440	548	---	563	340	315	459	204	---	449	369	345
15	455	561	---	---	365	320	460	202	323	456	368	374
16	453	569	---	---	---	248	487	280	260	423	378	398
17	456	561	---	---	---	227	492	342	312	403	392	424
18	470	576	---	631	---	238	507	381	340	420	403	456
19	481	587	---	---	---	274	536	370	384	436	384	455
20	427	597	598	528	---	307	554	395	430	487	403	448
21	454	614	---	532	---	326	538	455	463	459	408	382
22	466	633	---	568	---	331	541	468	441	491	409	447
23	494	635	---	---	---	351	380	480	486	495	395	483
24	497	616	---	---	367	347	477	510	499	480	420	510
25	521	560	---	---	192	313	475	532	526	386	434	---
26	557	598	---	590	163	308	504	480	547	454	430	522
27	587	---	---	662	159	331	533	458	556	435	427	530
28	589	538	---	677	---	355	528	419	564	417	430	495
29	532	537	---	643	---	384	483	465	564	458	450	466
30	539	619	---	427	---	411	485	492	571	439	456	467
31	505	---	---	418	---	417	---	506	---	482	442	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	15.0	5.0	---	---	.0	2.0	14.0	14.0	27.0	33.0	25.0
2	16.0	12.0	5.0	---	---	.0	3.0	13.0	13.0	25.0	30.0	27.0
3	16.0	7.0	5.0	---	.0	.0	.0	14.0	14.0	25.0	29.0	29.0
4	13.0	7.0	5.0	---	.0	.0	3.0	12.0	14.0	25.0	31.0	29.0
5	8.0	6.0	7.0	---	.0	---	4.0	10.0	15.0	27.0	31.0	25.0
6	5.0	5.0	---	.0	.0	.0	4.0	9.0	16.0	26.0	29.0	27.0
7	4.0	2.0	5.0	---	.0	.0	7.0	9.0	16.0	29.0	32.0	28.0
8	5.0	1.0	7.0	---	.0	.0	5.0	9.0	19.0	28.0	32.0	25.0
9	6.0	---	7.0	---	.0	.0	9.0	9.0	21.0	30.0	32.0	21.0
10	8.0	2.0	6.0	---	.0	.0	7.0	---	22.0	30.0	29.0	25.0
11	10.0	3.0	---	.0	---	.0	13.0	20.0	25.0	28.0	28.0	25.0
12	11.0	.1	---	.0	1.5	5.8	8.0	19.0	25.0	29.0	29.0	25.0
13	13.0	3.0	---	.0	.0	.0	10.0	16.0	27.0	27.0	28.0	21.0
14	14.0	6.0	---	.0	.0	.0	10.0	16.0	---	29.0	26.0	20.0
15	14.0	2.0	---	---	.0	.0	8.0	21.0	23.0	29.0	22.0	20.0
16	9.0	5.0	---	---	---	.0	2.0	22.0	23.0	29.0	24.0	20.0
17	11.0	6.0	---	---	---	.0	4.0	21.0	22.0	29.0	25.0	21.0
18	11.0	7.0	---	.0	---	.0	5.0	21.0	24.0	28.0	24.0	18.0
19	12.0	4.0	---	---	---	.0	7.0	23.0	22.0	26.0	21.0	23.0
20	15.0	3.0	---	.0	---	.0	12.0	21.0	21.0	28.0	27.0	19.0
21	14.0	6.0	---	.0	---	.0	13.0	20.0	22.0	28.0	26.0	20.0
22	9.0	6.0	---	.0	---	.0	13.0	17.0	20.0	30.0	27.0	20.0
23	12.0	6.0	---	---	---	.0	8.0	16.0	20.0	32.0	27.0	19.0
24	14.0	5.0	---	---	.0	.0	10.0	15.0	23.0	31.0	26.0	17.0
25	15.0	5.0	---	---	.0	.0	10.0	15.0	24.0	27.0	27.0	---
26	13.0	6.0	---	.0	.0	.0	12.0	13.0	25.0	27.0	27.0	18.0
27	14.0	---	---	.0	.0	.0	12.0	16.0	26.0	26.0	29.0	19.0
28	9.0	4.0	---	.0	---	.0	10.0	15.0	27.0	27.0	29.0	19.0
29	10.0	5.0	---	.0	---	.0	12.0	17.0	27.0	30.0	28.0	18.0
30	10.0	5.0	---	.0	---	.0	13.0	16.0	27.0	31.0	25.2	19.0
31	12.0	---	---	.0	---	.0	---	13.0	---	32.0	26.0	---

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

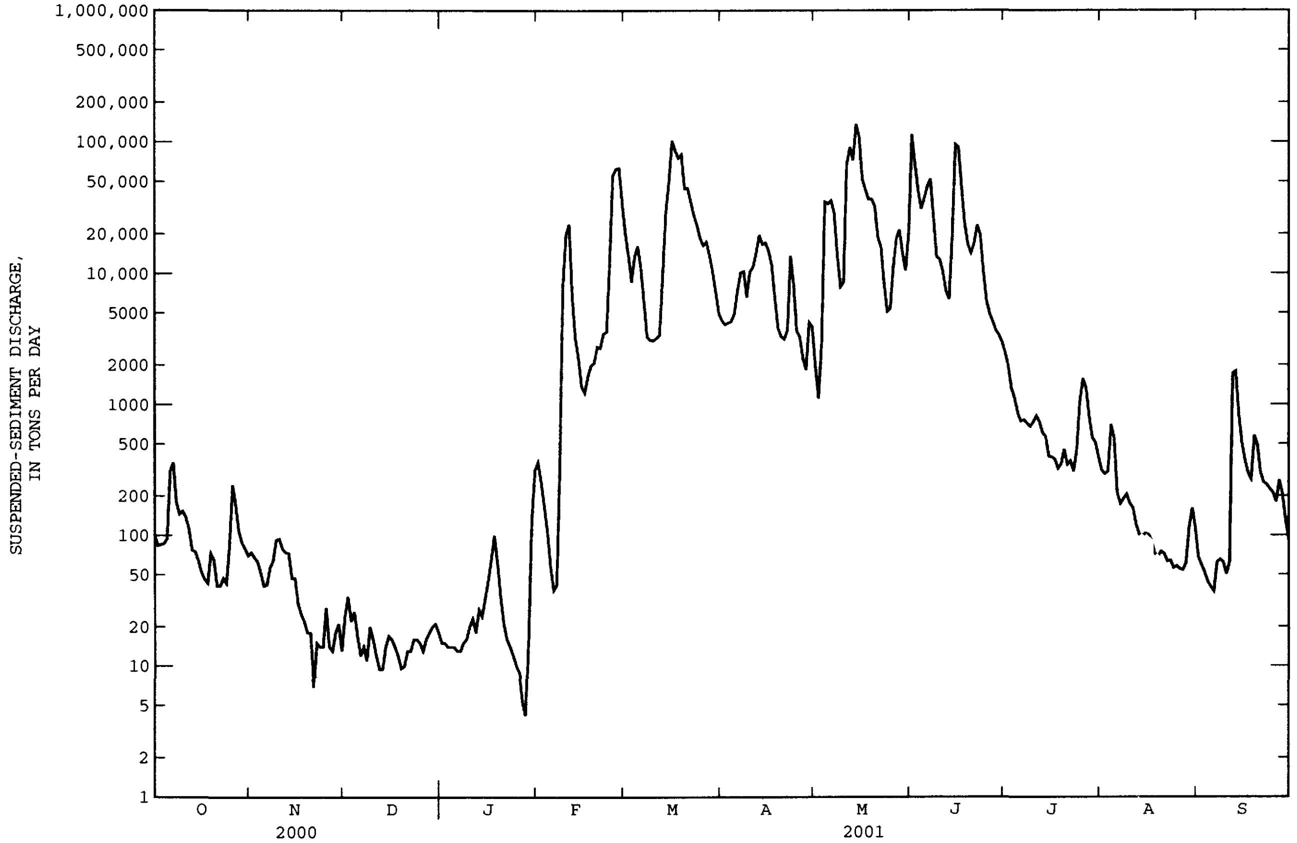
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	114	102	88	74	28	24	39	15	112	363	653	20500
2	106	83	83	68	40	34	37	15	87	258	672	13900
3	121	85	80	63	28	22	35	14	62	167	510	8670
4	121	86	70	52	34	26	32	14	41	108	727	13600
5	101	94	60	41	40	17	30	14	24	58	755	16300
6	266	310	57	42	43	12	29	13	17	38	640	11100
7	212	360	62	57	46	14	32	13	20	42	424	6040
8	126	178	65	64	33	11	38	15	135	350	253	3290
9	131	145	53	92	58	20	43	16	1510	8150	178	3100
10	164	153	44	94	43	16	49	20	1830	19800	153	3080
11	168	138	40	79	30	12	53	23	1160	23800	156	3210
12	147	112	39	74	22	9.5	41	18	427	6690	244	3400
13	105	77	42	73	25	9.5	59	27	272	3230	596	10100
14	105	75	32	47	32	14	50	24	233	2260	1310	29300
15	93	64	35	47	36	17	47	33	170	1380	1600	50300
16	81	52	24	30	32	16	49	45	175	1230	1700	103000
17	75	46	22	25	27	14	51	66	202	1640	1310	86400
18	70	43	21	22	22	12	53	100	230	1990	1160	75700
19	124	73	19	18	17	9.6	42	61	257	2080	1290	80700
20	115	65	22	18	17	10	27	34	285	2770	933	44500
21	72	41	16	6.9	24	13	18	21	313	2700	985	44800
22	72	41	28	15	26	13	15	16	340	3490	773	35000
23	84	47	21	14	29	16	14	14	368	3580	709	27800
24	72	43	18	14	32	16	13	12	658	12400	707	23200
25	119	84	33	28	34	15	12	10	1480	55900	626	18600
26	142	243	17	14	37	13	11	8.9	1160	62600	570	16400
27	100	172	16	13	40	16	7	5.3	1310	63700	606	17500
28	85	108	24	18	42	18	6	4.2	1080	35000	495	13800
29	84	88	27	21	44	20	22	18	---	---	457	10300
30	84	79	15	13	43	21	104	129	---	---	405	7160
31	79	70	---	---	41	18	130	316	---	---	331	4960
TOTAL	---	3357	---	1236.9	---	498.6	---	1134.4	---	315774	---	805710

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DAY	MEA CON TRA (MG	LOAD (TONS/DAY)	MEAN CONCEN TRATIO (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN TRATIO (MG/L)	LOAD (TONS/DAY)	MEAN CONCE TRATI (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	306	4360	150	1940	2260	114000	308	2470	147	313	75	68
2	288	4080	87	1110	1340	68000	261	1960	154	295	78	59
3	296	4210	235	2950	941	42800	186	1330	177	309	74	52
4	315	4330	2070	35200	897	31100	162	1120	261	701	67	44
5	387	4990	1740	34000	1150	37300	132	864	232	550	66	40
6	475	7480	1630	35900	1220	46400	124	745	124	208	66	37
7	656	10200	1200	28700	1310	52400	138	763	115	174	105	62
8	742	10400	606	13800	844	26100	142	718	116	191	113	65
9	521	6600	372	7940	600	13400	145	677	124	206	97	62
10	767	10300	412	8650	676	12800	169	736	120	175	87	50
11	742	11200	1910	68000	623	10200	203	821	111	162	102	62
12	799	14300	2040	91500	508	7300	192	732	102	121	465	1720
13	991	19700	1690	72600	493	6360	170	605	91	101	417	1790
14	867	16700	1920	137000	1570	19100	172	568	90	99	266	838
15	842	17200	1320	109000	2870	95900	137	401	94	103	211	503
16	703	14900	794	52700	2450	91200	145	396	91	101	192	373
17	594	11500	896	43400	1540	45200	149	380	89	90	181	297
18	382	6400	1010	36700	891	24000	133	323	80	72	178	267
19	247	3850	1200	36900	621	16700	136	351	75	68	251	579
20	204	3300	1330	32600	522	14300	172	454	83	75	194	486
21	182	3150	959	18900	610	16900	144	347	75	72	179	302
22	242	3690	838	16000	859	23300	159	371	66	63	164	253
23	829	13700	514	8390	932	19700	141	307	69	64	151	244
24	561	8350	364	5130	661	10300	167	446	64	56	136	225
25	276	3640	359	5410	471	6170	289	1040	63	58	126	210
26	247	3270	726	11500	422	4920	375	1570	65	55	123	179
27	166	2220	936	18600	404	4290	301	1330	66	54	197	264
28	138	1840	953	21500	376	3690	268	808	67	61	167	209
29	307	4240	701	14400	368	3380	206	556	90	115	116	132
30	294	3920	542	10500	349	2990	176	512	112	161	91	93
31	---	---	775	20300	---	---	161	394	98	114	---	---
TOTAL	---	234020	---	1001220	---	870200	---	24095	---	4987	---	9565

YEAR 3271797.9



05474500 MISSISSIPPI RIVER AT KEOKUK, IA

LOCATION.--Lat 40°23'37", long 91°22'27", in SE 1/4 SW 1/4 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 Ameren-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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35500	33300	43800	33900	54400	116500	100200	280300	167500	154700	57000	35300
2	34200	32400	52800	34200	52800	91100	102500	276100	173400	154500	54600	35100
3	35700	34700	50900	35900	46100	80500	104600	268300	176200	153700	54900	34400
4	40500	39400	48200	38200	46900	77000	106400	271100	178500	152400	52200	30600
5	36300	41500	43800	38100	47000	79700	104300	278200	181000	150300	56400	35400
6	39100	43400	35900	38100	42700	76500	111500	278700	187300	145100	66600	39600
7	35600	45300	31900	34900	44300	73500	114100	286300	186800	135500	63800	37500
8	33700	47300	29900	38300	46400	67300	132400	289800	184300	126700	65400	36500
9	29700	49700	28300	36900	78000	62900	131200	291400	181600	121900	66400	38700
10	31100	52100	25400	35700	107800	58600	141500	292600	176300	112900	67400	41800
11	25400	61000	27000	37200	115400	60800	150400	302400	170500	109400	63000	52500
12	27000	59600	18300	38400	112300	63500	153300	319500	163400	90400	63300	55100
13	29000	53800	16900	37600	109300	68300	165200	324800	155200	83200	50500	61800
14	33400	59700	25100	39600	92200	85500	172700	333800	148900	65500	38300	58800
15	37100	56400	31800	39200	85300	102500	186800	344800	150000	60800	28600	56800
16	37700	58600	28200	38500	78300	127000	198500	333900	156500	55900	32400	50500
17	37400	62600	28400	39300	67000	127500	209400	313300	152900	50800	35800	44700
18	34300	64200	28500	40900	59000	134200	215400	294500	149200	51900	42300	40300
19	28500	61700	30000	42000	60500	134100	228400	273800	148300	55100	42700	42200
20	22800	65400	32300	41100	62000	126100	242200	255100	145000	57800	39800	43900
21	24800	59700	34200	41300	55100	114900	256200	241700	152500	53400	39200	54100
22	32500	54500	34200	42200	51700	120300	262900	229400	155900	53400	38700	57300
23	38400	45500	34500	42100	48500	120100	282000	215600	158800	55300	48300	56300
24	34900	49800	33200	39700	56100	120100	299100	205100	159400	58900	42100	53800
25	34900	48800	33500	38100	99500	122300	303100	191800	159700	58800	44200	50500
26	34200	45700	32000	33900	132800	123400	303000	183700	160400	61600	43500	52600
27	34500	48300	32600	33900	146500	121200	302200	179900	157800	57700	42100	54000
28	36600	47800	32800	34500	131300	114700	297400	176300	156800	56300	41900	52800
29	39600	48900	34200	35000	---	111000	291800	170400	154800	60600	41700	54800
30	39800	46900	34300	41200	---	105600	286700	163700	155300	59200	43900	46500
31	33100	---	33400	47700	---	102900	---	162000	---	60700	39700	---
TOTAL	1047300	1518000	1026300	1187600	2129200	3089600	5955400	8028300	4904200	2724400	1506700	1404200
MEAN	33780	50600	33110	38310	76040	99660	198500	259000	163500	87880	48600	46810
MAX	40500	65400	52800	47700	146000	134000	303000	345000	187000	155000	67400	61800
MIN	22800	32400	16900	33900	42700	58600	100000	162000	145000	50800	28600	30600
AC-FT	2077000	3011000	2036000	2356000	4223000	6128000	11810000	15920000	9727000	5404000	2989000	2785000
CFSM	.28	.43	.28	.32	.64	.84	1.67	2.18	1.37	.74	.41	.39
IN.	.33	.47	.32	.37	.67	.97	1.86	2.51	1.53	.85	.47	.44

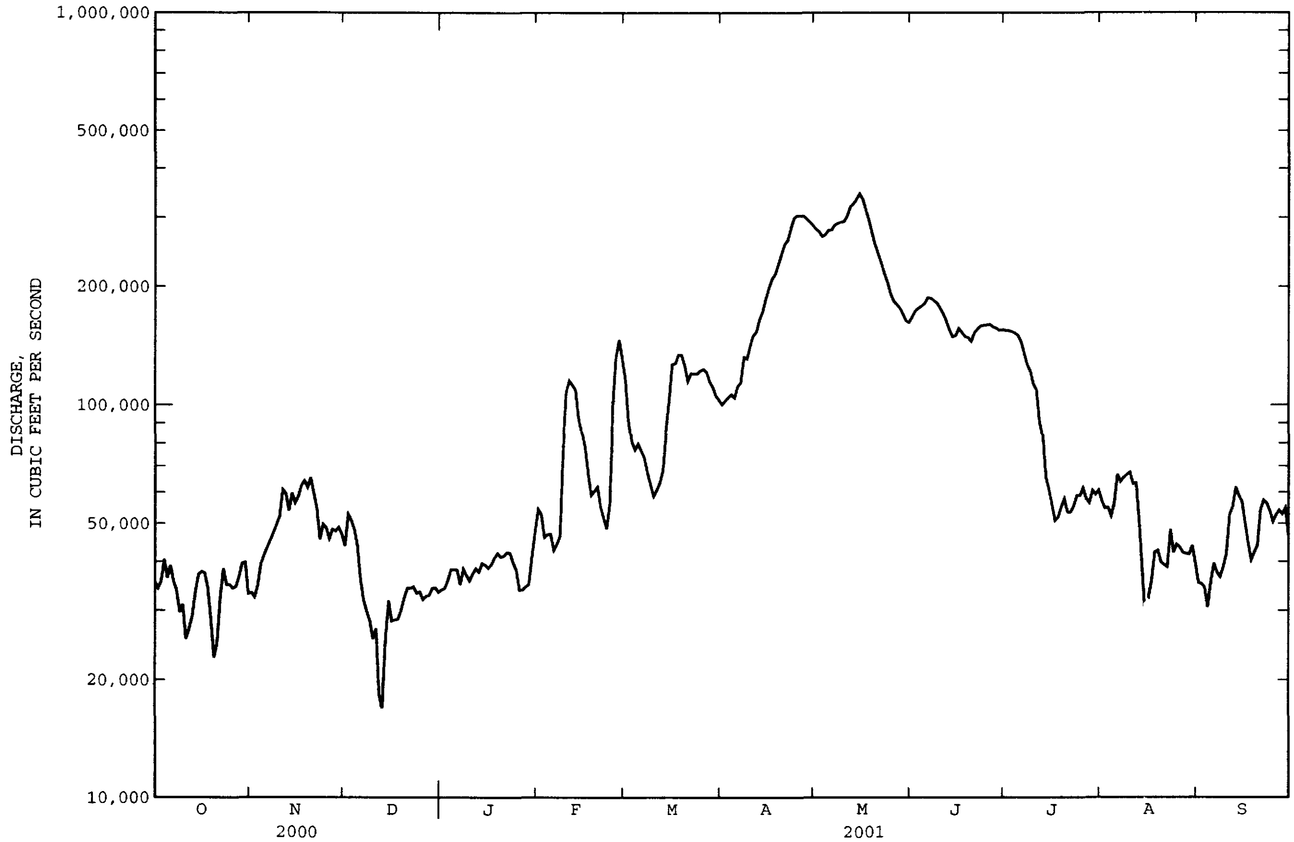
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1879 - 2001, BY WATER YEAR (WY)

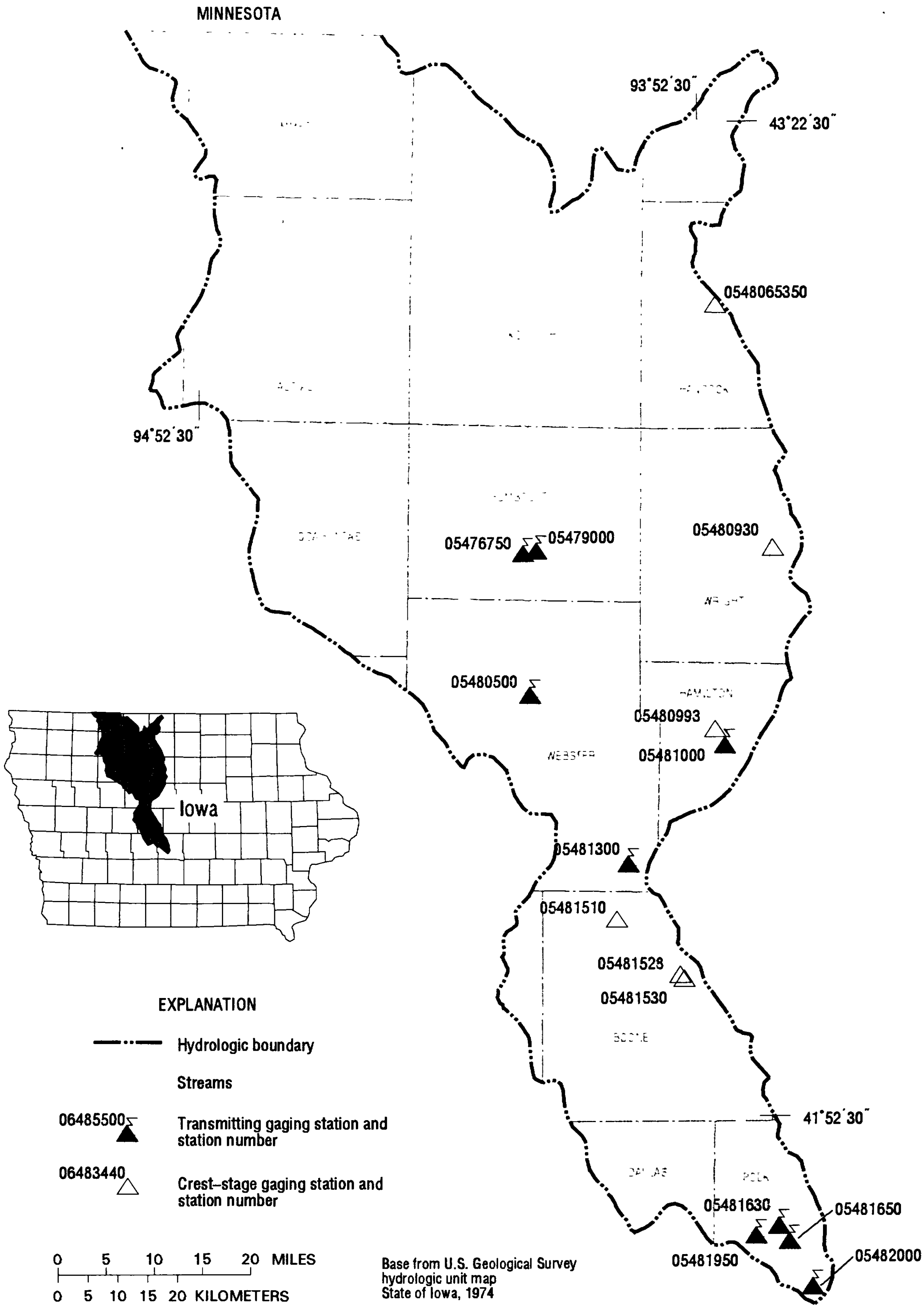
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	50890	51200	38560	36080	42860	80700	120200	109000	94320	74870	49740	47400
MAX	221100	211300	125600	101600	95620	185400	250100	260700	227300	385800	223000	163300
(WY)	1882	1882	1983	1973	1984	1973	1993	1888	1892	1993	1993	1993
MIN	16060	16020	13450	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1879 - 2001	
ANNUAL TOTAL	23855200		34521200			
ANNUAL MEAN	65180		94580		66370	
HIGHEST ANNUAL MEAN					162500	1993
LOWEST ANNUAL MEAN					21540	1934
HIGHEST DAILY MEAN	209000	Jun 18	345000	May 15	434000	Jul 10 1993
LOWEST DAILY MEAN	16900	Dec 13	16900	Dec 13	5000	Dec 27 1933
ANNUAL SEVEN-DAY MINIMUM	24400	Dec 8	24400	Dec 8	8270	Dec 25 1933
MAXIMUM PEAK FLOW					446000	Jul 10 1993
MAXIMUM PEAK STAGE					27.58	Jul 10 1993a
ANNUAL RUNOFF (AC-FT)	47320000		68470000		48080000	
ANNUAL RUNOFF (CFSM)	.55		.79		.56	
ANNUAL RUNOFF (INCHES)	7.46		10.79		7.58	
10 PERCENT EXCEEDS	145000		212000		134000	
50 PERCENT EXCEEDS	49900		56400		50800	
90 PERCENT EXCEEDS	31400		33600		23000	

a From floodmark.




MINNESOTA
93°52′30″
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05481000
Iowa
05481300
05481510
05481528
05481530
EXPLANATION
Hydrologic boundary
Streams
06485500
Transmitting gaging station and station number
06483440
Crest-stage gaging station and station number
41°52′30″
05481630
05481650
05481950
05482000
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

Crest Stage Gaging Stations

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	177	193	e53	57	74	4630	7650	3880	e2560	1300	207
2	78	171	167	e51	e44	75	5380	8410	3680	2520	1190	205
3	78	156	e100	52	48	74	5340	e10100	3490	2290	1100	199
4	81	151	e90	53	46	74	5150	10500	3280	e2290	1000	183
5	84	150	e96	55	45	87	5120	10400	3210	e2140	917	174
6	72	192	117	57	46	78	5210	e10500	3160	e2100	847	174
7	70	327	e117	58	46	78	5430	9820	3030	e1830	763	196
8	69	491	e108	57	47	81	5940	8990	2900	e1780	696	199
9	69	470	139	57	61	84	6330	8370	2790	e1690	643	176
10	71	413	160	59	e35	87	6220	7820	2720	1530	576	164
11	72	367	e160	61	38	100	6700	7370	2640	1440	520	156
12	73	351	e140	61	43	99	7820	6680	2630	1330	458	150
13	76	330	e130	63	40	98	8640	6150	3090	1240	408	148
14	78	307	e128	63	41	114	8820	5750	3510	1150	380	152
15	76	285	e90	58	38	140	9020	5400	5290	1080	429	160
16	66	307	e96	58	e35	176	9250	5090	6570	1030	450	166
17	85	271	e103	e57	e30	216	9420	4710	7100	910	384	164
18	86	222	e108	e58	34	274	9100	4320	7240	913	368	161
19	91	262	113	e57	36	392	8420	3940	7040	872	360	153
20	87	135	109	e56	34	734	7860	3700	6470	802	355	148
21	78	120	e90	e54	34	1680	7610	3790	5700	761	341	149
22	75	215	e85	e54	33	2700	e7590	4810	5030	776	332	155
23	90	244	e74	e53	31	3790	e7340	5590	4560	814	323	159
24	92	235	e73	54	e28	3720	e7330	5740	4190	1070	313	156
25	99	233	e72	52	e27	3520	e7420	5400	3790	1920	321	145
26	103	224	e72	51	35	3180	7450	5140	3460	2450	298	139
27	127	212	71	48	80	3070	7470	5000	3180	2060	254	133
28	128	202	e69	45	76	2930	7540	4940	e3040	1710	239	127
29	82	211	e64	50	---	3060	7530	4700	e2840	1630	229	124
30	105	200	e60	51	---	3340	7520	4380	e2630	1560	241	122
31	130	---	e55	49	---	3860	---	4110	---	1460	213	---
TOTAL	2654	7631	3249	1705	1188	37985	214600	199270	122140	47708	16248	4844
MEAN	85.6	254	105	55.0	42.4	1225	7153	6428	4071	1539	524	161
MAX	130	491	193	63	80	3860	9420	10500	7240	2560	1300	207
MIN	66	120	55	45	27	74	4630	3700	2630	761	213	122
AC-FT	5260	15140	6440	3380	2360	75340	425700	395300	242300	94630	32230	9610
CFSM	.04	.11	.05	.02	.02	.54	3.17	2.85	1.80	.68	.23	.07
IN.	.04	.13	.05	.03	.02	.63	3.54	3.29	2.01	.79	.27	.08

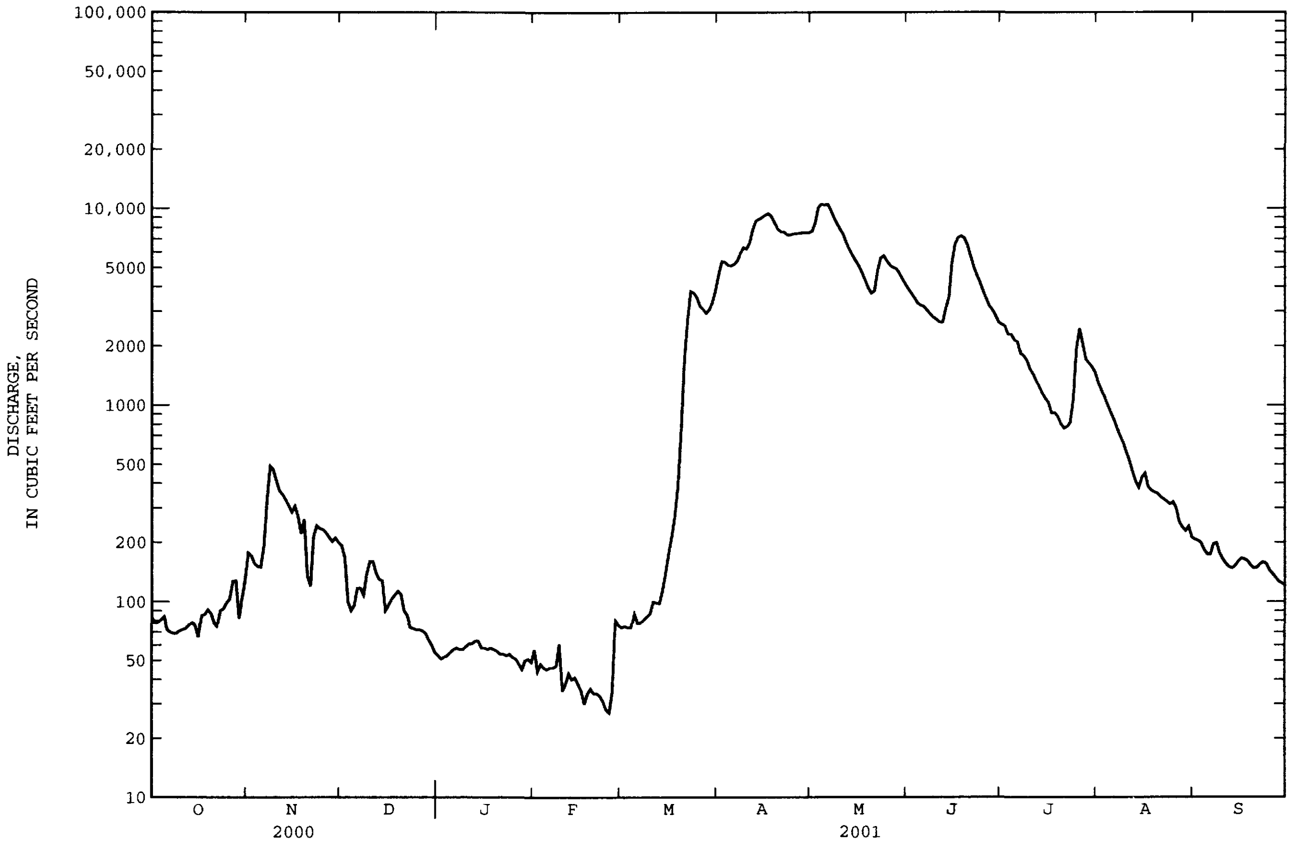
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	625	654	414	233	334	1289	2801	2028	1996	1593	702	515
MAX	3768	2656	1675	1078	1570	5110	8454	6428	9126	11540	4477	3097
(WY)	1987	1980	1983	1983	1983	1983	1969	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1965 - 2001	
ANNUAL TOTAL	100229		659222			
ANNUAL MEAN	274		1806		1100	
HIGHEST ANNUAL MEAN					4136	1993
LOWEST ANNUAL MEAN					74.3	1977
HIGHEST DAILY MEAN	2310	Jul 12	10500	May 4a	17800	Apr 14 1969
LOWEST DAILY MEAN	24	Apr 6	27	Feb 25	13	Nov 12 1976
ANNUAL SEVEN-DAY MINIMUM	34	Jan 13	32	Feb 20	13	Jan 12 1977
MAXIMUM PEAK FLOW			11400	May 3	19000	Jul 13 1993
MAXIMUM PEAK STAGE			12.10	May 3	15.40	Apr 14 1969
INSTANTANEOUS LOW FLOW			22	Feb 27		
ANNUAL RUNOFF (AC-FT)	198800		1308000		797000	
ANNUAL RUNOFF (CFSM)	.12		.80		.49	
ANNUAL RUNOFF (INCHES)	1.65		10.87		6.63	
10 PERCENT EXCEEDS	721		6510		2930	
50 PERCENT EXCEEDS	120		222		455	
90 PERCENT EXCEEDS	43		54		66	

a Also May 6.
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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166	354	386	e38	e40	e51	9260	15300	7760	5120	2600	414
2	156	342	334	e40	e36	e56	10800	16800	7360	5040	2380	410
3	156	312	e64	e44	e32	e60	10700	20200	6980	4580	2200	398
4	162	302	e92	e48	e34	e64	10300	21000	6560	4580	2000	366
5	168	300	e98	e50	e36	e60	10200	20800	6420	4280	1830	348
6	144	384	e90	e52	e38	e58	10400	21000	6320	4200	1690	348
7	140	654	e100	e56	e38	e57	10900	19600	6060	3660	1530	392
8	138	982	216	e58	e38	e56	11900	18000	5800	3560	1390	398
9	138	940	e100	e52	e37	e66	12700	16700	5580	3380	1290	352
10	142	826	e86	e48	e34	e86	12400	15600	5440	3060	1150	328
11	144	734	e74	e50	e33	e90	13400	14700	5280	2880	1040	312
12	146	702	e50	e56	e34	e80	15600	13400	5260	2660	916	300
13	152	660	e50	e58	e42	e81	17300	12300	6180	2480	816	296
14	156	614	e56	e56	e58	e82	17600	11500	7020	2300	760	304
15	152	570	e58	e54	e56	e90	18000	10800	10600	2160	858	320
16	132	614	e62	e53	e54	e100	18500	10200	13100	2060	900	332
17	170	542	e64	e48	e40	e190	18800	9420	14200	1820	768	328
18	172	444	e60	e44	e38	e300	18200	8640	14500	1830	736	322
19	182	524	e58	e42	e40	e600	16800	7880	14100	1740	720	306
20	174	270	e53	e40	e37	e1000	15700	7400	12900	1600	710	296
21	156	240	e44	e42	e36	e2000	15200	7580	11400	1520	682	298
22	150	430	e42	e40	e34	e3000	15200	9620	10100	1550	664	310
23	180	488	e40	e39	e36	e3200	14700	11200	9120	1630	646	318
24	184	470	e38	e38	e42	7440	14700	11500	8380	2140	626	312
25	198	466	e34	e38	e48	7040	14800	10800	7580	3840	642	290
26	206	448	e32	e36	e52	6360	14900	10300	6920	4900	596	278
27	254	424	e36	e35	e56	6140	14900	10000	6360	4120	508	52
28	256	404	e38	e36	e53	5860	15100	9880	6080	3420	478	49
29	164	422	e40	e38	---	6120	15100	9400	5680	3260	458	48
30	210	400	e40	e41	---	6680	15000	8760	5260	3120	482	46
31	260	---	e38	e42	---	7720	---	8220	---	2920	426	---
TOTAL	5308	15262	2573	1412	1152	64787	429060	398500	244300	95410	32492	8871
MEAN	171	509	83.0	45.5	41.1	2090	14300	12850	8143	3078	1048	296
MAX	260	982	386	58	58	7720	18800	21000	14500	5120	2600	414
MIN	132	240	32	35	32	51	9260	7400	5260	1520	426	46
AC-FT	10530	30270	5100	2800	2280	128500	851000	790400	484600	189200	64450	17600
CFSM	.13	.39	.06	.03	.03	1.60	10.9	9.83	6.23	2.35	.80	.23
IN.	.15	.43	.07	.04	.03	1.84	12.20	11.33	6.95	2.71	.92	.25

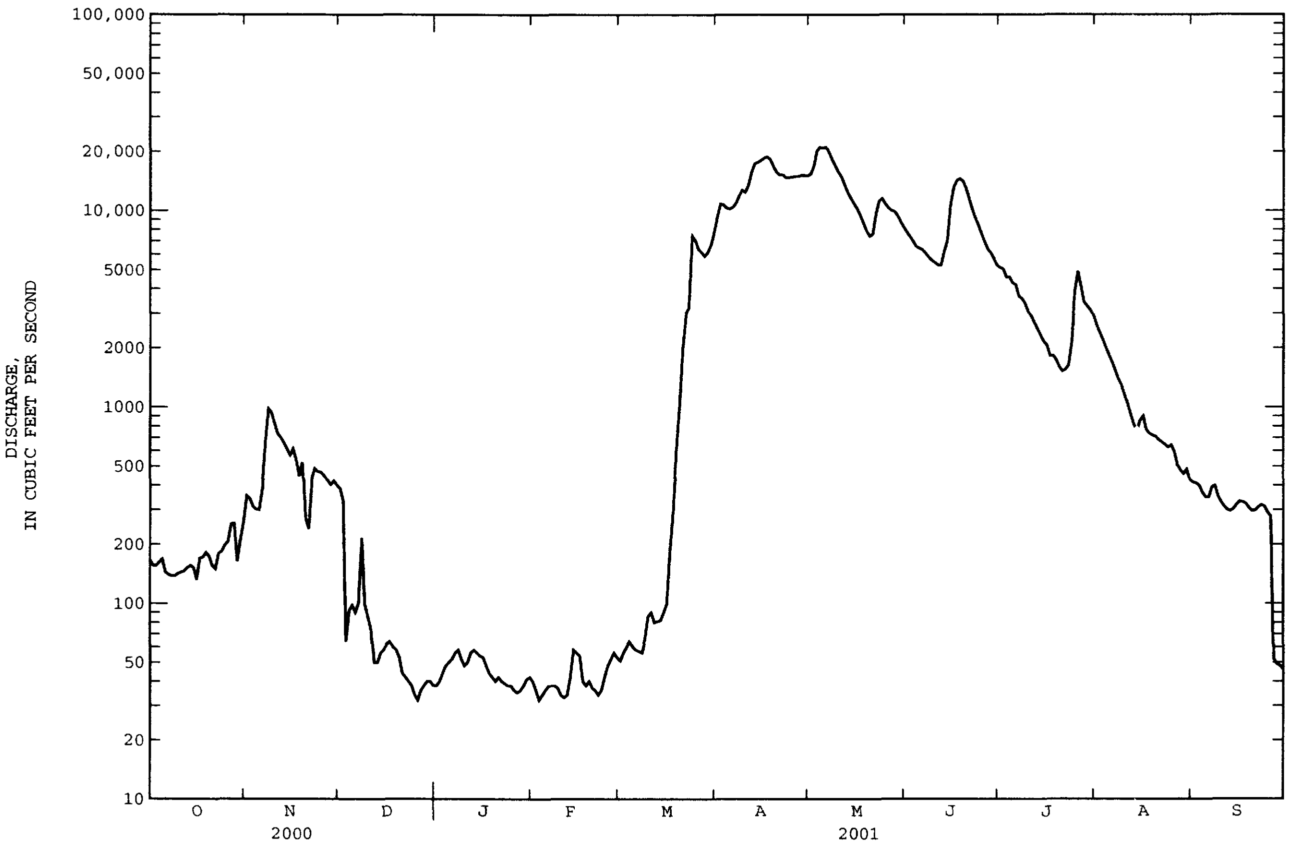
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	312	321	220	125	236	921	1620	1230	1400	908	399	324
MAX	1713	2042	1340	836	1602	4033	14300	12850	8143	6777	4114	2666
(WY)	1983	1942	1992	1992	1984	1983	2001	2001	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1941 - 2001	
ANNUAL TOTAL	111366		1299127			
ANNUAL MEAN	304		3559		668	
HIGHEST ANNUAL MEAN					3559	2001
LOWEST ANNUAL MEAN					29.7	1977
HIGHEST DAILY MEAN	4460	Jul 11	21000	May 4	21000	May 4 2001
LOWEST DAILY MEAN	18	Jan 22	32	Dec 26a	4.8	Jan 11 1977
ANNUAL SEVEN-DAY MINIMUM	19	Jan 25	36	Feb 2	4.8	Jan 8 1977
MAXIMUM PEAK FLOW			8160	May 6	18800	Jun 21 1954
MAXIMUM PEAK STAGE			17.57	May 6	24.02	Jun 21 1954
INSTANTANEOUS LOW FLOW					4.8	Jan 11 1977b
ANNUAL RUNOFF (AC-FT)	220900		2577000		484300	
ANNUAL RUNOFF (CFSM)	.23		2.72		.51	
ANNUAL RUNOFF (INCHES)	3.17		36.95		6.94	
10 PERCENT EXCEEDS	735		13000		1750	
50 PERCENT EXCEEDS	124		430		215	
90 PERCENT EXCEEDS	26		40		24	

a Also Feb. 3.
b Also Jan. 12-14, 1977.
e Estimated.



05480500 DES MOINES RIVER AT FORT DODGE, IA

LOCATION.--Lat 42°30'22", long 94°12'04", in NW1/4 SW1/4 sec.19, T.89 N., R.28 W., Webster County, Hydrologic Unit 07100004, on right bank 400 ft upstream from Soldier Creek, 1,800 ft downstream from Illinois Central Railroad bridge in Fort Dodge, 2,000 ft downstream from Lizard Creek, and at mile 314.6.

DRAINAGE AREA.--4,190 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. U.S. Army Corps of Engineers satellite data collection platform and City of Fort Dodge gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	341	493	e160	e160	e215	11100	10000	8250	4610	1890	329
2	141	371	e460	e165	e165	e200	11900	14000	7640	4250	2200	316
3	147	359	444	e168	e168	e185	12100	19200	7090	3950	2510	303
4	151	346	467	e165	e165	e178	12300	22800	6590	3800	2190	281
5	158	345	e200	e158	e160	e180	12100	23000	6340	3750	1790	265
6	158	477	e210	e140	e160	e180	11800	22800	6240	3410	1490	265
7	147	792	e200	e140	e160	e175	11500	21400	6010	3210	1270	296
8	148	1280	e195	e140	e165	e170	11500	18800	5640	2930	1090	370
9	143	1270	e190	e145	e168	e172	11600	16700	5390	2740	969	313
10	140	1140	e185	e148	e168	e175	11400	15100	5080	2500	863	289
11	144	1010	e150	e150	e168	e200	12800	13900	4750	2290	784	263
12	144	941	e180	e150	e170	e280	17100	12500	4720	2120	702	247
13	151	899	e185	e135	e180	e400	18500	11300	5710	1960	628	236
14	168	843	e195	e125	e185	e600	17200	10300	7310	1810	569	237
15	154	757	e200	e122	e187	e900	16500	9480	10200	1700	639	257
16	149	775	e200	e120	e195	e1300	15600	8710	11300	1590	762	284
17	167	710	e200	e122	e178	e1900	14900	8010	11600	1470	780	291
18	177	579	e190	e128	e200	e2500	13800	7360	12400	1400	697	284
19	179	e650	e180	e130	e195	e4500	12800	6840	13000	1370	626	282
20	194	e640	e170	e132	e190	e5600	11900	6910	12300	1260	565	280
21	178	405	e160	e135	e190	e7000	11300	9620	11000	1190	517	268
22	172	559	e155	e135	e192	e8960	11100	9520	9720	1170	484	270
23	194	732	e152	e140	e200	10500	10600	9870	8640	1230	462	277
24	200	705	e152	e138	e210	10100	10200	9820	7810	1540	439	287
25	210	601	e155	e135	e220	9140	10200	9880	7110	4310	441	282
26	216	564	e155	e132	e210	7720	10500	10600	6590	5770	447	270
27	224	562	e158	e135	e205	7130	10700	10700	6140	4630	454	258
28	256	572	e160	e140	e210	7290	10700	10300	5750	3430	419	242
29	233	529	e160	e148	---	7580	10400	9740	5330	2830	382	235
30	243	514	e160	e158	---	8370	10100	9220	4830	2470	393	230
31	255	---	e160	e160	---	9760	---	8760	---	2170	352	---
TOTAL	5482	20268	6621	4399	5124	113560	374200	387140	230480	82860	27804	8307
MEAN	177	676	214	142	183	3663	12470	12490	7683	2673	897	277
MAX	256	1280	493	168	220	10500	18500	23000	13000	5770	2510	370
MIN	140	341	150	120	160	170	10100	6840	4720	1170	352	230
AC-FT	10870	40200	13130	8730	10160	225200	742200	767900	457200	164400	55150	16480
CFSM	.04	.16	.05	.03	.04	.87	2.98	2.98	1.83	.64	.21	.07
IN.	.05	.18	.06	.04	.05	1.01	3.32	3.44	2.05	.74	.25	.07

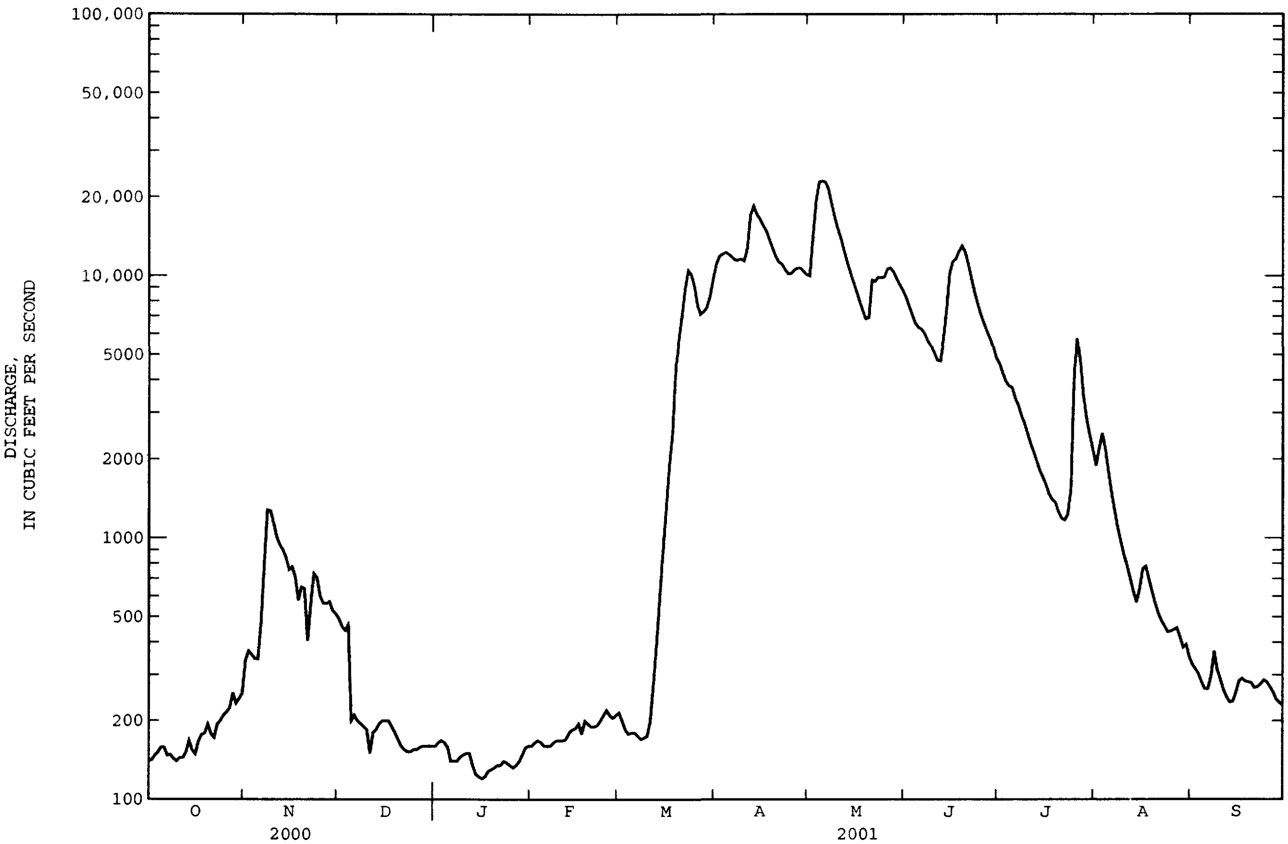
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	907	874	604	385	799	2582	4233	3092	3490	2405	1093	891
MAX	6120	4447	3698	2257	4352	11070	17530	12490	16150	21530	9264	6206
(WY)	1987	1983	1983	1983	1984	1983	1993	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1914 - 2001	
ANNUAL TOTAL	242902		1266245			
ANNUAL MEAN	664		3469		1781	
HIGHEST ANNUAL MEAN					7882	1993
LOWEST ANNUAL MEAN					143	1977
HIGHEST DAILY MEAN	7670	Jul 12	23000	May 5	35100	Apr 8 1965
LOWEST DAILY MEAN	76	Feb 7	120	Jan 16	14	Nov 3 1955
ANNUAL SEVEN-DAY MINIMUM	79	Feb 3	126	Jan 14	23	Jan 13 1977
MAXIMUM PEAK FLOW			23400	May 4	35600	Apr 8 1965
MAXIMUM PEAK STAGE			12.53	May 4	19.62	Jun 23 1947
INSTANTANEOUS LOW FLOW			135	Oct 9a	14	Nov 3 1955
ANNUAL RUNOFF (AC-FT)	481800		2512000		1290000	
ANNUAL RUNOFF (CFSM)	.16		.83		.42	
ANNUAL RUNOFF (INCHES)	2.16		11.24		5.77	
10 PERCENT EXCEEDS	1520		11300		4780	
50 PERCENT EXCEEDS	242		517		650	
90 PERCENT EXCEEDS	94		151		104	

a Also Oct. 10.
e Estimated.



05481000 BOONE RIVER NEAR WEBSTER CITY, IA

LOCATION.--Lat 42°26'01", long 93°48'12", in NW ¼ SE ¼ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	e50	115	e50	e50	e60	5360	722	1890	490	e520	55
2	22	e70	e100	e48	e40	e75	5700	1420	1650	465	e460	51
3	21	87	e90	e55	e38	e75	5480	4850	1430	424	e400	51
4	24	87	e130	e65	e46	e80	4290	6980	1240	389	e360	46
5	26	74	e120	e65	e46	e75	3570	8220	1290	383	e330	45
6	28	108	e114	e70	e48	e70	3080	7430	1190	371	292	45
7	24	320	e140	e75	e48	e70	2780	6070	1250	338	240	56
8	23	693	153	e75	e50	e100	2520	4900	1120	311	200	156
9	23	592	e110	e65	e46	e110	2170	3910	1000	288	169	125
10	24	463	e110	e60	e40	e110	1890	3220	932	258	143	94
11	22	366	e70	e70	e40	e95	2010	2730	856	229	123	80
12	21	316	e65	e75	e46	e100	4280	2230	816	204	109	66
13	22	289	e65	e80	e60	e120	4650	1910	1590	184	98	55
14	29	270	e75	e75	e60	e170	4420	1670	2510	165	93	51
15	27	243	e75	e65	e55	e260	3740	1480	4420	148	114	52
16	30	233	e85	e55	e50	e460	2700	1300	4460	137	137	57
17	25	220	e70	e50	e50	e650	2040	1160	3860	128	138	60
18	20	202	e60	e55	e44	e1000	1590	1030	3220	123	163	60
19	24	191	e55	e50	e48	e1400	1320	933	2420	183	139	57
20	23	124	e55	e44	e50	e2100	1150	1420	1830	357	115	53
21	21	80	e60	e48	e44	4500	1040	6060	1510	244	101	49
22	20	87	e50	e46	e44	6240	998	6790	1270	197	104	54
23	26	e95	e48	e50	e50	6040	1180	4890	1100	681	94	49
24	28	e140	e46	e48	e55	4960	1300	3820	978	763	85	53
25	29	177	e42	e44	e80	4070	1210	3020	878	2160	84	77
26	43	146	e42	e40	e75	3490	1070	3670	782	2990	79	72
27	36	152	e48	e42	e70	3090	956	4770	e700	2230	77	63
28	e30	163	e50	e44	e65	3090	830	4220	e660	1560	85	56
29	e30	133	e55	e50	---	2920	749	3530	573	1080	76	51
30	e33	137	e50	e55	---	3500	687	2880	536	789	67	47
31	e36	---	e48	e55	---	4550	---	2260	---	e600	60	---
TOTAL	813	6308	2396	1769	1438	53630	74760	109495	47961	18869	5255	1886
MEAN	26.2	210	77.3	57.1	51.4	1730	2492	3532	1599	609	170	62.9
MAX	43	693	153	80	80	6240	5700	8220	4460	2990	520	156
MIN	20	50	42	40	38	60	687	722	536	123	60	45
MED	24	158	65	55	49	460	2020	3220	1240	357	115	55
AC-FT	1610	12510	4750	3510	2850	106400	148300	217200	95130	37430	10420	3740
CFSM	.03	.25	.09	.07	.06	2.05	2.95	4.18	1.89	.72	.20	.07
IN.	.04	.28	.11	.08	.06	2.36	3.30	4.83	2.11	.83	.23	.08

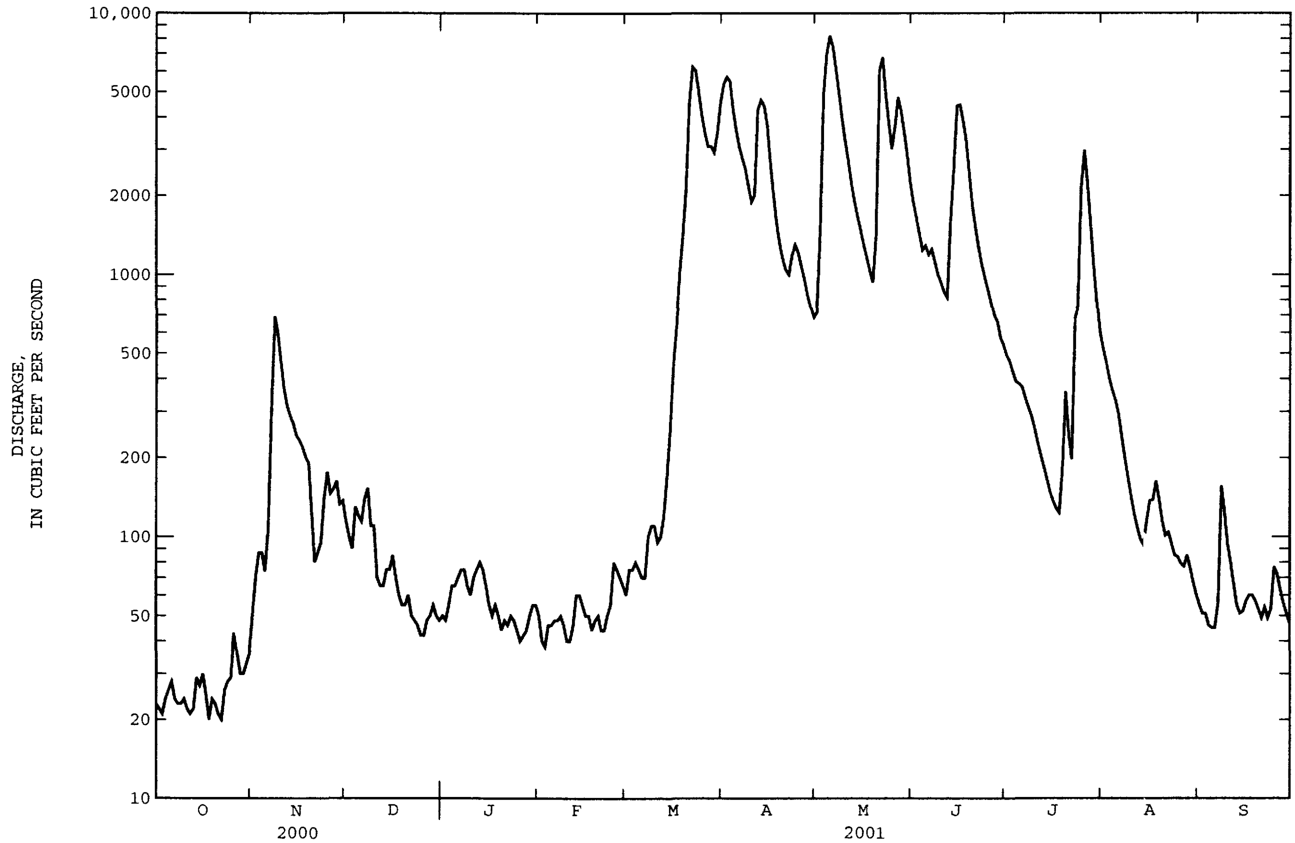
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	234	219	143	97.6	250	812	956	846	1083	586	248	211
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1941 - 2001	
ANNUAL TOTAL	90513.0		324580			
ANNUAL MEAN	247		889		474	
HIGHEST ANNUAL MEAN					1861	1993
LOWEST ANNUAL MEAN					36.1	1956
HIGHEST DAILY MEAN	4130	Jul 13	8220	May 5	19500	Jun 22 1954
LOWEST DAILY MEAN	9.0	Jan 28	20	Oct 18	.00	Feb 7 1977
ANNUAL SEVEN-DAY MINIMUM	10	Jan 27	23	Oct 7	.01	Feb 1 1977
MAXIMUM PEAK FLOW			8290	May 5	20300	Jun 22 1954
MAXIMUM PEAK STAGE			11.47	Mar 20	18.55	Jun 22 1954
INSTANTANEOUS LOW FLOW			18	Oct 18		
ANNUAL RUNOFF (AC-FT)	179500		643800		343300	
ANNUAL RUNOFF (CFSM)	.29		1.05		.56	
ANNUAL RUNOFF (INCHES)	3.99		14.31		7.63	
10 PERCENT EXCEEDS	598		3220		1220	
50 PERCENT EXCEEDS	62		120		138	
90 PERCENT EXCEEDS	20		42		16	

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	184	326	692	e280	e280	e380	16200	11200	11300	5410	2670	516
2	177	424	679	e295	e250	e420	18100	12300	10400	5110	2350	489
3	178	429	539	e320	e220	e430	18700	21000	9460	4810	2970	474
4	191	442	448	e360	e250	e430	18100	29100	8660	4530	3160	456
5	199	435	e700	e370	e260	e420	16800	32700	9150	4410	2750	435
6	201	483	e670	e390	e280	e400	15900	32600	8540	4260	2190	e400
7	203	710	e780	e420	e285	e400	15100	30800	8110	3940	1810	e420
8	188	1200	e850	e400	e260	e490	14600	27600	7540	3750	1530	459
9	185	1720	e760	e360	e240	e580	14300	23500	7030	3460	1320	533
10	184	1580	e580	e340	e230	e610	14100	20400	6670	3190	1170	504
11	184	1410	e450	e370	e240	e600	14100	18300	6330	2890	1050	453
12	186	1260	e390	e400	e300	e560	19200	16100	5990	2640	954	416
13	189	1180	e420	e420	e330	e600	23500	14200	6600	2420	870	395
14	199	1120	e440	e400	e340	e1100	23600	12800	8740	2220	796	379
15	224	1060	e500	e380	e320	e2000	22100	11700	13600	2040	763	370
16	200	990	e440	e340	e300	e3600	19900	10700	16500	1880	830	371
17	210	990	e400	e320	e280	e5000	18400	9800	16500	1770	887	391
18	206	916	e350	e295	e260	e7000	17000	8980	16200	1620	930	399
19	221	833	e300	e310	e240	10300	15200	8260	16300	1590	909	395
20	211	623	e320	e285	e230	11700	13900	8030	15800	1650	814	389
21	227	494	e325	e260	e260	13900	13000	16000	14200	1600	739	382
22	229	520	e300	e275	e250	18500	12600	19200	12400	1430	e700	376
23	229	785	e280	e260	e260	19200	12300	17300	10900	1420	e673	370
24	247	1050	e260	e270	e280	18600	12000	15400	9770	1930	630	364
25	248	974	e240	e260	e360	e15400	11800	14100	8820	3160	618	359
26	253	886	e245	e250	e450	13300	11800	14900	7940	7380	615	359
27	264	812	e285	e235	e420	11400	12000	17000	7270	7470	600	358
28	273	809	e295	e260	e360	11000	11900	16400	6660	5700	590	355
29	289	740	e300	e280	---	10900	11700	14800	6130	4470	574	351
30	297	735	e295	e300	---	11800	11300	13400	5680	3690	552	340
31	289	---	e280	e300	---	13700	---	12300	---	3130	529	---
TOTAL	6765	25936	13813	10005	8035	204720	469200	530870	299190	104970	37543	12258
MEAN	218	865	446	323	287	6604	15640	17120	9973	3386	1211	409
MAX	297	1720	850	420	450	19200	23600	32700	16500	7470	3160	533
MIN	177	326	240	235	220	380	11300	8030	5680	1420	529	340
AC-FT	13420	51440	27400	19840	15940	406100	930700	1053000	593400	208200	74470	24310
CFSM	.04	.16	.08	.06	.05	1.21	2.87	3.14	1.83	.62	.22	.07
IN.	.05	.18	.09	.07	.05	1.40	3.20	3.62	2.04	.72	.26	.08

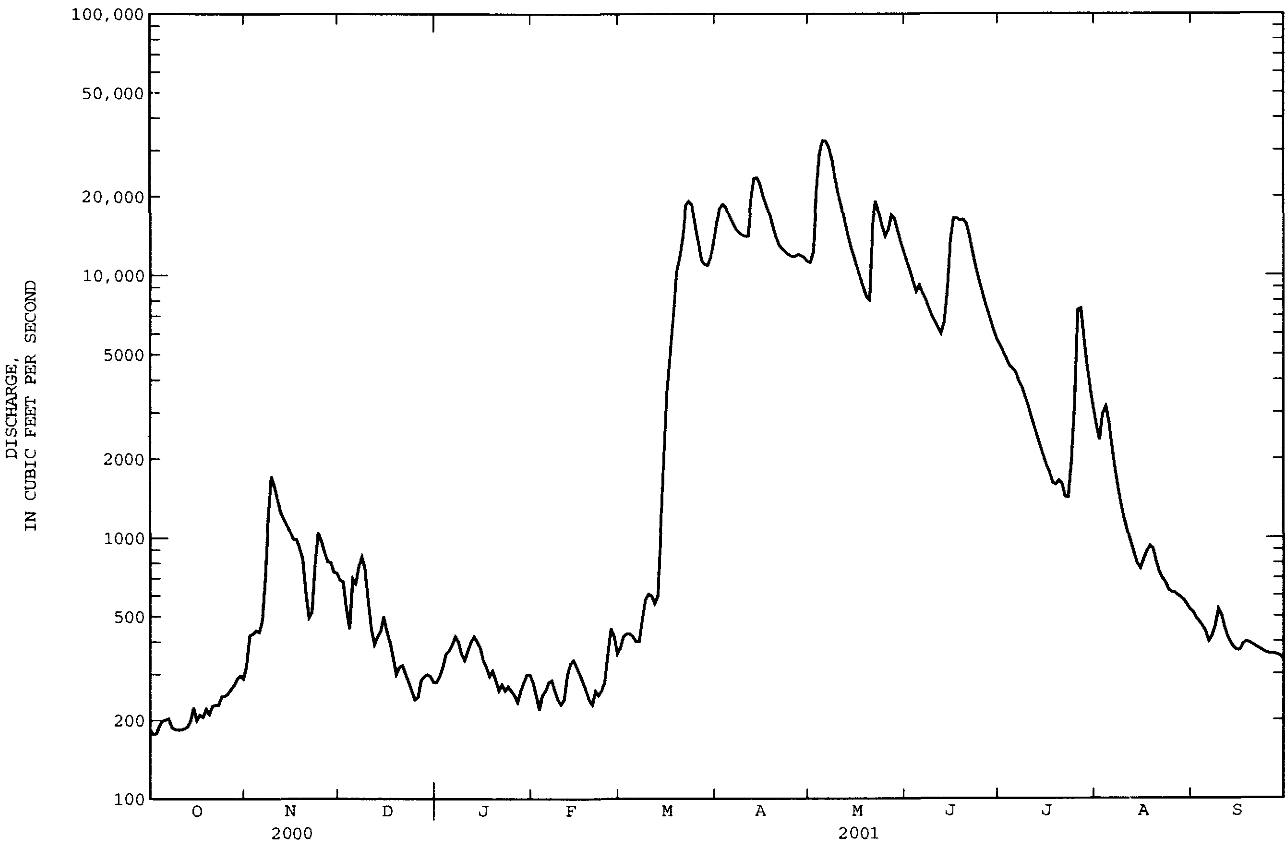
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1615	1699	1233	742	1276	4351	6787	5741	6142	4405	1962	1316
MAX	8763	5745	5267	3267	7061	13920	22020	17120	21310	27250	13500	7546
(WY)	1987	1993	1983	1992	1984	1983	1993	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1968 - 2001	
ANNUAL TOTAL	338721		1723305			
ANNUAL MEAN	925		4721		3110	
HIGHEST ANNUAL MEAN					10400	1993
LOWEST ANNUAL MEAN					254	1977
HIGHEST DAILY MEAN	11400	Jul 12	32700	May 5	41400	Apr 2 1993
LOWEST DAILY MEAN	87	Feb 6	177	Oct 2	13	Jan 23 1977a
ANNUAL SEVEN-DAY MINIMUM	91	Jan 31	188	Oct 8	14	Jan 22 1977
MAXIMUM PEAK FLOW			33200	May 5	423000	Apr 2 1993
MAXIMUM PEAK STAGE			21.25	May 5	25.68	Apr 2 1993
INSTANTANEOUS LOW FLOW			176	Oct 2b	13	Jan 23 1977
ANNUAL RUNOFF (AC-FT)	671900		3418000		2253000	
ANNUAL RUNOFF (CFSM)	.17		.87		.57	
ANNUAL RUNOFF (INCHES)	2.31		11.76		7.75	
10 PERCENT EXCEEDS	2240		15600		8570	
50 PERCENT EXCEEDS	364		739		1340	
90 PERCENT EXCEEDS	129		250		187	

a Also Jan. 24, 1977.
b Also Oct. 3.
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. Prior to October 1, 2000 published as contents in acre feet, and as elevation in feet NGVD thereafter.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

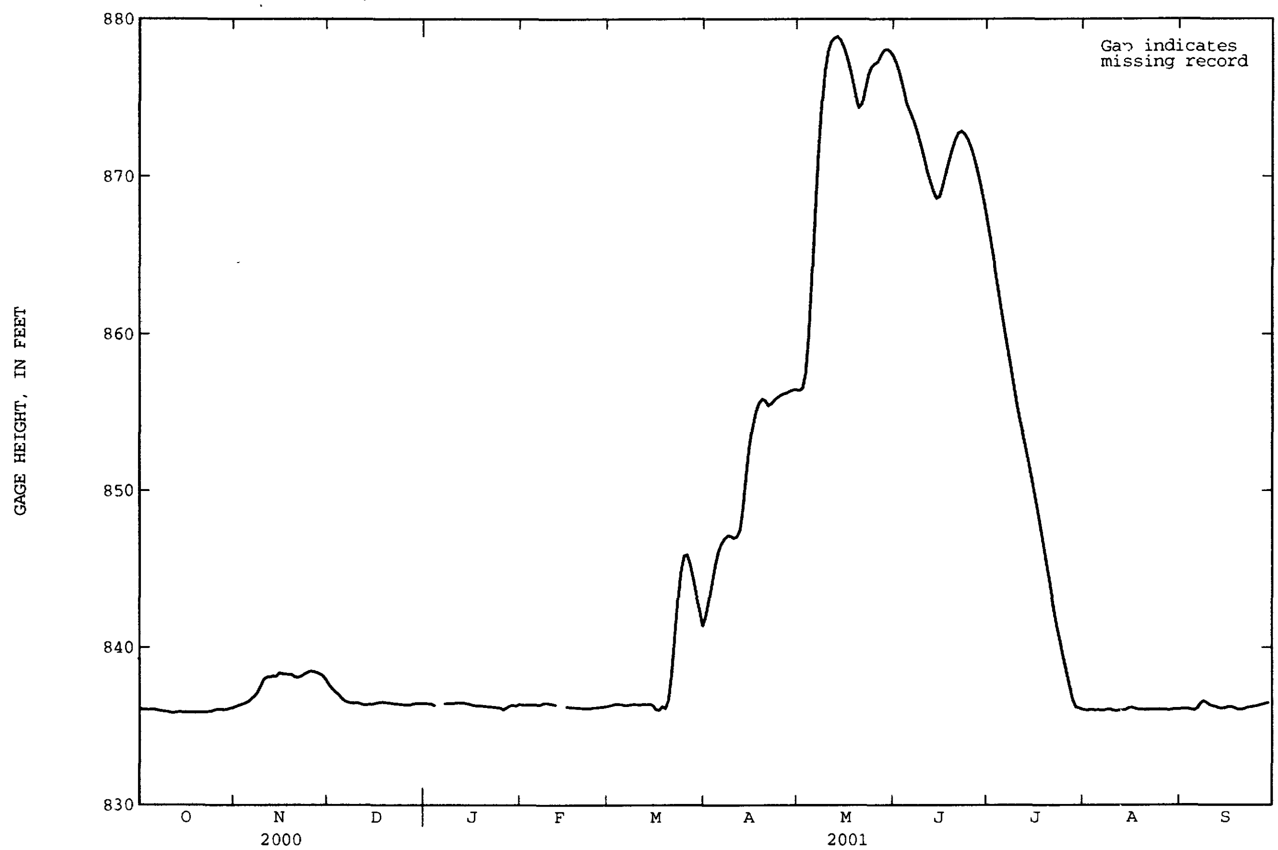
EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 892.00 ft July 14, 1993; minimum elevation, 832.61 ft Jan. 19, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 878.91 ft May 14; minimum elevation, 835.85 ft Oct. 12, 13.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY OBSERVATION AT 0600 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	836.08	836.17	837.88	836.44	836.44	836.27	841.09	856.47	877.56	867.30	836.04	836.08
2	836.08	836.28	837.56	836.44	836.35	836.31	842.32	856.42	877.06	866.11	836.03	836.10
3	836.05	836.35	837.31	836.42	836.35	836.37	843.27	856.59	876.38	864.93	836.02	836.12
4	836.07	836.41	837.14	836.41	836.36	836.43	844.46	857.83	875.56	863.65	836.09	836.10
5	836.03	836.49	836.97	836.26	836.36	836.40	845.52	860.70	874.67	862.42	836.00	836.04
6	836.08	836.57	836.73	---	836.37	836.37	846.35	864.60	874.26	861.13	836.05	836.01
7	836.03	836.81	836.56	836.43	836.36	836.32	846.74	868.88	873.76	859.90	836.00	836.16
8	835.98	836.95	836.51	836.44	836.38	836.35	847.03	872.37	873.22	858.74	836.02	836.57
9	835.96	837.22	836.46	836.44	836.50	836.38	847.19	875.14	872.55	857.57	836.08	836.60
10	835.94	837.69	836.47	836.45	836.45	836.40	847.10	877.14	871.81	856.32	836.09	836.44
11	835.92	838.08	836.50	836.46	836.42	836.37	846.96	878.18	871.02	855.09	835.97	836.30
12	835.85	838.15	836.40	836.49	836.37	836.36	847.13	878.66	870.11	854.17	835.99	836.26
13	835.85	838.13	836.36	836.48	836.33	836.42	847.62	878.81	869.54	853.30	836.01	836.21
14	835.90	838.21	836.37	836.49	---	836.36	849.39	878.91	868.89	852.35	836.02	836.11
15	835.90	838.15	836.38	836.44	836.27	836.43	851.57	878.60	868.52	851.36	836.05	836.14
16	835.88	838.46	836.43	836.39	836.23	836.29	853.25	878.12	868.80	850.32	836.20	836.16
17	835.88	838.30	836.47	836.32	836.21	835.98	854.40	877.47	869.60	849.22	836.18	836.25
18	835.89	838.31	836.51	836.31	836.19	836.03	855.29	876.69	870.40	848.10	836.10	836.22
19	835.87	838.29	836.53	836.30	836.18	836.32	855.72	875.75	871.14	846.93	836.05	836.13
20	835.87	838.29	836.51	836.28	836.17	836.07	855.92	874.73	871.85	845.73	836.07	836.04
21	835.88	838.07	836.49	836.27	836.15	836.83	855.71	874.26	872.46	844.58	836.04	836.06
22	835.88	838.11	836.44	836.24	836.14	838.72	855.37	874.73	872.84	843.37	836.04	836.10
23	835.89	838.19	836.42	836.22	836.14	841.27	855.66	875.86	872.86	842.12	836.05	836.20
24	835.93	838.32	836.41	836.21	836.14	843.60	855.87	876.67	872.64	841.07	836.04	836.22
25	835.95	838.45	836.39	836.19	836.19	845.29	856.03	877.07	872.28	840.20	836.07	836.25
26	836.03	838.51	836.35	836.17	836.20	846.06	856.14	877.17	871.74	839.14	836.06	836.29
27	836.08	838.47	836.36	836.00	836.22	845.88	856.24	877.31	871.07	838.26	836.04	836.34
28	836.07	838.40	836.33	836.25	836.23	845.08	856.28	877.78	870.27	837.34	836.04	836.40
29	836.03	838.31	836.45	836.29	---	844.03	856.42	878.08	869.38	836.46	836.02	836.45
30	836.07	838.17	836.45	836.36	---	843.03	856.47	878.06	868.41	836.14	836.07	836.51
31	836.15	---	836.44	836.27	---	842.23	---	877.89	---	836.16	836.10	---
MEAN	835.97	837.74	836.60	836.34	836.29	838.65	850.95	873.13	872.02	850.31	836.05	836.23
MAX	836.15	838.51	837.88	836.49	836.50	846.06	856.47	878.91	877.56	867.30	836.20	836.60
MIN	835.85	836.17	836.33	836.00	836.14	835.98	841.09	856.42	868.41	836.14	835.97	836.01

05481630 SAYLORVILLE LAKE NEAR SAYLORVILLE, IA--Continued



05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA

LOCATION.--Lat 41°40'50", long 93°40'05", SW $^1/_4$ NE $^1/_4$ NE $^1/_4$ 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	231	235	1710	184	e220	206	14000	12300	15200	11900	3140	469
2	232	232	1490	183	e240	201	14100	12300	15200	11700	2710	444
3	230	221	1160	184	239	202	14400	12400	15100	11600	2550	491
4	228	222	1030	189	239	297	14700	12500	14900	11200	3230	538
5	227	221	1010	195	241	345	14900	12400	13800	10800	3090	486
6	224	228	912	200	242	337	15200	11300	12300	10500	2670	438
7	224	222	687	205	243	263	15400	11500	12300	9880	2320	495
8	203	213	682	206	245	195	15500	12400	12100	9430	1690	780
9	198	213	660	205	296	193	16000	12700	12000	9290	1570	872
10	207	520	e500	205	332	284	15700	14100	11900	8960	1550	1070
11	209	1250	e440	244	326	364	15600	15300	11900	7710	1300	1000
12	211	1590	e400	325	325	403	15800	15400	12200	6640	1120	728
13	213	1430	373	384	324	931	15900	15500	12400	6560	980	613
14	212	1300	370	463	325	1550	16300	15700	12600	6490	822	449
15	211	1140	369	528	327	2450	16600	15800	12400	6420	829	380
16	213	1010	386	530	330	3480	16900	15600	12400	6350	831	391
17	213	995	e420	455	322	3370	16400	15400	12300	6270	1090	522
18	215	993	456	387	315	3520	15900	15200	12300	6170	1260	879
19	216	996	517	377	314	4930	16100	15000	12300	6090	1030	787
20	216	853	511	356	312	6640	16100	13500	12300	6000	956	538
21	215	500	506	349	284	8540	15800	12200	12400	5920	915	329
22	215	231	418	312	252	10900	13800	12400	12400	5820	827	237
23	216	228	334	288	241	12400	12200	13100	12300	5300	789	240
24	216	349	322	285	245	13400	12200	13700	12300	4660	754	238
25	211	756	306	275	273	14100	12200	14200	12200	5230	737	237
26	205	1070	236	220	249	14500	12200	14100	12200	6950	737	239
27	206	1170	182	164	231	14700	12200	14100	12100	9480	671	241
28	224	1170	201	169	216	14500	12200	14600	12000	8970	616	244
29	224	1250	211	208	---	14400	12200	15100	11800	6480	551	243
30	226	1550	200	232	---	14100	12200	15200	11900	4370	497	242
31	229	---	190	e280	---	14000	---	15300	---	3940	497	---
TOTAL	6720	22358	17189	8787	7748	175701	438700	430300	379500	237080	42329	14860
MEAN	217	745	554	283	277	5668	14620	13880	12650	7648	1365	495
MAX	232	1590	1710	530	332	14700	16900	15800	15200	11900	3230	1070
MIN	198	213	182	164	216	193	12200	11300	11800	3940	497	237
AC-FT	13330	44350	34090	17430	15370	348500	870200	853500	752700	470200	83960	29470
CFSM	.04	.13	.09	.05	.05	.97	2.50	2.38	2.17	1.31	.23	.08
IN.	.04	.14	.11	.06	.05	1.12	2.79	2.74	2.42	1.51	.27	.09

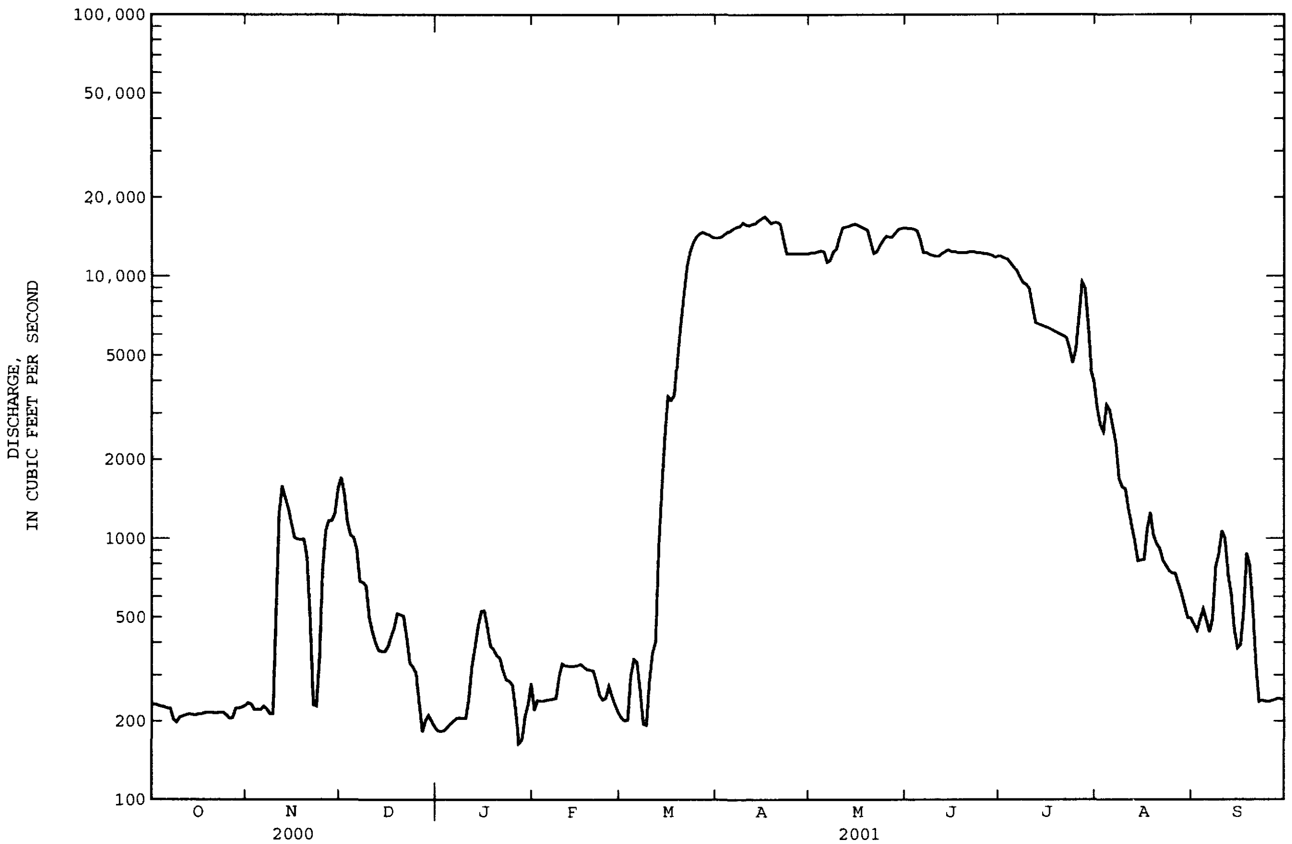
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1774	2079	1673	933	1558	4458	7158	6689	7323	6617	3107	2055
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1978 - 2001a	
ANNUAL TOTAL	366394		1781272			
ANNUAL MEAN	1001		4880		3793	
HIGHEST ANNUAL MEAN					11320	1993
LOWEST ANNUAL MEAN					487	1989
HIGHEST DAILY MEAN	9930	Jul 14	16900	Apr 16	44300	Jul 21 1993
LOWEST DAILY MEAN	162	Jan 30	164	Jan 27	144	Nov 29 1977
ANNUAL SEVEN-DAY MINIMUM	179	Feb 25	189	Dec 30	165	Mar 5 1978
MAXIMUM PEAK FLOW			17000	Apr 17	45700	Jul 21 1993
MAXIMUM PEAK STAGE			14.70	Apr 17	24.22	Jul 21 1993
INSTANTANEOUS LOW FLOW			164	Jan 27	164	Jan 27 2001
ANNUAL RUNOFF (AC-FT)	726700		3533000		2748000	
ANNUAL RUNOFF (CFSM)	.17		.84		.65	
ANNUAL RUNOFF (INCHES)	2.33		11.34		8.82	
10 PERCENT EXCEEDS	2720		14500		11300	
50 PERCENT EXCEEDS	366		872		1920	
90 PERCENT EXCEEDS	206		213		236	

a Post regulation
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, Dec. 4, 5, and Dec. 9, 2000.
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, 812 microsiemens Mar. 17; minimum daily, 314 microsiemens Mar. 28.
WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 12; minimum daily, 0.0°C Feb. 20.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 163 mg/L May 12; minimum daily mean, 1.0 mg/L Dec. 4, 5, and Dec. 9.
SEDIMENT LOADS: Maximum daily, 5,880 tons Mar. 24; minimum daily, 2.1 tons Dec. 9.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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						
03...	1125	16.1	233	23	14	98
MAR						
22...	1750	1.0	11800	79	2520	79
APR						
16...	1525	11.0	16900	88	4020	98
MAY						
09...	1420	20.3	12600	98	3330	49
AUG						
15...	1005	23.0	832	15	34	94
SEP						
24...	1400	17.4	242	17	11	87

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												
03...	1125	3	1	1	3	9	19	32	45	64	87	100
SEP												
24...	1400	3	1	2	5	9	16	27	38	57	75	100

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	580	---	666	---	---	---	394	533	580	602	566	524
2	581	---	---	---	---	680	404	---	587	608	575	---
3	530	---	689	---	649	680	394	549	587	621	612	---
4	---	584	676	803	650	668	380	552	587	608	---	511
5	---	---	---	639	681	---	371	547	588	---	---	521
6	---	567	---	627	638	---	366	539	593	582	628	518
7	---	---	682	---	---	---	421	539	594	---	588	536
8	---	---	---	638	---	---	388	537	---	580	626	478
9	557	---	694	723	---	---	387	510	599	637	618	---
10	---	---	---	645	---	---	398	508	---	625	622	500
11	568	599	---	---	---	799	412	521	621	627	618	508
12	561	602	---	629	663	809	437	512	617	626	579	504
13	570	---	---	629	687	798	435	504	626	625	620	511
14	556	---	---	658	---	805	437	513	616	---	625	515
15	577	616	641	626	---	745	---	522	617	576	622	---
16	578	---	---	---	---	---	456	520	---	540	553	---
17	542	632	---	---	---	812	474	520	626	---	557	---
18	547	---	---	---	---	742	---	---	630	---	551	---
19	585	---	---	---	552	736	463	533	627	---	---	---
20	---	---	---	---	722	669	483	---	628	529	546	---
21	---	629	---	454	---	576	491	566	605	---	524	---
22	---	665	---	686	730	478	478	559	620	552	533	---
23	---	---	---	586	---	409	503	561	605	575	---	512
24	---	672	---	---	676	352	494	565	600	611	523	522
25	---	664	---	---	710	336	494	562	---	623	537	508
26	---	666	---	---	690	325	504	567	582	647	---	514
27	---	663	---	---	---	---	---	570	589	653	532	517
28	572	657	---	---	---	314	517	574	605	617	526	511
29	584	---	---	679	---	329	536	571	---	---	522	---
30	575	---	---	---	---	347	532	586	608	578	518	510
31	578	---	---	700	---	371	---	582	---	592	516	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	---	3.0	---	---	---	4.0	17.0	15.0	25.0	29.0	23.0
2	20.0	---	---	---	---	4.5	6.0	---	17.0	21.5	28.0	---
3	18.0	---	2.0	---	1.0	5.5	4.5	16.0	17.5	24.5	28.0	---
4	---	14.0	3.0	4.5	3.0	4.0	6.0	17.0	16.0	24.0	---	24.0
5	---	---	---	4.0	5.0	---	6.0	16.0	15.5	---	---	28.0
6	---	12.0	---	3.0	4.5	---	6.5	18.5	19.0	25.0	29.5	24.0
7	---	---	4.0	---	---	---	7.5	17.5	20.0	---	28.0	24.5
8	---	---	---	2.0	---	---	10.5	18.0	---	25.0	29.0	21.0
9	11.0	---	2.0	3.5	---	---	9.0	17.5	17.5	28.0	30.0	---
10	---	---	---	5.0	---	---	10.0	17.0	---	28.0	27.0	22.0
11	12.0	8.0	---	---	---	3.0	10.0	17.5	21.0	26.5	25.5	22.5
12	14.0	8.0	---	3.0	5.0	4.0	10.0	18.0	19.0	25.0	31.0	23.0
13	17.0	---	---	2.5	4.0	5.0	11.0	16.0	20.0	26.0	24.0	22.0
14	18.0	---	---	3.0	---	5.0	12.0	18.5	19.5	---	27.0	19.0
15	14.0	6.5	1.0	1.0	---	3.0	---	19.0	19.0	26.0	23.0	---
16	14.0	---	---	---	---	---	10.5	20.0	---	26.0	26.0	---
17	14.0	4.5	---	---	---	4.0	10.5	19.0	21.0	---	26.0	---
18	14.5	---	---	---	---	3.0	---	---	23.0	---	24.0	---
19	20.0	---	---	---	5.5	4.5	10.0	20.0	21.0	---	---	---
20	---	---	---	---	.0	5.0	14.0	---	23.0	28.0	25.0	---
21	---	3.0	---	3.0	---	3.5	13.5	18.0	22.0	---	23.5	---
22	---	3.0	---	4.5	4.5	2.0	14.5	17.0	22.0	29.0	26.0	---
23	---	---	---	5.0	---	2.0	11.0	16.5	24.0	27.0	---	18.0
24	---	4.0	---	---	3.0	1.0	13.0	16.5	23.0	27.5	24.5	16.0
25	---	2.0	---	---	3.5	2.0	14.0	16.5	---	26.0	24.0	15.5
26	---	2.0	---	---	3.0	3.5	14.0	16.0	23.5	27.5	---	17.0
27	---	6.0	---	---	---	---	---	18.3	24.0	27.0	28.0	19.0
28	14.0	2.0	---	---	---	3.0	16.0	16.5	24.0	28.0	24.5	18.0
29	14.0	---	---	3.0	---	2.0	18.0	17.0	---	---	25.0	---
30	13.0	---	---	---	---	4.0	16.0	16.0	26.0	28.0	25.5	21.5
31	15.0	---	---	4.0	---	4.0	---	15.0	---	28.0	23.0	---

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

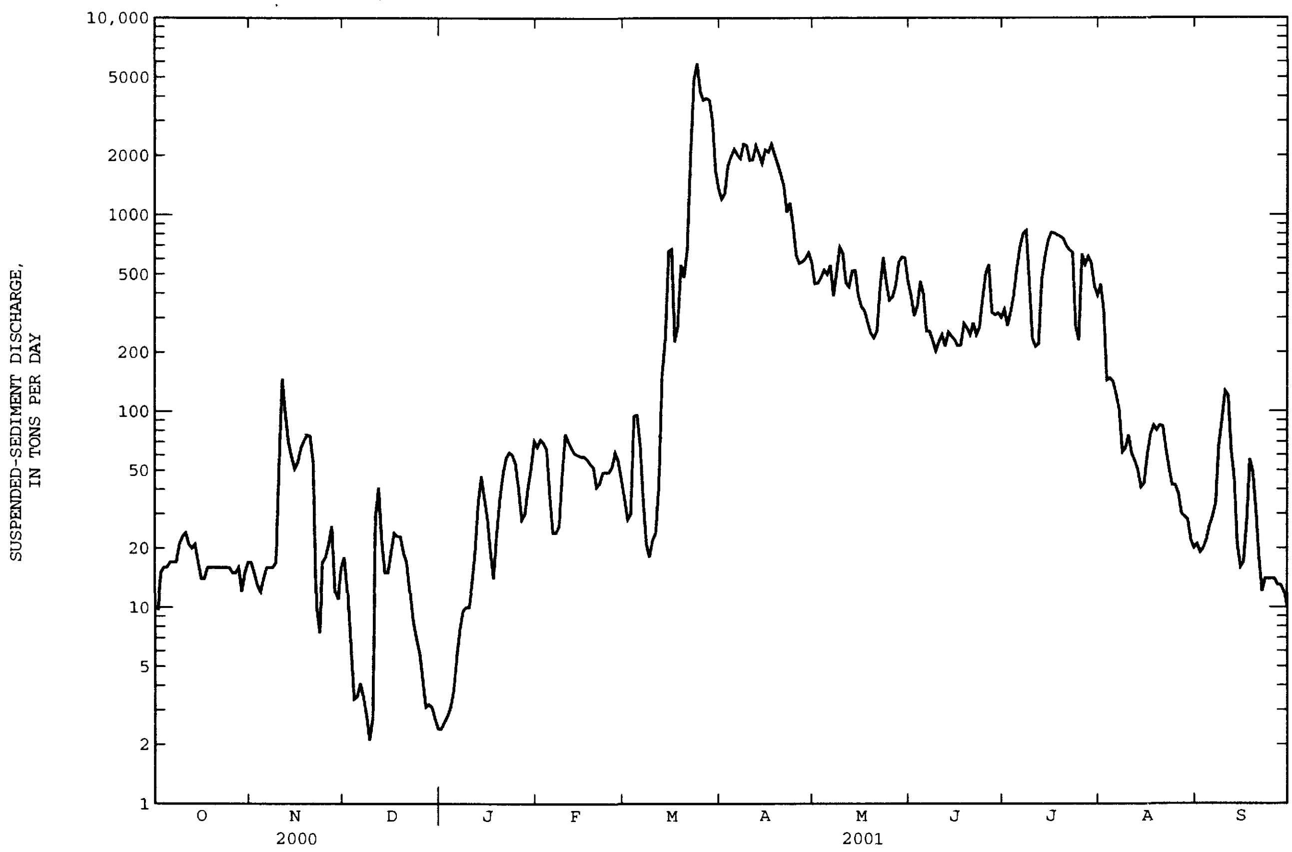
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	17	10	26	17	4	18	5	2.4	111	66	64	36
2	16	9.8	24	15	3	12	5	2.6	111	72	52	28
3	24	15	21	13	2	6.4	6	2.8	107	69	54	30
4	26	16	20	12	1	3.4	6	3.1	99	64	115	95
5	27	16	23	14	1	3.5	7	3.8	57	37	103	96
6	28	17	26	16	2	4.1	10	5.6	36	24	74	67
7	28	17	28	16	2	3.5	14	7.7	36	24	48	35
8	32	17	28	16	2	2.8	17	9.6	39	26	39	21
9	39	21	29	17	1	2.1	18	10	58	48	34	18
10	42	23	37	55	2	2.7	19	10	86	77	29	22
11	42	24	44	147	24	29	20	13	80	70	24	24
12	38	21	23	98	38	41	22	19	74	65	39	43
13	35	20	18	70	22	22	33	34	70	61	55	156
14	36	21	17	59	15	15	38	47	68	60	57	237
15	30	17	17	51	15	15	25	36	67	59	94	655
16	24	14	20	55	18	19	20	28	66	59	71	670
17	25	14	24	65	21	24	15	19	65	57	25	226
18	27	16	27	71	19	23	13	14	64	54	28	272
19	28	16	28	76	16	23	24	24	62	52	41	558
20	28	16	33	75	14	19	37	36	49	41	27	481
21	28	16	41	55	12	17	51	48	57	43	28	669
22	28	16	17	10	11	12	70	58	72	49	65	1990
23	28	16	12	7.4	10	8.5	80	62	75	49	146	4890
24	28	16	17	17	8	7.0	78	60	75	49	163	5880
25	27	16	9	18	7	5.9	72	54	70	52	112	4250
26	27	15	7	21	7	4.3	67	40	92	62	98	3820
27	27	15	8	26	6	3.1	63	28	89	56	99	3910
28	26	16	4	12	6	3.2	66	30	77	45	97	3820
29	20	12	3	11	5	3.1	73	41	---	---	77	3000
30	24	15	4	16	5	2.7	82	52	---	---	44	1680
31	28	17	---	---	5	2.4	94	71	---	---	36	1360
TOTAL	---	510.8	---	1151.4	---	357.7	---	871.6	---	1490	---	39039

DAY	MEA CON TRA (MG	LOAD (TONS DAY)	MEAN CONCE TRATI (MG L	LOAD (TONS DAY)	MEAN CONCE TRATI (MG L	LOAD (TON DAY)	MEAN CONCE TRATI (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	32	1200	14	447	9	388	10	331	53	445	17	21
2	34	1280	14	449	7	306	9	273	44	324	16	19
3	46	1780	14	481	8	343	10	320	21	144	15	20
4	50	1980	15	525	11	461	13	392	17	148	15	22
5	54	2160	15	497	11	396	18	538	17	142	20	26
6	49	2010	18	555	8	257	24	688	17	122	24	29
7	46	1930	13	387	8	256	30	803	16	102	25	34
8	55	2290	15	507	7	230	33	833	14	62	32	67
9	52	2250	20	687	6	203	18	451	15	65	38	90
10	45	1890	17	639	7	227	10	235	18	76	44	127
11	45	1900	11	451	8	247	10	214	17	61	44	120
12	53	2250	10	430	6	214	12	221	19	56	32	63
13	47	2040	12	519	8	254	26	467	19	50	27	45
14	41	1820	12	522	7	242	35	613	18	41	17	21
15	48	2140	9	391	7	232	42	736	19	43	16	16
16	46	2080	8	342	6	216	47	814	27	60	16	17
17	52	2290	8	325	6	217	48	808	26	76	19	27
18	47	2020	7	284	8	281	47	791	25	85	24	57
19	42	1810	6	251	8	266	47	777	29	80	23	49
20	37	1610	6	237	7	245	47	756	33	85	21	31
21	33	1400	8	256	8	283	43	694	34	84	20	18
22	28	1030	13	429	7	245	42	663	29	64	19	12
23	35	1150	17	609	8	269	45	643	24	51	21	14
24	27	879	12	452	11	378	21	268	21	42	21	14
25	19	621	10	368	15	507	16	230	21	42	22	14
26	17	567	10	383	17	559	31	634	19	38	22	14
27	18	578	12	438	10	319	22	559	17	30	20	13
28	18	600	15	575	10	310	26	615	17	29	20	13
29	19	643	15	610	10	318	33	567	18	28	18	12
30	17	575	15	605	9	301	37	433	17	22	15	10
31	---	---	11	459	---	---	37	389	15	20	---	---
TOTAL	---	46773	---	14110	---	8970	---	16756	---	2717	---	1035

YEAR 133781.5

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued



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. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.26	4.6	2.4	e1.7	e3.0	e8.5	e300	154	480	141	13	.65
2	.26	6.3	2.8	e1.6	e2.5	e10	e270	177	503	129	11	.50
3	.30	3.5	2.6	e1.8	e2.3	e11	e240	233	442	125	13	.44
4	.49	3.0	3.0	e2.0	e2.8	e12	e210	474	386	119	14	.38
5	.91	3.2	4.6	e2.2	e3.0	e11	e190	567	376	107	12	.33
6	1.2	10	3.1	e2.5	e3.2	e10	e250	524	572	97	e8.8	9.1
7	.85	10	2.7	e3.0	e3.4	e13	e340	598	627	91	e7.5	9.1
8	.84	10	4.7	e2.6	e3.8	e18	e320	494	502	87	e6.4	74
9	.86	7.6	2.4	e2.3	e3.6	e23	e460	397	418	83	5.5	45
10	.84	5.1	e2.0	e2.1	e3.2	e32	400	350	370	76	4.4	33
11	.88	4.1	e1.7	e2.3	e3.0	e42	525	317	338	68	3.7	20
12	.79	4.9	e1.5	e2.7	e4.2	e55	752	364	342	59	3.2	15
13	.92	4.4	e1.0	e3.0	e5.5	e190	788	436	1050	52	2.9	12
14	1.5	3.8	e1.2	e2.7	e5.0	e340	581	705	1280	47	2.3	13
15	1.7	3.9	e1.6	e2.5	e4.2	e900	440	1000	985	43	3.9	5.3
16	1.3	3.7	e1.8	e2.3	e3.8	e1500	356	683	921	40	6.8	4.8
17	1.3	5.0	e1.7	e2.1	e3.4	2130	e300	511	674	37	4.3	14
18	1.5	3.6	e1.5	e2.2	e3.0	2040	e270	401	524	36	4.2	11
19	1.6	3.9	e1.4	e2.1	e3.2	1540	249	336	431	35	2.9	14
20	1.8	5.0	e1.3	e1.9	e3.3	1580	238	303	363	34	2.9	15
21	2.6	4.1	e1.6	e2.1	e3.2	1570	229	332	325	33	2.5	12
22	3.4	3.4	e1.5	e1.9	e2.9	1430	220	776	302	31	2.0	9.7
23	3.6	2.9	e1.4	e2.2	e3.8	1150	256	1150	271	29	1.6	7.9
24	4.1	2.6	e1.3	e2.1	e5.0	800	250	1010	246	27	1.4	6.7
25	4.2	2.1	e1.1	e1.9	e13	e500	220	665	225	26	3.1	5.5
26	6.9	2.3	e1.2	e1.7	e11	e400	204	567	205	24	2.2	5.0
27	3.9	2.6	e1.3	e2.0	e10	e300	191	576	189	23	1.5	5.2
28	3.0	3.3	e1.6	e2.3	e9.5	e270	176	542	175	21	.95	4.2
29	3.0	2.3	e1.9	e2.5	---	e250	164	456	164	18	1.5	3.9
30	3.0	2.4	e1.7	e3.0	---	e250	157	402	154	17	1.5	3.6
31	2.8	---	e1.6	e3.2	---	e280	---	396	---	16	1.0	---
TOTAL	60.60	133.6	61.2	70.5	127.8	17665.5	9546	15896	13840	1771	151.95	360.30
MEAN	1.95	4.45	1.97	2.27	4.56	570	318	513	461	57.1	4.90	12.0
MAX	6.9	10	4.7	3.2	13	2130	788	1150	1280	141	14	74
MIN	.26	2.1	1.0	1.6	2.3	8.5	157	154	154	16	.95	.33
AC-FT	120	265	121	140	253	35040	18930	31530	27450	3510	301	715
CFSM	.01	.01	.01	.01	.01	1.59	.89	1.43	1.29	.16	.01	.03
IN.	.01	.01	.01	.01	.01	1.84	.99	1.65	1.44	.18	.02	.04

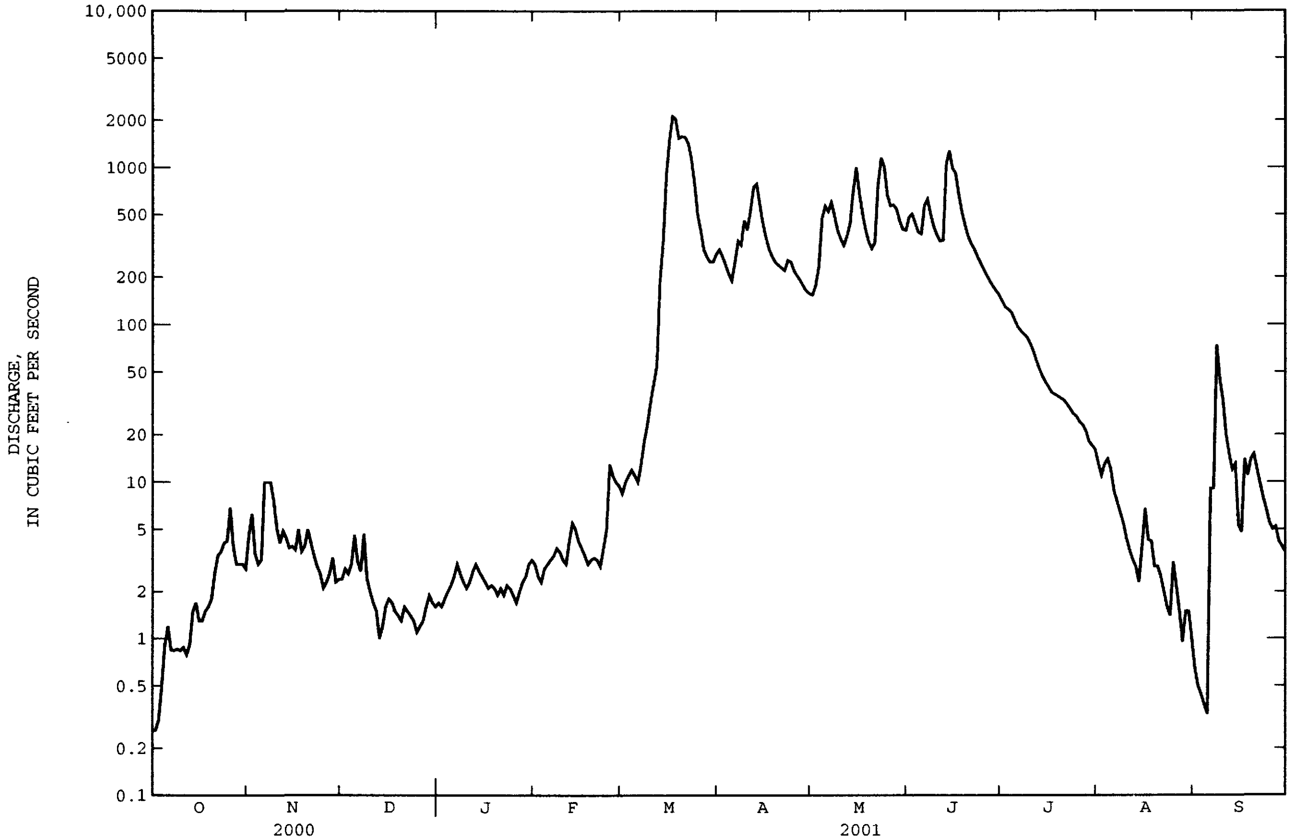
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	98.5	117	97.9	60.5	122	352	382	424	472	283	108	71.6
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1961 - 2001	
ANNUAL TOTAL	12267.74		59684.45			
ANNUAL MEAN	33.5		164		216	
HIGHEST ANNUAL MEAN					575	1993
LOWEST ANNUAL MEAN					17.3	1981
HIGHEST DAILY MEAN	480	Jul 6	2130	Mar 17	11500	Jul 10 1993
LOWEST DAILY MEAN	.23	Sep 18	.26	Oct 1a	.00	Sep 8 1970b
ANNUAL SEVEN-DAY MINIMUM	.26	Sep 27	.61	Oct 1	.00	Oct 7 1971
MAXIMUM PEAK FLOW			2350	Mar 17	14300	Jul 10 1993
MAXIMUM PEAK STAGE			10.90	Mar 17	16.58	Jul 10 1993
INSTANTANEOUS LOW FLOW			.22	Oct 1a		
ANNUAL RUNOFF (AC-FT)	24330		118400		156500	
ANNUAL RUNOFF (CFSM)	.094		.46		.60	
ANNUAL RUNOFF (INCHES)	1.27		6.20		8.20	
10 PERCENT EXCEEDS	93		506		556	
50 PERCENT EXCEEDS	10		7.6		71	
90 PERCENT EXCEEDS	.90		1.5		2.1	

a Also Oct. 2.
b Also Sept. 11-13, 1970, Sept. 17, 18, Oct. 7-17, 1971, and 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. U.S. Army Corps of Engineers rain gage and U.S. Geological Survey 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e240	e230	1570	e190	e220	e210	15500	13000	16600	12900	3250	407
2	e230	e220	1510	e180	e240	e200	15600	13100	16500	12800	2730	383
3	e235	e220	1220	e180	e250	e200	15800	13400	16400	12600	2550	395
4	e240	e220	1030	e190	e240	e300	16100	13500	16200	12200	3230	446
5	e220	e230	995	e200	e240	e360	16400	13500	15400	11700	3210	425
6	e230	e225	992	e200	e240	e340	16600	13500	13300	11500	2670	e450
7	e220	e220	762	e210	e240	e280	16800	e13500	13400	10800	2390	e520
8	e210	e220	666	e210	e260	e240	16900	e13000	13200	10200	1690	e840
9	e210	288	671	e210	e300	e230	17700	e14000	13000	10100	1510	906
10	e210	362	664	e220	e340	e330	17200	e15200	12800	9730	1500	1060
11	e220	883	e500	e280	e340	e420	17200	16400	12800	8410	1300	e1100
12	e220	1460	e450	343	e330	e480	17500	16500	13300	6950	1040	e800
13	e210	1410	e390	396	e330	e1000	17600	16800	13500	6890	982	e700
14	e210	1230	e370	437	e320	1380	17900	17000	14100	6850	815	575
15	e210	1160	e360	507	e330	1810	18100	17200	13800	6790	853	496
16	e220	983	e380	502	e340	3470	18300	17000	13700	6730	792	561
17	e220	944	e420	480	e330	4370	17900	16600	13500	6630	964	594
18	e220	946	e440	414	e320	4780	17300	16300	13400	6570	1260	979
19	e220	943	e520	e380	e320	5940	17500	16100	13400	6500	1030	937
20	e210	887	e500	e360	e320	8430	17500	14700	13400	6430	913	749
21	e220	618	e500	e360	e300	10200	17300	12900	13400	6350	908	493
22	e220	e260	e420	e320	e260	12700	15300	13200	13400	6250	801	e250
23	e220	e240	e340	e300	e250	14700	13100	14200	13300	5790	704	e255
24	e210	307	e320	e290	e260	15600	13100	15000	13300	5040	697	e250
25	e200	566	e300	e280	e280	16300	13000	15400	13200	5500	639	e250
26	e200	955	e240	e240	e260	16500	13000	15300	13100	7280	615	e250
27	e220	1100	e180	e180	e240	16600	13000	15300	13000	10400	567	e250
28	e220	1110	e200	e190	e220	16300	13000	15600	12900	10200	503	e255
29	e225	1140	e220	e220	---	16000	13000	16200	12800	7410	477	e250
30	e230	1300	e210	e240	---	15700	13100	16400	12800	4820	422	e250
31	e240	---	e200	e260	---	15600	---	16600	---	4260	416	---
TOTAL	6810	20877	17540	8969	7920	200970	478300	466400	412900	256580	41428	16076
MEAN	220	696	566	289	283	6483	15940	15050	13760	8277	1336	536
MAX	240	1460	1570	507	340	16600	18300	17200	16600	12900	3250	1100
MIN	200	220	180	180	220	200	13000	12900	12800	4260	416	250
AC-FT	13510	41410	34790	17790	15710	398600	948700	925100	819000	508900	82170	31890
CFSM	.04	.11	.09	.05	.05	1.04	2.55	2.41	2.20	1.33	.21	.09
IN.	.04	.12	.10	.05	.05	1.20	2.85	2.78	2.46	1.53	.25	.10

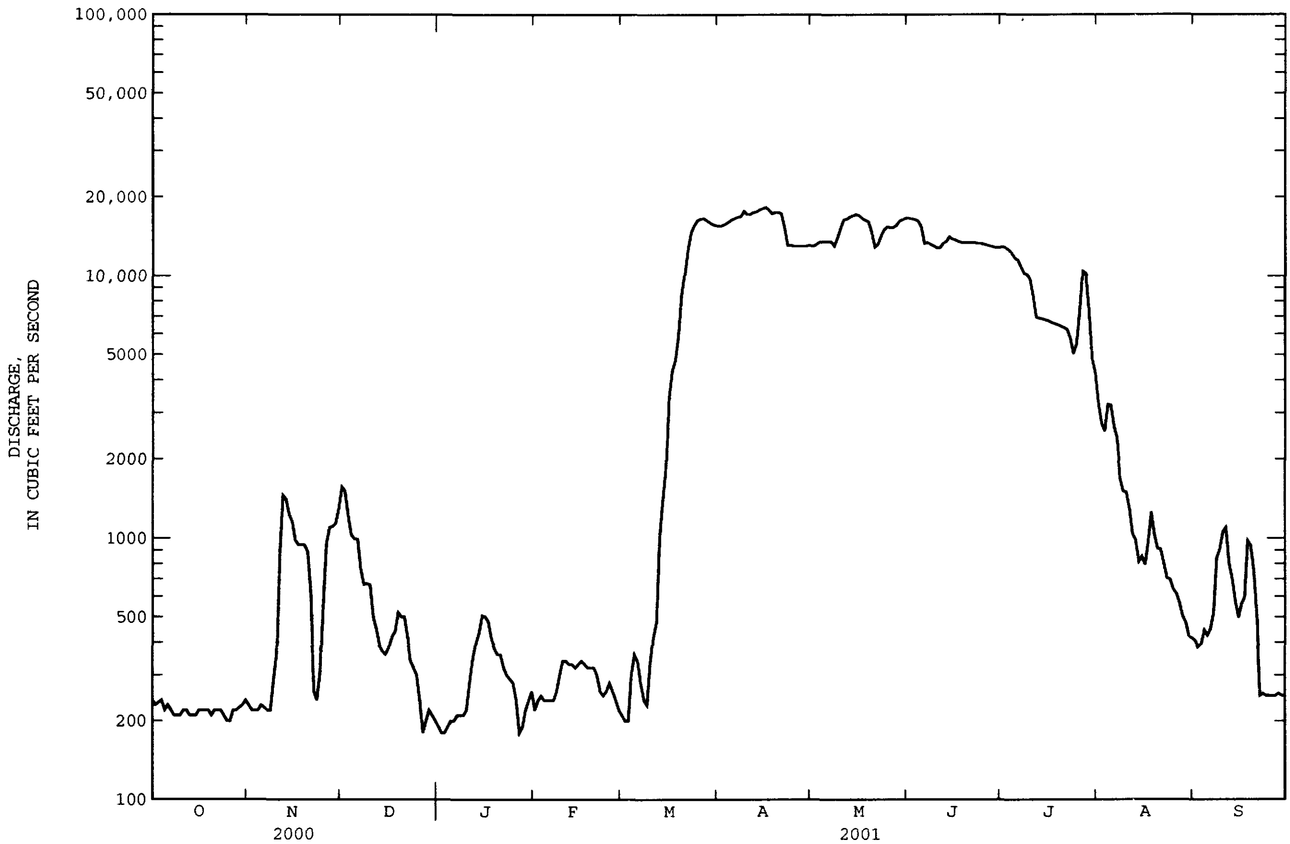
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2001, BY WATER YEAR (WY)

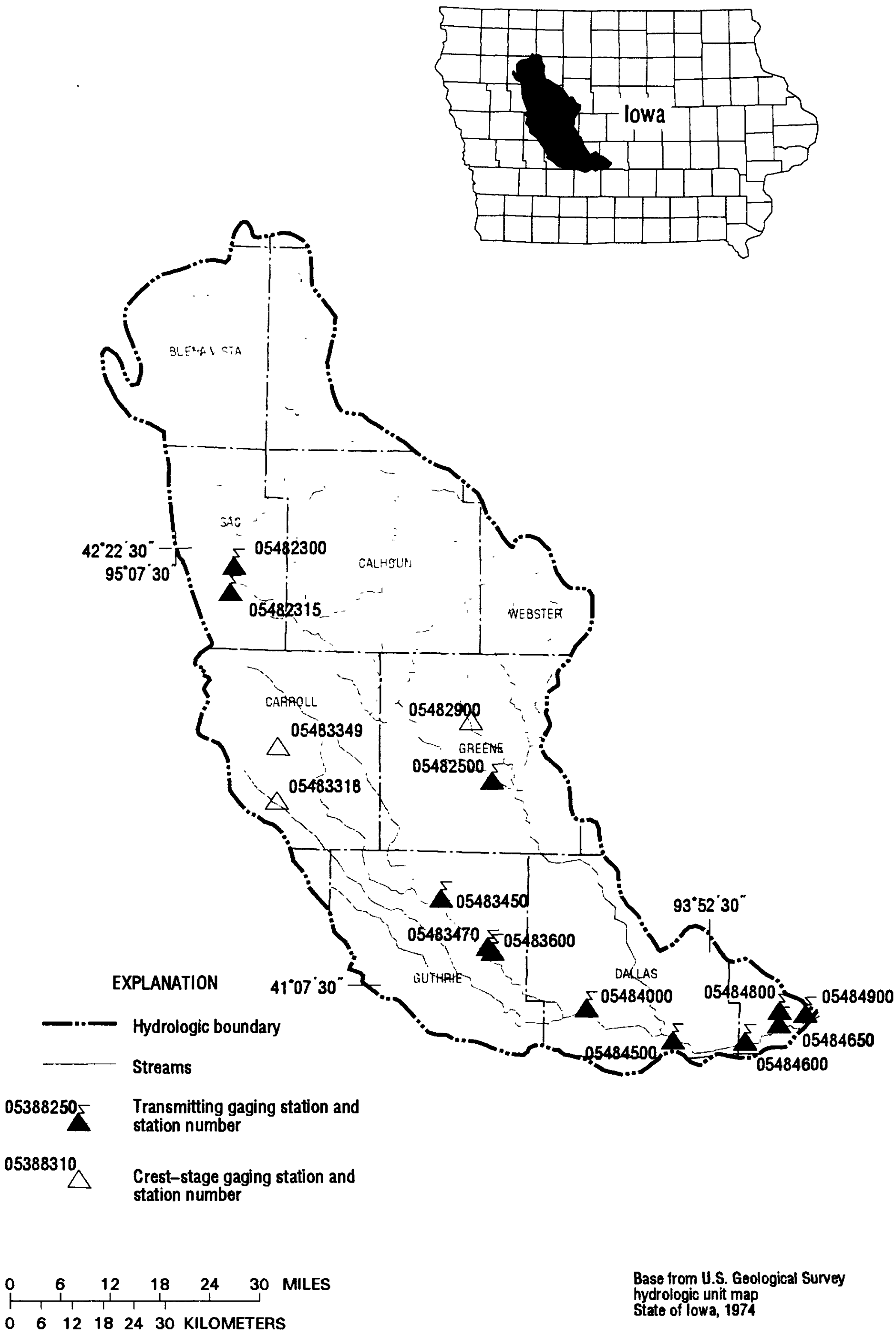
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	514	1366	1169	576	1660	4553	9592	8556	8444	6870	1992	432
MAX	818	2871	2696	1231	2775	9385	15940	15050	13760	8820	3490	630
(WY)	1999	1997	1997	1997	1997	1997	2001	2001	2001	1999	1998	1998
MIN	208	212	226	245	217	492	413	797	3324	4007	914	289
(WY)	2000	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1997 - 2001	
ANNUAL TOTAL	372390		1934770			
ANNUAL MEAN	1017		5301		3814	
HIGHEST ANNUAL MEAN					5301	2001
LOWEST ANNUAL MEAN					948	2000
HIGHEST DAILY MEAN	10000	Jul 13	18300	Apr 16	18300	Apr 16 2001
LOWEST DAILY MEAN	160	Sep 18	180	Dec 27a	160	Sep 18 2000
ANNUAL SEVEN-DAY MINIMUM	196	Feb 25	191	Dec 31	190	Dec 17 1999
MAXIMUM PEAK FLOW			18500	Apr 17	18500	Apr 17 2001
MAXIMUM PEAK STAGE			20.41	Apr 17	20.41	Apr 17 2001
ANNUAL RUNOFF (AC-FT)	738600		3838000		2763000	
ANNUAL RUNOFF (CFSM)	.16		.85		.61	
ANNUAL RUNOFF (INCHES)	2.22		11.52		8.30	
10 PERCENT EXCEEDS	3000		16100		12800	
50 PERCENT EXCEEDS	380		906		1390	
90 PERCENT EXCEEDS	210		220		230	

a Also Jan. 2, 3, and 27.
e Estimated.





Base from U.S. Geological Survey
hydrologic unit map
State of Iowa, 1974

Gaging Stations

Crest Stage Gaging Stations

05482300 NORTH RACCOON RIVER NEAR SAC CITY, IA

LOCATION.--Lat 42°21'16", long 94°59'26", in NW¼ NW¼ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	71	e107	e43	e47	e34	2130	385	488	e296	113	107
2	20	76	e106	e47	e39	e49	1620	1520	467	e298	396	108
3	22	74	e86	e52	e41	e62	1380	2620	429	e249	1120	103
4	26	70	e114	e58	e50	e69	1190	3230	404	222	1040	92
5	27	68	e90	e62	e52	e64	1030	2770	498	203	756	79
6	26	86	e91	e74	e53	e57	915	2820	589	186	472	72
7	24	110	e122	e79	e53	e68	1020	2470	526	182	332	76
8	23	353	e119	e74	e52	e75	1400	1900	481	174	234	94
9	22	326	e119	e58	e46	e85	1040	1430	450	159	187	93
10	21	258	e105	e63	e41	e93	853	1200	441	146	154	83
11	22	214	e68	e69	e38	e80	1140	1130	421	136	129	73
12	22	189	e62	e74	e47	e87	3060	1030	400	125	110	67
13	23	177	e60	e80	e60	e137	2530	899	416	116	94	62
14	31	164	e69	e78	e61	e251	1970	838	1110	109	84	64
15	28	136	e80	e66	e50	e410	1480	745	2460	101	113	73
16	29	142	e76	e57	e48	e668	1140	666	1900	96	263	91
17	24	118	e58	e54	e47	e1040	897	594	1340	101	273	120
18	25	120	e50	e58	e50	e990	751	536	1060	131	195	126
19	25	133	e43	e53	e53	e1410	681	496	868	108	160	119
20	28	e107	e52	e46	e49	e1710	619	496	724	101	133	111
21	31	e103	e51	e49	e44	3510	564	737	642	100	115	98
22	32	e108	e43	e47	e42	4290	523	1340	577	106	105	89
23	38	e113	e40	e50	e51	4120	528	1040	523	104	95	84
24	36	e119	e41	e45	e57	3700	675	848	477	114	92	78
25	36	e96	e38	e39	e66	2860	587	741	432	215	402	78
26	47	e98	e38	e38	e55	2280	516	690	390	503	535	73
27	53	e96	e41	e39	e44	2030	469	660	362	333	382	73
28	53	e104	e46	e50	e30	1990	420	618	e329	235	263	70
29	50	e114	e47	e54	---	1910	391	562	e301	187	194	68
30	51	e108	e43	e56	---	1750	379	533	e275	155	161	66
31	53	---	e42	e52	---	1960	---	512	---	131	127	---
TOTAL	968	4051	2147	1764	1366	37839	31898	36056	19780	5422	8829	2590
MEAN	31.2	135	69.3	56.9	48.8	1221	1063	1163	659	175	285	86.3
MAX	53	353	122	80	66	4290	3060	3230	2460	503	1120	126
MIN	20	68	38	38	30	34	379	385	275	96	84	62
AC-FT	1920	8040	4260	3500	2710	75050	63270	71520	39230	10750	17510	5140
CFSM	.04	.19	.10	.08	.07	1.74	1.52	1.66	.94	.25	.41	.12
IN.	.05	.22	.11	.09	.07	2.01	1.70	1.92	1.05	.29	.47	.14

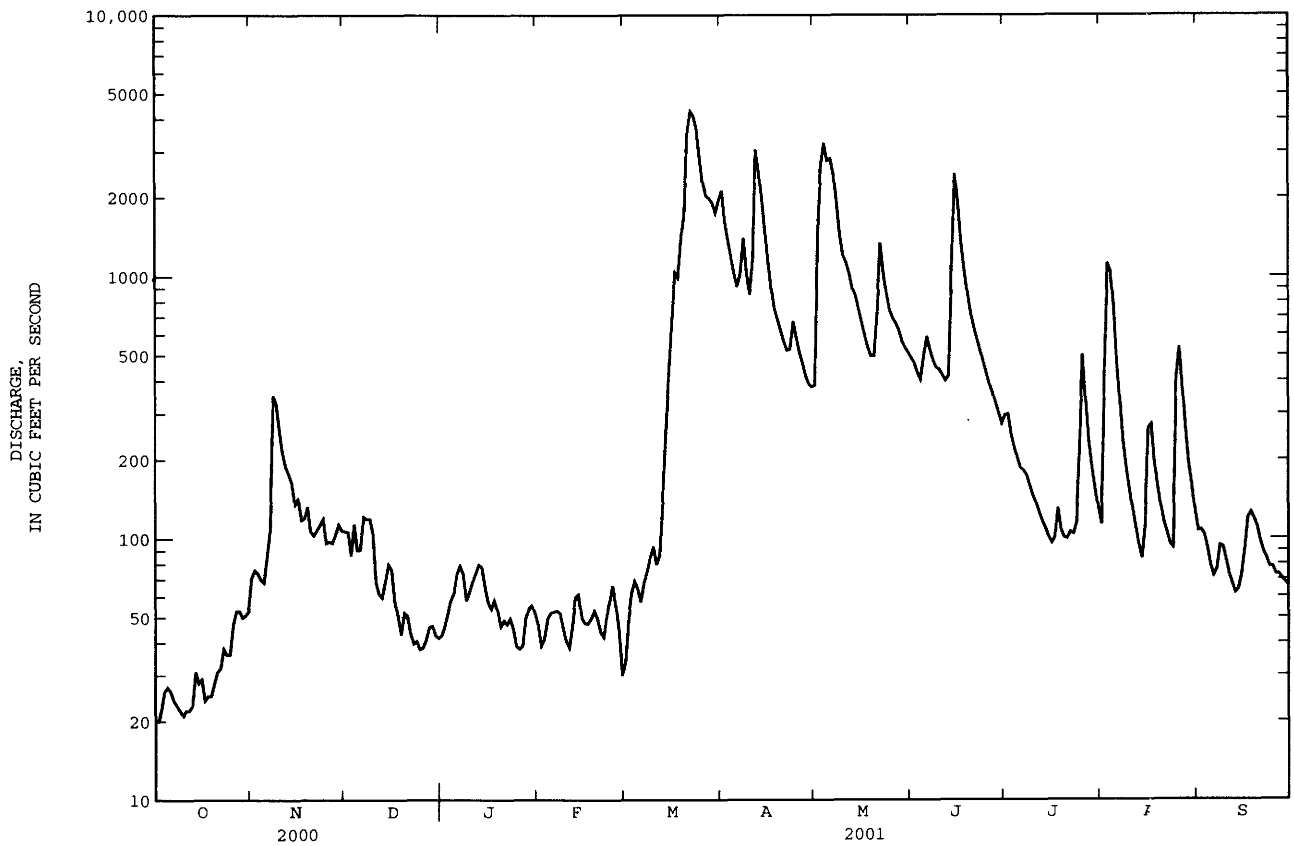
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	237	214	135	92.0	178	645	801	654	842	487	234	226
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1959 - 2001	
ANNUAL TOTAL	25784.0		152710			
ANNUAL MEAN	70.4		418		396	
HIGHEST ANNUAL MEAN					1331	1983
LOWEST ANNUAL MEAN					25.3	1977
HIGHEST DAILY MEAN	1150	Aug 19	4290	Mar 22	12400	Mar 23 1979
LOWEST DAILY MEAN	9.0	Jan 28	20	Oct 1a	.00	Jan 30 1977b
ANNUAL SEVEN-DAY MINIMUM	10	Jan 27	22	Oct 7	.01	Jan 29 1977
MAXIMUM PEAK FLOW			4550	Mar 22	13100	Mar 23 1979
MAXIMUM PEAK STAGE			15.85	Mar 22	20.14	Jun 17 1990
INSTANTANEOUS LOW FLOW			19	Oct 2c		
ANNUAL RUNOFF (AC-FT)	51140		302900		286600	
ANNUAL RUNOFF (CFSM)	.10		.60		.57	
ANNUAL RUNOFF (INCHES)	1.37		8.12		7.68	
10 PERCENT EXCEEDS	132		1140		1020	
50 PERCENT EXCEEDS	32		109		132	
90 PERCENT EXCEEDS	18		41		17	

a Also Oct. 2.
b Also Jan. 31 to Feb. 4, 1977.
c Also Oct. 10.
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 1,213.50 ft above sea level and 7.00 ft below crest of spillway of dam at outlet. Prior to June 25, 1970, nonrecording gage at lake outlet. Prior to Jan. 22, 2001, at datum 5.0 ft higher.

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.

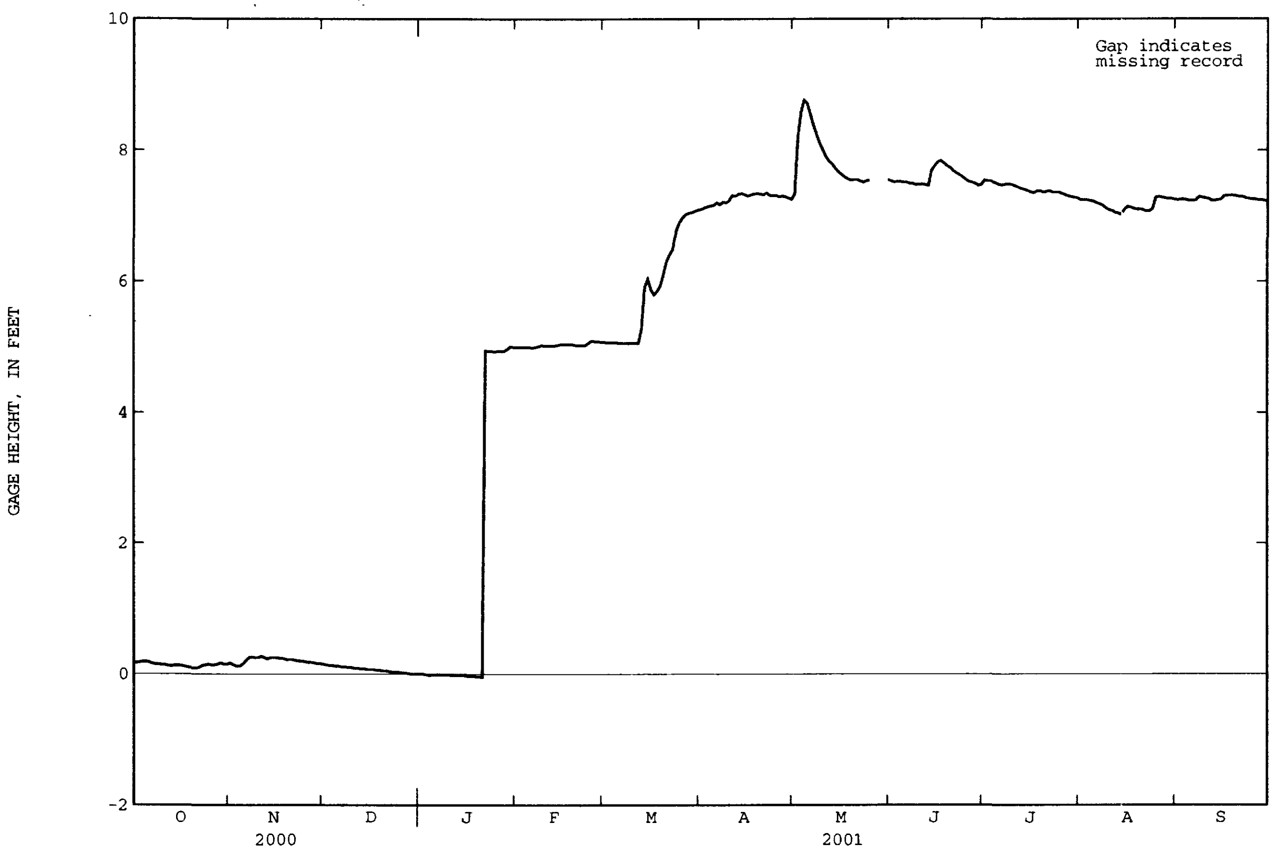
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 4.34 ft June 22, 1996, datum then in use; minimum, 4.91 ft Jan. 25, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 8.81 ft May 4; minimum, 4.91 ft Jan. 25.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	.17	.15	.00	5.00	5.08	7.10	7.33	7.53	7.54	7.24	7.24
2	.17	.14	.14	.00	5.00	5.07	7.12	8.20	7.51	7.53	7.24	7.25
3	.18	.12	.13	-.01	5.00	5.07	7.14	8.58	7.52	7.53	7.24	7.25
4	.19	.12	.13	-.02	5.00	5.07	7.15	8.76	7.52	7.51	7.23	7.24
5	.19	.15	.12	-.01	5.00	5.07	7.16	8.71	7.51	7.49	7.22	7.23
6	.18	.20	.12	-.01	4.99	5.06	7.20	8.54	7.51	7.47	7.20	7.23
7	.16	.25	.11	-.01	5.00	5.06	7.17	8.37	7.49	7.47	7.18	7.24
8	.15	.26	.11	-.01	5.01	5.06	7.21	8.23	7.49	7.48	7.16	7.29
9	.15	.25	.10	-.01	5.03	5.06	7.20	8.10	7.47	7.48	7.12	7.28
10	.14	.25	.10	-.01	5.02	5.06	7.23	8.00	7.48	7.47	7.09	7.27
11	.14	.27	.09	-.02	5.02	5.06	7.31	7.90	7.48	7.45	7.08	7.26
12	.13	.25	.09	-.02	5.02	5.06	7.30	7.83	7.47	7.43	7.05	7.23
13	.12	.23	.08	-.02	5.02	5.27	7.33	7.79	7.46	7.41	7.04	7.23
14	.13	.25	.08	-.02	5.03	5.92	7.34	7.72	7.69	7.40	7.02	7.24
15	.13	.25	.07	-.02	5.04	6.04	7.32	7.67	7.76	7.38	7.10	7.25
16	.13	.25	.07	-.03	5.04	5.88	7.30	7.63	7.82	7.36	7.14	7.30
17	.12	.24	.07	-.03	5.04	5.80	7.32	7.59	7.84	7.35	7.13	7.31
18	.11	.24	.06	-.03	5.04	5.85	7.33	7.56	7.80	7.38	7.11	7.31
19	.10	.22	.06	-.04	5.04	5.93	7.34	7.54	7.76	7.38	7.10	7.31
20	.09	.22	.05	-.04	5.03	6.10	7.33	7.55	7.73	7.36	7.10	7.30
21	.09	.22	.05	-.05	5.03	6.30	7.32	7.55	7.68	7.37	7.09	7.29
22	.10	.21	.04	4.95	5.03	6.41	7.35	7.53	7.65	7.38	7.07	7.29
23	.13	.20	.03	4.94	5.03	6.49	7.31	7.51	7.62	7.36	7.07	7.27
24	.14	.20	.03	4.94	5.06	6.78	7.31	7.53	7.59	7.36	7.11	7.26
25	.15	.19	.03	4.93	5.10	6.90	7.31	7.54	7.55	7.36	7.28	7.25
26	.14	.18	.02	4.94	5.09	6.97	7.29	---	7.52	7.34	7.29	7.25
27	.14	.18	.02	4.94	5.09	7.02	7.30	---	7.51	7.32	7.28	7.24
28	.15	.17	.01	4.94	5.08	7.04	7.29	---	7.49	7.30	7.27	7.24
29	.17	.16	.00	4.97	---	7.05	7.27	---	7.46	7.29	7.26	7.23
30	.15	.16	.00	5.01	---	7.07	7.25	---	7.47	7.28	7.26	7.22
31	.15	---	.00	5.00	---	7.09	---	7.55	---	7.27	7.25	---
MEAN	.14	.21	.07	1.59	5.03	5.89	7.26	7.88	7.58	7.40	7.16	7.26
MAX	.19	.27	.15	5.01	5.10	7.09	7.35	8.76	7.84	7.54	7.29	7.31
MIN	.09	.12	.00	-.05	4.99	5.06	7.10	7.33	7.46	7.27	7.02	7.22

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$\frac{1}{4}$ NW$\frac{1}{4}$ 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. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	159	e110	e27	e55	e55	2850	611	1340	700	284	381
2	29	155	e90	e27	e44	e65	3030	1270	1290	791	241	322
3	27	140	e80	e28	e42	e65	2400	6890	1200	812	268	293
4	28	153	e100	e32	e55	e75	2050	11800	1120	712	1830	271
5	30	158	e90	e32	e55	e65	1760	11500	1560	631	2530	252
6	30	172	e80	37	e60	e60	1590	9660	1880	572	2070	241
7	32	168	e100	43	e55	e65	1440	7830	1650	528	1450	239
8	33	168	e150	46	e55	e75	1350	6380	1430	506	1090	259
9	32	168	e140	e46	e50	e75	1670	4540	1260	531	857	249
10	33	235	e140	e42	e42	e70	1420	3420	1170	480	670	273
11	37	302	e85	e44	e42	e65	1280	2850	1120	439	547	270
12	43	278	e80	e60	e55	e70	1640	2440	1220	408	458	244
13	49	234	e80	e75	e60	e440	3940	2210	1130	382	393	210
14	48	205	e90	e75	e65	e1300	3420	2290	1980	355	337	180
15	41	e190	e95	e70	e55	e3600	2620	2330	5910	327	317	168
16	47	193	e120	e65	e55	e4000	1990	1900	6790	305	321	200
17	58	e170	e100	e60	e50	e2900	1580	1650	5490	288	375	231
18	70	155	e80	e60	e50	e2800	1310	1460	3530	278	557	277
19	72	149	e65	e55	e55	e3800	1120	1310	2640	276	511	355
20	70	69	e65	e44	e55	4420	1030	1270	2110	290	422	364
21	58	e55	e70	e46	e50	5760	945	3440	1780	258	367	341
22	60	e65	e60	e48	e50	7320	867	3730	1550	240	323	308
23	72	e75	e48	e55	e55	7840	801	3850	1390	235	287	273
24	91	e110	e40	e60	e60	7640	750	2980	1260	221	256	238
25	106	e150	e25	e48	e75	6320	807	2360	1150	229	351	220
26	113	e140	e25	e46	e65	4640	835	2050	1030	291	837	207
27	106	e120	e28	e50	e60	3340	750	1930	947	468	1030	198
28	98	e130	e28	e55	e50	2870	692	1780	864	592	903	192
29	107	e110	e30	e60	---	2840	639	1620	804	464	708	183
30	139	e110	e28	e70	---	2710	581	1460	755	388	555	176
31	146	---	e27	e65	---	2580	---	1370	---	338	460	---
TOTAL	1935	4686	2349	1571	1520	77925	47157	110181	57350	13335	21605	7615
MEAN	62.4	156	75.8	50.7	54.3	2514	1572	3554	1912	430	697	254
MAX	146	302	150	75	75	7840	3940	11800	6790	812	2530	381
MIN	27	55	25	27	42	55	581	611	755	221	241	168
AC-FT	3840	9290	4660	3120	3010	154600	93540	218500	113800	26450	42850	15100
CFSM	.04	.10	.05	.03	.03	1.55	.97	2.20	1.18	.27	.43	.16
IN.	.04	.11	.05	.04	.03	1.79	1.08	2.53	1.32	.31	.50	.17

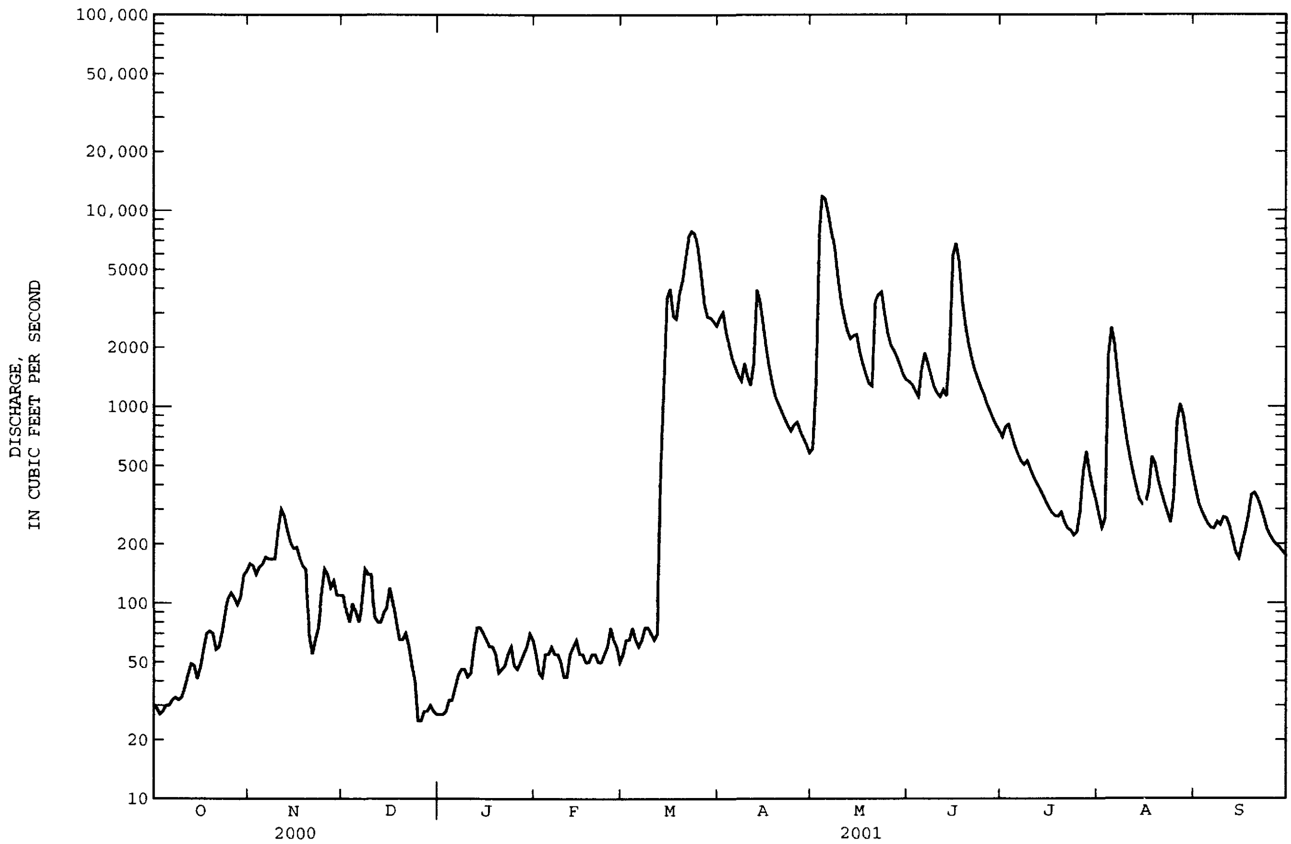
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	424	382	267	199	409	1286	1535	1436	1861	1034	497	388
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1941 - 2001	
ANNUAL TOTAL	41158		347229			
ANNUAL MEAN	112		951		810	
HIGHEST ANNUAL MEAN					2615	1993
LOWEST ANNUAL MEAN					32.8	1956
HIGHEST DAILY MEAN	851	Aug 21	11800	May 4	23200	Jun 24 1947
LOWEST DAILY MEAN	19	Aug 16	25	Dec 25a	.60	Oct 5 1956
ANNUAL SEVEN-DAY MINIMUM	21	Aug 6	27	Dec 25	.91	Oct 4 1956
MAXIMUM PEAK FLOW			12500	May 4	29100	Jun 23 1947
MAXIMUM PEAK STAGE			16.33	May 4	22.30	Jun 23 1947
ANNUAL RUNOFF (AC-FT)	81640		688700		587000	
ANNUAL RUNOFF (CFSM)	.069		.59		.50	
ANNUAL RUNOFF (INCHES)	.95		7.98		6.80	
10 PERCENT EXCEEDS	211		2750		2050	
50 PERCENT EXCEEDS	80		252		286	
90 PERCENT EXCEEDS	30		46		42	

a Also Dec. 26.
e Estimated.



05483450 MIDDLE RACCOON RIVER NEAR BAYARD, IA

LOCATION.--Lat 41°46'43", long 94°29'33", in SW$\frac{1}{4}$ SW$\frac{1}{4}$ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	32	27	e13	e20	e34	249	91	591	234	46	46
2	17	31	e26	e13	e16	e40	221	584	529	227	44	40
3	17	27	e24	e15	e19	e46	201	1850	423	219	49	37
4	19	25	e26	e17	e25	e42	184	1880	369	202	47	34
5	22	23	e23	e19	e32	e40	173	1130	990	177	44	29
6	26	36	e26	e20	e30	e38	209	1010	941	163	38	34
7	24	46	e40	e19	e29	e40	246	767	635	159	36	44
8	24	56	e34	e18	e30	e40	221	591	518	148	34	89
9	21	42	e34	e14	e26	e38	189	495	455	160	33	114
10	20	37	e27	e17	e21	e42	173	445	423	153	32	74
11	19	35	e22	e19	e24	e55	283	394	435	133	29	56
12	19	32	e19	e21	e30	e140	611	338	502	124	28	46
13	18	28	e22	e23	e36	e360	427	318	1060	111	27	39
14	20	27	e25	e24	e32	e1000	330	303	1560	104	26	36
15	19	e26	e29	e23	e30	2760	282	280	2160	96	33	36
16	22	27	e23	e20	e27	1880	238	261	1160	92	60	48
17	20	36	e18	e20	e24	1210	201	246	836	87	67	80
18	19	e32	e19	e21	e30	1160	180	223	664	86	47	79
19	19	e32	e18	e17	e34	1110	168	209	571	146	40	70
20	19	e26	e20	e15	e28	1070	160	247	493	122	36	61
21	19	e20	e16	e17	e25	1030	153	2130	441	104	34	54
22	19	e23	e15	e18	e29	739	165	1580	398	97	32	49
23	20	e36	e16	e21	e30	631	155	1070	361	84	34	45
24	21	42	e14	e19	e36	495	135	750	334	75	35	43
25	25	40	e13	e17	e37	355	119	633	311	76	411	41
26	23	34	e14	e20	e36	278	111	566	291	70	460	40
27	23	33	e14	e17	e32	255	103	506	280	64	214	40
28	22	34	e15	e20	e28	241	93	454	270	61	122	38
29	22	30	e14	e23	---	246	88	409	258	59	80	37
30	25	27	e14	e26	---	246	84	396	247	54	61	36
31	24	---	e13	e24	---	251	---	419	---	50	58	---
TOTAL	644	975	660	590	796	15912	6152	20575	18506	3737	2337	1515
MEAN	20.8	32.5	21.3	19.0	28.4	513	205	664	617	121	75.4	50.5
MAX	26	56	40	26	37	2760	611	2130	2160	234	460	114
MIN	17	20	13	13	16	34	84	91	247	50	26	29
AC-FT	1280	1930	1310	1170	1580	31560	12200	40810	36710	7410	4640	3010
CFSM	.06	.09	.06	.05	.08	1.37	.55	1.77	1.64	.32	.20	.13
IN.	.06	.10	.07	.06	.08	1.58	.61	2.04	1.84	.37	.23	.15

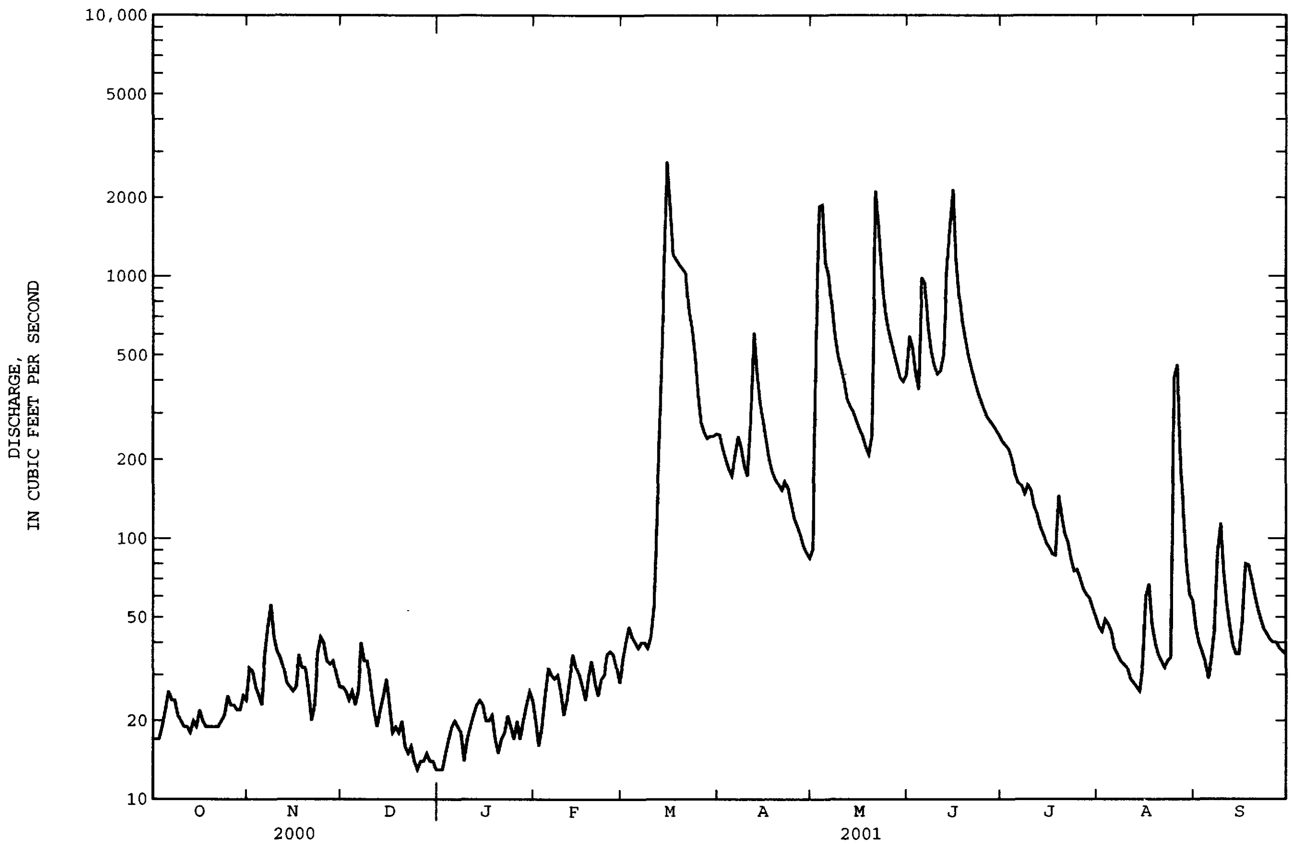
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	112	118	117	88.1	188	295	393	456	543	417	181	108
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1930 - 2001	
ANNUAL TOTAL	19235		72399			
ANNUAL MEAN	52.6		198		251	
HIGHEST ANNUAL MEAN					677	1993
LOWEST ANNUAL MEAN					54.1	1981
HIGHEST DAILY MEAN	403	Jul 6	2760	Mar 15	18100	Jul 9 1993
LOWEST DAILY MEAN	13	Dec 25	13	Dec 25	5.5	Jun 13 1981
ANNUAL SEVEN-DAY MINIMUM	14	Dec 25	14	Dec 27	7.3	Jun 8 1981
MAXIMUM PEAK FLOW			3210	Jun 15	27500	Jul 9 1993
MAXIMUM PEAK STAGE			18.79	Jun 15	29.02	Jul 9 1993
ANNUAL RUNOFF (AC-FT)	38150		143600		182100	
ANNUAL RUNOFF (CFSM)	.14		.53		.67	
ANNUAL RUNOFF (INCHES)	1.91		7.18		9.11	
10 PERCENT EXCEEDS	92		522		567	
50 PERCENT EXCEEDS	46		40		111	
90 PERCENT EXCEEDS	19		19		32	

e Estimated



05483470 LAKE PANORAMA AT PANORA, IOWA

LOCATION.--Lat 41°41'44", long 94°22'53", in SW¼ NE¼ 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.

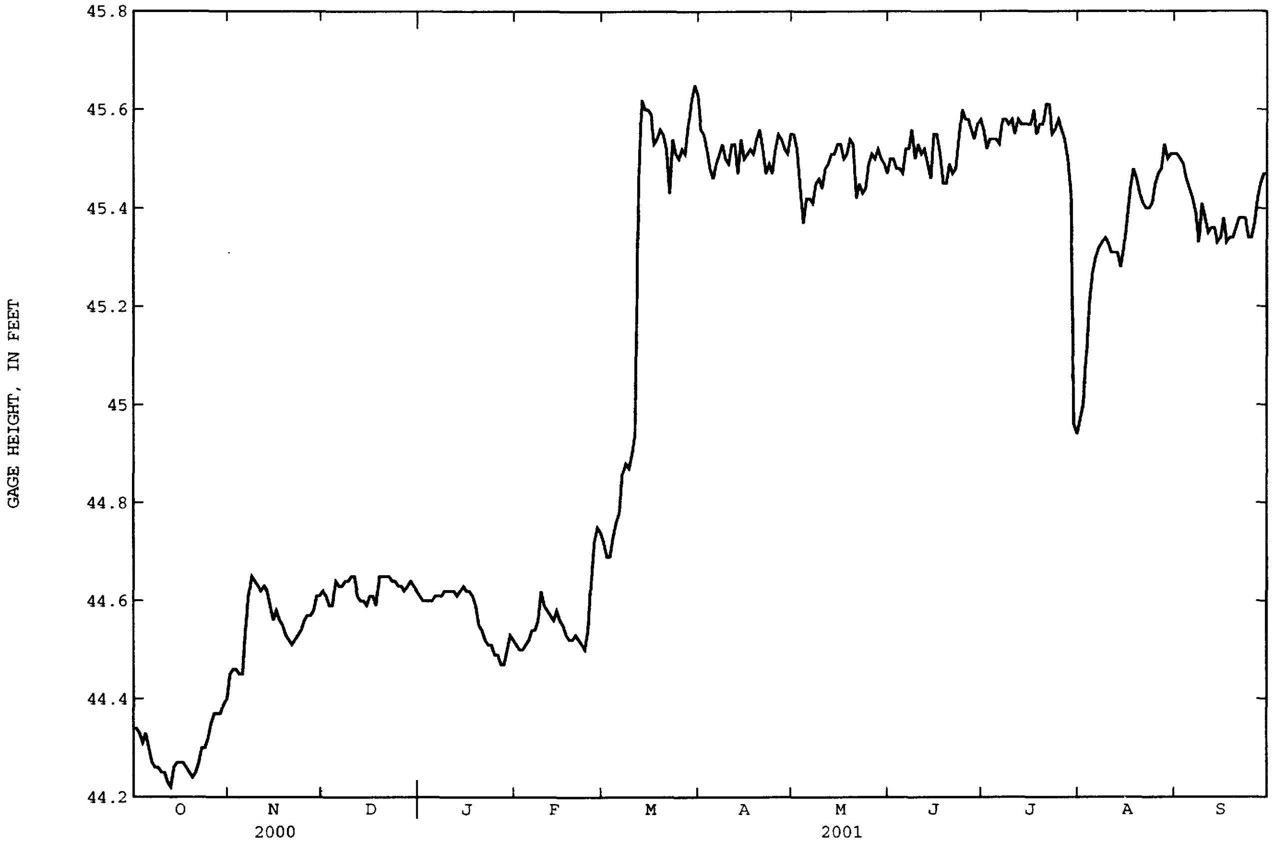
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height,50.68 ft July 9, 1993; minimum, 41.56 ft Oct. 15, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 45.74 ft Mar. 14; minimum recorded, 44.20 ft Oct.13.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44.34	44.45	44.62	44.61	44.51	44.72	45.56	45.55	45.50	45.56	44.97	45.51
2	44.34	44.46	44.61	44.60	44.50	44.69	45.55	45.52	45.50	45.52	45.00	45.50
3	44.33	44.46	44.59	44.60	44.50	44.69	45.52	45.44	45.48	45.54	45.10	45.49
4	44.31	44.45	44.59	44.60	44.51	44.73	45.48	45.37	45.48	45.54	45.21	45.46
5	44.33	44.45	44.64	44.60	44.52	44.76	45.46	45.42	45.47	45.54	45.27	45.44
6	44.30	44.54	44.63	44.61	44.54	44.78	45.49	45.42	45.52	45.53	45.30	45.42
7	44.27	44.61	44.63	44.61	44.54	44.86	45.51	45.41	45.52	45.58	45.32	45.39
8	44.26	44.65	44.64	44.61	44.56	44.88	45.53	45.45	45.56	45.58	45.33	45.33
9	44.26	44.64	44.64	44.62	44.62	44.87	45.50	45.46	45.50	45.57	45.34	45.41
10	44.25	44.63	44.65	44.62	44.59	44.90	45.49	45.44	45.53	45.58	45.33	45.38
11	44.25	44.62	44.65	44.62	44.58	44.94	45.53	45.48	45.51	45.55	45.31	45.35
12	44.23	44.63	44.61	44.62	44.57	45.44	45.53	45.49	45.52	45.58	45.31	45.36
13	44.22	44.62	44.60	44.61	44.56	45.62	45.47	45.51	45.49	45.57	45.31	45.36
14	44.26	44.59	44.60	44.62	44.58	45.60	45.54	45.51	45.46	45.57	45.28	45.33
15	44.27	44.56	44.59	44.63	44.56	45.60	45.50	45.53	45.55	45.57	45.32	45.34
16	44.27	44.58	44.61	44.62	44.55	45.59	45.51	45.53	45.55	45.57	45.38	45.38
17	44.27	44.56	44.61	44.62	44.53	45.53	45.52	45.50	45.51	45.60	45.44	45.33
18	44.26	44.55	44.59	44.61	44.52	45.54	45.51	45.51	45.45	45.55	45.48	45.34
19	44.25	44.53	44.65	44.59	44.52	45.56	45.54	45.54	45.45	45.57	45.46	45.34
20	44.24	44.52	44.65	44.55	44.53	45.55	45.56	45.53	45.49	45.57	45.43	45.36
21	44.25	44.51	44.65	44.54	44.52	45.52	45.52	45.42	45.47	45.61	45.41	45.38
22	44.27	44.52	44.65	44.52	44.51	45.43	45.47	45.45	45.48	45.61	45.40	45.38
23	44.30	44.53	44.64	44.51	44.50	45.54	45.49	45.43	45.54	45.55	45.40	45.38
24	44.30	44.54	44.64	44.51	44.54	45.51	45.47	45.44	45.60	45.56	45.41	45.34
25	44.32	44.56	44.63	44.49	44.64	45.50	45.52	45.49	45.58	45.58	45.45	45.34
26	44.35	44.57	44.63	44.49	44.72	45.52	45.55	45.51	45.58	45.56	45.47	45.37
27	44.37	44.57	44.62	44.47	44.75	45.51	45.54	45.50	45.56	45.54	45.48	45.42
28	44.37	44.58	44.63	44.47	44.74	45.57	45.52	45.52	45.54	45.50	45.53	45.45
29	44.37	44.61	44.64	44.50	---	45.62	45.51	45.50	45.57	45.43	45.50	45.47
30	44.39	44.61	44.63	44.53	---	45.65	45.55	45.49	45.58	44.96	45.51	45.47
31	44.40	---	44.62	44.52	---	45.63	---	45.47	---	44.94	45.51	---
MEAN	44.30	44.56	44.63	44.57	44.56	45.29	45.51	45.48	45.52	45.52	45.35	45.39
MAX	44.40	44.65	44.65	44.63	44.75	45.65	45.56	45.55	45.60	45.61	45.53	45.51
MIN	44.22	44.45	44.59	44.47	44.50	44.69	45.46	45.37	45.45	44.94	44.97	45.33

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 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	44	42	e20	e48	e60	262	126	730	208	35	62
2	20	48	42	e19	e26	e65	236	475	626	189	35	62
3	20	31	38	26	e28	72	221	1970	443	183	35	60
4	20	28	37	26	31	83	208	2100	344	182	30	51
5	22	29	e36	27	35	90	200	1220	1130	166	37	41
6	21	50	e36	23	38	72	349	1070	962	131	33	48
7	20	36	40	19	41	71	225	821	661	145	32	295
8	20	34	39	e17	46	79	260	529	509	162	31	132
9	20	39	40	e16	e36	78	231	514	448	154	32	111
10	20	35	e34	e24	e30	85	197	441	412	157	29	109
11	20	34	e29	30	e32	99	424	383	400	134	34	65
12	20	39	e22	35	e38	451	643	309	383	121	33	53
13	20	41	e23	40	43	958	446	335	1140	119	30	53
14	20	36	e24	46	47	1570	327	279	1240	111	30	49
15	20	31	e26	48	e42	2550	305	257	2290	109	35	47
16	20	41	e23	48	e38	2190	197	255	1190	88	31	75
17	20	36	e19	46	e34	1180	181	374	790	83	43	112
18	20	35	e19	e44	40	1200	166	192	666	145	54	94
19	20	37	e18	e38	40	1200	146	203	500	145	50	85
20	21	35	e19	e34	40	1210	188	319	467	105	42	59
21	21	26	e17	e37	e36	1210	210	2120	419	114	36	64
22	19	20	e17	38	e36	820	194	1680	342	123	33	65
23	20	22	e18	36	39	763	182	1140	289	144	32	70
24	22	25	e16	e34	46	521	137	769	300	80	40	57
25	22	26	e17	e32	61	382	113	575	293	86	377	51
26	23	28	e20	e34	74	265	121	542	268	83	474	51
27	30	30	e21	e32	e65	246	115	456	263	92	165	49
28	25	32	e21	36	e60	214	112	409	232	110	119	39
29	24	38	e21	44	---	233	101	380	204	169	88	43
30	27	39	e20	53	---	243	80	439	211	263	63	47
31	28	---	e19	52	---	303	---	538	---	38	62	---
TOTAL	665	1025	813	1054	1170	18563	6777	21220	18152	4139	2200	2199
MEAN	21.5	34.2	26.2	34.0	41.8	599	226	685	605	134	71.0	73.3
MAX	30	50	42	53	74	2550	643	2120	2290	263	474	295
MIN	19	20	16	16	26	60	80	126	204	38	29	39
AC-FT	1320	2030	1610	2090	2320	36820	13440	42090	36000	8210	4360	4360
CFSM	.05	.08	.06	.08	.09	1.36	.51	1.56	1.38	.30	.16	.17
IN.	.06	.09	.07	.09	.10	1.57	.57	1.79	1.53	.35	.19	.19

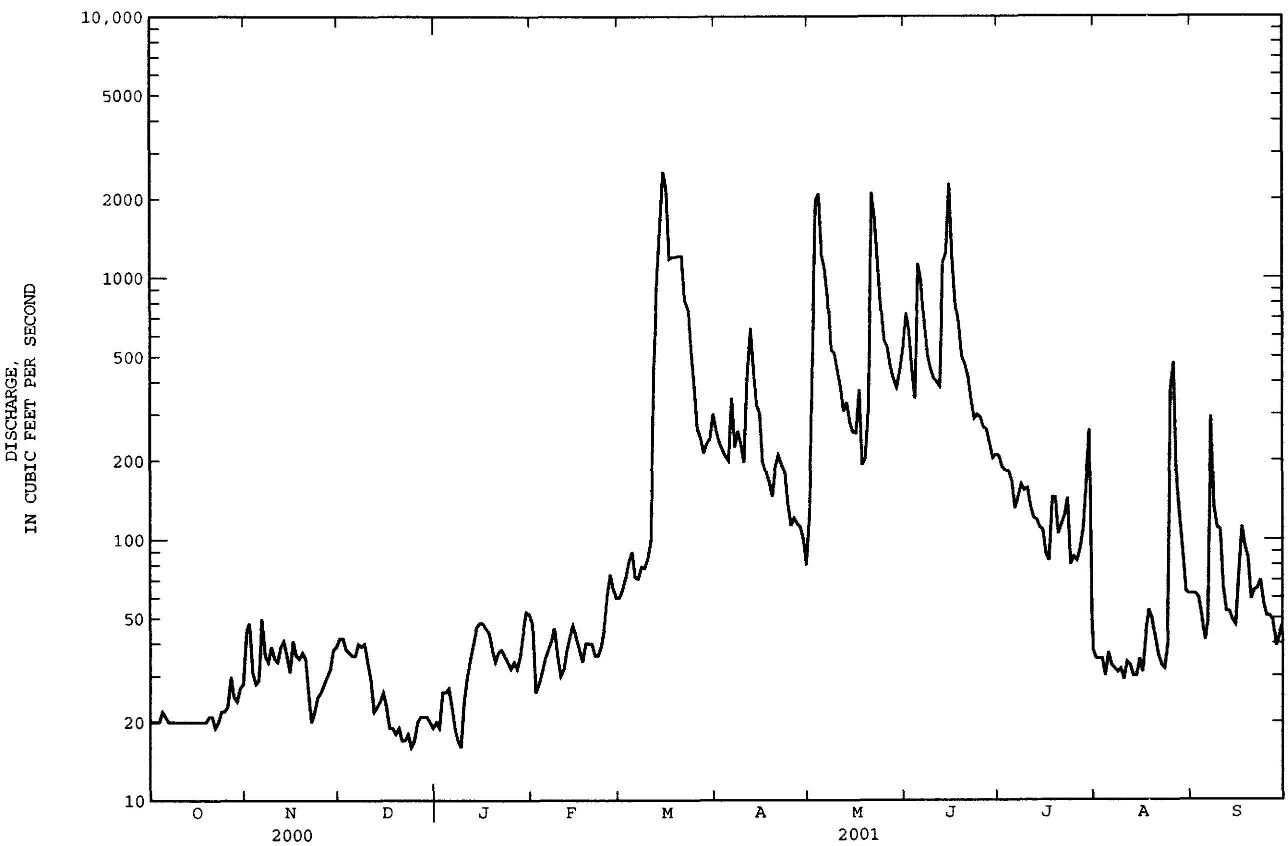
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	124	143	123	99.9	217	376	390	492	498	391	167	137
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1971 - 2001a	
ANNUAL TOTAL	20403		77977			
ANNUAL MEAN	55.7		214		263	
HIGHEST ANNUAL MEAN					701	1973
LOWEST ANNUAL MEAN					38.6	1977
HIGHEST DAILY MEAN	551	Jul 5	2550	Mar 15	17500	Jul 10 1993
LOWEST DAILY MEAN	16	Dec 24	16	Dec 24	.00	Jun 9 1977b
ANNUAL SEVEN-DAY MINIMUM	17	Dec 19	17	Dec 19	3.1	Jul 8 1977
MAXIMUM PEAK FLOW			3100	Jun 15	22400	Jul 9 1993
MAXIMUM PEAK STAGE			8.14	Jun 15	20.04	Jul 9 1993
ANNUAL RUNOFF (AC-FT)	40470		154700		190600	
ANNUAL RUNOFF (CFSM)	.13		.49		.60	
ANNUAL RUNOFF (INCHES)	1.72		6.59		8.13	
10 PERCENT EXCEEDS	94		524		586	
50 PERCENT EXCEEDS	49		53		108	
90 PERCENT EXCEEDS	20		20		31	

a Post regulation.
b Also June 10, 1977, result of gate operations at Lake Panorama.
e Estimated.



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. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	87	86	e32	e90	e160	734	259	1710	361	127	107
2	63	108	82	e32	e55	e200	594	400	1790	353	123	106
3	62	90	74	e36	e65	e230	547	2240	1190	346	127	107
4	60	77	e65	e42	e95	e240	505	3180	943	335	138	105
5	67	74	e60	e55	e130	e250	475	2080	1660	312	123	95
6	73	99	e75	e75	e120	e240	557	2030	2480	282	120	111
7	70	139	95	e70	e130	e220	833	1650	1610	253	117	162
8	67	100	e90	e55	e140	e210	599	1080	1180	261	114	730
9	66	91	e85	e42	e95	e240	745	901	1050	256	112	221
10	67	89	e70	e48	e70	e260	568	914	869	249	113	191
11	67	85	e50	e65	e90	e320	1340	920	865	246	111	150
12	66	86	e38	e95	e120	e850	2240	681	739	222	115	116
13	67	89	e36	e120	e140	e1700	1510	777	1600	220	120	110
14	77	86	e42	e130	e130	e3800	903	721	1900	208	117	109
15	74	79	e48	e120	e110	5920	771	566	3590	206	125	103
16	67	83	e50	e110	e90	3850	567	517	2020	195	142	116
17	68	77	e44	e110	e75	2390	460	660	1400	186	137	195
18	70	85	e36	e105	e95	2310	426	515	1100	239	132	172
19	70	111	e34	e80	e110	2430	392	432	872	196	117	173
20	71	e50	e36	e60	e100	2820	396	469	770	245	106	148
21	72	e34	e32	e70	e90	2830	470	2390	713	205	100	127
22	76	e40	e32	e70	e95	2240	441	2750	622	207	92	122
23	77	e42	e32	e85	e110	2030	461	2000	542	236	89	121
24	78	e46	e30	e65	e150	1600	417	1400	499	185	94	119
25	80	e55	e30	e60	e200	1050	337	1090	506	174	187	103
26	83	e65	e34	e65	e190	716	324	1020	457	172	547	101
27	78	e75	e36	e60	e160	649	312	922	440	166	295	102
28	79	82	e36	e70	e140	590	293	795	418	179	154	99
29	78	86	e36	e100	---	589	283	731	371	179	153	91
30	83	89	e34	e140	---	641	254	772	366	368	116	95
31	81	---	e32	e130	---	736	---	1560	---	148	110	---
TOTAL	2219	2399	1560	2397	3185	42311	18754	36422	34272	7390	4373	4407
MEAN	71.6	80.0	50.3	77.3	114	1365	625	1175	1142	238	141	147
MAX	83	139	95	140	200	5920	2240	3180	3590	368	547	730
MIN	60	34	30	32	55	160	254	259	366	148	89	91
AC-FT	4400	4760	3090	4750	6320	83920	37200	72240	67980	14660	8670	8740
CFSM	.07	.08	.05	.08	.11	1.37	.63	1.18	1.15	.24	.14	.15
IN.	.08	.09	.06	.09	.12	1.58	.70	1.36	1.28	.28	.16	.16

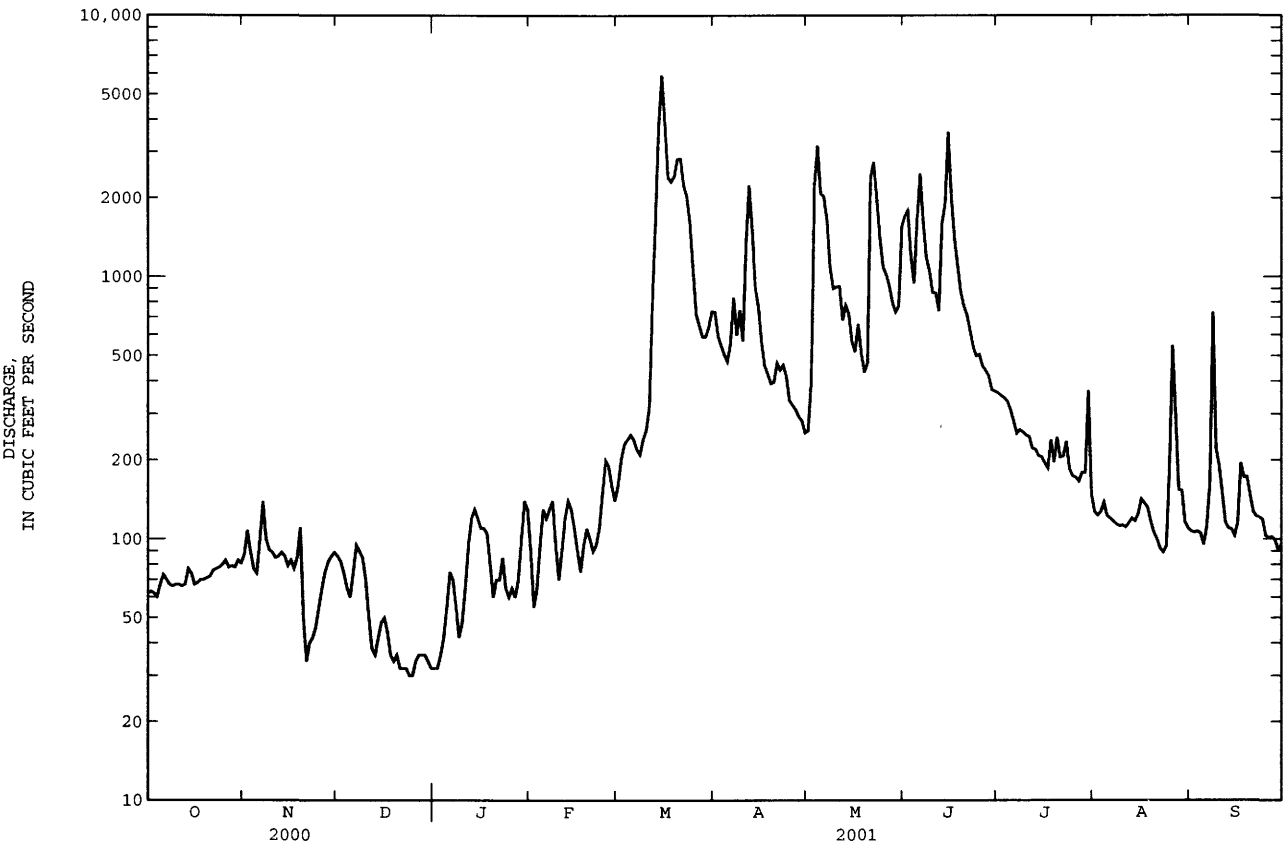
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	233	236	193	175	395	834	766	878	1043	652	371	284
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1941 - 2001	
ANNUAL TOTAL	55190		159689			
ANNUAL MEAN	151		438		505	
HIGHEST ANNUAL MEAN					1632	1993
LOWEST ANNUAL MEAN					91.4	1968
HIGHEST DAILY MEAN	1720	Jul 6	5920	Mar 15	33600	Jul 10 1993
LOWEST DAILY MEAN	30	Dec 24	30	Dec 24a	17	Aug 4 1977
ANNUAL SEVEN-DAY MINIMUM	32	Dec 19	32	Dec 19	20	Jan 24 1954
MAXIMUM PEAK FLOW			7330	Mar 14	44000	Jul 10 1993
MAXIMUM PEAK STAGE			11.40	Mar 14	29.04	Jul 2 1958
ANNUAL RUNOFF (AC-FT)	109500		316700		365800	
ANNUAL RUNOFF (CFSM)	.15		.44		.51	
ANNUAL RUNOFF (INCHES)	2.07		5.98		6.90	
10 PERCENT EXCEEDS	249		1180		1120	
50 PERCENT EXCEEDS	123		130		206	
90 PERCENT EXCEEDS	64		58		60	

a Also Dec. 25.
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. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	145	242	e140	e210	e170	4920	1270	4840	1520	820	587
2	91	175	215	e120	e180	e190	4980	1360	4660	1420	809	538
3	86	190	224	e140	e150	e210	4860	3750	3860	1490	e730	490
4	81	161	257	e170	e170	e230	4030	9680	3320	1520	e620	439
5	76	149	131	e180	e190	e200	3490	11100	3560	1370	e1320	413
6	79	162	197	e210	e210	e180	3100	13900	6230	1260	e2390	431
7	86	205	251	e240	e230	e220	3490	13700	5760	1180	e2070	492
8	86	231	237	e220	e240	e270	2950	11300	4560	1140	e1540	1240
9	87	199	226	e200	e220	e360	3280	9260	3870	1120	1200	743
10	90	187	198	e190	e200	e460	3210	7400	3330	1110	975	550
11	95	186	65	e210	e180	e650	3520	6360	3100	1050	824	499
12	104	224	e100	e230	e220	e800	5280	5160	2800	979	720	452
13	106	276	e90	e250	e270	e2000	5090	4840	6180	923	631	404
14	106	288	e110	e230	e250	e5500	6310	4730	5070	868	559	370
15	106	270	e130	e210	e210	10600	5490	5020	8050	823	527	345
16	100	249	e150	e200	e180	9210	4330	4420	9090	783	523	356
17	93	242	e130	e190	e160	7700	3440	3850	9470	738	503	440
18	97	185	e110	e210	e150	7150	2890	3340	8640	749	498	477
19	102	200	e95	e200	e160	8340	2500	2820	6310	764	579	468
20	103	e100	e85	e180	e170	10400	2230	2550	4970	740	634	493
21	102	e190	e100	e190	e160	10800	2150	4250	4200	704	574	482
22	100	e240	e90	e170	e140	10800	2000	9130	3640	700	514	468
23	114	e215	e80	e180	e180	11400	1950	9530	3170	662	470	443
24	112	e205	e75	e190	e210	11500	1800	9160	2810	664	433	409
25	114	e230	e70	e170	e240	10800	1630	7180	2570	591	466	361
26	122	225	e80	e150	e220	9290	1580	5820	2310	585	808	334
27	119	e245	e100	e160	e200	7270	1600	5170	2080	592	975	325
28	112	227	e130	e170	e190	5850	1490	4700	1900	749	977	313
29	117	239	e150	e190	---	5190	1410	4200	1740	970	984	293
30	131	234	e140	e200	---	5080	1320	3770	1640	1100	822	293
31	134	---	e130	e220	---	4950	---	4470	---	960	673	---
TOTAL	3151	6274	4388	5910	5490	157770	96320	193190	133730	29824	26168	13948
MEAN	102	209	142	191	196	5089	3211	6232	4458	962	844	465
MAX	134	288	257	250	270	11500	6310	13900	9470	1520	2390	1240
MIN	76	100	65	120	140	170	1320	1270	1640	585	433	293
AC-FT	6250	12440	8700	11720	10890	312900	191100	383200	265300	59160	51900	27670
CFSM	.03	.06	.04	.06	.06	1.48	.93	1.81	1.30	.28	.25	.14
IN.	.03	.07	.05	.06	.06	1.71	1.04	2.09	1.45	.32	.28	.15

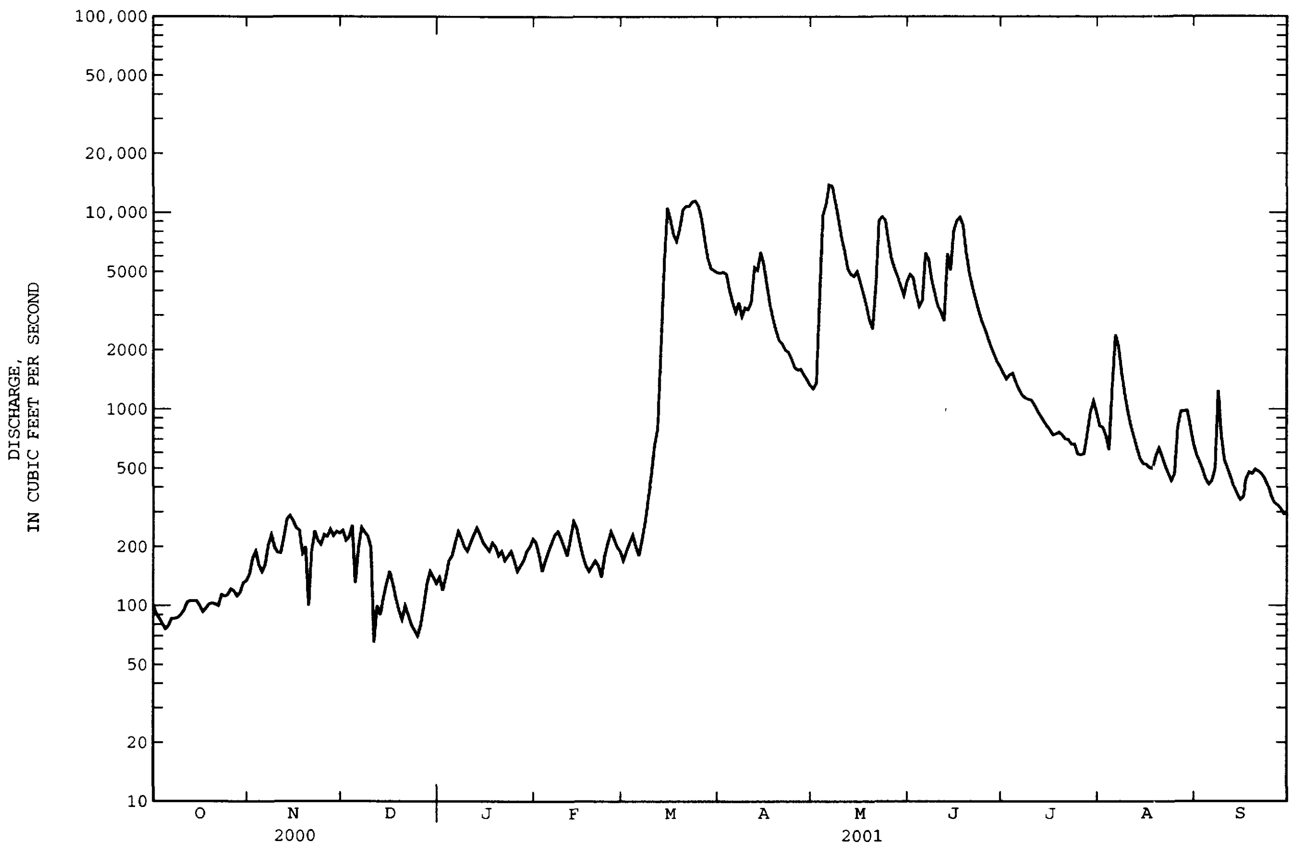
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	818	768	566	486	990	2627	2657	2652	3316	1894	993	862
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1916 - 2001	
ANNUAL TOTAL	122886		676163			
ANNUAL MEAN	336		1853		1553	
HIGHEST ANNUAL MEAN					5717	1993
LOWEST ANNUAL MEAN					166	1956
HIGHEST DAILY MEAN	3750	Jul 6	13900	May 6	57500	Jul 10 1993
LOWEST DAILY MEAN	65	Dec 11	65	Dec 11	10	Jan 22 1940a
ANNUAL SEVEN-DAY MINIMUM	83	Dec 20	83	Dec 20	10	Jan 22 1940
MAXIMUM PEAK FLOW			14600	May 6	70100	Jul 10 1993
MAXIMUM PEAK STAGE			14.25	May 6	26.34	Jul 10 1993
INSTANTANEOUS LOW FLOW			28	Dec 11		
ANNUAL RUNOFF (AC-FT)	243700		1341000		1125000	
ANNUAL RUNOFF (CFSM)	.098		.54		.45	
ANNUAL RUNOFF (INCHES)	1.33		7.31		6.13	
10 PERCENT EXCEEDS	604		5600		3950	
50 PERCENT EXCEEDS	248		470		600	
90 PERCENT EXCEEDS	109		110		115	

a Also Jan. 23-31, 1940.
e Estimated.



05484600 RACCOON RIVER NEAR WEST DES MOINES, IA

LOCATION.--Lat 41°31'54", long 93°46'54", in SE¼ NE¼ sec.30, T.78 N., R.25 W., Polk County, Hydrologic Unit 07100006, on right bank, 0.4 mile upstream of bridge on Interstate 35, 13.1 mi. upstream from mouth of Raccoon River, and at mile 215.9 upstream from mouth of Des Moines River.

DRAINAGE AREA.--3,500 mi^2.

PERIOD OF RECORD.--July 19, 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 782.967 ft above sea level.

REMARKS.--Records good except those for Feb. 21. Discharge not published, low-flow use only. U.S. Geological Survey satellite data collection platform at station.

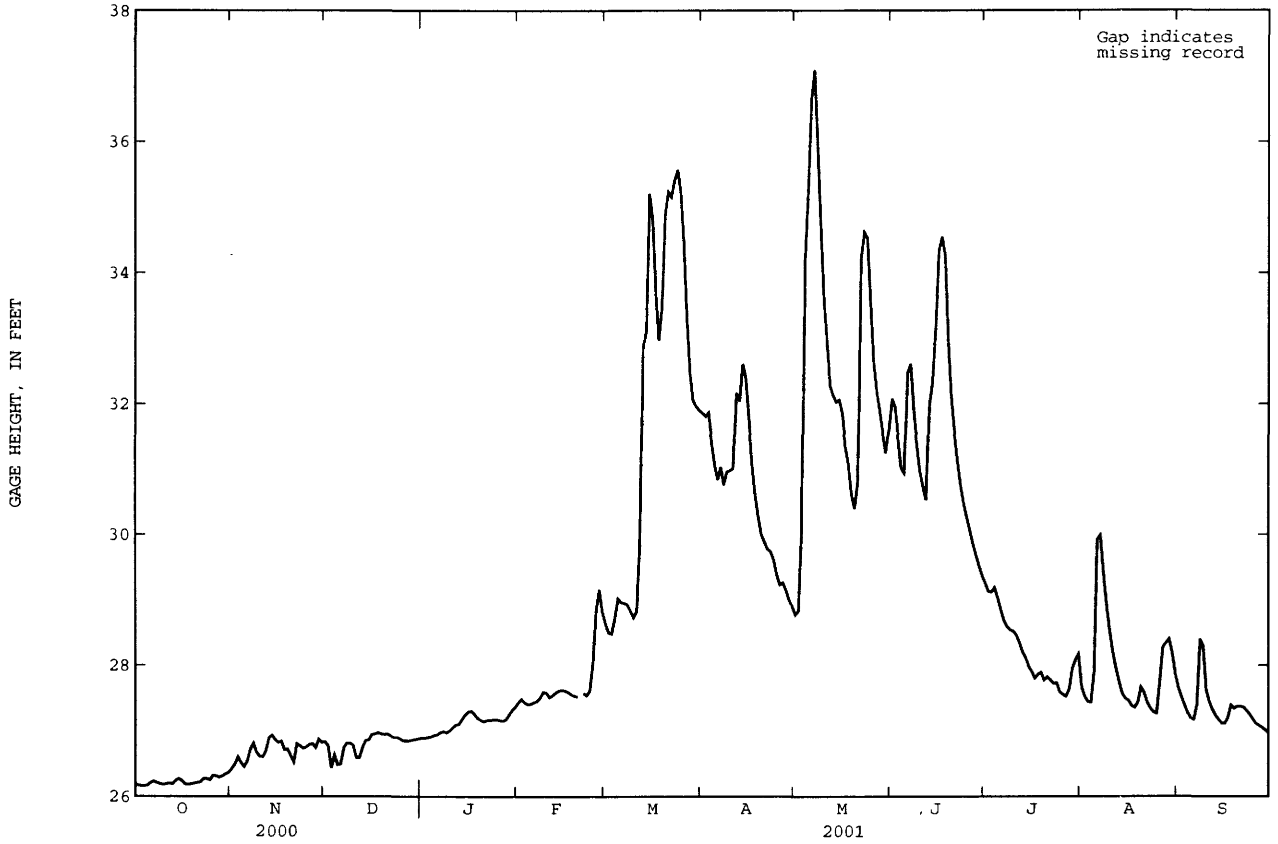
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 37.33 ft. May 7, 2001; minimum gage height, 26.14 ft. Dec. 5,2000.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 37.33 ft. May 7; minimum gage height, 26.14 ft. Dec. 5.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.18	26.42	26.83	26.89	27.43	28.64	31.86	28.77	32.08	29.26	27.66	27.66
2	26.17	26.49	26.77	26.89	27.48	28.50	31.81	28.83	31.94	29.13	27.52	27.52
3	26.16	26.60	26.43	26.90	27.43	28.48	31.87	29.98	31.46	29.12	27.44	27.39
4	26.16	26.51	26.63	26.91	27.40	28.72	31.43	34.20	31.02	29.19	27.43	27.27
5	26.17	26.45	26.48	26.93	27.41	29.02	31.08	35.25	30.94	29.03	27.90	27.19
6	26.21	26.54	26.49	26.94	27.43	28.96	30.84	36.65	32.48	28.85	29.92	27.17
7	26.23	26.72	26.74	26.97	27.45	28.95	31.04	37.09	32.61	28.68	29.99	27.40
8	26.21	26.81	26.81	26.99	27.50	28.93	30.76	35.95	31.90	28.59	29.42	28.40
9	26.19	26.67	26.81	26.97	27.59	28.83	30.96	34.73	31.40	28.54	28.92	28.29
10	26.18	26.61	26.78	27.00	27.58	28.73	30.98	33.59	30.99	28.52	28.52	27.61
11	26.19	26.60	26.59	27.05	27.51	28.83	31.01	32.97	30.74	28.46	28.20	27.44
12	26.20	26.69	26.59	27.09	27.54	29.83	32.17	32.28	30.53	28.34	27.95	27.32
13	26.19	26.89	26.74	27.10	27.58	32.88	32.04	32.13	31.99	28.20	27.75	27.23
14	26.24	26.93	26.85	27.18	27.61	33.10	32.61	32.03	32.34	28.11	27.57	27.17
15	26.27	26.86	26.86	27.24	27.62	35.21	32.39	32.06	33.16	27.98	27.49	27.11
16	26.24	26.82	26.94	27.29	27.61	34.78	31.76	31.85	34.34	27.90	27.46	27.11
17	26.19	26.84	26.95	27.30	27.59	33.68	31.12	31.35	34.55	27.80	27.38	27.20
18	26.18	26.71	26.97	27.25	27.55	32.97	30.65	31.09	34.27	27.86	27.35	27.39
19	26.19	26.72	26.95	27.19	27.53	33.48	30.30	30.62	32.97	27.89	27.43	27.34
20	26.20	26.62	26.94	27.16	27.52	34.89	30.01	30.40	32.11	27.77	27.66	27.37
21	26.21	26.52	26.95	27.14	---	35.24	29.89	30.80	31.58	27.82	27.58	27.37
22	26.22	26.80	26.92	27.16	27.57	35.16	29.78	34.23	31.15	27.77	27.43	27.36
23	26.27	26.77	26.90	27.16	27.54	35.41	29.74	34.62	30.78	27.72	27.34	27.31
24	26.27	26.73	26.90	27.17	27.61	35.57	29.62	34.53	30.49	27.73	27.28	27.25
25	26.25	26.75	26.88	27.17	28.05	35.23	29.39	33.55	30.28	27.59	27.26	27.18
26	26.32	26.79	26.85	27.16	28.84	34.44	29.23	32.63	30.07	27.55	27.73	27.11
27	26.31	26.80	26.85	27.15	29.16	33.30	29.26	32.19	29.87	27.52	28.27	27.08
28	26.29	26.74	26.85	27.17	28.82	32.47	29.14	31.90	29.69	27.63	28.34	27.05
29	26.31	26.87	26.86	27.24	---	32.05	28.99	31.56	29.52	27.95	28.40	27.01
30	26.34	26.82	26.87	27.31	---	31.96	28.90	31.25	29.37	28.08	28.19	26.97
31	26.36	---	26.88	27.36	---	31.90	---	31.61	---	28.17	27.87	---
MEAN	26.23	26.70	26.80	27.11	27.70	31.94	30.69	32.60	31.55	28.22	27.96	27.34
MAX	26.36	26.93	26.97	27.36	29.16	35.57	32.61	37.09	34.55	29.26	29.99	28.40
MIN	26.16	26.42	26.43	26.89	27.40	28.48	28.90	28.77	29.37	27.52	27.26	26.97

05484600 RACCOON RIVER NEAR WEST DES MOINES, IA--Continued



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.-- 3,529 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. U.S. National Weather Service Limited Automatic Remote Collector (LARC) and U.S. Army Corps of Engineers rain gage and U.S. Geological Survey satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	191	248	e150	e230	e180	4420	1410	4970	1840	835	612
2	104	194	241	e130	e200	e200	4300	1430	4780	1730	757	543
3	103	221	163	e150	e170	e220	4380	2190	4270	1700	696	484
4	103	206	200	e170	e180	e240	3910	8320	3800	1730	672	431
5	105	187	161	e180	e210	e220	3490	11200	3570	1620	789	391
6	109	239	179	e220	e230	e200	3180	15100	5270	1500	2200	387
7	116	262	232	e240	e240	e240	3350	17100	5640	1380	2420	550
8	114	297	249	e220	e250	e300	3100	13700	4600	1300	1940	1040
9	109	257	249	e210	e240	e380	3320	10100	4010	1260	1540	992
10	108	237	e210	e200	e220	e500	3340	7400	3570	1230	1270	571
11	109	232	e86	e220	e200	e700	3440	6100	3270	1200	1070	514
12	113	250	e110	e240	e230	e900	4750	5020	3060	1130	915	471
13	115	320	e98	e260	e280	e2400	4650	4970	4570	1040	796	424
14	122	338	e120	e240	e270	5760	5350	4770	5340	984	715	391
15	129	321	e140	e220	e240	11100	5170	4730	6270	920	665	367
16	127	307	e160	e200	e210	10200	4380	4550	8950	874	638	380
17	118	278	e140	e190	e180	7560	3700	4000	9390	822	590	401
18	118	230	e120	e220	e160	5810	3100	3720	9010	847	574	487
19	123	213	e110	e210	e170	6700	2760	3150	6380	848	573	468
20	124	e150	e98	e200	e170	9890	2490	2880	4880	767	680	476
21	127	193	e110	e210	e160	10700	2350	3060	4280	798	651	482
22	128	273	e100	e180	e150	10400	2250	8400	3840	746	573	477
23	136	257	e96	e190	e190	11000	2170	9750	3430	736	526	464
24	142	251	e85	e200	e220	11500	2090	9750	3100	781	499	442
25	139	247	e80	e180	e260	10700	1910	7750	2850	695	482	419
26	159	242	e90	e160	e240	8940	1770	5830	2640	673	653	387
27	147	242	e120	e170	e220	6660	1760	5110	2420	627	968	370
28	141	245	e140	e180	e200	5200	1670	4750	2240	673	1020	351
29	145	255	e160	e200	---	4590	1560	4400	2090	851	1060	334
30	155	253	e150	e210	---	4480	1490	4080	1950	942	917	320
31	160	---	e140	e240	---	4450	---	4400	---	1090	734	---
TOTAL	3856	7388	4585	6190	5920	152320	95600	199120	134440	33334	28418	14426
MEAN	124	246	148	200	211	4914	3187	6423	4481	1075	917	481
MAX	160	338	249	260	280	11500	5350	17100	9390	1840	2420	1040
MIN	103	150	80	130	150	180	1490	1410	1950	627	482	320
AC-FT	7650	14650	9090	12280	11740	302100	189600	395000	266700	66120	56370	28610
CFSM	.04	.07	.04	.06	.06	1.39	.90	1.82	1.27	.30	.26	.14
IN.	.04	.08	.05	.07	.06	1.61	1.01	2.10	1.42	.35	.30	.15

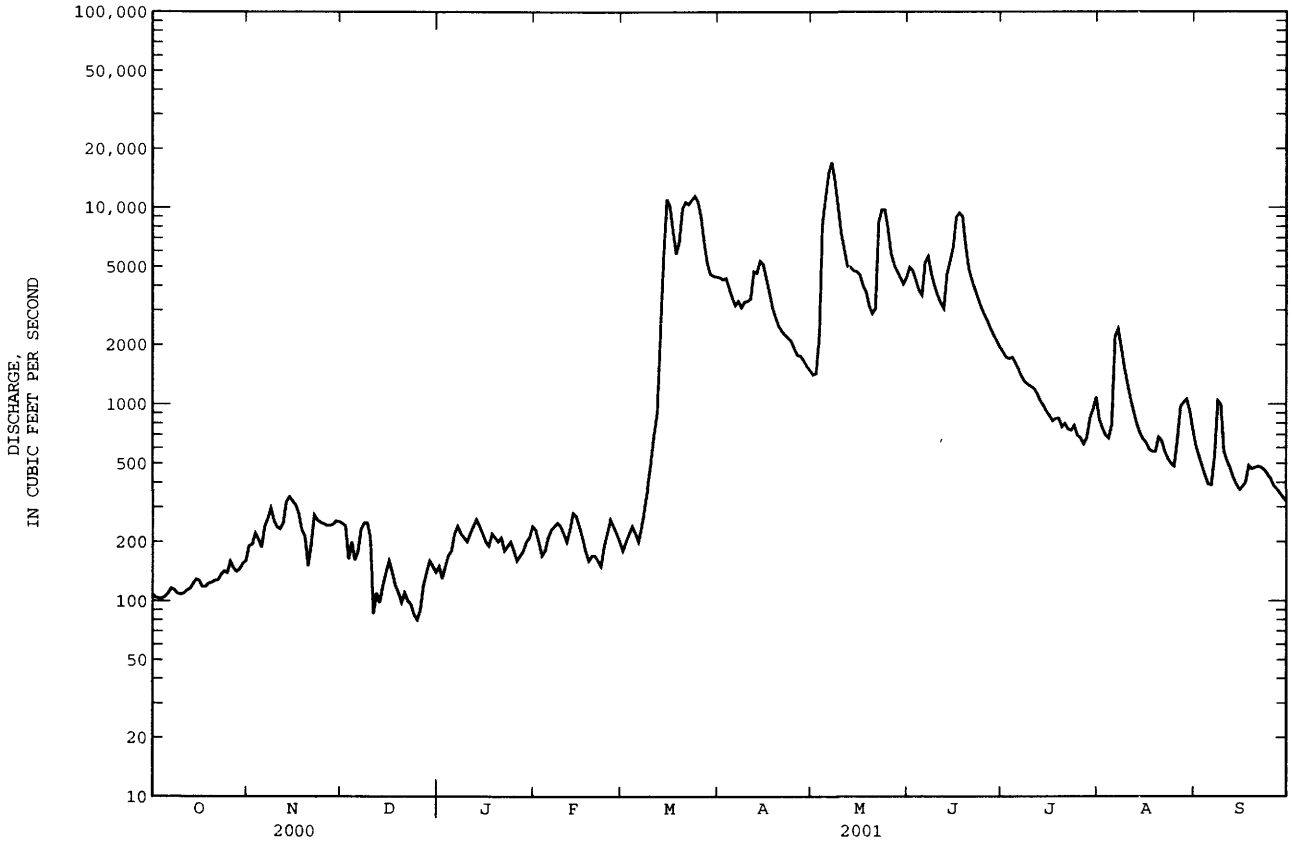
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	527	887	670	496	1366	2677	4738	4634	5638	3098	1074	428
MAX	1142	2484	1873	1236	3205	4914	9591	7830	12460	7560	2220	694
(WY)	1997	1997	1997	1997	1997	2001	1999	1999	1998	1998	1998	1998
MIN	124	246	148	200	211	407	281	334	603	999	339	164
(WY)	2001	2001	2001	2001	2001	2000	2000	2000	2000	2000	2000	2000

05484650 RACCOON RIVER AT 63RD STREET, DES MOINES, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1997 - 2001	
ANNUAL TOTAL	126584		685597			
ANNUAL MEAN	346		1878		2184	
HIGHEST ANNUAL MEAN					3352	1998
LOWEST ANNUAL MEAN					375	2000
HIGHEST DAILY MEAN	3770	Jul 6	17100	May 7	36300	Jun 16 1998
LOWEST DAILY MEAN	80	Dec 25	80	Dec 25	80	Dec 25 2000
ANNUAL SEVEN-DAY MINIMUM	94	Dec 20	94	Dec 20	94	Dec 20 2000
MAXIMUM PEAK FLOW			17600	May 7	40300	Jun 16 1998
MAXIMUM PEAK STAGE			33.23	May 7	40.77	Jul 11 1993
ANNUAL RUNOFF (AC-FT)	251100		1360000		1582000	
ANNUAL RUNOFF (CFSM)	.098		.53		.62	
ANNUAL RUNOFF (INCHES)	1.33		7.23		8.41	
10 PERCENT EXCEEDS	617		5230		5790	
50 PERCENT EXCEEDS	260		484		776	
90 PERCENT EXCEEDS	121		130		213	

e Estimated



05484800 WALNUT CREEK AT DES MOINES, IA

LOCATION.--Lat 41°35'14", long 93°42'11", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ 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. U.S. National Weather Service Limited Automatic Remote Collector (LARC) and U.S. Geological Survey data collection platform with telephone modem at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	64	e2.6	e3.8	e6.5	e19	61	44	158	26	1.2	.59
2	.11	27	e2.4	e3.4	e5.5	e23	51	106	107	24	1.1	.39
3	.19	7.7	e2.2	e3.8	e5.0	e25	49	193	76	34	39	.36
4	.25	3.7	3.2	e4.2	e6.0	e27	45	144	66	25	4.0	.16
5	7.4	2.9	3.2	e4.6	e6.5	e25	66	112	e300	22	1.6	.17
6	2.4	90	2.7	e5.5	e7.0	e23	57	127	e260	19	1.2	75
7	.60	31	3.5	e6.5	e7.5	e30	49	111	e90	18	.70	341
8	.62	12	3.7	e5.5	e8.5	e40	54	87	67	17	.55	421
9	.97	5.7	3.0	e5.0	e8.0	e55	624	85	58	16	.44	43
10	1.4	4.1	3.0	e4.6	e7.0	e75	185	138	54	13	.09	28
11	1.9	3.9	1.6	e5.0	e6.5	e95	423	93	51	9.6	.01	18
12	2.0	5.1	e1.4	e6.0	e9.0	e120	332	73	274	8.2	.04	13
13	2.5	4.3	e1.1	e6.5	e12	e320	140	462	90	7.6	.02	12
14	15	3.8	e1.7	e6.0	e11	409	102	183	122	10	.00	10
15	1.7	3.5	e2.0	e5.5	e9.0	319	76	115	72	9.8	52	7.9
16	1.0	3.2	e2.8	e5.0	e8.5	194	58	85	57	9.7	17	56
17	1.1	3.1	e2.6	e4.6	e7.5	117	51	170	50	7.9	11	64
18	1.0	2.7	e2.3	e5.0	e7.0	93	49	80	49	22	33	23
19	1.4	2.5	e2.1	e4.6	e7.5	103	49	68	53	22	7.2	20
20	2.2	2.4	e1.9	e4.2	e8.0	227	47	81	45	13	4.4	14
21	2.6	2.1	e2.4	e4.6	e7.0	240	50	102	46	12	2.9	12
22	2.7	2.1	e2.3	e4.2	e6.5	163	51	65	43	17	2.3	8.7
23	5.2	2.4	e2.2	e4.8	e8.5	198	48	57	40	14	7.9	8.5
24	3.3	2.7	e2.0	e4.6	e11	115	43	66	38	45	12	6.2
25	9.7	2.9	e1.8	e4.2	e29	72	42	64	36	19	25	4.8
26	6.2	3.0	e2.0	e3.8	e25	56	42	67	34	7.1	7.1	4.1
27	3.2	3.0	e2.4	e4.4	e23	51	41	54	32	4.1	4.3	3.8
28	3.1	3.0	e3.2	e5.0	e21	52	39	52	31	3.4	3.4	3.5
29	3.5	2.8	e4.0	e5.5	---	52	38	49	30	2.5	3.2	3.3
30	4.2	2.7	e3.8	e6.5	---	53	48	90	29	2.3	1.7	3.5
31	3.0	---	e3.4	e7.0	---	76	---	178	---	1.9	.86	---
TOTAL	90.47	309.3	78.5	153.9	284.5	3467	3010	3401	2458	462.1	245.21	1205.97
MEAN	2.92	10.3	2.53	4.96	10.2	112	100	110	81.9	14.9	7.91	40.2
MAX	15	90	4.0	7.0	29	409	624	462	300	45	52	421
MIN	.03	2.1	1.1	3.4	5.0	19	38	44	29	1.9	.00	.16
AC-FT	179	613	156	305	564	6880	5970	6750	4880	917	486	2390
CFSM	.04	.13	.03	.06	.13	1.43	1.28	1.40	1.05	.19	.10	.51
IN.	.04	.15	.04	.07	.13	1.65	1.43	1.61	1.17	.22	.12	.57

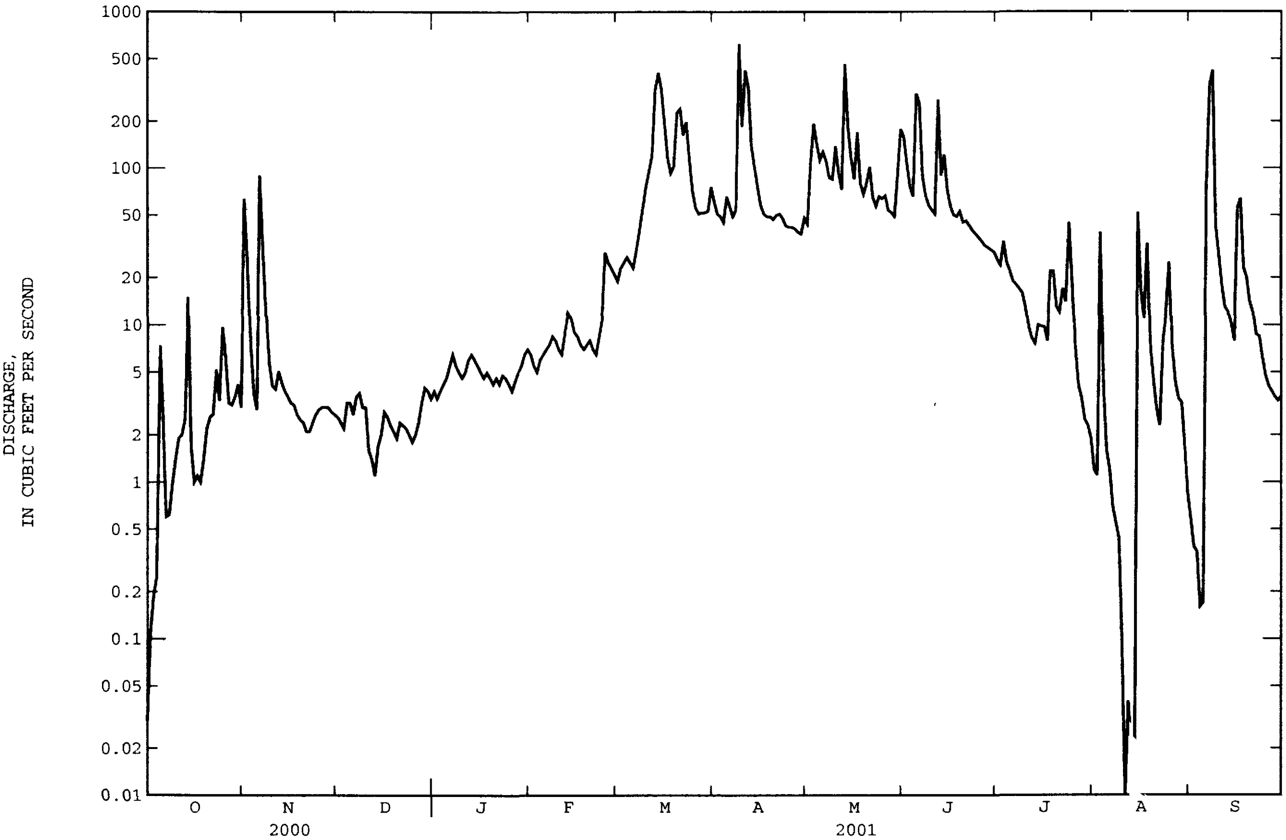
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	30.7	36.9	30.2	22.1	44.0	74.1	99.9	122	122	82.2	46.5	30.6
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1972 - 2001	
ANNUAL TOTAL	5745.82		15165.95			
ANNUAL MEAN	15.7		41.6		61.7	
HIGHEST ANNUAL MEAN					158	1993
LOWEST ANNUAL MEAN					10.3	1989
HIGHEST DAILY MEAN	735	Jul 5	624	Apr 9	4520	Jul 1 1973
LOWEST DAILY MEAN	.00	Aug 30	.00	Aug 14	.00	Jan 3 1977a
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 7	.16	Aug 8	.00	Jan 3 1977
MAXIMUM PEAK FLOW			1820	Sep 7	12500	May 10 1986
MAXIMUM PEAK STAGE			9.79	Sep 7	18.32	May 10 1986
ANNUAL RUNOFF (AC-FT)	11400		30080		44730	
ANNUAL RUNOFF (CFSM)	.20		.53		.79	
ANNUAL RUNOFF (INCHES)	2.73		7.20		10.70	
10 PERCENT EXCEEDS	33		104		145	
50 PERCENT EXCEEDS	6.2		8.7		24	
90 PERCENT EXCEEDS	.93		1.8		2.5	

a Many days in 1977, Aug. 21, 1994, many days in 2000, and Aug. 14, 2001.
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, or 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	266	336	e170	e240	e200	4410	1390	5440	1930	644	730
2	86	287	323	e150	e220	e220	4320	1450	5180	1810	575	652
3	78	267	228	e170	e190	e240	4440	2190	4580	1800	596	578
4	73	259	277	e180	e210	e280	4020	8030	3960	1850	506	521
5	87	236	219	e190	e230	e260	3670	10900	3870	1720	565	471
6	99	353	250	e230	e250	e240	3430	13200	5450	1550	2170	458
7	106	341	322	e250	e270	e290	3520	15000	5970	1390	2550	857
8	108	351	310	e230	e280	e380	3390	12800	5050	1280	2070	1850
9	100	316	314	e220	e260	e500	4020	10400	4300	1230	1610	1390
10	97	287	e220	e210	e240	e640	3740	8230	3780	1180	1320	752
11	100	285	e100	e230	e220	e800	3820	6540	3430	1140	1080	598
12	99	296	e120	e250	e260	e1100	5100	5280	3510	1060	856	495
13	98	345	e110	e270	e300	e3000	4940	5620	4470	959	677	429
14	129	365	e130	e250	e280	5780	5580	5190	5760	899	570	405
15	124	346	e150	e220	e260	9980	5550	4960	6060	834	630	378
16	123	334	e170	e200	e200	9310	4660	4790	8350	772	586	470
17	111	322	e150	e190	e210	7080	3900	4220	8740	717	530	486
18	106	295	e130	e200	e180	5350	3340	3870	8480	745	555	518
19	e110	273	e120	e210	e200	5970	3050	3370	6290	755	527	513
20	e120	236	e110	e200	e180	8990	2820	3070	5080	644	643	503
21	e130	e160	e120	e220	e170	10000	2660	3060	4520	675	619	514
22	e130	280	e110	e200	e150	10200	2430	8420	4060	645	535	498
23	e140	284	e110	e210	e190	11200	2160	9930	3630	622	503	480
24	e150	283	e98	e220	e230	11600	2080	9900	3270	693	486	451
25	e140	288	e90	e200	e270	11100	1900	8320	3010	595	487	420
26	e160	299	e100	e180	e250	9820	1730	6050	2790	514	605	380
27	e150	318	e120	e190	e230	7370	1710	5260	2560	498	1010	353
28	e140	305	e140	e200	e210	5460	1660	4880	2370	538	1110	337
29	e160	335	e180	e220	---	4760	1530	4490	2200	667	1150	332
30	e180	331	e170	e240	---	4570	1470	4190	2040	786	1050	315
31	205	---	e160	e260	---	4500	---	4690	---	929	859	---
TOTAL	3728	8943	5487	6560	6380	151190	101050	199690	138200	31427	27674	17134
MEAN	120	298	177	212	228	4877	3368	6442	4607	1014	893	571
MAX	205	365	336	270	300	11600	5580	15000	8740	1930	2550	1850
MIN	73	160	90	150	150	200	1470	1390	2040	498	486	315
AC-FT	7390	17740	10880	13010	12650	299900	200400	396100	274100	62340	54890	33990
CFSM	.03	.08	.05	.06	.06	1.35	.93	1.78	1.27	.28	.25	.16
IN.	.04	.09	.06	.07	.07	1.55	1.04	2.05	1.42	.32	.28	.18

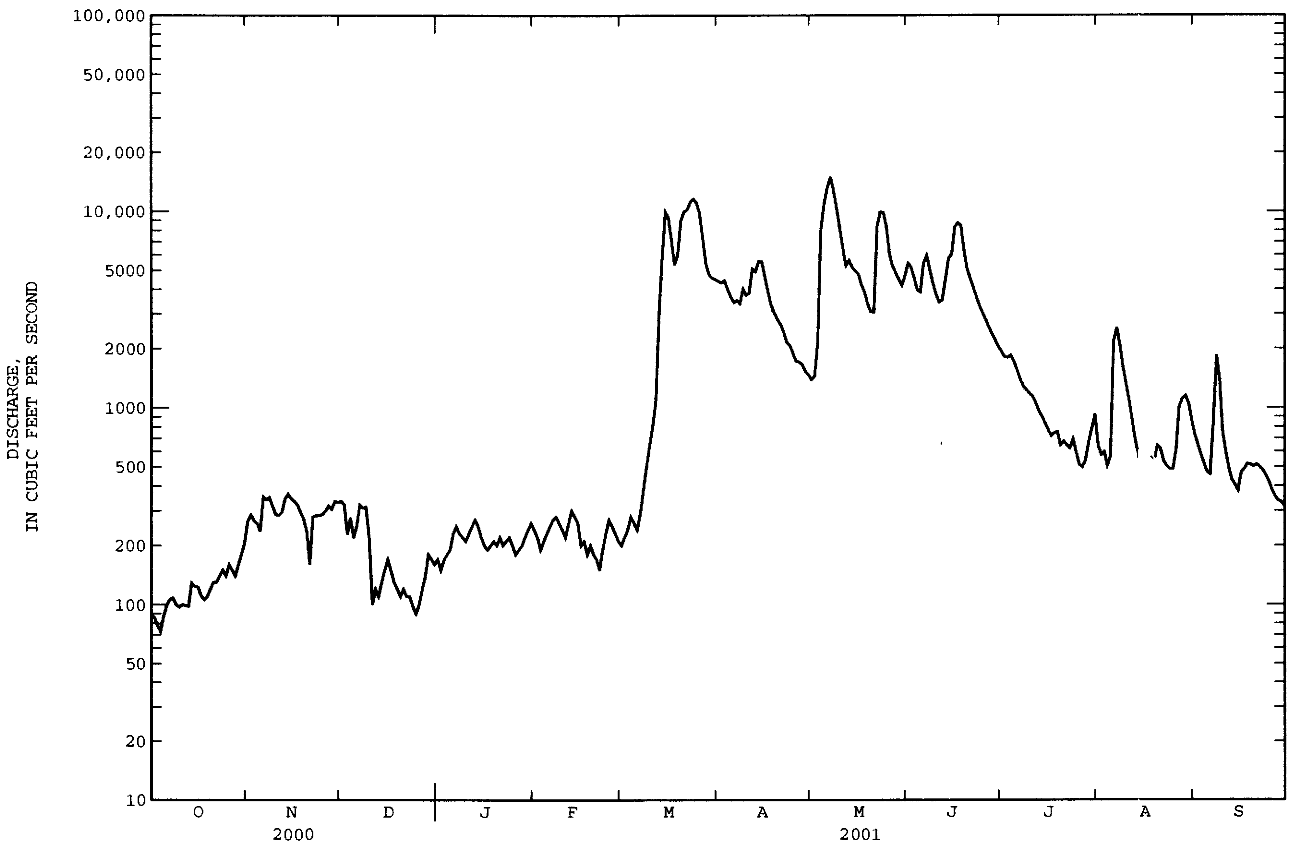
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2001, BY WATER YEAR (WY)

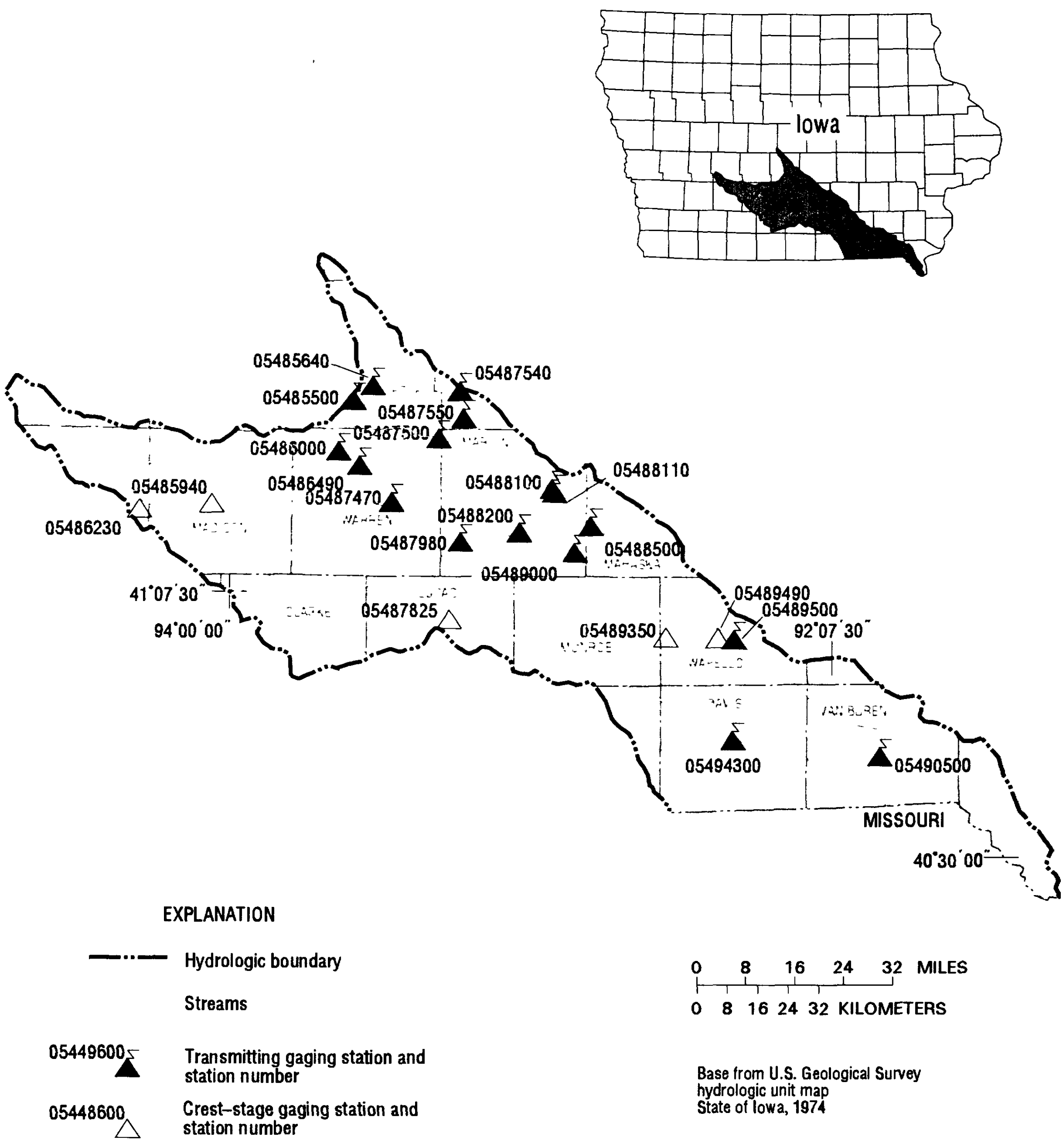
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	516	891	659	482	1376	2667	4874	4690	5748	3103	1066	409
MAX	1139	2527	1873	1235	3280	4877	9905	7915	12570	7266	2252	664
(WY)	1997	1997	1997	1997	1997	2001	1999	1999	1998	1998	1998	1998
MIN	120	265	177	169	224	349	277	370	671	1014	334	124
(WY)	2001	2000	2001	2000	2000	2000	2000	2000	2000	2001	2000	2000

05484900 RACCOON RIVER AT FLEUR DRIVE, DES MOINES, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1997 - 2001	
ANNUAL TOTAL	133361		697463			
ANNUAL MEAN	364		1911		2205	
HIGHEST ANNUAL MEAN					3350	1998
LOWEST ANNUAL MEAN					381	2000
HIGHEST DAILY MEAN	4970	Jul 6	15000	May 7	40100	Jun 16 1998
LOWEST DAILY MEAN	73	Oct 4	73	Oct 4	73	Oct 4 2000
ANNUAL SEVEN-DAY MINIMUM	85	Sep 28	88	Oct 1	85	Sep 28 2000
MAXIMUM PEAK FLOW			15300	May 7	45000	Jun 16 1998
MAXIMUM PEAK STAGE			15.59	Feb 22	26.80	Jul 11 1993
ANNUAL RUNOFF (AC-FT)	264500		1383000		1597000	
ANNUAL RUNOFF (CFSM)	.10		.53		.61	
ANNUAL RUNOFF (INCHES)	1.37		7.16		8.26	
10 PERCENT EXCEEDS	631		5500		5780	
50 PERCENT EXCEEDS	279		506		755	
90 PERCENT EXCEEDS	107		136		208	

e Estimated




Iowa
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05487540
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92°07'30"
05489350
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

Crest Stage Gaging Stations

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.

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	276	435	2070	e280	e420	e700	20700	14600	20700	13600	3700	969
2	271	498	1930	e270	e440	e750	20600	14700	20400	13400	3200	866
3	276	394	1480	e290	e420	e800	20900	15500	19700	13200	3000	824
4	278	387	1300	e300	e380	e900	20600	20400	19000	12900	3520	820
5	302	352	1200	e320	e360	e1000	20400	e23200	18300	12300	3550	802
6	287	585	1170	e340	e360	e1100	20200	e24800	18000	11900	4360	1110
7	295	528	e900	e360	e400	e1000	20400	e26200	18700	11200	4540	1150
8	288	493	e850	e360	e460	e900	20400	e25300	17600	10500	3470	2690
9	257	447	e800	e380	e500	e1000	21700	22700	16600	10400	2890	2080
10	268	582	e650	e440	e550	e1200	e21000	21800	15900	10000	2600	1690
11	269	1330	e550	e500	e550	1560	e20900	21700	15500	8850	2260	1780
12	270	1890	e550	e600	e525	2190	e22700	20900	16100	7420	1870	929
13	272	1850	e500	e700	e500	7130	e22300	21200	16900	7230	e1730	723
14	310	1710	e480	e800	e550	8870	e22800	21200	19400	7090	1390	828
15	296	1600	e550	e700	e525	14400	e23200	21000	19000	6950	1430	739
16	290	1310	e550	e650	e500	15700	e22100	20800	21500	6830	1290	899
17	284	1230	e600	654	e500	13700	e21000	20000	21700	6690	1330	931
18	277	1200	e700	544	477	11900	e20000	19400	21500	6640	1690	1270
19	300	1130	e650	552	459	13500	19600	18700	19500	6590	1420	1210
20	266	946	e650	606	447	e18600	19300	17400	17700	6410	1400	1040
21	271	580	e600	539	e400	e20300	19000	15900	16900	6360	1380	862
22	286	402	e460	529	e360	e22900	17500	20300	16300	6250	1180	e720
23	297	e404	e400	428	e380	25000	15500	22600	15800	5830	1040	e700
24	297	e449	e360	e438	e480	27000	15400	23400	15400	5280	1030	e670
25	305	873	e320	e464	e460	27500	15200	22400	15000	5500	1020	630
26	430	1300	e280	e387	e440	27000	15000	20600	14700	6820	1100	601
27	317	1510	e320	e449	e480	24100	14900	19800	14300	9640	1450	576
28	313	1500	e340	e298	e600	22600	14900	19600	14100	9630	1480	559
29	314	1590	e320	401	---	21600	14700	19700	13800	7380	1470	556
30	319	1850	e300	e460	---	21100	14700	19600	13600	5190	1300	536
31	311	---	e300	e400	---	20800	---	20000	---	4820	1100	---
TOTAL	9092	29355	22130	14439	12923	376800	577600	635400	523600	262800	64190	29760
MEAN	293	978	714	466	462	12150	19250	20500	17450	8477	2071	992
MAX	430	1890	2070	800	600	27500	23200	26200	21700	13600	4540	2690
MIN	257	352	280	270	360	700	14700	14600	13600	4820	1020	536
AC-FT	18030	58230	43890	28640	25630	747400	1146000	1260000	1039000	521300	127300	59030
CFSM	.03	.10	.07	.05	.05	1.23	1.95	2.07	1.77	.86	.21	.10
IN.	.03	.11	.08	.05	.05	1.42	2.17	2.39	1.97	.99	.24	.11

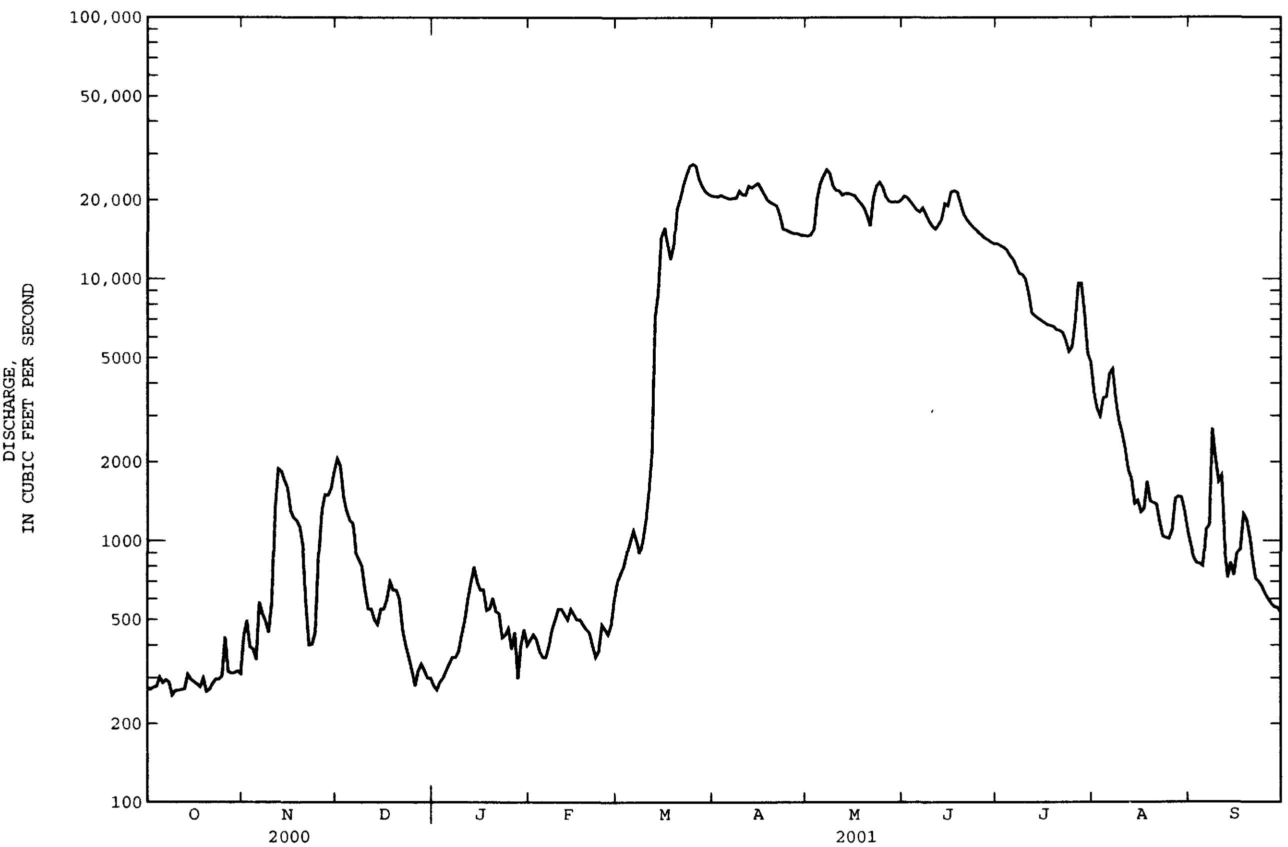
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3042	3443	2923	1789	3161	8259	12140	12000	13190	11060	5101	3439
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	293	363	342	310	343	560	627	1159	1716	739	441	406
(WY)	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1978 - 2001a	
ANNUAL TOTAL	493225		2558089			
ANNUAL MEAN	1348		7008		6639	
HIGHEST ANNUAL MEAN					19180	1993
LOWEST ANNUAL MEAN					1036	1989
HIGHEST DAILY MEAN	11200	Jul 14	27500	Mar 25	113000	Jul 11 1993
LOWEST DAILY MEAN	226	Sep 18	257	Oct 9	200	Mar 12 1978b
ANNUAL SEVEN-DAY MINIMUM	264	Sep 15	274	Oct 7	236	Mar 7 1978
MAXIMUM PEAK FLOW			28000	Mar 25	116000	Jul 11 1993
MAXIMUM PEAK STAGE			23.58	May 7	34.29	Jul 11 1993
ANNUAL RUNOFF (AC-FT)	978300		5074000		4809000	
ANNUAL RUNOFF (CFSM)	.14		.71		.67	
ANNUAL RUNOFF (INCHES)	1.86		9.63		9.13	
10 PERCENT EXCEEDS	3490		20800		18600	
50 PERCENT EXCEEDS	650		1310		3370	
90 PERCENT EXCEEDS	298		316		542	

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 NE $\frac{1}{4}$ NE $\frac{1}{4}$ 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. U.S. National Weather Service Limited Automatic Remote Collector (LARC) at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	10	5.2	e9.2	e9.0	e12	129	33	158	47	8.3	4.2
2	2.1	25	5.5	e10	e7.6	e13	106	40	122	43	7.3	4.2
3	2.5	8.1	10	e11	e8.0	e10	93	173	91	49	13	4.1
4	3.3	6.6	9.8	e12	e9.0	e14	75	225	78	43	8.1	4.4
5	3.9	6.1	e7.6	e13	e9.0	e21	80	146	129	e35	5.3	4.7
6	5.0	20	e9.8	e13	e9.6	e30	140	124	105	e31	4.2	13
7	3.6	22	e9.0	e14	e10	e50	157	159	85	e30	3.7	81
8	3.7	11	e8.0	e15	e9.0	e85	109	111	74	e29	3.2	251
9	3.7	8.3	e8.8	e13	e8.2	e120	822	84	67	26	2.6	45
10	3.9	7.4	9.5	e12	e7.8	159	395	83	65	23	1.8	23
11	3.7	7.1	3.6	e13	e8.6	214	427	72	62	21	1.6	15
12	3.3	7.5	e5.8	e14	e11	468	365	55	247	20	1.7	15
13	3.3	7.8	e6.0	e16	e12	547	221	113	793	19	1.2	15
14	6.1	7.0	e7.6	e15	e11	535	171	114	508	18	1.3	15
15	5.1	7.6	e7.0	e13	e10	614	134	85	587	16	8.9	14
16	3.7	6.8	e6.6	e11	e9.6	367	103	71	400	16	15	35
17	3.4	e6.2	e6.0	e10	e9.0	216	84	82	381	16	5.8	47
18	3.5	e5.8	e6.0	e11	e8.8	164	75	91	494	15	7.3	17
19	3.7	e6.4	e7.0	e9.6	e9.6	159	70	58	448	23	4.9	e13
20	3.8	e4.5	e6.9	e8.8	e8.8	364	62	55	123	21	4.8	9.8
21	4.8	e4.0	e6.0	e9.4	e8.0	477	63	62	118	17	5.5	7.9
22	3.9	e3.8	e5.5	e9.0	e7.4	377	56	56	108	26	5.8	6.9
23	4.5	e4.5	e6.0	e9.8	e8.3	400	54	54	89	42	6.2	7.3
24	5.3	e5.4	e6.6	e9.2	e9.0	239	42	58	81	47	6.4	6.5
25	6.8	e6.4	e7.0	e8.4	e8.2	155	41	86	73	32	8.0	6.0
26	7.5	e6.2	e9.2	e8.0	e7.6	120	38	111	67	20	7.2	5.8
27	5.0	7.2	e9.6	e8.4	e7.4	113	35	102	60	16	6.2	5.7
28	4.9	7.2	e10	e9.0	e10	114	31	89	57	15	5.5	5.2
29	5.0	6.1	e11	e10	---	116	29	77	55	13	5.2	4.9
30	5.2	5.1	e10	e11	---	119	31	75	52	11	5.0	4.7
31	5.2	---	e9.6	e10	---	137	---	132	---	10	4.8	---
TOTAL	131.6	247.1	236.2	345.8	251.5	6529	4238	2876	5777	790	175.8	691.3
MEAN	4.25	8.24	7.62	11.2	8.98	211	141	92.8	193	25.5	5.67	23.0
MAX	7.5	25	11	16	12	614	822	225	793	49	15	251
MIN	2.1	3.8	3.6	8.0	7.4	10	29	33	52	10	1.2	4.1
AC-FT	261	490	469	686	499	12950	8410	5700	11460	1570	349	1370
CFSM	.05	.09	.08	.12	.10	2.27	1.52	1.00	2.08	.27	.06	.25
IN.	.05	.10	.09	.14	.10	2.62	1.70	1.15	2.32	.32	.07	.28

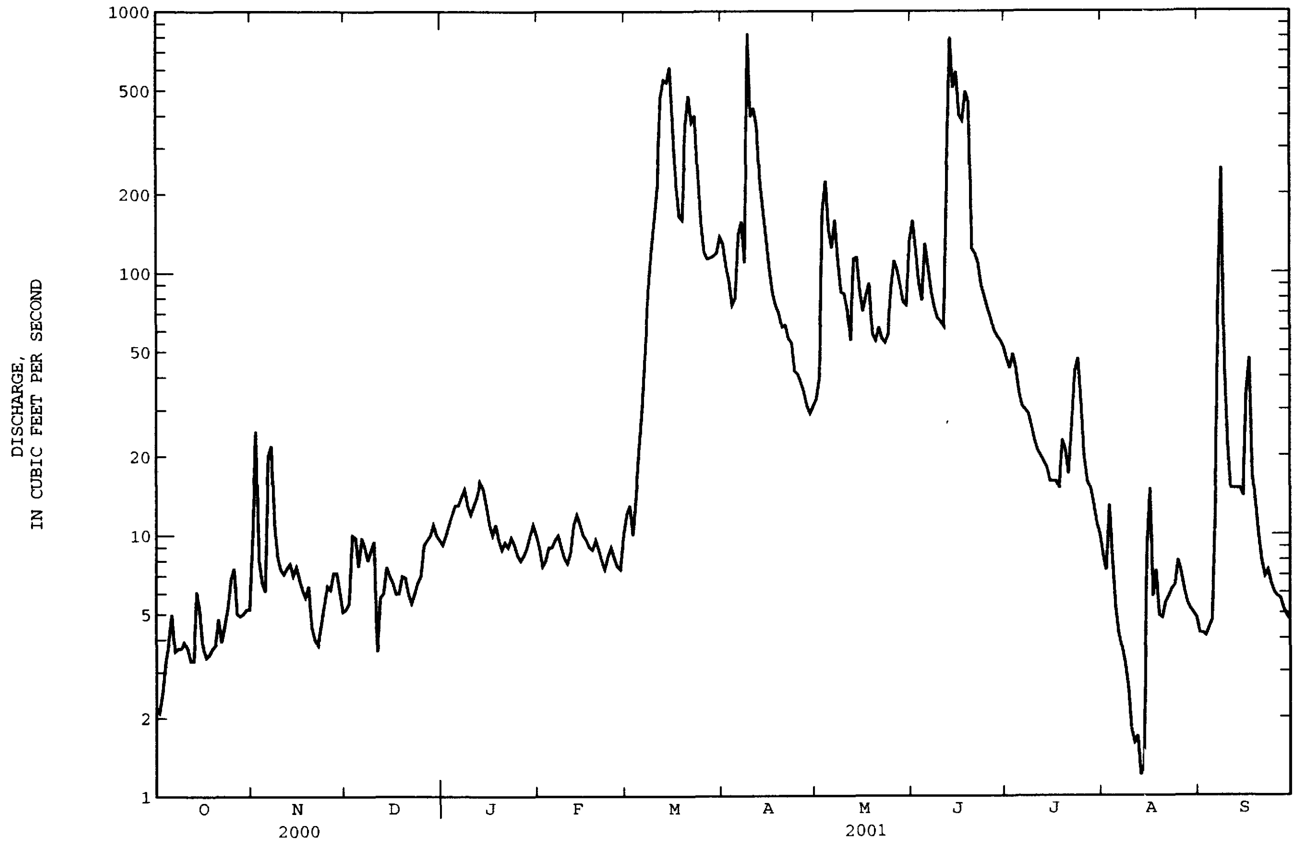
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	39.3	44.4	34.0	23.6	48.6	101	123	144	161	101	48.1	36.1
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1972 - 2001	
ANNUAL TOTAL	11231.7		22289.3			
ANNUAL MEAN	30.7		61.1		75.4	
HIGHEST ANNUAL MEAN					204	1993
LOWEST ANNUAL MEAN					7.97	1981
HIGHEST DAILY MEAN	1320	May 31	822	Apr 9	3570	Jun 9 1974
LOWEST DAILY MEAN	2.1	Oct 2	1.2	Aug 13	.00	Jan 2 1977
ANNUAL SEVEN-DAY MINIMUM	2.7	Sep 28	1.9	Aug 8	.00	Jan 2 1977
MAXIMUM PEAK FLOW			1390	Apr 9	5600	Jun 18 1998
MAXIMUM PEAK STAGE			9.66	Apr 9	15.00	Jun 18 1998
INSTANTANEOUS LOW FLOW			.76	Aug 14		
ANNUAL RUNOFF (AC-FT)	22280		44210		54640	
ANNUAL RUNOFF (CFSM)	.33		.66		.81	
ANNUAL RUNOFF (INCHES)	4.51		8.94		11.06	
10 PERCENT EXCEEDS	65		150		177	
50 PERCENT EXCEEDS	10		11		27	
90 PERCENT EXCEEDS	4.3		4.5		3.0	

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. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	7.3	6.7	e6.0	11	e38	431	89	1530	86	6.7	e3.6
2	1.7	8.5	6.8	e5.0	12	e44	412	95	889	77	6.1	e3.6
3	.96	7.8	6.8	e5.5	9.1	e50	349	115	530	76	13	e3.4
4	.60	8.1	6.8	e6.0	9.6	e55	322	373	397	80	6.9	e3.4
5	.70	8.0	6.6	e6.5	13	e50	290	520	381	79	6.1	e3.6
6	.30	11	6.9	e7.0	e16	e46	279	437	529	67	5.2	5.6
7	.00	15	6.8	e7.5	e18	e55	291	470	518	58	4.5	9.2
8	.00	27	6.8	e7.0	e20	e80	267	385	384	53	4.5	30
9	.00	21	6.8	e6.5	e18	e120	248	303	325	54	4.0	152
10	.04	16	6.9	e6.0	e17	e170	320	276	288	49	3.5	133
11	.28	8.1	e6.0	e7.0	e16	e240	822	547	263	44	3.1	28
12	.56	6.7	e4.8	e8.0	e22	e300	1840	370	241	37	2.6	7.6
13	.76	5.6	e4.6	e8.5	e26	e460	885	717	214	34	2.3	5.8
14	1.2	4.9	e4.8	e8.5	e24	e700	454	1070	202	33	2.0	4.5
15	.86	4.9	e5.5	e8.0	e22	e1100	369	596	230	28	2.3	3.5
16	.83	5.4	e6.0	e8.0	e21	2010	312	368	279	22	2.8	3.7
17	1.6	5.3	e5.5	e7.5	e20	1530	262	317	226	20	2.5	3.7
18	2.0	5.6	e5.5	e8.0	e19	595	228	271	188	23	3.5	4.3
19	2.4	5.5	e4.6	e7.0	e21	459	215	230	175	27	3.8	4.5
20	2.7	4.9	e4.2	e6.5	22	493	203	201	210	30	3.1	6.1
21	2.5	5.3	e4.8	e8.0	19	973	191	197	292	23	3.3	6.9
22	3.1	5.1	e4.6	e7.5	18	1300	174	187	230	26	3.8	5.4
23	3.6	5.0	e4.4	8.8	17	1350	184	165	193	25	4.2	5.2
24	4.1	5.0	e4.2	8.2	43	1220	162	153	166	18	4.5	4.3
25	4.6	5.2	e4.0	7.2	e60	691	143	161	148	12	5.0	4.0
26	5.2	5.6	e4.2	7.0	e55	429	128	190	132	8.3	4.5	3.4
27	5.5	5.9	e4.6	7.2	e48	353	121	189	117	7.9	4.4	3.3
28	5.6	6.2	e5.5	7.1	e42	348	108	159	106	7.7	e4.2	2.7
29	5.7	6.3	e6.5	7.8	---	367	96	136	98	7.5	e4.0	2.4
30	5.9	6.4	e6.0	9.6	---	379	89	151	91	7.5	e3.8	2.6
31	6.4	---	e5.5	9.8	---	409	---	688	---	7.3	e3.8	---
TOTAL	71.39	242.6	173.7	228.2	658.7	16414	10195	10126	9572	1127.2	134.0	459.3
MEAN	2.30	8.09	5.60	7.36	23.5	529	340	327	319	36.4	4.32	15.3
MAX	6.4	27	6.9	9.8	60	2010	1840	1070	1530	86	13	152
MIN	.00	4.9	4.0	5.0	9.1	38	89	89	91	7.3	2.0	2.4
AC-FT	142	481	345	453	1310	32560	20220	20080	18990	2240	266	911
CFSM	.01	.02	.02	.02	.07	1.52	.97	.94	.91	.10	.01	.04
IN.	.01	.03	.02	.02	.07	1.75	1.09	1.08	1.02	.12	.01	.05

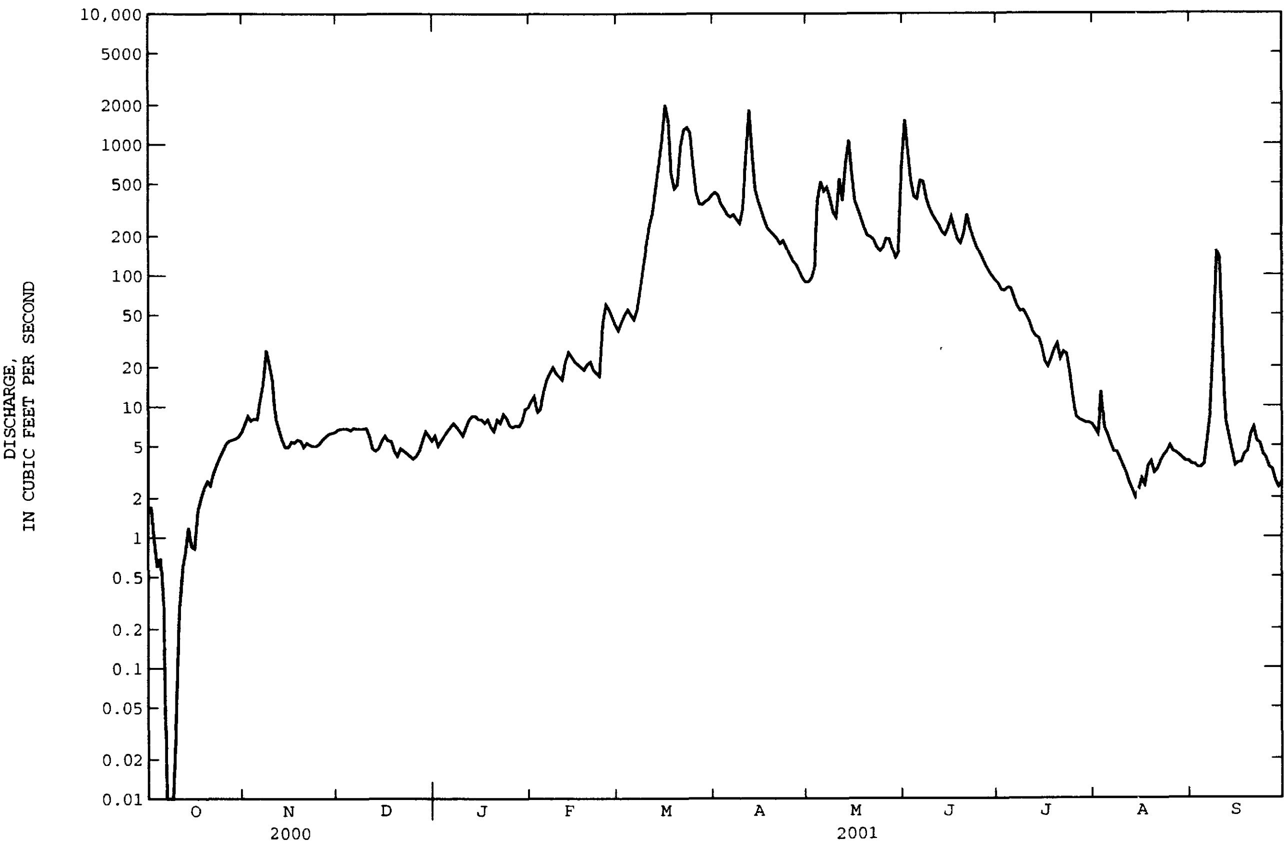
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	76.8	101	74.1	76.9	159	336	351	358	382	194	111	90.9
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1941 - 2001	
ANNUAL TOTAL	10270.09		49402.09			
ANNUAL MEAN	28.1		135		192	
HIGHEST ANNUAL MEAN					709	1993
LOWEST ANNUAL MEAN					8.08	1968
HIGHEST DAILY MEAN	812	Jun 27	2010	Mar 16	21600	Jun 13 1947
LOWEST DAILY MEAN	.00	Oct 7	.00	Oct 7a	.00	Jul 20 1954b
ANNUAL SEVEN-DAY MINIMUM	.17	Oct 6	.17	Oct 6	.00	Jul 25 1954
MAXIMUM PEAK FLOW			2070	Apr 12	32000	Jun 13 1947c
MAXIMUM PEAK STAGE			17.85	Mar 16	25.30	Jun 13 1947d
INSTANTANEOUS LOW FLOW					.00	Jul 20 1954
ANNUAL RUNOFF (AC-FT)	20370		97990		139300	
ANNUAL RUNOFF (CFSM)	.080		.39		.55	
ANNUAL RUNOFF (INCHES)	1.09		5.27		7.49	
10 PERCENT EXCEEDS	66		384		442	
50 PERCENT EXCEEDS	7.0		11		44	
90 PERCENT EXCEEDS	3.4		3.4		2.5	

a Also Oct. 8, 9.
b Many days 1954-58.
c From rating curve extended above 9,000 ft^3/s on basis of velocity-area studies.
d From floodmark.
e Estimated.



05486490 MIDDLE RIVER NEAR INDIANOLA, IA

LOCATION.--Lat 41°25'27", long 93°35'09", in SW1/4 SE1/4 sec.35, T.77 N., R.24 W., Warren County, Hydrologic Unit 07100008, on right bank 10 ft downstream from bridge on county highway, 0.4 mi upstream from Cavitt Creek, 1.5 mi upstream from bridge on U.S. Highway 69, and 4.6 mi northwest of Indianola.

DRAINAGE AREA.--503 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. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	9.7	16	e9.5	e15	e46	597	111	3020	106	35	12
2	3.6	11	15	e8.5	e14	e55	490	119	1340	103	34	12
3	4.2	12	17	e10	e12	e60	364	160	878	103	56	11
4	4.0	11	16	e11	e14	e65	300	795	667	109	71	11
5	5.4	11	15	e11	e15	e60	270	875	754	103	49	11
6	4.9	16	18	e13	e16	e55	247	740	955	96	35	12
7	4.6	21	18	e15	e18	e85	247	1260	875	88	32	18
8	4.7	20	18	e14	e20	e120	208	711	614	82	29	74
9	4.7	17	19	e12	e19	e150	212	475	503	78	26	104
10	4.6	21	18	e11	e17	e230	603	646	432	74	24	109
11	4.8	23	e12	e12	e16	e420	3090	2510	380	70	23	60
12	4.7	22	e8.0	e14	e26	e700	2570	716	340	68	22	39
13	5.0	17	e7.5	e16	e34	e1300	1230	1850	290	65	20	29
14	6.4	15	e8.5	e14	e32	2350	730	1960	383	62	20	24
15	5.8	16	e10	e13	e27	3420	564	969	385	59	24	20
16	6.4	14	e11	e12	e23	2300	468	596	385	56	31	21
17	5.5	16	e9.0	e11	e22	1010	339	581	275	54	26	21
18	5.5	16	e8.0	e12	e21	682	281	460	226	58	e24	19
19	5.8	15	e7.5	e11	e23	613	249	370	210	61	e21	18
20	5.9	18	e7.0	e10	e24	953	231	303	216	55	19	20
21	6.2	16	e8.5	e11	e22	2060	214	274	387	52	20	27
22	10	17	e8.0	e10	e20	2300	193	251	283	53	18	23
23	5.8	18	e7.5	e11	e23	2320	196	278	225	56	17	23
24	6.1	19	e7.0	e11	e28	1610	170	254	189	51	17	22
25	12	19	e6.5	e10	e70	913	156	263	168	e48	17	19
26	12	18	e7.0	e9.0	e60	563	142	305	151	46	15	16
27	7.9	18	e8.0	e10	e55	429	130	267	136	44	14	14
28	5.4	17	e9.5	e12	e50	407	120	238	124	44	13	13
29	7.3	18	e11	e13	---	435	111	208	117	44	13	13
30	8.3	16	e10	e15	---	474	108	312	111	42	12	11
31	8.0	---	e9.0	e16	---	527	---	3560	---	38	12	---
TOTAL	190.9	497.7	350.5	368.0	736	26712	14830	22417	15019	2068	789	826
MEAN	6.16	16.6	11.3	11.9	26.3	862	494	723	501	66.7	25.5	27.5
MAX	12	23	19	16	70	3420	3090	3560	3020	109	71	109
MIN	3.6	9.7	6.5	8.5	12	46	108	111	111	38	12	11
MED	5.5	17	9.5	11	22	527	248	460	360	59	22	20
AC-FT	379	987	695	730	1460	52980	29420	44460	29790	4100	1560	1640
CFSM	.01	.03	.02	.02	.05	1.71	.98	1.44	1.00	.13	.05	.05
IN.	.01	.04	.03	.03	.05	1.98	1.10	1.66	1.11	.15	.06	.06

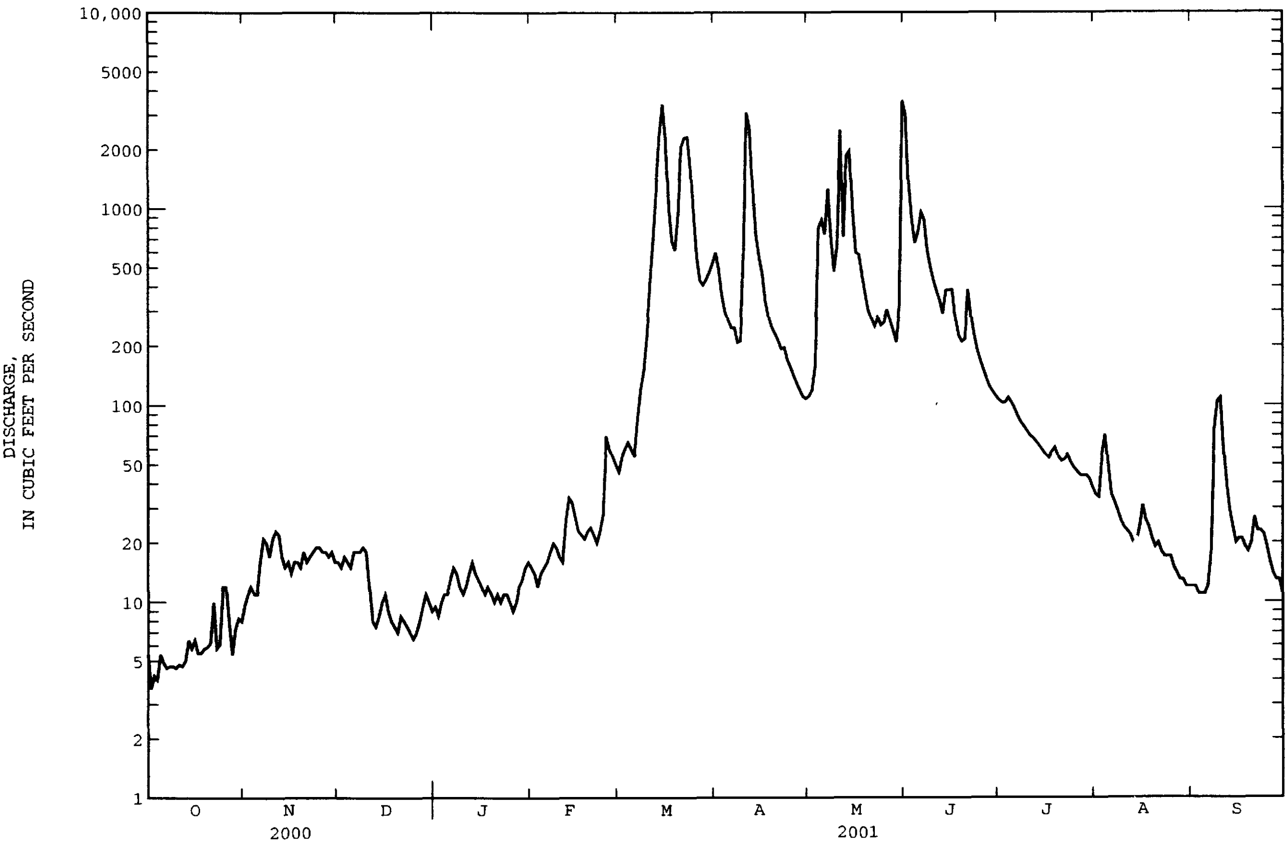
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	112	133	114	104	228	471	494	516	513	275	166	172
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1941 - 2001	
ANNUAL TOTAL	19645.7		84804.1			
ANNUAL MEAN	53.7		232		275	
HIGHEST ANNUAL MEAN					1006	1993
LOWEST ANNUAL MEAN					17.8	1968
HIGHEST DAILY MEAN	3370	Jun 26	3560	May 31	21400	Jun 13 1947
LOWEST DAILY MEAN	3.6	Oct 2	3.6	Oct 2	.11	Jul 2 1977
ANNUAL SEVEN-DAY MINIMUM	4.5	Oct 2	4.5	Oct 2	.51	Jun 29 1977
MAXIMUM PEAK FLOW			5770	May 31	34000	Jun 13 1947
MAXIMUM PEAK STAGE			17.04	May 31	28.27	Jun 13 1947a
INSTANTANEOUS LOW FLOW			2.3	Oct 2		
ANNUAL RUNOFF (AC-FT)	38970		168200		199000	
ANNUAL RUNOFF (CFSM)	.11		.46		.55	
ANNUAL RUNOFF (INCHES)	1.45		6.27		7.42	
10 PERCENT EXCEEDS	99		627		611	
50 PERCENT EXCEEDS	19		24		70	
90 PERCENT EXCEEDS	6.8		8.0		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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	16	12	e11	e17	e75	412	147	3490	43	14	5.4
2	5.8	37	13	e10	e15	e90	305	146	1200	39	15	5.1
3	4.7	34	11	e11	e14	e95	242	146	567	48	70	5.0
4	4.7	20	11	e13	e17	e100	244	1510	401	605	73	4.9
5	5.2	13	13	e13	e18	e95	235	684	619	154	45	4.8
6	5.4	20	12	e14	e19	e90	231	530	1020	82	26	16
7	5.3	30	12	e16	e20	e100	250	531	409	61	18	32
8	5.1	34	12	e15	e22	e160	190	302	268	51	14	603
9	5.1	24	11	e13	e21	e190	697	209	207	45	13	213
10	5.0	16	11	e12	e19	e300	1520	693	170	40	10	78
11	5.0	13	e9.0	e13	e18	e500	3090	4230	146	37	9.3	47
12	5.3	12	e8.0	e15	e26	e800	1940	945	126	36	8.9	33
13	5.3	10	e8.0	e17	e48	e1400	591	4140	110	36	8.8	26
14	5.8	8.9	e9.5	e16	e46	1920	366	3010	611	32	8.1	23
15	5.5	9.4	e11	e14	e42	2700	662	837	1880	28	18	18
16	5.2	8.6	e12	e13	e38	1720	539	419	387	26	24	26
17	5.5	10	e11	e12	e38	741	300	361	203	25	14	30
18	5.6	7.7	e9.5	e13	e36	601	247	274	159	32	13	28
19	5.6	8.3	e8.5	e12	e40	705	220	203	170	33	11	32
20	5.2	13	e8.0	e11	e44	1500	201	166	174	30	8.7	122
21	5.5	9.2	e9.0	e12	e40	2240	192	149	368	27	8.6	156
22	5.5	8.0	e8.5	e11	e38	2460	184	124	287	25	8.8	76
23	9.2	7.8	e8.0	e12	e42	2150	174	108	186	25	9.4	77
24	5.5	7.9	e7.5	e12	e48	1010	163	107	127	24	9.5	84
25	8.8	8.3	e7.0	e11	e110	445	148	156	102	84	46	56
26	11	9.0	e7.0	e10	e95	267	136	215	86	36	25	37
27	9.0	9.0	e9.0	e11	e85	233	127	158	73	25	15	29
28	7.3	11	e10	e13	e80	227	120	114	65	24	9.2	24
29	8.8	10	e12	e15	---	247	112	94	61	23	6.4	20
30	10	10	e11	e17	---	271	110	412	51	21	5.6	17
31	9.7	---	e10	e18	---	351	---	6550	---	17	5.5	---
TOTAL	195.5	435.1	311.5	406	1096	23783	13948	27670	13723	1814	570.8	1928.2
MEAN	6.31	14.5	10.0	13.1	39.1	767	465	893	457	58.5	18.4	64.3
MAX	11	37	13	18	110	2700	3090	6550	3490	605	73	603
MIN	4.7	7.7	7.0	10	14	75	110	94	51	17	5.5	4.8
AC-FT	388	863	618	805	2170	47170	27670	54880	27220	3600	1130	3820
CFSM	.01	.03	.02	.03	.09	1.67	1.01	1.94	.99	.13	.04	.14
IN.	.02	.04	.03	.03	.09	1.92	1.13	2.24	1.11	.15	.05	.16

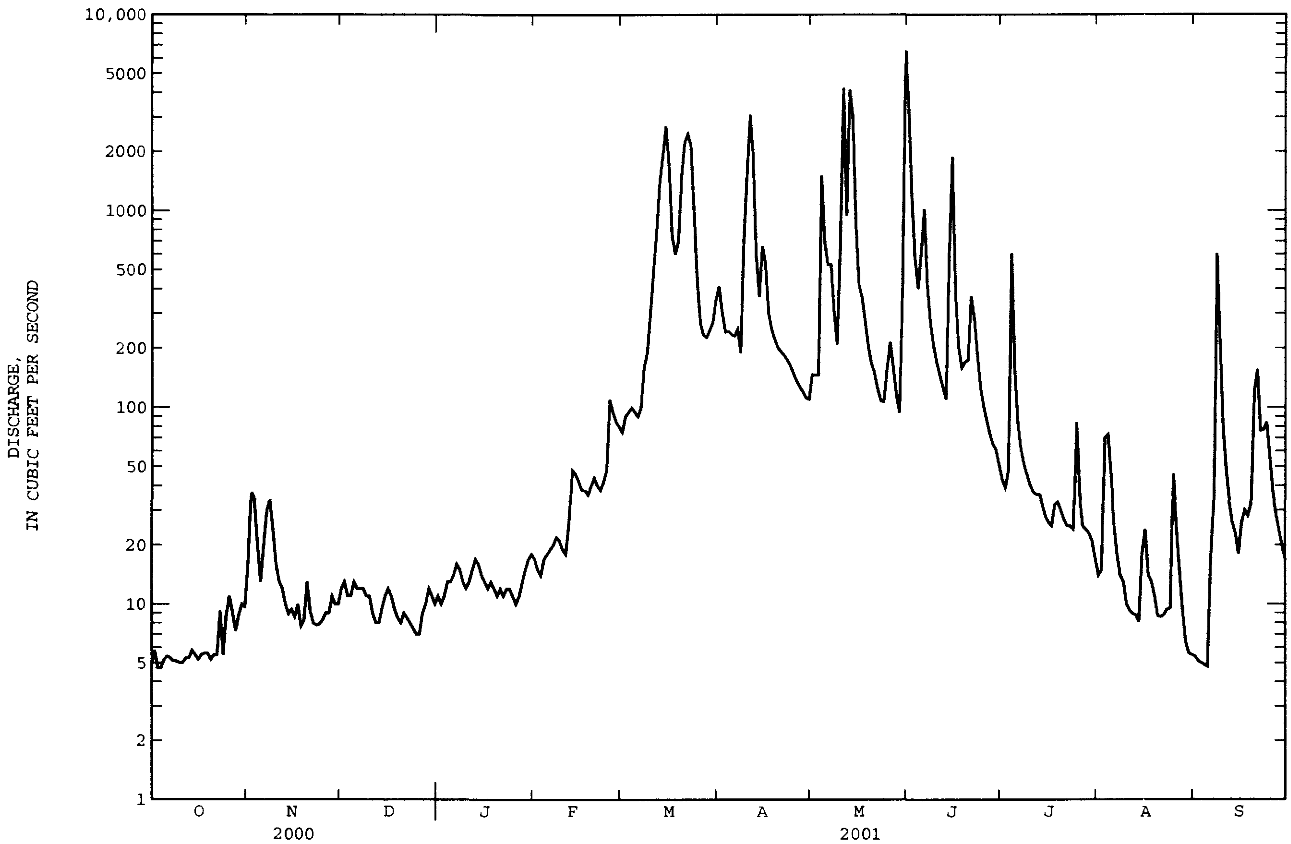
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	109	125	109	101	215	450	462	475	478	258	129	152
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1941 - 2001	
ANNUAL TOTAL	23006.4		85881.1			
ANNUAL MEAN	62.9		235		255	
HIGHEST ANNUAL MEAN					966	1993
LOWEST ANNUAL MEAN					16.1	1989
HIGHEST DAILY MEAN	3690	Jun 14	6550	May 31	31400	Jun 17 1990
LOWEST DAILY MEAN	2.7	Jun 1	4.7	Oct 3a	.00	Sep 19 1956b
ANNUAL SEVEN-DAY MINIMUM	3.7	May 28	5.1	Oct 3	.00	Sep 19 1956
MAXIMUM PEAK FLOW			13800	May 13	38100	Jun 17 1990
MAXIMUM PEAK STAGE			22.13	May 13	32.85	Jul 5 1981
INSTANTANEOUS LOW FLOW			4.4	Oct 3	.00	Sep 19 1956b
ANNUAL RUNOFF (AC-FT)	45630		170300		184800	
ANNUAL RUNOFF (CFSM)	.14		.51		.55	
ANNUAL RUNOFF (INCHES)	1.86		6.95		7.54	
10 PERCENT EXCEEDS	88		577		488	
50 PERCENT EXCEEDS	11		28		41	
90 PERCENT EXCEEDS	5.2		7.8		3.3	

a Also Oct. 4.
b 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e300	e500	2350	e360	e560	e880	24200	e15000	e28000	15800	e4400	1310
2	e300	e600	2420	e340	e600	e980	23800	e16000	e25000	e15500	e3800	1160
3	e320	e500	2260	e360	e580	e1100	23500	e17500	e23000	e15000	e3400	1040
4	e340	e480	2060	e380	e540	e1200	23300	e24000	e21000	e14500	e3800	980
5	e360	e460	e1800	e420	e500	e1300	22900	e26000	e20500	e13000	e4200	978
6	e320	e680	e1700	e440	e500	e1400	22700	e27000	e20000	e12500	e4600	947
7	e340	e640	e1400	e480	e540	e1300	22800	e29000	e21000	e12000	5120	1730
8	e320	e600	e1200	e480	e600	e1200	22900	e28500	e19000	e11000	4490	5080
9	e300	e560	e1000	e520	e660	e1400	24100	28100	e18000	e10500	3740	4290
10	e320	e1000	e900	e600	e700	e2200	26400	26600	e17000	e10500	3270	3090
11	e340	e1400	e800	e680	e700	e3600	29000	e26000	e16500	e9400	2950	2540
12	e330	e2100	e760	e780	e660	e6200	28100	e25000	e17000	e8200	2350	2220
13	e340	e2000	e700	e860	e640	e12000	29600	e25000	e19000	e7600	2050	889
14	e380	e1900	e660	e960	e680	e17000	29700	e24000	e20000	e7400	1700	1130
15	e340	e1800	e700	e900	e640	21700	29500	e24000	e20000	e7200	e1600	959
16	e320	e1600	e720	e860	e620	22400	29000	24100	e23000	e7200	e1400	939
17	e320	e1500	e800	e840	e620	17900	26700	22800	e23500	e7000	1790	1250
18	e300	e1400	e900	e740	e600	14300	24300	22900	e23000	e7000	2250	1310
19	e340	e1300	e840	e720	e580	15100	23300	22500	e22000	e6800	2100	1540
20	e300	e1100	e820	e780	e560	18000	23000	22200	e20000	e6800	1920	1340
21	e320	e860	e760	e740	e540	21900	e22000	21300	e19500	e6600	1980	1380
22	e330	e560	e640	e720	e500	27600	e21000	e22000	e19000	e6500	1790	1120
23	e340	e540	e520	e620	e520	e30000	e17500	e23500	e18500	e6000	1610	1030
24	e340	e900	e440	e660	e600	e32000	e17000	e24000	e18000	e5600	1590	1040
25	e380	1260	e380	e700	e580	e34000	e17000	e23500	e17500	e6100	1750	943
26	e540	1410	e360	e600	e560	e31000	e16500	e22000	e17000	e7600	1600	830
27	e440	1520	e400	e660	e640	30000	e16500	e21000	16900	e9800	1790	749
28	e420	1580	e420	e520	e780	28100	e16000	e21000	16700	e10000	1970	724
29	e420	1660	e400	e560	---	25900	e15500	e20000	16400	e8400	1960	709
30	e440	1920	e380	e600	---	24600	e15000	e20000	16000	e7000	1830	633
31	e400	---	e380	e540	---	24200	---	e21000	---	e5400	1550	---
TOTAL	10900	34330	29870	19420	16800	470460	682800	715500	592000	283900	80350	43880
MEAN	352	1144	964	626	600	15180	22760	23080	19730	9158	2592	1463
MAX	540	2100	2420	960	780	34000	29700	29000	28000	15800	5120	5080
MIN	300	460	360	340	500	880	15000	15000	16000	5400	1400	633
AC-FT	21620	68090	59250	38520	33320	933200	1354000	1419000	1174000	563100	159400	87040
CFSM	.03	.10	.08	.05	.05	1.30	1.95	1.98	1.69	.79	.22	.13
IN.	.03	.11	.10	.06	.05	1.50	2.18	2.28	1.89	.91	.26	.14

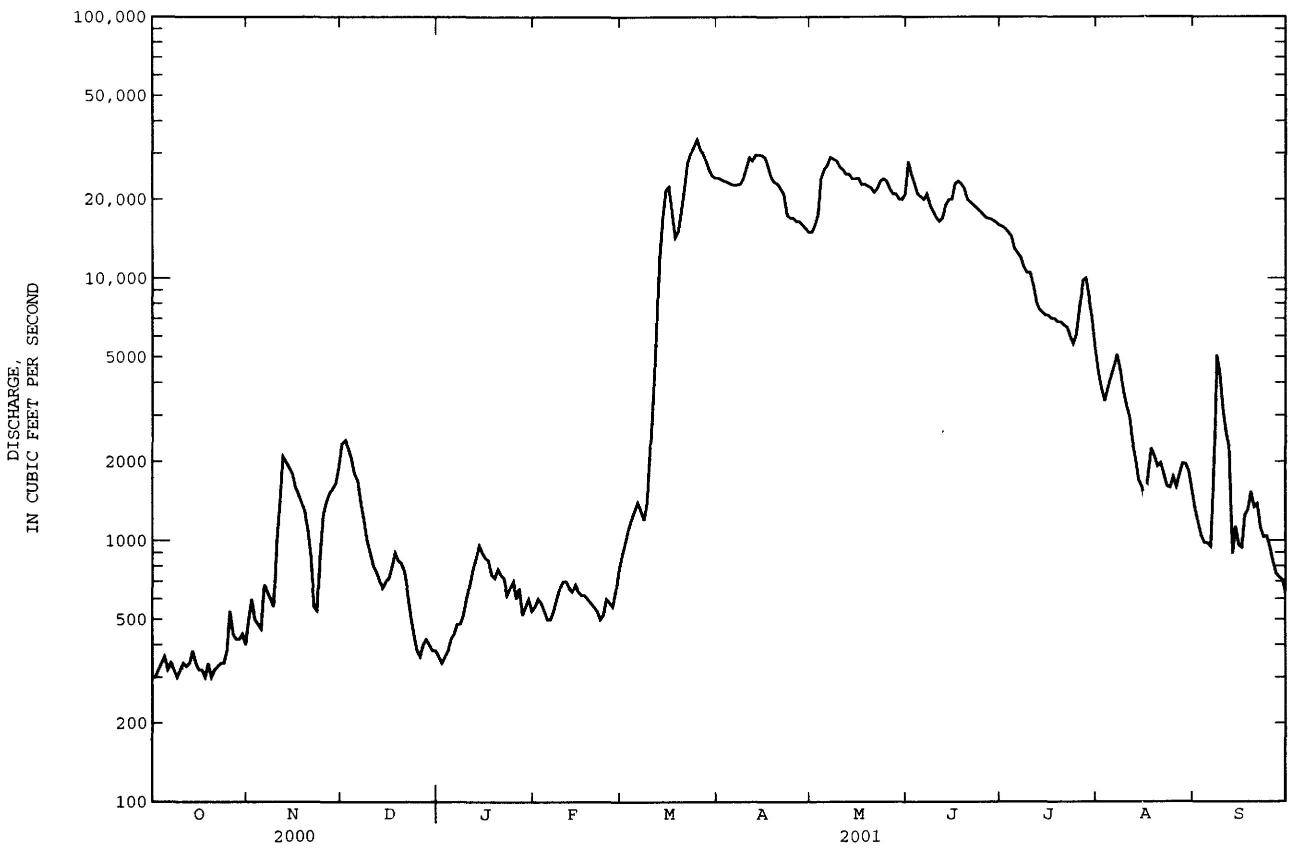
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3617	3866	3470	1973	3394	9518	14020	15120	16510	14330	6706	3979
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	352	524	473	450	500	1136	773	1272	1777	840	534	503
(WY)	2001	1990	1990	1990	1990	2000	2000	2000	1988	1988	1988	2000

05487500 DES MOINES RIVER NEAR RUNNELLS, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1986 - 2001	
ANNUAL TOTAL	696530		2980210			
ANNUAL MEAN	1903		8165		8060	
HIGHEST ANNUAL MEAN					22980	1993
LOWEST ANNUAL MEAN					1200	1989
HIGHEST DAILY MEAN	16800	Jun 26	34000	Mar 25	133000	Jul 11 1993
LOWEST DAILY MEAN	297	Sep 17	300	Oct 1a	297	Sep 17 2000
ANNUAL SEVEN-DAY MINIMUM	319	Oct 16	319	Oct 16	319	Oct 16 2000
MAXIMUM PEAK FLOW			34000	Mar 25	134000	Jul 11 1993
MAXIMUM PEAK STAGE			67.69	Jun 7	82.88	Jul 11 1993
ANNUAL RUNOFF (AC-FT)	1382000		5911000		5839000	
ANNUAL RUNOFF (CFSM)	.16		.70		.69	
ANNUAL RUNOFF (INCHES)	2.22		9.51		9.40	
10 PERCENT EXCEEDS	5510		24000		21600	
50 PERCENT EXCEEDS	850		1750		4000	
90 PERCENT EXCEEDS	380		412		630	

a Also Oct. 2, 9, 18, 20.
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. U.S. Geological Survey rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	.46	.30	e.10	1.0	4.1	12	3.8	13	4.3	1.2	.31
2	.18	.51	.26	e.13	.84	4.3	10	3.0	9.9	4.3	1.1	.25
3	.17	.28	.23	e.17	e.74	6.4	8.6	2.8	8.2	4.3	3.8	.22
4	.17	.26	.27	.21	e.56	6.9	7.1	4.2	7.3	4.1	1.8	.18
5	.20	.27	.18	.21	e.54	4.7	6.7	3.6	8.3	3.8	1.5	.17
6	.19	1.3	.22	.23	e.46	4.5	6.7	3.5	7.3	3.6	1.3	.29
7	.18	.70	.32	.22	e.50	4.3	6.1	3.3	6.7	3.4	1.2	1.8
8	.19	.43	.22	.26	e.60	3.2	5.3	3.1	6.3	3.4	1.0	10
9	.20	.41	e.12	.42	e.50	4.8	5.6	3.1	6.0	3.2	.93	2.0
10	.20	.36	e.09	.33	e.46	9.2	5.6	3.4	5.9	3.0	.78	1.4
11	.19	.34	e.07	.21	e.54	11	9.3	3.1	5.8	2.8	.72	1.1
12	.19	.38	e.08	.22	e.60	60	8.4	3.0	19	2.7	.66	.84
13	.18	.33	e.07	.33	e.50	53	6.4	3.9	13	2.5	.58	.73
14	.23	.30	e.08	.47	e.46	59	5.9	4.0	43	2.4	.52	.69
15	.18	.31	e.10	.69	e.40	55	5.5	3.7	27	2.3	1.1	.63
16	.19	.30	e.08	.83	e.50	25	5.2	3.6	15	2.2	1.3	.72
17	.20	.27	e.07	.72	e.70	15	5.1	3.8	13	2.1	.76	.62
18	.20	.26	e.07	.58	e.90	12	5.2	3.4	11	2.1	.74	.61
19	.19	.29	e.08	.49	e.76	13	5.0	3.3	10	2.6	.62	.66
20	.18	.19	e.07	.59	e.70	32	4.8	3.4	9.4	2.1	.56	.56
21	.18	.17	e.07	.39	e.80	30	4.5	3.3	8.6	2.0	.50	.52
22	.19	.20	e.08	.27	e.90	49	4.1	3.1	7.7	2.1	.44	.46
23	.20	.24	e.07	.27	e.80	31	4.0	3.1	7.1	2.2	.48	.93
24	.21	.28	e.06	.36	8.4	17	3.6	3.0	6.6	2.5	.74	.54
25	.45	.32	e.08	.76	87	12	3.5	3.8	6.1	2.7	5.1	.49
26	.27	.32	e.09	.36	47	11	3.3	5.4	5.7	2.1	1.1	.45
27	.23	.33	e.07	.25	12	10	3.2	5.4	5.3	1.9	.81	.41
28	.22	.30	e.09	.26	5.5	11	3.6	5.3	5.1	1.8	.61	.38
29	.23	.31	e.07	.47	---	14	3.5	5.1	4.9	1.6	.50	.36
30	.23	.30	e.10	3.6	---	14	3.7	4.9	4.6	1.5	.41	.36
31	.22	---	e.09	2.4	---	14	---	11	---	1.3	.36	---
TOTAL	6.42	10.72	3.85	16.80	174.66	600.4	171.5	122.4	306.8	82.9	33.22	28.68
MEAN	.21	.36	.12	.54	6.24	19.4	5.72	3.95	10.2	2.67	1.07	.96
MAX	.45	1.3	.32	3.6	87	60	12	11	43	4.3	5.1	10
MIN	.17	.17	.06	.10	.40	3.2	3.2	2.8	4.6	1.3	.36	.17
AC-FT	13	21	7.6	33	346	1190	340	243	609	164	66	57
CFSM	.03	.05	.02	.08	.92	2.86	.84	.58	1.51	.39	.16	.14
IN.	.04	.06	.02	.09	.96	3.29	.94	.67	1.68	.45	.18	.16

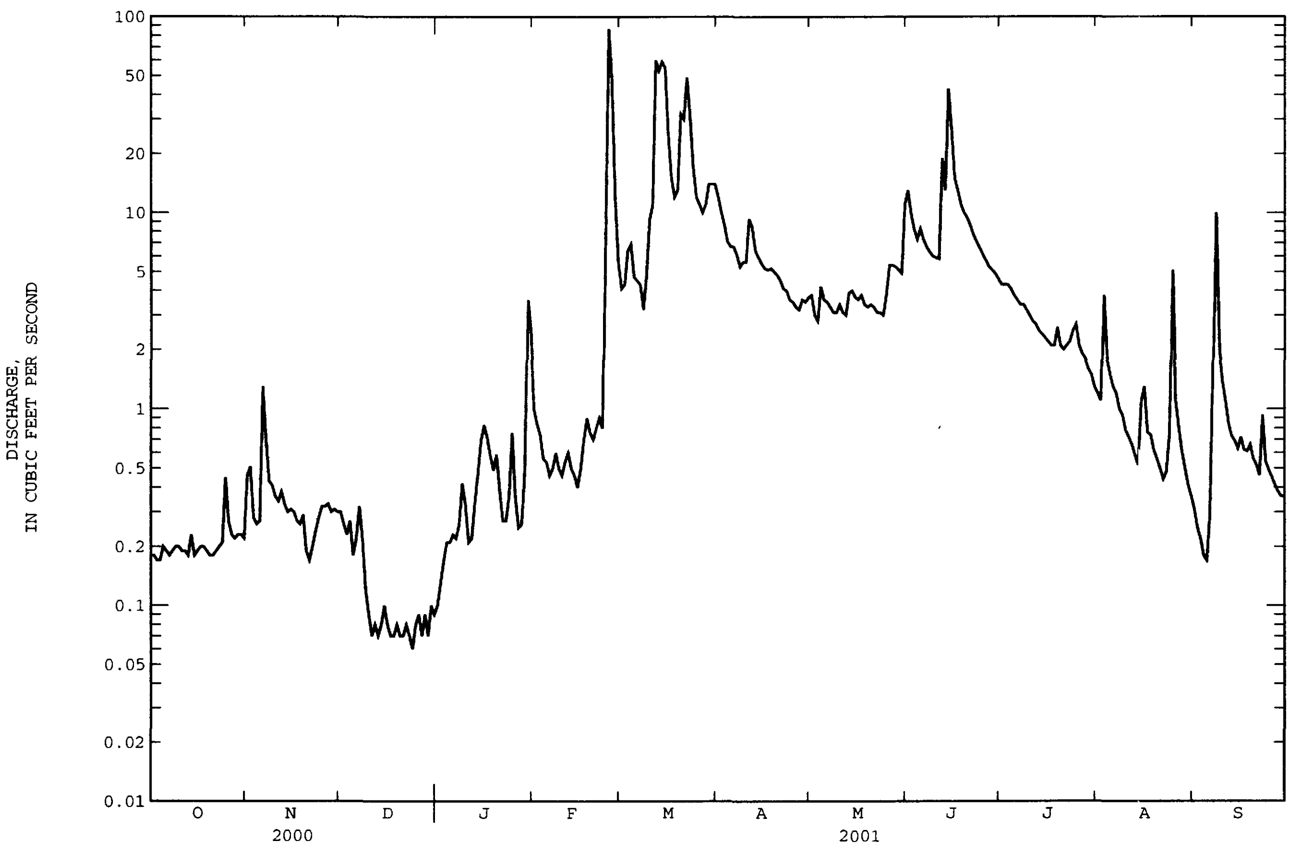
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1.34	1.90	1.35	1.43	7.19	6.80	5.62	12.7	14.9	5.67	3.62	1.01
MAX	3.48	5.69	3.22	3.73	19.8	19.4	13.1	25.0	31.8	13.8	10.5	1.97
(WY)	1999	1999	1998	1998	1996	2001	1998	1996	1998	1998	1999	1999
MIN	.20	.36	.12	.54	1.13	1.29	1.41	3.95	6.61	2.67	1.07	.28
(WY)	1996	2001	2001	2001	2000	2000	1996	2001	1997	2001	2001	2000

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1996 - 2001	
ANNUAL TOTAL	1009.85		1558.35			
ANNUAL MEAN	2.76		4.27		5.27	
HIGHEST ANNUAL MEAN					9.24	1998
LOWEST ANNUAL MEAN					2.92	2000
HIGHEST DAILY MEAN	127	May 31	87	Feb 25	210	May 24 1996
LOWEST DAILY MEAN	.06	Dec 24	.06	Dec 24	.04	Jan 7 1996
ANNUAL SEVEN-DAY MINIMUM	.07	Dec 18	.07	Dec 18	.07	Dec 18 2000
MAXIMUM PEAK FLOW			213	Jun 14	1350	Jun 18 1998
MAXIMUM PEAK STAGE			5.15	Jun 14	9.66	Jun 18 1998
INSTANTANEOUS LOW FLOW			.06	Dec 24	.00	Nov 10 1995
ANNUAL RUNOFF (AC-FT)	2000		3090		3820	
ANNUAL RUNOFF (CFSM)	.41		.63		.78	
ANNUAL RUNOFF (INCHES)	5.54		8.55		10.57	
10 PERCENT EXCEEDS	6.7		10		12	
50 PERCENT EXCEEDS	1.0		.90		2.4	
90 PERCENT EXCEEDS	.18		.18		.31	

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, 31.5°C July 31, 2001; minimum daily, 0.0°C many days during winter.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,130 mg/L July 22, 1998; minimum daily mean, 3 mg/L Feb. 2, 21, 2001.
SEDIMENT LOADS: Maximum daily, 1,080 tons May 24, 1996; minimum daily, 0.003 tons Nov. 28, 1995, Dec. 10-13, 2000, Jan. 4-7, 11, 12, 19, 23, 26, 28, and Feb. 2, 2001.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 663 microsiemens Feb. 8; minimum daily, 214 microsiemens Feb. 25.
WATER TEMPERATURES: Maximum daily, 31.5°C July 31; minimum daily, 0.0°C many days during winter.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 736 mg/L Mar. 14; minimum daily mean, 3.0 mg/L Feb. 2, 21.
SEDIMENT LOADS: Maximum daily, 140 tons Mar. 14; minimum daily, 0.003 tons Dec. 10-13, Jan. 4-7, 11, 12, 19, 23, 26, 28, and Feb. 2.

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	468	488	---	512	474	436	359	513	493	331	470
2	511	535	438	492	540	459	445	346	506	490	413	501
3	446	585	581	440	524	437	352	480	515	491	470	486
4	439	559	460	490	535	---	438	497	468	525	504	470
5	409	485	451	538	547	462	464	491	517	459	481	451
6	480	497	504	489	574	478	466	493	503	526	493	445
7	427	635	436	492	572	476	469	491	506	---	498	549
8	424	590	428	484	663	488	469	493	496	---	487	398
9	452	540	435	498	---	406	478	490	510	525	384	503
10	481	554	446	502	399	358	478	493	450	474	333	507
11	408	511	---	520	---	409	513	379	498	531	486	508
12	---	---	---	597	484	228	366	493	493	406	476	505
13	430	537	---	518	---	344	347	480	506	497	426	494
14	510	502	487	528	---	207	470	495	509	511	385	506
15	492	448	440	509	---	304	479	492	497	378	409	492
16	441	477	---	---	506	405	473	493	514	461	381	486
17	469	511	---	---	516	439	473	493	518	519	505	508
18	445	415	428	---	516	481	467	491	519	500	486	504
19	464	490	---	---	504	444	---	495	521	477	479	505
20	447	506	---	572	528	283	463	490	515	385	428	504
21	468	505	---	---	536	339	472	471	526	511	457	495
22	402	591	---	513	518	321	347	430	478	488	412	499
23	437	519	---	527	517	387	385	485	512	---	439	486
24	455	502	---	530	268	444	467	464	510	490	482	530
25	582	420	---	542	214	463	474	486	494	464	437	483
26	532	462	472	524	320	458	467	523	509	351	500	470
27	542	437	522	478	395	452	477	508	---	510	488	483
28	487	445	---	495	456	452	456	503	518	513	503	510
29	529	471	---	---	---	411	480	475	466	513	495	---
30	444	440	---	487	---	422	464	484	460	439	493	438
31	428	---	507	496	---	412	---	481	---	347	503	---

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	19.3	.9	---	.0	2.3	7.3	20.4	11.2	19.2	30.8	---
2	22.8	15.6	.0	.0	.0	5.2	13.0	15.3	15.3	19.0	28.8	25.5
3	18.5	11.0	1.6	.3	.4	5.9	4.9	15.6	13.6	21.9	25.3	26.5
4	14.7	12.0	1.0	.7	.6	---	12.1	13.6	14.7	24.2	28.0	24.8
5	11.2	10.5	.5	.8	.9	3.9	9.8	14.9	15.7	14.3	27.1	26.6
6	9.4	9.3	.0	1.4	1.4	2.8	8.7	13.8	12.3	23.6	28.9	22.8
7	6.7	6.1	.4	.1	.3	3.3	14.7	19.4	19.1	---	28.7	22.3
8	6.8	3.6	2.3	.6	.2	1.5	14.1	19.4	20.3	---	26.4	19.5
9	7.5	3.0	.0	.0	---	3.3	11.3	21.8	21.5	25.2	28.1	17.7
10	12.8	4.4	.0	.9	.0	1.2	8.1	22.4	18.3	16.7	23.6	20.7
11	10.8	1.3	---	1.9	---	2.9	15.3	---	24.1	16.7	23.1	18.7
12	---	---	---	1.6	1.2	1.4	6.4	18.5	17.6	25.1	25.2	24.1
13	20.0	.9	---	1.4	---	1.6	15.0	11.6	15.2	25.2	17.8	18.9
14	18.6	3.2	.0	.4	---	2.5	16.1	18.3	17.0	26.2	21.4	16.2
15	16.4	2.5	.0	.3	---	2.2	10.7	22.3	18.3	22.5	18.2	18.0
16	12.5	.0	---	---	.0	3.3	7.6	21.6	17.1	17.0	23.5	14.8
17	16.2	1.4	---	---	.0	6.8	12.7	20.6	19.1	25.9	21.9	18.3
18	17.6	1.3	.0	---	.5	2.1	17.8	18.7	18.1	24.7	20.1	15.6
19	16.0	.2	---	---	1.6	6.6	---	23.6	15.0	25.0	19.2	19.6
20	13.8	.4	---	.5	1.4	5.1	19.4	16.4	15.1	20.3	14.5	19.4
21	17.2	3.0	---	---	1.2	4.8	17.9	13.7	19.4	27.6	27.4	20.7
22	13.4	1.5	---	3.7	.7	8.7	17.1	9.8	18.9	24.7	28.0	13.1
23	18.2	.3	---	.6	1.7	3.9	10.4	12.6	21.8	---	21.7	15.8
24	20.5	.9	---	.0	.5	7.0	17.5	10.3	23.6	20.7	---	15.0
25	20.5	1.2	---	.0	.5	2.1	17.4	12.3	24.4	23.3	---	16.0
26	19.3	.0	.0	.0	2.5	7.8	15.1	16.7	21.1	23.7	---	15.6
27	16.4	1.8	.0	.5	.8	9.8	20.8	14.8	---	23.0	---	---
28	14.0	1.1	---	.0	4.2	4.7	10.4	19.3	23.6	25.9	---	15.8
29	12.3	.4	---	---	---	5.9	15.5	10.6	23.5	25.9	---	---
30	16.1	2.2	---	.8	---	8.2	15.5	11.2	23.8	27.7	---	16.2
31	17.0	---	.2	.6	---	9.4	---	10.5	---	31.3	---	---

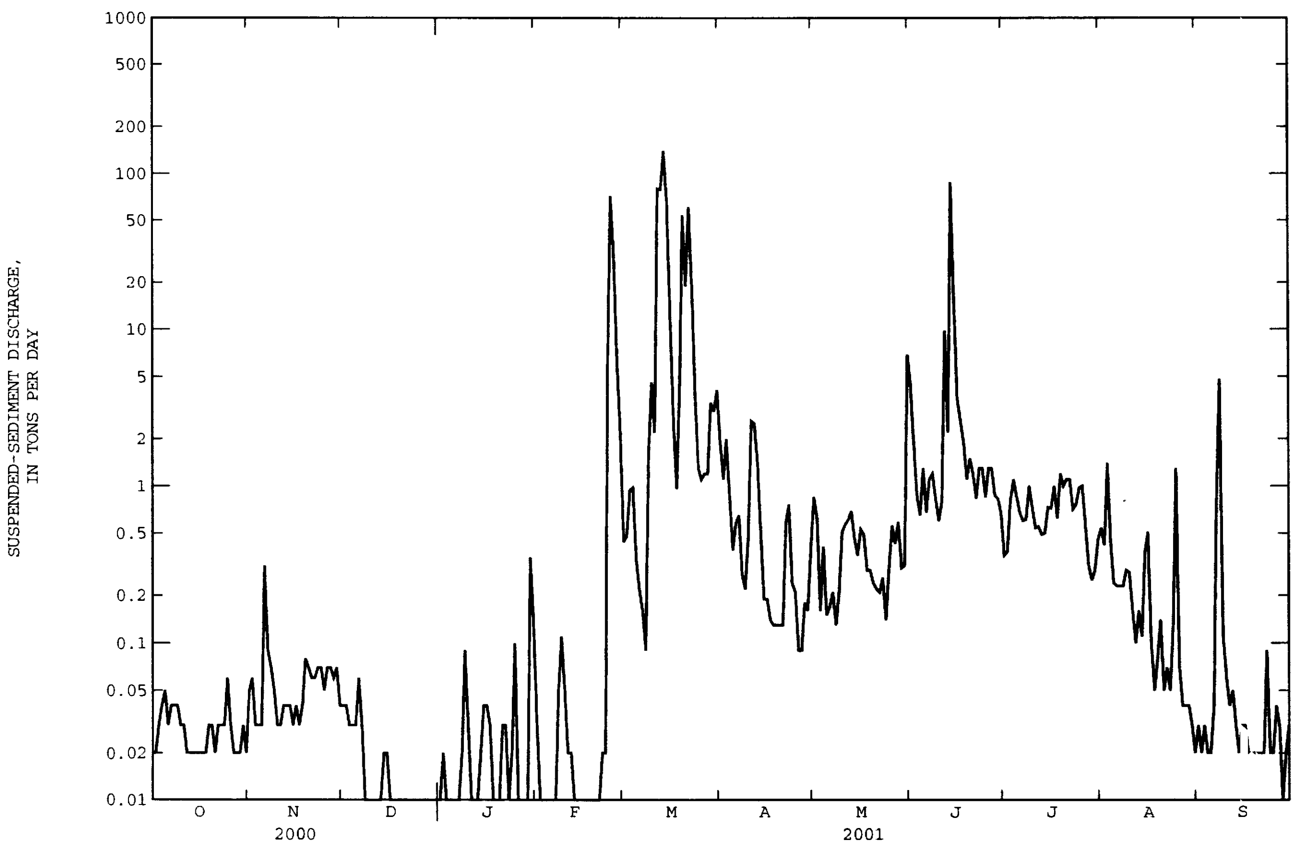
SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	41	.02	36	.05	49	.04	53	.01	10	.03	38	.44
2	43	.02	43	.06	54	.04	49	.02	3	.00	38	.48
3	62	.03	42	.03	54	.03	27	.01	4	.01	48	.94
4	86	.04	36	.03	37	.03	11	.00	4	.01	52	.98
5	95	.05	40	.03	70	.03	11	.00	9	.01	26	.34
6	62	.03	78	.31	108	.06	16	.00	9	.01	16	.22
7	84	.04	45	.09	32	.03	10	.00	11	.01	13	.16
8	77	.04	61	.07	24	.01	30	.02	31	.05	11	.09
9	66	.04	41	.05	29	.01	76	.09	85	.11	71	1.5
10	57	.03	36	.03	19	.00	27	.03	43	.05	173	4.6
11	48	.03	35	.03	18	.00	9	.00	16	.02	72	2.2
12	41	.02	37	.04	18	.00	8	.00	12	.02	430	80
13	34	.02	41	.04	25	.00	12	.01	10	.01	506	79
14	31	.02	46	.04	79	.02	16	.02	8	.01	736	140
15	38	.02	37	.03	60	.02	22	.04	7	.01	439	67
16	43	.02	44	.04	49	.01	20	.04	6	.01	163	12
17	34	.02	46	.03	43	.01	14	.03	7	.01	60	2.6
18	42	.02	55	.04	38	.01	7	.01	6	.01	31	.96
19	54	.03	101	.08	37	.01	7	.00	4	.01	93	4.2
20	65	.03	126	.07	37	.01	9	.01	4	.01	442	54
21	50	.02	136	.06	37	.01	33	.03	3	.01	218	19
22	63	.03	119	.06	37	.01	44	.03	10	.02	344	61
23	59	.03	105	.07	37	.01	8	.00	10	.02	212	19
24	52	.03	92	.07	38	.01	13	.02	128	6.6	75	3.6
25	49	.06	59	.05	45	.01	35	.10	294	72	39	1.3
26	36	.03	76	.07	57	.01	7	.00	220	30	38	1.1
27	34	.02	75	.07	35	.01	21	.01	191	6.1	42	1.2
28	38	.02	69	.06	25	.01	8	.00	144	2.2	40	1.2
29	39	.02	84	.07	46	.01	7	.01	---	---	90	3.4
30	47	.03	51	.04	51	.01	31	.35	---	---	81	3.0
31	39	.02	---	---	54	.01	21	.14	---	---	104	4.1
TOTAL	---	0.88	---	1.81	---	0.48	---	1.03	---	117.36	---	569.61

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	57	1.9	82	.85	123	4.4	31	.36	170	.54	30	.03
2	38	1.1	78	.63	69	1.9	33	.38	145	.42	28	.02
3	89	2.0	20	.16	39	.86	69	.80	129	1.4	42	.03
4	45	.86	34	.41	33	.65	100	1.1	89	.44	39	.02
5	21	.39	15	.15	57	1.3	85	.86	60	.24	35	.02
6	32	.58	18	.17	35	.68	70	.68	65	.23	43	.04
7	39	.65	24	.21	64	1.1	65	.60	74	.23	123	.90
8	19	.27	16	.13	71	1.2	67	.61	82	.23	132	4.8
9	15	.22	26	.21	51	.83	119	1.0	116	.29	19	.11
10	32	.48	54	.51	38	.60	89	.73	133	.28	16	.06
11	90	2.6	68	.57	51	.79	71	.54	83	.16	13	.04
12	109	2.5	75	.61	156	9.8	76	.55	58	.10	21	.05
13	83	1.4	63	.69	63	2.2	71	.49	102	.16	17	.03
14	30	.50	42	.46	282	88	78	.50	81	.11	10	.02
15	13	.19	36	.36	188	15	117	.73	115	.38	18	.03
16	13	.19	55	.53	86	3.6	122	.72	148	.51	17	.03
17	10	.14	48	.49	74	2.6	183	1.0	49	.10	10	.02
18	9	.13	32	.29	62	1.9	110	.62	27	.05	10	.02
19	9	.13	33	.29	40	1.1	143	1.2	48	.08	9	.02
20	10	.13	26	.24	62	1.5	183	1.0	95	.14	10	.02
21	11	.13	25	.22	50	1.2	201	1.1	40	.05	13	.02
22	52	.58	25	.21	40	.83	197	1.1	58	.07	17	.02
23	71	.76	31	.26	67	1.3	117	.71	40	.05	31	.09
24	25	.24	17	.14	72	1.3	95	.76	41	.13	14	.02
25	22	.21	28	.30	51	.85	129	.97	68	1.3	18	.02
26	11	.09	38	.56	84	1.3	185	1.0	23	.07	31	.04
27	11	.09	30	.43	88	1.3	108	.55	20	.04	27	.03
28	19	.18	41	.59	63	.87	65	.31	27	.04	14	.01
29	17	.16	21	.30	63	.83	57	.25	29	.04	19	.02
30	39	.40	24	.31	53	.67	73	.29	27	.03	32	.03
31	---	---	191	6.9	---	---	128	.46	25	.02	---	---
TOTAL	---	19.20	---	18.18	---	150.46	---	21.97	---	7.93	---	6.61
YEAR		915.52										



05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA--Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Tipping bucket rain gage.

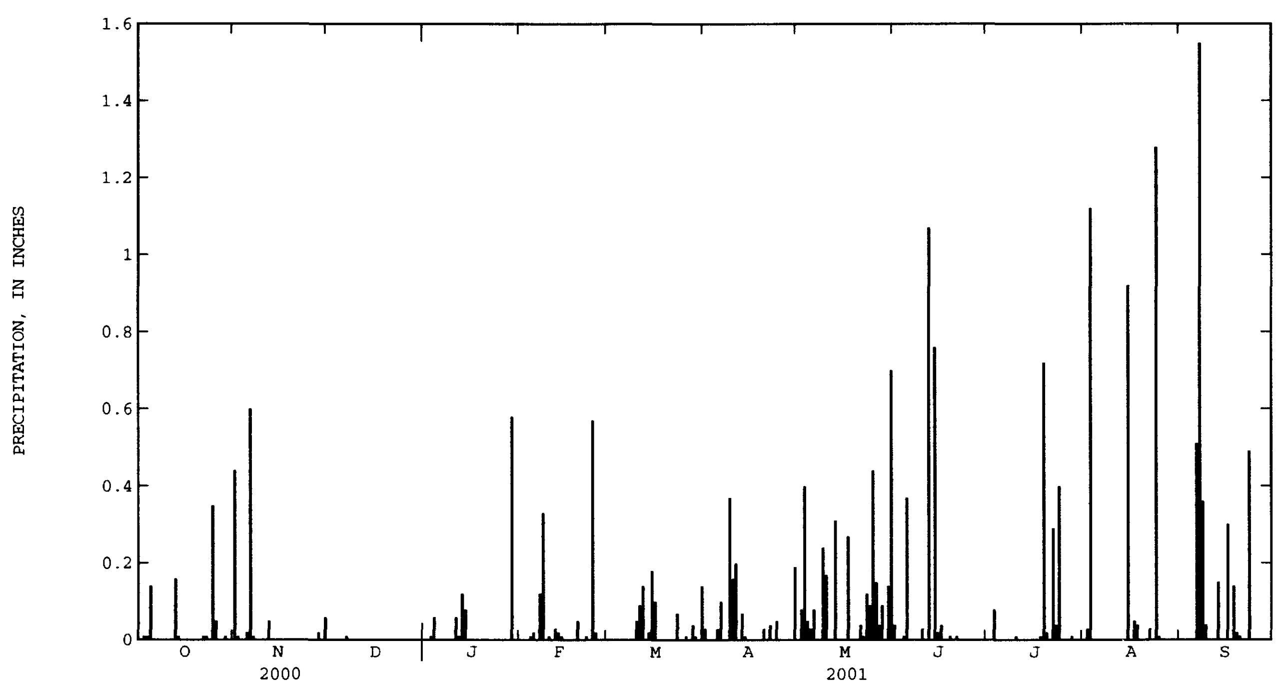
REMARKS.--Records good except for winter period, which is poor due to intermittent snow accumulation and subseqient melting.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily accumulation, 2.53 in., July 17, 1996.

EXTREMES FOR CURRENT YEAR.--Maximum daily accumulation, 1.55 in., Sep. 7.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.44	.00	.00	.00	.00	.03	.00	.04	.00	.00	.00
2	.00	.01	.00	.00	.00	.00	.00	.08	.00	.00	.03	.00
3	.01	.00	.00	.01	.00	.00	.00	.40	.00	.08	1.12	.00
4	.01	.00	.00	.06	.01	.00	.00	.05	.01	.00	.00	.00
5	.14	.02	.00	.00	.02	.00	.03	.03	.37	.00	.00	.00
6	.00	.60	.00	.00	.00	.00	.10	.08	.00	.00	.00	.51
7	.00	.01	.01	.00	.12	.00	.00	.00	.00	.00	.00	1.55
8	.00	.00	.00	.00	.33	.00	.00	.00	.00	.00	.00	.36
9	.00	.00	.00	.00	.00	.00	.37	.24	.00	.00	.00	.04
10	.00	.00	.00	.00	.01	.05	.16	.17	.03	.01	.00	.00
11	.00	.00	.00	.06	.00	.09	.20	.00	.00	.00	.00	.00
12	.00	.05	.00	.01	.03	.14	.00	.00	1.07	.00	.00	.00
13	.16	.00	.00	.12	.02	.00	.07	.31	.00	.00	.00	.15
14	.01	.00	.00	.08	.01	.02	.01	.00	.76	.00	.00	.00
15	.00	.00	.00	.00	.00	.18	.00	.00	.02	.00	.92	.00
16	.00	.00	.00	.00	.00	.10	.00	.00	.04	.00	.00	.30
17	.00	.00	.00	.00	.00	.00	.00	.27	.00	.00	.05	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.04	.14
19	.00	.00	.00	.00	.05	.00	.00	.00	.01	.72	.00	.02
20	.00	.00	.00	.00	.00	.00	.03	.00	.00	.02	.00	.01
21	.00	.00	.00	.00	.00	.00	.00	.04	.01	.00	.00	.00
22	.01	.00	.00	.00	.01	.00	.04	.01	.00	.29	.03	.00
23	.01	.00	.00	.00	.00	.07	.00	.12	.00	.04	.00	.49
24	.00	.00	.00	.00	.57	.00	.05	.09	.00	.40	1.28	.00
25	.35	.00	.00	.00	.02	.00	.00	.44	.00	.00	.01	.00
26	.05	.00	.00	.00	.00	.01	.00	.15	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00
28	.00	.02	.00	.00	.00	.04	.00	.09	.00	.01	.00	.00
29	.01	.00	.00	.58	---	.01	.00	.00	.00	.00	.00	.00
30	.00	.06	.00	.00	---	.00	.19	.14	.00	.00	.00	.00
31	.00	---	.00	.00	---	.14	---	.70	---	.00	.00	---
TOTAL	0.76	1.21	0.01	0.92	1.20	0.85	1.28	3.45	2.36	1.58	3.48	3.57
MEAN	.02	.04	.00	.03	.04	.03	.04	.11	.08	.05	.11	.12
MAX	.35	.60	.01	.58	.57	.18	.37	.70	1.07	.72	1.28	1.55
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. U.S. Geological Survey rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.73	1.6	.75	e.26	4.4	33	47	13	63	10	3.5	.47
2	.70	3.6	.60	e.36	3.3	21	36	12	31	9.9	3.3	.33
3	.63	1.1	.41	e.46	3.1	39	29	13	22	10	8.4	.28
4	.46	.84	.58	.60	3.0	67	23	16	19	9.5	5.5	.20
5	.59	.92	.33	.60	e2.6	19	21	14	38	8.6	4.1	.16
6	.92	4.1	.30	.72	e2.4	15	21	14	25	8.3	3.7	.41
7	.70	4.9	.67	.77	e2.2	16	19	13	20	8.0	3.4	2.3
8	.50	2.8	.64	.60	e2.5	12	16	12	17	7.7	3.2	31
9	.54	2.3	e.20	.70	e2.1	12	22	12	16	7.6	2.8	6.1
10	.61	1.8	e.14	.58	e1.8	38	24	18	15	7.0	2.2	3.9
11	.66	1.3	e.16	.63	e2.1	58	75	21	14	6.7	1.8	3.1
12	.53	1.4	e.15	.76	e2.3	216	47	14	110	6.4	1.5	2.4
13	.56	1.2	e.15	1.0	e2.1	130	27	17	51	5.9	1.2	1.9
14	.82	1.0	e.17	2.4	e2.0	147	24	16	90	5.7	1.0	1.8
15	.83	.83	e.20	3.5	e1.9	151	20	14	95	5.4	2.4	1.7
16	.59	1.2	e.17	3.9	e1.8	98	17	14	48	5.2	3.9	2.5
17	.72	.75	e.16	3.6	e1.7	59	16	e40	38	5.1	1.6	2.3
18	.59	.62	e.14	3.2	e2.2	39	17	e18	28	4.9	1.4	2.3
19	.57	.70	e.15	2.2	e2.8	48	16	e17	22	7.5	1.1	2.7
20	.54	.44	e.13	1.1	e2.5	95	15	e16	20	5.4	.80	2.3
21	.63	.27	e.14	.91	e2.8	114	14	15	18	5.1	.68	1.6
22	.61	.28	e.16	.83	e3.0	127	14	13	16	5.2	.56	1.1
23	.64	.34	e.12	.89	e4.0	108	14	13	15	5.8	.56	3.7
24	.79	.49	e.13	.99	e7.0	66	14	13	14	5.3	3.4	2.4
25	2.0	.67	e.16	.58	255	46	14	15	14	6.8	15	1.7
26	1.7	.92	e.20	.60	188	39	14	21	13	5.1	3.5	1.5
27	1.1	.92	e.22	.77	124	37	14	16	12	4.5	2.3	1.3
28	.73	.79	e.26	1.3	88	38	12	15	11	4.5	1.4	1.4
29	1.1	.78	e.20	1.4	---	54	12	14	11	4.0	.91	1.1
30	1.3	.74	e.30	4.2	---	53	12	14	11	3.8	.73	1.3
31	1.1	---	e.28	5.3	---	61	---	60	---	3.6	.61	---
TOTAL	24.49	39.60	8.37	45.71	720.6	2056	666	533	917	198.5	86.45	85.25
MEAN	.79	1.32	.27	1.47	25.7	66.3	22.2	17.2	30.6	6.40	2.79	2.84
MAX	2.0	4.9	.75	5.3	255	216	75	60	110	10	15	31
MIN	.46	.27	.12	.26	1.7	12	12	12	11	3.6	.56	.16
AC-FT	49	79	17	91	1430	4080	1320	1060	1820	394	171	169
CFSM	.04	.07	.01	.07	1.27	3.27	1.09	.85	1.51	.32	.14	.14
IN.	.04	.07	.02	.08	1.32	3.77	1.22	.98	1.68	.36	.16	.16

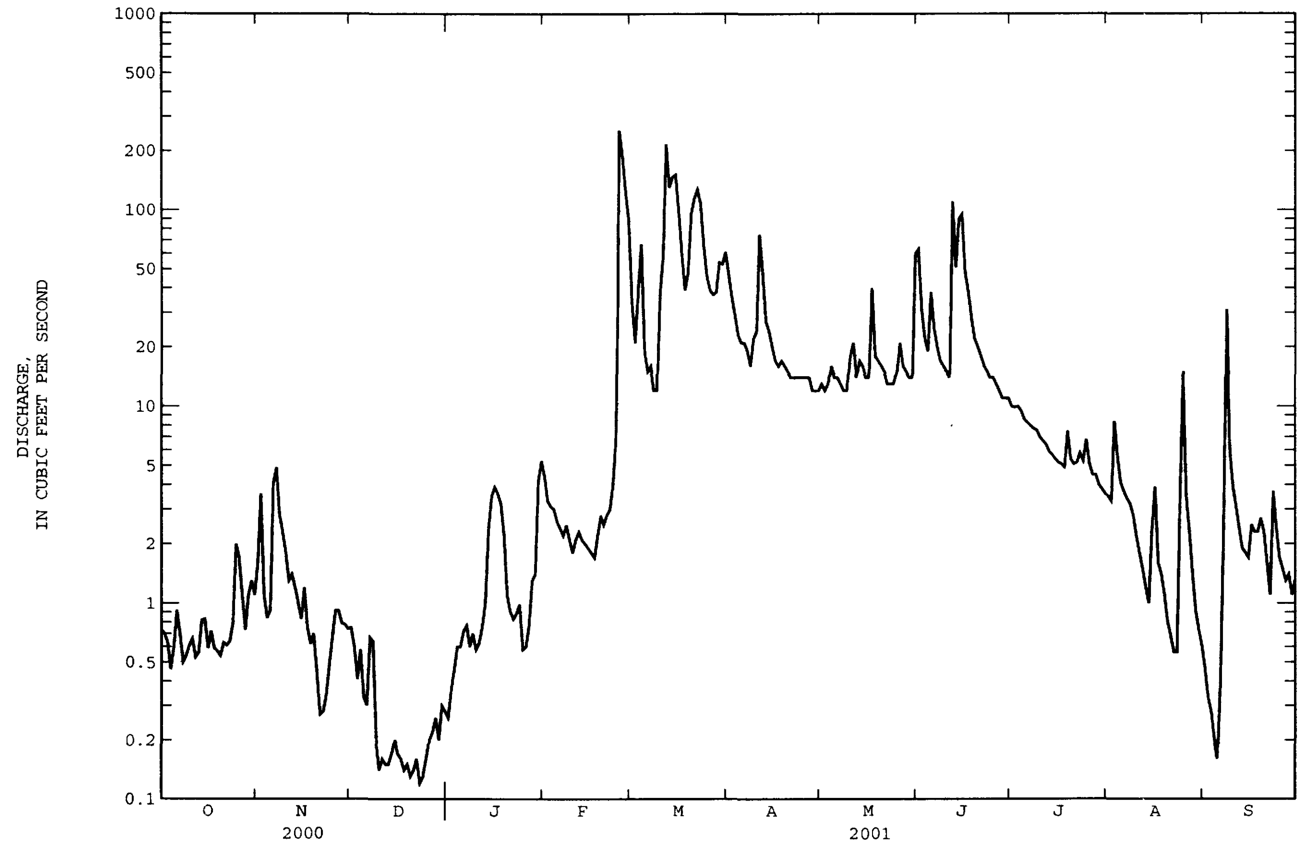
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.08	4.48	3.39	3.64	21.8	20.7	22.0	45.3	36.9	16.7	8.50	2.50
MAX	7.81	13.5	8.41	10.3	58.8	66.3	47.4	86.1	97.8	42.4	31.2	7.02
(WY)	1999	1999	1998	1998	1996	2001	1995	1996	1998	1998	1999	1999
MIN	.21	.49	.27	.98	3.47	3.82	5.62	14.9	15.2	6.40	2.44	.89
(WY)	1995	1995	2001	2000	2000	2000	1996	2000	1995	2001	1997	1997

05487550 WALNUT CREEK NEAR VANDALIA, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1995 - 2001	
ANNUAL TOTAL	2641.09		5380.97			
ANNUAL MEAN	7.22		14.7		15.7	
HIGHEST ANNUAL MEAN					27.5	1998
LOWEST ANNUAL MEAN					7.64	2000
HIGHEST DAILY MEAN	224	May 31	255	Feb 25	573	May 24 1996
LOWEST DAILY MEAN	.12	Dec 23	.12	Dec 23	.10	Dec 7 1994
ANNUAL SEVEN-DAY MINIMUM	.14	Dec 18	.14	Dec 18	.14	Dec 18 2000
MAXIMUM PEAK FLOW			337	Jun 14	1380	Jun 14 1998
MAXIMUM PEAK STAGE			4.74	Jun 14	10.85	Jun 14 1998
INSTANTANEOUS LOW FLOW					.01	Jan 8 1996
ANNUAL RUNOFF (AC-FT)	5240		10670		11360	
ANNUAL RUNOFF (CFSM)	.36		.73		.77	
ANNUAL RUNOFF (INCHES)	4.84		9.86		10.50	
10 PERCENT EXCEEDS	18		38		36	
50 PERCENT EXCEEDS	3.0		3.3		5.9	
90 PERCENT EXCEEDS	.49		.43		.65	

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, 33.5°C Aug. 1, 2001; minimum daily, 0.0°C many days in winter.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,120 mg/L Mar. 30, 1998; minimum daily mean, 4.0 mg/L Feb. 15, 17, 19, 21, 2001.
SEDIMENT LOADS: Maximum daily, 4,600 tons Mar. 30, 1998; minimum daily, 0.01 tons Feb. 2-3, 1996, Dec. 23, 29-31, 2000, Jan. 1, 11, 2001, and Sept. 5, 2001.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 602 microsiemens Jan. 22; minimum daily, 205 microsiemens Feb. 25.
WATER TEMPERATURES: Maximum daily, 33.5°C Aug. 1; minimum daily, 0.0°C many days in winter.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,950 mg/L Mar. 12; minimum daily mean, 4.0 mg/L Feb. 15, 17, 19, 21.
SEDIMENT LOADS: Maximum daily, 1,290 tons Mar. 12; minimum daily, 0.01 tons Dec. 23, Dec. 29 to Jan. 1, Jan. 11, and Sept. 5.

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	485	483	372	---	518	418	392	432	440	504	494	476
2	491	462	405	410	546	411	402	380	450	413	355	478
3	484	478	385	412	523	---	399	318	452	510	364	475
4	420	465	386	374	477	---	415	350	459	503	507	501
5	466	481	400	423	458	398	418	313	405	499	501	456
6	434	515	407	469	453	415	370	439	447	518	493	404
7	416	459	505	424	483	403	289	444	451	496	427	451
8	405	532	400	420	483	424	293	446	454	395	451	341
9	428	572	470	406	---	401	411	451	451	469	489	427
10	415	555	389	473	390	371	419	428	458	506	487	453
11	474	540	397	473	---	339	364	411	462	492	414	475
12	---	---	---	442	433	222	407	431	300	472	475	465
13	417	492	---	458	443	282	413	431	451	370	426	449
14	478	442	386	460	453	265	416	430	444	453	412	416
15	446	487	378	455	468	274	418	434	438	460	424	437
16	457	456	---	572	469	345	364	438	457	445	409	444
17	432	493	---	585	473	412	297	327	471	473	475	434
18	420	461	365	563	477	---	319	420	475	352	497	---
19	485	420	---	553	457	369	355	435	475	391	446	437
20	492	485	358	509	452	330	411	438	481	488	360	419
21	482	518	---	455	479	319	415	440	491	488	323	435
22	479	482	---	602	474	304	414	443	482	425	423	397
23	469	572	---	481	466	340	326	439	487	374	460	452
24	478	532	---	408	405	386	323	438	485	502	407	440
25	502	506	---	425	205	400	419	425	490	465	339	434
26	492	442	371	---	286	415	394	446	497	498	437	460
27	473	465	366	434	348	405	---	456	484	453	487	392
28	438	390	---	441	406	402	430	448	490	401	502	470
29	449	376	---	---	---	381	406	455	504	493	481	431
30	471	381	---	383	---	391	423	448	500	460	486	381
31	426	---	416	466	---	374	---	362	---	484	443	---

05487550 WALNUT CREEK AT VANDALIA, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.2	19.2	.8	---	.0	1.2	3.7	14.6	11.0	21.3	33.5	---
2	20.1	15.3	.0	.0	.0	1.4	11.5	16.7	13.1	17.9	32.4	26.1
3	18.4	10.6	.0	.5	.0	---	4.5	15.5	13.0	23.7	26.3	21.5
4	15.6	11.3	.8	.6	.7	---	12.4	14.8	13.8	25.4	28.2	25.9
5	13.2	10.3	.3	1.7	1.4	.5	10.0	14.7	13.9	24.5	30.5	26.5
6	9.4	9.7	.0	.9	2.1	.9	9.8	14.6	17.2	24.7	32.3	23.9
7	7.1	6.8	1.3	.2	.1	1.6	14.5	15.3	18.4	27.5	32.0	23.1
8	5.6	3.9	.3	.5	.3	.3	13.2	11.6	19.8	23.3	31.4	21.6
9	6.2	3.3	.1	.2	---	.5	12.2	16.0	15.7	27.5	31.0	17.9
10	9.5	3.9	.0	1.8	.0	1.5	9.6	21.8	17.0	24.8	26.9	21.6
11	8.8	1.4	.0	1.4	---	1.1	14.3	---	25.6	26.4	22.8	23.4
12	---	---	---	1.9	1.1	1.7	7.8	17.0	19.0	26.3	27.0	24.3
13	17.7	1.1	---	.6	.0	3.1	13.6	12.5	22.0	26.2	28.8	20.0
14	18.6	3.1	.0	.6	.0	4.4	13.3	19.0	17.8	21.2	24.7	16.0
15	18.4	2.1	.0	.4	.2	2.1	11.3	23.8	19.4	25.8	19.0	19.2
16	13.2	.1	---	.0	.0	3.6	6.9	21.8	17.4	27.2	24.4	15.0
17	12.5	1.6	---	.8	.0	.3	11.9	18.5	20.3	28.1	25.3	19.4
18	14.3	1.2	.0	.5	.4	---	14.1	16.5	22.7	26.9	21.7	---
19	14.4	.1	---	.0	.5	6.3	13.1	20.1	15.3	26.8	19.4	20.1
20	13.8	1.2	.0	.7	.5	7.3	21.4	16.7	18.1	28.4	26.4	20.4
21	18.1	3.1	---	.0	.7	5.4	20.0	14.2	19.2	30.0	27.4	20.7
22	13.3	1.9	---	2.3	.9	8.4	18.7	10.8	20.3	27.5	24.3	14.9
23	17.5	1.4	---	1.1	.4	3.4	11.2	12.4	19.0	27.4	25.2	16.4
24	20.7	.6	---	.1	.4	3.8	6.0	10.1	25.2	28.4	---	15.3
25	20.3	1.4	---	.0	.3	2.1	19.3	12.4	25.1	22.8	---	16.2
26	19.6	.1	.0	---	1.5	4.6	18.3	13.7	25.1	25.7	---	17.4
27	16.3	2.8	.0	.7	1.3	7.0	---	14.4	24.5	23.7	---	19.4
28	13.8	1.5	---	.0	.6	4.2	12.0	17.5	24.0	28.4	---	18.2
29	12.5	.7	---	---	---	5.6	17.0	12.2	24.7	30.2	---	17.6
30	14.8	1.5	---	1.6	---	7.7	15.7	12.4	20.3	31.1	---	16.9
31	16.8	---	.1	1.2	---	8.1	---	10.8	---	33.3	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

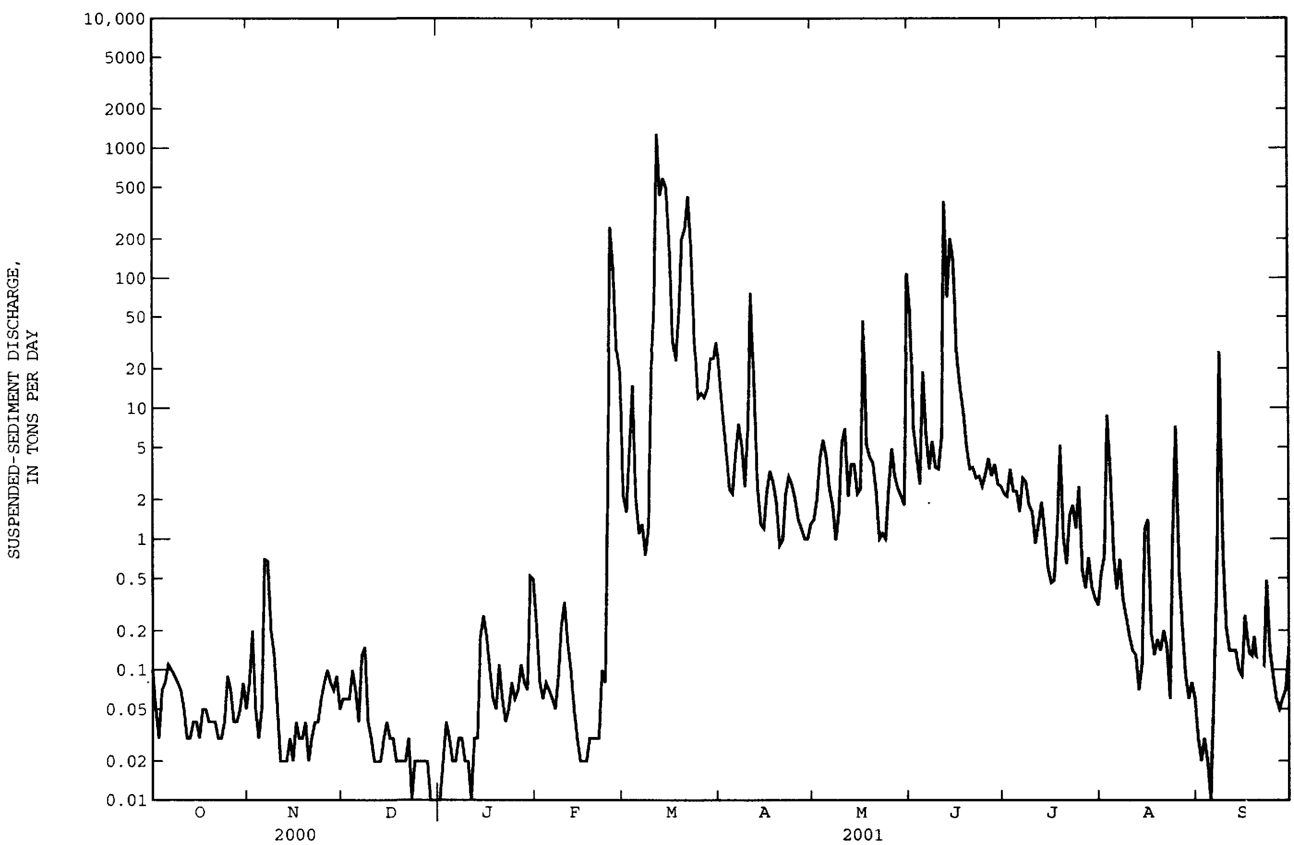
DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	48	.10	17	.08	31	.06	18	.01	17	.21	23	2.1
2	26	.05	20	.20	40	.06	25	.02	9	.08	27	1.6
3	17	.03	16	.05	57	.06	29	.04	7	.06	43	4.7
4	54	.07	14	.03	67	.10	17	.03	9	.08	75	15
5	52	.08	19	.05	80	.07	12	.02	10	.07	39	2.0
6	44	.11	46	.70	53	.04	9	.02	9	.06	26	1.1
7	52	.10	45	.68	60	.13	12	.03	9	.05	31	1.3
8	63	.09	26	.20	88	.15	17	.03	14	.09	23	.75
9	57	.08	20	.13	68	.04	13	.02	39	.22	31	1.2
10	44	.07	10	.05	67	.03	13	.02	67	.33	136	19
11	30	.05	6	.02	57	.02	8	.01	29	.16	291	54
12	24	.03	6	.02	55	.02	13	.03	16	.10	1950	1290
13	19	.03	6	.02	56	.02	11	.03	8	.05	1180	433
14	17	.04	11	.03	58	.03	23	.18	6	.03	1370	587
15	18	.04	11	.02	69	.04	27	.26	4	.02	1190	496
16	22	.03	12	.04	72	.03	17	.18	5	.02	625	182
17	23	.05	16	.03	68	.03	10	.10	4	.02	203	33
18	30	.05	21	.03	53	.02	7	.06	5	.03	216	23
19	29	.04	24	.04	49	.02	10	.05	4	.03	300	52
20	29	.04	19	.02	48	.02	38	.11	5	.03	677	200
21	23	.04	35	.03	51	.02	24	.06	4	.03	764	241
22	21	.03	49	.04	66	.03	19	.04	12	.10	1060	428
23	20	.03	39	.04	46	.01	20	.05	7	.08	519	166
24	17	.04	42	.06	49	.02	29	.08	123	2.3	169	31
25	16	.09	42	.08	47	.02	36	.06	359	248	95	12
26	15	.07	38	.10	42	.02	45	.07	230	119	123	13
27	15	.04	31	.08	38	.02	52	.11	81	28	115	12
28	19	.04	31	.07	22	.02	26	.08	73	19	129	14
29	18	.05	41	.09	14	.01	18	.07	---	---	164	24
30	22	.08	27	.05	11	.01	40	.52	---	---	164	24
31	18	.05	---	---	10	.01	33	.49	---	---	193	32
TOTAL	---	1.74	---	3.08	---	1.18	---	2.88	---	418.25	---	4395.75

05487550 WALNUT CREEK AT VANDALIA, IA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

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	117	16	41	1.4	282	55	80	2.2	59	.55	23	.03
2	85	8.4	61	2.0	83	7.0	79	2.1	83	.73	22	.02
3	57	4.7	119	4.1	69	4.2	126	3.4	312	8.8	39	.03
4	38	2.4	135	5.7	49	2.6	90	2.3	216	3.3	35	.02
5	38	2.2	109	4.3	161	19	100	2.3	67	.74	32	.01
6	78	4.4	65	2.4	92	6.3	73	1.6	41	.41	59	.07
7	149	7.6	51	1.8	64	3.4	134	2.9	76	.70	69	.51
8	117	5.2	30	.98	124	5.6	132	2.7	39	.34	254	27
9	43	2.5	51	1.6	81	3.5	89	1.8	33	.25	49	.85
10	74	7.4	106	5.4	85	3.4	82	1.6	31	.18	19	.21
11	353	77	107	7.0	162	5.9	51	.92	28	.14	17	.14
12	98	15	56	2.1	979	390	78	1.3	33	.13	21	.14
13	33	2.5	73	3.7	482	71	116	1.9	19	.07	27	.14
14	20	1.3	83	3.7	410	202	72	1.1	44	.11	20	.10
15	22	1.2	58	2.2	434	133	41	.60	153	1.2	20	.09
16	52	2.3	67	2.4	182	24	32	.46	114	1.4	36	.26
17	75	3.3	438	47	138	14	34	.48	42	.19	25	.16
18	60	2.7	106	5.2	122	9.2	94	1.2	35	.13	17	.11
19	46	1.9	92	4.2	85	5.0	236	5.2	57	.17	25	.18
20	22	.89	88	3.8	63	3.4	69	1.0	67	.14	16	.10
21	26	.99	54	2.3	69	3.5	46	.64	108	.20	19	.08
22	57	2.2	30	1.0	67	2.9	96	1.5	91	.15	30	.09
23	76	3.0	31	1.1	75	3.0	116	1.8	43	.06	46	.48
24	67	2.6	30	1.0	66	2.5	78	1.2	46	1.2	21	.14
25	51	2.0	55	2.4	83	3.1	126	2.5	165	7.3	19	.09
26	36	1.4	88	4.9	120	4.1	41	.57	59	.58	15	.06
27	32	1.2	68	3.0	91	3.0	35	.42	32	.20	13	.05
28	31	1.0	60	2.4	120	3.7	59	.72	22	.09	17	.06
29	32	1.0	53	2.1	85	2.6	39	.43	23	.06	23	.07
30	39	1.3	46	1.8	88	2.5	35	.35	39	.08	44	.15
31	---	---	423	109	---	---	32	.31	36	.06	---	---
TOTAL	---	185.58	---	241.98	---	998.4	---	47.50	---	29.66	---	31.44

YEAR 6357.44



05487550 WALNUT CREEK AT VANDALIA, IA--Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Tipping bucket rain gage.

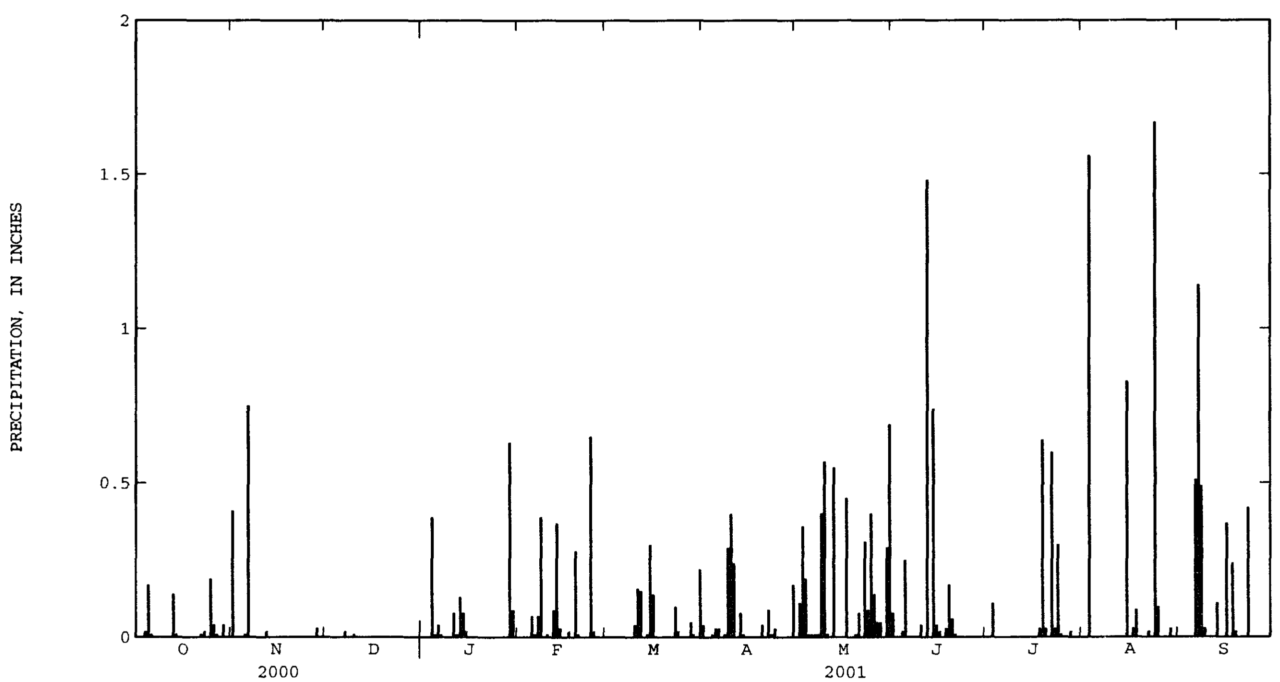
REMARKS.--Records good except for the winter period, which is poor due to intermittent snow accumulation and subsequent melting.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily accumulation, 4.72 in., May 9, 1996.

EXTREMES FOR CURRENT YEAR.--Maximum daily accumulation, 1.67 in., Aug. 24.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.41	.00	.00	.00	.00	.04	.00	.08	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.36	.00	.11	1.56	.00
4	.02	.00	.00	.39	.00	.00	.01	.19	.02	.00	.00	.00
5	.17	.01	.00	.01	.07	.00	.03	.01	.25	.00	.00	.00
6	.01	.75	.00	.04	.01	.00	.03	.01	.00	.00	.00	.51
7	.00	.00	.02	.01	.07	.00	.00	.01	.00	.00	.00	1.14
8	.00	.00	.00	.00	.39	.00	.01	.01	.00	.00	.00	.49
9	.00	.00	.00	.00	.00	.00	.29	.40	.00	.00	.00	.03
10	.00	.00	.01	.00	.01	.04	.40	.57	.04	.00	.00	.00
11	.00	.00	.00	.08	.00	.16	.24	.01	.00	.00	.00	.00
12	.00	.02	.00	.01	.09	.15	.00	.00	1.48	.00	.00	.00
13	.14	.00	.00	.13	.37	.00	.08	.55	.00	.00	.00	.11
14	.01	.00	.00	.08	.03	.01	.01	.00	.74	.00	.00	.00
15	.00	.00	.00	.02	.00	.30	.00	.00	.04	.00	.83	.00
16	.00	.00	.00	.00	.00	.14	.00	.00	.02	.00	.00	.37
17	.00	.00	.00	.00	.02	.00	.00	.45	.00	.00	.03	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.03	.03	.03	.24
19	.00	.00	.00	.00	.28	.00	.00	.00	.17	.64	.00	.02
20	.00	.00	.00	.00	.01	.00	.04	.01	.06	.03	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.08	.01	.00	.00	.00
22	.01	.00	.00	.00	.00	.00	.09	.00	.00	.60	.02	.00
23	.02	.00	.00	.00	.00	.10	.01	.31	.00	.03	.0[illegible]	.42
24	.00	.00	.00	.00	.65	.02	.03	.09	.00	.30	1.67	.00
25	.19	.00	.00	.00	.02	.00	.00	.40	.00	.01	.10	.00
26	.04	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00
27	.01	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00
28	.00	.03	.00	.00	.00	.05	.00	.05	.00	.02	.00	.00
29	.04	.00	.00	.63	---	.01	.00	.00	.00	.00	.03	.00
30	.00	.00	.00	.09	---	.00	.17	.29	.00	.00	.00	.00
31	.00	---	.00	.00	---	.22	---	.69	---	.00	.00	---
TOTAL	0.66	1.22	0.03	1.49	2.02	1.20	1.48	4.79	2.94	1.77	4.33	3.33
MEAN	.02	.04	.00	.05	.07	.04	.05	.15	.10	.06	.14	.11
MAX	.19	.75	.02	.63	.65	.30	.40	.69	1.48	.64	1.67	1.14
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 NW 1/4 NW 1/4 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	4.8	e5.0	e3.7	e60	e600	339	87	3830	e58	6.2	3.9
2	3.0	10	e3.6	e3.7	e44	e650	276	89	1650	e44	6.9	3.9
3	2.8	12	e5.0	e4.0	e34	e850	232	106	771	e39	326	3.6
4	8.0	21	e6.5	e4.5	e27	e950	203	362	659	84	181	3.4
5	5.9	11	e5.5	e5.1	e29	e950	187	796	1720	190	51	3.1
6	5.1	12	e6.0	e5.6	e32	e700	181	276	2740	67	29	4.5
7	4.1	23	e6.5	e5.4	e40	e320	173	300	951	38	19	12
8	4.2	18	e6.0	e5.7	e50	e270	153	235	717	29	15	473
9	3.8	21	e5.0	e5.2	e110	e240	987	140	607	25	12	387
10	3.5	13	e4.5	e5.8	e160	377	1230	610	512	21	9.5	78
11	3.5	9.6	e3.8	e7.0	e120	812	1270	4050	423	18	8.4	36
12	3.3	7.6	e3.4	e9.4	e100	2060	1960	870	353	16	7.8	23
13	3.1	6.6	e3.0	e15	e85	2070	511	2750	302	14	7.3	17
14	3.4	6.0	e3.7	e26	e70	1700	307	3680	443	12	6.6	14
15	3.4	6.6	e4.1	e55	e55	2950	688	802	1940	11	7.4	12
16	3.4	5.3	e4.8	e65	e50	2230	602	335	872	9.7	9.6	13
17	3.1	5.6	e4.4	e55	e40	969	279	296	496	9.3	8.0	16
18	3.0	6.1	e4.0	e46	e32	701	208	361	435	11	7.9	15
19	2.8	4.9	e3.7	e38	e28	726	181	222	551	22	7.2	30
20	2.7	e4.6	e3.9	e30	e34	1440	175	151	594	13	6.5	235
21	2.7	e4.2	e3.7	e20	e41	2220	156	124	1320	12	5.5	656
22	2.6	e3.8	e3.4	e16	e40	2380	141	96	971	16	5.9	79
23	2.9	e3.6	e3.6	e16	e42	1990	137	86	543	14	5.4	65
24	3.1	e3.5	e3.7	e15	e180	984	120	88	341	12	5.4	40
25	4.9	e4.0	e3.4	e14	e1100	509	109	120	270	97	23	47
26	5.4	e4.7	e3.6	e15	e1200	335	100	154	190	23	17	31
27	3.6	5.9	e3.5	e14	e750	274	91	128	140	13	8.6	22
28	3.9	6.4	e4.0	e14	e650	261	84	93	e92	13	6.1	17
29	3.8	6.0	e4.6	e17	---	274	77	71	e80	11	5.3	15
30	3.4	e5.5	e4.3	e46	---	282	73	283	e71	8.9	4.9	13
31	4.9	---	e4.0	e55	---	336	---	4020	---	7.1	4.0	---
TOTAL	116.6	256.3	134.2	637.1	5203	31410	11230	21781	24584	958.0	823.4	2368.4
MEAN	3.76	8.54	4.33	20.6	186	1013	374	703	819	30.9	26.6	78.9
MAX	8.0	23	6.5	65	1200	2950	1960	4050	3830	190	326	656
MIN	2.6	3.5	3.0	3.7	27	240	73	71	71	7.1	4.0	3.1
AC-FT	231	508	266	1260	10320	62300	22270	43200	48760	1900	1630	4700
CFSM	.01	.02	.01	.06	.54	2.96	1.09	2.05	2.40	.09	.08	.23
IN.	.01	.03	.01	.07	.57	3.42	1.22	2.37	2.67	.10	.09	.26

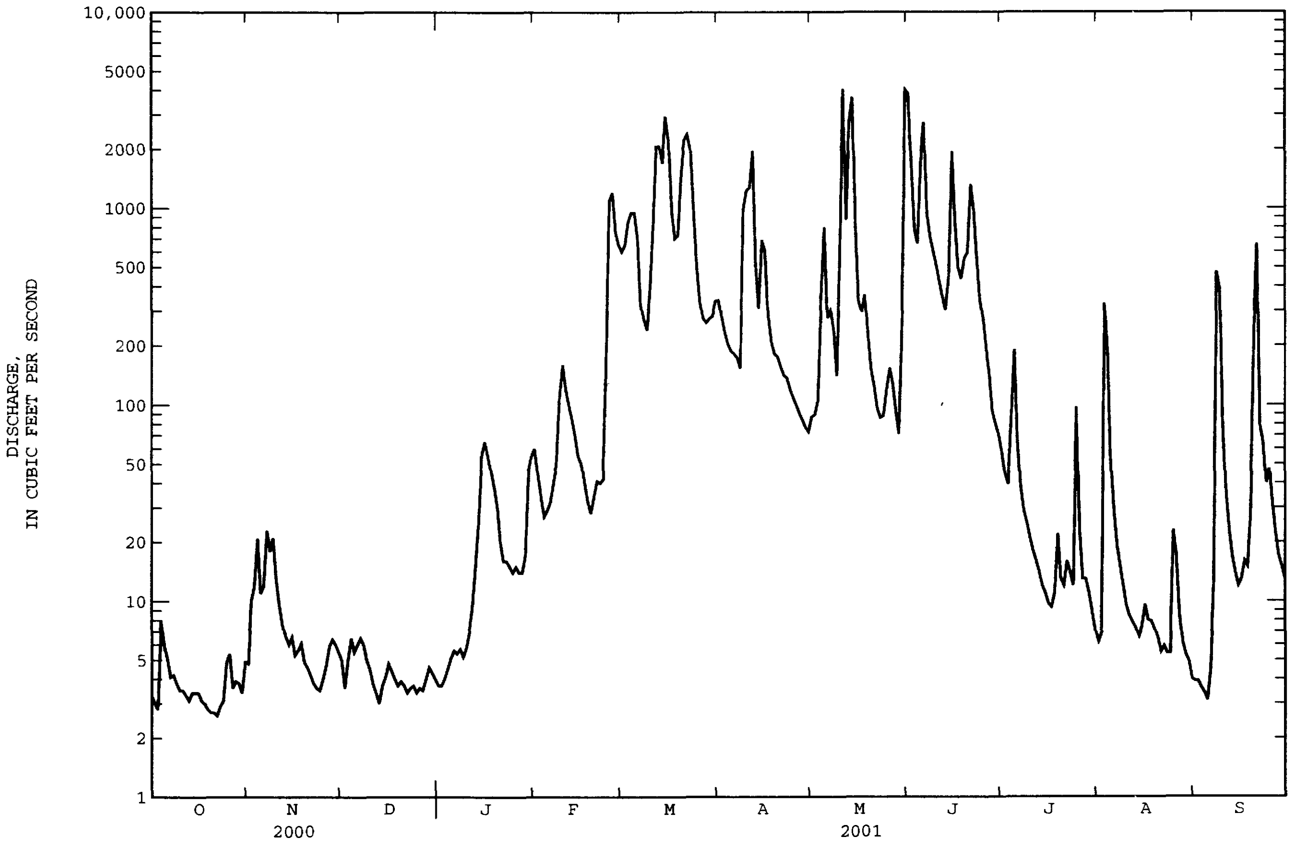
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	117	112	107	64.0	170	354	453	403	296	282	118	182
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1963 - 2001	
ANNUAL TOTAL	22496.7		99502.0			
ANNUAL MEAN	61.5		273		222	
HIGHEST ANNUAL MEAN					816	1993
LOWEST ANNUAL MEAN					17.1	1989
HIGHEST DAILY MEAN	4180	Jun 26	4050	May 11	24700	Sep 16 1992
LOWEST DAILY MEAN	2.5	Sep 15	2.6	Oct 22	.02	Oct 14 1989
ANNUAL SEVEN-DAY MINIMUM	2.6	Sep 13	2.8	Oct 17	.05	Aug 9 1989
MAXIMUM PEAK FLOW			7880	May 13	37300	Jul 16 1982
MAXIMUM PEAK STAGE			20.22	May 13	33.45	Jul 16 1982
INSTANTANEOUS LOW FLOW			2.5	Oct 21a		
ANNUAL RUNOFF (AC-FT)	44620		197400		160500	
ANNUAL RUNOFF (CFSM)	.18		.80		.65	
ANNUAL RUNOFF (INCHES)	2.45		10.82		8.80	
10 PERCENT EXCEEDS	49		798		446	
50 PERCENT EXCEEDS	9.6		27		35	
90 PERCENT EXCEEDS	3.6		3.7		2.7	

a Also Oct. 22, 23, and Nov. 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. Prior to October 1, 2000 published as contents in acre feet, and as elevation in feet NGVD thereafter.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

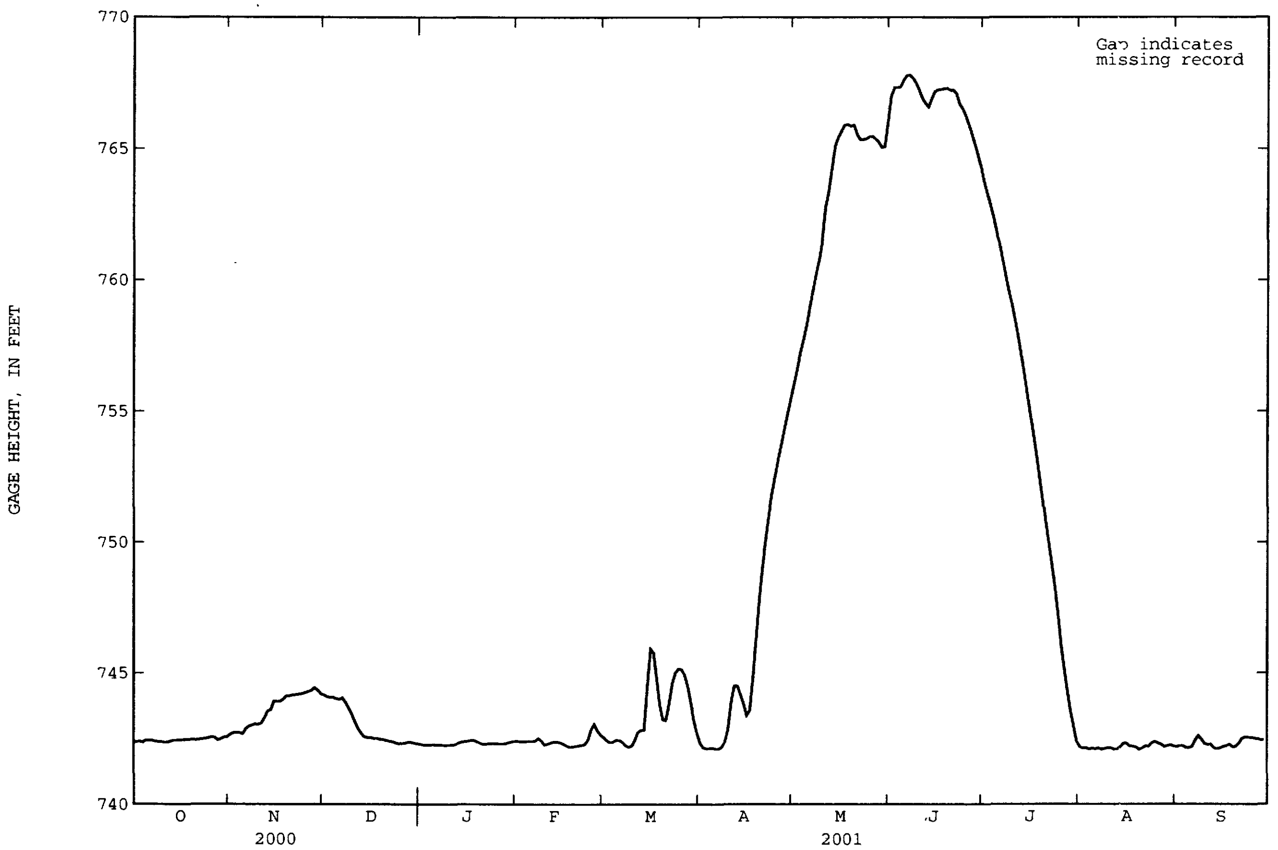
EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 782.67 ft July 13, 1993; minimum elevation, 719.68 ft Feb. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 767.81 ft June 7; minimum elevation, 742.05 ft Aug. 21.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY OBSERVATION AT 0600 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	742.34	742.56	744.18	742.31	742.40	742.62	742.61	755.62	766.33	764.18	742.24	742.20
2	742.38	742.69	744.16	742.28	742.41	742.54	742.24	756.16	767.22	763.58	742.16	742.17
3	742.37	742.73	744.08	742.26	742.38	742.40	742.13	756.72	767.35	763.19	742.12	742.24
4	742.40	742.73	744.07	742.25	742.39	742.35	742.12	757.42	767.31	762.75	742.15	742.22
5	742.34	742.72	744.08	742.26	742.39	742.38	742.13	757.85	767.36	762.29	742.07	742.13
6	742.47	742.66	744.00	742.28	742.40	742.47	742.14	758.43	767.68	761.72	742.15	742.15
7	742.42	742.95	744.00	742.26	742.40	742.43	742.11	759.19	767.81	761.15	742.08	742.21
8	742.43	742.98	744.07	742.25	742.42	742.36	742.10	759.78	767.78	760.54	742.15	742.52
9	742.38	743.02	743.81	742.26	742.55	742.21	742.21	760.43	767.63	759.91	742.06	742.64
10	742.38	743.07	743.62	742.24	742.38	742.17	742.45	760.95	767.43	759.40	742.13	742.41
11	742.37	743.03	743.36	742.25	742.22	742.24	742.97	761.78	767.16	758.90	742.14	742.26
12	742.35	743.11	743.07	742.27	742.32	742.49	744.15	763.08	766.84	758.29	742.14	742.27
13	742.36	743.36	742.82	742.27	742.35	742.83	744.63	763.45	766.68	757.64	742.07	742.28
14	742.41	743.61	742.68	742.33	742.39	742.82	744.48	764.50	766.54	756.92	742.10	742.09
15	742.44	743.59	742.53	742.37	742.37	742.84	744.08	765.30	767.02	756.19	742.20	742.11
16	742.43	744.04	742.55	742.39	742.35	745.04	743.74	765.49	767.22	755.42	742.35	742.15
17	742.44	743.87	742.54	742.40	742.29	746.23	743.26	765.72	767.24	754.67	742.31	742.21
18	742.45	743.93	742.50	742.43	742.22	745.63	743.67	765.96	767.25	753.95	742.17	742.22
19	742.45	744.01	742.52	742.45	742.17	744.54	745.21	765.90	767.29	753.14	742.21	742.30
20	742.46	744.16	742.46	742.38	742.20	743.57	746.76	765.84	767.29	752.28	742.16	742.14
21	742.47	744.12	742.47	742.33	742.22	743.12	748.20	765.92	767.19	751.39	742.05	742.21
22	742.44	744.17	742.42	742.28	742.24	743.23	749.33	765.42	767.23	750.50	742.16	742.34
23	742.47	744.17	742.40	742.29	742.26	744.01	750.45	765.32	767.02	749.72	742.22	742.55
24	742.49	744.20	742.38	742.31	742.29	744.78	751.32	765.36	766.57	748.88	742.19	742.55
25	742.50	744.21	742.33	742.31	742.51	745.09	752.02	765.38	766.48	748.01	742.37	742.54
26	742.53	744.26	742.30	742.31	742.96	745.19	752.67	765.49	766.15	746.93	742.38	742.53
27	742.57	744.30	742.32	742.31	743.09	745.13	753.33	765.46	765.81	745.76	742.31	742.51
28	742.54	744.34	742.33	742.29	742.72	744.87	753.86	765.34	765.44	744.96	742.27	742.47
29	742.41	744.48	742.37	742.30	---	744.38	754.49	765.23	765.04	744.11	742.16	742.43
30	742.51	744.32	742.36	742.34	---	743.75	755.04	764.99	764.61	743.37	742.24	742.45
31	742.56	---	742.32	742.38	---	743.01	---	765.10	---	742.85	742.26	---
MEAN	742.44	743.58	743.00	742.31	742.40	743.51	746.20	762.86	766.87	754.60	742.19	742.32
MAX	742.57	744.48	744.18	742.45	743.09	746.23	755.04	765.96	767.81	764.18	742.38	742.64
MIN	742.34	742.56	742.30	742.24	742.17	742.17	742.10	755.62	764.61	742.85	742.05	742.09

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. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	278	314	2290	e630	733	3800	24500	5990	14500	22900	7460	1610
2	270	302	2300	e630	847	3780	22900	5950	19200	22900	4190	1190
3	273	300	1800	629	836	3270	21300	5860	22300	22800	5460	1210
4	271	303	1390	578	821	2900	20700	10900	20800	22700	5710	1540
5	263	320	1360	509	827	2910	20400	16300	18100	22800	3990	1360
6	252	320	1050	526	823	3560	20300	16200	19000	22900	4740	1160
7	254	294	1010	510	833	3630	20200	16100	21500	22800	4650	1160
8	257	292	1900	517	831	4020	19700	16300	23000	22700	5320	3240
9	257	285	2870	522	1650	3300	19600	16400	23000	20800	3690	5450
10	251	290	2820	526	2160	2720	21000	16400	22900	18600	2850	4790
11	255	302	2900	526	1200	2730	22500	9780	23100	18800	2850	2550
12	259	292	e2000	523	944	4820	24100	12600	23100	18600	2850	1860
13	261	293	e1500	538	1170	9940	27700	16600	23100	18700	2050	1860
14	250	298	e1100	624	1180	16100	29300	14600	22300	18500	1310	1490
15	248	317	e790	797	1210	15300	29100	18500	16800	18400	1150	1060
16	269	295	688	870	1190	13200	28900	22000	21900	18400	1770	970
17	311	301	e900	882	1230	23500	23500	21100	22800	18500	2620	1400
18	310	304	888	882	1200	27400	11400	21400	22900	18500	2360	1730
19	312	297	e900	1020	856	26000	5680	21400	21900	18500	2160	2150
20	311	444	e880	1050	627	25500	5740	20200	21400	18500	2180	1920
21	313	519	e830	981	635	27200	5750	21200	19800	18300	1680	1020
22	314	438	e820	777	641	26100	5850	23000	21700	17300	1380	331
23	307	442	811	617	652	25700	5830	23000	22400	16600	1500	731
24	309	442	821	e620	784	28200	5860	23000	22400	16400	1670	1110
25	311	e500	854	634	2390	29100	5900	23000	22500	17100	2020	1120
26	306	e630	580	626	5460	29200	5930	23100	22600	18400	2190	1120
27	300	820	433	627	7540	29100	6030	23100	22600	18300	2190	1130
28	317	821	432	637	5590	29100	6050	23000	22500	18300	2420	1130
29	331	1710	517	643	---	28900	5950	23100	22800	16000	1970	875
30	312	2290	616	627	---	28700	5950	23000	23000	12300	1540	672
31	308	---	626	616	---	26700	---	18500	---	10300	1650	---
TOTAL	8840	14775	38676	20694	44860	506380	477620	551580	645900	586600	89570	48939
MEAN	285	492	1248	668	1602	16330	15920	17790	21530	18920	2889	1631
MAX	331	2290	2900	1050	7540	29200	29300	23100	23100	22900	7460	5450
MIN	248	285	432	509	627	2720	5680	5860	14500	10300	1150	331
AC-FT	17530	29310	76710	41050	88980	1004000	947400	1094000	1281000	1164000	177700	97070
CFSM	.02	.04	.10	.05	.13	1.32	1.29	1.44	1.75	1.53	.23	.13
IN.	.03	.04	.12	.06	.14	1.53	1.44	1.66	1.95	1.77	.27	.15

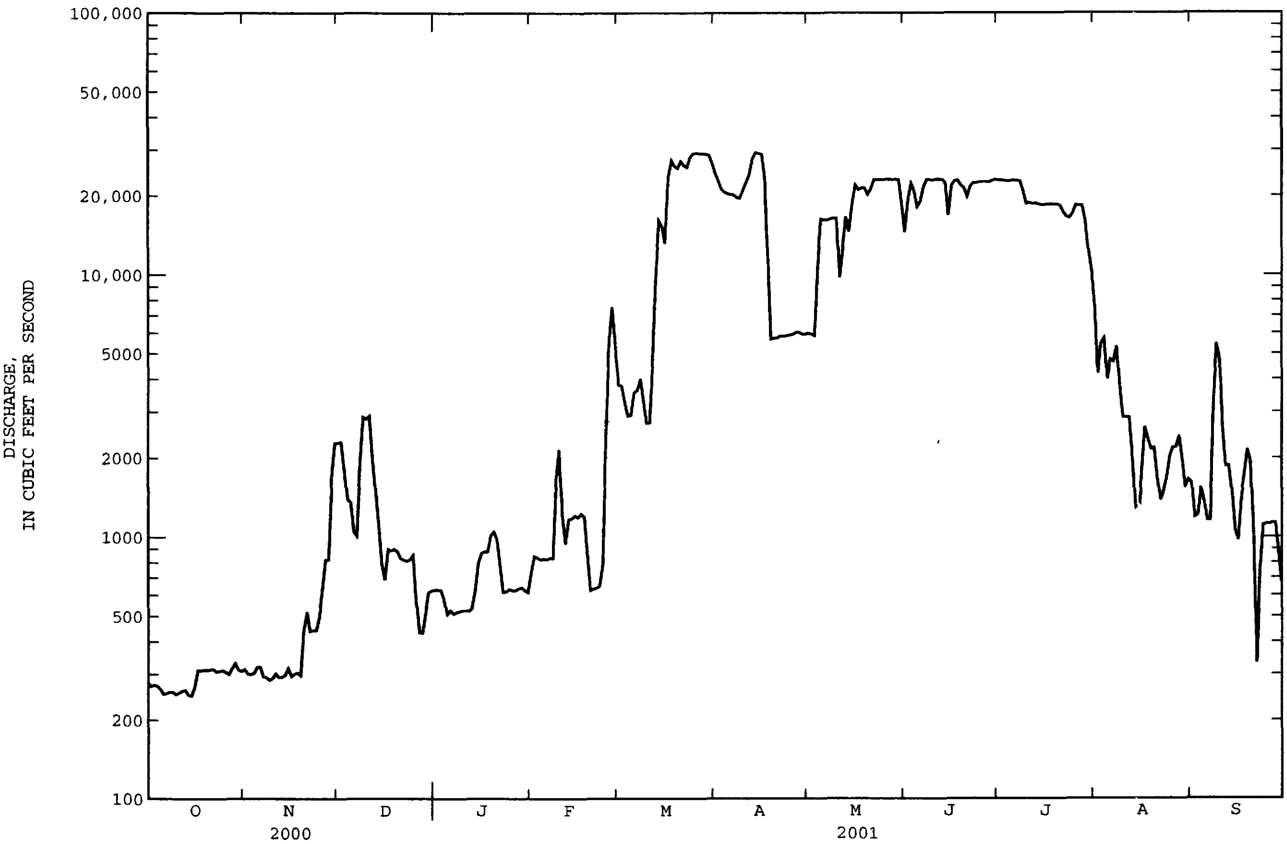
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3210	3763	3956	1938	4107	9628	13760	14460	16930	22080	9667	4867
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	285	327	654	642	824	930	916	1105	5516	7039	1498	451
(WY)	2001	2000	2000	2000	2000	2000	2000	2000	2000	1997	2000	2000

05488110 DES MOINES RIVER NEAR PELLA, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1993 - 2001	
ANNUAL TOTAL	654006		3034434			
ANNUAL MEAN	1787		8314		9060	
HIGHEST ANNUAL MEAN					24360	1993
LOWEST ANNUAL MEAN					1731	2000
HIGHEST DAILY MEAN	13400	Jul 8	29300	Apr 14	104000	Jul 12 1993
LOWEST DAILY MEAN	248	Oct 15	248	Oct 15	248	Oct 15 2000
ANNUAL SEVEN-DAY MINIMUM	254	Oct 9	254	Oct 9	254	Oct 9 2000
MAXIMUM PEAK FLOW			29500	Apr 14	105000	Jul 12 1993
MAXIMUM PEAK STAGE			96.37	Apr 14	109.71	Jul 12 1993
ANNUAL RUNOFF (AC-FT)	1297000		6019000		6564000	
ANNUAL RUNOFF (CFSM)	.14		.67		.73	
ANNUAL RUNOFF (INCHES)	1.97		9.15		9.98	
10 PERCENT EXCEEDS	5220		23000		21800	
50 PERCENT EXCEEDS	770		2190		4490	
90 PERCENT EXCEEDS	298		310		654	

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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.37	2.2	2.1	e1.5	e70	296	59	18	756	13	1.5	e.75
2	.35	4.3	2.2	e1.5	e31	212	45	20	242	10	1.4	e.73
3	.35	2.3	2.2	e1.7	e16	297	37	21	116	9.5	71	e.67
4	1.4	2.3	2.1	e1.8	e15	472	30	81	84	13	147	e.59
5	3.0	1.7	e1.7	e1.9	e16	386	27	61	143	11	31	e.53
6	1.7	6.6	2.0	e2.2	e18	280	28	46	259	7.1	13	e.66
7	.83	17	2.0	e2.1	e22	262	28	36	109	5.6	5.4	e2.6
8	.61	10	2.1	e2.2	e25	196	23	26	69	4.9	3.2	e22
9	.54	4.1	1.9	e1.8	e190	136	145	21	56	4.4	2.3	e7.0
10	.52	2.9	e1.7	e2.0	e220	260	378	49	47	4.3	1.5	e2.6
11	.48	2.2	e1.5	e2.4	e170	489	500	866	40	3.6	1.4	1.2
12	.46	2.0	e1.3	e3.1	e130	797	394	464	34	3.0	1.3	.58
13	.43	1.9	e1.1	e5.0	e90	900	131	207	29	2.6	1.1	.41
14	.44	1.8	e1.3	e23	e50	614	85	631	160	2.4	1.0	.34
15	.44	1.8	e1.6	e80	e35	739	190	159	647	2.1	1.2	.32
16	.43	1.7	e1.8	e85	e30	685	118	80	148	1.9	1.5	.34
17	.47	1.6	e1.6	e55	e22	245	69	84	70	1.9	e1.3	.33
18	.51	1.5	e1.5	e35	e17	175	56	93	57	1.8	e1.3	.42
19	.69	1.5	e1.4	e18	e16	190	54	58	57	2.0	e1.2	.55
20	.90	1.4	e1.5	e10	e23	340	58	44	75	2.1	e1.1	.71
21	1.2	1.3	e1.4	e6.0	e24	561	58	42	227	3.0	e1.0	236
22	1.2	1.2	e1.3	e5.0	e22	616	53	35	149	2.7	e.97	51
23	1.5	1.2	e1.4	e6.5	e19	375	51	31	69	2.3	e.90	23
24	1.6	1.2	e1.4	e5.5	200	211	e42	31	46	2.4	e.90	8.1
25	1.8	1.3	e1.2	e5.2	1300	103	e35	35	35	5.3	e5.3	2.7
26	2.0	1.4	e1.5	e6.0	1350	60	e30	67	28	3.6	e3.4	1.4
27	1.2	1.6	e1.4	e6.3	621	52	e27	62	24	5.0	e1.3	e1.0
28	1.2	1.7	e1.6	e7.0	385	47	e25	43	22	3.3	e1.1	e.90
29	1.3	1.8	e1.8	e9.5	---	50	e23	35	20	2.4	e1.0	e.85
30	1.3	1.8	e1.7	e25	---	52	e20	70	16	1.9	e.89	e.80
31	1.2	---	e1.6	e65	---	55	---	710	---	1.9	e.80	---
TOTAL	30.42	85.3	50.9	482.2	5127	10153	2819	4226	3834	140.0	307.26	369.08
MEAN	.98	2.84	1.64	15.6	183	328	94.0	136	128	4.52	9.91	12.3
MAX	3.0	17	2.2	85	1350	900	500	866	756	13	147	236
MIN	.35	1.2	1.1	1.5	15	47	20	18	16	1.8	.80	.32
AC-FT	60	169	101	956	10170	20140	5590	8380	7600	278	609	732
CFSM	.01	.03	.02	.17	2.03	3.64	1.04	1.51	1.42	.05	.11	.14
IN.	.01	.04	.02	.20	2.12	4.19	1.16	1.74	1.58	.06	.13	.15

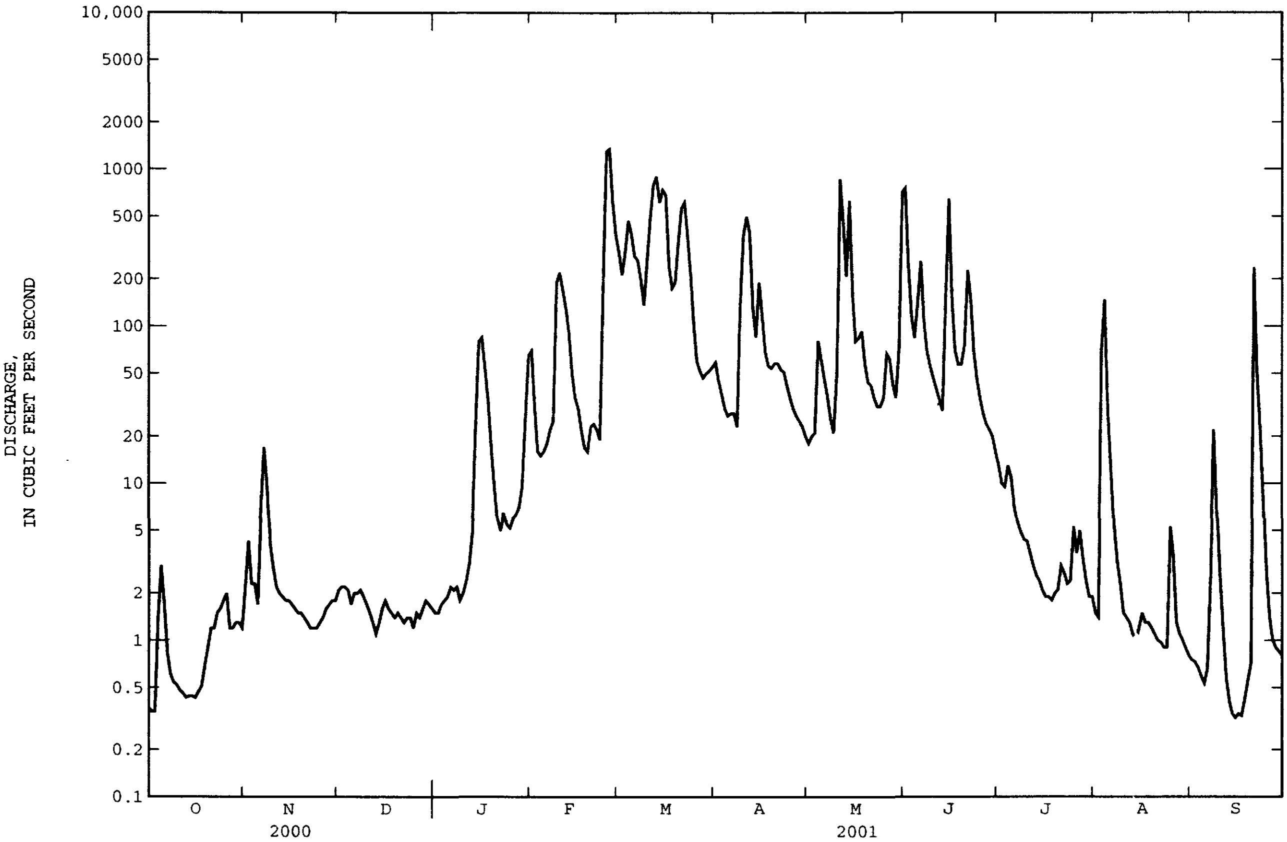
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	25.4	23.2	23.8	14.8	51.0	108	121	141	99.4	89.4	30.9	34.4
MAX	161	100	112	51.8	183	335	476	514	260	1039	285	159
(WY)	1987	1993	1993	1998	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1985 - 2001	
ANNUAL TOTAL	11210.39		27624.16			
ANNUAL MEAN	30.6		75.7		64.2	
HIGHEST ANNUAL MEAN					214	1993
LOWEST ANNUAL MEAN					6.71	1989
HIGHEST DAILY MEAN	1660	Jun 25	1350	Feb 26	8610	Jul 5 1993
LOWEST DAILY MEAN	.25	Sep 13	.32	Sep 15	.00	Sep 12 1988a
ANNUAL SEVEN-DAY MINIMUM	.29	Sep 12	.39	Sep 13	.00	Sep 25 1991
MAXIMUM PEAK FLOW			1840	Feb 26	18900	Jul 5 1993
MAXIMUM PEAK STAGE			20.28	Feb 26	27.88	Jul 5 1993
INSTANTANEOUS LOW FLOW			.29	Sep 14		
ANNUAL RUNOFF (AC-FT)	22240		54790		46550	
ANNUAL RUNOFF (CFSM)	.34		.84		.71	
ANNUAL RUNOFF (INCHES)	4.63		11.41		9.69	
10 PERCENT EXCEEDS	23		215		107	
50 PERCENT EXCEEDS	2.0		6.0		9.5	
90 PERCENT EXCEEDS	.70		.90		.40	

a Also Aug. 8-13, Sept. 13-17, 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 NW$^1/_4$ SE$^1/_4$ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	286	392	2630	e640	737	3960	25500	5910	17100	23700	8710	1640
2	286	430	2640	e640	e870	3890	24200	5910	20200	23700	4200	1360
3	290	386	2230	e640	e880	3580	22300	5820	22800	23600	5180	1060
4	314	376	1540	e600	893	3220	21600	9580	22200	23500	6240	1490
5	313	374	1660	e540	867	3240	21300	16900	19400	23500	4240	1410
6	314	409	1150	e540	867	3550	21300	16800	20700	23600	4500	1150
7	304	420	1100	e540	871	4140	21100	16700	22100	23500	4660	1150
8	293	402	1660	e550	892	4140	20700	16700	23700	23400	5490	2600
9	286	394	3220	e550	1670	3640	20800	16800	23600	21900	4150	5180
10	277	377	3330	563	2810	2940	22100	17000	23500	19300	2980	5240
11	268	374	e3000	543	1840	3080	24400	13200	23600	19500	2970	2740
12	267	377	e2300	543	992	4720	25400	12900	23600	19200	2960	1830
13	268	369	e1700	545	1320	9920	28000	17600	23700	19300	2430	1810
14	268	365	e1200	621	1320	15900	29800	16200	23900	19100	1490	1590
15	267	364	e1000	850	1350	19000	29900	18500	20300	19000	1280	1080
16	268	368	e800	e920	1350	14800	29800	22400	22500	19000	1570	947
17	364	360	e970	e970	1450	23000	25900	22300	23600	19100	2640	1170
18	373	366	e950	986	1320	27500	13800	21900	23600	19100	2520	1680
19	364	367	e950	1150	1090	26700	5790	22300	23300	19100	2220	1980
20	367	e460	e940	e1200	710	26300	5780	20900	22300	19100	2230	2090
21	364	e610	e920	1060	695	28800	5830	21400	22200	19000	1910	1430
22	369	e560	e890	928	696	28100	5840	23600	22700	18200	1460	557
23	384	543	e880	663	690	26800	5870	23500	23200	17200	1510	587
24	365	543	e870	650	923	28600	5870	23500	23000	17100	1670	1100
25	377	543	e840	e650	2710	29500	5900	23600	23200	17400	1980	1100
26	371	678	e700	650	6020	29500	5900	23700	23500	19000	2210	1090
27	367	966	e490	650	7920	29500	5970	23700	23500	18900	2210	1090
28	365	972	e480	647	6330	29400	6050	23600	23400	18900	2360	1080
29	369	1640	e550	657	---	29400	5910	23600	23600	17100	2190	959
30	379	2600	e630	669	---	29200	5910	23600	23800	13400	1550	672
31	366	---	e640	669	---	27900	---	22100	---	10700	1590	---
TOTAL	10113	17385	42860	22024	50083	523920	498520	572220	677800	608100	93300	48862
MEAN	326	580	1383	710	1789	16900	16620	18460	22590	19620	3010	1629
MAX	384	2600	3330	1200	7920	29500	29900	23700	23900	23700	8710	5240
MIN	267	360	480	540	690	2940	5780	5820	17100	10700	1280	557
AC-FT	20060	34480	85010	43680	99340	1039000	988800	1135000	1344000	1206000	185100	96920
CFSM	.03	.05	.11	.06	.14	1.35	1.33	1.48	1.81	1.57	.24	.13
IN.	.03	.05	.13	.07	.15	1.56	1.49	1.71	2.02	1.81	.28	.15

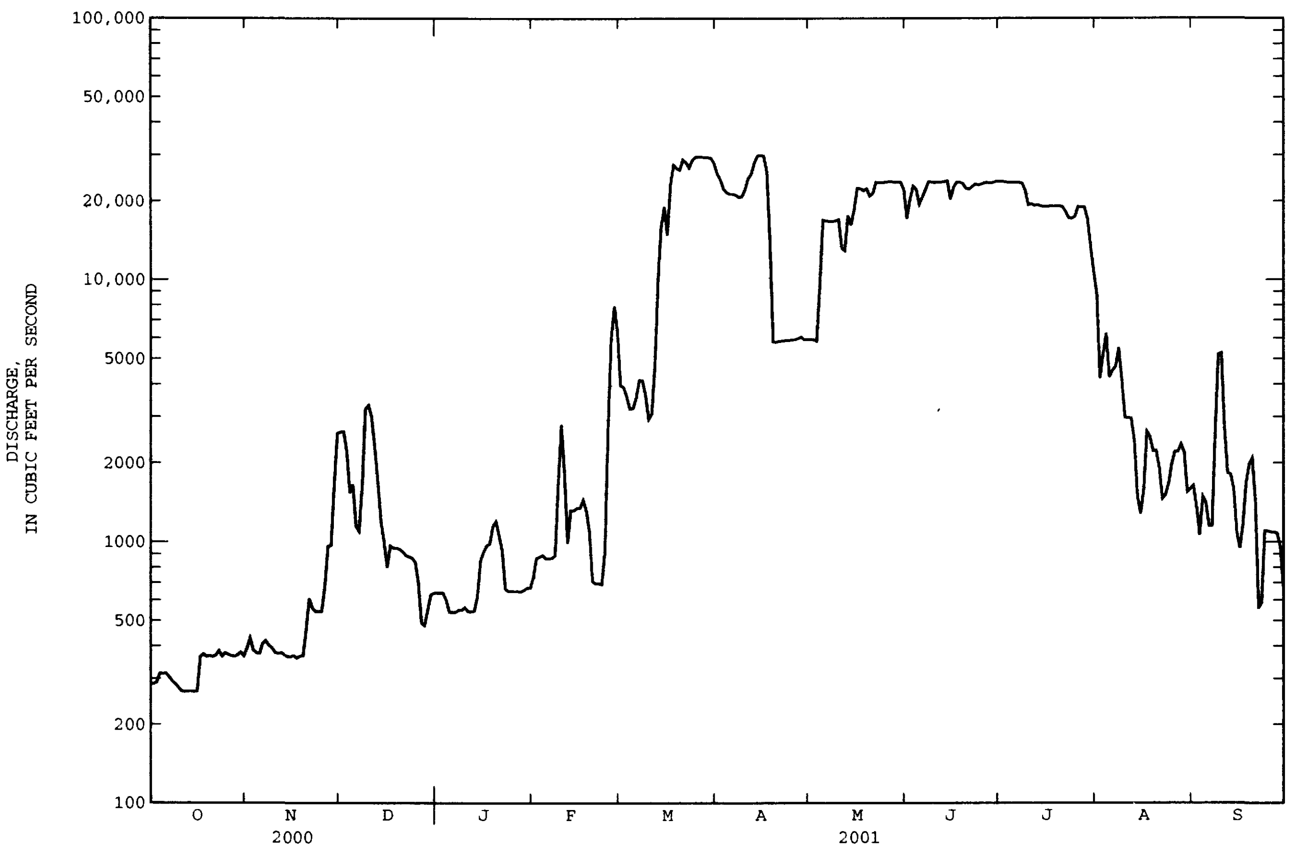
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3538	4531	3819	2528	4388	9386	12120	12060	13480	14030	7886	4195
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1970 - 2001a	
ANNUAL TOTAL	729095		3165187			
ANNUAL MEAN	1992		8672		7678	
HIGHEST ANNUAL MEAN					24450	1993
LOWEST ANNUAL MEAN					898	1977
HIGHEST DAILY MEAN	15000	Jun 15	29900	Apr 15	107000	Jul 12 1993
LOWEST DAILY MEAN	267	Oct 12b	267	Oct 12b	165	Feb 20 1977
ANNUAL SEVEN-DAY MINIMUM	269	Oct 10	269	Oct 10	210	Oct 9 1980
MAXIMUM PEAK FLOW			30000	Apr 15	109000	Jul 12 1993
MAXIMUM PEAK STAGE			12.84	Apr 15	24.16	Jul 12 1993
ANNUAL RUNOFF (AC-FT)	1446000		6278000		5562000	
ANNUAL RUNOFF (CFSM)	.16		.69		.62	
ANNUAL RUNOFF (INCHES)	2.17		9.44		8.36	
10 PERCENT EXCEEDS	5830		23600		19400	
50 PERCENT EXCEEDS	864		2430		3940	
90 PERCENT EXCEEDS	365		374		550	

a Post regulation.
b Also Oct. 15.
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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	10	16	e10	e20	e350	351	131	4440	91	14	3.8
2	3.6	74	15	e9.6	e15	e200	272	115	1470	75	12	3.7
3	3.6	48	10	e11	e12	e360	222	116	732	69	121	3.6
4	8.9	19	13	e13	e11	e830	205	888	610	69	635	3.4
5	22	14	10	e15	e11	e670	187	487	2370	66	136	3.4
6	11	16	9.9	e16	e12	e370	214	361	3020	55	59	3.7
7	10	93	11	e15	e14	436	211	262	847	48	37	5.0
8	7.9	74	12	e12	e120	357	164	169	445	43	26	65
9	5.0	43	12	e10	e400	270	594	128	287	40	19	63
10	4.4	26	12	e8.7	e700	402	643	444	221	36	15	20
11	4.1	19	7.1	e9.0	e500	1020	1130	5400	183	32	11	7.6
12	4.0	15	e6.4	e9.9	e320	1470	1360	2320	155	30	8.8	5.0
13	4.1	13	e5.8	e12	e280	1500	491	741	134	28	7.8	4.1
14	4.1	12	e5.4	e14	e220	1030	314	1620	752	25	7.1	3.9
15	4.2	11	e8.0	e17	e210	3220	599	603	4460	25	7.2	3.7
16	4.0	11	e11	e60	e190	5770	541	336	765	24	8.3	4.4
17	3.8	10	e9.0	e56	e130	1250	280	1020	423	24	11	4.5
18	4.7	8.7	e8.4	e12	e78	883	218	603	397	25	15	6.1
19	4.2	8.8	e8.0	e11	e70	949	193	296	1310	31	8.8	6.1
20	4.3	6.8	e8.6	e10	e130	1680	179	213	1440	31	6.3	10
21	3.7	6.5	e7.8	e11	e100	1990	187	256	3460	26	5.5	1830
22	5.4	6.6	e6.8	e12	e160	1630	189	233	1410	26	5.4	404
23	7.9	6.1	e8.8	e13	e240	1230	326	163	467	22	5.1	157
24	10	6.0	e8.0	e12	e600	727	188	149	269	23	7.6	132
25	24	6.7	e7.4	e10	e4400	460	145	148	195	51	17	76
26	13	7.9	e8.4	e11	e2600	303	127	183	165	54	31	50
27	8.7	9.5	e8.0	e10	e1200	268	116	199	153	28	25	39
28	5.5	9.3	e8.6	e11	e500	251	104	159	133	22	10	32
29	4.7	12	e10	e15	---	259	93	138	115	e20	6.5	27
30	6.2	14	e12	e32	---	254	86	253	103	e18	5.5	24
31	6.8	---	e11	e34	---	268	---	2990	---	17	4.6	---
TOTAL	218.0	616.9	295.4	502.2	13243	30657	9929	21124	30931	1174	1288.5	3001.0
MEAN	7.03	20.6	9.53	16.2	473	989	331	681	1031	37.9	41.6	100
MAX	24	93	16	60	4400	5770	1360	5400	4460	91	635	1830
MIN	3.6	6.0	5.4	8.7	11	200	86	115	103	17	4.6	3.4
AC-FT	432	1220	586	996	26270	60810	19690	41900	61350	2330	2560	5950
CFSM	.02	.05	.03	.04	1.26	2.64	.88	1.82	2.76	.10	.11	.27
IN.	.02	.06	.03	.05	1.32	3.05	.99	2.10	3.08	.12	.13	.30

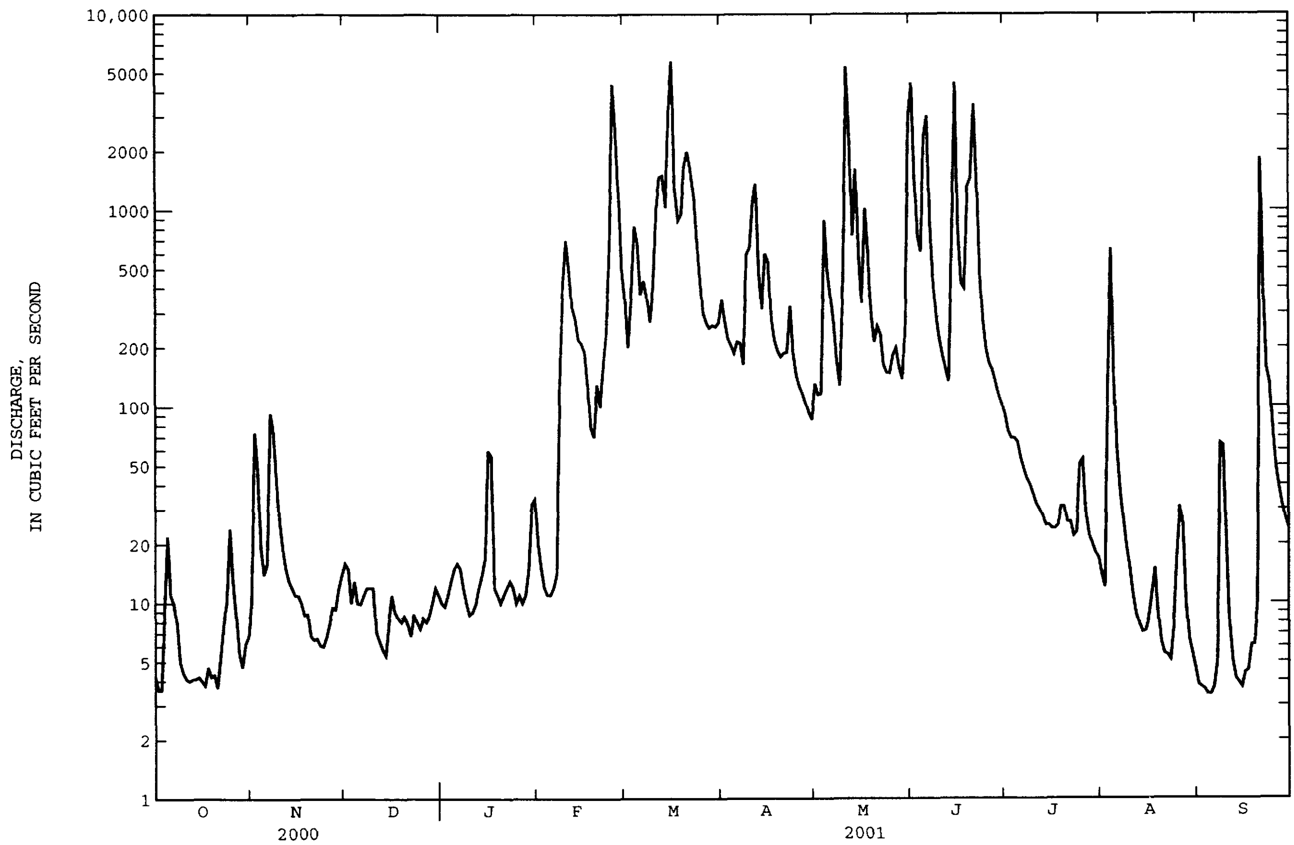
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	109	129	89.9	85.8	232	417	419	422	319	281	107	152
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1948 - 2001	
ANNUAL TOTAL	30306.5		112980.0			
ANNUAL MEAN	82.8		310		230	
HIGHEST ANNUAL MEAN					768	1993
LOWEST ANNUAL MEAN					29.4	1989
HIGHEST DAILY MEAN	5760	Jun 26	5770	Mar 16	42000	Jul 3 1982
LOWEST DAILY MEAN	3.0	Jan 28	3.4	Sep 4a	.00	Sep 6 1955b
ANNUAL SEVEN-DAY MINIMUM	3.3	Jan 28	3.7	Aug 31	.00	Sep 6 1955
MAXIMUM PEAK FLOW			6770	May 11	96000	Jul 3 1982
MAXIMUM PEAK STAGE			19.84	May 11	34.61	Jul 3 1982
INSTANTANEOUS LOW FLOW			3.2	Oct 3c		
ANNUAL RUNOFF (AC-FT)	60110		224100		166600	
ANNUAL RUNOFF (CFSM)	.22		.83		.61	
ANNUAL RUNOFF (INCHES)	3.01		11.24		8.36	
10 PERCENT EXCEEDS	96		791		413	
50 PERCENT EXCEEDS	13		31		37	
90 PERCENT EXCEEDS	4.2		5.5		2.6	

a Also Sept. 5.
b Also Sept. 7-20, 1955, Oct. 11, 12, 1956, Aug. 12, 13, 1989.
c Also Sept. 5, 6.
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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	300	256	2430	e660	e770	5930	26700	6890	26400	23800	10700	1670
2	295	504	2410	e660	e880	e4800	25600	6940	22100	23700	5840	1500
3	291	235	2420	e660	1000	e4400	23300	6900	23100	23700	5880	1190
4	276	618	1800	e650	1550	e3900	22600	7840	24400	23600	7290	1050
5	448	239	1390	e600	905	e3800	22400	16900	23500	23500	5510	1490
6	279	428	1130	e570	1400	e4200	22400	18700	24800	23600	4460	1290
7	384	545	1200	e570	995	e4600	22300	18400	23400	23500	5260	1040
8	233	543	1330	e580	e1300	e4600	21700	18100	24100	23400	5030	1180
9	241	631	1940	e580	e2800	e4400	21900	18000	24200	23100	5140	3790
10	439	416	3080	e580	e3700	e3500	22400	18800	24000	20400	3380	5240
11	259	219	2470	e580	e3000	e4200	25800	27600	23800	19900	3090	3840
12	259	461	e1800	e580	e1400	6520	26900	17800	23900	19900	3210	2050
13	220	273	e1500	e580	e1500	11300	27200	20000	23800	19700	2970	1910
14	203	368	e1300	e690	e1500	16000	29000	22400	25600	19700	2280	1820
15	454	208	e1100	e920	e1600	30700	29800	19300	30000	19600	1480	1280
16	217	230	e940	e1000	e1600	25100	29800	22800	23900	19500	1510	864
17	217	501	e1000	e1100	e1700	23500	29000	26300	24100	19600	1840	1090
18	221	354	e1000	e1100	e1500	27700	20100	23600	24100	19700	2730	1170
19	408	202	e1000	e1200	e1300	28400	9330	23800	25000	19600	2530	1830
20	199	393	e990	e1200	e840	28400	6980	22300	24900	19600	2240	2020
21	439	291	e980	e1100	e800	30500	7090	21600	28100	19500	2230	2570
22	188	544	e970	e1000	e790	31400	7110	23600	24800	19200	1850	3950
23	473	464	e970	e780	e800	29200	7260	23900	24200	17800	1410	1140
24	349	417	e960	e700	e1800	28200	7090	23900	23600	17600	1640	454
25	253	581	e970	e700	e5400	29200	7010	23900	23400	17800	1960	257
26	365	251	e860	e690	e7900	29200	6820	24100	23800	18800	2200	938
27	301	702	e600	e700	e10000	29200	6850	24100	23700	19200	2280	994
28	482	755	e530	e690	11200	29300	6920	24000	23600	19200	2150	970
29	220	900	e560	e700	---	29300	6850	23900	23500	18800	2230	1030
30	224	1800	e640	e720	---	29100	6760	23900	23900	15400	1960	954
31	379	---	e660	e720	---	29000	---	29400	---	11500	1360	---
TOTAL	9516	14329	40930	23560	69930	569550	534970	629670	731700	623900	103640	50571
MEAN	307	478	1320	760	2498	18370	17830	20310	24390	20130	3343	1686
MAX	482	1800	3080	1200	11200	31400	29800	29400	30000	23800	10700	5240
MIN	188	202	530	570	770	3500	6760	6890	22100	11500	1360	257
AC-FT	18870	28420	81180	46730	138700	1130000	1061000	1249000	1451000	1238000	205600	100300
CFSM	.02	.04	.10	.06	.19	1.37	1.33	1.52	1.82	1.50	.25	.13
IN.	.03	.04	.11	.07	.19	1.58	1.49	1.75	2.04	1.74	.29	.14

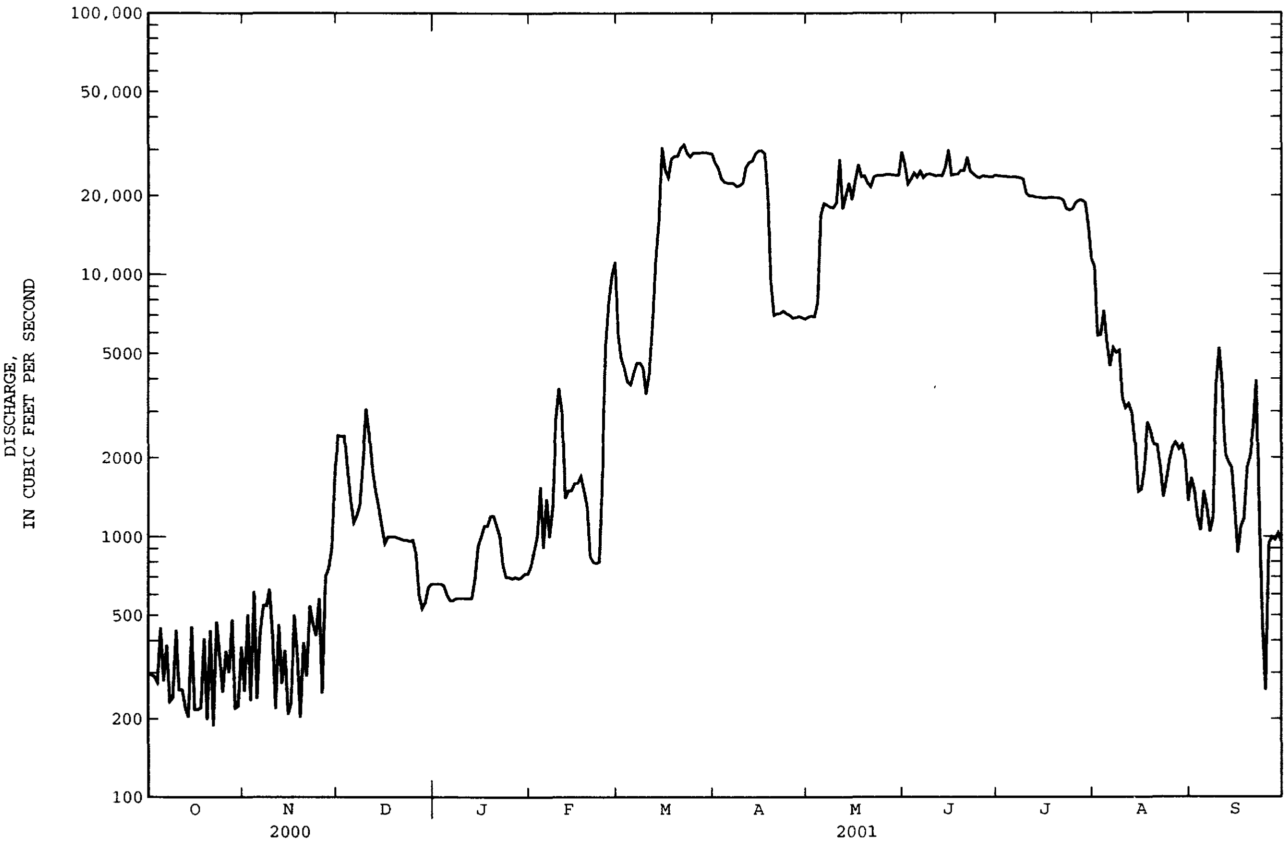
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3917	4917	4247	2870	4816	10230	12940	13060	14220	14790	8303	4597
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	307	327	381	290	328	891	962	519	282	238	610	366
(WY)	2001	1977	1977	1977	1977	1977	1977	1977	1977	1977	1988	1976

05489500 DES MOINES RIVER AT OTTUMWA, IA--Continued

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1970 - 2001a	
ANNUAL TOTAL	803196		3402266			
ANNUAL MEAN	2195		9321		8258	
HIGHEST ANNUAL MEAN					26350	1993
LOWEST ANNUAL MEAN					1120	1977
HIGHEST DAILY MEAN	33400	Jun 24	31400	Mar 22	110000	Jul 12 1993
LOWEST DAILY MEAN	188	Oct 22	188	Oct 22	26	Oct 25 1990b
ANNUAL SEVEN-DAY MINIMUM	256	Oct 12	256	Oct 12	182	Jul 7 1977
MAXIMUM PEAK FLOW			35800	Mar 15c	112000	Jul 12 1993
MAXIMUM PEAK STAGE			11.44	May 31	22.15	Jul 12 1993
ANNUAL RUNOFF (AC-FT)	1593000		6748000		5982000	
ANNUAL RUNOFF (CFSM)	.16		.70		.62	
ANNUAL RUNOFF (INCHES)	2.23		9.46		8.39	
10 PERCENT EXCEEDS	6470		24600		20800	
50 PERCENT EXCEEDS	788		2430		4450	
90 PERCENT EXCEEDS	301		382		639	

a Post regulation.
b Gates at dam in Ottumwa closed.
c Also May 31.
e Estimated.



05490500 DES MOINES RIVER AT KEOSAUQUA, IA

LOCATION.--Lat 40°43'40", long 91°57'34", in SE $1/4$ SW $1/4$ 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. 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	435	423	2350	e720	e820	9300	26800	6930	38400	23500	11200	1540
2	426	474	2810	e730	e930	e5500	24800	7060	24900	23300	10000	1850
3	429	523	2800	e720	e1200	e4800	23100	7050	23000	23300	10200	1690
4	552	543	2780	e730	e1000	e4400	21500	7510	25700	23300	11700	1360
5	560	632	1860	e680	e1200	e4200	21100	11800	25800	23100	7940	1210
6	666	571	1740	e640	e1100	e4200	21300	17500	29900	23100	5600	1670
7	510	611	1510	e610	e1500	e4600	21200	17900	25200	23100	5160	1480
8	532	740	1480	e630	e2200	e4900	20700	17100	23700	23100	5480	1250
9	434	792	1510	e630	e3900	e4800	20500	16800	24000	23000	5920	1560
10	361	960	2760	e630	e4500	e4400	21400	17100	23600	21400	5180	4890
11	441	871	2540	e630	e3700	e4000	23200	30400	23400	19200	3560	5540
12	512	440	1630	e630	e2200	6700	26500	23200	23200	19300	3460	3790
13	379	551	e1400	e630	e1700	10300	26300	17400	23200	19200	3590	2160
14	373	473	e1200	e660	e1800	13700	27600	32700	25300	19200	3210	2090
15	334	438	e1100	e900	e1800	33700	29800	20600	35900	19100	2560	2080
16	397	515	e1000	e1100	e1800	41400	30000	20600	26800	18900	1830	1520
17	520	318	e1100	e1200	e1900	25000	29100	26000	24200	18900	1700	1190
18	336	647	e1100	e1200	e1700	27400	23700	26800	24200	19200	2290	1370
19	331	856	e1100	e1300	e1400	29900	13900	23400	24300	19400	3030	1750
20	370	779	e1100	e1300	e990	30300	7590	22500	25600	19100	2640	2160
21	524	301	e1100	e1300	e870	31200	7240	21700	31000	19000	2450	3420
22	452	516	e1100	e1100	e840	32300	7470	22200	27800	18800	2520	5010
23	470	494	e1100	e900	e840	30900	8230	23400	24600	18000	2310	3490
24	535	867	e1000	e800	e2000	28200	7950	23300	23700	17200	1730	1630
25	586	666	e1000	e750	e6000	28600	7360	23300	23300	18000	1910	903
26	521	880	e980	e740	e10000	28800	7180	23600	23400	17700	2380	482
27	420	608	e680	e750	16300	28600	7100	23700	23400	18600	2650	977
28	508	653	e600	e740	11900	28500	7050	23600	23300	18500	2500	1280
29	622	1190	e560	e770	---	28400	7080	23400	23200	18600	2370	1220
30	467	955	e620	e770	---	28300	6950	23400	23400	16700	2530	1290
31	355	---	e710	e780	---	28100	---	32200	---	13700	2150	---
TOTAL	14358	19287	44320	25670	86090	595400	533700	634150	767400	616500	131750	61852
MEAN	463	643	1430	828	3075	19210	17790	20460	25580	19890	4250	2062
MAX	666	1190	2810	1300	16300	41400	30000	32700	38400	23500	11700	5540
MIN	331	301	560	610	820	4000	6950	6930	23000	13700	1700	482
AC-FT	28480	38260	87910	50920	170800	1181000	1059000	1258000	1522000	1223000	261300	122700
CFSM	.03	.05	.10	.06	.22	1.37	1.27	1.46	1.82	1.42	.30	.15
IN.	.04	.05	.12	.07	.23	1.58	1.41	1.68	2.03	1.63	.35	.16

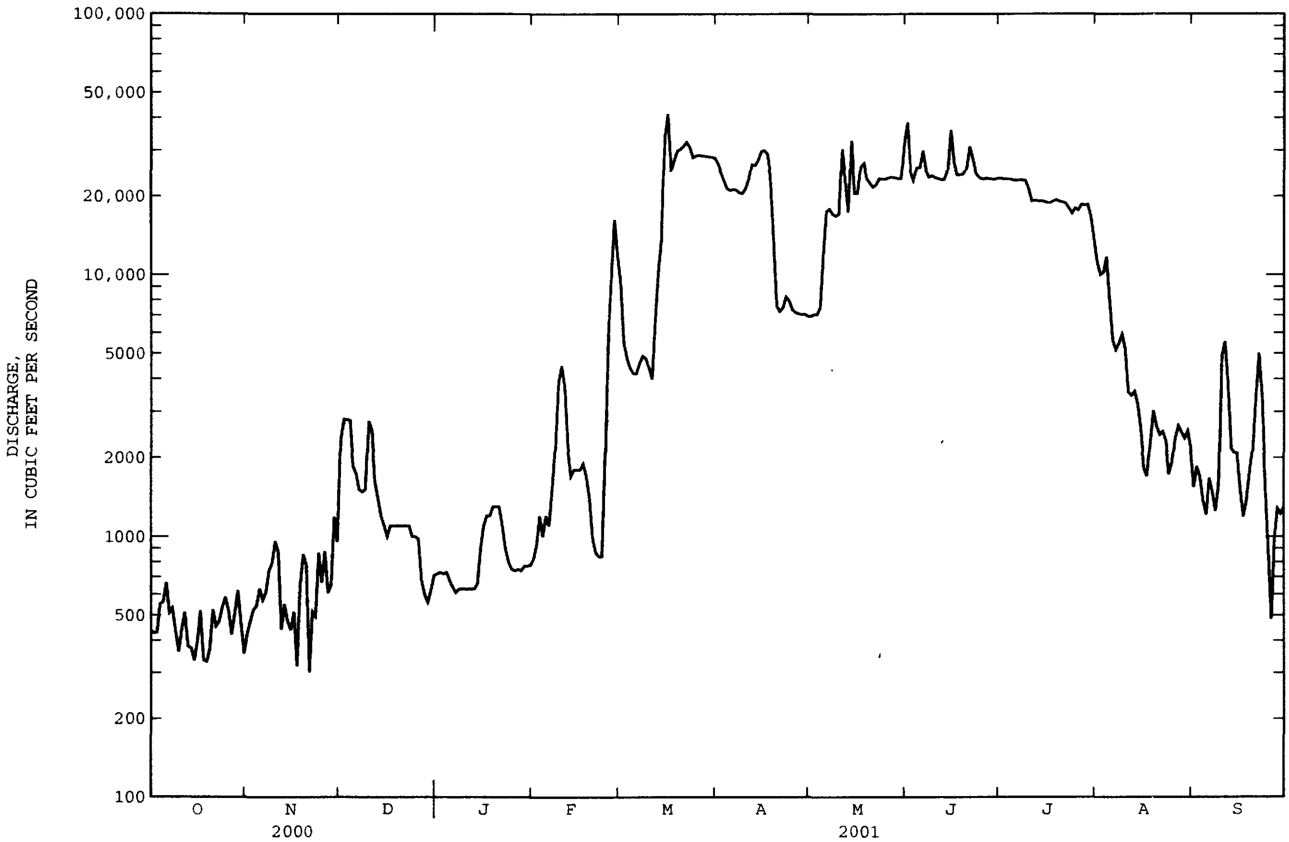
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4129	5068	4462	3037	5128	10710	13570	13840	14580	15290	8552	4986
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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1970 - 2001a	
ANNUAL TOTAL	930114		3530477			
ANNUAL MEAN	2541		9673		8629	
HIGHEST ANNUAL MEAN					26920	1993
LOWEST ANNUAL MEAN					1303	1977
HIGHEST DAILY MEAN	37600	Jun 24	41400	Mar 16	108000	Jul 13 1993
LOWEST DAILY MEAN	301	Nov 21	301	Nov 21	115	Oct 27 1990
ANNUAL SEVEN-DAY MINIMUM	380	Oct 14	380	Oct 14	204	Jul 3 1977
MAXIMUM PEAK FLOW			51600	Mar 15	111000	Jul 12 1993
MAXIMUM PEAK STAGE			23.51	Mar 15	32.66	Jul 13 1993
ANNUAL RUNOFF (AC-FT)	1845000		7003000		6251000	
ANNUAL RUNOFF (CFSM)	.18		.69		.61	
ANNUAL RUNOFF (INCHES)	2.46		9.36		8.35	
10 PERCENT EXCEEDS	7640		25600		21600	
50 PERCENT EXCEEDS	973		2800		4770	
90 PERCENT EXCEEDS	474		529		694	

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

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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	27	e4.8	e2.4	e22	154	42	17	631	3.5	e1.3	2.2
2	1.9	27	e3.8	e2.6	e18	84	28	16	320	3.4	e1.2	1.9
3	2.0	26	e2.6	e2.8	e28	149	25	14	118	2.9	78	1.8
4	19	28	e2.0	e3.0	e40	126	23	88	808	3.2	36	1.6
5	15	27	e2.4	e3.4	e58	55	21	48	922	2.5	11	1.5
6	22	30	e3.0	e3.6	e86	50	26	125	929	2.4	5.4	1.7
7	19	76	e2.8	e3.2	e120	28	28	232	175	2.4	e3.4	1.8
8	11	39	e2.6	e2.8	e200	25	20	68	67	2.2	e2.8	2.4
9	9.5	27	e2.6	e2.4	e300	24	32	40	37	2.0	2.0	2.2
10	11	29	e2.4	e3.2	e140	23	47	78	25	2.5	2.6	2.3
11	12	26	e2.2	e4.0	e84	99	98	932	20	2.1	2.7	2.6
12	12	21	e2.0	e5.4	e68	272	206	146	16	2.6	1.9	2.7
13	13	20	e2.4	e7.0	e80	142	56	424	13	3.6	1.6	3.4
14	10	20	e2.6	e9.0	e60	69	40	467	725	5.0	1.4	3.2
15	13	17	e2.8	e12	e44	2650	338	108	1030	5.5	2.3	3.3
16	13	16	e2.4	e16	e30	744	101	52	74	5.4	7.8	4.3
17	14	14	e2.2	e12	e22	292	46	266	101	7.7	2.7	e7.8
18	15	13	e2.0	e10	e26	228	33	139	41	2.8	1.8	e13
19	16	13	e1.8	e8.0	e34	352	28	53	19	2.7	1.5	e18
20	16	11	e1.6	e7.0	e28	546	28	35	19	2.2	1.4	240
21	17	e10	e1.8	e9.0	e34	e380	29	35	1350	2.3	1.5	e645
22	18	e9.0	e2.0	e12	e32	280	25	28	153	2.3	5.9	e80
23	22	e7.8	e1.8	e14	e56	169	91	23	45	2.5	26	e43
24	24	e7.0	e2.0	e12	1370	89	43	21	20	3.4	6.1	e28
25	27	e9.2	e2.2	e10	710	58	31	23	13	206	31	9.5
26	27	e8.6	e2.4	e9.0	178	46	26	28	9.5	15	18	5.8
27	27	e7.8	e2.6	e8.6	125	45	22	29	7.2	5.9	e9.5	4.4
28	27	e7.0	e2.8	e12	151	45	20	25	6.0	3.9	4.2	3.3
29	27	e6.0	e3.0	e20	---	45	18	24	5.6	2.2	2.4	2.6
30	27	e5.4	e2.8	e34	---	33	16	445	4.7	1.6	2.5	2.4
31	27	---	e2.6	e28	---	33	---	2260	---	e1.4	2.2	---
TOTAL	516.4	584.8	77.0	288.4	4144	7335	1587	6289	7704.0	313.1	278.1	1141.7
MEAN	16.7	19.5	2.48	9.30	148	237	52.9	203	257	10.1	8.97	38.1
MAX	27	76	4.8	34	1370	2650	338	2260	1350	206	78	645
MIN	1.9	5.4	1.6	2.4	18	23	16	14	4.7	1.4	1.2	1.5
AC-FT	1020	1160	153	572	8220	14550	3150	12470	15280	621	552	2260
CFSM	.19	.22	.03	.11	1.69	2.70	.60	2.31	2.93	.12	.10	.43
IN.	.22	.25	.03	.12	1.76	3.11	.67	2.67	3.27	.13	.12	.48

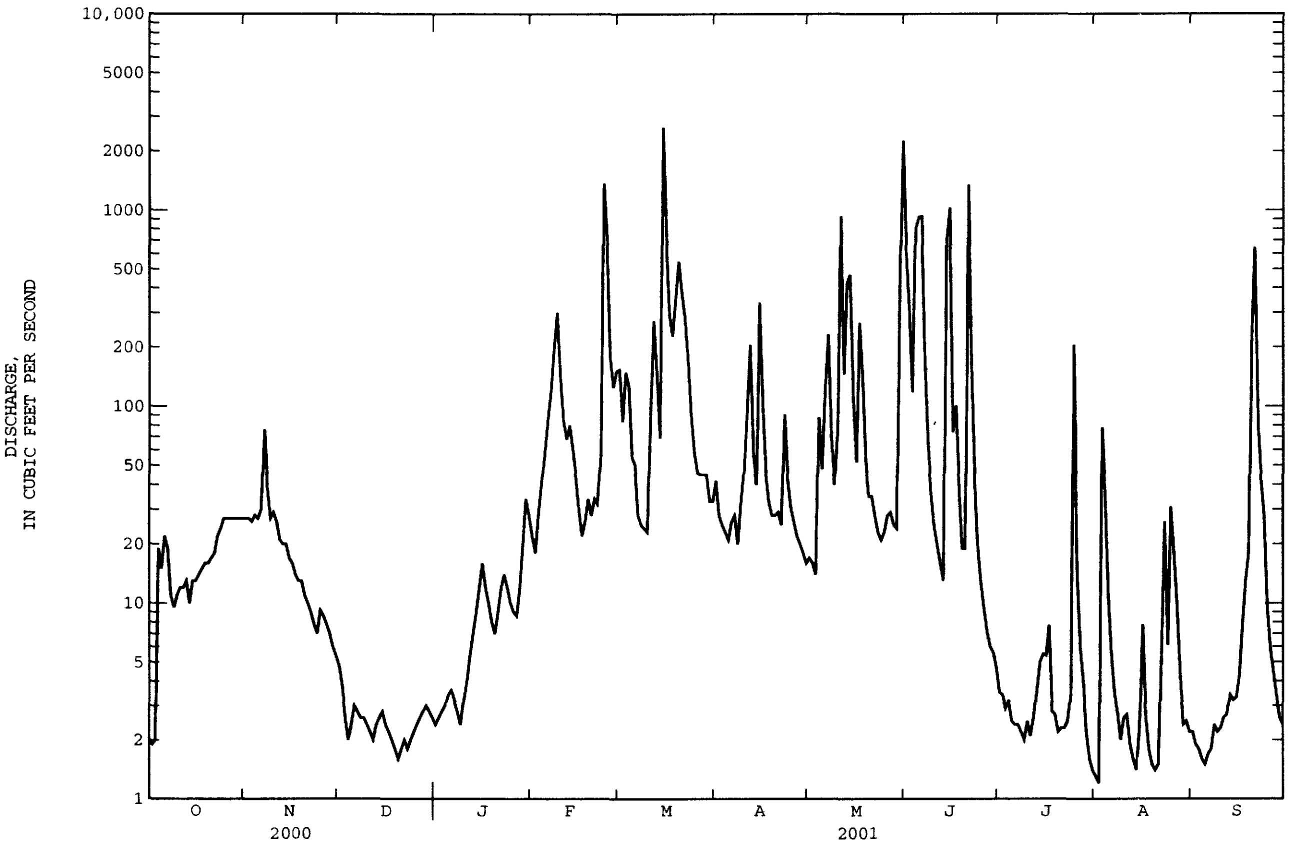
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	34.3	25.2	21.5	30.8	62.0	108	102	80.7	45.4	26.8	31.4	42.0
MAX	178	222	115	127	158	291	370	325	257	163	254	377
(WY)	1960	1962	1971	1973	1959	1960	1973	1973	2001	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 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1958 - 2001	
ANNUAL TOTAL	4430.12		30258.5			
ANNUAL MEAN	12.1		82.9		51.3	
HIGHEST ANNUAL MEAN					117	1973
LOWEST ANNUAL MEAN					8.40	1964
HIGHEST DAILY MEAN	474	Jun 26	2650	Mar 15	4370	May 6 1960
LOWEST DAILY MEAN	.18	May 25	1.2	Aug 2	.00	Oct 1 1957
ANNUAL SEVEN-DAY MINIMUM	.24	May 19	1.8	Sep 1	.00	Oct 1 1957
MAXIMUM PEAK FLOW			3830	Mar 15	8600	May 6 1960
MAXIMUM PEAK STAGE			16.54	Feb 9	24.02	May 6 1960
INSTANTANEOUS LOW FLOW					.00	Oct 1 1957
ANNUAL RUNOFF (AC-FT)	8790		60020		37150	
ANNUAL RUNOFF (CFSM)	.14		.95		.58	
ANNUAL RUNOFF (INCHES)	1.88		12.83		7.94	
10 PERCENT EXCEEDS	26		160		79	
50 PERCENT EXCEEDS	2.2		17		5.0	
90 PERCENT EXCEEDS	.70		2.2		.49	

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 2001 maximum: Date	Gage height (ft)	Discharge (ft^3/s)	Period of record maximum: Date	Gage height (ft)	Discharge (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-	05-11-01	19.30	2,690	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-	06-15-01	9.13	1,020	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-	2001	(+)	(+)	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-	05-03-01 Revised Record: 05-17-99	9.86 ^{d}19.9	^{d}200 ^{d}3,100	05-17-99	^{d}19.9	^{d}3,100
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-	2001	(a)	<1,160	07-08-51	15.78	7,220
Middle Fork Little Maquoketa River near 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-	04-12-01	13.96	1,380	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-	04-12-01	6.45	700	08-02-72	14.02	7,180
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-	08-02-01	11.83	^{d}260	07-31-57	^{c}7.98	^{d}1,650

Station name and number	Location and drainage area	Period of record	Water year 2001 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
	LITTLE MAQUOKETA RIVER BASIN--continued							
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-	2001 Revised 1994 06-17-96 09-22-00	(a) Record: (a) 16.05 12.31	[d]<45 [d]<45 [d]370 [d]98	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-	08-03-01	17.58	[d]320	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-	2001 Revised 04-13-91 07-11-93 05-17-99	(a) Record: 13.41 [d]13.3 [d]13.1	[d]<170 [d]1,500 [d]1,450 [d]1,380	07-11-93 04-13-91	[d]13.3 13.41	[d]1,450 [d]1,500
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-	2001	(+)	(+)	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-	04-12-01	4.08	150	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-	05-03-01	87.48	1,480	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-	05-02-01	87.38	500	05-17-99	91.02	(+)
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-	04-09-01	3.24	[d]15	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-	2001	(a)	(+)	07-17-68	7.26	570

			Water year 2001 maximum			Period of record maximum		
Station name and number	Location and drainage area	Period of record	Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
	WAPSIPINICON RIVER BASIN--continued							
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-	02-26-01	89.22	1,420	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-	05-03-01	81.49	110	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-	04-11-01	8.12	(+)	04-11-01	8.12	(+)
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-	03-22-01	96.71	[d]82	05-10-95	100.14	[d]510
			Revised	Record:				
			06-04-91	97.88	[d]210			
			07-16-92	96.30	[d]64			
			08-17-93	99.78	[d]490			
			05-10-95	100.14	[d]510			
			06-17-96	99.98	[d]500			
			02-19-97	[b]97.22	[d]270			
			06-15-98	98.08	[d]270			
			06-10-99	97.12	[d]150			
			07-10-00	93.83	[d]16			
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-	06-15-01	74.14	995	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-	03-12-01	87.47	4,210	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-	02-25-01	11.94	(+)	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-	03-16-01	46.10	[d]66	06-17-90	48.76	[d]291
			Revised	Record:				
			06-17-90	48.76	[d]290			
			03-02-91	44.82	[d]6			
			07-25-92	46.94	[d]130			
			07-23-93	48.47	[d]260			
			02-18-94	45.53	[d]30			
			04-11-95	45.61	[d]34			
			05-10-96	46.24	[d]76			
			08-28-98	45.13	[d]12			
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-	05-11-01	21.07	1,290	07-20-78	28.18	4,640
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-	2001	(a)	<1,940	06-15-82	87.43	7,460

Station name and number	Location and drainage area	Period of record	Water year 2001 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							
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-	03-16-01	77.51	1,170	05-14-70	[c]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-	06-15-01	88.03	1,440	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-	04-12-01	84.38	3,330	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-	04-12-01	99.49	(+)	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-	04-11-01	87.66	1,450	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-	04-11-01	90.75	789	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-	04-12-01	41.07	(+)	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-	2001	(a)	(+)	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-	06-15-01	(+)	(+)	08-16-93	16.12	[d]540
			Revised	Record:				
			06-17-90	14.01	[d]300			
			04-29-91	15.69	[d]410			
			07-07-92	14.11	[d]130			
			06-06-96	13.04	[d]150			
			08-28-98	15.73	[d]390			
			07-27-00	14.75	[d]380			
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-	03-16-01	86.62	1,910	05-10-96	93.40	(+)
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-	05-14-01	13.62	(+)	06-16-90	15.18	(+)

Station name and number	Location and drainage area	Period of record	Water year 2001 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
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-	05-21-01	89.66	1,910	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-	03-22-01	(+)	(+)	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-	2001	(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-	06-13-01	14.79	[d]120	06-17-90	17.39	[d]360
			Revised	Record:				
			06-17-90	17.39	[d]360			
			07-09-93	17.23	[d]310			
			02-25-96	13.89	[d]130			
			06-29-97	13.83	[d]120			
			06-15-98	17.42	[d]360			
			05-12-99	[e]13.55	[d]20			
			2000	(a)	[d]<35			
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-	05-10-01	88.45	2,120	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-	03-16-01	17.08	[d]120	03-16-01	17.08	[d]120
			Revised	Record:				
			03-03-91	13.08	[d]8			
			04-23-99	14.57	[d]40			
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-	05-03-01	92.83	(+)	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-	05-28-01	91.37	567	06-29-95	92.91	[d]1,700
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-	05-05-01	97.62	[d]260	06-04-91	99.25	[d]544
			Revised	Record:				
			06-17-90	97.50	[d]242			
			06-04-91	99.25	[d]544			
			1992	(a)	[d]<38			
			07-11-93	98.12	[d]343			
			02-18-94	97.26	[d]206			
			08-01-95	96.23	[d]48			
			06-17-96	96.86	[d]141			
			03-14-97	97.84	[d]269			
			06-28-98	97.02	[d]173			
			06-09-99	97.69	[d]272			
			2000	(a)	[d]<32			

Station name and number	Location and drainage area	Period of record	Water year 2001 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
	DES MOINES RIVER BASIN--continued							
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-	05-05-01	86.96	972	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-	2001	(a)	[d]<29	06-17-90	95.19	[d]239
			Revised	Record:				
			06-17-90	95.19	[d]239			
			05-16-91	90.89	[d]41			
			03-06-92	90.07	[d]17			
			06-19-93	92.95	[d]123			
			1994	(a)	[d]<30			
			1995	90.75	[d]36			
			06-17-96	94.59	[d]206			
			02-19-97	[b]92.59				
			06-15-98	92.66	[d]109			
			06-10-99	91.16	[d]50			
			05-18-00	91.16	[d]50			
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-	2001	(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-	05-04-01	11.17	1,150	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-	06-14-01	74.39	2,820	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-	06-14-01	23.09	636	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-	02-25-01	94.30	[d]80	05-24-96	98.58	[d]447
			Revised	Record:				
			06-17-90	96.39	[d]230			
			04-18-91	93.87	[d]57			
			09-15-92	95.56	[d]163			
			07-05-93	96.14	[d]209			
			07-12-94	93.73	[d]50			
			1995	(a)	[d]<24			
			05-24-96	98.58	[d]447			
			1997	(a)	[d]<29			
			06-18-98	94.32	[d]81			
			05-16-99	93.66	[d]47			
			06-27-00	94.53	[d]93			
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-	06-05-01	(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-	05-10-01	16.92	[d]11	08-19-93	18.93	[d]56.2

Station name and number	Location and drainage area	Period of record	Water year 2001 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	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-	05-14-01	82.58	3,340	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-	05-15-01	88.57	2,430	09-21-65	92.80	4,000

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	4.047×10^{3}	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi^2)	2.590×10^{0}	square kilometer
	Volume	
gallon (gal)	3.785×10^{0}	liter
	3.785×10^{0}	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^{3}	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft^3)	2.832×10^{1}	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft^3/s) d]	2.447×10^{3}	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^{3}	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
	Flow	
cubic foot per second (ft^3/s)	2.832×10^{1}	liter per second
	2.832×10^{1}	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^{1}	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
	Mass	
ton (short)	9.072×10^{-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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